

NIE Networks RP6 Business Plan 2017-2024

Response to the Utility Regulator's Draft Determination



19 May 2017

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CHAPTER 1

INTRODUCTION AND STRUCTURE OF RESPONSE

Introduction

Northern Ireland Electricity Networks Limited ("**NIE Networks**") is the owner of the electricity transmission and distribution networks and the operator of the distribution network in Northern Ireland ("**NI**").

This document sets out NIE Networks' response (the "**Response**") to the Utility Regulator's (the "**UR**") Draft Determination ("**DD**") in respect of NIE Networks' next price control which will run for the six and a half year period from 1 October 2017 to 31 March 2024 ("**RP6**").

NIE Networks submitted its RP6 Business Plan to the UR on 29 June 2016 (the "**RP6 Business Plan**"). The UR's final approach document published in December 2015 envisaged that the DD would be published on 21 November 2016 and that the consultation period would last 13 weeks, closing on 20 February 2017.

The UR subsequently revised the timetable and the publication of the DD was delayed by four months to 24 March 2017 and the consultation period shortened to eight weeks.

The UR is aiming to publish its Final Determination on 28 June 2017 taking into account responses received to the DD.

RP6 will take effect from 1 October 2017.

Structure of this document

This Response is subdivided into the following Chapters and should be read in conjunction with its supporting Annexes:

Chapter 2	Executive Summary
Chapter 3	Direct Capex
Chapter 4	Optional Investments and Stakeholder Engagement
Chapter 5	Indirects and IMFT
Chapter 6	Non-Network IT
Chapter 7	Market Operations
Chapter 8	Real Price Effects and Productivity
Chapter 9	Reliability incentive and Guaranteed Standards of Service
Chapter 10	Connections
Chapter 11	Pensions and Rates
Chapter 12	Financeability and WACC

CHAPTER 2

EXECUTIVE SUMMARY

Introduction

NIE Networks is the owner of the electricity transmission and distribution networks in NI and is the electricity distribution network operator, serving all 860,000 customers connected to the network.

NIE Networks is a regulated company and its business activities are overseen by the UR in NI.

The role of the UR is determined under legislation and its statutory principal objective in relation to electricity matters is:

“To protect the interests of electricity consumers in Northern Ireland, wherever appropriate by promoting effective competition between persons engaged in or in commercial activities connected with the generation, transmission or supply of electricity.”¹

In carrying out its functions, the UR should act in the manner best calculated to further the principal objective, having regard to (among other things):

- (i) The need to secure that all reasonable demands for electricity are met; and
- (ii) The need to secure that licence holders are able to finance the activities which are the subject of obligations imposed under applicable NI energy legislation.²

RP6 Business Plan development

NIE Networks submitted its business plan for RP6 to the UR on 29 June 2016. Extensive planning, analysis and consultation were carried out to ensure that the plan for RP6 delivers benefits for current customers and sets the foundations for the future. Maintaining and expanding the network to meet customers' needs, now and in the future, requires continuous assessment, innovation and investment.

In developing the plan NIE Networks considered a range of factors.

- ***Delivering the required services at least cost.*** Throughout the process of developing the plan NIE Networks has worked hard to ensure that the allowances it is seeking only include work which is strictly necessary to enable it to carry out its transmission and

¹ Article 12(1) Energy (Northern Ireland) Order 2003.

² Article 12 (2) Energy (Northern Ireland) Order 2003.

distribution functions to an appropriate standard and to provide a network which is fit for purpose for NIE Networks' customers.

- **Ensuring a safe and reliable network.** NIE Networks' aim is not only to protect customers in respect of the cost of using its networks but also in respect of the safety and reliability of supply. The availability of a reliable electricity supply is important to business as well as domestic customers and enables NI to compete effectively for inward investment.
- **Balancing the needs of current and future customers.** It is important to balance the interests of different generations of customers, not to defer works which ought properly to be undertaken now, invest responsibly in innovation for the potential benefit of future customers and to balance the interests of different groups of today's customer (for example, rural and urban customers).
- **UR guidance.** The UR published detailed guidance on the extensive information it requires from NIE Networks to enable it to assess NIE Networks' plans and set allowances for its activities. Following this guidance has been central to NIE Networks' approach to preparing its business plan.

NIE Networks has taken a detailed and transparent approach to preparing its RP6 Business Plan. This has included reviewing the condition of the electricity network, carrying out detailed engineering studies, analysing costs, undertaking benchmarking, reviewing industry best practice, and importantly, considering the long term strategic issues facing the electricity network. The most important strategic issues are: ensuring the network is fit for purpose as the electricity sector faces the challenge of climate change through decarbonisation and how to manage an ageing network over the years ahead.

The NIE Networks Board of Directors was fully engaged in the design, development and preparation of the business plan. It met regularly during the development of the plan to lead and provide strategic direction to management, and to scrutinise and inform NIE Networks' proposals. Directors supplemented formal board meetings with frequent meetings with the management team and subject matter experts. The final business plan was reviewed and approved by the Board for submission to the UR.

The UR's DD

The overall level of engagement with the UR since NIE Networks submitted its plan in June 2016 has been positive, and a significant improvement from RP5. The UR established a process to lodge new queries with NIE Networks on a weekly basis, with the expectation of a ten working day turnaround for response by the company. More than 300 individual queries were raised across the eight month duration following the submission of NIE Networks' RP6 Business Plan in June 2016.

Where the UR did not fully understand NIE Networks' submission, NIE Networks sought to clarify, provide further information and explanations, often by means of face to face workshops, so that the UR is in a position to make a balanced judgement on the appropriate allowance or approach.

The UR published its DD for RP6 on 24 March 2017.

Notwithstanding the good level of engagement leading up to the DD, there are significant unjustified shortfalls in the DD allowances compared to NIE Networks' RP6 Business Plan.

The scale of these shortfalls is such as to give cause for very significant concern on the part of NIE Networks' Board of Directors. Under the DD, NIE Networks would be compelled to expend more than the allowances the DD envisages for the same scope, with resultant unfair detriment to NIE Networks' financial position and credit rating and adverse impact on the financial position of the shareholder. The aim of the Response therefore is to explain where these shortfalls arise and the errors in the DD which have led to these shortfalls. NIE Networks also identify areas where further engagement is required to clarify the allowances and price control mechanisms that will apply.

NIE Networks hopes that it can work closely with the UR as it prepares the Final Determination so that these issues are addressed by way of a mutually acceptable outcome.

The UR's revised timetable for the RP6 price control provides for the UR to publish its Final Determination on 28 June 2017, less than six weeks after the deadline for receipt of comments on the DD. It is important that the UR gives full consideration to the very significant concerns raised in this response within the tight timescale prior to the publication of the Final Determination.

In Summary – NIE Networks' concerns with the DD

The DD follows the same basic building blocks used by Ofgem in setting Great Britain ("**GB**") electricity price controls, except for market operations, an activity that is not carried on by the GB Distribution Network Operators ("**DNOS**"). The core building blocks are:

- Direct capex
- Indirect Costs and Inspections, Maintenance, Faults & Tree Cutting ("**IMFT**")
- Non-Network IT
- Market Operations
- Real Price Effects ("**RPEs**") and productivity
- Pensions and Rates
- Financeability and WACC

There are significant shortfalls in the DD allowances compared to NIE Networks' RP6 Business Plan.

A high level summary of the key issues is provided in the remainder of this Executive Summary. The detail is provided in Chapters 3 to 12 below.

1. Direct capex (Chapter 3)

There has been significant engagement with the UR on direct capex. There is agreement on many aspects of the plan, including on the need for major transmission asset replacement and the majority of the distribution asset replacement. However, there are shortfalls in the allowances proposed by the UR in the DD. These are primarily in the unit costs allowed for the work. The UR's errors in its approach to unit costs allowances arise from its failure to give sufficient consideration, across a number of capex areas, to the nature and scope of the work and the latest available RP5 outturn information as well as its reliance on inappropriate data sources. Further, there are errors related to UR's approach to setting allowances related to Electricity Safety, Quality and Continuity (Northern Ireland) Regulations 2012. The aggregate value of these shortfalls is £21.1 million compared to NIE Networks' revised proposals put forward in this Response. There is also a shortfall of £2.5 million in respect of the proposed allowance for severe weather events. The detailed explanation of these shortfalls is within Chapter 3 below and accompanying Annex 3.1 which should be read together. In summary, NIE Networks considers that the UR has no proper basis for these disallowances.

NIE Networks also addresses a number of issues relating to the structure of the price control and other issues associated with the UR's approach to provisionally determining direct capex allowances. In particular, the UR has agreed in principle that investment is required to address the low carbon transition and innovation, which are new cost categories. Unfortunately, the allowances proposed by the UR are inadequate and will not allow NIE Networks to address the changing demands customers are placing on the network. In addition, the requirements and conditions attached to proposed innovation projects are unreasonable and there is an inadequate allowance and price control mechanism to cater for low carbon technology growth.

NIE Networks hopes that the remaining issues identified in this Response can be resolved so that it has fair and reasonable allowances to complete the programme of work required.

2. Optional Investments and Stakeholder Engagement (Chapter 4)

As part of the development of its RP6 Business Plan, NIE Networks sought to understand the views and opinions of its stakeholders regarding the type and level of service they expect, and the prioritisation of delivery of these services within reasonable funding limits. This included establishing the Consumer Engagement Advisory Panel

which comprised NIE Networks and representatives from the UR, the Consumer Council for Northern Ireland and the Department for the Economy.

Arising from the customer and stakeholder engagement exercise, a number of investment options were identified which would enhance the resilience of the network to severe weather and improve the quality of service for worst served customers. The options include:

- investment to strengthen the 11 kV overhead line network, costing £25.6 million;
- additional investment to increase flood defences, costing £2.6 million;
- accelerated tree cutting, costing £0.7 million; and
- investment to reduce the frequency and duration of unplanned power cuts with an emphasis on worst served customers, costing £16.5 million.

NIE Networks is disappointed that, in the DD, the UR has not considered these projects in any detail. In particular, NIE Networks' RP6 Business Plan highlighted the vulnerability of the 11 kV overhead line network to ice accretion when weather conditions are extreme. The impact of ice accretion events on homes and businesses can be significant. For example, the time required to restore supplies to all affected customers after such an event may be of the order of a week or longer depending on the area affected. The impact of widespread power cuts like these is often felt not just by domestic customers but also by businesses in the worst affected areas. This can have a knock-on effect on the local economy.

The most vulnerable parts of the network are the high ground areas in South Down, on the Antrim Plateau and in the Sperrin Mountains. NIE Networks' RP6 Business Plan proposed strengthening the network in these vulnerable areas over a 15 year period. Exclusion of this investment, as proposed in the DD, would not allow NIE Networks to improve the resilience of network in these rural areas. Appropriate investment would be required to address the reliability of the network to severe weather in advance of the introduction of any changes to the Guaranteed Standards of Service ("**GSS**") regime for severe weather.

In addition, the UR has failed to propose an adequate allowance to fund the enhanced programme of stakeholder engagement put forward by NIE Networks to seek to satisfy the UR's requirement that NIE Networks adopt a stakeholder engagement programme in line with GB DNOs. NIE Networks submits that such an allowance should be made during RP6 (or, alternatively, a lesser programme of stakeholder engagement should be agreed that can be funded from NIE Networks' existing allowances).

3. Indirects and IMFT (Chapter 5)

In preparing its RP6 Business Plan, NIE Networks commissioned economic advisors, NERA, to complete cost benchmarking studies using the approach adopted by Ofgem

for the most recent price control for GB DNOs. NERA also benchmarked NIE Networks using the models selected by the Competition Commission, now the Competition and Markets Authority ("**CMA**") for RP5. Those studies demonstrate that NIE Networks is among the most efficient DNOs in the UK.

In its DD, the UR has departed from the benchmarking approach adopted by Ofgem and uses bespoke benchmarking models to determine a 2% efficiency gap. There is no basis in principle for the UR to adopt this approach and the outcome for NIE Networks is irrational. The DD fails to give due consideration to NIE Networks' benchmarking submission. Specific errors in UR's modelling include:

- the incorrect inclusion of indirects costs for connections, incorrect treatment of wayleave payments and an inappropriate regional wage adjustment;
- a failure to account for any change in efficient Indirects and IMFT costs due to changes in the volume of required work, for reasons such as growth in NIE Networks' allowed capital programme, new regulations or the cost of meeting higher standards; and
- basing the RP6 allowances on forecast data for 2015/16 rather than actual data. NIE Networks proposes the baseline should be set by reference to the average of four years' historical data.

NIE Networks also seeks clarification regarding the treatment of indirect costs for D5 projects.

The aggregate value of the shortfall on Indirects and IMFT is £49.3 million.

The UR's analysis excludes the indirect costs associated with innovation projects which forms part of the shortfall in the direct capex allowance referred to above.

4. Non-network IT (Chapter 6 and Chapter 5, Section 5)

The DD proposes to disallow a number of IT projects set to deliver benefits during RP6 and future price controls. The projects which have been disallowed include:

- a robust IT system for Regulatory Instructions and Guidance ("RIGs") reporting, which would have clear benefits for customers to improve transparency and robustness of reporting;
- a condition-based risk management system which would be used to optimise asset investment decisions over the long term. This system has become the industry standard in GB for reporting health and criticality indices which the DD now requires from NIE Networks during RP6; and
- basic time recording systems that would help us to optimise the planning of staff to deliver an efficient service for customers.

In disallowing these projects in the DD, the UR is systematically and irrationally disadvantaging NIE Networks when compared to GB DNOs, the companies NIE Networks is benchmarked against. The UR should adopt a balanced approach and allow these projects in the Final Determination, enabling NIE Networks to deliver value for customers and providing a level playing field between NIE Networks and the GB DNOs. The aggregate value of the shortfalls in non-network IT capex is £8.9 million.

The UR also proposes to include non-network IT opex within the scope of aggregate benchmarking for Indirects and IMFT costs. In adopting this approach, the UR has effectively failed to provide a discrete ex-ante allowance for some cost line items that are not included in the benchmarking analysis.

As regards metering data and registration services costs, the UR has failed to take into account the insourcing of business process outsourcing staff from Capita during RP5 when assessing manpower levels for RP6. This results in a shortfall in the proposed allowances of £1.7 million. There is also an incorrect assumption that £1.7 million of IT savings will be achieved with the managed service re-procurement. The actual costs from the procurement process are now available and were provided to UR. NIE Networks expects that the UR will correct these errors in the Final Determination.

5. Market Operations (Chapter 7)

NIE Networks' market operations activities relate to meter installation and certification services, meter reading and the provision of metering data and registration services to support the operation of the retail and wholesale electricity markets. This includes operation and management of major IT systems that are central to enabling wholesale and retail market competition.

The allowances proposed in the DD are insufficient to finance these activities. The UR has failed to recognise relevant trends in historic costs and market developments and has disallowed new costs. In particular:

- as regards direct metering capex, the UR has failed to recognise that RP6 recertification unit costs are directly comparable with RP5 certification unit costs;
- in addition, the UR has failed to have regard to the challenges NIE Networks faces in satisfying the unique meter type demands of the NI market and the associated impact that this has on its costs; and
- as regards indirect metering costs, the UR's comparison of data is not on a 'like for like' basis and no allowance has been made for new costs including incremental meter reading due to annual customer growth, the requirement for meter inspectors and incremental IT costs associated with RP6 IT capex projects.

The UR also does not take into account the significant benefits that would accrue to customers as a result of NIE Networks' proposed enhanced revenue protection incentive. In addition, as noted above in Section 4, there is also a shortfall in the proposed IT allowances for metering data and registration services costs.

The aggregate value of the shortfall in market operations costs is £14.0 million (including £3.4 million in respect of metering data and registration services costs).

NIE Networks believes that there is no objective justification for these proposed cost reductions and requests that they are allowed in full to enable NIE Networks to recover the costs of operating this part of the business.

6. RPEs and Productivity (Chapter 8)

In relation to RPEs, contrary to the approach adopted by Ofgem, the UR fails to take proper account of evidence that specialist electrical engineering staff, an important element of NIE Networks' workforce, have experienced wage inflation markedly higher than the economy as a whole. This is driven by high demand for specialist labour combined with a shortage of supply.

At RP5 the CMA's decision not to make a distinction between specialist and general labour followed its concerns regarding the accuracy of the distinction between the two categories. The CMA did not question evidence submitted both by NIE Networks and the UR that certain specialist labour indices for the electrical engineering sector grow faster than average wages in the private sector as a whole.

Since the CMA's RP5 Final Determination, NIE Networks has undertaken a detailed review of its workforce, assessing person by person and role by role whether they meet the criteria necessary to belong to the specialised indices relevant to the electrical engineering segment of the labour market. Based on this detailed assessment, NIE Networks found that 77% of its workforce can be classified as "specialist". This evidence was submitted to the UR on 10 March 2017 and should be considered by the UR in the preparation of its Final Determination.

In addition to NIE Networks' own work since the RP5 determination, Ofgem has completed its own RIIO-ED1 review, and concluded it is appropriate to place a 77% weight on these specialised electrical engineering wage indices when setting labour RPEs.

Based on the above, the UR should review the economic case for a premium when setting an allowed RPE for electrical engineering labour at RP6, in light of new evidence that has come to light since the conclusion of the RP5 process. Essentially, there is now clear evidence that wages relevant to NIE Networks' workforce have been rising more quickly than the economy-wide average relied on by the UR.

The UR's analysis in respect of materials and plant and equipment RPEs is also unjustified and inconsistent with the approach adopted by Ofgem at RIIO-ED1. The aggregate value of this shortfall in relation to RPEs is circa.£30 million.

The DD proposes a productivity factor of 1% per annum whereas the evidence points to long term productivity trends of 0.7% per annum. These long term trends have been widely used by regulators when setting efficiency targets for utilities, including the CMA at RP5 and Ofgem at RIIO-GD1/T1.

NIE Networks considers that it would be able to deliver on a 0.7% productivity factor if the Final Determination provided a balanced and reasonable outcome on allowances for the efficiency-driving projects proposed in its RP6 business plan. That would mean a 5.6% productivity improvement by the end of RP6 (31 March 2024) compared to the 2015/16 base year. However, NIE Networks cannot deliver this very challenging productivity improvement absent investment in efficiency-driving projects (which the UR has provisionally disallowed).

7. Reliability Incentive and GSS (Chapter 9)

The UR has proposed an incentive / penalty regime for network performance that would reward the company with c.£2.6 million per annum (plus or minus 1.5% of annual revenue) if a stretching target was achieved in full. Achieving a portion of this incentive would be very challenging to achieve and would require investment by NIE Networks. The calibration of this incentive is important to ensure that it is symmetric. It is still under discussion with UR and our detailed comments are set out in Chapter 9.

The UR has recently proposed a convergence with GB GSS for customers. The timing of the UR's review is problematic and is out of step with the RP6 price control process. NIE Networks developed its business plan for RP6 with regard to the existing GSS regime. There was no mention in the UR's Final Overall Approach document to RP6 of a review of GSS and the potential impact it might have during the price control. Therefore, NIE Networks has not been given the opportunity, in preparing and submitting its business plan, to take account of this potential material change to the GSS regime.

The GSS in NI and GB are broadly the same except for the length of time allowed to restore supplies after a fault (during normal weather conditions and during severe weather conditions). Out of a total of 14 standards, 11 are the same.

In relation to the supply restoration standards, it is important to note that over the last two price control periods the GB DNOs have had funding available to them of around £1.1bn to invest in improving network performance. No such funding has been provided historically in NI. By way of comparison, on a per customer basis, the £1.1bn figure in GB would equate to around £32 million of funding in NI.

NIE Networks has proposed an improved restoration time for customers in the event of a fault under normal weather conditions. This will tighten the restoration time from 24 hours to 18 hours. NIE Networks will continue to work with the UR on the timing of the implementation of this improvement.

In the case of severe weather, NIE Networks does not consider it reasonable to impose a GB standard without allowing appropriate levels of additional investment on the network and without allowing a reasonable lead time in advance of the change to allow this investment to take place. Investment in the 11 kV network, which was included as an Optional Investment, is considered in Section 2 above.

8. Pensions and Rates (Chapter 11)

The proposed allowance in respect of pensions is in line with NIE Networks' RP6 submission and is therefore acceptable to NIE Networks. Further discussion is required with the UR to address the concerns identified by NIE Networks relating to the Pension Monitoring Framework within which the RP6 pension allowances may be reviewed in line with principles adopted by Ofgem.

As regards rates, the UR has advised that it has not completed its analysis of rates and will require further information before the Final Determination. NIE Networks' rates currently account for c.10% of NIE Networks costs and, based on current charges, could amount to over £120 million during RP6.

NIE Networks' view is that the appropriate regulatory treatment is that rates should be allowed as pass-through on the basis that the rates liability is uncontrollable, in line with the approach adopted by Ofgem. The CMA RP5 Determination stated that the Ofgem approach would not be suitable for NIE Networks because of the "*unique nature of NIE's rates revaluation process*". However, this is no longer the case. The basis for setting NIE Networks' rates has changed since the CMA's RP5 Determination. The Land and Property Services changed its approach in the 2015 valuation from one specified by the Department of Finance and Personnel to a "conventional" assessment based on forecast income and expenditure. This change in approach followed the GB DNOs and National Grid, the transmission network operator who moved to conventional assessment in 2005. Therefore, since the valuation approach is now the same in GB and NI, there is no reason therefore why the regulatory treatment should be different in NI.

Given the materiality of NIE Networks' rates liabilities, small percentage changes in the rates charges can make a very material difference and it is important that an appropriate regulatory mechanism is adopted. NIE Networks is not seeking to gain from a different treatment of this cost – NIE Networks is simply seeking to avoid an unjustified economic loss or gain.

9. Financeability (Chapter 12)

NIE Networks has serious concerns with the UR's approach to assessing financeability, because it is inadequate and is not fit for the purpose of assessing financeability.

NIE Networks proposes funding the RP6 plan through a combination of operating cash flows from revenue receipts, issue of new debt and retention of earnings as required. NIE Networks estimates that borrowings will increase to £950m by the end of RP6 and it will require £500m of new debt.

The UR is required under legislation to have regard to the need to secure that licence holders are able to finance their licence obligations and NIE Networks has a Licence Condition to maintain an investment grade rating which is a rating of BBB- or above (Fitch or Standard and Poor's).

GB and European regulatory precedent indicates that a strong investment grade credit rating of A- to BBB+ is appropriate for a high performing network operator. NIE Networks is currently rated BBB by Fitch and A- by Standard & Poor's on a standalone basis. Achievement of at least a standalone BBB+ credit rating with both Fitch and Standard & Poor's is important to:

- enable NIE Networks to compete effectively for new funding in the market;
- ensure NIE Networks has ongoing access to debt capital markets to efficiently finance infrastructure investment at interest rates that are competitive compared to those of its UK network peer companies; and
- create a buffer above the minimum investment grade rating to ensure that NIE Networks' access to finance is resilient from adverse macroeconomic and market shocks.

This is further supported by evidence from the current credit ratings of electricity network operators in the rest of the UK, the majority of which have comfortable investment grade credit ratings of A- to BBB+ or equivalent on a standalone basis.

The financeability test in the DD suggests that the UR is targeting a company credit rating of BBB+. We agree that a strong credit rating is very important to enable future efficient investment during RP6. However, the net result of UR's financeability assessment is that the proposed RP6 cash flows are inadequate to maintain the necessary credit metrics consistent with achieving a BBB+ credit rating from Fitch (who currently rate NIE Networks). For the credit rating metrics outlined in the UR's financeability test to be achieved, UR is making an unrealistic assumption that a significant equity injection would be required and no dividends could be paid during the RP6 period. In order to meet the financeability tests, the UR assumed a gearing level of 40% without proper justification. It has not considered the significantly higher gearing used by UK networks' regulators, nor NIE Networks' projected gearing level for RP6. The level of gearing assumed in the RIIO-ED1 price controls for GB DNOs was 65%,

which is consistent with the expected efficient capital structure of a regulated network infrastructure company.

NIE Networks views this outcome as entirely unreasonable and that the UR has objectively failed to secure that NIE Networks is able to finance its licence obligations.

10. Weighted Average Cost of Capital ("WACC") (Chapter 12)

NIE Networks' WACC proposal of 4.08% (real, vanilla) is the weighted average of the cost of debt and the cost of equity that debt investors and equity investors expect from NIE Networks based on returns earned by comparable entities with similar business and financial risk profiles. It is a key driver of the financeability and credit rating of NIE Networks.

In the DD, the UR proposes a WACC of 3.29% (real, vanilla) compared to NIE Networks proposal of 4.08% (real, vanilla), resulting in a revenue and earnings shortfall of circa £105 million over the RP6 period.

NIE Networks, supported by Frontier Economics, has identified a number of serious deficiencies in the UR's approach to setting WACC, including:

- factual errors in interpretation of regulatory precedent;
- the use of selective market evidence and lack of consistency with relevant regulatory precedent, most notably that of the CMA RP5 Final Determination; and
- cherry picking proposals made by NIE Networks.

In particular, the UR's assumptions in respect of the risk parameters (asset and debt betas) and gearing which feed into the cost of equity are not supported by the consistent application of regulatory precedent and the latest market evidence.

There appears to be a trend in the draft WACC determination that regulatory precedent or the latest market evidence is followed when that leads to a reduction in allowed WACC but ignored or side-lined when it has the opposite effect.

Conclusion

The overall package proposed by the UR in the DD would result in very significant and unjustifiable shortfalls in the RP6 allowances. Under the proposals set out in the DD, NIE Networks would be compelled to expend more than the DD envisages, with resultant unfair detriment to NIE Networks' financial position and credit rating and adverse impact on the financial position of the shareholder.

A theme NIE Networks has identified throughout the DD is that regulatory precedent or the latest market evidence is followed when that leads to a reduction in allowances but ignored or side-lined when it has the opposite effect. The net result of this approach is an imbalanced and irrational application of regulatory precedent and the latest market evidence which has a significant detrimental and unacceptable impact on NIE Networks' financial position.

Given that the UR intends to publish its Final Determination on 28 June 2017, NIE Networks would welcome further engagement with the UR so as to reach a balanced final outcome which protects the interests of electricity customers and secures that NIE Networks is able to competitively and efficiently finance its regulated activities.

CHAPTER 3

DIRECT CAPEX

1. INTRODUCTION

- 1.1 NIE Networks submitted its plans for direct network investment alongside its RP6 Business Plan on 29 June 2016 (the "**Network Investment Plan**"). This detailed Network Investment Plan included 62 Annexes and 28 Appendices which provided detailed supporting analysis and background information. NIE Networks' submission for RP6 totalled £446.5 million of direct investment plus an additional £45.4 million of Optional Investment. This excluded the potential cost of any transmission system development investments which may be required during the period as allowances for these project types will be set on a case by case basis by the UR during RP6.¹
- 1.2 Following submission of the Business Plan, the UR and NIE Networks engaged through a series of written queries and responses and face to face meetings on a range of aspects of the investment proposals. On 12 January 2017, the UR presented NIE Networks with its 'minded to' position on direct capex totalling £395.1 million – a significant gap of £51.4 million compared with NIE Networks' submission. At that time, the UR indicated that its assessment of expenditure requirements was incomplete and that there would be further adjustments to its views. The UR and NIE Networks have continued to engage on the plan since 12 January 2017. NIE Networks has provided responses on the Network Investment Plan to circa 150 queries issued by the UR and attended circa 15 meetings with the UR between the business plan submission and publication of the DD.
- 1.3 As a result of this period of engagement, in February 2017 NIE Networks revised its submission to £433.7 million – a reduction of £12.8 million.
- 1.4 On 24th March 2017, the UR issued its DD which provided for a proposed direct capex allowance totalling £404.8 million. This represents a gap of £28.9 million from NIE Networks' revised position. Of the £28.9 million variance, £6.6 million relates to volumes of work the UR does not consider is justified and £22.3 million is due to its assessment of unit costs for agreed work volumes.
- 1.5 NIE Networks has since reviewed the DD and has given the proposals contained therein serious consideration in terms of NIE Networks' ability to manage the risk on the network with the proposed allowances. In response to the DD, NIE Networks has proposed a further £7.8 million reduction from its February 2017 position to £425.9 million. This still represents a variance from the DD of £21.1 million. The position is summarised in Table 3.1 below.

¹ Referred to as the 'D5 Mechanism'

Table 3.1: Direct Capex Summary

Investment Category	NIE Networks Submission £ms	NIE Networks Revised Plan (Feb '17) £ms	UR DD £ms	NIE Networks Revised Plan (post DD) £ms
Distribution Capex				
Asset Replacement	209.7	204.0	185.7	197.7
Load related / LCT/ Innovation	57.7	57.7	52.9	57.7
ESQCR	70.3	64.6	60.6	64.1
	337.7	326.3	299.2	319.6
Transmission Capex				
Asset Replacement	61.5	60.0	46.5	47.2
Other	1.2	1.2	1.2	1.2
	62.7	61.2	47.7	48.4
Other				
BPS Sw'Bd (D5)	16.00	16.00	16.00	16.00
CPS-MAG OHL (D5)	25.75	25.75	25.75	25.75
Armagh Main & Airport Road	4.35	4.35	4.35	4.35
BPS:CAS:EDEN	0.00	0.00	11.85	11.85
	46.10	46.10	57.95	57.95
Total RP6 Network Investment Plan	446.5	433.7	404.8	425.9

- 1.6 There is an additional shortfall of £2.49 million in the DD relating to a severe weather allowance not detailed in Table 3.1 above. This is considered separately in Section 7 below.
- 1.7 It is fully recognised that there is agreement across significant areas of the plan however, NIE Networks considers that the gap of £21.1 million arises as a result of specific errors in the UR's methodology which must be addressed in the Final Determination to ensure correct allowances are set for RP6. NIE Networks' Response has therefore focused on the areas of difference / variance between NIE Networks' updated position and the UR's position set out in Chapter 9 of the DD and its accompanying Annexes O (Assessment of Network Investment Direct Allowances) and P (Planned Network Investment Volumes and Allowances).
- 1.8 In view of the number of issues to be addressed arising from the DD, NIE Networks' detailed response in relation to direct capex is set out in Annex 3.1 to this Response. The remainder of this Chapter 3 is a summary only of the errors in and issues with the UR's approach, grouped by the nature of the error/issue.
- 1.9 This Chapter is structured as follows:

- Section 2 – Failure to take account of the nature and scope of the work -
- Shortfall value £4.08 million
- Section 3 – Failure to have regard to the latest available RP5 outturn data – Shortfall value £5.31 million
- Section 4 – Proposed allowance based on inappropriate data source
Shortfall value £3.33 million
- Section 5 – Errors related to distribution ESQCR works – Shortfall value £3.53 million
- Section 6 – Errors relating to allowances for distribution network reinforcement – Shortfall value £4.85 million
- Section 7 – Errors in setting the Severe Weather allowance – Shortfall value £2.49 million
- Section 8 – Issues relating to the structure of the price control
- Section 9 – Other issues raised by the DD

2. **FAILURE TO TAKE ACCOUNT OF THE NATURE AND SCOPE OF THE WORK**

2.1 There are four areas in which the UR has failed properly to take into account the need for changes to unit costs in RP6 compared to RP5, amounting in total to a shortfall in allowance of £4.08 million:

- Undereaves wiring replacement;
- 33 kV Overhead line ("OHL") refurbishment;
- 11 kV OHL refurbishment; and
- Cut-out replacement.

2.2 In making its submission, NIE Networks' approach has been to reference RP5 outturn information in terms of work content, unit costs and volumes of work as a base level of investment in each category. Any need for change in volume or scope of works is assessed on an ongoing basis and can result in differences in approach from one price control period to another based on the probability of failure of assets in each asset category and the consequences of failure. Due to the dynamic nature of these factors, a natural consequence in managing asset risk can be a change in approach or nature of intervention over time. These changes can be to either increase or decrease volumes of work or to review and alter the

specification or scope of works depending on specific asset or network requirements.

- 2.3 There are a number of specific investment categories where NIE Networks has assessed that the work content requires to be modified for RP6 as compared with RP5 to address emerging risks. In four of these categories the UR has failed to include provision for the full scope or nature of works involved. NIE Networks submits it has provided sufficient justification in the Network Investment Plan, supporting documentation and engagements since August 2016 to justify the full scope of works for each category.
- 2.4 As an example, NIE Networks requires an allowance in RP6 for replacement of undereaves wiring, in particular for completion of replacement of PolyButylJute ("**PBJ**") insulated wiring and to begin a programme of replacement of PolyVinylChloride ("**PVC**") insulated wiring. Such investment is necessary to remove the hazards associated with end-of-life undereave wiring and to ensure that NIE Networks remains compliant with safety legislation.
- 2.5 The UR has accepted that the RP5 run-rate in terms of property numbers is required to continue into RP6 at a rate of circa 3,000 properties per annum. However, as the larger PBJ schemes have now largely been delivered,² the average number of properties per scheme has decreased as the result of sparsity of works resulting in higher cost, i.e. more schemes and outages are required to address more dispersed properties. As a result, as NIE Networks progresses through the PBJ replacement programme, the economies of scale will diminish as the larger housing estates being addressed in RP5 will be largely completed and it will be necessary in RP6 to progress smaller developments each with fewer volumes of dwellings.
- 2.6 Therefore, although the overall property run rate will be consistent throughout RP5 and RP6 there will be an increase in the number of outages and schemes associated with the RP6 programme. It is therefore incorrect for the UR to provisionally conclude that the sparsity driver has no bearing on unit costs on the grounds that the number of properties addressed during RP6 is the same as for RP5.
- 2.7 In addition to the undereaves programme, there are three additional areas where modifications to scopes of works for RP6 have not been reflected by the UR in the DD namely:
- 33 kV OHL refurbishment;
 - 11 kV OHL refurbishment; and
 - the cut-out replacement programme.

² A scheme consists of a cluster of houses that can be grouped together for undereave replacement in a single outage.

- 2.8 The details of these particular errors can be found in Section 2 of Annex 3.1.
- 2.9 In failing to recognise this issue, the UR has not in the DD proposed to provide sufficient allowances to deliver the works required in these asset categories (total shortfall of £4.08 million). If these errors are not corrected in the Final Determination, the UR would have failed in its duty to ensure NIE Networks can adequately finance its regulated activities.
3. **FAILURE TO HAVE REGARD TO THE LATEST AVAILABLE RP5 OUTTURN DATA**
- 3.1 There are four asset categories in which the UR has failed to apply appropriate outturn data in arriving at a unit cost for works to be carried out in RP6, leading to a shortfall of £5.31 million:
- Land locked poles;
 - Primary Plant;
 - Secondary Substations; and
 - 110 kV Switchgear.
- 3.2 In making its assessment of appropriate unit costs, the UR reasonably looks to RP5 outturn data to inform its position. In a number of investment categories, this has been recognised by both the UR and NIE Networks as problematic. This is due to the phasing of works during RP5 where the majority of outturn volumes and costs are only being realised in the latter half of the period.
- 3.3 The reasons for this include: (a) a late CMA RP5 Final Determination (April 2014, 2 years late) which resulted in a degree of programme uncertainty; (b) lead time in terms of equipment procurement; (c) legal issues arising with respect to site access; and (d) purchases and outage constraints. As a result, there are a number of categories in relation to which NIE Networks' submission in June 2016 was based on forecasted outturn costs rather than actuals due to the low level of actual data available at the time.
- 3.4 However, during the engagement process between the UR and NIE Networks from August 2016 and until the publication of DD in March 2017, NIE Networks has provided updates in certain areas where RP5 outturn costs now support alterations to submitted costs (both upward and downward), particularly where the original submission was based on low volume outputs in the earlier years of RP5.
- 3.5 One such area is that of the low voltage ("LV") landlocked pole replacement programme. NIE Networks' original submission for replacement of landlocked poles was based on a forecast outturn position for RP5 as of March 2016. At that stage, only circa 10% of the RP5 outputs had been delivered for this programme and therefore forecast data formed the basis of the submission rather than outturn data. This was a new programme for RP5 and as such there was no historic data

from previous periods available. The UR stated in the DD that it gave no weight to actual outturn costs and proceeded to use forecasts based on data available in June 2016 (27% outputs complete) for the purposes of determining the proposed allowance for this asset category. In February 2017, NIE Networks provided the UR with a revised submission, which was based on a larger volume of completed works and outturn costs. The UR has disregarded this more recent data in its DD. However, current outturn data (May 2017) based on 50% outputs completed validates the February 2017 figures.

3.6 In addition to the land locked poles programme, there are 3 additional programmes where recently provided outturn data has not been considered in forming allowances for RP6 namely:

- Primary Plant;
- Secondary Substations; and
- 110 kV Switchgear.

3.7 The detail of these particular errors can be found in Section 3 of Annex 3.1.

3.8 In failing to recognise this issue, the UR has not in the DD proposed to provide sufficient allowances to deliver the works required in these asset categories (total shortfall of £5.31 million). If these errors are not corrected in the Final Determination, the UR would have failed in its duty to ensure NIE Networks can adequately finance its regulated activities.

4. **PROPOSED ALLOWANCE BASED ON INAPPROPRIATE DATA SOURCE**

4.1 As a consequence of the UR failing properly to analyse cost data submitted by NIE Networks in making the provisional decision set out in the DD, there is a shortfall totalling £3.33m for 2 asset categories: Network Alterations and Connection Driven System Work.

4.2 For the majority of the Network Investment Plan, reference outturn and historic costs are recorded in the financial reporting system SAP and costs and volumes reported to the UR via a Network Investment Regulatory Instructions and Guidance ("**RIGs**") submission.

4.3 However, historic costs for these two asset categories are not recorded in a single system as a complete data set and a degree of data manipulation is required. The reasons for this anomaly are historic and are related to the fact that these programmes were delivered in part or full by NIE Networks' connections business prior to market opening.

4.4 As an example, in the case of Network Alterations, there are three distinct types of alterations:

- Non recoverable alterations ("**NRAs**") – where costs are not chargeable to a specific customer;

- Part estimate cost recoverable alterations ("**PECR**") – where NIE Networks can recover only part of the costs of the alterations from a specific customer; and
 - Northern Ireland Roads Authority and Utility Committee ("**NIRAUC**") alterations where NIE Networks is required to contribute to network alterations as a result of road schemes.
- 4.5 NIE Networks has explained to the UR the source of the data for these individual costs areas on several occasions. Despite this, the UR has erroneously assumed that cost data for NRAs also includes costs associated with PECR and NIRAUC. This is not the case. The resultant DD allowances are thus based on an error in assessing actual submitted data.
- 4.6 The detail of these particular errors can be found in Section 4 of Annex 3.1.
- 4.7 The shortfall arising from the errors in these investment categories totals £3.33 million.

5. **ERRORS RELATED TO DISTRIBUTION ESQCR**

- 5.1 The UR's approach to the assessment of expenditure required for (i) LV refurbishment / Electricity Supply, Quality and Continuity (Northern Ireland) Regulations 2012 ("**ESQCR**") related works and (ii) the treatment of looped services, results in a shortfall of £3.53 million.
- 5.2 NIE Networks requires an allowance to carry out works necessary to ensure compliance with ESQCR. In the RP5 Determination, the CMA granted NIE Networks an allowance to carry out ESQCR patrol and trial works for the purposes of establishing an accurate basis for estimated ESQCR costs during RP6. Accordingly, NIE Networks carried out trials in relation to the 33 kV, 11 kV and LV distribution networks and made a submission for ESQCR works based on this information.
- 5.3 Whilst NIE Networks agrees with the UR's assessment for the majority of the ESQCR planned investments as presented in the DD, the UR has made errors in its assessment in two specific investment areas within ESQCR which has resulted in a significant shortfall in allowances. These are LV refurbishment / ESQCR unit costs and Looped Services.
- 5.4 For example, the UR's assessment of the LV refurbishment / ESQCR costs is erroneous as although it has accepted the outcomes of the trials for similar work on the 33 kV and 11 kV networks, it has not accepted the outcome of the more extensive trials for the LV network. Instead the UR has adopted a bespoke approach for LV which completely disregards the actual costs of £5.3 million incurred during the trials conducted in RP5 and derives a bottom up estimate based on GB DNOs' source costs.

- 5.5 The UR's approach uses volume / outputs data from only circa 40% of the LV trials conducted by NIE Networks, which it has compared against four categories of costs from Ofgem / GB DNOs' data.
- 5.6 NIE Networks submits that disregarding outturn data obtained from the other circa 60% of the trials is inconsistent with the CMA's decision to make provision for these works in RP5 to inform the RP6 submission. In any event, the UR's assessment has the following errors:
- the UR should have factored all trial circuits into the calculation rather than being selective on 40% of the available information;
 - where the UR has used trial data, the UR has incorrectly assessed the volume of poles requiring work;
 - the scope of the four categories of GB costs used are ambiguous and do not cover all the scopes of works required at LV as gathered through the trials; and
 - the UR has arbitrarily applied a 5% regional adjustment factor to this element of the programme.
- 5.7 By correcting these errors made by the UR, NIE Networks is able to demonstrate that the costs which it submitted for this programme are appropriate.
- 5.8 The UR's proposed approach effectively undermines the CMA's decision in the RP5 Final Determination to grant NIE Networks an allowance to conduct trials for the purposes of establishing a robust cost basis for NIE Networks' RP6 submission.
- 5.9 The combined impact of this approach for LV refurbishment / ESQCR and the treatment of looped services results in a shortfall of £3.53 million.
- 5.10 The detail of the errors in this category can be found in Section 5 of Annex 3.1.

6. **ERRORS RELATING TO ALLOWANCES FOR DISTRIBUTION NETWORK REINFORCEMENT**

- 6.1 There are 3 specific investment categories where the UR has failed to provide adequate allowances to cater for future demand and growth on the network.
- 6.2 These areas are:
- Investing for the Future (£3.21 million),
 - Fault level (£0.12 million) and
 - 33 kV Congestion (£1.52 million).

- 6.3 In Investing for the Future, NIE Networks' plans for innovation for RP6 are primarily focused on integrating suitably advanced smart solutions into 'business as usual' ("**BaU**") activity. NIE Networks plans to do this by undertaking a programme of focused integration projects funded by current customers with the objective of developing cost effective alternatives to conventional network expenditure for the potential benefit of future customers. NIE Networks requires suitable allowances to undertake this programme. NIE Networks anticipates that these projects should deliver substantial benefits and savings to NI customers in the future.
- 6.4 Whilst the UR in its DD has concluded that "*much of the work proposed has potential*",³ it has invited NIE Networks to submit its views on the issues outlined in its DD, which it will then incorporate into its Final Determination.
- 6.5 Accordingly, NIE Networks wishes to address four areas of concern:
- Exclusion of Facilitation of Energy Storage Services ("**FESS**") project costs (£0.3 million). The total funding of £0.3 million requested for the FESS project is required to address activities which will leverage potentially significant benefits from energy storage service providers and differing technologies for the distribution system and address barriers that currently exist to the connection of energy storage, such as the queuing treatment. As highlighted in RP6 Business Plan, 7.84, NIE Networks anticipates that energy storage solutions will assist with smoothing current demand profiles on the network. This in turn will mean that energy storage solutions will help to both reduce generation costs and at the same time represent a real alternative to investing in conventional network reinforcement in future price control periods. This is a small investment by current customers which could have significant benefits for future customers.
 - Exclusion of NIE Networks' indirect costs associated with innovation projects (£0.97 million). The UR has proposed excluding indirect costs required to resource the innovation projects from NIE Networks' allowance for these activities on the basis that these costs are covered under the general indirect cost category. However, the UR has failed to recognise that the GB DNOs report indirect costs associated with innovation projects separately to their overall indirects allowance and therefore costs are not reflected in the benchmarking the UR has carried out against the GB DNOs. Furthermore, the indirect cost estimates included in each of the innovation projects have been developed on a bottom up basis for each specific project in consultation with NIE Networks' external advisors WSP Parsons Brinkerhoff.

³ DD, 9.38.

- Replacement of Remote Terminal Units ("RTUs") (£1.95 million). NIE Networks currently expects to replace 50% (122) of the existing RTUs under the RP6 asset replacement programme, which the UR has approved in the DD. This will also facilitate progression towards compliance with Internet Protocol ("IP") telecommunications standards in RP6. Under the 'Investing for the Future' plan, NIE Networks additionally proposed advancing the upgrades to the remaining 50% of the RTU population to complete the RTU programme and become 'IP ready'. It proposed to do so in order to start to facilitate the use of innovative solutions (over conventional only solutions) in addressing future load related investment requirements in RP7 and beyond. In the DD, the UR has allowed only funding for 50% of the additional RTU requirement with the remainder deferred to RP7. Failure by the UR to provide an adequate allowance to facilitate replacement of all RTU units during RP6 will mean that NIE Networks will not be positioned to accommodate the wider roll out of smart solutions on its networks from the beginning of RP7.
- The UR has requested that NIE Networks carry out further work to confirm that the projects proposed will deliver value. NIE Networks has already submitted to the UR, the cost benefit analysis ("CBA") in support of each of the projects identified for completion in RP6.⁴ Furthermore, NIE Networks considers the purpose of the innovation integration trials is to determine the feasibility and benefits of each technology, and an output of the trials will be to inform RP7 investment requirements. As such, it would be an error for the UR to request the additional information as detailed in DD, 9.39 at this stage, as this information will only become available during project implementation throughout the course of RP6.

6.6 The shortfall arising from the errors in this category is £4.85 million.

6.7 The detail of the errors in this category can be found in Section 6 of Annex 3.1.

7. **ERRORS IN SETTING THE SEVERE WEATHER ALLOWANCE**

7.1 NIE Networks sought an allowance of £4.6 million to cover severe weather events (atypical severe weather events that should occur once every 20 years) during RP6. This was based on the actual data available for the first 3.75 years for RP5. In the DD, the UR has proposed an allowance of £2.11 million resulting in a shortfall of £2.49 million.

7.2 In devising its proposed allowance, the UR has adopted a bespoke method for benchmarking NIE Networks' severe weather costs against those incurred by GB DNOs. The UR has weighted the historical costs incurred by GB DNOs and NIE Networks in determining an allowance.

⁴ NIE Networks has not presented a CBA in respect of FESS as this involves development expenditure only in RP6.

- 7.3 The fundamental flaw in the UR's approach is that it fails to take account of the increased probability of a severe weather event in NI. This is despite the UR's acknowledgment of the high frequency of such events in NI, with the UR acknowledging that so-called '1 in 20' severe weather events have occurred 6 times in NI in the past 13 years.⁵
- 7.4 This is in stark contrast to the benchmarking approach adopted by Ofgem in its RIIO-ED1 determination, where Ofgem combined three factors in determining the severe weather allowance for the GB DNOs: (1) actual expenditure during DPCR5; (2) the probability of a severe weather event occurring during RIIO-ED1; and (3) the DNO's forecast expenditure for RIIO-ED1. The details of the Ofgem benchmarking approach are provided in Section 7 of Annex 3.1. Applying the Ofgem methodology would result in an allowance of £6.46 million for RP6 for this category of investment.
- 7.5 NIE Networks submits that the UR should adopt NIE Networks' proposed allowance of £4.6 million in the Final Determination. NIE Networks has demonstrated clearly that this is efficient in light of historic expenditure and the equivalent allowances for GB DNOs when properly benchmarked using an approach based on established regulatory precedent that better reflects the influence of factors on the allowance in question.
- 7.6 The UR has failed to regard the higher likelihood of severe weather events in Northern Ireland compared with GB, and the approach in the DD will prejudice NIE Networks' ability to respond effectively to such events during RP6. The UR's approach will result in a shortfall of £2.49 million.

8. **ISSUES RELATING TO THE STRUCTURE OF THE PRICE CONTROL**

- 8.1 The DD has considered NIE Networks' proposals to deal with uncertainty and flexibility within the Price Control structure. However there are unresolved issues which the UR should consider further prior to arriving at its Final Determination for RP6.

Load/Low Carbon Technologies ("LCT") Reopener

- 8.2 NIE Networks sought an allowance of £13.1 million to cover forecast increases in electricity demand on the distribution network resulting from the predicted growth of LCT during RP6. This is a new expenditure stream and NIE Networks engaged the same consultants and independent modelling used by Ofgem in making its RIIO-ED1 determination to forecast the economic drivers appropriate to NI for the uptake of LCT, the impact that growth will have on the NI distribution network and the resulting investment required to maintain acceptable network performance.
- 8.3 Due to the level of uncertainty associated with the development and uptake of LCT, including the extent of the clustering effect, NIE Networks had proposed a

⁵ DD, 6.5-6.6.

mid-point reopener to allow a review of expenditure to date and revised forecast to the end of the period.

- 8.4 In the DD, the UR has also suggested a mid-point reopener but has proposed only an ex ante allowance of £2.63 million (against forecast expenditure of £4.84 million for the first half of the period) with the balance of £10.5 million being ring fenced until the mid-period reopener where it will be replaced by an ex ante allowance to be determined.
- 8.5 The UR has therefore proposed an inadequate ex ante allowance against forecast cash flow for the first half of the period, although it has assessed and accepted the level of forecast expenditure.⁶ Moreover, as set out in Section 8 of Annex 3.1, the UR analysis of the phasing of expenditure has been shown to be flawed.
- 8.6 NIE Networks requests that in the Final Determination, the UR increases the allowance to be provided for the first half of the period in line with the low scenario cash flow predicted and, as suggested by the UR, determines an ex ante allowance for the remainder of the period following a mid-term review.

I-SEM / DS3

- 8.7 In its RP6 Business Plan, NIE Networks outlined that changes will be required in order to facilitate the introduction of the Integrated Single Electricity Market ("I-SEM"). The extent of such changes is currently unknown and is beyond NIE Networks' control, and accordingly NIE Networks submitted that the RP6 price control should allow for a mechanism by which the UR can approve additional funding during RP6 as and when it arises.
- 8.8 In the DD, the UR has declined to do so, stating that the current change of law provisions are adequate to allow for any unforeseen future costs. NIE Networks will be required to invest in network infrastructure and control capability to facilitate the rolling out of I-SEM DS3 System Services to distributed connected customers otherwise this important market will be stifled going forward.
- 8.9 The UR's approach is flawed in that it fails to have regard to the fact that NIE Networks may be required to incur significant expenditure as part of the DS3 System Services project as the majority of participants in the market will be connected to the distribution network. The DS3 project is an important programme of work driven by the transmission system operator or 'TSO' which is necessary to facilitate increased penetration of renewable energy sources into the market without jeopardising the performance and security of the system. This programme is important if the Government's 2020 renewable energy targets are to be met. This expenditure could result from further steps to implement the DS3 project which would not require a change of law and therefore, on the basis of the DD, no mechanism would exist to fund these costs.

⁶ Annex O, 4.20-4.21

- 8.10 If a change of law is not a prerequisite for the development of the DS3 System Services market, risk mitigation for the company associated with DS3 System Services or the wider transition to a distribution system operator or 'DSO' cannot be achieved through a 'Change of Law' mechanism.
- 8.11 Consequently, in the absence of a reopener mechanism in the DD similar to the Dt mechanism within the SONI Final Determination, in relation to DS3 and the development of an NIE Networks incentive mechanism in line with the process outlined within the SEM-17-017 paper, the efficient and wide-spread delivery of System Services from the distribution system and the wider transition to a DSO will not be achievable.

Public Realms

- 8.12 In its RP6 business plan, NIE Networks put forward a proposal for a mechanism to be included in the RP6 price control to accommodate for unpredictable but potentially large public realm schemes and NIRAUC road schemes. NIE Networks is subject to a statutory obligation to contribute to the funding of NIRAUC schemes.
- 8.13 NIE Networks initially proposed that this should apply to schemes which required contributions from NIE Networks of greater than £0.10 million. During engagement and provision of further data, NIE Networks revised this threshold to £0.50 million.
- 8.14 In the DD, the UR has declined to propose introducing such a mechanism during RP6.⁷
- 8.15 In its RP6 business plan NIE Networks highlighted the names of those specific proposed future schemes which were known to NIE Networks at the time of submission and which if and when progressed will require contributions from NIE Networks during RP6. However, this could obviously not be an exhaustive list as other schemes will be developed during the course of RP6. It is therefore impossible to predict accurately NIE Networks' expenditure on contributions to such large schemes on an ex ante basis, and a reopener is required to ensure that NIE Networks can fund these contributions.
- 8.16 The UR asserts at DD, 13.55 that it is not appropriate to establish a new mechanism to address changes in requirements for public realm or major road schemes, which it states is an area which is one of many risks and opportunities within the planned network investment programme. The UR justifies its position on the basis that in the current economic climate there is no indication of any general increase in investment in roads.
- 8.17 The UR's approach fails to take account of the possibility of additional funding becoming available for specific major developments. The UR's position also does not take account of the finite level of funding being targeted by the NI Executive at areas where the network infrastructure is much denser and older resulting in a disproportionate requirement for associated investment by NIE Networks. NIE

⁷ DD, 13.55.

Networks highlighted two such areas in its RP6 business plan, Belfast Streets Ahead and York Street interchange.⁸

- 8.18 Should such major projects be commissioned by the NI Executive, which would be beyond NIE Networks' control, the UR's approach would put a disproportionate burden on NIE Networks' existing allowances for other investment categories. In particular there is a risk of overspend in asset replacement, load related or alteration investments which could not be adequately funded via NIE Networks' regulated revenue.
- 8.19 NIE Networks therefore submits that, in the Final Determination, the UR should introduce a specific mechanism to cater for funding of any public realm or NIRAUC road schemes requiring contribution from NIE Networks in excess of £0.50 million.
- 8.20 Should the UR not adopt this approach, it will prejudice NIE Networks' ability to adequately fund its regulated activities from its regulated revenue.

Substitution mechanism

- 8.21 It is inevitable that during RP6, priorities to replace particular types of assets or to undertake particular projects will change. For example, a new investment stream may be required as a result of asset type failures not originally included in the Network Investment Plan or a higher volume of replacement than predicted may be required.
- 8.22 Therefore, NIE Networks requires a suitable substitution mechanism to deal with this uncertainty and proposed such a mechanism to the UR during engagement post submission. NIE Networks' proposed mechanism provided the flexibility to substitute higher priority outputs or projects including new programmes for those with a lower priority and to defer the latter to a later date without financial penalty.
- 8.23 In the DD, the UR recognised NIE Networks' need for additional flexibility to respond to changes in priority. While NIE Networks welcomes the UR's proposals, it submits that the substitution mechanism currently proposed by the UR in its DD, would benefit from further consideration to address the following:
- the exclusion of new reactive programmes of work from the substitution mechanism;
 - the use of the lower of the unit costs provided for in Annex P and outturn unit costs in assessing 'fair value' in substitutions;
 - the suggested application of a 20% cap on the value of outputs which can be substituted out of any single allowance as opposed to an overall cap on the level of substitution;
 - the expectations with regards to volumes and unit costs in RP7;

⁸ RP6 Business Plan, 11.31.

- the approach to treatment of substituted volumes of work as pre-funded costs; and
- the approach to the assessment of substituted expenditure at the end of the RP6 period.

- 8.24 For the reasons detailed in Section 8 of Annex 3.1, NIE Networks submits that the substitution mechanism as proposed by the UR would not work in its current form.
- 8.25 Applying the mechanism in the form proposed in the DD, NIE Networks would not be financed via its regulated revenue to carry out any unforeseen work the nature of which is not identified in the relevant Annex to the DD.⁹
- 8.26 Accordingly, NIE Networks submits that the substitution mechanism adopted in the Final Determination should employ the principles put forward by NIE Networks. Such an approach will provide NIE Networks with the flexibility to introduce new work programmes as and when the need arises, subject to an overall cap on the value of work programmes that can be substituted. The adoption of an overall cap will ensure that NIE Networks is able to substitute in high priority work items at the expense of lower priority ones, without having to sacrifice existing high priority work items.
- 8.27 The operation of the substitution mechanism would then be assessed on an objective ex post basis against the ex ante costs set out in the Final Determination in a simple and straightforward manner as set out in NIE Networks' proposed mechanism. NIE Networks considers that this approach would reduce the level of regulatory uncertainty associated with a subjective ex post review and also work in the best interests of customers as risks will undoubtedly change during the course of a price control and NIE Networks requires the ability to respond effectively and efficiently.

9. **OTHER ISSUES RAISED BY THE DD**

- 9.1 The DD makes reference to a number of other features that require further consideration by the UR in the Final Determination.

RP6 Outcomes, Outputs and KPIs

- 9.2 In its RP6 business plan NIE Networks submitted a number of proposed Outcomes, Outputs and KPIs to be delivered during RP6. This approach was in accordance with the UR's RP6 Approach Paper. In the DD, the UR has stated that it will consider these proposals alongside other developmental objectives in putting together the final set of Outcomes, Outputs and KPIs that will be recorded in the Final Determination.
- 9.3 Table 4¹⁰ of the DD details the outputs the UR expects to be delivered during RP6, the developmental objectives it expects NIE Networks to work towards and the

⁹ Annex P.

KPIs it will require NIE Networks to report against. Although NIE Networks is broadly in agreement with the proposed approach set out in Table 4, it submits that the UR should have regard to the following when finalising its approach in the Final Determination:

- one output identified by the UR is "ongoing consumer and stakeholder engagement". NIE Networks has set out its concerns in relation to the UR's approach to stakeholder engagement in Chapter 4;
- further, the UR has indicated that there will be new customer advocacy and survey metrics to be developed from start of RP6 through to Year 3. These will then be considered as KPIs from Year 3 of RP6. NIE Networks recognises the value in customer advocacy and survey metrics and submits these should be developed in line with the approach taken by Ofgem for GB DNOs, and should form the basis of a stakeholder engagement incentive mechanism. NIE Networks has set out its proposals in this regard in more detail in Chapter 4; and
- in Table 4, the UR combines "Asset Health and Load Indices" as a single KPI. NIE Networks submits that this approach is not appropriate. NIE Networks has developed Load Indices over a number of years and this data is at a mature stage for annual reporting and therefore can be considered as a KPI throughout RP6. However, Asset Health Indices is not currently reported, and as such investment in IT systems would be required to enable production and reporting of this KPI during RP6. Specifically, this reporting metric will require the implementation of new Condition Based Risk Management ("**CBRM**") IT systems to be in place and therefore will not be implemented until the latter stages of RP6. In its DD, the UR has proposed to disallow the expenditure requested to fund this investment.¹¹ NIE Networks therefore submits that Asset Health Indices should only be included as a developmental objective with a view to implementing it as a KPI in the latter part of RP6, subject to an adequate allowance being made available in the Final Determination to undertake the necessary IT investment.

9.4 In addition to the above, the UR has identified a number of specific nominated outputs to be delivered in RP6 which are listed in DD, 4.43. NIE Networks will introduce reporting on progress against these outputs in RP6 with templates and definitions to be developed and agreed in conjunction with the UR.

¹⁰ DD, Chapter 4, pp 41-42.

¹¹ NIE Networks' response to the UR's proposal to disallow the costs associated with the implementation of CBRM IT systems is now set out at Section 2 of Chapter 6 of this Response.

D5 Mechanism

- 9.5 The D5 mechanism was introduced by CMA in its RP5 Final Determination to allow the UR to increase NIE Networks' revenue during the price control period for the costs of additional investment to increase the capacity of the transmission system.¹² However, two specific asset replacement projects (Ballylumford Switchboard and Coolkeeragh – Magherafelt transmission line) were also included.
- 9.6 NIE Networks welcomes that in the DD, the UR has proposed widening the scope / extending the D5 mechanism to cover three further specific asset replacement projects and distribution works, due to:
- the need to develop firm costs through a pre-construction exercise (in the case of the Ballylumford to Castlereagh line);¹³ and
 - the association of two distribution projects linked to transmission projects which are under consideration by SONI for RP6 under the D5 mechanism.
- 9.7 In its DD, the UR proposes that the D5 mechanism should not be the norm for large uncertain asset replacement projects and distribution works, and that ex ante allowances should instead be proposed where possible. Such ex ante allowances would be based on costs submitted as a result of pre-construction exercises conducted in advance by NIE Networks.
- 9.8 NIE Networks submits that the D5 mechanism, or a similar mechanism, should continue to be made available in future price control periods as it can reasonably be anticipated that in NIE Networks' RP7 submission, there will be similar uncertainty and project issues associated with a very small number of complex projects, which will require a similar mechanism as currently provided for under the D5 mechanism.
- 9.9 NIE Networks is concerned about the risk for future price control projects of not having such a mechanism available to it. At present, NIE Networks would not have funding to perform pre-construction activities during RP6 in order to inform calculation of ex ante costs for submission of its RP7 business plan. As it is unrealistic to predict these projects in any significant level of detail up to 10 years before they happen, it is in customers' interests to retain such a mechanism rather than NIE Networks submitting for a an ex ante allowance where there is significant cost uncertainty.
- 9.10 NIE Networks seeks assurances from the UR that the D5 mechanism (or similar mechanism) as applied in RP5 and in particular the wider scope of its application in RP6, will be maintained for future price control periods.
- 9.11 Separately, NIE Networks looks to the Utility Regulator to address in its Final Determination a significant weakness in the D5 mechanism (as well as other such flexibility mechanisms) arising from the fact that it necessarily involves the UR

¹² CMA RP5 Final Determination, 7.39.

¹³ CMA RP5 Final Determination, 5.26.

determining an allowance for a particular D5 project subsequent to the finalisation of the ex ante price control. As such, under present arrangements, the UR's determination in relation to a D5 project is not subject to the same statutory appeal mechanism as applies to the periodic review. If NIE Networks disagrees with the UR's assessment, its only recourse is to judicial review in the High Court, a body that is not usually required to make expert judgements on matters of economic regulation.

- 9.12 The solution to this anomaly is for the D5 mechanism to be structured so that it takes effect as a modification to NIE Networks' licence. Under the licence modification regime that now applies, it would then be open to NIE Networks to appeal the matter to the CMA - a body that is ideally placed to make its own assessment of the matters that form the basis of a determination made through the D5 mechanism. That would address the concern that the UR's current approach to the D5 mechanism effectively by-passes the checks and balances which legislation has established for price controls (and other forms of licence modification), which in principle is likely to result in lower quality decisions by reason of the fact that the risk that such decisions might be subject to scrutiny by an expert sister regulator is eliminated.
- 9.13 There is no reason to suppose that such a solution would add significantly to the burden on the UR in making a D5 assessment. All that would be required in addition to the present mechanism would be a short licence modification recording that an allowance of £X had been allowed for a named project under the D5 mechanism. The statutory consultation would make use of material that will already have been produced for the purposes of the D5 evaluation. This approach would be consistent with the approach adopted by Ofgem for under the Strategic Wider Works or "SWW" programme. The SWW arrangements were introduced by Ofgem to provide flexibility to bring forward projects when more information is available (rather than only allowing projects that were agreed at the start of the price control). Similar to D5, this helps to manage uncertainty and ensure value for money for consumers by ensuring that network infrastructure projects are progressed at the most appropriate time.
- 9.14 NIE Networks requests that the UR confirm in its Final Determination that it is content to adopt this approach as it is in the interests of better regulation and reflects the material nature of the projects likely to be approved under the D5 Mechanism, which requires the UR to take a proportionate approach to assessment that should be subject to the scrutiny provided for in the statutory regime.
- 9.15 In addition, as further discussed in Chapter 5, Section 6 of this Response, the DD is silent on how indirect costs are to be treated if/when NIE Networks applies for D5 approvals during RP6. It is reasonable to infer from the DD that the UR will consider and grant additional allowances for indirect costs associated with D5 projects, however, NIE Networks considers that this should be made explicit in the

Final Determination. For the avoidance of doubt, NIE Networks considers that it would be an error if the UR were to exclude the possibility that indirect costs would be allowed for D5 projects.

- 9.16 Further detail on NIE Networks' proposed approach is set out in Section 9 of Annex 3.1.

CHAPTER 4

OPTIONAL INVESTMENTS AND STAKEHOLDER ENGAGEMENT

1. INTRODUCTION

1.1 This Chapter is structured as follows:

- Section 2 concerns Optional Investments; and
- Section 3 concerns Stakeholder Engagement.

2. OPTIONAL INVESTMENTS

Introduction

- 2.1 In its RP6 Business Plan and Network Investment Plan dated 29 June 2016 (the "**Network Investment Plan**"), NIE Networks requested an allowance in relation to four areas described as 'Optional'.¹
- 2.2 These proposals were developed in response to customers' preferences expressed during a comprehensive stakeholder consultation process, consisting of a range of interviews and workshops with domestic and non-domestic consumers.
- 2.3 This process was managed by a group called the 'Consumer Engagement Advisory Panel' ("**CEAP**"), which included representatives from NIE Networks, the UR, the Consumer Council for Northern Ireland and the Department for Enterprise, Trade and Investment (now the Department for the Economy). A description of this RP6 consumer engagement process is set out in the Network Investment Plan.²
- 2.4 The Network Investment Plan included the resulting reports in Appendices NIPA1.1 to NIPA1.7. At each stage of the engagement process, CEAP was briefed on the findings.
- 2.5 As a result of this consumer and stakeholder engagement exercise, a number of investment options were identified which would enhance the resilience of the network to severe weather and improve the quality of service for worst served customers. The specific investments identified for RP6 are as follows:
- investment to strengthen the 11 kV overhead line network, costing £25.6 million;
 - additional investment to increase flood defences, costing £2.6 million;
 - accelerated tree cutting, costing £0.7 million; and

¹ Business Plan, Chapter 8; and Network Investment Plan, Section 9.
² 68-78.

- investment to reduce the frequency and duration of unplanned power cuts with an emphasis on worst served customers, costing £16.5 million.

2.6 In the DD, the UR has proposed making no allowance for these investments.³

The UR's approach

2.7 In the DD, the UR simply states that:

*"we note the company's view that this investment is optional because they are not fully supported by consumer engagement and because of the other competing priorities in the core plan. It is for the company to assess the needs of its consumers including their willingness to pay and the balance of competing priorities in its business plan. In view of this, we have not included this investment in the draft determination".*⁴

2.8 Therefore, the UR has not engaged with any of the evidence put forward by NIE Networks in relation to the need for these investments, in particular it has not had regard to the outcome of the consumer and stakeholder engagement process.

The errors in the UR's approach

2.9 NIE Networks submitted the Optional Investments on the basis that there was no specific statutory requirement on NIE Networks to carry out those investments, however they are nonetheless in the interests of consumers given the benefits that will accrue if they are carried out. Therefore, the UR's statement in DD 9.34 is an incorrect representation of NIE Networks' position. NIE Networks submitted these specific investments considering that they had clear benefits to consumers. NIE Networks presented these investments as optional as it should be the UR who decides whether the benefits associated with these projects are in the consumers' interest when considering the tariff impact of these projects as part of the overall Network Investment Plan.

2.10 NIE Networks is disappointed that the UR has not considered these projects in any detail and did not engage with NIE Networks in relation to these projects before finalising the DD.

2.11 The DD and its supporting annexes set out in detail the UR's analysis of NIE Networks' proposals submitted in the Network Investment Plan. However, the UR's assessment of the Optional Investment programme (and the outcome of the associated consumer engagement process) is limited to just one page in the DD. NIE Networks has embraced the consumer engagement and CEAP process and section 3 below sets out how NIE Networks has incorporated the findings into its RP6 Business Plan. NIE Networks considers that consumers will want to

³ DD, 9.34.

⁴ DD, 9.34.

understand the UR's assessment of the consumer engagement and CEAP process outcomes in its Final Determination.

- 2.12 Accordingly, NIE Networks strongly disagrees with the position now being adopted by the UR on these investment proposals. Prior to submission of the RP6 Business Plan and the Network Investment Plan, NIE Networks engaged with the UR on the structure the plan would adopt. During this engagement, and in particular in discussions with the UR on 4 and 7 July 2016, it was made clear that these investments, which had been through a rigorous consumer engagement process to which the UR was party, would be presented as 'optional' in the plan for the UR's consideration.
- 2.13 It is incumbent upon the UR to consider NIE Networks' proposals in conjunction with the outcome of the consumer engagement process and to set allowances for these investments based on the evidence submitted to it. By failing to do so in relation to these Optional Investments, the UR would be undermining the consumer and stakeholder engagement work undertaken by the CEAP in RP5 and indeed would bring into question the purpose of stakeholder engagement in future price control periods. The UR's failure to assess the proposed Optional Investments will also undermine the consumer engagement process going forward.
- 2.14 It should also be noted that in the UR's RP6 approach document there was no reference to the proposed changes to Guaranteed Standards of Services ("**GSS**") that are set out in the DD. NIE Networks' approach to Optional Investments as set out in the Network Investment Plan was based on this position. Accordingly, NIE Networks submits that the UR should conduct its assessment of the Optional Investment programme with regard to this factor. In particular, the UR should reflect the need for further investment to strengthen the 11 kV overhead line network in order to ensure that its proposed changes to GSS are fair.⁵

NIE Networks' requested approach

- 2.15 NIE Networks therefore submits that the UR should properly assess the evidence provided by NIE Networks in the Network Investment Plan, including Appendices NIPA1.1 to NIPA1.7, and make a fully informed and justified determination on NIE Networks' proposals reflecting this assessment.
- 2.16 The UR should set out in the Final Determination, for the benefit of both consumers and NIE Networks, its views on each of the optional investments being proposed and its decision on why it has allowed or disallowed each individual investment sought.
- 2.17 The UR should also have regard to the interplay between its proposed changes to GSS when assessing the Optional Investment for 11 kV overhead line network resilience and considering NIE Networks' response to the UR's proposed approach to GSS, set out in Chapter 9 section 3 of this Response.

⁵ See further Chapter 9, section 3 of this Response.

3. **STAKEHOLDER ENGAGEMENT**

Introduction

3.1 During the pre-DD consultation process, NIE Networks set out a range of options to the UR for ways in which it could improve stakeholder engagement activities.⁶ One of the options put forward by NIE Networks was so called 'Option 3' which set out an enhanced programme of customer engagement, modelled on the programme implemented by Western Power Distribution ("**WPD**"). NIE Networks opted to model its programme on WPD's given its position as the top performing GB DNO for stakeholder engagement.

3.2 Option 3 includes the following initiatives:

- Stakeholder Engagement for Price Control Submission;
- Continuation of CEAP (bi-annually or quarterly) / Expert Customer Panel;
- Carry out an annual customer satisfaction survey to review and track customer service performance over RP6;
- Customer newsletters focused on specific groups containing details of:
 - o The results of the customer service survey and details of improvement initiatives;
 - o Details of RP6 delivery;
 - o Connections update; and
 - o Network Performance update;
- Key account managers for major businesses;
- Dedicated Stakeholder Engagement Officer to co-ordinate all stakeholder engagement initiatives;
- Half day annual workshop with approx. 30 - 50 stakeholders at which NIE Networks would present:
 - o The results of the customer service survey and details of improvement initiatives;
 - o Details of RP6 delivery;

⁶ NIE Networks presentation to the UR 'RP6 – Ongoing Consumer Engagement', 10 February 2017.

- o Connections update;
- o Network Performance update; and
- o Seek feedback on key business strategies;
- Develop a Vulnerable Customers' Strategy; and
- Annual external audits against the AA1000 international stakeholder engagement standard and gap analysis to encourage continual improvement and 'best in class' consumer and stakeholder engagement

(the "**Option 3 Initiatives**").

- 3.3 NIE Networks proposed an ex ante allowance of £230k per annum to cover the costs of these initiatives.

The UR's approach

- 3.4 At DD 4.8, the UR stated that it expects NIE Networks to engage in continuous engagement, equivalent to GB DNOs. It therefore appears to be of the view that NIE Networks should adopt all of the Option 3 Initiatives. However, in the DD, the UR has proposed to provide no allowance for the cost of these initiatives, giving the following reasons for that provisional decision:

"We are of the view that such additional costs (i) are already included in equivalent GB DNO costs (benchmarked to NIE Networks within our Indirects and IMF&T efficiencies), (ii) protect the company's "brand" and/or (iii) are very likely to reduce the overall cost of their customer service effort by adopting industry best practice where increased customer satisfaction leads to lower repeat contacts (which tend to burn resources)".⁷

The errors in the UR's approach

i) the additional costs are already included in equivalent GB DNO costs which are benchmarked within Indirect and IMF&T efficiencies

- 3.5 NIE Networks acknowledges that certain engagement activities are included in the GB DNO costs against which the UR has benchmarked. However, it does not follow from this that NIE Networks' existing Indirects and Inspections, Maintenance, Faults and Tree Cutting ("**IMF&T**") allowance provides sufficient funding to implement the Option 3 Initiatives.
- 3.6 As described above, the Option 3 Initiatives were modelled on WPD's stakeholder engagement programme in RIIO-ED1. As the UR carried out its benchmarking against all GB DNOs, it would have included costs from DNOs with a less fully developed stakeholder engagement programme. Accordingly, the UR cannot

⁷ DD, 4.7.

conclude on the basis of its benchmarking exercise that NIE Networks is sufficiently funded via its Indirects and IMF&T allowance to cover the £230k cost of the Option 3 Initiatives.

- 3.7 Further, all GB DNO consumer engagement activities are also funded via an incentive mechanism provided for by Ofgem as part of the RIIO-ED1 price control. This mechanism is upside only and allows GB DNOs to earn up to 0.5% of their revenue based on Ofgem's assessment of their stakeholder engagement activities. By contrast, the UR's Indirect and IMF&T benchmarking was carried out against GB DNOs' costs primarily in DPCR5, when GB DNOs had a less developed programme of stakeholder engagement under which the maximum revenue they could earn from the incentive mechanism was 0.2% of their regulated revenue. Accordingly, the UR has also failed to have regard to the fact that: (1) its Indirects and IMF&T benchmarking was carried out against GB DNO data for a time when their stakeholder engagement activities were less developed than the Option 3 Initiatives; and (2) in any event, GB DNOs receive additional funding for stakeholder engagement activities via the upside only incentive mechanism in place throughout DPCR5 and RIIO-ED1.
- 3.8 The annual assessment of GB DNOs' stakeholder engagement activities carried out by Ofgem includes an assessment of written submissions and face-to-face interviews with an Ofgem-appointed expert Panel as follows:
- Part 1 submission: minimum requirements;
 - Part 2A submission: outcomes from wider stakeholder engagement initiatives;
 - Part 2B submission: outcomes from initiatives to address consumer vulnerability;
 - Third party (Ofgem appointed) independent audit of Part 2B submission: Report produced and sent to Panel as part of the Panel assessment; and
 - Face-to-face panel interview.
- 3.9 For example, WPD (the GB DNO whose stakeholder engagement activities NIE Networks seeks to emulate in designing the Option 3 Incentives, as described above) was the first ranked of all GB DNOs in 2015/16, with a score of 8.75 out of 10 and a resultant award of £6.35 million for stakeholder engagement activities during that year.
- 3.10 If NIE Networks was subject to the same incentive mechanism, it would (on the basis of its proposed revenue in its RP6 Business Plan) face a potential maximum award of £1.2 million per annum, resulting in up to approximately £7.8 million in total across RP6.

- 3.11 The UR stated that it is willing to consider the introduction of an incentive in RP7 based on customer satisfaction scores in RP6, but does not want to "rush" to do so in RP6 without "*any accompanying time series of NIE Networks' performance*".⁸ Nevertheless, despite recognising the role of an incentive mechanism and therefore presumably acknowledging the need for NIE Networks to receive some additional funding for these activities, the UR has proposed not to provide NIE Networks any specific allowance.

ii) the Option 3 Initiatives will protect NIE Networks' brand

- 3.12 NIE Networks submits that the Option 3 Initiatives are not required to protect its brand and there is no associated efficiency or cost saving for NIE Networks arising from any brand benefits. Similar to GB DNOs, these additional activities could enhance NIE Networks' brand but nevertheless GB DNOs receive potentially substantial additional funding, via an incentive mechanism, to implement equivalent measures.

iii) the Option 3 Initiatives will generate efficiencies via reduced customer service costs

- 3.13 NIE Networks submits that the UR has over-estimated the likely customer savings costs that will arise from these additional stakeholder engagement activities. For example, approximately 40% of the £230k per annum requested by NIE Networks would be focused on developing and delivering a vulnerable customer strategy. NIE Networks' definition of a vulnerable customer is taken from Ofgem's Consumer Vulnerability Strategy, as follows:

"3.4 ...For this purpose we have defined vulnerability as when a consumer's personal circumstances and characteristics combine with aspects of the market to create situations where he or she is:

- Significantly less able than a typical consumer to protect or represent his or her interests in the energy market; and/or*
- Significantly more likely than a typical consumer to suffer detriment, or that detriment is likely to be more substantial*

3.5. Detrimental situations in the energy market may include struggling to afford bills, living in a cold inefficient home, facing pressure sales tactics, struggling to understand and act upon information or choices (such as getting the best deal), or lacking the confidence or ability to pursue a query or complaint. These situations can impact on an individual's ability to pay, quality of life, and/or their physical or mental well-being".⁹

⁸ DD, 4.12 and 14.71-14.72.

⁹ Ofgem, 'Consumer Vulnerability Strategy, Final Decision', 4 July 2013 [<https://www.ofgem.gov.uk/ofgem-publications/75550/consumer-vulnerability-strategy-pdf>].

- 3.14 The level of resource allocated to vulnerable customers as part of the Option 3 Incentives is disproportionate to the number of vulnerable customers as a percentage of the overall customer base. Therefore, the UR has erred in stating these activities are likely to sufficiently reduce NIE Networks' overall customer service costs to offset the cost of their implementation, as these gains will also be disproportionate and immaterial in comparison to the size of the overall customer base.

NIE Networks' requested allowance

- 3.15 Accordingly, NIE Networks requests that the Final Determination provides for either:
- an appropriate additional allowance to fund the shortfall between allowances included in NIE Networks' existing Indirects and IMF&T allowance and the cost of all the Option 3 Initiatives; or
 - an appropriate scope of stakeholder engagement activities, falling short of the Option 3 Initiatives, which NIE Networks can fund via its Indirects and IMF&T allowance.
- 3.16 Further, NIE Networks submits that the Final Determination should include provision for an incentive mechanism equivalent to that enjoyed by the GB DNOs (or at least a clear roadmap as to the steps the UR will take during RP6 to introduce such an incentive mechanism in RP7).
- 3.17 NIE Networks admits that there are downsides to adopting a scope of work that falls short of the Option 3 Initiatives, particularly the downsides for vulnerable customers. However, NIE Networks will not be able to carry out the Option 3 Initiatives without some form of additional allowance as the total cost of £1.45 million during the course of RP6 will not be covered by NIE Networks Indirects and IMF&T cost on the basis of the benchmarking exercise carried out by the UR.

CHAPTER 5

INDIRECTS AND IMFT

1. INTRODUCTION

1.1 This Chapter addresses the key concerns that NIE Networks has with chapter 5 of the DD, which assesses Inspections, Maintenance, Faults & Tree cutting ("**IMFT**") costs and Indirect costs. There are a number of significant concerns discussed below covering the following areas:

- the UR's calculation of the baseline year, which NIE Networks considers includes a material error;
- the UR's approach to benchmarking, including the lack of consideration given to the detailed benchmarking undertaken by NIE Networks (based on the Ofgem approach adopted for the recent RIIO-ED1 price control);
- the 'triangulation' approach undertaken whereby the benchmarking models selected by the UR appear to be biased against NIE Networks;
- the lack of assessment or consideration of the new costs NIE Networks expects to incur in the RP6 period; and
- clarification on the treatment of indirect costs for the D5 mechanism.

1.2 NIE Networks has also undertaken additional work to assess the special factors that should be applied to the benchmarking models selected by the UR, however, this should be considered as a 'secondary' argument as NIE Networks disagrees with the choice of models selected.

1.3 This Response is supported by a report from NIE Networks' advisers, NERA ("**NERA May 2017 Indirect and IMFT Report**"), included as **Annex 5.1** to this Response).¹ This report responds to relevant sections of the DD. In particular, the issues summarised at Sections 3 to 5 below are explained in detail in this report, which forms an integral part of NIE Networks' submissions on these issues.

1.4 This Chapter is structured as follows:

- Section 2 describes the UR's approach to calculating the baseline for RP6 and the incorrect use of forecast data rather than actual data;

¹ NERA Economic Consulting, 'Response to UR's Draft Determination on Benchmarking Indirect and IMFT for RP6', 15 May 2017 ("**NERA May 2017 Indirect and IMFT Report**").

- Section 3 sets out NIE Networks' concerns on the UR's approach to benchmarking, including the following material issues:
 - o lack of consideration of NIE Networks benchmarking submission;
 - o biased selection of models in the DD;
 - o incorrect inclusion of indirect costs for connection activity in benchmarking assessment;
 - o incorrect treatment of wayleave payments in benchmarking; and
 - o inappropriate regional labour adjustment;
- Section 4 discusses the special factors that should be applied to the UR's benchmarking models;
- Section 5 discusses the new Indirect and IMFT costs where allowances are required in RP6 and provides additional modelling to complement the robust business plan prepared by NIE Networks;
- Section 6 seeks clarification on the treatment of indirect costs for the D5 mechanism in RP6; and
- Section 7 sets out NIE Networks' position on other aspects of Indirects and IMFT discussed throughout the DD.

2. **BASELINE CALCULATION: INCORRECT USE OF FORECAST RATHER THAN ACTUAL DATA**

The UR's provisional decision

- 2.1 The UR sets out its approach for determining the 'base year' for setting allowances for Indirect and IMFT activities in paragraphs 5.189 to 5.192 of the DD. The resulting proposed allowances are presented in the DD with the '2015/16 base IMFT and Indirects' set at £62.299 million.²
- 2.2 The UR references the source used to determine this number as the 'NIE Networks Financial Data RIGs submitted as part of the company's RP6 submission'.³ NIE Networks requested the breakdown of the calculation of the £62.299 million figure on 25 March 2017 and received a response on 30 March 2017 ("**UR 30 March 2017 Calculation Breakdown**").⁴

² DD, Table 21 (p.99, at 5.204).

³ DD, 5.192.

⁴ Email from UR [REDACTED] to NIE Networks ([REDACTED]), 'RE: Query on Table 21 of RP6 Draft Determination', 30 March 2017, 16:59 ("**UR 30 March 2017 Calculation Breakdown**").

The issue

- 2.3 Upon inspection of the breakdown of calculations provided by the UR, it is apparent that the UR has made two errors in its approach:
- the UR has erroneously used forecast rather than actual data for 2015/16 in the calculations for the base year; and
 - as regards transmission tree cutting, the UR has erroneously proposed an allowance for RP6 based on forecast data for 2018/2019 rather than using actual data for 2015/16.
- 2.4 The details are outlined further below.
- 2.5 NIE Networks considers that in any event, the UR should set the baseline by reference to more than one year of data.

Erroneous use of forecast data for 2015/16 in calculation of base year figure

- 2.6 In the UR 30 March 2017 Calculation Breakdown the UR referenced⁵ the source used to calculate the baseline figure of £62.299 million as a file called '*Reporting Workbook 28.11.16.xlsx*'. That file was a spreadsheet provided by NIE Networks to the UR on 28 November 2016.⁶
- 2.7 The data in this file for 2015/16 was based on the RP6 Business Plan Template Data.⁷ NIE Networks, in its notes in the accompanying commentary for the RP6 Business Plan Template clearly stated that the 2015/16 data was forecast data:

"2015/16 Forecast data

*Contrary to paragraph 2.2.2 of the Financial Data BPT Guidance notes, NIE Networks have included 'latest best estimate' data in the BPT for 2015/16 as the timing of internal approvals and signoff of the RP6 business plan will not align with preparation of the 2015/16 RIGs. This is in line with what was agreed with the UR."*⁸

- 2.8 The Financial Data RIGs for 2015/16, containing actual data, were subsequently submitted to the UR on 14 October 2016. However, the UR did not use these actual costs for 2015/16 for the purposes of setting the baseline figure.
- 2.9 NIE Networks raised a query on this issue by email on 14 April 2017 seeking written confirmation of the UR's position ("**NIEN April 2017 Query**").⁹ The UR

⁵ See cell A1 in spreadsheet accompanying the UR 30 March Calculation Breakdown.

⁶ Attached to email from NIE Networks () to the UR () 'RE: RP6 Distribution Draft Inputs Template', 28 November 2016, 18:24.

⁷ See email from the UR () to NIE Networks (), 'FW: RP6 Distribution Draft Inputs Template', 24 November 2016, 12:25.

⁸ UR / NIE Networks, 'Financial Data Business Plan Templates: Commentary Template' (UR template filled in by NIE Networks), 29 June 2016, section 2.1.2. (Note that, while that document is marked as 'draft', it is the version as submitted to the UR; the 'draft' notation was an artefact of the UR's original template document.)

⁹ Email from NIE Networks () to the UR (), 'Queries on Baseline Calculation', 14 April 2017, 11:28 ("**NIEN April 2017 Query**").

responded stating that "*The UR's DD should be viewed in the context of all the information we used for our decisions at the time*" ("**UR May 2017 Response**").¹⁰

- 2.10 It is unclear from this response whether the UR intentionally used forecast data. The business plan templates issued by the UR specified that RIGs data should be used for the period 2013 to 2016.¹¹ RIGs are based on actual incurred costs and do not capture forecast data.
- 2.11 It would be incorrect to use forecast data for setting the baseline when the actual cost data is available.

Assumptions for transmission tree cutting

- 2.12 Due to the structure of the Financial Data RIGs and the allowances set for RP5 by the CMA, the actual costs for Transmission Tree Cutting are not easily identifiable in the Financial Data RIGs. The UR accordingly assumed an allowance for Transmission Tree Cutting based on a 2018/19 forecast.¹²
- 2.13 NIE Networks raised a query on whether the UR will use the actual costs for Transmission Tree Cutting, rather than forecast costs, seeking written confirmation of the UR's position.¹³
- 2.14 In this query NIE Networks also provided to the UR a reference to where the actual costs for Transmission Tree Cutting had been previously provided to the UR, namely, the Network Investment Plan RIGs for 2015/16, submitted on 14 October 2016.¹⁴ The UR responded to this query, stating that "*The UR's DD should be viewed in the context of all the information we used for our decisions at the time*".¹⁵ For the avoidance of doubt, as noted above, NIE Networks submits that it is the actual rather than forecast data that should be used in the present context.

Update to 2015/16 data

- 2.15 For completeness, NIE Networks notes that, subsequent to the publication of the DD, it submitted some updated data to the UR following identification of an error. This would need to be taken into account in the UR's calculation of the baseline figure.

¹⁰ Email from the UR () to NIE Networks (), 'RE: Queries on Baseline Calculation (NIE25)', 2 May 2017, 16:22 ("**UR May 2017 Response**").

¹¹ UR, 'RP6 Business Plan Benchmarking & Efficiency Data Submission – Guidance Notes [v2.00]', 17 February 2016, 2.3.3.

¹² See UR 30 March 2017 Calculation Breakdown (covering email): "*As mentioned in query response URQ135, expenditure related to transmission tree cutting remains at approximately £0.3 million a year throughout RP6, but in RP5 this amount was included in Network Investment Programmes and not under IMF&T. Hence, this amount is not presented in row 179 in worksheet "Outturn Detail" for years 2012/13 to September 2017. To account for this, given the amount spent on transmission tree cutting is forecast to remain relatively constant in real terms over RP6, we have assumed 2015/16 transmission tree cutting expenditure is the same as the 2018/19 forecast in real terms, which is approximately £0.340 million a year (2015/16 prices). The conversion of nominal transmission tree cutting expenditure into real terms is presented in rows 57 to 63.*"

¹³ NIEN April 2017 Query.

¹⁴ The title of the workbook itself being 'Project RIGs Reporting Workbook' – this is the investment plan RIGs.

¹⁵ UR May 2017 Response.

- 2.16 As part of the preparations for the 2016/17 RIGs, NIE Networks identified a spreadsheet error in the 2015/16 RIGs data set which had been submitted to the UR on 14 October 2016. NIE Networks' RIGs team undertook a review of the 2015/16 RIGs to address this issue. As a result, the 2015/16 data set was updated and re-submitted to the UR for the calculation of the baseline on 5 May 2017. The UR attended a workshop with NIE Networks on 6 May 2017 where NIE Networks took the UR through the details of the changes made and why they were necessary.

Conclusion: The UR must re-calculate the baseline figures using relevant actual data

- 2.17 Table 5.1 below summarises the UR's previous calculation of the base year figure (based on the erroneous use of forecast rather than actual data, as set out above), and shows what the figures would otherwise be if this error is corrected (and using the updated 2015/16 data as noted above).

Table 5.1: Re-calculated baseline figures

(£m 2015/16 prices)	RP6 DD based on 15/16 Forecasts	15/16 FD RIGs (Apr 17)	Variance from DD	6.5 Year View
UR Baseline Calculation	61.958	64.567		
Add Transmission Trees	0.340	0.489		
UR Proposed Baseline	62.299	65.056	2.757	17.919

- 2.18 As shown in Table 5.1, if the UR fails to use the relevant actual data, and it fails to take account of the updated 2015/16 Financial Data RIGs as provided to it by NIE Networks, there will be a shortfall in the annual baseline figure of £2.76 million per annum, which equates to **£17.9 million** over the course of the RP6 period.

Use of one year's data for setting baseline

- 2.19 The UR's reliance on a single year of cost data to set a baseline for RP6 allowances means that any atypical factors which positively or negatively affect NIE Networks' costs in the base year will be 'rolled forward' throughout RP6.
- 2.20 NIE Networks considers that it would be more appropriate to use an average of a number of years of actual cost data to set the baseline, using the data at an aggregated Indirects and IMFT level.
- 2.21 The CMA addressed this question in the context of the Bristol Water referral, at which it concluded that *"a single year may be unrepresentative"* of a typical year over the price control, and that *"an average was therefore a more robust approach"*.¹⁶

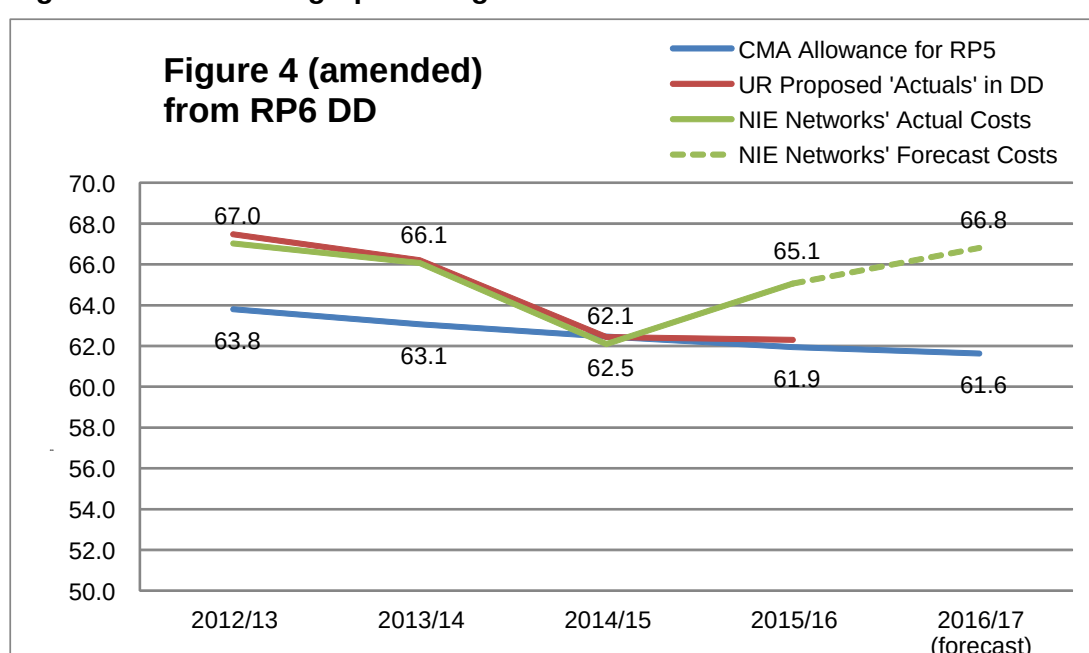
¹⁶ CMA, 'Bristol Water plc – A reference under section 12(3)(a) of the Water Industry Act 1991 – Report', 6 October 2015, p.146.

- 2.22 NIE Networks calculated the baseline for each of the first four years of RP5 using the same method used by the UR in the DD and then determined the average of the four year period. The resulting value is £65.059 million and therefore in line with the baseline calculated in Table 5.1 above.
- 2.23 On that basis, NIE Networks considers the baseline for RP6 should be set at £65.1 million (2015/16 price base) as a result of using the average over 4 years.

Correction to graph in DD

- 2.24 Figure 4 in the DD (p.47) included a data point for 2015/16 based on forecast data rather than actual cost data (as discussed above). The amended graph, which includes actual cost data, is presented at Figure 5.1 below for clarity.

Figure 5.1: Amended graph for Figure 4 from RP6 DD¹⁷



- 2.25 As presented in the RP6 Business Plan, NIE Networks expects Indirect and IMFT costs to increase in the remainder of the RP5 period, primarily to support the capex programme which is phased to increase towards the end of the RP5 period as a result of the CMA referral in 2013.
- 2.26 Overall, NIE Networks expects to exceed the RP5 allowances for Indirects and IMFT; however, this is offset by lower costs versus allowances for other aspects of the RP5 programme.
- 2.27 Over the full five and a half year period, NIE Networks expects total overall actual costs to be broadly in line with the RP5 allowances.

¹⁷ Note that the minor differences in the "UR Proposed 'Actuals' in DD" and "NIE Networks' Actual Costs" for the years 2012/13, 2013/14 and 2014/15 are due to the choice of inflation metrics used by the UR in the section 5 of the DD. NIE Networks has sought clarity from the UR on this point as the inflation metrics used do not appear to align with the metrics defined in the NIE Network Transmission and Distribution licences.

3. THE UR'S APPROACH TO BENCHMARKING

The UR's model selection process

The UR's provisional decision and the issue

- 3.1 The UR has undertaken a benchmarking exercise to assess efficient IMFT and Indirect expenditure for NIE Networks, as compared with GB DNOs.¹⁸ The UR engaged economic consultants, Cambridge Economic Policy Associates Limited ("CEPA"), to advise it in this process. CEPA's report is included with the DD at Annex B.¹⁹
- 3.2 A key part of that exercise is to select appropriate econometric models to use for this assessment.²⁰
- 3.3 The UR has provisionally selected a set of top-down IMFT and Indirect models that it developed in conjunction with CEPA.²¹ In doing so, the UR has:
- ignored the approach that Ofgem has used for assessing the GB DNOs;
 - ignored the approach proposed by NIE Networks (based on the Ofgem approach) and the specific evidence and conclusions provided resulting from that modelling approach; and
 - ignored key points made by its own advisers, CEPA.
- 3.4 For the reasons set out further below and in the NERA May 2017 Indirect and IMFT Report, NIE Networks considers that, in doing so, the UR has adopted arbitrary and subjective, and therefore irrational, model selection criteria; and has ignored robust evidence and precedent that was available to it. The approach adopted by the UR is unbalanced. It would be an error to continue to adopt this approach for the Final Determination, and NIE Networks considers that the UR should adopt the approach that NIE Networks has proposed.
- 3.5 The evidence presented by NIE Networks, shows that NIE Networks is in fact above the "upper quartile" level of efficiency by 4.2%. This means that NIE Networks is in the upper quartile of the 15 UK DNOs and therefore considered to be an efficient company.
- 3.6 The UR's chosen models, which for the reasons discussed below are inappropriate as a means of comparing NIE Networks' costs to those of the GB DNOs, have caused the UR to come to the wrong provisional conclusion about NIE Networks' position, having concluded that NIE Networks is below the "upper quartile" level of efficiency by 2.0% and therefore not efficient.

¹⁸ Benchmarking is based on the distribution and 110 kV networks, The GB DNOs do not operate 275 kV networks. Therefore these costs are not included in the benchmarking.

¹⁹ Cambridge Economic Policy Associates Limited ("CEPA"), 'RP6 Efficiency Advice – The Northern Ireland Utility Regulator (UR) – Final Report', March 2017 ("DD Annex B – CEPA Efficiency Report").

²⁰ See DD, 5.96-5.111; DD Annex B – CEPA Efficiency Report.

²¹ DD, 5.106.

Background – the process to date

UR RP6 Final Approach Document

- 3.7 In the UR RP6 Final Approach Document,²² the UR set out its desire to use benchmarking to determine the relative efficiency of NIE Networks:

*"We expect NIE Networks to have carried out sufficient benchmarking to inform its decision on the scope for improving efficiency that it has included in its RP6 Business Plan. We expect to see this justification together with information for us to be able to carry out benchmarking checks against peer enterprises operating elsewhere in the UK and Europe."*²³

- 3.8 In parallel, the UR and NIE Networks engaged on the structure of the RP6 Business Plan Templates. The UR issued a series of templates specifically to collect the costs and cost drivers it would require to undertake comparative benchmarking.²⁴

NIE Networks Business Plan submission

- 3.9 NIE Networks submitted a detailed business plan for the RP6 period in June 2016. As part of the plan, a report prepared by NERA was included which detailed the analysis undertaken to compare NIE Networks' costs with those of the 14 GB DNOs ("**NERA June 2016 Benchmarking Report**")²⁵.
- 3.10 Following the submission of the RP6 Business Plan, NIE Networks, via NERA, also provided the UR with all the underlying data, models and results.²⁶
- 3.11 The NERA report contained a comparative benchmarking analysis of NIE Networks' Indirect and IMFT costs against the GB DNOs, for the purpose of informing NIE Networks and the UR of the extent of efficiency (or inefficiency) in the company's current expenditure, and thus the scope for efficiency improvement that should be factored into the RP6 business plan.
- 3.12 The NERA approach implemented the methods used by Ofgem at the recent RIIO-ED1 price control review in GB and the CMA following the referral of NIE Networks' RP5 price control. The evidence shows that NIE Networks' Indirect and IMFT costs between 2012/13 and 2014/15 were around 4.2% lower than the modelled efficient frontier (set at the level of the "upper quartile" company), and that NIE Networks ranked second out of the 15 DNOs. Hence, the Ofgem/CMA benchmarking methodology shows no evidence of technical inefficiency embedded within NIE Networks' current level of indirect and IMFT costs.

²² UR, 'Northern Ireland Electricity Networks Ltd – Transmission & Distribution 6th Price Control (RP6) – Final Overall Approach', December 2015 (https://www.uregni.gov.uk/sites/uregni.gov.uk/files/media-files/2015-12-22_RP6_Final_Approach_Document_-_final.pdf) ("**UR RP6 Final Approach Document**").

²³ UR RP6 Final Approach Document, 4.40.

²⁴ The template (dated 17 February 2016) and accompanying commentary and guidance notes are linked to under the heading 'Benchmarking' at: <https://www.uregni.gov.uk/publications/rp6-documentation>.

²⁵ NERA, 'Comparative Benchmarking to Support Preparation of NIE Networks' RP6 Business Plan – Prepared for NIE Networks', 28 June 2016 ("**NERA June 2016 Benchmarking Report**").

²⁶ Email from NERA () to the UR (), 'NIE benchmarking files', 21 July 2016 14:41.

- 3.13 In October 2016 NIE Networks submitted an updated version of the NERA benchmarking report which included the results of the benchmarking analysis using NIE Networks' latest 2015/16 RIGs data.²⁷ This updated report confirmed the conclusion from the earlier work; i.e., that the models used suggested there was no evidence of inefficiency embedded in NIE Networks' current Indirect and IMFT costs. NIE Networks, via NERA, also provided all the associated underlying data, models and results to the UR.²⁸

NERA's approach – based on recent and relevant Ofgem and CMA precedent

- 3.14 The models used for benchmarking in the NERA June 2016 Benchmarking Report closely followed the approach used by Ofgem in the recent RIIO-ED1 price control. The rationale for using the Ofgem approach and, in particular, the more disaggregated models was justified on the basis of the following points:²⁹
- Ofgem's models emerged from a longer and more detailed regulatory review and have been subject to scrutiny from a wide number of stakeholders, including all 14 GB DNOs and other interested parties (notably, energy retailers such as British Gas Trading that ultimately appealed some other aspects of the determination);
 - they allow for a wider range of cost drivers than can be included in the more aggregated models; and
 - the econometric models used by Ofgem pass the required selection criteria that CEPA used to inform its model selection process.
- 3.15 NERA also conducted more aggregated modelling using the CMA's RP5 approach. The results of this analysis showed NIE Networks to be within 1.0% of the upper quartile position.³⁰ It should be noted, however, that this analysis did not include any application of special factors.
- 3.16 The approach undertaken by NERA included a mix of top down and disaggregated modelling techniques.³¹ The combined approach of the modelling techniques demonstrates NIE Networks to be an efficient company.

The UR has largely ignored the NIE Network Business Plan and associated benchmarking analysis

- 3.17 In the DD the UR has ignored the benchmarking evidence submitted alongside NIE Networks' business plan.³² The UR made various criticisms of NERA's approach, but in the view of NIE Networks and NERA, these are misplaced. The

²⁷ NERA, 'Updated Benchmarking Analysis Using 2015/16 RIGs Data – Prepared for NIE Networks', 31 October 2016 ("**NERA October 2016 Updated RIGs Benchmarking Report**").

²⁸ Email from NERA () to the UR (), 'Updated NIE benchmarking files', 8 November 2016, 15:25.

²⁹ NERA May 2017 Indirect and IMFT Report, section 3.1.3.

³⁰ NERA May 2017 Indirect and IMFT Report, section 3.1.3.

³¹ NERA May 2017 Indirect and IMFT Report, section 3.1.3.

³² DD, 5.106-5.111.

UR's criticisms are addressed in detail in section 3.1.4 of the NERA May 2017 Indirect and IMFT Report and summarised briefly in Table 5.2 below:

Table 5.2: The UR's reasons for dismissing NIE Networks' evidence and summary of reasons why this is wrong

UR Argument	NIE Networks' & NERA's (section 3.1.4) response / position
Availability of additional historic data and reallocation of some cost categories. (See DD, 5.107.)	The UR argument simply notes the importance of updating previously estimated disaggregated models with new data and ensuring that previously estimated models remain statistically robust when they are extended to include NIE Networks. However, this explanation does not justify the decision not to consider disaggregated models. In any event, CEPA's sensitivity analysis finds that using DPCR5 RIGs data (reflecting Ofgem's older DPCR5 RIGs guidance) instead of the latest RIIO-ED1 RIGs data does not affect the robustness of the disaggregated models.
NERA has used only a proportion of Ofgem's models. (See DD, 5.108.)	NERA implemented Ofgem's approach to benchmarking Indirect and IMFT costs in its entirety. NERA did not apply Ofgem's "totex" models due to differences in capex requirements between NIE Networks and GB DNOs, a decision with which UR agrees (see DD, 5.105).
NERA ignored the potential benefits from more top-down models. (See DD, 5.109.)	The UR's suggestion that the results of disaggregated models do not account for trade-offs and reporting differences between cost categories is incorrect. In fact, when combining results of disaggregated models across cost items, the effect of possible reporting differences is mitigated. Also, NERA cross-checked the Ofgem disaggregated results through top-down models used by the CMA at RP5 in the NERA June 2016 Benchmarking Report.
Ofgem's approach is mostly unit cost analysis (See DD, 5.110.)	The UR's suggestions that Ofgem's models are "mostly" unit cost analysis is incorrect, since the cost items assessed through this method account for half of NIE Networks costs. Also, Ofgem's unit cost analysis controls for a wider range of factors than the UR's highly aggregated models.

- 3.18 As set out briefly above and in full in the NERA May 2017 Indirect and IMFT Report, the UR's arguments in this respect are flawed and contradict the options presented in its own consultants' benchmarking report. The UR has not given due consideration to the benchmarking undertaken by NIE Networks which was based on the most recent and relevant regulatory approaches to benchmarking.

- 3.19 It should also be noted that, prior to the publication of the DD (during engagement with the UR and CEPA), it had become apparent to NIE Networks that the UR and CEPA were not minded to use the Ofgem models as had been proposed by NIE Networks and NERA. NIE Networks considered that this omission is a material issue, and NIE Networks wrote to the UR in February 2017 to set out its concerns.³³ While receipt of NIE Networks' letter was briefly acknowledged by the UR,³⁴ the points put forward have not been considered or addressed fully in the DD.

CEPA's benchmarking approach

- 3.20 Rather than take the Ofgem models as a starting-point, the UR instead engaged CEPA to develop its own models for benchmarking.

Engagement with the UR and CEPA

- 3.21 There were a series of engagements between NIE Networks and CEPA over late 2016 and early 2017 on the development of their models.
- 3.22 NIE Networks requested access to the CEPA models prior to publication of the DD. However, the UR did not provide these and instead assured NIE Networks that there would be sufficient information in the DD (and annexes) to allow it to replicate the CEPA models.
- 3.23 During the consultation period since the publication of the DD, there has been engagement on this area where the UR answered a series of queries from NIE Networks and NERA on the technical aspects of the models used by the UR in the DD. However, NERA has been unable to exactly replicate the models used in the DD.³⁵ This activity took considerable time and resources in a limited consultation window.
- 3.24 NIE Networks provided all models to the UR as part of the RP6 process. It is therefore unfortunate that the UR was unable to reciprocate, and that it did not have the necessary arrangements in place with Ofgem to facilitate the sharing of data and models in a timely manner. NIE Networks suggests that this is an area the UR considers further in the context of its desire to undertake 'relative efficiency analysis' on an annual basis.³⁶

CEPA's approach

- 3.25 DD Annex B details the approach undertaken by CEPA in developing its models. CEPA considered a range of models and cost drivers and produced a series of

³³ Letter from NIE Networks () to the UR (), 'RP6 Key Concerns: Indirects & IMFT Benchmarking', 23 February 2017.

³⁴ Email from the UR () to NIE Networks (), 'RE: Key concerns in relation to Indirect and IMFT Benchmarking', 24 February 2017, 09:01.

³⁵ The NERA results are within 0.1% of the CEPA efficiency gap presented in the DD.

³⁶ See DD, 5.149.

"recommended" models and viable alternative models and cost drivers which all passed various statistical tests.³⁷

- 3.26 In particular, some of CEPA's recommended models are "aggregate" models, in the sense that they model at the level of total Indirect and IMFT costs, while others are "disaggregated" and model individual elements of Indirect and IMFT costs (e.g. tree cutting, or faults).
- 3.27 In summary, CEPA recommended six models with a further six models as potential alternatives.

The UR in the DD has disregarded CEPA's recommendations

- 3.28 Table 3.1 in the NERA May 2017 Indirect and IMFT Report³⁸ shows the 12 models considered by CEPA to be viable, and the 3 models selected by the UR for the purposes of calculating the efficiency gap. Namely:
- CEPA IMF&T & Indirect Model (Aggregate);
 - IMFT & Indirect (CMA RP5 M4 Model) (Aggregate); and
 - IMFT & Indirect (CMA RP5 M4 Model) (Aggregate).
- 3.29 There is limited discussion in the RP6 DD as to why the UR selected these models in preference to the options presented in the CEPA paper (DD Annex B). The UR fails to explain why it has ignored the disaggregated models developed and recommended by its own consultants. In addition, the alternative models show NIE Networks to be more efficient than the models UR selected, suggesting the UR may have sought to select only those models that show NIE Networks in a relatively unfavourable light while ignoring better alternatives without reason.
- 3.30 This provisional decision to rely solely on top-down models also appears at odds with recent regulatory precedent (e.g. Ofgem for RIIO-ED1; CMA appeal of Bristol Water): see NERA May 2017 Indirect and IMFT Report, section 3.1.2.
- 3.31 Despite its decision to ignore the more disaggregated models, the DD appears to be contradictory, in the sense that it also advocates the use of disaggregated models alongside more aggregated models when assessing companies' efficient costs.³⁹
- 3.32 In addition, on reading DD, 5.179, it appears that the UR may have intended to use the disaggregated models, as it includes it in the methodology for triangulation (see DD, 5.179 (iv)).

³⁷ Further detail is included in the NERA May 2017 Indirect and IMFT Report, section 3.1.1.

³⁸ See page 15.

³⁹ DD, 5.101, 5.111.

Further errors

Use of MEAV as a cost driver

- 3.33 The UR has suggested that its decision to use Composite Scale Variables ("**CSV**") models and disregard Mean Equivalent Asset Value ("**MEAV**") as a cost driver may be justified on grounds that the definition of the MEAV variable requires some degree of discretion, and for reasons of "*regulatory precedent from the CC RP5, who also used models with same CSV*".⁴⁰
- 3.34 NIE Networks considers it would not be appropriate to use CSV in preference to MEAV because, as set out in detail in section 3.1.6 of the NERA May 2017 Indirect and IMFT Report, while CSV had been used as an explanatory variable by Ofgem as part of its cost assessment procedure as early as in 1999, it was ultimately abandoned at RIIO-ED1 in favour of a wider set of cost drivers including MEAV. CSVs also require significantly more 'discretion', as the weights that combine the different variables that make up the CSV are themselves arbitrary. By contrast, MEAV is calculated from a combination of data on the number of assets each DNO has, and an expert estimate of the unit cost of a 'modern equivalent' of those assets.
- 3.35 The UR is therefore ignoring this improvement in the modelling approach implemented by Ofgem since DPCR4 that led to the increased use of MEAV and reducing reliance on CSVs. The UR also ignores the advantage of MEAV, in that it captures both the scale and the complexity of DNOs' networks, which simpler scale variables such as network length or density fail to do.

Summary

- 3.36 NIE Networks considers that the modelling put forward in the NERA June 2016 Benchmarking Report as part of NIE Networks' business plan is the most robust approach and should be adopted by the UR for the RP6 Final Determination.
- 3.37 Furthermore, NIE Networks considers that the three top down models selected by the UR in the DD are biased against NIE Networks.

Incorrect treatment of indirect costs related to connections activities

The UR's provisional decision and the issue

- 3.38 In comparing costs between NIE Networks and the GB DNOs, the treatment of costs incurred in connections activities must be considered.
- 3.39 NIE Networks faces proportionately higher connections costs compared with the GB DNOs. This is primarily because this work is not contestable in NI and therefore NIE Networks carries out all of this work, whereas in GB connections work may be carried out by a number of different providers in addition to the relevant DNO itself.

⁴⁰ DD, 5.118.

3.40 In its treatment of connection costs in the benchmarking exercise, the UR proposes to place:

- a 50% weight on 'post-allocation' models (i.e. all indirect costs allocated to connection are excluded from the benchmarking analysis); and
- a 50% weight on 'pre-allocation' models (i.e. including all indirect costs related to connections).⁴¹

3.41 NIE Networks considers that placing such weight on pre-allocation models is erroneous as it fails to address the different scope of connection activities between GB and NI due to the non-contestability of connections work in NI. In consequence, this causes the UR to understate NIE Networks' efficient costs. The UR should instead place 100% on post-allocation models, which would correctly and appropriately deal with the differing treatment of connection costs. The 100% weight should apply to any of the models the UR decides to use in the RP6 Final Determination.

Incorrect use of pre-allocation models

3.42 The reasons why the UR should adopt the above approach are summarised below. They are set out in further detail in section 3.2 of the NERA May 2017 Indirect and IMFT Report.

3.43 Historically, connection activities are not contestable in NI, with NIE Networks having been the only party in NI designing and building connections to the distribution system over the four year assessment period used by the UR (2012/13 to 2015/16) for benchmarking purposes. By contrast, the market for new connections in GB has been (and still is) contestable with a part of the connections market open to competition.

3.44 As a result, over the assessment period, the role of GB DNOs and NIE Networks in performing connection activities has been substantially different, with NIE Networks having carried out more connection work relative to DNOs in other parts of the UK.

3.45 At RP5 the CMA tested both models that included and excluded indirect costs related to connections, but ultimately decided to rely solely on models that exclude all indirect costs allocated to connections (post-allocation models, as noted above). In taking this decision the CMA noted the following:

- Excluding indirect costs allocated to connections allows “a *better alignment*” between the costs used for the benchmarking analysis and the costs for which a revenue allowance is made.
- Excluding indirect costs allocated to connections helps to address a possible limitation of the econometric benchmarking models in accounting for the different scope of connection activities between GB and NI.

⁴¹ DD, 5.71.

Specifically, the CMA noted that the selected econometric models (amongst those the UR proposes to use at RP6 in its DD) are *"not well suited to taking account of variations between different companies in the amount of connection work that each company is required to carry out in any financial year"*. In fact, whilst capturing differences in companies' scale, the chosen explanatory variables do not capture *"differences in the amount of new connection activity"*. The latter point, according to the CMA, is of particular importance since *"there is greater scope for competitive third parties to carry out connections in GB than Northern Ireland, which will tend to reduce the role of GB DNOs in connection work"*.⁴²

3.46 However, as noted above, the UR has proposed in the DD to place a 50% weight on post-allocation models and a 50% weight on pre-allocation models, which has the effect of underestimating the extent of NIE Networks' efficiency compared to the GB DNOs.

3.47 In attempting to justify its approach the UR contends as follows:

- Pre-allocation models would *"not create any adverse incentive for NIE Networks to inefficiently allocate indirect costs to connections"* but would involve *"modelling of both regulated and unregulated costs"* and require a larger number of regulatory decisions to make adjustments to set NIE Networks' final allowance.
- Conversely, post-allocation models have *"the potential to adversely incentivise NIE Networks to allocate a large proportion of indirect costs to connections"* but would allow focusing on regulated costs and not require any further regulatory decision by the UR.⁴³

3.48 However, these arguments ignore the main economic case for using post-allocation models as identified by the CMA. Specifically, the UR's econometric benchmarking models, by relying on generic scale variables, are not well-suited to account for variation between different companies in the amount of connection works, which is especially relevant in this case given the non-contestable nature of the connections market in NI as opposed to GB.

3.49 Failing to account for this limitation of pre-allocation models means the UR's current approach, which places a 50% weight on this flawed modelled approach, understates NIE Networks' efficient costs. On that basis, NIE Networks considers that the UR should place a 100% weight on the post-allocation models.

⁴² CMA, 'Northern Ireland Electricity Limited price determination – A reference under Article 15 of the Electricity (Northern Ireland) Order 1992 – Final determination', 26 March 2014 (https://assets.digital.cabinet-office.gov.uk/media/535a5768ed915d0fdb000003/NIE_Final_determination.pdf) ("CMA RP5 Determination"), 8.172(a) and (b) (at p.8-32).

⁴³ DD, 5.71.

Incorrect treatment of wayleave payments

The UR's provisional decision and the issue

- 3.50 The Indirect and IMFT benchmarking models proposed by the UR include wayleave payments.⁴⁴
- 3.51 However, the UR's proposed Indirect and IMFT models fail to account for the fact that NIE Networks incurs higher wayleave costs with respect to the GB DNOs due to the high proportion of overhead lines on NIE Networks' network.
- 3.52 This leads the UR to understate NIE Networks' efficiency relative to the GB DNOs.
- 3.53 To correct this error, the UR should, consistent with the approach adopted by Ofgem, exclude wayleave payments from the models and indeed any of the models the UR decides to use in the RP6 Final Determination.

Background and summary of reasoning

- 3.54 The reasons why the UR should adopt the above approach are summarised below. They are set out in further detail in section 3.3 of the NERA May 2017 Indirect and IMFT Report.
- 3.55 Electricity network operators make wayleave payments to property owners and occupiers in order to obtain permission to install and maintain apparatus on their property. Wayleave payments can be required for both the overhead and underground parts of the networks. However most of the equipment installed on privately owned land and subject to wayleave payments is overhead lines.
- 3.56 At RIIO-ED1, Ofgem changed its benchmarking approach towards wayleave payments between its Draft Determination and Final Determination, ultimately opting to exclude wayleave payments from the benchmarking model and perform a separate unit cost assessment based on the number of overhead line supports, rather than network length.
- 3.57 NIE Networks, in its submissions to the UR, followed the Ofgem approach, which was set out in the NERA June 2016 Benchmarking Report and submitted along with NIE Networks' Business Plan.
- 3.58 However, in the DD the UR's proposed Indirect and IMFT models fail to account for the fact that NIE Networks incurs higher wayleave costs with respect to the GB DNOs due to the high proportion of overhead lines on its network (see, in particular, Figure B.1 in the NERA May 2017 Indirect and IMFT Report).
- 3.59 The general scale variables chosen by the UR to assess NIE Networks' Indirect and IMFT costs (such as network length and network density) neither account for the volume of overhead line supports in a DNO's network, nor the ratio of overhead lines to underground cable. As acknowledged by Ofgem in its RIIO-ED1 Final Determination,⁴⁵ both elements are key drivers of DNOs' wayleave costs.

⁴⁴ See DD Annex B – CEPA Efficiency Report, section 2.2.7.

⁴⁵ Ofgem, 'RIIO-ED1: Final determinations for the slow-track electricity distribution companies, Business plan expenditure assessment', 28 November 2014

- 3.60 As a consequence, the UR's decision to include wayleave payments in the benchmarking cost assessment understates NIE Networks' efficiency relative to the GB DNOs which have a lower proportion of overhead lines and thus lower wayleave costs.

Inappropriate regional wage adjustment

The UR's provisional decision and the issue

- 3.61 In its benchmarking exercise the UR adjusted NIE Networks' and GB DNOs' labour costs using a regional wage adjustment ("**RWA**"),⁴⁶ to reflect different labour costs around the country.⁴⁷
- 3.62 However, in doing so, the UR has failed to fully reflect differences in the labour costs NIE Networks faces relative to DNOs in other parts of the country. This error is material and causes the benefit that NIE Networks receives from being in a relatively low-wage region of the UK to be materially exaggerated in the UR's modelling.
- 3.63 For the reasons set out further below, to correct this error the UR should either:
- rely on Ofgem's local labour adjustment factor and apply it to all models that form part of its 'triangulation'; or
 - perform its own independent assessment to compute a local labour adjustment factor and apply it to all models that form part of its 'triangulation'.

Background and summary of reasoning

- 3.64 The reasons why the UR should adopt the above approach are summarised below. They are set out in further detail in section 3.4 of the NERA May 2017 Indirect and IMFT Report.

Background and NIE Networks' submissions

- 3.65 In its RP6 Business Plan, NIE Networks accepted that NI is a lower cost area in terms of labour in comparison to GB and, therefore, an adjustment was required to the benchmarking models to address this issue. NIE Networks' advisers, NERA, prepared a paper that contained an appropriate adjustment for this effect, which was submitted to the UR ("**NERA April 2016 Regional Labour Costs Adjustments Report**").⁴⁸ This report drew upon the extensive work undertaken by Ofgem for RIIO-ED1, and took a balanced approach that contained an

(https://www.ofgem.gov.uk/sites/default/files/docs/2014/11/riio-ed1_final_determination_expenditure_assessment_0.pdf), 10.29 (p.127).

⁴⁶ Note that the terms 'Regional Wage Adjustment' ("**RWA**") and 'Regional Labour Adjustment' ("**RLA**") are used interchangeably in this Response and the NERA reports.

⁴⁷ DD, 5.74-5.87.

⁴⁸ NERA, 'Regional Labour Cost Adjustments for RP6 – Prepared for NIE Networks', 14 April 2016 ("**NERA April 2016 Regional Labour Costs Adjustments Report**").

appropriate adjustment for this effect. The report concluded that labour costs relevant to a DNO in NI are 92.7% as expensive as the UK average.

- 3.66 One key component of this analysis was the ‘local share of labour adjustment’. NERA used the same weights used by Ofgem which determine what percentage of the costs for the various activities undertaken by DNOs needed to be incurred within the geographical location of the network. The weights used were:
- Direct Activities – 30%;
 - Closely Associated Indirect – 20%;
 - Business Support – 5%.

[illegible]

- 3.68 Applying the above RWA to the DNOs' entire labour share unfairly penalises those DNOs in low-wage regions and rewards DNOs in high-wage regions. For example, if Ofgem did not apply the above weights, it would mean that the DNO operating in London would get higher funding as the modelling would assume London labour rates for all roles. They would therefore be over compensated as in reality they could perform these activities outside of London. The reverse is equally applicable for low wage areas.

The UR's approach in the DD

- 3.69 The UR's consultants, CEPA, undertook a similar activity to NERA on behalf of the UR as set out in its report included with the DD at Annex A ("**DD Annex A – CEPA Regional Labour Adjustments Report**").⁴⁹ There is substantial overlap between its approach and the NERA/Ofgem approach outlined above.
- 3.70 However, there are several elements of CEPA's approach that fail to reflect differences in the labour costs NIE Networks faces relative to DNOs in other parts of the country, as summarised further below.

Issues with the UR/CEPA approach

- 3.71 Prior to the publication of the DD, NIE Networks was provided with a draft paper produced for the UR by CEPA containing its proposed methodology for estimating RWA factors for the RP6 price control ("**Draft CEPA RLA Report**").⁵⁰
- 3.72 In January 2017 NIE Networks submitted a NERA report on regional labour costs ("**NERA January 2017 RLA Response**")⁵¹ to the UR, in which NERA reviewed the Draft CEPA RLA Report. The key points of concern raised were:

⁴⁹ CEPA, 'Regional Wage Adjustment – The Northern Ireland Utility Regulator (UR) – Final Report', March 2017 ("**DD Annex A – CEPA Regional Labour Adjustments Report**").

50 2017 ("DD Annex A – CEPA Regional Labour Adjustments Report").
CEPA, "Regional Wage Adjustment – Utility Regulator [Draft Report]", 22 November 2016 ("**Draft CEPA RLA Report**").

- (a) the choice of Standard Occupational Classification ("**SOC**") code level (2, 3 or 4-digits), which defines the level of granularity of wage data used to compute RLAs;
 - (b) the inclusion or exclusion of overtime in the definition of wages used to compute RLAs;
 - (c) the averaging approach (i.e. mean vs. median wages); and
 - (d) the share of DNOs' labour costs to which the RLA is applied, which defines the share of labour that the benchmarking analysis assumes needs to be collocated with the network.
- 3.73 As the NERA January 2017 RLA Response highlighted, the effect of these problems would be to exaggerate the benefit that NIE Networks receives from being in a relatively low-wage region of the UK, and thus would distort NIE Networks' modelled efficiency scores emerging from the benchmarking process.
- 3.74 The application of the 'local share of labour adjustment' (point (d) above) in particular has a material impact on the benchmarking results. Accordingly, NIE Networks wrote to the UR on 23 February 2017 to set out its position. The letter was briefly acknowledged by the UR.⁵²
- 3.75 DD Annex A (CEPA Regional Labour Adjustments Report) largely ignores the points put forward by NERA in January 2017 and by NIE Networks in its letter of February 2017.
- 3.76 The UR acknowledged NIE Networks' concerns with CEPA's recommendations *"with regards to how certain business support functions could in theory be located anywhere in the world"* and therefore, if an RLA is applied to DNOs' total labour costs it *"would penalise those DNOs in low-wage regions"*, such as NIE Networks.⁵³
- 3.77 CEPA also acknowledges that *"competitive pressure should therefore eliminate price differentials across regions"* for some proportion of labour. Furthermore, CEPA notes that *"if a proportion of a DNO's labour costs are not sourced locally"* an RLA approach which *"assumes that all cost are regional would 'over-adjust' the costs of the company"*.⁵⁴
- 3.78 CEPA does not propose to make an adjustment for non-local labour because *"it is difficult to pinpoint the total proportion of labour that can realistically be procured nationally (or internationally)"*.
- 3.79 Under the triangulation approach set out in the DD, half of the benchmarking models proposed by the UR to determine NIE Networks' allowances for Indirect

⁵¹ NERA, 'Response to CEPA's Regional Labour Adjustment Approach – Prepared for NIE Networks', 10 January 2017 ("**NERA January 2017 RLA Response**").

⁵² Both the NIE Networks letter and the UR's response are also cited at paragraph 3.19 above in footnotes 33 and 34.

⁵³ DD, 5.161.

⁵⁴ DD Annex A – CEPA Regional Labour Adjustments Report, p.18.

and IMFT costs ignore this effect by making no local labour cost adjustment at all. However, in attempting to justify its approach, NIE Networks considers that the UR relies on a set of flawed arguments, as summarised below (and dealt with in further detail in section 3.4 of the NERA May 2017 Indirect and IMFT Report).

- 3.80 The UR and CEPA have suggested that their approach of making no local labour cost adjustment might be justified on grounds that they were unable to retrieve the detailed source of Ofgem's assumptions and therefore were unable to assess whether these assumptions would hold for a utility based in NI. Both the UR and CEPA agree that some adjustment to account for the share of labour that can be sourced nationally is required. Given this acknowledgment, the UR should therefore either:
- (a) rely on Ofgem's local labour adjustment factor; or
 - (b) perform its own independent assessment to compute a local labour adjustment factor.

The UR has adopted neither approach. Instead, it has arbitrarily halved Ofgem's local labour shares (i.e. by placing 50% weight on models with and without this adjustment applied), and made no attempt to develop its own local labour adjustment factor. The UR has no good basis on which to do so.

- 3.81 The UR has suggested, based on CEPA's recommendations, that its decision not to apply in full Ofgem's local labour assumption might be justified because there are likely to be asymmetric incentives between companies located in high wage areas (likely to be incentive to relocate to cheaper areas) and those located in low wage areas (*"less likely to go to other market where they would face higher costs"*).⁵⁵ This argument does not justify UR's case for not making the adjustment. On the contrary, it supports the economic case for making an adjustment on grounds that companies (such as some of the GB DNOs) are incentivised to relocate some activities to cheaper areas on the country. Failing to adjust for this causes UR's benchmarking to understate NIE Networks' relative efficiency compared to these other companies in higher wage regions.
- 3.82 The UR has suggested that its approach to applying a local labour adjustment (based on Ofgem's shares at RIIO-ED1) to only 50% of its models might be justified on grounds that *"in reality"* there could be other factors that may limit DNOs' incentives to relocate some functions nationally to lower cost regions within the UK or internationally.⁵⁶ Amongst these factors, the UR and CEPA mention: *"the existence of cheaper regions inside of the area served by the DNO"*; *"joint provision of services across DNOs in the same group"*; *"political pressure to keep jobs in the area"* or *"degree of control required by the company over the provision of these services"*; and *"quality of service incentives"*.⁵⁷ In an attempt to support this argument, the UR provides evidence that the GB DNOs locate their customer

⁵⁵ DD Annex B – CEPA Efficiency Report, p.26.

⁵⁶ DD, 5.163.

⁵⁷ DD, 5.163; DD Annex B – CEPA Efficiency Report, p.18.

service centres and new connection centres within the region they operate. However, this limited and anecdotal evidence does not constitute a rigorous and complete assessment of DNOs' actual decisions concerning where to place staff, or their potential to move staff to different parts of the country, and so does not support the UR's proposed approach of halving Ofgem's local labour share adjustment. For instance, to provide a counter-example to the examples provided by the UR, in its RIIO-ED1 business plan UK Power Networks states "*UK Power Networks has done this [i.e. relocating parts of operations to cheaper areas of the country] for many aspects of its administrative and back-office operations*".⁵⁸

Conclusion

- 3.83 Based on the above, the UR's arbitrary decision to make only half of the local labour adjustment constitutes a material error in its approach to benchmarking. The UR has not properly analysed the issue, it has failed to take account of relevant evidence provided by NIE Networks, and it has ignored relevant regulatory precedent. The impact of not applying a local labour adjustment in full will be to bias the benchmarking results in a way that exaggerates the inefficiency of DNOs located in relatively low-wage regions (such as NIE Networks), and understates the inefficiency of DNOs in relatively high-wage regions.

Summary – the UR's approach to benchmarking

- 3.84 NIE Networks and NERA have identified major flaws in the UR's modelling approach which undermine its ability to robustly estimate NIE Networks' efficient Indirect and IMFT expenditure through benchmarking against the GB DNOs. In particular, NIE Networks has identified a number of elements of the UR's modelling approach to benchmarking which, if not addressed, will underestimate the extent of NIE Networks' efficiency relative to the GB DNOs; namely:
- the model selection process;
 - the treatment of indirect costs related to connections;
 - the treatment of wayleave payments; and
 - the local labour adjustment.
- 3.85 NIE Networks considers that the benchmarking undertaken as part its RP6 submission is correct and would be appropriate to use, and the results of that exercise show that NIE Networks is an efficient business.
- 3.86 However, it is worth noting that if the UR were to address the above issues in its model selection in the Final Determination and combine these with the results of the disaggregated models recommended by CEPA, NIE Networks' efficiency level

⁵⁸ UK Power Networks, 'Business Plan (2015 to 2023) – Annex 13a: Regional Cost Justification', March 2014 (at http://library.ukpowernetworks.co.uk/library/en/RIIO/Main_Business_Plan_Documents_and_Annexes/UK_PN_Regional_Cost_Justification.pdf), p.8.

would in fact be in the region of **minus 8.6% to 9.2%**.⁵⁹ This is discussed in section 3.5.2 of the NERA May 2017 Indirect and IMFT Report. This conclusion is consistent with the RP6 Business Plan submission, where NIE Networks demonstrated that it is an efficient business.

Application of efficiency level to the base year

- 3.87 In the UR RP6 Final Approach Document, the UR stated "*We remain minded to apply our preferred approach to setting efficiencies as first used when establishing NI Water's efficiency (opex and capex) gap back in 2006*".⁶⁰ It also included a table in the Benchmarking & Efficiency BPT⁶¹ to estimate the catch-up efficiency during the price control.
- 3.88 Based on the UR approach of applying the efficiency level to the base year, as the above estimated efficiency level is a minus figure, this has the effect of increasing the baseline.
- 3.89 Using the baseline of £65.1 million (see paragraph 2.23 above, and applying the above range (-8.6% to -9.2%), this equates to a RP6 base year in the region of £71 million. Considering the average expenditure requested in the RP6 Business Plan was £68.7 million,⁶² this demonstrates the robustness of the proposed cost levels for RP6.
- 3.90 There is precedent for this application as, under the Ofgem approach, the GB DNOs above the upper quartile position received additional revenue as a result of the benchmarking.
- 3.91 This approach generates an incentive for the network operators to continue to push the frontier, which is beneficial to customers in the long run.
- 3.92 The UR would be in error if it is not consistent in the application of the efficiency factor in the RP6 Final Determination.

4. SPECIAL FACTORS

Introduction and background: approach to special factors

- 4.1 NIE Networks has undertaken additional work to assess the special factors that should be applied to the benchmarking models selected by the UR; however, this should be considered as a 'secondary' argument as NIE Networks disagrees with the choice of models selected as set out above.
- 4.2 NIE Networks considers that, in its Final Determination, the UR should make the adjustments as discussed in Section 3 above. The information presented in this section should be considered as additional information to support the determination of an allowance.

⁵⁹ Based on the inclusion of the recently updated 2015/16 cost data.

⁶⁰ UR, RP6 Final Approach Document, 4.47.

⁶¹ UR, 2016_02_17 Benchmarking and Efficiency Data Submission - Reporting Workbook v02.00 – Tab 'Frontier Shift & Catch-up'.

⁶² Excluding severe weather and income.

- 4.3 Applying the appropriate models along with the special factors below would result in the benchmarking exercise indicating, correctly, that NIE Networks is within the upper quartile level of efficiency in comparison with the GB DNOs, and therefore deemed to be efficient.

Background

- 4.4 All benchmarking models have a limited ability to identify and control for differences between companies' conditions that affect costs. As such, it is common for regulators to consider 'special factor claims'. The UR acknowledges that its chosen econometric benchmarking models do not necessarily take account of all differences between companies. The UR has stated in the DD that it *"keep[s] an open mind as to whether special factors may apply for NIE Networks"*, and therefore, it invites respondents to the DD to *"consider whether they consider that there are any special factors that need to be applied with regards to the ... benchmarking models"*.⁶³
- 4.5 As part of its RP6 submission, NIE Networks included a report prepared by NERA on special factors ("**NERA June 2016 Special Factors Report**").⁶⁴ This report considered the extent to which the differences NIE Networks identified were likely to materially affect the results of comparative benchmarking between NIE Networks and the GB DNOs, and whether alternative models could adequately capture these differences.
- 4.6 As NIE Networks had already demonstrated in its RP6 submissions that it is an efficient company (see paragraphs 3.5 and 3.9-3.13 above), it did not request that the special factors identified in the above report be applied in its RP6 Business Plan.⁶⁵

NIE Networks' assessment of special factors in light of the DD

- 4.7 NERA has undertaken an assessment of the models used by the UR in the DD, and has considered whether there is a case for applying special factors.⁶⁶ These are summarised below (the detail is set out in the NERA May 2017 Indirect and IMFT Report⁶⁷); including, specifically, (i) special factors associated with IMFT; and (ii) special factors associated with Indirect Costs.

Criteria for considering special factors

- 4.8 The DD provides guidelines on the criteria by which the UR will consider special factors claims in its Final Determination; specifically:

⁶³ DD, 5.144.

⁶⁴ NERA, 'Special Factors Affecting NIE's Costs Relative to the British DNOs – Prepared for NIE Networks', 28 June 2016 ("**NERA June 2016 Special Factors Report**").

⁶⁵ In addition, it should be noted that the special factors identified by NERA related specifically to the Ofgem models as the UR had not developed their benchmarking models at that stage.

⁶⁶ NERA May 2017 Indirect and IMFT Report, section 4.

⁶⁷ See, in particular, NERA May 2017 Indirect and IMFT Report, sections 4.1 and 4.2.

- *"What is different about the circumstances that cause materially higher cost claims which amount to greater than 1% of the total modelled costs in question?"*
- *Why do these circumstances lead to higher costs?*
- *What is the net impact of these costs on prices over and above that which would be incurred without these factors? What has been done to manage the additional costs arising from the different circumstances and to limit their impact?*
- *Are there any other different circumstances that reduce the company's costs relative to industry norms? If so, have these been quantified and offset against the upward cost pressures?"*⁶⁸

4.9 As regards the threshold for the materiality of special factor claims of 1% of total modelled costs, it is not entirely clear how the UR intends to apply this threshold. In response to a query from NIE Networks,⁶⁹ the UR stated: *"The 1% is likely to apply to the modelled costs of the particular model in question. However, ... the UR will probably take quite a pragmatic approach to the materiality threshold 'in the round' rather than being overly dogmatic about our materiality threshold."*⁷⁰

4.10 NIE Networks considers the UR's intention was to apply the threshold at the level of total modelled Indirect and IMFT costs, which varies across the UR's 12 models. In the NERA May 2017 Indirect and IMFT Report, the threshold was calculated on this basis (Table 4.2) and only special factor claims above this threshold were calculated.

4.11 The assumptions regarding the threshold were presented to the UR by NIE Networks and NERA at a workshop on 9 May 2017. The UR did not raise any concerns in relation to the assumptions used.

Specificities of NIE Networks affecting IMFT costs

4.12 NIE Networks serves an area which is more rural and sparsely populated than GB. NIE Networks' historic network design also imposes additional costs relative to GB DNOs. The NERA June 2016 Special Factors Report considers in depth how this affects each component of NIE Networks IMFT costs.⁷¹ In summary:

- Inspections and Maintenance: NIE Networks has higher inspections and maintenance costs per customer and per kilometre of network due to its high proportion of overhead lines compared with those in GB.

⁶⁸ DD, 5.145.

⁶⁹ Email from NIE Networks () to UR (), 'Queries on Section 5 of RP6 DD', 26 April 2017, 23:32.

⁷⁰ Email from UR () to NIE Networks (), 'RE: Queries on Section 5 of RP6 DD', 11 May 2017, 16:50.

⁷¹ NERA June 2016 Special Factors Report, section 4.3.

- Faults: NIE Networks suffers more faults due to its relatively high number of Overhead Lines and its historic network design compared with GB DNOs.
 - Tree Cutting: NIE Networks carries out more tree cutting work due to the larger overhead network, and the topography of NI compared with GB.
- 4.13 None of the UR's models used in the DD account for these factors which drive additional NIE Networks IMFT costs relative to the GB DNOs' costs. All the models used by the UR to benchmark NIE Networks' total Indirect and IMFT costs rely on general "scale" variables such as network length and customer numbers. However, no model draws a distinction between overhead network and underground network, nor does any model take account for additional volumes of work that NIE Networks must undertake in inspections and maintenance ("**I&M**"), faults or tree cutting.⁷²
- 4.14 NERA considered a number of approaches to calculating special factors, concluding that the use of disaggregated models is the most appropriate. This particularly granular approach takes account of the factors which drive specific components of IMFT.
- 4.15 The NERA analysis finds a material special factor claim against each of the UR's 12 models: see Table 4.3 in the NERA May 2017 Indirect and IMFT Report.
- 4.16 However, NERA also considered areas of potential 'negative' special factors. These relate to the following:
- NIE Networks operates at a lower Guaranteed Standard of Service ("**GSS**") than GB DNOs for restoration (24 hours vs 18 hours for the GB DNOs prior to April 2015, and 12 hours thereafter); and
 - NIE Networks did not undertake the large-scale Electricity Safety, Quality and Continuity Regulations ("**ESQCR**") programme that GB DNOs have undertaken since DPCR4.⁷³
- 4.17 The resulting special factor claims relating to NIE Networks' IMFT costs for each of the 12 models used in DD are presented in Table 4.4 of the NERA May 2017 Indirect and IMFT Report.

Specificities of NIE Networks affecting Indirect costs

- 4.18 NERA used a similar approach as outlined above to consider potential special factors for indirect costs.⁷⁴ Two areas were identified:⁷⁵
- NIE Networks incurs higher wayleaves costs per customer and per km of network than GB DNOs; and

⁷² See DD Annex B – CEPA Efficiency Report, section 6 including Table 6.1 row 1 and Table 6.2 rows 1 and 2.

⁷³ NERA May 2017 Indirect and IMFT Report, section 4.3.2.

⁷⁴ NERA May 2017 Indirect and IMFT Report, section 4.4.

⁷⁵ NERA May 2017 Indirect and IMFT Report, section 4.4.1.

- NIE Networks also incurs higher levels of indirect costs allocated to connections because it carries out more connections per customer than GB DNOs.
- 4.19 If the UR changes its approach to benchmarking for wayleaves and connections in the way set out in paragraphs 3.38-3.60 above (which NIE Networks considers is the appropriate option), then the above special factors should not be applied.
- 4.20 If, however, such changes to the UR's approach are not made, the above special factors should be applied.
- 4.21 NERA also considered potential negative special factors for indirects to be applied. NERA concluded that the following should be applied:
- the GB DNOs undertook a larger capex programme during 2012/13 to 2015/16 due to their earlier need to meet new ESQCR requirements, thus incurring additional costs across some categories of Closely Associated Indirect ("CAI") costs.⁷⁶
- 4.22 NERA considered other potential areas for negative special factors, but they did not meet the materiality tests stipulated by the UR and therefore have not been included in the analysis:
- the GB DNOs undertook more innovation expenditure than NIE Networks during 2012/13-2015/16; and
 - the GB DNOs carry out more customer engagement work than NIE Networks.⁷⁷
- 4.23 The resulting special factor claims relating to NIE Networks' IMFT costs for each of the 12 models used in the DD are presented in Tables 4.5 and 4.6 of the NERA May 2017 Indirect and IMFT Report.

Conclusion: special factors adjustments

- 4.24 The application of the relevant special factors would need to be considered along with amending the UR's selection of appropriate models as set out in paragraphs 3.1-3.37 above.
- 4.25 NERA has calculated the effects of applying the relevant special factors, and its conclusions are set out in section 4.5 of the NERA May 2017 Indirect and IMFT Report. NIE Networks' efficiency level would be minus 0.67%.
- 4.26 Applying the appropriate models along with the relevant special factors would result in the benchmarking exercise indicating, correctly, that NIE Networks falls within the upper quartile of efficiency in comparison with the GB DNOs, and therefore deemed to be efficient.

⁷⁶ NERA May 2017 Indirect and IMFT Report, section 4.4.2.

⁷⁷ NERA May 2017 Indirect and IMFT Report, section 4.4.2.

5. **DISALLOWANCE OF NEW INDIRECT AND IMFT COSTS IN RP6**

Introduction: the UR's decision and the issue

- 5.1 The UR has provisionally disallowed all Indirect and IMFT costs above the baseline value for the RP6 period.⁷⁸ This equates to a disallowance of **£37 million** as presented in Table 21 of the DD.
- 5.2 This approach does not consider the additional activities to be undertaken in RP6, and NIE Networks submits that it is wrong to exclude the costs of these activities. It is NIE Networks' contention that a change in efficiently-incurred Indirect and IMFT costs may be justified as a result of changes in the volume of required work for legitimate reasons such as growth in NIE Networks' allowed capital programme, new regulations and the cost of meeting higher standards.
- 5.3 There was no discussion of the new costs in the workshops held with NIE Networks prior to the publication of the RP6 DD and the UR posed no questions on this aspect of the RP6 plan in the RP6 Query Log process.
- 5.4 NIE Networks has reiterated the points made in its RP6 business plan and provided additional information, as set out further below, to demonstrate the need for the additional Indirect and IMFT costs in RP6.
- 5.5 This is complemented by additional modelling undertaken by NERA which demonstrates that the forecasts included in the RP6 Business Plan are justifiable and should be allowed for in full: see section 5 of the NERA May 2017 Indirect and IMFT Report.
- 5.6 The issues set out below cover:
- the NIE Networks Business Plan Submission;
 - the UR's position in the DD and why it is wrong; and
 - NIE Networks' further justification for each category of additional costs for RP6.

NIE Networks Business Plan submission

- 5.7 NIE Networks presented, in its RP6 Business Plan, its Indirect and IMFT costs forecasts for RP6.
- 5.8 Within the business plan, NIE Networks presented both the RP5 and RP6 annual average costs for each category of IMFT and indirect costs. The business plan explained the reasons behind the variances in each sub-category of expenditure.⁷⁹
- 5.9 The key movements of IMFT and indirect costs as presented in the RP6 Business Plan are summarised in Table 5.3 below.⁸⁰

⁷⁸ DD, 5.93-5.197; Table 20 (p.95-97).

⁷⁹ RP6 Business Plan, 7.168-7.253, 9.94-9.105.

⁸⁰ Costs exclude severe weather costs and income.

Table 5.3: Comparison of RP5 Average to RP6 Average in RP6 Business Plan

(£m)	RP5 Average from Business Plan	RP6 Average from Business Plan	Variance RP6 to RP5 Average	Variance RP6 to RP5 Average %
IMF	15.0	14.6	-0.4	-3%
Trees (including Transmission Trees)	4.9	5.4	0.5	10%
'Core' CAI	16.0	17.9	1.9	12%
Other CAI	5.5	5.5	0.0	0%
Vehicles & Transport + ST&E	4.1	4.0	-0.1	-2%
Wayleaves	5.1	5.5	0.4	7%
BSC Excl IT Opex	11.3	10.5	-0.7	-7%
IT Opex	4.3	5.2	0.9	21%
Total I & IMFT (Annual)	66.2	68.7	2.5	4%
Total I & IMFT - RP6 View	430.3	446.3	16.0	4%

- 5.10 The increase in tree cutting costs is due to an increase in requirements to address tree cutting on the low voltage network.
- 5.11 The increase in indirect costs is attributable to three key areas:
- an increased capex programme as well as new capex areas such as ESQCR, 33 kV congestion and innovation related programmes;
 - increases in wayleave costs; and
 - increases in IT costs.
- 5.12 It should be noted that the RP5 average figures in Table 5.3 above include a forecasted increase in Indirect and IMFT costs over the last 18 months of RP5. This is primarily due to a forecasted higher closely associated indirects requirement to support the RP5 capex programme due to the phasing of the RP5 programme as well as increased costs associated with the recent 'Change of Law' related costs (see paragraphs 5.69-5.78 below).
- 5.13 However, the UR's approach is to set a baseline using the 2015/16 data. Therefore the increase in costs required for RP6 needs to be considered in line with the assumed baseline. As the assumed baseline is lower than the RP5 average used in the RP6 Business Plan, the additional costs for RP6 need to be considered against this starting point.
- 5.14 Therefore Table 5.4 below presents the additional costs required with reference to the assumed RP6 baseline of £65.1 million (see paragraph 2.23 above).

Table 5.4: Comparison of assumed baseline to RP6 average

(£m)	Assumed Baseline	RP6 Average from Business Plan	Variance RP6 to Assumed Baseline	Variance RP6 to Assumed Baseline %
IMF	15.8	14.6	-1.2	-7%
Trees	4.7	5.4	0.7	14%
'Core' CAI	14.3	17.9	3.6	25%
Other CAI	5.8	5.5	-0.3	-5%
Vehicles & Transport + ST&E	3.7	4.0	0.3	8%
Wayleaves	5.0	5.5	0.5	11%
BSC Excl IT Opex	10.9	10.5	-0.4	-4%
IT Opex	4.9	5.2	0.3	7%
Total I & IMFT (Annual)	65.1	68.7	3.6	6%
Total I & IMFT - RP6 View	422.9	446.3	23.4	6%

The UR's position in the DD and why its approach is wrong

- 5.15 The UR approach was to set a baseline for RP6. As explained in Section 2 above, this was based on the 2015/16 forecast data. The UR then deemed any costs forecasted above the 'UR Baseline' as 'additional costs'.⁸¹
- 5.16 The 'additional' costs are discussed in paragraphs 5.193 to 5.197 of the DD and the associated table.⁸² The UR has disallowed all new costs on the basis of a contention that these "*mirror such costs already incurred by comparator DNOs in GB*".
- 5.17 In doing this, it is not clear whether the UR followed its own proposed approach. Specifically, in the UR RP6 Final Approach Document the UR stated the following intended approach in setting the baseline:

"We will ask the company to establish its baseline operating costs and identify foreseeable reductions or increases in costs for future years. Our approach to base-lining of operating expenditure will ensure:

- adoption of our twin tests of 'newness' and 'exogeneity' to establish the need for increased operational spend before we allow increased costs to be borne by consumers as part of the RP6 regulatory contract; and*
- consumers do not pay for investments that might already have been funded under previous price controls."*⁸³

- 5.18 It is unclear from the DD whether the UR in fact carried out the "*twin tests of 'newness' and 'exogeneity'*" referred to in the UR Final Approach Document. There was no discussion of the new costs in the workshops held with NIE Networks prior

⁸¹ See DD, Table 21 (p.99).

⁸² DD, Table 20 (p.95-97).

⁸³ UR RP6 Final Approach Document, 4.42.

to the publication of the RP6 DD and the UR posed no questions on this aspect of the RP6 plan in the RP6 Query Log process.

- 5.19 As noted above, the key issue is that the UR's approach in the DD does not account for any change in efficient Indirect and IMFT costs due to changes in the volume of required work, for reasons such as growth in the company's allowed capital programme, new regulations or the cost of meeting higher standards.
- 5.20 The UR's position in the DD is contradictory as it has allowed for large elements of the capex plan, including the new areas such as ESQCR. However, there are no allowances for the indirects associated with these programmes.
- 5.21 The UR's approach is also at odds with the CMA's approach in its Final Determination for RP5. In that Determination, the CMA set a baseline for the RP5 period, while acknowledging that this baseline was only applicable to future years if the activities undertaken were similar to the base year:

"We draw on results from the benchmarking analysis, and NIE's historical costs, to produce an assessment of level of NIE's 'benchmarked costs' over the price control period if it operated efficiently and provided the same services and outputs as the distribution companies in our sample did in 2011/12" (emphasis added).⁸⁴

- 5.22 Furthermore, the UR's approach is at odds with Ofgem's approach in RIIO-ED1. For that period, Ofgem set an efficiency frontier which accounted for the difference between DNOs' forecast costs (in their business plan submissions) and the modelled projections of their future costs over the course of ED1 control period. Furthermore, Ofgem used benchmarking models that took account of forecast increases in cost driver volumes, for example tree cutting work and fault rates. While Ofgem's approach implicitly provided for changes in future requirements, the UR's approach of setting allowances by rolling forward base year costs requires an examination of why efficient costs may increase in the future.
- 5.23 Accordingly, the UR has not justified the disallowance of the forecasted costs for RP6 and has failed adequately to assess this aspect of the RP6 Business Plan.

Further justification for each category of the requested additional costs for RP6

- 5.24 As noted above, the NIE Networks RP6 Business Plan forecasts growth in a number of components of Indirect and IMFT costs as a result of additional work to be undertaken during RP6. It is necessary for the UR, in setting allowances, to allow for adjustments to account for changes in the volume of required work, and thus ensure NIE Networks revenues stay in line with efficient costs.
- 5.25 The forecasts for RP6 were built up from the NIE Networks internal budget process with additions and deductions determined for each Indirect and IMFT subcategory. Any new cost areas were assessed based on the experience of delivering large scale capex programmes.

⁸⁴ CMA RP5 Determination, 8.6(c).

- 5.26 To ensure the UR fully considers the new costs in RP6, NIE Networks has summarised below the rationale for specific additional costs in RP6.
- 5.27 NIE Networks requested NERA to undertake an additional modelling exercise to determine the level of additional Indirects and IMFT required in RP6, using the relevant cost driver forecasts and capex forecasts included in the RP6 Business Plan Submission. The result of the modelling provides further justification for the robust business plan submitted for RP6.⁸⁵
- 5.28 The approaches to modelling used are discussed in detail in section 5 of the NERA May 2017 Indirect and IMFT Report.

Distribution tree cutting costs in RP6

- 5.29 The UR did not allow additional costs for distribution tree cutting, asserting that NIE Networks was "*adequately funded in RP6 without the need for an addition to [the UR's] IMF&T and Indirect Allowance*". The UR undertook no analysis to test the level of activities to be undertaken in RP6 and whether these were at the same level as the base year. The UR posed no queries on the forecasts provided in the RP6 Business Plan.
- 5.30 The increase in tree cutting activities and costs are discussed in the RP6 Network Investment Plan submission.⁸⁶ The main reason for the increase in costs is due to an increase in requirements to address tree cutting on the low voltage network.
- 5.31 The increased costs in RP6 relative to the 'assumed' baseline are on average £0.7 million per year.
- 5.32 When NERA model the expected growth in tree cutting,⁸⁷ it estimated an increase of £0.8 million. This complements the forecasted costs included in the RP6 Business Plan for tree cutting.
- 5.33 Similarly, NERA undertook an assessment of inspections and maintenance costs, especially as extra inspections are expected to be required to identify non-compliance with ESQCR regulations and additional maintenance in order to rectify issues. Using the benchmarking models, NERA estimated an increase of £0.3 million per year. As the RP6 Business Plan estimates a modest reduction in I&M costs, NIE Networks has adopted a conservative position in relation to these forecasts.

Closely Associated Indirect (CAI) costs in RP6

- 5.34 The UR did not allow additional costs for Closely Associated Indirects, asserting that NIE Networks was "*adequately funded in RP6 without the need for an addition to [the UR's] IMF&T and Indirect Allowance*".⁸⁸ The UR undertook no analysis to test the level of activities to be undertaken in RP6 and whether these were at the

⁸⁵ See NERA May 2017 Indirect and IMFT Report, section 5.

⁸⁶ NIE Networks, 'RP6 Network Investment Plan', 29 June 2016 ("**RP6 Network Investment Plan**"), sections 6.7.5 and 10.4.4.

⁸⁷ Based on the forecasts from the RP6 Network Investment Plan, sections 6.7.5 and 10.4.4.

⁸⁸ DD, Table 20 (p.95).

same level as the base year. The UR posed no queries on the forecasts provided in the RP6 Business Plan.

- 5.35 The GB DNOs commenced their ESQCR programmes during DPCR4, undertook the majority of work during the DPCR5 control period, with some limited work continuing during the RIIO-ED1 period. The UR contends in the DD that an additional allowance for NIE Networks' ESQCR-related indirect costs is unwarranted, since the GB comparators against which NIE Networks is benchmarked undertook these additional ESQCR costs in the years in which NIE Networks is benchmarked. However, since the UR suggests a negative special factor should be applied to account for the lack of ESQCR expenditure for NIE Networks historically, it is therefore necessary to apply an adjustment to NIE Networks future costs in the RP6 allowance.
- 5.36 During RP6 NIE Networks forecasts it will carry out a larger capital programme than during the RP5 period used for benchmarking. These additional capital costs will drive higher CAI costs, since the workload across categories of CAI will increase as NIE Networks plans and manages the expanded capex programme.
- 5.37 In addition, as identified in the RP6 Business Plan, a number of 'new' activities are to be undertaken, resulting in additional indirect costs to support delivery of the new capex areas. These are:
- ESQCR;
 - 33 kV reinforcement; and
 - innovation.
- 5.38 The RP6 Business Plan highlighted a cost of £7.9 million in relation to ESQCR and innovation related schemes.⁸⁹ This was calculated from a bottom-up assessment of the skills needed, the number of resources required and the average labour costs for each of the roles. The detail of the cost build up is provided in Table 5.5 below. The £7.9 million figure relates to the CAI costs associated with ESQCR and 33 kV reinforcement.

⁸⁹ RP6 Business Plan, 7.206.

[illegible]

7,930,000

Para 7.206 of RP6 Business Plan

[REDACTED]

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modelling undertaken by NERA confirms that the forecasts for RP6 are justified and should be allowed for in full.

- 5.43 In relation to Indirects for innovation, under the RIGs guidance, the indirects associated with innovation are not included within the costs included in benchmarking. There is a separate section of the Ofgem RIGs for reporting both direct and indirect costs for innovation.⁹⁰ This is discussed further in Section 6 of Chapter 3 of this Response.

Vehicles & Transport costs in RP6

- 5.44 In the RP6 Business Plan, NIE Networks indicated that the overall expenditure in this area is expected to remain flat relative to the RP5 average.⁹¹
- 5.45 As the RP5 Capex programme is ramping up in the last 18 months, the associated vehicles and transport costs will also increase. Therefore by using the 2015/16 period as a baseline, the UR needs to consider a modest increase of £0.3 million per annum in this cost area.

Wayleave costs in RP6

- 5.46 It is estimated that NIE Networks' wayleave costs will increase by £0.5 million per annum in RP6. This increase will be driven by the expected outcome of an ongoing review of wayleave payments being carried out in GB.⁹²
- 5.47 NIE Networks has estimated an increase but also proposed an uncertainty mechanism to address the unknown nature of future wayleave costs.
- 5.48 NIE Networks' RP6 Business Plan outlined the risk that wayleave costs may increase significantly during RP6 due to factors beyond the company's control.⁹³ In addressing this uncertainty NIE Networks proposed an appropriate uncertainty mechanism for wayleave costs. The proposed mechanism required the allowance for wayleave costs to be reviewed in the event that the costs were to increase or decrease by more than 10% compared to the current level of £5.5 million on average per annum.
- 5.49 The UR has rejected NIE Networks' proposal without proper justification. The UR contends that it is not aware of any specific mechanism for wayleave costs existing for the Ofgem regulated DNOs in their current price control, RIIO-ED1 and therefore it is appropriate that wayleave costs are captured in overall benchmarked costs.
- 5.50 However, this reason is irrelevant as NIE Networks' proposal was made on the basis of new information and current circumstances. This new information was not available in 2014, the time during which RIIO-ED1 was determined. The UR would

⁹⁰ Ofgem RIGs – reference to Innovation: see Ofgem, 'RIIO-ED1 regulatory instructions and guidance: Annex B – Costs and Volumes', 18 June 2015 (<https://www.ofgem.gov.uk/ofgem-publications/95421/annexbcostsandvolumes-pdf>), 4.287-4.289.

⁹¹ NIE Networks Business Plan, 7.236.

⁹² NIE Networks noted in its Business Plan that there was a risk that the annual costs for wayleaves could change during RP6 for reasons outside its control: see NIE Networks Business Plan, 7.249 and 11.48.

⁹³ NIE Networks Business Plan, 11.48.

be in error unless it reconsiders this new information on its own merits, and not with reference to a preceding price control where the present circumstances were not considered.

- 5.51 NERA modelled the impact of the increase in wayleaves based on the network length driver included in the RP6 Business Plan submission. As discussed in section 5.2.4 of the NERA May 2017 Indirect and IMFT Report, NERA estimates an increase in wayleave costs of £0.1 million per annum.
- 5.52 However, this analysis does not consider the impact of the uncertainty of future wayleave rates as discussed above.

Comparison of new costs in RP6 and modelled costs.

- 5.53 Table 5.6 below compares the level of increased costs included in the RP6 Business Plan against the modelled costs as presented in the NERA May 2017 Indirect and IMFT Report.

Table 5.6: Comparison of Variance RP6 to Assumed Baseline and NERA modelled costs

(£m)	Variance RP6 to Assumed Baseline	Modelled Costs from NERA + IT Adjustment
IMF	-1.2	0.3
Trees	0.7	0.8
'Core' CAI	3.6	2.9
Wayleaves	0.5	0.1
Total	3.6	4.2
Total (RP6 View)	23.5	27.1

- 5.54 The costs requested in the RP6 Business Plan are notably lower than the modelled costs, thus demonstrating the robustness and reasonableness of the cost levels requested in the RP6 Business Plan.

IT & Telecoms

- 5.55 Due to the scale of the IT programme planned for RP6, NIE Networks excluded all IT costs from the NERA benchmarking on the basis that (similar to the Ofgem approach) the RP6 IT allowances would be set following a detailed assessment of the NIE Networks IT plan by the UR's adviser, Gemserv.
- 5.56 During the assessment process it emerged that Gemserv was only considering the new IT & Telecoms 'opex' costs which would occur during RP6 and that the UR intended to assess the historical 'opex' element of the IT & Telecoms costs as part of the Indirect and IMFT benchmarking.

- 5.57 The NIE Networks Non-Network IT Business Plan⁹⁴ provided a breakdown of all the new IT opex costs for NIE Networks across Transmission, Distribution, Market Operations and Connections.⁹⁵ Table 5.7 below shows a summary of the submission:

Table 5.7: Summary of IT opex costs in Non-Network IT Business Plan

£m (15/16 Prices)	T	D	C	M	Total
Infrastructure	0.05	0.32	0.04	0.02	0.44
Telecoms	0.05	0.30	2.67	0.03	3.05
BT21CN & Optel	0.22	1.31	0.00	0.00	1.53
Applications	0.37	2.27	0.61	0.62	3.87
Total	0.70	4.20	3.32	0.67	8.89

- 5.58 In section 7 of the DD, Gemserv recommends an allowance of £6.07 million for new IT costs for transmission and distribution during RP6. This includes the reclassification of £2.64 million of capex spend as opex.⁹⁶ However, in section 5 of the DD the UR states that no new IT opex costs should be allowed.⁹⁷ The UR has therefore erroneously adopted two conflicting positions in the DD with respect to the above IT costs.
- 5.59 In section 5 of the RP6 DD, the UR considers that the IT & Telecoms costs are comparable with those of the GB DNOs. It is correct that many of the GB DNOs have undertaken IT programmes of the scale planned by NIE Networks in RP6. However, some of the additional IT Opex costs requested in the Non-Network IT Business Plan are not related to the 'IT & Telecoms' category included in the benchmarking assessment.
- 5.60 Two line items, namely 'Optel – BT21CN' and 'Optel RAD' as presented in Appendix A7 of the Non-Network IT Business Plan are Operational IT and therefore under the RIGs definitions are not reported under the 'IT & Telecoms' Indirect category.
- 5.61 'Optel – BT21CN' and 'Optel RAD' are discussed in detail in section 6.5.1 (D39 and D41 – Network IT and Telecommunications) of the NIE Networks RP6 Network Investment Plan document provided as part of the RP6 submission.
- 5.62 The RIGs guidance defines 'IT & Telecoms' as:

"Expenditure on operating and maintaining the operational and non-operational computer and telecommunications systems and applications.

[...]

⁹⁴ NIE Networks, 'Non Network IT Business Plan: 1 October 2017 to 31 March 2024' (submitted to the UR as an annex to NIE Networks' RP6 Business Plan) ("**Non-Network IT Business Plan**").

⁹⁵ IT Business Plan, Appendix A7 (p.291).

⁹⁶ NIE Networks disagrees with this reclassification and this matter is discussed in Chapter 6, section 5 of this Response.

⁹⁷ DD, Table 20 (p.96) 'IT & Telecoms Operational Costs'.

EXCLUDES:

- *Ordnance survey data/licences*
- *Any of the property costs associated with IT & Telecoms (include under Property Management), except where the cost of specific IT environmental control systems can be distinguished from other property costs*
- *Operational IT & Telecoms i.e. IT equipment which is used exclusively in the real time management of network assets, but which does not form part of those network assets*
- *BT 21st Century costs*
- *IT & Telecoms (Non-Operational) expenditure."*⁹⁸

5.63 Therefore it is incorrect for the UR to state in the DD that these are included in the GB comparator equivalent activities.⁹⁹

5.64 The UR should therefore make a separate assessment of the 'Optel – BT21CN' and 'Optel RAD' costs of £1.53 million. This equates to an annual value of £0.24 million.

5.65 The remaining IT & Telecoms costs are largely in line with the assumed baseline for RP6.

Other Indirect Costs

5.66 Other Indirect Costs include the following categories:

- System Mapping;
- Control Centre;
- Call Centre;
- Stores;
- Operational Training;
- Network Policy;
- HR & Non-operational Training;
- Finance & Regulation;

⁹⁸ Ofgem, 'RIIO-ED1 regulatory instructions and guidance: Annex A – Glossary', 18 June 2015 (at <https://www.ofgem.gov.uk/ofgem-publications/95310/annexaglossary-pdf>), p.98-99.

⁹⁹ DD, Table 20 (p.96).

- CEO; and
- Property Management.

- 5.67 The UR commented on some of these categories in the DD clarifying that it did not consider any increases were justified.¹⁰⁰
- 5.68 NIE Networks considers it reasonable that the allowances for these areas are set based on the assumed baseline of £65.1 million (see paragraph 2.23 above). Indeed, as demonstrated in NIE Networks' Business Plan, the forecast costs for these categories are at a lower level than the RP5 average, demonstrating the balanced approach taken by NIE Networks in preparing the RP6 Business Plan.

Change of Law costs

- 5.69 There have been two recent changes in employment legislation that have increased NIE Networks' costs, but for which the UR's DD proposals do not provide an allowance. These relate to:
- changes relating to the abolition of contracting out for salary related schemes, which came into effect in April 2016; and
 - a requirement to pay the apprenticeship levy, which came into effect in April 2017.

Changes relating to the abolition of contracting out for salary related schemes

- 5.70 Changes relating to the abolition of contracting out for salary related schemes were introduced in the Pensions Act (Northern Ireland) 2015, at section 24.
- 5.71 Under these changes, national insurance contributions paid by NIE Networks in respect of members of the final salary pension scheme (Northern Ireland Electricity Pension Scheme, or "**NIEPS**") have increased by 3.4%. These changes took effect from 6 April 2016.
- 5.72 NIE Networks considered if it could reduce the impact of this cost increase by amending aspects of the pension scheme. Section 24(2) of the Pensions Act (Northern Ireland) 2015 provides the power for an employer to amend an occupational pension scheme to take account of the increase in an employer's national insurance contributions as a result of the abolition of contracting-out. However, section 24(4)(a) provides that the power may not be used to make amendments that apply to a member who is a protected person in relation to a scheme.
- 5.73 The regulations that define what is meant by a protected person for section 24 are The Occupational Pension Schemes (Power to Amend Schemes to Reflect Abolition of Contracting-out) Regulations (Northern Ireland) 2015. Regulation 3(2) specifies that anyone who is a protected employee under the Electricity (Protected

¹⁰⁰ DD, Table 20 (p.97).

Persons) Pensions Regulations (Northern Ireland) 1992 is a protected person for this purpose.

- 5.74 Accordingly no amendment to reflect the abolition of contracting-out was possible under section 24 in relation to members of NIEPS who are protected persons, and NIE Networks instead has to carry the additional cost.
- 5.75 The additional cost is approximately £467k per annum, of which around £280k relates to employees in NIE Networks' transmission and distribution businesses whose costs are recovered through Indirects and IMFT, and for which the UR's DD proposals erroneously do not provide an allowance.

Apprenticeship levy

- 5.76 The apprenticeship levy is part of the government's plan to increase the quantity and quality of apprenticeships. The levy is effectively a new tax.
- 5.77 The levy was written into legislation as part of the Finance Bill 2016, and it took effect on 6 April 2017. Under the levy all UK employers who have a total employee pay bill above £3 million a year will pay the levy. This includes public and private sector, charities, and educational providers such as academy groups and universities. The levy rate was set at 0.5% of the pay bill in the November 2015 Comprehensive Spending Review.
- 5.78 NIE Networks meets the criteria as a UK employer with a total employee pay bill above £3 million. Accordingly, and with effect from April 2017, NIE Networks will incur an additional cost of 0.5% of its annual pay bill. This equates to approximately £250k per annum (0.5% times the annual pay bill of around £50 million), of which approximately £158k relates to NIE Networks' transmission and distribution businesses. The UR's DD proposals do not provide an allowance for this levy.

Why the UR is in error in proposing not to account for these costs

- 5.79 The UR's proposals in its DD not to provide for cost recovery of the above legitimate costs during RP6 are in error for the following reasons:
- the UR has not properly considered and accounted for additional costs associated with the changes to contracting out in its Indirects and IMFT allowances. The UR has determined allowances for Indirects and IMFT by benchmarking NIE Networks against the GB DNOs. However, the additional contracting out costs will not have been incurred by the GB DNOs in the years used for benchmarking.¹⁰¹ Accordingly, there is no allowance provided for in the resultant benchmarked allowances for Indirects and IMFT; and
 - the same error has been made in relation to the apprenticeship levy.
- 5.80 The shortfall amounts to:

¹⁰¹ The years used for benchmarking are 2012/13 to 2015/16. Changes to contracting out took effect in April 2016, meaning these costs are entirely absent from the benchmarking years.

- for changes to contracting out, approximately £280k per annum; and
- for the apprenticeship levy, approximately £158k per annum.

5.81 NIE Networks submits that these are legitimate costs which NIE Networks has no option but to incur, and they need to be considered separately and an appropriate allowance granted by the UR.

Summary

- 5.82 As set out above and in section 5 of the NERA May 2017 Indirect and IMFT Report, the UR has not conducted a robust analysis of this aspect of the RP6 Business Plan.
- 5.83 The UR's approach does not account for any change in efficient Indirect and IMFT costs due to changes in the volume of required work during RP6, which affects its tree cutting, I&M and CAI costs.
- 5.84 NIE Networks has provided further justification in this Response.
- 5.85 NIE Networks has also demonstrated via additional modelling that the level of forecast expenditure for Indirects and IMFT is reasonable for the planned level of activities.
- 5.86 The additional analysis provided above and in the NERA May 2017 Indirect and IMFT Report provides further robust justification for the allowance of these costs.
- 5.87 NIE Networks requests that the UR allow the requested level of funding for Indirect and IMFT activities as set out in the RP6 Business Plan.

6. TREATMENT OF INDIRECT COSTS ASSOCIATED WITH D5 PROJECTS

The UR's provisional decision and the issue

- 6.1 The UR proposes to retain in RP6 the 'D5 mechanism' (explained further below) introduced by the CMA in RP5.¹⁰²
- 6.2 NIE Networks considers that this general approach is appropriate. However, the DD does not specify how indirect costs would be treated for any requested D5 approvals during RP6. NIE Networks submits that the UR should consider and approve relevant indirect costs associated with D5 projects during RP6, and it requests that this is made clear in the Final Determination.
- 6.3 NIE Networks estimates that such additional indirect costs may amount to tens of millions of pounds during the course of RP6 depending on which programmes progress.
- 6.4 The D5 mechanism (proposed to be retained by the UR in RP6) allows for the approval of funding for additional investment projects to increase the capacity and

¹⁰² DD, 9.20-9.31.

capabilities of the transmission system.¹⁰³ An ex ante allowance is not determined at the time of finalising the price control, rather the determination is made at a later date when the need for the project has been confirmed and the scope, cost and programme developed.

- 6.5 The DD is silent on how indirect costs are to be treated if/when NIE Networks applies for D5 approvals during RP6. It is reasonable to infer from the DD that the UR will consider and grant additional allowances for indirect costs associated with D5 projects, however, NIE Networks considers that this should be made explicit in the Final Determination. For the avoidance of doubt, NIE Networks considers that it would be an error if the UR were to exclude the possibility that indirect costs would be allowed for D5 projects.

7. OTHER REFERENCES TO INDIRECT COSTS IN THE DD

- 7.1 There are a number of other references to Indirects in the DD that are addressed below.

Supplementary paper correcting typographical errors in DD

- 7.2 The UR provided a supplementary paper to NIE Networks on 20 April 2017 which corrected a number of typographical errors in the UR's treatment of Indirect and IMFT costs in the DD.¹⁰⁴ NIE Networks notes and welcomes those corrections.

Application of Efficiency factor to metering indirect costs

- 7.3 At paragraph 11.12 of the DD, the UR suggests that it may "*apply a catch up efficiency in line with the results of our IMF&T benchmarking*" to the "*submitted indirect costs*". Considering the metering costs under discussion have not been included in the Indirect and IMFT benchmarking, as the GB DNOs do not undertake these activities, the UR has not presented any evidence or other sound basis to justify applying any efficiency gap from the Indirect and IMFT benchmarking to these costs. For the UR to do so would be irrational and an error of fact.

¹⁰³ DD, 9.22. The details of the mechanism are set out in the CMA's RP5 Final Determination, 5.246-5.279 (https://assets.publishing.service.gov.uk/media/535a5768ed915d0fdb000003/NIE_Final_determination.pdf).

¹⁰⁴ For completeness, it is noted that the supplementary paper did not correct the errors outlined in this Chapter.

CHAPTER 6

NON-NETWORK IT

1. INTRODUCTION

1.1 The UR has made a number of errors in its proposed disallowance of certain categories of non-network IT costs, and its proposed treatment of some capex expenditure as opex.

1.2 This Chapter is structured as follows:

- Section 2 describes the error in the UR's proposed disallowance of appropriate costs for IT projects which deliver business efficiencies;
- Section 3 sets out how the UR has erred in proposing to disallow the costs of certain IT projects on the flawed basis that they are considered to be 'optional';
- Section 4 explains that the UR has erred in its treatment of the managed service provider daily rate for a new managed service provider agreement;
- Section 5 describes how the UR has erred in proposing that certain opex costs should be treated instead as capex;
- Section 6 explains how the UR has erred in proposing to disallow costs associated with small IT projects;
- Section 7 explains how the UR has erred in proposing to disallow costs for programme, project and change management costs;
- Section 8 explains how the UR has erred in proposing to disallow costs to initiate two SAP upgrade projects which need to commence at the end of RP6;
- Section 9 sets out the UR's error in disallowing new market operations IT opex costs;
- Section 10 sets out the UR's flawed assumptions concerning managed service provider costs; and
- Section 11 explains the UR's error in calculating an efficient level of staffing for market services operations.

2. CAPEX AND OPEX: FAILURE TO ALLOW APPROPRIATE ALLOWANCE FOR IT PROJECTS DELIVERING BUSINESS EFFICIENCIES

The issue

- 2.1 The UR has provisionally declined to allow recovery of costs for non-network IT projects which deliver business efficiencies, on the basis that (it claims) those projects should be "*self-funding*" so no allowances should be made.¹ The provisionally disallowed costs total **£2.13 million**.
- 2.2 This is wrong because the premise of the disallowance is flawed, it is inconsistent with relevant regulatory precedent in GB which has permitted funding for the same types of projects that the UR has disallowed in its DD, and in any event the projects in question are justified on their own terms and have benefits beyond efficiencies.

Background

- 2.3 During 2015/16, NIE Networks developed an IT Strategy designed to effectively support business operations through the RP6 period.² A key objective of the strategy, which was developed with support from PA Consulting, was the introduction of important technology solutions which would deliver benefits such as customer service, data quality and efficiency improvements.
- 2.4 NIE Networks has demonstrated that it lags behind the GB DNOs in relation to IT investment to support business operations. As described in the NIE Networks Non Network IT Business Plan,³ the investment planned for RP6 will begin to deliver IT capabilities already achieved by GB DNOs in previous price control periods and will help to reduce this significant gap. NIE Networks is being benchmarked for efficiency against these DNOs and it is important that there is an equitable regulatory treatment when determining allowances for the IT investment. It would be entirely unreasonable to assess NIE Networks' comparative efficiency against organisations which have benefitted from historical and ongoing investment in technology to support business improvement, whilst disallowing the same IT investment for NIE Networks.

Gemserv's assessment and the UR's DD

- 2.5 The UR appointed a consultancy firm, Gemserv, to undertake a bottom-up review of NIE Networks' IT Business Plan and the resulting report is attached to the DD as Annex E.⁴ Gemserv reviewed the proposed projects and recommended the disallowance of costs associated with three projects which it considered should "*be self-funding*"⁵, as follows:

¹ DD, 7.10-7.11, 7.16 (2nd bullet), 7.18 (2nd and 3rd bullets).

² NIE Networks and PA Consulting, 'NIE Networks IT Strategy', February 2016 ("**NIE IT Strategy**"). This was provided to the UR on 6 October 2016 in response to UR query URQ064.

³ NIE Networks, 'Non Network IT Business Plan: 1 October 2017 to 31 March 2024' (submitted to the UR as an annex to NIE Networks' RP6 Business Plan) ("**IT Business Plan**").

⁴ Gemserv, 'NIE Networks RP6: Non Network IT Assessment Report', version 1.2, 16 February 2017 ("**DD Annex E**").

⁵ DD Annex E, section 6 (p.23), the three excluded projects are listed in section 6.2 table 2 (p.25).

- the introduction of a system to enable Condition Based Risk Management ("CBRM");⁶ and
- two time reporting projects to implement timesheet applications on handheld devices to improve data quality and deliver business efficiency.⁷

2.6 Gemserv's recommendation to disallow the costs for these projects is reflected by the UR in DD 7.10-7.11.⁸ Indeed it appears that the UR in fact instructed⁹ Gemserv that it should conduct its analysis with the following principle in mind:

*"The Utility Regulator has maintained the principle that if a productivity gain from an initiative or suite of initiatives is such as to outweigh the actual costs of implementing it, then it would seem to be economically justified on its own merits. It would also suggest that such projects are self-funding and should not be included in price controls. On that premise, it would also seem that seeking to recover the costs of the project from customers is unnecessary and would suggest that the associated capex and opex are not justified for inclusion in the price control."*¹⁰

2.7 It should be noted that Gemserv's conclusions in its report were somewhat tentative (although this is not reflected in the UR's DD itself). Gemserv qualified its conclusions by recording that: *"Further validation of this assessment should be carried out via site visits to relevant NIE Networks facilities. As such, the proposed capex and opex figures should be subject to an inspection prior to the FD."* NIE Networks considered that this visit would be extremely important to further demonstrate the requirements for the IT investment included in the Business Plan and, following publication of the DD, asked the UR to progress this.¹¹ The NIE Networks site visit was undertaken by Gemserv on 18 May 2017, as this Response was being finalised. It will be important that the UR considers carefully the evidence presented during this visit when making the Final Determination.

The conclusions and their premise are flawed

2.8 The UR's provisional determination not to allow funding for the three projects listed above are flawed. This is particularly apparent when taking into account the specific circumstances of NIE Networks and the nature of the relevant projects.

⁶ This project is referred to as project reference RP6-029 and is described in the IT Business Plan that was provided to the UR as follows: *"Implement system to deliver asset health and criticality indices in line with regulatory requirements and improve asset management investment decision-making to achieve optimal balance of cost, risk and performance"*. Further details of the project are set out in the Annexes to the IT Business Plan at pages 191-195.

⁷ These projects are referred to as project references RP6-033 and RP6-034 and are described, respectively in the IT Business Plan that was provided to the UR as follows: for time reporting automation stage 1: *"Improve business efficiency by removing need to manually calculate overtime and additional payments for industrial staff"*; for time reporting operation stage 2: *"Replace manual timesheets [by] mobile technology to improve cost capture and allocation"*. Further details of the projects are set out in the Annexes to the IT Business Plan at pages 214-218, and 219-224 respectively.

⁸ The UR's specific quantifications of the relevant disallowances are at DD, 7.16 (2nd bullet).

⁹ DD, 7.11.

¹⁰ DD, 7.10.

¹¹ Discussed at the IT Workshop with the UR and NIE Networks on 11 April 2017 and through query log item NIE34.

Moreover, the proposal to disallow the specific investments is flawed as a matter of principle; it is inconsistent with comparable regulatory precedent in GB where such investments have been allowed; and in any event the proposed projects are fully justified and have benefits beyond efficiencies, and therefore funding for them should be allowed.

2.9 NIE Networks' reasoning in this regard is set out below.

The premise is flawed

2.10 **First**, the premise of the UR's provisional decision is flawed. In essence, by disallowing funding for the relevant projects which deliver business efficiencies, the UR is requiring NIE Networks to make savings for efficiencies, but is not allowing the investment required to deliver such efficiencies. This is erroneous (and, indeed, as detailed further in the section below, contrary to comparable regulatory precedent in GB).

2.11 NIE Networks has built an efficiency gain of 0.7% per annum into the RP6 business plan. This equates to £34.9 million of savings over the period. To include a productivity challenge to be delivered as a result of IT investments within a price control determination, but also disallow the investment required to deliver the efficiencies, would be wrong in principle as it would not give the regulated entity a chance to deliver the business efficiencies assumed.

2.12 NIE Networks makes the related point in Chapter 8, section 3 of this Response that any productivity challenge is very significantly more challenging to deliver if it is expected to be self-funded as this is, in effect, 'double-banking' savings for customers. For example, if the cost of delivering £100,000 of efficiencies were £50,000, NIE Networks would need to deliver double the efficiencies to achieve £100,000 of efficiency savings if they are expected to be self-funding.

The proposal is flawed in light of comparable regulatory precedent

2.13 **Secondly**, the proposal to disallow funding for the above projects is contrary to directly comparable regulatory precedent in GB.

2.14 One directly comparable example is the identical areas of investment that were permitted by Ofgem to Western Power Distribution ("**WPD**") in the RIIO-ED1 price control.

2.15 In an Expenditure Annex to its RIIO-ED1 Submission Business Plan document, WPD highlighted that its proposed IT investment during the period will improve business efficiency and customer service.¹² Planned projects included:

- field data capture technologies removing the double handling of information;
- field access to corporate office based applications; and

¹² WPD, '2015-2023 RIIO-ED1 Business Plan: SA-05 Supplementary Annex – Expenditure: June 2013 (updated April 2014)' (at <https://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Seperate-documents/Expenditure.aspx>) ("**WPD RIIO-ED1 Business Plan**"), see Capital Purchase of IT & Telecoms, at p.194.

- use of internet technology to improve business-to-business processes.

2.16 Each of these projects was intended to deliver business efficiencies, and the investment was allowed in full by Ofgem on that basis. Indeed, the WPD submission was given fast-track approval as it was found to represent good value for customers.¹³

2.17 During RP6, NIE Networks is proposing to invest in identical areas to those proposed by WPD in its RIIO-ED1 submission.

2.18 By way of further example, SP Energy Networks set out the main IT investments for ED1 in the Non Operational IT and Telecoms Strategy Annex to its ED1 Submission Business Plan,¹⁴ explaining the link between those IT investments and SP Energy Networks' business objectives.

2.19 The SP Energy Networks RIIO-ED1 Business Plan includes £37 million of non-operational IT investment planned for business application development. Many of the planned applications projects are directly linked to the achievement of business efficiency; for example, Mobile Fault Management (Field Force); Optimised Scheduling and Workforce Management; Integrated Project Information Management; and others.

2.20 [REDACTED]

2.21 During RP6, NIE Networks is proposing to invest in identical areas to those proposed by SP Energy Networks in its RIIO-ED1 submission.

2.22 The above information was presented to the UR during NIE Networks' engagements in advance of the DD.¹⁶ However, there is no indication as to whether the UR considered this evidence, either in the Gemserv report or the DD main report. On the contrary, paragraphs 7.10 to 7.11 of the DD (cited above) indicate that the UR has maintained an unyielding policy with respect to efficiency projects without any substantive consideration having been given to NIE Networks' arguments or these relevant precedents. Moreover, the UR's direction to Gemserv with respect to efficiency projects¹⁷ effectively prevented any proper consideration

¹³ Letter from Ofgem, 'Decision to fast-track Western Power Distribution', 28 February 2014 (at https://www.ofgem.gov.uk/sites/default/files/docs/2014/02/fast-track_decision_letter.pdf) ("**Ofgem WPD Fast-Track Letter**").

¹⁴ SP Energy Networks, 'SP Energy Networks 2015-2023 Business Plan: Annex: Non-Operational IT and Telecoms Strategy', 28 February 2014 (at http://www.spenetworks.co.uk/userfiles/file/201402_SPEN_NonOpITTelecomsStrategy_JC.pdf) ("**SP Energy Networks RIIO-ED1 Business Plan**"), see table beginning on Page 7.

¹⁵ [REDACTED]

¹⁶ See, e.g., letter from NIE Networks ([REDACTED]) to the UR ([REDACTED]), 'RP6 IT Business Plan: Additional Project Information', 20 February 2017 ("**February 2017 Additional IT Project Information Letter**").

¹⁷ DD, 7.11, and noted above at paragraph 2.6.

as to the appropriateness of funding these projects, thereby pre-empting the outcome of their investigation and preventing Gemserv from presenting a balanced case for these projects. The UR has apparently closed its mind to funding efficiency projects without providing a proper opportunity for arguments to be heard.

The three specific projects are justified and funding should be allowed

- 2.23 **Thirdly**, the three specific projects deliver benefits in addition to efficiencies and are justified, and there is therefore no case for rejecting allowances for them, as detailed further below.
- 2.24 NIE Networks provided project briefs to the UR describing the benefits to be delivered as part of the RP6 IT business plan for each of the three projects in question.¹⁸ It also provided further information to the UR by letter dated 20 February 2017.¹⁹ The need for the investments is summarised below.

*CBRM*²⁰

- 2.25 In its RP6 Approach Document published in December 2015,²¹ the UR described its specific requirements for Excellence in Asset Management going forward.²² There is specific reference in this context to the use of practical, targeted and transparent methodologies which can be tested and developed as information improves over time. It provides that NIE Networks should ensure that condition and performance grade assessment is used and can be applied consistently in future asset maintenance assessments. The UR also refers in the DD to consideration of the developmental objectives that it expects to be progressed and developed through RP6 and, in this context, particularly Asset Health Indices.²³
- 2.26 A CBRM ("**condition-based risk management**") approach would ensure that NIE Networks can systematically analyse the condition of ageing assets and optimise investments while maintaining network risk and reliability, consistent with the UR's requirements. This approach would help to ensure that investment is optimised based on the condition of assets on the network and that asset replacement decision making balances cost, risk and reliability.
- 2.27 The benefit to customers is that CBRM has the potential to reduce asset life-cycle costs. The project would also deliver asset health and criticality indices. This would support the move towards a more outcome-based regulatory approach for asset replacement from RP7 onwards, and is consistent with the approach adopted by

¹⁸ References provided in footnote 6 above.

¹⁹ February 2017 Additional IT Project Information Letter.

²⁰ CBRM – Condition Based Risk Management. In this context, CBRM refers to a methodology of optimised network investment based on asset condition and risk aligning with the principles of the CNAIM (Common Network Asset Indices Methodology). It does not infer any particular product.

²¹ UR, 'Northern Ireland Electricity Networks Ltd: Transmission & Distribution 6th Price Control (RP6): Final Overall Approach', December 2015 ("**RP6 Approach Document**").

²² RP6 Approach Document, 4.70-4.75.

²³ DD, 4.37 and Table 4.

Ofgem in its Common Network Asset Indices Methodology ("CNAIM") with the DNOs.²⁴

- 2.28 Due to the volume of asset data to be analysed, a CBRM approach can only be implemented effectively in conjunction with supporting IT tools. NIE Networks has estimated there are around 0.5 million network assets where condition information could be recorded. With an average of 20 data points per asset this could result in 10 million records to be recorded and processed. The majority of these data points are dynamic and will change over time. Therefore volumes will increase as historic data is retained to support trending analysis. As part of the IT strategy process, PA Consulting provided information to NIE Networks on the IT capabilities already in use within six DNOs. All of these comparator DNOs have previously implemented CBRM methodologies and supporting IT systems.²⁵
- 2.29 In engagements between the respective Boards of the UR and NIE Networks, the UR Board placed strong emphasis on the use of a condition-based approach for asset management decisions. The further development of a CBRM methodology and adoption of a formalised IT solution as outlined in the IT Business Plan is central to NIE Networks' ability to develop and implement this approach in a consistent and more comprehensive manner for future price controls.
- 2.30 Accordingly, the funding of the CBRM investment is required and justified on the grounds that it will:
- permit NIE Networks to comply with the UR's expectations in respect of high quality asset investment decisions;
 - allow NIE Networks to implement an important IT tool which is already available to NIE Networks' DNO benchmark group;
 - help ensure optimised asset investment decisions which will benefit customers; and
 - lay important ground work for the development of serviceability indicators.
- 2.31 During the NIE Networks site visit held on 18 May 2017, NIE Networks further demonstrated the business requirement for the CBRM investment.

Time Reporting 1 and 2

- 2.32 The two time reporting projects would deliver significant efficiency, data quality, and reporting quality benefits once they are implemented. They are scheduled for delivery from 2022 onwards.
- 2.33 At present, there is significant effort involved in completing and processing timesheets. Paper timesheets are completed by all craft employees and are

²⁴ Ofgem, 'Notice of our decision to approve the Common Network Asset Indices Methodology and to direct a timescale for rebasing of the Network Asset Secondary Deliverables', 1 February 2016 (at <https://www.ofgem.gov.uk/publications-and-updates/decision-dno-common-network-asset-indices-methodology>) ("CNAIM").

²⁵ See IT Business Plan, Appendix A5 (p.289).

manually checked and signed-off by Team Managers. As they are paper based forms, there is a significant likelihood of errors and recording of time against the wrong work activities. The checking and validation process is onerous. The paper timesheets are then passed to administration staff, who manually calculate allowances such as overtime, and then input the details to payroll and costing systems.

- 2.34 All of these manual activities would be automated through the Time Reporting projects. The current manual timesheet processes were clearly demonstrated to Gemserv during the NIE Networks site visit on 18 May 2017.
- 2.35 In addition to these efficiency benefits, the projects will deliver significant data quality and reporting improvements. The UR requires NIE Networks to record and report granular data through the RIGs process. The increased data accuracy and quality of reporting that would be achieved by making this investment would facilitate the UR to determine that NIE Networks' costs have been efficiently incurred and provide a robust data set for future benchmarking. It would also reduce the turnaround time for RIGs reporting and effort required to chase down and address data errors. Building upon earlier investments in work management and mobile solutions, the recording of time against pre-coded work activity numbers will avoid the misallocation of time, will support accurate job costing and enable effective analysis of actual versus planned costs for all work activities.
- 2.36 The Northern Powergrid RIIO-ED1 Business Plan²⁶ also included investment in mobile technology to reduce the extent to which the organisation relied upon paper flows to issue and manage the completion of work. This includes the implementation of timesheets on mobile devices. [REDACTED]

27

Conclusion on specific project benefits

- 2.37 Each of the projects will deliver other benefits in addition to efficiency benefits. Indeed, as part of its analysis, Gemserv proposed to allow some projects with a strong efficiency rationale on the basis that they also delivered other benefits, such as customer service improvements (in the case of project RP6-032 Enhance Mobile Quotations²⁸), or facilitation of the delivery of NIE Networks' licence obligation (in the case of project RP6-030 Extend Mobile Working²⁹).³⁰ Based upon this logic it is not clear why Gemserv has recommended the disallowance of the CBRM and time reporting projects, as each of them will also deliver other important benefits in addition to efficiency improvements. As described above, CBRM will allow NIE Networks to meet the UR's own requirements for asset investment decision making and will deliver customer benefits; and the time

²⁶ Northern Powergrid, 'Our Business Plan 2015 – 2023', March 2014 (at https://www.yourpowergridplan.com/som_download.cfm?t=media:documentmedia&i=1719&p=file), p.69.

²⁷

²⁸ Project plan in IT Business Plan, p.209-213.

²⁹ Project plan in IT Business Plan, p.196-202.

³⁰ See DD Annex E, section 6.2 table 2 (p.25).

reporting projects will enable increased data accuracy and quality of regulatory reporting.

Conclusion

- 2.38 For the reasons set out above, the UR has erred in proposing to disallow costs for IT projects which will deliver business efficiencies. It is wrong in principle to disallow such costs simply for the reason that they may drive efficiencies and in that respect the proposed decision is irrational; the UR's proposed approach is inconsistent with relevant regulatory precedent in GB and is contradictory to its own requirements for reporting of Asset Health indices; and, in any event, the projects in question are entirely justified and have benefits beyond efficiencies and, accordingly, not to allow those costs would be to ignore relevant evidence that has been provided to the UR.

3. CAPEX AND OPEX: FAILURE TO ALLOW COSTS OF CERTAIN IT PROJECTS ON THE FLAWED BASIS OF OPTIONALITY

The issue

- 3.1 The UR has provisionally disallowed investment in four IT projects in NIE Networks' Business Plan, on the basis that the UR contends they have a "*high degree of optionality*" and, in light of this, their rationales have not been adequately substantiated.³¹ The provisionally disallowed costs total **£1.9 million**.
- 3.2 The four projects in question are:³²
- the introduction of functionality to **automate and thereby improve the data quality of regulatory reporting** (project RP6-023);
 - the introduction of an **operational data store** to enable accurate business and regulatory reporting (project RP6-024);
 - a **forecasting and modelling tool** to reduce manual data handling and deliver business efficiencies (project RP6-035); and
 - a **document management system** to facilitate the provision of data into the field (project RP6-036).
- 3.3 The proposed disallowances for these investments are wrong for the reasons set out below.

³¹ DD, 7.12-7.13, 7.16 (7th bullet), 7.18 (4th bullet); Annex E, section 7 (p.27ff) and in particular Table 4 on p.29.

³² Annex E, Table 4 (p.29). Detailed descriptions of each project are provided in the Annexes to the IT Business Plan, starting on pages 155, 162, 225, and 231 for each project respectively.

Background

- 3.4 As noted in paragraph 2.3 above, during 2015/16, NIE Networks developed the NIEN IT Strategy which was designed to support business operations effectively through the RP6 period.
- 3.5 The strategy development process included the identification of associated delivery projects and the preparation of project briefing documents, setting out the type and scale of business benefits to be delivered by each investment using a consistent set of criteria across the programme. Only those projects absolutely required by the business to address IT asset obsolescence, to manage risk (including adherence to licence obligations), to improve customer service in line with expectations emerging from customer engagement, or to deliver business efficiencies were included in the investment programme. The development of the IT Business Plan received rigorous internal business challenge to ensure that no optional investment was included and, indeed, a number of projects identified by business units were ultimately excluded from the plan prior to submission.
- 3.6 Each of the four projects above were included in the IT Business Plan following that rigorous process.

Gemserv's assessment and the UR's DD

- 3.7 As part of its bottom-up review, Gemserv performed an "optionality analysis" of projects in the IT Business Plan to consider whether they were required during the RP6 period. The results of Gemserv's analysis are set out in its report at Annex E, section 7. It recommended the disallowance of costs associated with the four projects set out in paragraph 3.2 above, which it considered to have been insufficiently substantiated. As noted above, the UR adopted Gemserv's recommendations in the DD.³³

The disallowance of costs associated with the four projects is not justified

There is no basis to conclude that the projects were not substantiated, and the UR and Gemserv have failed to take account of relevant information

- 3.8 Gemserv and the UR have provided no basis for the conclusion that the four projects were not adequately substantiated. Indeed, there is no indication that Gemserv and the UR have taken account of all the relevant information provided to them to date in reaching their conclusions.
- 3.9 NIE Networks discussed this issue with the UR at IT workshops held on 20 December 2016 and 25 January 2017, and provided supplementary information in writing on 20 February 2017 (the February 2017 Additional IT Project Information Letter). However, despite the DD having been published on 24 March 2017, the Gemserv report in Annex E is dated 16 February 2017, which was prior to the date of NIE Networks' February 2017 Additional IT Project Information Letter. Accordingly, it would appear that Gemserv and the UR have not taken account of the supplementary information provided by NIE Networks; there is certainly no

³³ DD, 7.12-7.13, 7.16 (7th bullet), 7.18 (4th bullet).

evidence in the DD or Annex E that they have done so. Nor has the UR or Gemserv ever explained to NIE Networks (whether in writing or in the meetings and workshops referred to above) on what basis they concluded that the projects were not sufficiently substantiated.

- 3.10 Accordingly, neither Gemserv nor the UR could safely come to a conclusion that the four projects have been inadequately substantiated and it would be an error to reject them on that basis.

The projects are not optional in any event and have been subjected to rigorous scrutiny

- 3.11 Moreover, it is clear that each of the four projects is necessary, rather than 'highly optional' as Gemserv seeks to categorise them. As noted above in paragraphs 3.4-3.6, projects were only included in the IT Business Plan following a rigorous internal process to challenge and assess their necessity. The Gemserv report provides no detail on how its optionality assessment was conducted, the applicability of the approach used or how it determined the optionality level assigned to each project.
- 3.12 In addition, all projects that NIE Networks had proposed to include in the IT Business Plan were subjected to outside challenge from PA Consulting, prior to the inclusion of such projects in the IT Business Plan submitted to the UR. The assurance letter from PA Consulting which was provided in support of the IT Business Plan confirmed that, amongst other things, the proposed investment plan (which included the four projects) is "*measured*", specifically in that "*the plan is the **minimum considered necessary to allow NIE Networks to deliver its strategy***" (emphasis added).³⁴

The specific projects are necessary and the material provided to justify them is more than sufficient to establish this

- 3.13 A summary of the merits of each of the projects and their necessity is set out below. It should be borne in mind that, as noted above, NIE Networks has already provided a significant amount of information in relation to each project to the UR and Gemserv which does not appear to have been taken into account.

Regulatory Reporting Automation project and Operational Data Store project

- 3.14 The reasons why the Regulatory Reporting Automation project and the Operational Data Store project are necessary are, in summary, as follows:
- The Data Assurance Guidance ("**DAG**") scoring in RIGs is currently being compromised because of the number of times core systems data is reprocessed before the RIGs templates can be populated. Regulatory reporting requirements are specified by the UR and production of the reports is a Licence Condition. The scope and complexity of the UR's

³⁴ Assurance letter from PA Consulting ([REDACTED]) to NIE Networks ([REDACTED]) dated 27 June 2016, provided in Appendix A4 to the IT Business Plan (at p.287) ("**PA Consulting Assurance Letter**").

reporting requirements continues to expand, with a recently introduced requirement to commence publishing certain information on NIE Networks' website. Therefore, it is reasonable to allow the necessary investment to deliver the incremental capabilities required to meet NIE Networks' licence obligations and provide appropriate assurance concerning the quality of the information produced.

- The DD refers on multiple occasions to the need for accurate reporting by NIE Networks during RP6 and increasing reporting requirements during the period in preparation for RP7.³⁵
- Effective information management has been identified as a key capability within the NIE Networks IT Strategy. This means that the organisation should be able to drive value from information collected on assets, services and operations using a 'single source / single view' model. A key objective is to become an information-driven organisation, enabling NIE Networks to meet its regulatory and statutory reporting requirements, and to operate more efficiently and commercially using data and information to drive effective decisions.
- This need is widely recognised by research institutes as a key requirement for utilities. The global research company, Ovum, for example, states that "*data and analytics will be fundamental to the [utility industry's] transformation over the next decade*"³⁶ with a clear separation between those who manage ever increasing volumes and complexity of information effectively, from those who remain reactive. This has also been recognised by DNOs. For example, the SP Energy Networks RIIO-ED1 Business Plan includes the introduction of a new business intelligence application to enhance regulatory reporting,³⁷ and the WPD RIIO-ED1 Business Plan includes investment in business intelligence software.³⁸ [REDACTED]
- Gemserv asserts that the integration of systems planned for RP6 will in some way negate the need for the automation of regulatory reporting.³⁹ This is factually incorrect. As set out in the relevant project briefs included in the IT Business Plan, the integration projects, such as the SAP-Maximo Integration,⁴⁰ will enable costs to be captured accurately against jobs and reduce the volume of cost allocation. However, this will not resolve the data consolidation and manual reporting issues which will be addressed by the Operational Data Store and Regulatory Reporting

³⁵ See, e.g., amongst others, 4.21, 4.35-4.37, 5.149-5.152, 9.15, 14.15, and Section 15.

³⁶ Ovum, 'The utilities industry is entering a decade-long period of disruption', November 2015, quoted in NIEN IT Strategy, section 3.4.1 (p.19).

³⁷ SP Energy Networks RIIO-ED1 Business Plan, table beginning on Page 7.

³⁸ WPD RIIO-ED1 Business Plan, p.194 (capital purchase of IT & Telecoms).

³⁹ DD Annex E, Table 4 (p.29).

⁴⁰ Project RP6-022 – see IT Business Plan, p.148-154.

Automation projects. The Operational Data Store project⁴¹ is the foundation project for improved reporting as it will implement a consolidation database which will be used for business and regulatory reporting. The Regulatory Reporting Automation project⁴² will improve data accuracy due to less manual manipulation of the data, reduce the current significant processing overhead, and support changing reporting requirements across the price control period.

This point has been made to the UR. In response to a UR query, NIE Networks provided a Technology Roadmap Proposal document,⁴³ which set out how the RP6 projects would be implemented. Under the RIGs Automation heading in section 5.1.6 of that document NIE Networks highlighted that *"[e]ach of these RIGS solutions will require data to be extracted from source systems and consolidated somewhere. This is not 'system integration', rather it is 'data extract / transform / load'. The RIGS solution will be independent of the proposed integrations between Maximo, SAP and JMS."* There is no evidence that the UR has properly considered the information provided in the project briefs in the IT Business Plan and the Technology Roadmap.

- 3.15 It follows from the above that these projects are required to facilitate NIE Networks' discharging of its licence obligations, consistent with principle (b) articulated on page 29 of DD Annex E.
- 3.16 In addition to the data quality benefits associated with these projects there will be business efficiencies delivered (and therefore customer benefits consistent with principle (c) on page 29 of DD Annex E), as the current reporting processes involve significant manual intervention, frequent rework and are inefficient. NIE Networks has built an efficiency gain of 0.7% per annum into the RP6 business plan. This equates to £34.9 million of savings over the period. The delivery of these projects will support achievement of the productivity objectives.

Forecasting, Modelling & Scenarios project

- 3.17 The main driver for the Forecasting, Modelling & Scenarios project is management of risk. In addition, it will deliver business efficiencies. The implementation of this project accordingly, fulfils principles (b) and (c) articulated on page 29 of DD Annex E.
- 3.18 At present, the programme planning function requires excessive manual data handling, leading to the potential for errors. The processes rely almost exclusively on insecure Excel spreadsheets and data gathered from multiple sources. To allow NIE Networks to develop an efficient work programme, which can be flexed to manage changes throughout the price control period, there is a need to introduce a

⁴¹ Project RP6-024 – see IT Business Plan, p.162-166.

⁴² Project RP6-023 – see IT Business Plan, p.155-161.

⁴³ NIE Networks, 'Technology Roadmap Proposal', 29 February 2016 ("Technology Roadmap").

system which will utilise information delivered via other foundation projects (e.g. the Operational Data Store).

- 3.19 This is also a requirement for other DNOs. For example, the SP Energy Networks RIIO-ED1 Business Plan includes the introduction of a new system to provide Operational Reporting, Analytics, Decision Support, Scenario Planning and Financial Forecasting.⁴⁴

Document Management project

- 3.20 The Document Management investment included at the beginning of the RP6 IT work programme is a key foundation project for the mobile solutions which will be introduced later in the period and, accordingly, fulfils principle (a) on page 29 of Genserv's report at DD Annex E in so far as it technically enables other projects. In any event, it also fulfils principle (c) as it would create tangible customer benefits as set out below, as well as principle (b) in assisting NIE Networks to fulfil its legal obligations as regards data protection.
- 3.21 The mobile application (to be introduced later in the period as part of this project) will deliver work instructions to field devices and allow an accurate record of work completed to be transmitted back to central work and asset management applications. However, there is a range of additional documentation which must be available in the field to allow the staff to carry out their work activities. This includes critical procedure documentation and health and safety documentation, and the Document Management project is required to enable this.
- 3.22 Currently, staff carry extensive paperwork in vehicles which is difficult to retrieve and can quickly become out of date. There are onerous manual processes in place to ensure all staff receive, and confirm that they have been provided with, up to date documentation. This will be replaced by the use of a central document repository with automatic 'push' out to field staff when updates occur.
- 3.23 In addition, customer information which is currently issued to NIE Networks staff and contractors in paper field files, will be held in the data repository and made available via secure handheld devices. This will deliver data protection benefits and assist NIE Networks in adhering to new Data Protection legislation.

Site visit

- 3.24 During engagements with the UR in advance of the publication of the DD the UR suggested that site visits to NIE Networks would be arranged during March 2017 to allow Genserv to review current processes and better assess the business benefits to be delivered by the various projects included in the IT Business Plan. Genserv's report also notes that its proposed disallowances are subject to a satisfactory site visit.⁴⁵ This site visit was held on 18 May 2017 and NIE Networks was able to demonstrate clearly the requirement for these projects to Genserv.

⁴⁴ SP Energy Networks RIIO-ED1 Business Plan, p.8 (table beginning on p.7).

⁴⁵ DD Annex E, p.30.

NIE Networks believes that the UR is in possession of all the evidence it requires to arrive at a balanced and correct decision on these important projects.

Conclusion

- 3.25 For the reasons set out above, the UR has erred in provisionally disallowing the above four projects on the basis that they are 'optional'. As a starting-point, it is wrong to categorise them as 'optional'. Each of the projects was subjected to rigorous scrutiny before being selected and presented to the UR as part of NIE Networks' business plan, and NIE Networks has demonstrated the necessity of each of them and justified the proposed investments. Accordingly, there would be no basis to conclude that the projects are optional or in any way unjustified, and their costs should be allowed.

4. CAPEX: FLAWED TREATMENT OF MANAGED SERVICE PROVIDER DAILY RATE

The issue

- 4.1 The UR has provisionally concluded, by reference to conclusions reached by Gemserv, that the allowance for the daily rate for services provided to NIE Networks pursuant to its Managed Service Provider Agreement should be reduced by 10% to account for efficiencies.⁴⁶ However, this double-counts efficiency savings that are already accounted for in the overall 'top-down' productivity challenge that will be applicable for RP6. The effect of this error would be an under-recovery of **£0.9 million** in costs during RP6.

Background

- 4.2 As noted in paragraph 2.3 above, during 2015/16, NIE Networks developed the NIEN IT Strategy which was designed to support business operations effectively through the RP6 period. The strategy process included the identification of associated delivery projects and the preparation of project briefing documents, setting out the projected costs and benefits of each investment. The project costs were built on a bottom-up basis and the process was quality assured by PA Consulting, which assisted in the preparation of NIE Networks' IT Investment Plan. The resulting IT Investment Plan formed the basis of the IT Business Plan.
- 4.3 NIE Networks outsources the majority of its IT delivery, and most of the RP6 projects will involve services provided by NIE Networks' managed service partner. The cost estimates for the managed service inputs were calculated using planned days of effort at a blended daily rate of £■■■■ per day. This is the contracted daily rate for IT services within the existing managed service provider agreement.

⁴⁶ DD, 7.14, 7.16 (1st bullet); DD Annex E, section 5.1; and Annex D to the DD, namely Gemserv, 'RP6 – NIE Networks Market Operations Non Network IT Assessment', version 1.3, 10 February 2017 ("**DD Annex D**"), sections 3.4-3.5.

- 4.4 The existing managed service provider agreement will soon expire. NIE Networks, accordingly, has recently completed a full OJEU re-procurement for its managed service provider agreement. The new contract is due to commence on 1 October 2017, in line with the start of the RP6 price control period. NIE Networks wrote to the UR on 14 April 2017 explaining relevant details of the new contract.⁴⁷

Gemserv's assessment and the UR's DD

- 4.5 As noted above, the UR appointed Gemserv to undertake a bottom-up review of the IT Business Plan. As part of this, Gemserv considered NIE Networks' existing managed service provider agreement.⁴⁸
- 4.6 Gemserv confirmed that the £[REDACTED] per day rate under the existing managed service provider agreement appears reflective of the GB market.⁴⁹
- 4.7 However, it stated that the ongoing IT outsourced managed services procurement could potentially deliver savings of 10%, and therefore proposed removing 10% of the managed service day rate costs attributable to the managed service provider which have been included in the RP6 IT capex projects.⁵⁰
- 4.8 In the DD the UR accepted the Gemserv recommendation to reduce the allowance by 10% but noted that this area of expenditure will be re-appraised prior to the Final Determination when the outcome of the procurement is known.⁵¹

Gemserv's conclusion is flawed on its terms

- 4.9 There is no proper basis simply to reduce allowable costs for the daily rate by 10% on account of theoretical potential efficiencies in circumstances where: (a) as noted above, Gemserv found the daily rate to be reasonable; and (b) a top-down efficiency gain is already to be applied across all costs recoverable during RP6.
- 4.10 This issue was discussed with the UR on a number of occasions prior to the finalisation of the DD.⁵² NIE Networks pointed out that any savings which are delivered through an efficient procurement process would form part of the productivity savings already built into the submission. NIE Networks built an efficiency gain of 0.7% per annum into the RP6 Business Plan. This equates to £34.9 million of savings over the period. To apply a further assumed 10% efficiency gain to daily rates under the managed service provider agreement would represent double-counting of benefits to include specific cost savings which might arise from the managed service re-procurement and also set an overall top down target of efficiency. The top-down target for efficiency should include any such savings.

⁴⁷ Letter from NIE Networks ([REDACTED]) to the UR ([REDACTED]), 'RP6 Draft Determination – Managed Service Reprocurement Update', 14 April 2017 ("**April 2017 Managed Service Agreement Update Letter**").

⁴⁸ DD Annex E, section 5; and, as regards market operations, DD Annex D, section 3.

⁴⁹ DD Annex E, section 5.1; DD Annex D, section 3.1.

⁵⁰ DD Annex E, section 5.1 and p.22; DD Annex D, sections 3.4-3.5.

⁵¹ DD, 7.14.

⁵² Specifically, at IT workshops held on 20 December 2016, 25 January 2017 and 14 February 2017.

In any event, efficiencies have since been reflected in the rates to be charged under the forthcoming managed service provider agreement

- 4.11 In any event, as noted in paragraph 4.4 above, NIE Networks has completed the re-procurement process for the forthcoming managed service provider agreement. The NIE Networks Board approved a preferred bidder on 9 March 2017.
- 4.12 The April 2017 Managed Service Agreement Update Letter provides an update on the financial outcome of the re-procurement, and the implications for the RP6 price control.
- 4.13 The daily rates in the new managed service provider agreement are the result of a competitive process ensuring efficient procurement and, accordingly, already reflect productivity savings. Indeed, as NIE Networks noted to the UR in the April 2017 Managed Service Agreement Update Letter, it will aim to realise some savings in RP6 based on the new daily rates compared with the blended rate of £■■■■ per day in the previous agreement (which Gemserv concluded was itself reasonable) which would form part of NIE Networks total productivity savings in RP6 that have already been applied to the bottom-up costs in the RP6 Business Plan.

Conclusion

- 4.14 It would be an error in light of the above to seek to disallow any portion of the actual daily rates (such as any further 10% 'potential efficiency saving' as previously contemplated by Gemserv) for the forthcoming managed service provider agreement, in light of the fact that these rates have been competitively and efficiently procured, and given that NIE Networks will already be subject to an overall top-down productivity challenge.

NIE Networks stands ready to engage further with the UR as to its consideration of these new daily rates, consistent with the UR's proposal in the DD.

5. CAPEX: ERROR IN RE-CATEGORISING THE COSTS OF CERTAIN CAPEX IT PROJECTS AS OPEX

The issue

- 5.1 The UR has provisionally determined, by reference to conclusions reached by Gemserv, that proposed capex investments for a number of IT projects should instead be treated as opex.⁵³
- 5.2 This re-categorisation is erroneous, for the reasons set out further below.

Background

- 5.3 As noted above, the IT Business Plan sets out the scope of each non-network IT project proposed for RP6 and the benefits to be delivered. In addition to major named projects (48 of which are described in the IT Business Plan), NIE Networks

⁵³ DD, 7.16 (3rd and 4th bullets), 7.18 (5th and 6th bullets); DD Annex E, sections 8.2.2 and 8.2.3.

included sums for smaller capex investments, the need for which will emerge during the RP6 period.⁵⁴ These sums have been estimated based upon experience during RP5. This type of investment falls into two categories:

- **Small Projects:** each generally less than £100k in value, which will deliver new systems functionality or hardware assets. For example, the introduction of new software packages; the purchase of additional software licences to add new users to existing applications; purchase of new equipment such as PCs and laptops; and software developments to meet changing business requirements or address obsolescence.
- **Enterprise Application Projects:** to extend the functionality of existing enterprise class applications such as SAP and the Network Management System ("NMS") to meet changing business requirements.

Gemserv's assessment and the UR's DD

- 5.4 During engagements with Gemserv in advance of the DD, NIE Networks provided additional information to support the requirement for the above investments.⁵⁵ With the exception of some small projects investment (dealt with in section 6 below), Gemserv did not challenge the need for the relevant spending. However, it took the view that this type of investment should be classified as opex rather than capex.⁵⁶ The UR has provisionally adopted this recommendation in the DD.⁵⁷

Re-allocation of relevant investment from capex to opex is flawed

- 5.5 The proposed re-allocation of the relevant spending from capex to opex is flawed for the reasons set out below.
- 5.6 In preparing the business case for any IT investment NIE Networks considers the nature of the spend and ensures that it is treated appropriately from an accounting principles perspective. NIE Networks' accounting practices, including those adopted in preparing the Regulatory Accounts required under the company's Licence Conditions and which are subject to audit by the company's statutory auditors, conform to the best commercial accounting practices, including International Accounting Standards and International Financial Reporting Standards. This category of spend was treated as capex during RP5, reported as such in the Regulatory Accounts, audited and signed-off by the UR.
- 5.7 The same approach will be taken during RP6, and NIE Networks intends to treat the investment for each of the relevant projects as capex in its statutory and Regulatory Accounts, in compliance with accounting requirements.
- 5.8 Issues specific to the relevant projects are set out below.

⁵⁴ See IT Business Plan, Appendix A6 (p.290); see also p.130-133 (Project RP6-018 SAP ECC6 Upgrade), p.275-278 (Project RP6-046 SAP IS-U Upgrade) as regards the SAP projects referred to below.

⁵⁵ See: NIE Networks response to UR Query URQ150 SAP ECC6 Enhancements, 25 October 2016; NIE Networks response to UR Query URQ152 SAP IS-U Enhancements, 25 October 2016; NIE Networks response to UR Query URQ153 Small Projects, 24 October 2016.

⁵⁶ DD Annex E, final paragraph of section 8.2.3.

⁵⁷ DD, 7.16 (3rd and 4th bullets), 7.18 (5th and 6th bullets).

Small projects

- 5.9 Gemserv contended that "[t]he character of the activities undertaken in the Small Projects historically and as described in engagement with NIE Networks, suggests they are driven by operational requirements and should more properly be designated as opex."⁵⁸ As a result Gemserv recommended that £1.95 million should be reallocated from capex to opex. No further reasons for this conclusion are provided, despite the detail provided by NIE Networks concerning those projects.
- 5.10 In response to a UR query, NIE Networks provided an analysis of Small Project expenditure for each year of RP5, providing the actual and the forecast spend.⁵⁹ As an example, the information for the base year 2015/16 is provided in Table 6.1 below, along with a brief description of the reason for each investment. None of this spend could be considered to be operational / maintenance spend; and, based upon NIE Networks' capitalisation policies, all of the investment was in fact classified as capex. The same holds true for all the other years in RP5.

Table 6.1: Small Projects 2015/16 outturn spend and reasons for investment

Project	£k	Comment
Resource Manager	12	Replacing a legacy MS Access system with a new .NET application
Powerchecker	15	Implementation of a new web application to allow customers to check outage information online
Routestar Enhancements	11	Replacement of an obsolete operating system and purchase of new hardware
Optimal Upgrade	92	Replacement of an obsolete system with a new version of software, the introduction of additional features and purchase of additional licences
Mobile Workforce Phase 1	241	Implementation of a new mobile device management platform and purchase of new devices and software licences
MV90 changes	46	Replacement of an obsolete system with a new version of software.
Sub £10k projects	101	Multiple projects including: an IE11 software upgrade (£20k); implementation of new Secure Cheque / BACS functionality (£15k); development of a new E600 system for Transmission work (£16k); MapInfo Professional licence purchase (£13k); Phase 1 of a project to replace a System Load Management Access Database with a new .NET application (£6.6k); additional functionality for the NIE Website (£8k) and the Intranet (£6.5k)
Total	518	

Enterprise Application Projects

- 5.11 Gemserv contended that "[t]here are a number of projects that are subject to ongoing enhancements. Having requested further information on these enhancements from NIE Networks, they were largely of the following nature: amendment of documentation, validation, generation of alerts, adding data, management of workarounds, operational updates. Gemserv is of the opinion that these costs are more accurately considered opex and should be treated as such.

⁵⁸ DD Annex E, section 8.2.3.

⁵⁹ NIE Networks response to UR Query URQ153 Small Projects, 24 October 2016.

NIE Networks should not be permitted to capitalise and add them to the RAB."⁶⁰
As a result Genserv recommended that £690k should be reallocated from capex to opex.

SAP

- 5.12 In response to queries from the UR, NIE Networks provided additional information on the type of work undertaken as SAP enhancements.⁶¹ As with the Small Projects described above, Genserv has mischaracterised the enhancements as opex when the focus of this expenditure is enhancing the asset to deliver required business functionality. For example, with respect to RP5 SAP IS-U investment, NIE Networks provided an example of a *"Re-write of High Voltage (HV) Agreement document due to legislative changes"*.⁶² This is not *"amendment of documentation"* as described by Genserv but is in fact the development of a new customer report following legislative changes.
- 5.13 Reclassification of £180k of SAP IS-U expenditure and £300k of SAP ECC6 expenditure would mean that only £250k of capital investment would be allowed for each of these major Enterprise Applications over the 6.5 year period of RP6. Based upon previous experience, this would be a totally inadequate allowance. Outturn RP5 capex expenditure for SAP ECC6 is £2.37 million and for SAP IS-U is £0.35 million.

NMS

- 5.14 In response to a similar UR query in relation to NMS, NIE Networks clarified that the enhancement sums were intended for developments to improve NIE Networks' storm response capability and included design, development and test of additional functionality within the product to deliver customer benefits.⁶³ None of this spend could be considered operational / maintenance spend; and, based upon NIE Networks' capitalisation policies, all of the NMS investment was correctly classified as capex in the RP6 plan.

Conclusion

- 5.15 Genserv and the UR have failed to take account of the information provided by NIE Networks which shows clearly that the proposed investment is in the nature of capex. Indeed, NIE Networks intends to treat such spending in its statutory accounts as capex. The UR should take account of the relevant material provided by NIE Networks, and should not make a decision that is inconsistent with accounting principles. Investment in this category was treated as capex in previous price control periods and the consistent application of accounting principles between periods is essential. The UR should, accordingly, classify the proposed investment on the above projects properly as capex rather than opex.

⁶⁰ DD Annex E, section 8.2.2.

⁶¹ NIE Networks response to UR Query URQ150 SAP ECC6 Enhancements, 25 October 2016; NIE Networks response to UR Query URQ152 SAP IS-U Enhancements, 25 October 2016.

⁶² NIE Networks response to UR Query URQ152 SAP IS-U Enhancements, 25 October 2016, p.3.

⁶³ NIE Networks response to UR Query URQ256 NMS (incl. Upgrade & NMS LV Project), 16 December 2016, p.3.

6. CAPEX: ERROR IN DISALLOWING COSTS ASSOCIATED WITH SMALL IT PROJECTS

The issue

- 6.1 The UR has provisionally disallowed, by reference to conclusions reached by Gemserv, a significant proportion of the proposed costs associated with certain small IT projects.⁶⁴ The provisionally disallowed costs total **£275k**.
- 6.2 The conclusion reached by Gemserv is erroneous for the reasons set out below and, accordingly there is no basis for disallowing recovery of these costs.

Background

- 6.3 As noted above, during 2015/16, NIE Networks developed an IT Strategy designed to effectively support business operations through the RP6 period. The strategy process included the identification of associated delivery projects and the preparation of project briefing documents, setting out the type and scale of business benefits to be delivered by each investment.
- 6.4 In addition to the named projects, NIE Networks included a sum per annum for 'Small Projects', generally less than £100k in value, the need for which will emerge during RP6. This is in line with the approach adopted by NIE Networks during RP5.

Gemserv's assessment and the UR's DD

- 6.5 Gemserv contends that a significant proportion of the proposed investment in small projects should be disallowed on the basis that "*there did not seem to be an objective rationale for why the ongoing annual expenditure associated with these projects should be significantly higher in RP6 than RP5*". On this basis it recommended excluding £275k of the £2.23 million NIE Networks had proposed.⁶⁵ The UR adopted this recommendation in the DD.⁶⁶

Recovery of the full proposed investment in small projects is justified and should be permitted

- 6.6 The rationale for the proposed investment in small projects is explained below. On the basis of this information, the UR should permit recovery of this investment.
- 6.7 The RP6 forecast costs were developed using a baseline of £250k per annum for unspecified changes plus the addition of several areas of investment which were considered too small in value to highlight separately in the investment plan.
- 6.8 The baseline of £250k per annum can be compared to the average small project spend in RP5 of £284k per annum. The additional investment included under the small projects category was as follows:

- **Qlik:** There will be a requirement to develop new business reports using the Qlik reporting application in the early years of RP6 until the longer-

⁶⁴ DD 7.16 (4th bullet); DD Annex E, section 8.2.3.

⁶⁵ DD Annex E, section 8.2.3.

⁶⁶ DD 7.16 (4th bullet).

term reporting solutions have been implemented. An allowance of £150k in the first 2.5 years of the period has been included to facilitate this development.

- **Mobilise Apps:** NIE Networks has invested in mobile device management capabilities during RP5 and will continue to extend the use of mobile devices across the workforce during RP6. In addition to the enterprise mobile applications it is intended to develop / deploy smaller Apps to the devices in areas such as Vehicle Log Sheets, Near Miss Reporting, Lone Worker App, Apparatus Operational restrictions, Crisis Management / Business Continuity Event Management, etc. A total of £350k has been included in the IT Business Plan to facilitate these developments.
- **JMS:** Significant changes were made to the Job Management System during RP5 to facilitate the introduction of contestability in connections and an upgrade is planned early in RP6 (project RP6-014). Based upon activity during RP5, there will be a periodic requirement during RP6 to further develop JMS to meet changing business requirements. Accordingly, a sum of £50k has been included in both 2019/20 and 2021/22 to facilitate this investment.

6.9 This approach resulted in a total forecast RP6 spend of £2.225 million – an average of £342k per annum, as set out in Table 6.2 below.

Table 6.2: Breakdown of RP6 small projects spend

£k - 15/16 prices	6 months to Mar-18	18/19	19/20	20/21	21/22	22/23	23/24	RP6 total
Baseline	125	250	250	250	250	250	250	1,625
Qlik - New business report development	50	50	50					150
Mobilise Applications	50	50	50	50	50	50	50	350
JMS Development			50		50			100
Small Project Total	225	350	400	300	350	300	300	2,225

6.10 Contrary to Gemserv's apparent understanding that the relevant costs are "*significantly higher*", as the analysis above indicates, the baseline, non-specific small project expenditure is in fact planned to be lower in RP6 than RP5 (average of £250k per annum compared to £284k per annum in RP5). The categorisation of specific investment areas as Small Projects (due to their value) leads to the apparent increase in average spend during RP6 but this is not in fact the case.

Conclusion

6.11 The analysis set out above shows that it would be incorrect to conclude that the relevant projected small projects spend for RP6 is higher than that for RP5. Accordingly, the basis for Gemserv's conclusion to disallow this investment is incorrect, and recovery should instead be permitted.

7. CAPEX: FAILURE TO ALLOW APPROPRIATE ALLOWANCE FOR PROGRAMME AND CHANGE MANAGEMENT COSTS

The issue

- 7.1 The UR has provisionally disallowed, by reference to conclusions reached by Gemserv, all of NIE Networks' proposed programme management, project management, and change management costs which are required for the management of one of the largest and most complex IT programmes of work ever to be carried out by NIE Networks.⁶⁷ The provisionally disallowed costs total **£2.45 million**.
- 7.2 This is erroneous for the reasons set out below.

Background

- 7.3 A key objective of the NIEN IT Strategy, developed during 2015/16 with the support of PA Consulting, was the introduction of important technology solutions which would deliver benefits such as customer service, data quality and efficiency improvements.
- 7.4 The investment planned for RP6 involves the introduction of a range of new business applications and supporting technologies and will be one of the largest and most complex IT programmes of work undertaken by NIE Networks. Accordingly, there will be a requirement for careful management of the interdependencies between the various projects, efficient utilisation of critical business and managed service resources and effective management of the associated changes to business processes.
- 7.5 The costs associated with this (i.e., programme management, project management, and change management costs; referred to hereafter for convenience simply as **"programme and change management costs"**) were included in the IT Business Plan⁶⁸ and justified in further communications with the UR (as set out in further detail below).

Gemserv's assessment and the UR's DD

- 7.6 Gemserv reviewed the proposed projects and recommended the disallowance of all of the programme and change management costs included in the IT Business Plan,⁶⁹ and the UR adopted this recommendation in the DD.⁷⁰
- 7.7 Gemserv's proposed disallowance was on the purported bases that:⁷¹
- there is no precedent for the UR approving these types of project costs, with the exception of one particular high resource demand project; and

⁶⁷ DD, 7.16 (5th bullet); DD Annex E, section 8.4.

⁶⁸ E.g.: programme management costs were spread across the implementation costs for each transformation project set out in the IT Business Plan, on the basis of a 15% uplift; change management and project management costs for each transformational project were shown in the estimated costs tables in each relevant project brief in the IT Business Plan.

⁶⁹ DD Annex E, section 8.4.

⁷⁰ DD, 7.16 (5th bullet).

⁷¹ DD Annex E, section 8.4.

- that the requirement has not been adequately substantiated by evidence.

7.8 Both of those contentions are incorrect for the reasons set out below.

The contention that there is no precedent for approving such costs is incorrect

- 7.9 Gemserv's conclusion that there is no precedent for approving these types of costs (with the exception of one particular high resource demand project)⁷² is incorrect.
- 7.10 There are in fact a number of examples where the use of external resources to provide programme and change management has been explicitly approved by the UR. During previous price controls, NIE Networks has delivered a number of major transformational IT programmes including the Further Electricity Market Opening project ("**FEMO**"), Single Electricity Market / NI2007 ("**SEM**") and Enduring Solution. For all of these programmes, NIE Networks appointed client side advisors (following competitive procurements) who provided programme and change management resources. The client side advisor costs formed part of the overall IT programme costs which were approved by the UR.⁷³
- 7.11 The UR appointed Gemserv to undertake a review of the project costs associated with the SEM and Enduring Solution projects. In its SEM report, Gemserv makes the following statement with respect to programme management costs:⁷⁴

[REDACTED]

⁷² Gemserv states that "*while the previously UR [sic] approved resource costs associated with one high resource demand project, Gemserv has not seen evidence of the UR explicitly approving business backfill costs*" [footnote omitted]: DD Annex E, pp.35-36.

⁷³ **As regards FEMO:** the UR's predecessor, the Northern Ireland Authority for Energy Regulation ("**NIAER**"), approved the appointment of IBM as client-side advisors by letter dated 23 February 2014: Letter from Ofreg ([REDACTED]) to NIE ([REDACTED]), 'Re: Market Opening and Appointment of Consultants', 23 February 2004. Relevant approved costs and details are set out in in internal project report to the Viridian Audit Committee: 'Further Electricity Market Opening Project Information for Audit Committee [to 31 October 2014]', 11 November 2004 - IBM's costs are provided on p.3, and this refers to the aforementioned letter as approval for the expenditure; a breakdown of the type of services provided by IBM is provided on p.5-6.

As regards the Enduring Solution: NIE sent its final investment case to the UR on 5 July 2010: NIE, 'Enduring Solution for Retail Market Development in Northern Ireland – Final Investment Case' – see client-side costs set out in sections 6.2 and 7.2. This was approved by the UR in: Letter from UR ([REDACTED]) to NIE plc ([REDACTED]), 'Stage 3 Final Investment Case and Update Note', 6 July 2010.

As regards SEM: NIE sought approval to proceed with the business definition phase of the project: Letter from NIE ([REDACTED]) to NIAER ([REDACTED]), 'NI 2007 Project – 'Business Definition' Stage', 9 June 2006 – see table and explanation on p.3 which sets out IBM's role as client side advisers to the programme. The NIAER confirmed that the project could proceed in: Letter from NIAER ([REDACTED]) to NIE (Mr Ashley Boggs), 'NI 2007 Project – 'Business Definition' Stage', 15 June 2006. Gemserv was asked by the NIAER to undertake a review of the proposed costs for the project, and in its report to the NIAER, confirmed the use of external experts to ensure large IT projects are a success – see: Gemserv, 'Gemserv's Report on the budget costs of the NIE 2007 Market Opening Programme', May 2007 ("**Gemserv May 2007 SEM Report**"), p.18 (final paragraph).

⁷⁴ Gemserv May 2007 SEM Report, p.18.



This statement strongly supports the use of client side IT programme expertise to effectively manage the risks of large IT programmes and contradicts the position adopted by Gemserv and the UR in the DD.

- 7.12 This approach has been followed even for less complex projects with less significant business change requirements. For example, £3.54 million was approved by the UR for a Network Management System upgrade project in May 2012. The detailed costs provided to the UR included £370k for client side costs such as project management / test management,⁷⁵ and these costs were allowed in full.⁷⁶

The UR and Gemserv have failed to consider relevant evidence provided by NIE Networks

- 7.13 NIE has engaged in detailed discussions and provided written evidence to substantiate the need for the proposed programme and change management costs. The UR and Gemserv have not properly considered that information, and Gemserv has not provided any explanation of the reasons why it contends that those costs have not been in its view *"fully supported by evidence"*.⁷⁷
- 7.14 There have been a number of engagements involving NIE Networks, the UR, and the UR's advisers to clarify why the proposed programme and change management costs are legitimate costs which will be incurred by NIE Networks in the delivery of the RP6 IT work programme. The matter was discussed at length in IT workshops on 20 December 2016 and 25 January 2017. NIE Networks provided additional written information in response to UR queries on 25 November 2016,⁷⁸ 5 January 2017,⁷⁹ and 17 February 2017.⁸⁰ The UR has failed to consider this evidence fully, as it provides detailed objective justification for those costs (as summarised below).
- 7.15 Indeed, one of the UR's queries was made of NIE Networks on 16 February 2017, the same date as the Gemserv report provided as Annex E to the DD. NIE Networks provided the information requested the next day, 17 February 2017.⁸¹ The Gemserv report therefore could not have included any consideration of that information.

⁷⁵ NIE Networks, Report provided to the UR detailing project costs entitled 'Network Management System: Response to Utility Regulator queries received 10 May 2012', 18 May 2012.

⁷⁶ Letter from the UR () to NIE Networks () providing approval for NMS, 'Re: Request for funding for the Network Management System', 29 May 2012 ("**NMS Approval Letter**").
⁷⁷ DD Annex E, p.36.

⁷⁸ NIE Networks Response to UR Query URQ201 NIEN Cost Impact, 25 November 2016.

⁷⁹ NIE Networks Response to UR Query URQ269 PM & Backfill Costs, 5 January 2017.

⁸⁰ NIE Networks Response to UR Query URQ201a, Programme Management & Backfill Costs, 16 February 2017.

⁸¹ NIE Networks Response to UR Query URQ201a, Programme Management & Backfill Costs, 16 February 2017.

- 7.16 NIE Networks' justification of the specific programme and change management costs is set out below.⁸²

Project management costs

- 7.17 The RP6 IT programme includes a number of projects which are required to replace obsolete assets. For the majority of these projects, the IT managed service partner will take on the project management role, as there is no, or limited, 3rd party vendor involvement in those projects. However, 5 of the remaining RP6 obsolescence projects include a cost for external project management resource. In its report, Gemserv recommends the disallowance of all these project management costs (£196k) on the basis that the requirement has not been sufficiently supported by evidence.⁸³ But NIE Networks has provided evidence which shows there is a robust justification for these costs and it appears that Gemserv has either not considered it or disregarded it without justification.
- 7.18 These are projects which will not be delivered solely through the IT managed service partner, and they will all require co-ordination of 3rd party vendors, managed service provider resources and NIE Networks business teams. The efficient delivery of these projects will require experienced IT project management resources and these skills are not available within NIE Networks.
- 7.19 The project management resources within the internal NIE Networks IT team are limited to a small Project Management Office which provides support to project managers in terms of standards, templates, reporting, financial control and project assurance. Due to the lack of skilled internal IT project manager resources, there will be a need to acquire these externally and charge the services to these 5 projects.
- 7.20 This is in line with the approach adopted in previous price control periods where external project managers have been acquired for a fixed term to support implementation of the more complex IT projects, e.g. the Maximo Lines project delivered during RP5.

Programme management / change management costs

- 7.21 The IT Business Plan includes 16 transformation projects which will be delivered alongside the business as usual obsolescence projects. This will create a significant and complex work programme which will need to be delivered in a coherent manner to ensure that the interdependencies between individual projects, timescales, sequencing and costs are managed effectively and business benefits delivered on schedule.
- 7.22 The costs for these individual projects were developed by building up components of the core technical IT implementation, i.e. hardware costs, software costs, 3rd party IT vendor costs, IT managed service provider costs associated with

⁸² This information was previously provided to the UR, most recently in the response to URQ201a (Programme Management & Backfill Costs, 16 February 2017) which expanded on information provided to the UR prior to that time.

⁸³ DD Annex E, p.36.

delivering the IT system plus the NIE Networks staff backfill costs to support the technical implementation including development of functional specifications and user acceptance testing. Once these core costs were established, programme management and change management costs were allocated to the transformational projects, depending upon scale and degree of complexity.

Programme management

- 7.23 Programme management support will include experienced IT professionals who will assist NIE Networks to plan and execute the programme of work, engaging with the 3rd party vendors, managed service provider resources and NIE Networks' design / test resources. These skills are not available within the NIE Networks workforce. In its report, Gemserv recommends the disallowance of all the programme management costs (£964k)⁸⁴ on the basis that the requirement has not been sufficiently supported by evidence. But, as is the case with the project management costs explained above, NIE Networks has provided evidence which shows there is a robust justification for these costs and it appears that Gemserv has either not considered it or disregarded it without justification.

Change management

- 7.24 To ensure the most efficient and effective outcome, all of the transformational projects will require initial work to review existing business processes and develop 'to-be' processes, which will form the basis of a set of detailed business requirements for the new solutions. These business requirements will then be translated to functional requirements as part of the core IT implementation. The introduction of the amended processes and the supporting technology will require significant documentation, training and communication effort.
- 7.25 External change management resources will include experienced business analysts to support process improvement and documentation activities and to assist with communication planning and training. These skills are not available within the NIE Networks workforce. In its report, Gemserv recommends the disallowance of all these change management costs (£1.29 million) on the basis that it would expect a business to accommodate the costs within ongoing operational spending and that it has not seen objective evidence of the requirement.⁸⁵ However, once again, NIE Networks has provided evidence which shows there is a robust justification for these costs and it appears that Gemserv has either not considered it or disregarded it without justification.
- 7.26 The main activity in the programme will stretch over a 3.5 year period from October 2017. Assuming a daily rate of £750 per day for the experienced resources required to provide the services, this cost equates to approximately 4 full time equivalent client side resources throughout the 3.5 year period. This RP6 estimate of change management costs compares favourably to the scale of client side input

⁸⁴ DD Annex E, p.36.

⁸⁵ DD Annex E, p.36.

associated with, for example, the Enduring Solution project, which equated to £5 million of client side costs, incurred over a 4 year period.

The level of evidence and justification has been objective and robust

- 7.27 NIE Networks has taken a balanced approach to determining a reasonable estimate of the costs of programme and change management support that has been included in the IT Business Plan, relative to the size, scale and complexity of the overall IT programme during RP6. NIE Networks' position is supported by the PA Consulting Assurance Letter, issued as part of the IT strategy development process, which confirms amongst other things that the IT investment plan is:
- prudent, i.e. the resource and financial estimates contained within the plan have been developed using a prudent approach;
 - efficient; and
 - cost effective.

- 7.28 Moreover, further evidence was provided to the UR, as noted above, following the provision of the IT Business Plan.

Conclusion

- 7.29 There is no basis to contend that NIE Networks has provided insufficient evidence to justify the programme and change management costs. By doing so, the UR and Gemserv have failed to take account of evidence provided by NIE Networks.
- 7.30 Furthermore, Gemserv is in error when it contends that there is no precedent (save for one occasion involving a high resource demand project). There is in fact precedent for these types of costs being permitted by the UR to be recovered.

8. CAPEX: FAILURE TO ALLOW COSTS TO INITIATE TWO SAP UPGRADE PROJECTS

The issue

- 8.1 The UR has provisionally disallowed, by reference to conclusions reached by Gemserv, the costs of initiating two crucial SAP upgrade projects in the final year of RP6.⁸⁶ The provisionally disallowed costs total **£1.0 million**.
- 8.2 Gemserv's conclusions were made on a flawed basis (namely an incorrect conclusion that the two upgrade projects could proceed in parallel) and, in light of the time constraints imposed externally by the relevant vendor, there is accordingly no basis for the proposed disallowance of these costs during RP6.

⁸⁶ DD, 7.16 (6th bullet); DD Annex E, section 8.1.

Background

- 8.3 A key objective of the NIEN IT Strategy is to address obsolescence of critical IT assets in a timely fashion to ensure vendor support can be maintained.⁸⁷
- 8.4 NIE Networks has two instances of SAP software, both of which support business critical operations:
- an SAP ECC6 instance is the core financial system for the business providing financial management and reporting, stores management, procurement and accounts payable functionality; and
 - an SAP IS-U implementation is used by the Market Operations business and, as the core customer registration, metering and data aggregation system, is central to the effective operation of the retail and wholesale electricity markets in NI.
- 8.5 The implications of an extended outage of either system would be very serious for business and customer operations. It is therefore considered vital that SAP support is maintained through timely upgrades of the software to fully vendor-supported versions.
- 8.6 The latest maintenance information available from SAP states that the versions of software implemented by NIE Networks will be supported until 31 December 2025, although this date can be subject to change. At that point (which will occur during RP7), NIE Networks will have to have completed the migration of both instances to the new SAP technology – SAP HANA. As the conversion to SAP HANA involves fundamental changes to the entire SAP architecture, it is recognised that these will be very significant projects.
- 8.7 In conjunction with SAP and the managed service provider, Capita, NIE Networks has developed high level plans to migrate both SAP instances to supported versions:
- These plans indicate that each project will take between 9 and 15 months to deliver.
 - It will not be possible to run the projects in parallel due to the significant internal and managed service resource implications and the risks associated with undertaking such a major change to both systems at the same time.
 - Therefore, an elapsed project delivery timeline of between 18 months to 30 months will be required to complete the migrations.
 - Assuming 24 months for scheduling purposes, **this will require the projects to commence in mid-2023 at the latest** to ensure delivery by mid-2025.

⁸⁷ See, e.g., p.26 of the NIEN IT Strategy.

- 8.8 Accordingly, to recognise the requirement to commence the projects in RP6, NIE Networks has provided for £1 million of costs in 2023/24 (the end of RP6) to initiate the SAP HANA projects.⁸⁸
- 8.9 In addition to the explanation provided in the IT Business Plan, the requirement to commence the projects during RP6 was discussed at joint IT workshops prior to the finalisation of the DD and NIE Networks provided additional information at the request of Genserv.⁸⁹

Genserv's assessment and the UR's DD

- 8.10 Genserv recommended the disallowance of all of the £1 million proposed SAP HANA costs included in NIE Networks' Business Plan. It did so on the basis that it considered that the projects above could be run in parallel and therefore would not need to commence until 2017.⁹⁰ The UR adopted this recommendation in the DD.⁹¹

Genserv's conclusion that the projects could be run in parallel is incorrect

- 8.11 Genserv has misinterpreted the evidence provided to it and, accordingly reached the wrong conclusion that the two projects could be run in parallel. In fact, the opposite is true.
- 8.12 In its report, Genserv notes that NIE Networks characterised the two SAP HANA projects as "completely independent of each other",⁹² and then appears to consider that this supports the feasibility of the two projects being run in parallel.⁹³ But in fact the implication of NIE Networks' statement is the opposite of what Genserv seeks to draw from it. NIE Networks made this point in the URQ168 Response to highlight that the extensive design and testing phases required for both projects, which must be supported by the same internal finance resources and managed service subject matter experts, cannot be undertaken at the same time. This is why they cannot be undertaken in parallel; the risks of doing so would be too great (including the possibility that they may not be completed in time for the cut-off dates outlined above).
- 8.13 Specifically:
- Critical business resources required for design and testing activities will include finance business partners in each area of the NIE Networks business using both SAP instances including: Connections, Market Operations, Metering and the Distribution Control centre; financial

⁸⁸ IT Business Plan, p.130-133 (Project RP6-018 SAP ECC6 Upgrade), p.275-278 (Project RP6-046 SAP IS-U Upgrade). See also Appendix A6 (Investment Tables) (p.290).

⁸⁹ NIE Networks response to UR Query URQ165 SAP ECC6 HANA Upgrade Timing (RP6-018), 4 November 2016; NIE Networks response to UR Query URQ168 SAP IS-U HANA Upgrade Timing (RP6-046), 4 November 2016 ("**URQ168 Response**"); NIE Networks response to UR Query URQ165a SAP HANA (follow-up to URQ165 and URQ168), 19 January 2017.

⁹⁰ DD Annex E, section 8.1.

⁹¹ DD, 7.16 (6th bullet).

⁹² NIE Networks' statement is in URQ165 Response, p.3. Emphasis in original.

⁹³ DD Annex E, section 8.1.

accountants in the central finance and accounts payable teams; and the NIE Networks SAP IT business analyst.

- The majority of the in-depth SAP technical expertise resides within a small group of functional analysts in a shared managed service applications team. These experts will be critical in designing the HANA solutions and undertaking functional and non-functional system testing on NIE Networks' behalf. This team could not resource parallel projects of this scale, and the introduction of general SAP resources from elsewhere would not resolve the conflict, due to the customised nature of the SAP IS-U instance in particular and the need for specific expertise.

8.14 The two projects must, accordingly, be completed serially rather than in parallel and begin in RP6 in light of the timing constraints set out in paragraphs 8.5-8.9 above.⁹⁴ Commencing the work instead in RP7 would create a significant risk that the projects would not be completed prior to the end of the SAP support window. This would put at risk NIE Networks' ability to meet its licence obligations as the retail market operator, given the central criticality of the SAP IS-U instance to the operation of the retail market.

Conclusion

- 8.15 Gemserv has either ignored or failed to take proper account of the evidence provided to it, and thereby incorrectly concluded that the two SAP HANA projects could be progressed in parallel. This has caused Gemserv to arrive at the further erroneous conclusion that work on the projects need not commence during RP6 in order to be completed by the cut-off dates during RP7 outlined above, thereby recommending that the relevant investment be disallowed.
- 8.16 This is an error, and funding for the projects should be allowed during RP6 so the projects can be completed in time.

9. OPEX: ERROR IN DISALLOWING NEW MARKET OPERATIONS IT OPEX COSTS

The issue

- 9.1 The UR has provisionally disallowed, by reference to conclusions reached by Gemserv, the costs of new Market Operations IT opex costs arising in RP6.⁹⁵ The provisionally disallowed costs total **£0.66 million**.

⁹⁴ For completeness it is noted that even though the projects will need to be undertaken sequentially, some of the expenditure on both projects will fall due during RP6 even though the main implementation activity would not occur during RP6 for one of them. This is because an upfront licence will be required from SAP for both projects, and NIE Networks plans to purchase both licences at the same time in order to maximise a deal with SAP (which would in turn lead to the most efficient expenditure of costs). Accordingly, some project spend would be incurred on both projects initially, as well as payments to SAP for the licences. For the avoidance of doubt, the bulk of the implementation activity on each project would nonetheless be carried out sequentially rather than in parallel.

⁹⁵ DD, 7.18 (1st bullet); DD Annex D, p.28; DD Annex E, section 4.2.1 (p.13).

- 9.2 Gemserv's conclusions are based on flawed assumptions and are therefore in error.

Background

- 9.3 As noted above, during the development of NIE Network's IT strategy in 2015/16, the strategy process included the identification of associated delivery projects to support business operations effectively through the RP6 period, and the preparation of project briefing documents setting out the projected costs and benefits of each project.
- 9.4 The project briefing documents also identified additional operating costs which would arise from the introduction of the new solutions, including annual software and hardware maintenance fees and managed service support charges. The additional opex costs were built on a bottom-up basis and the process was quality assured by PA Consulting. A total of £8.89 million of new IT opex costs were identified for the RP6 period. These new costs were allocated to each of the NIE Networks business areas (Transmission, Distribution, Market Operations and Connections) on a project-by-project basis using RIGs apportionment rules. An analysis of the IT opex impact was included in the NIE Networks RP6 IT Business Plan.⁹⁶
- 9.5 Gemserv, in its Market Operations Assessment Report (DD Annex D), discusses the portion of the additional opex costs that has been allocated to Market Operations. The figure quoted by Gemserv there is £655.94k.⁹⁷ This was updated to £661.8k⁹⁸ in Gemserv's later Non Network IT Report (DD Annex E) and this is the figure which appears in the DD.⁹⁹

Gemserv's assessment and the UR's DD

- 9.6 In the context of its review of the proposed opex costs emerging from the new IT projects DD Annex E, 9.2, it stated:

"We assessed the assumptions underpinning the opex proposals and found them to be broadly reasonable."

- 9.7 However, in section 5.1 of DD Annex D, Gemserv states that it expects that overall IT operating costs for Market Operations should be able to reduce through RP6, and that none of the additional IT opex allocated to market operations should therefore be allowed. Gemserv reaches this conclusion on the basis that it considers that: (1) the Enduring Solution ("**ES**") is now stable; and (2) there would be opportunities to reduce costs through the new managed service provider agreement and through the introduction of new technologies such as virtualisation and use of the cloud. Gemserv provides no further evidence for the potential for cost reductions beyond the vague and high-level statements provided in on p.29 of DD Annex D.

⁹⁶ IT Business Plan, Appendix A7 – Opex Impact.

⁹⁷ DD Annex D, p.28.

⁹⁸ DD Annex E, section 4.2.1 (p.13).

⁹⁹ DD, 7.18.

9.8 In making these assumptions Gemserv is in error.

- As to (1), the ES is an entirely different category of IT costs which were assessed separately and they have no bearing on this matter (i.e. the specific market operations opex costs described and requested by NIE Networks).
- As to (2), the costs of the new managed service provider agreement are now understood (and they factor in the use of modern technologies such as virtualisation, cloud, and increased offshoring) and were the subject of a competitive and efficient procurement process, and they are the same as the current contract.

9.9 Therefore, there is no basis for assuming the Market Operations IT costs will reduce through RP6. This issue was highlighted to the UR in the IT workshop held on 14 February 2017.

9.10 Gemserv does not appear to have taken proper account of the fact that the new IT costs arising through RP6 are legitimate costs driven by the introduction of new functionality to deliver business requirements, and Gemserv itself has concluded that they appear reasonable. These new costs will be incurred in addition to the current baseline costs. There is no reason to disallow them.

Conclusion

9.11 Gemserv has erroneously concluded that additional IT opex allocated to market operations should be disallowed by failing properly to consider the evidence provided by NIE Networks. It has acted irrationally by failing to take account of its own conclusion elsewhere that the proposed new opex costs for new functionality is reasonable. There is thus no basis for the UR to disallow these costs.

10. ENDURING SOLUTION (OPEX): FLAWED ASSUMPTIONS CONCERNING MANAGED SERVICE PROVIDER COSTS

The issue

10.1 The UR has provisionally accepted a recommendation of Gemserv that a (then) proposed outsourced managed service provider agreement could be assumed to deliver a 10% reduction in costs and that accordingly the IT costs for the ES could be reduced on that basis.¹⁰⁰ The proposed disallowed costs total **£1.72 million**.

10.2 That assumption is flawed on its own terms and in light of the subsequent re-procurement of the managed service provider agreement.

¹⁰⁰ DD, 7.21 (1st bullet); Annex D, section 5.2.1.

Background

- 10.3 In May 2012 NIE Networks introduced new IT systems and processes required to meet legislative and regulatory requirements for a fully competitive retail electricity market. These arrangements are known as the Enduring Solution (ES).
- 10.4 The ES IT solution enables NIE Networks to perform its unique role within the NI competitive electricity market. It supports unconstrained switching, whereby retail customers can freely move between electricity suppliers, ensures data integrity for the wholesale and retail markets, and supports harmonisation between the markets in NI and ROI.
- 10.5 NIE Networks' role as market operator in NI is much broader than that undertaken by the DNOs in GB. NIE Networks is responsible for managing all market processes and the provision and maintenance of accurate, up-to-date data necessary to support the successful operation of the competitive retail and wholesale electricity markets. In GB, responsibilities for these functions are spread across many different industry participants including meter data collectors, data aggregators, suppliers and meter installers. NIE Networks performs all these functions itself and, as a consequence, the ES is a necessarily complex suite of applications, providing a much wider range of functionality than that required of any GB DNO.
- 10.6 NIE Networks outsources the majority of its IT and telecoms delivery to a managed service partner. As a result, the costs associated with the managed service form a significant component of the NIE Networks' IT and telecoms costs, including the ES operating costs. As noted above in paragraph 4.4, NIE Networks has recently completed a full competitive OJEU re-procurement of this managed service provider agreement, with the new contract due to commence on 1 October 2017, in line with the start of RP6.
- 10.7 NIE Networks' RP6 forecast for these ES IT costs is an average of £2.63 million per annum over the period. This can be compared to the 2013/14 cost of £3.40 million – the first full year of operation of the ES systems and processes. This represents a 23% reduction in costs.
- 10.8 As NIE Networks' role as retail market operator is unique, it is not possible to directly compare costs with GB DNOs to assess efficiency. Therefore, the UR requested that its adviser, Gemserv, undertake an assessment of the ES operating costs included in the RP6 business plan. Its assessment is set out in its report at DD Annex D.

Gemserv's assessment and the UR's DD

- 10.9 In its assessment report Gemserv refers to the potential for the outsourced managed services procurement to deliver savings in ES IT support costs.¹⁰¹ As the final position as regards the new agreement was unclear at the time the DD was published, Gemserv made the assumption that a 10% reduction would be delivered, and recommended that the ES IT allowance be reduced on that basis.

¹⁰¹ DD Annex D, section 5.2.1.

This is despite the fact that, during an IT workshop held on 14 February 2017, NIE Networks highlighted to the UR and Gemserv that the emerging view of the bid costs confirmed that this scale of saving would not be achieved, even following a very competitive procurement process.

- 10.10 In the DD the UR has accepted the Gemserv recommendation to reduce the allowance by 10%, but notes that this area of expenditure will be re-appraised prior to the Final Determination when the outcome of the procurement is known.¹⁰²

The IT costs for ES should be allowed in full in light of the re-procurement of the managed service provider agreement

- 10.11 Now that the outcome of the procurement is known, the re-appraisal contemplated by the UR should be undertaken for the UR's Final Determination, rather than relying on a speculative and unfounded (as to which, see paragraph 10.13 below) assumption of a 10% reduction in costs.
- 10.12 The NIE Networks Board approved a preferred bidder to deliver the future services on 9 March 2017 and the new IT service costs which will apply during RP6 are now available. The preferred bidder proposes to deliver the core IT managed services at a cost which, when averaged over the 6.5 years of RP6, is broadly equivalent to the current ICT managed service. NIE Networks prepared its RP6 submission on the basis that the core IT managed service costs would remain flat at 2016/17 levels and the re-procurement costs are in line with the submission.¹⁰³ Therefore, for the purposes of the Final Determination, the UR should provide an ES IT cost allowance which is in line with the NIE Networks submission.
- 10.13 In any event, and independently of any re-appraisal, the previous proposal to reduce the allowance by 10% to account for efficiencies is unjustified and not appropriate. Gemserv recommended providing for such a reduction "*in order to be consistent with [its] other recommendations in relation to the Managed Service Provider Agreement*",¹⁰⁴ but such a reduction is not appropriate in that context for the reasons set out in section 4 above.

Conclusion

- 10.14 The UR should provide for the full amount of funding requested by NIE Networks to allow it to operate the ES systems during RP6. This aligns with the actual projected costs resulting from the recent competitive procurement exercise which concluded after publication of the DD. It would be an error to fail to take account of this updated information and instead rely on a speculative and unfounded assumption of a 10% reduction in costs compared to RP5 costs.

¹⁰² DD, 7.24.

¹⁰³ Further details of the new managed service provider agreement were provided to the UR in the April 2017 Managed Service Agreement Update Letter.

¹⁰⁴ DD Annex D, section 5.2.1.

11. ENDURING SOLUTION (OPEX): ERROR IN CALCULATING EFFICIENT LEVEL OF STAFFING FOR MARKET SERVICES OPERATIONS

The issue

- 11.1 The UR has provisionally accepted a recommendation of Gemserv to allow costs for 17.9 full-time-equivalent staff engaged in activities required to operate the market operations function.¹⁰⁵
- 11.2 That recommendation is the result of a factual misapprehension of actual staffing levels and its own earlier recommendations (due to an apparent misunderstanding about in-house versus outsourced staff), and is therefore in error. The effect of this error is an under-recovery of **£1.67 million** in costs that would be incurred by NIE Networks during RP6.

Background

- 11.3 The background to NIE Networks' role as market operator in NI, and the ES IT solution to enable it to perform this unique role is set out in paragraphs 10.3-10.5 above.
- 11.4 A total of 26 staff are currently engaged in the activities required to operate the competitive market processes for NIE Networks. This includes:
- production of distribution use of system bills for suppliers;
 - production of aggregated supplier data to the wholesale electricity market;
 - responding to customer queries about supplier switching processes;
 - management of governance arrangements to ensure market process adherence and developments in market design;
 - management of services provided by third party service providers to support the ES systems and keypad prepayment meter infrastructure;
 - administration of supplier data queries, connection agreements, and market documentation; and
 - resolution of data issues relating to metering fieldwork.

RP5 staffing levels: recommendations and efficiency improvements

- 11.5 In the period immediately following the introduction of ES arrangements in 2012, the market services were provided by a mixture of NIE Networks in-house resources and business process outsourcing ("**BPO**") resources provided by the managed services partner, Capita.
- 11.6 During 2012, as part of the RP5 assessment process, the UR engaged Gemserv to undertake a review of the ES market services resources and recommend the

¹⁰⁵ DD, 7.21 (3rd bullet); DD Annex D, section 5.2.3.

most efficient level of staffing. The Gemserv review recommended a total of 17.9 in-house staff¹⁰⁶ and 18 BPO staff¹⁰⁷ – a total of **35.9** full-time equivalent ("FTE") resources.

- 11.7 In 2014, NIE Networks undertook a business process improvement review of the market services activities and made the decision to insource the Capita activities, with the objective of streamlining the process and reducing costs. Introduction of the new management arrangements and ongoing process improvement has resulted in a team of **26** FTE staff currently supporting the ES market activities. This represents a 28% efficiency improvement compared with the original Gemserv recommendation of 35.9 total FTE resources.

RP6 submission

- 11.8 Within the RP6 submission, NIE Networks held the costs for these 26 staff across the period.¹⁰⁸

Gemserv's assessment and the UR's DD

- 11.9 As described above, the NIE Networks retail market operator role is unique and it is not possible to directly compare costs with GB DNOs to assess efficiency. The UR, accordingly, requested that Gemserv undertake a further assessment of the ES staff costs included in the RP6 business plan.
- 11.10 In its report Gemserv concluded that staffing costs should be limited to **17.9** FTE resources,¹⁰⁹ and this conclusion was adopted by the UR in the DD.¹¹⁰

Gemserv's conclusion is based on a factual misapprehension of actual staffing levels and its own earlier recommendations

- 11.11 In concluding that staffing costs should be limited to **17.9** FTE rather than 26 FTE (as submitted by NIE Networks, reflective of actual staffing levels, and already representing a substantial efficiency gain during RP5), Gemserv made the following observation:

*"In our previous review of RP5 we recommended a permanent resource base of **17.9** to support the Enduring Solution within Market Services. Within the RP6 submission we have not seen objective evidence to support our deviating from that position. Gemserv proposes permitting staff spend up to this level resulting in a saving of approximately £320.9k per annum and £2.08m over the price control period."*¹¹¹

- 11.12 Gemserv has therefore erroneously considered only the 17.9 in-house FTE resources permitted in RP5, and not the further 18 outsourced FTE resources that

¹⁰⁶ Gemserv, 'Gemserv's update report on changes to the Enduring Solution ICT and employee costs', 6 July 2012, section 5.1, table on p.33.

¹⁰⁷ UR-101 Gemserv's report on the impact of ES project on RP5 final. Table on page 28.

¹⁰⁸ See NIE Networks, 'Market Operations Business Plan – 1 October 2017 to 31 March 2014', June 2016, 6.34.

¹⁰⁹ DD Annex D, section 5.2.3.

¹¹⁰ DD, 7.21 (3rd bullet).

¹¹¹ DD Annex D, section 5.2.3.

were permitted (consistently with Gemserv's own earlier recommendations¹¹²) in addition.

- 11.13 Following the issue of the first version of the Gemserv report on 12 December 2016 and in advance of the publication of the DD, NIE Networks engaged with the UR on a number of occasions with regard to this issue including face-to-face discussions at IT workshops on 20 December 2016, 25 January 2017 and 14 February 2017. NIE Networks also provided additional written information in response to UR queries including detailed analysis of the activities undertaken by the current employees.¹¹³ NIE Networks has highlighted to the UR on a number of occasions that it had failed to recognise the fact that the insourced BPO staff previously allowed in RP5 are included within the current 26 FTE number. The correct comparison is between the 35.9 FTE previously approved and the 26 FTE for whom cost recovery has been sought in the NIE Networks submission. There is no indication within the DD that the UR or Gemserv have considered the additional information provided by NIE Networks.

Conclusion

- 11.14 The allowance of 17.9 FTE resources for market services staff is based on an error of fact, and a failure to take account of relevant information provided by NIE Networks. There is no basis for this conclusion, and the correct number should be 26 FTE resources as proposed by NIE Networks and reflecting actual staffing levels.

¹¹² See paragraph 11.6 above.

¹¹³ NIE Networks response to UR Query URQ270 Enduring Solution and Staffing, 19 January 2017; NIE Networks response to UR Query URQ270a Market Services Staffing Levels, 2 March 2017; and NIE Networks response to UR Query URQ272 New Market Entrant Costs, 19 January 2017.

CHAPTER 7

MARKET OPERATIONS

1. INTRODUCTION

- 1.1 NIE Networks' market operations activities relate to meter installation and certification services, meter reading and the provision of metering data and registration services to support the operation of the retail and wholesale electricity markets. This includes operation and management of major IT systems that are central to enabling wholesale and retail market competition. These activities are unique to NIE Networks when compared with GB DNOs.
- 1.2 NIE Networks' activities in this area will grow throughout RP6, in line with the incremental growth of NIE Networks' customer base and the rising number of electricity suppliers operating in the increasingly competitive NI market. However, the proposed allowances set out in the DD are insufficient to allow NIE Networks to continue to fund its activities in these areas in a number of ways, as follows:
- Section 2 identifies the errors in the UR's approach to direct capex for metering activities, where the UR has erred in its assessment of unit costs for certain work items and failed to set out a clear allowance for the keypad Meter Replacement for Theft Programme throughout the life of RP6;
 - Section 3 describes the shortfalls in the UR's approach to indirect costs associated with market operations, where the UR has both failed to identify the correct RP5 baseline starting point, and also failed to make appropriate adjustments to this to reflect cost increases during RP6; and
 - Section 4 explains why the UR has failed properly to assess the available evidence in rejecting NIE Networks' proposed strengthened revenue protection incentive mechanism, and why such mechanism is in fact justified and should be adopted in the Final Determination.
- 1.3 In addition, Chapter 6 (Non-Network IT) of this Response describes the errors in the UR's approach to determining allowances for providing market services including the operation and management of major IT systems and Enduring Solution activities.

2. **DIRECT CAPEX FOR METERING**

- 2.1 The UR's approach to setting the proposed direct capex allowance for metering in the DD is set out in 11.1-11.16 and in Annex N – Metering ("**Annex N**"), Chapters 2-4.
- 2.2 NIE Networks submits that there are three failings in the UR's approach to direct capex for metering which the UR should correct in the Final Determination:
- the setting of a low unit cost for credit meter procurement that fails to reflect the costs increases evidenced by NIE Networks;
 - its failure to set an appropriate unit cost for credit meter recertification, arising from its misunderstanding of the scope of the works involved; and
 - setting an allowance for the keypad meter replacement for theft programme that does not extend beyond the first year of RP6.

Credit meter procurement costs

Introduction

- 2.3 In its Market Operations Business Plan submitted to the UR in June 2016 (the "**Market Operations Business Plan**"), NIE Networks initially submitted proposed unit costs for credit meters for each year of RP6 of:
- credit meter installation/change - £21.11 per unit;¹ and
 - credit meter recertification - £33.59 per unit.²
- 2.4 Subsequent to the submission of the Market Operations Business Plan (in June 2016), NIE Networks submitted a document to the UR titled 'Additional Information – Credit Meter Costs – Market Ops Business Plan', dated 15 February 2017 (the "**Additional Submission**"). This followed the unexpected announcement by its current supplier that it will cease production of relevant credit meters in July 2017 and set out revised unit costs for 2018/19 and 2019/20 as follows:
- credit meter installation/change - £22.26 per unit;³ and
 - credit meter recertification - £36.58 per unit.⁴
- 2.5 In addition, NIE Networks explained that the materials cost of such meters was likely to rise further during the remainder of RP6 and therefore NIE Networks' RP6

¹ Market Operations Business Plan, Section 2.d., Table 4.

² Market Operations Business Plan, Section 3.a., Table 7.

³ Additional Submission, Table 1.

⁴ Additional Submission, Table 2.

allowance should include a reopener during 2019/20 to determine allowances for the remainder of the RP6 period.⁵

2.6 In the DD, the UR has adopted unit costs of:

- credit meter installation/change - £21.11 per unit;⁶ and
- credit meter recertification - £28.50 per unit.⁷

2.7 The UR has also declined to make any provision for the risk to NIE Networks of further substantial cost increases.⁸

The UR's approach

2.8 The UR has declined to make provision for the cost increases evidenced by NIE Networks for two reasons:

- first, because the UR asserts that it is:

"NIEN's responsibility to maintain a reliable source of meters from the market"

and therefore NIE Networks should manage the risk of suppliers exiting the market and such risk should not be "*shouldered*" by the NI consumer.⁹ The UR further argues that the difficulty NIE Networks faces in sourcing the forms of meter it requires is not unique, as there remain "*significant markets*" that are not adopting smart meters.¹⁰

- second, the UR asserts that:

"At this stage the potential risk of higher unit costs for credit meters has not realised and we do not have firm evidence on which to include these potential costs within RP6 allowances".¹¹

2.9 Accordingly, the UR determined its proposed unit cost allowance for credit meter installations/changes by assessing NIE Networks' initial submission of £21.11 per meter against the CMA's RP5 allowance and RP5 actual outturn costs and deciding that it was reasonable.¹² In the case of credit meter recertification, the UR has assessed NIE Networks' initial submission against the CMA's RP5

⁵ Additional Submission, page 5.

⁶ Annex N, 3.9.

⁷ Annex N, 4.8. See further below as to the specific errors in the UR's approach to setting the unit cost for credit meter recertification.

⁸ Annex N, 2.13-2.14.

⁹ Annex N, 2.13.

¹⁰ Annex N, 2.13.

¹¹ Annex N, 2.14.

¹² Annex N, 3.9.

allowance on the erroneous basis that there was no comparable RP5 outturn data, and accordingly proposed a deduction.¹³

The errors in the UR's approach

- 2.10 NIE Networks explained in its Market Operations Business Plan that advances in metering developments elsewhere will greatly restrict the choice offered by meter manufacturers to NIE Networks to meet the more basic metering requirements of the NI retail market.¹⁴ In particular, as the rollout of smart metering progresses in other jurisdictions, it is less likely that manufacturers will continue to offer meters with more basic functionality such as the single rate credit meters NIE Networks has assumed in its RP6 plan. As a result, NIE Networks will be required to pay a significant premium (compared with current prices) to maintain the NI-specific requirement to continue with installation of single rate credit meters. This is in contrast to significantly more expensive multi-rate meters or smart meters that are widely mandated in other European Union jurisdictions, with the result that the meters required by NIE Networks are increasingly considered a niche product by major meter manufacturers and not commercially viable to produce in the relatively small volumes required in NI.
- 2.11 This concern was borne out by the recent decision of NIE Networks' current supplier of credit meters to stop manufacturing the meters required by NIE Networks in July 2017. NIE Networks is therefore required to tender this contract. Whilst NIE Networks will seek to ensure that it obtains efficient costs via a competitive tender process, the evidence suggests that costs will nonetheless increase.
- 2.12 NIE Networks' revised unit costs are based on the quote from [REDACTED] [REDACTED] This quote demonstrates a cost increase [REDACTED] in the short term. In calculating its revised unit cost proposal, NIE Networks has taken the low end of this quote and applied a challenging [REDACTED] efficiency assumption for the competitive tender process to forecast unit costs that are 35% higher than its original Business Plan submission.¹⁵
- 2.13 Accordingly, the UR has failed to have proper regard to the evidence put forward by NIE Networks as to the challenges in obtaining the types of meters needed for the NI market, and in relation to the increased costs that NIE Networks will face going forwards. NIE Networks presented details of indicative prices provided by an alternative meter provider which it has used in its reassessment of future costs only after assuming challenging efficiency savings to be achieved through its procurement processes. NIE Networks submits that this is a credible assessment of future costs, particularly those in the next three years.

¹³ Annex N, 4.8. See further below as to the specific errors in the UR's approach to setting the unit cost for credit meter recertification.

¹⁴ 3.30.

¹⁵ Additional Submission, Table 1.

2.14 Further, NIE Networks proposed a reopener during 2019/20 to determine an appropriate allowance for the remainder of the RP6 period given the fact that materials costs for credit meters are likely to increase again during RP6, by as much as [REDACTED].¹⁶ This reopener mechanism would also allow time in the early part of RP6 for consideration by the UR and retail market participants of future metering strategy and allow for any adjustment of unit cost allowances to reflect any revision in specification of credit meters required by the NI retail market from 2020/21 onwards.

2.15 However, the UR has not engaged with this reopener at all in the DD.

NIE Networks' requested allowance

2.16 Accordingly, NIE Networks submits that in the Final Determination the UR should allow the following unit costs for credit meter installation/change:

- 2017/18 (6 months) - £21.11 per unit
- 2018/19 to 2019/20 - £22.26 per unit
- 2020/21 to 2023/24 - subject to a reopener or failing that, £29.64 per unit based on NIE Networks' current best estimate.

2.17 Similarly, NIE Networks submits that in the Final Determination the UR should allow the following unit cost for credit meter recertification:

- 2017/18 (6 months) - £33.59 per unit
- 2018/19 to 2019/20 - £36.58 per unit
- 2020/21 to 2023/24 - subject to a reopener or failing that, £55.79 per unit based on NIE Networks' current best estimate.

These unit cost allowances are considered further in paragraphs 2.23 to 2.35 below. They are supported by evidence and are demonstrably efficient.

2.18 The UR dismisses the risk of cost increases faced by NIE Networks as not unique. However, the UR's reference to there being "*significant markets*" that are not adopting smart metering is misplaced.¹⁷ As noted in paragraph 2.10 above, it is more relevant to consider that the risks faced by NIE Networks primarily arise because of the continuing reliance of the NI market on a metering strategy based on single rate credit meters which are increasingly considered a niche product. In contrast, while NIE Networks is aware of other markets which have not adopted smart metering, these rely on more mainstream metering products which will be more reliably and predictably procured over the period out to 2024 (e.g. more expensive multi-rate meters). NIE Networks has asked the UR to provide

¹⁶ Additional Submission, Table 1.

¹⁷ Annex N, 2.13.

examples of other significant markets that are directly comparable to NI in this regard. The UR has said that this is not possible.¹⁸ This supports the conclusion that the UR has failed adequately to consider the metering unit costs risks presented by NIE Networks.

- 2.19 As well as procurement risk, NIE Networks also faces the risk of additional costs if the NI retail market decides during RP6 to change its metering strategy in circumstances where the Department for Economy decides not to adopt smart metering. NIE Networks has asked the UR to confirm what mechanisms will be provided within the RP6 price control to increase cost allowances to compensate NIE Networks for this change. The UR has not provided any assurances in this regard.¹⁹ NIE Networks considers this uncontrollable risk to be unacceptable and fully justifies its proposal for a reopener during 2019/20.
- 2.20 NIE Networks explains in detail below why the UR should accept its proposed unit cost for credit meter recertification.
- 2.21 Should the UR decline to base its allowance on NIE Networks' submitted unit costs with a reopener in 2019/20, and instead adopt the same position in the Final Determination as it has in the DD, NIE Networks' current best estimate is that this will represent a disallowance of £2.15 million over the lifetime of RP6, attributable to the UR's failure to take proper account of the evidence submitted to it.²⁰
- 2.22 The UR also appears to acknowledge the possibility that the Department for Economy may decide during RP6 to roll-out smart metering.²¹ This is therefore an issue that is outside the control of NIE Networks, and if implemented, would have an impact on the costs faced by NIE Networks. NIE Networks therefore requests that the UR records explicitly in its Final Determination that any introduction of smart metering during RP6 would be dealt with under the change of law provisions.²²

Unit cost for credit meter recertification

Introduction

- 2.23 As NIE Networks has explained to the UR previously, it is required by statute to carry out credit meter recertification once a previously certified meter has reached the end of its prescribed certification life.²³ During RP5, NIE Networks' focus was carrying out primary certification on the legacy population of uncertified meters which were installed before the legislation requiring certification came into effect.²⁴ This work will largely be completed during RP5, though some residual certification may need to be conducted during RP6.

¹⁸ UR response to NIE Networks' query received 2 May 2017, query 1.

¹⁹ UR response to NIE Networks' query received 2 May 2017, query 3.

²⁰ Additional Submission, Table 4.

²¹ Annex N, 2.10.

²² As the UR has suggested would be the case in Annex N, 2.11.

²³ Market Operations Business Plan, 3.1.

²⁴ Market Operations Business Plan, 3.14.

- 2.24 Accordingly, credit meter certification activities will be carried out only to a limited degree during RP6. However, it should be noted that credit meter recertification activities are identical in terms of the work involved (and therefore the associated costs) as certification activities. The distinction between certification and recertification is based on the reasons for carrying out the work, not the work itself or the costs thereof.
- 2.25 NIE Networks proposed a unit cost of £33.59 per meter for credit meter recertification activities during RP6.²⁵ As noted above, NIE Networks has subsequently revised this unit cost up to £36.58 per unit in 2018/19 to 2019/20 to reflect the rising costs of certain types of credit meter.
- 2.26 The total volume of 122k replacements for credit meters outside of their certification period during RP6 is agreed.
- 2.27 The UR's proposed allowance adopts a lower unit cost of £28.50 per credit meter.²⁶

The UR's approach

- 2.28 The UR's starting point is that at the time of preparing the DD there was no actual outturn data available via Metering Regulatory Instructions and Guidance ("**RIGs**") for credit meter recertification unit costs in RP5.²⁷ Accordingly, the UR compared NIE Networks' proposed allowance with the RP5 allowance determined by the CMA, which in 2015/16 prices was £28.50. The UR observes that NIE Networks' proposed allowance is higher than that allowed by the CMA and therefore concludes that it should adopt the CMA's allowance of £28.50.²⁸

The errors in the UR's approach

- 2.29 Fundamentally, the UR fails to appreciate that certification and recertification activities and costs are identical. In doing so, it ignores cost information set out in Metering RIGs for meter certification activities carried out by NIE Networks during RP5, which are an appropriate comparator for the reasons explained at paragraph 2.24 above.
- 2.30 Meter certification activities were first carried out in RP5 in 2016. The information available via Metering RIGs confirms that NIE Networks carried out credit meter certification at an average unit cost of £31.98 per meter in 2016. NIE Networks' initial proposed unit cost of £33.59 was in line with this actual data, and its revised proposal of £36.58 is justified by the increase in materials costs that NIE Networks is now facing, as explained at paragraph 2.12 above.
- 2.31 In addition, NIE Networks has previously explained to the UR that the RP5 allowances were set by the CMA based on NIE Networks' desk-top estimate of labour costs prior to programme commencement and were therefore inherently

²⁵ Market Operations Business Plan, Section 3.a., Table 7.

²⁶ Annex N, 4.8.

²⁷ Annex N, 4.7.

²⁸ Annex N, 4.8.

uncertain.²⁹ The UR has acknowledged this in the DD,³⁰ but does not appear to have reflected it in its approach to credit meter recertification.

- 2.32 NIE Networks also notes that the UR's exclusion of certification activities causes it to overstate the extent of the increase in work volumes between RP5 and RP6.³¹ Once this error is corrected, the total work volume in RP5 increases from approx. 97k to approx. 200k meters, meaning that the increase to the approx. 274k meters that will be recertified during RP6 is a far less significant volume increase. Moreover, the 200k meters certified/recertified during RP5 will be completed over 2.5 years, meaning that the annual rate of certification/recertification will be significantly lower during RP6, where approx. 274k meters will be certified/recertified across the entire 6.5 year price control period.

NIE Networks' requested allowance

- 2.33 Accordingly, NIE Networks submits that in the Final Determination the UR allows a unit cost for credit meter recertification as follows, and as submitted in the Additional Submission:³²

- 2017/18 (6 months) - £33.59 per unit
- 2018/19 to 2019/20 - £36.58 per unit
- 2020/21 to 2023/24 – subject to a reopener or failing that, £55.79 per unit based on NIE Networks' current best estimate.

- 2.34 These figures are based on NIE Networks' initial cost proposal which was in line with the average unit cost for certification activities (which are identical in terms of the work required and the costs thereof) observed during RP5, and was determined following the results of a competitive tender,³³ subject to an uplift to reflect the rising materials costs faced by NIE Networks which are justified for the reasons discussed above. ³⁴ NIE Networks' proposed unit costs are therefore supported by evidence and demonstrably efficient.

- 2.35 If the UR continues with the approach proposed in the DD, it will demonstrate a failure to understand the nature of the works involved in credit meter recertification, a misunderstanding of the evidence presented by NIE Networks and would be inconsistent with its approach for other meter recertification activities, where it has approved NIE Networks' suggested allowance on the basis that (as is the case here) NIE Networks' proposed allowance is in line with the RP5 actual outturn

²⁹ NIE Networks response to UR Query NO URQ299 – Market Ops Business Plan – Metering Capex – 23 February 2017, Section 4.

³⁰ Annex N, 4.10.

³¹ Annex N, Section 4, Table 12.

³² Table 2.

³³ NIE Networks response to UR Query NO URQ299 – Market Ops Business Plan – Metering Capex – 23 February 2017, Section 4.

³⁴ See paragraphs 2.10 to 2.15.

costs as set out in RIGs.³⁵ This would result in a disallowance of £0.62 million in RP6 based on NIE Networks' proposed work volumes which are not disputed by the UR.

Keypad Meter Replacement for Theft Programme

Introduction

- 2.36 During RP5, the UR approved the Meter Replacement for Theft Programme which targets replacement of keypad meters in premises suspected of electricity theft. The need for this programme only emerged in the course of RP5 and therefore was not considered by the CMA in setting allowances for RP5. As a result, the UR made separate provision for NIE Networks to address this issue by approving a unit cost allowance for this work and a fixed volume of 20k keypad meters to be replaced across RP5 and RP6.³⁶
- 2.37 At current run-rates, NIE Networks expects that approx. 13k meters will have been replaced by the end of RP5 and the remaining 7k meters replacements that have been approved will be completed within the first year of RP6. NIE Networks has estimated a requirement for 13k meter replacements over the course of RP6 and has proposed that the RP6 price control makes provision for this activity with pre-approved allowances provided on a unit cost basis.³⁷
- 2.38 The unit cost of £117 per meter is agreed.³⁸

The UR's approach

- 2.39 In the DD the UR proposes not to extend the programme beyond the current 20k replacements but leaves open the option for further extension if required.³⁹
- 2.40 The UR has concluded that it is not necessary to extend the Meter Replacement for Theft Programme further on the basis that other programmes and initiatives will address on-going electricity meter theft, such as the meter change/installation and recertification programmes, and the introduction of the Energy Theft Code of Practice.⁴⁰
- 2.41 The UR states that it will reassess an extension of the programme should circumstances arise that would justify it, and that unit costs would need to be determined at that point in time.⁴¹

³⁵ Annex N, 4.14.

³⁶ Annex N, 4.17.

³⁷ Market Operations Business Plan, 3.60.

³⁸ Annex N, 10.16.

³⁹ Annex N, 4.21.

⁴⁰ Annex N, 4.19-4.20.

⁴¹ Annex N, 4.21.

The errors in the UR's approach

- 2.42 NIE Networks submits that it is not necessary or appropriate for the UR to continue to approve short extensions to the programme on a piecemeal basis. While this approach was required in RP5, this reflected the fact that this issue only emerged after the RP5 price control was finalised. As this is now a known issue, NIE Networks submits that cost recovery arrangements should be provided for fully and transparently within the RP6 price control on an ex ante basis.
- 2.43 Further, NIE Networks considers it extremely likely that it will continue to be required to target replacement of keypad meters where electricity theft is suspected for the duration of RP6. Other initiatives may reduce instances of electricity theft, however the extent of the problem will remain significant throughout RP6 as the type of keypad meters most vulnerable to theft will continue to form circa 10% of the total meter population by the end of RP6. The need for a cost recovery mechanism that endures throughout RP6 is therefore certain. Any uncertainty around forecast volumes requiring to be replaced can be adequately dealt with by adopting the same approach as the UR proposes for other metering programmes, by defining a volume driven allowance and a set unit cost for this activity.⁴²
- 2.44 The use of revenue protection staff in the targeted replacement of meters where electricity theft is suspected was discussed extensively with the UR during RP5 in advance of the unit cost allowance for the Meter Replacement for Theft Programme being agreed. The basis for this cost allowance was accepted by the UR at that time and NIE Networks submits that this should continue in RP6 as, for the reasons stated, the need for it has not changed.
- 2.45 NIE Networks considers that the UR's argument that it expects other programmes and initiatives to address electricity metering theft demonstrates the UR's failure to fully consider all relevant evidence put forward by NIE Networks in relation to this issue.⁴³ In particular, in practice these programmes and initiatives will not adequately fund NIE Networks' costs in carrying out targeted replacement of meters where theft is suspected because:
- in the case of routine meter recertification and installs/changes, these do not provide for targeted action by NIE Networks' revenue protection unit in instances where theft is suspected and the higher associated overhead cost for this type of work (this higher cost has been recognised by the UR ⁴⁴); and
 - whilst the introduction of the Energy Theft Code of Practice will assist in addressing energy theft by clearly allocating responsibilities for targeting

⁴² Annex N, 2.12.

⁴³ Annex N, 4.19.

⁴⁴ Annex N, 10.16.

theft, it will not remove the need for NIE Networks to carry out targeted meter replacement. Indeed, the Energy Theft Code of Practice will eventually form the basis for a condition in NIE Networks' licence that requires it to take steps to prevent theft which will require NIE Networks on an on-going basis to replace meters where theft is suspected. This requirement and its associated costs will continue to be incurred throughout RP6, beyond the point where the first 20k meters have been replaced.

- 2.46 In addition, NIE Networks submits that the unit cost allowance should be defined on an ex ante basis for the duration of RP6 in a similar way to other metering programmes, and notes that the UR has not explained why such an approach would not be appropriate in this case only.
- 2.47 Overall, the UR's approach in the DD does not provide clarity as to whether the future costs of this programme will be recoverable by NIE Networks as the allowance is dependent on whether the UR decides to approve an extension of the existing programme and whatever unit cost allowance is determined by the UR at some future point in the course of RP6. The risk of these costs not being adequately provided for in the RP6 price control is unacceptable to NIE Networks and leads to greater uncertainty for NIE Networks and for customers.

NIE Networks' requested allowance

- 2.48 Accordingly, NIE Networks submits that the Final Determination should provide for an ex ante unit cost allowance covering the entire RP6 period, adopting the £117 per meter unit cost proposed by the UR in the DD.⁴⁵ This ex ante unit cost allowance should then allow overall allowances for this activity throughout RP6 to flex with the actual volumes of meters replaced (i.e. a volume driven allowance), thus mirroring the approach for the meter installs/changes and recertification programmes proposed by the UR. This would provide an appropriate flexibility mechanism to ensure that allowances are available to match the observed incidences of meter theft and NIE Networks' obligations in this regard.
- 2.49 Should the UR fail to extend the programme in this way, it will fail to have regard to the appropriate evidence submitted to it and in doing so will expose NIE Networks to an estimated shortfall of £0.62 million across RP6. This will prejudice NIE Networks' ability to carry out targeted meter replacement for theft, an activity that is in the general public interest and necessary for NIE Networks to deliver its revenue protection obligations.

⁴⁵ Annex N, 10.16.

3. MARKET OPERATIONS INDIRECT AND OVERHEAD COSTS

UR analysis of RP5 baseline

Introduction

- 3.1 In its RP6 Business Plan, NIE Networks included forecast costs for RP6 for a range of indirect and overhead costs relating to Market Operations activities. The UR's assessment of these costs is set out in DD, Chapter 11 and Annex N, Chapters 5 to 11.
- 3.2 In its RP6 Business Plan, NIE Networks forecast total expenditure of £56.58 million on these indirect and overhead costs.⁴⁶ In its DD, the UR proposes allowances of £47.19m. These costs are summarised in Table 7.1.

Table 7.1: Market Operations, Indirect and Overhead Costs – NIE Networks' Forecast

Work Type	RP6 Plan (£m)	UR DD (£m)
Metering Indirects	8.52	3.34
Market Operations Overheads	19.50	18.43
Meter Reading	24.63	22.88
Metering Maintenance	4.42	3.73
Keypad Opex	1.14	0.68
Revenue Protection Services	1.07	0.83
Transactional Services	-2.71	-2.69
Total	56.58	47.19

- 3.3 In the DD, the UR has proposed a number of deductions to NIE Networks' proposed RP6 allowance.

The UR's approach

- 3.4 The UR has assessed NIE Networks' forecast costs against the average actual outturn costs for RP5 reported via Financial Data RIGs for 2013 to 2016.⁴⁷ It has adopted this approach because it is not possible to benchmark NIE Networks' indirect costs for these activities against GB DNOs, as NIE Networks is unique amongst UK DNOs in having responsibility for these activities.⁴⁸

The Errors in the UR's Approach

- 3.5 NIE Networks does not have any objections in principle to the UR's approach. However, NIE Networks has identified five specific errors in the UR's approach in practice.
- 3.6 The first three errors relate to the mechanics of how costs have been calculated or allocated by the UR.

⁴⁶ Referred to by the UR in DD, Section 11, Table 44.

⁴⁷ Annex N, 2.18.

⁴⁸ Annex N, 2.17-2.22.

- Allocation of indirect costs of metering programmes to capex;
- Keypad meter opex – exclusion of labour costs; and
- Adjustment for revenue protection services income.

The remaining two errors relate to the method adopted by the UR to assess NIE Networks' forecast costs:

- Inappropriate disaggregation of NIE Networks' RP6 forecast overhead costs for market operations; and
- Unprincipled approach to selection of RP6 forecast or RP5 outturn costs.

i. Allocation of indirect costs of metering programmes to capex

- 3.7 For meter installs/changes and meter recertification, the UR has allocated 39% of the associated indirect costs to capex, and the remainder to opex.⁴⁹ It asserts that it has done this to be in line with 'Regulatory Accounts'. However, this is incorrect and NIE Networks has engaged with the UR to correct this misunderstanding.⁵⁰ In Financial Data RIGs these costs are recorded 100% against capex. This is the approach the UR should adopt in preparing the Final Determination in order to allow RP6 forecast costs to be assessed against RP5 RIGs data on a like-for-like basis.

ii. Keypad meter opex – exclusion of labour costs

- 3.8 In its assessment of operations costs relating to keypad meters set out in Annex N, Chapter 9, Table 27, the UR has omitted £70k per annum of labour costs when presenting NIE Networks' business plan submission figures. NIE Networks submits that this is an error and is inconsistent with the data as presented in Financial Data RIGs. NIE Networks has engaged with the UR to correct this misunderstanding.⁵¹
- 3.9 NIE Networks submits that in order to correct this error the UR should:
- increase the NIE Networks submitted operating costs relating to keypad meters recorded in Annex N, Chapter 9, Table 27 to £175k per annum; and
 - implement a corresponding deduction in NIE Networks submitted costs for '*ER Shift, Ops & Outage, DSC*' recorded in Annex N, Chapter 5, Table 14 to £130k per annum.
- 3.10 Adopting this approach in preparing the Final Determination would ensure that the UR's assesses RP6 forecast costs against RP5 RIGs data on a like-for-like basis.

⁴⁹ Annex N, 3.18 and 4.24.

⁵⁰ UR / NIE Networks meeting 11 May 2017 and email from NIE Networks to the UR, 15 May 2017.

⁵¹ UR / NIE Networks meeting 11 May 2017 and email from NIE Networks to the UR, 15 May 2017.

iii. Adjustment for revenue protection services income

- 3.11 In the DD,⁵² the UR's proposed allowances for RP6 metering costs include a negative adjustment for 'revenue protection services' income of £2.23 million. NIE Networks submits that this is an error as it is inconsistent with the standard approach to adjusting allowed revenue for this source of income and will result in this income being deducted from NIE Networks' RP6 allowances twice. The calculation of allowed revenue for NIE Networks' distribution activities is set out in formulae within Annex 2 of NIE Networks' Distribution Licence. This currently includes a term for 'the revenue protection services incentive amount' (the 'RPSIt' term) which already adjusts allowed revenue to account for this source of income. To also reduce metering allowances by this amount as the UR proposes within the DD would therefore result in double counting. NIE Networks has highlighted this issue to the UR.⁵³
- 3.12 In addition, NIE Networks submits that there is also an error in the UR's calculation of revenue protection services income of £2.23 million. The UR states that this figure of £2.23 million is based on its review of the relevant RIGs data and is the average of the actual amounts reported over the 2013-2016 period.⁵⁴ NIE Networks has reviewed this data and submits that this figure is incorrect and that the correct figure is £2.16 million. The UR has provided NIE Networks with the spreadsheet model from which their calculation of the £2.23 million figure is derived. Based on NIE Networks' assessment of this spreadsheet it would appear that a formula error has resulted in the UR incorrectly converting RIGs data from nominal prices to 2015/16 prices for revenue protection services income for the 2013-2016 period.
- 3.13 NIE submits that in order to correct these errors the UR should not deduct forecast 'revenue protection services' income from allowances for RP6 metering costs.⁵⁵ Adopting this approach in preparing the Final Determination should ensure that this source of income is not deducted twice.

iv. Inappropriate disaggregation of NIE Networks' RP6 forecast overhead costs for Market Operations

- 3.14 In the DD,⁵⁶ the UR assesses NIE Networks' forecast of RP6 overhead costs for Market Operations against RP5 actual costs reported through Financial Data RIGs. In order to carry out this assessment, the UR chooses to significantly disaggregate NIE Networks' RP6 forecast by allocating costs:
- to capex and opex on a 39%/61% basis; and then

⁵² Annex N, Chapter 1, Table 1.

⁵³ NIE Networks email to the UR, 8 May 2017.

⁵⁴ Annex N, 10.9.

⁵⁵ Regardless of whether this is the UR's figure of £2.23 million or the correct figure of £2.16 million.

⁵⁶ Annex N, Chapters 5 and 6.

- between the three functional areas of Market Operations i.e. metering (64%), meter reading (25%) and market opening (11%).
- 3.15 The above percentages were calculated by NIE Networks as the split of historical overall costs at a particular point in time and are at best only indicative of the split that will apply in RP6.⁵⁷ These allocations of costs becomes increasingly unreliable when the percentages used to allocate costs between capex and opex are then combined with those used to allocate costs between the three functional areas of Market Operations in the manner that the UR has adopted in its benchmarking approach in the DD.
- 3.16 For example, in Annex N, Chapter 5, Table 16, the UR has allocated £0.87m to market opening capex costs. This allocation represents 4.3% of NIE Networks' total forecast of £20.64m for certain overhead costs as set out in Annex N, Chapter 5, Table 14, and this allocation is calculated by simply multiplying the overall capex percentage of 39% by the market opening allocation percentage of 11%.
- 3.17 NIE Networks submits that this approach is unsound and is not sufficiently robust for accurate benchmarking of RP6 forecast costs with RP5 RIGs. Moreover, any errors produced by the UR adopting this approach are further compounded by the UR 'cherry-picking' the lower of the two (RP6 forecast or RP5 actual) in setting its proposed allowances, as described further below.
- 3.18 By way of further example, NIE Networks has advised the UR that, on average, 39% of overhead costs was allocated to capex for the three years 2013 to 2015. Similarly, NIE Networks has advised the UR that overhead costs in 2014 split between the three functional areas metering (64%), meter reading (25%) and market opening (11%). However this does not mean (as an example) that 25% of overhead costs (being 64% of 39%) should be allocated to metering capex. In fact, 20.7% of overhead costs was allocated to metering capex in 2014, being the year on which the 64/25/11% split by functional area was calculated.⁵⁸ This demonstrates the inaccuracy of the approach applied by the UR in the DD in using these percentages to benchmark NIE Networks' RP6 forecast at a disaggregated level.
- 3.19 NIE Networks submits that the UR will be able to conduct a more reliable and accurate assessment of NIE Networks' submitted forecast for RP6 overheads by comparing those forecasts with RP5 actuals using total Market Operations overhead costs on a totex basis. This has the effect of removing inaccuracies in applying general allocation rules in attempting to assess costs at a more disaggregated level, as the UR has done in its DD.

⁵⁷ See e.g. NIE Networks' response to UR Query URQ299 – Market Ops Business Plan – Metering Capex, 23 February 2017, Sections 6 and 7.

⁵⁸ NIE Networks response to UR Query URQ299 – Market Ops Business Plan – Metering Capex 23 February 2017, section 7.

- 3.20 NIE Networks' alternative analysis (illustrated in Table 7.2 below) demonstrates that NIE Networks' forecast for RP6 overheads is in line with the RP5 average reported through Financial Data RIGs, once the new costs emerging in RP6 have been taken into account.⁵⁹ Indeed, this analysis demonstrates that while NIE Networks' forecast expenditure is £3.47 million greater than actual expenditure during RP5 based on Financial Data RIGs, this is more than accounted for by the new costs included in the RP6 forecast of £3.99 million which are not shown within the RIGs data.

Table 7.2: Market Operations, Indirect Costs and Overheads – NIE Networks' Benchmarking Against RP5 Actuals on a Totex Basis

Work Type	RP6 Plan (£m)	RIGs (£m)	Variance (£m)	New Costs (£m)
Metering Indirects	8.52	7.25	-1.27	1.23
Market Ops Overheads	19.50	18.57	-0.93	0.62
Meter Reading	24.63	22.88	-1.75	1.01
Metering Maintenance	4.42	3.92	-0.51	1.13
Keypad Opex	1.14	1.88	0.75	-
Revenue Protection Services	1.07	0.90	-0.18	-
Transactional Services	-2.71	-2.29	0.41	-
Total	56.58	53.10	-3.47	3.99

v. Unprincipled approach to selection of RP6 forecast or RP5 outturn costs

- 3.21 In comparing NIE Networks' forecast RP6 costs with actual RP5 outturn costs reported via Financial Data RIGs, the UR has based its proposed allowance on whichever of the two (the NIE Networks RP6 forecast or the RP5 actuals) is lowest for a given work type.⁶⁰
- 3.22 NIE Networks submits that this approach is unprincipled and unfairly penalises NIE Networks. It also has the effect of compounding the errors in the UR's disaggregated benchmarking methodology described above because the UR is not applying this benchmarking across a reliable data set. If the UR based its allowance on a more reliable high-level dataset, as is set out above in Table 7.2 of this Response, the impact of benchmarking errors would be greatly reduced as unfavourable errors in some disaggregated cost categories would be offset by favourable errors in others to provide a more balanced and robust benchmarking of NIE Networks' forecast costs.
- 3.23 Table 7.3 below illustrates the impact of the UR's approach by comparing the proposed allowances in the DD with the costs reported in Financial Data RIGs. In

⁵⁹ See below for NIE Networks' critique to the UR's assessment of these new costs para 3.34-3.40.
⁶⁰ Annex N, 2.21.

order to allow for a meaningful comparison, NIE Networks has excluded any new costs allowed by the UR in the DD⁶¹ and has also corrected the following errors in the allowances set out in the DD in preparing Table 7.3:

- NIE Networks has allocated 100% of metering overheads to capex;⁶² and
- NIE Networks has included the relevant labour costs in the operating costs associated with keypad meters.⁶³

Table 7.3: Market Operations, Indirect and Overhead Costs – NIE Networks' Comparison of UR Proposed Allowances versus RP5 Actuals

Work Type	RIGs (£m)	DD (adjusted) (£m)	Variance (£m)
Metering Indirects	7.25	7.25	-
Market Ops Overheads	18.57	17.49	-1.09
Meter Reading	22.88	22.88	-
Metering Maintenance	3.92	3.73	-0.19
Keypad Opex	1.88	1.14	- 0.75
Revenue Protection Services	0.90	0.90	-
Transactional Services	-2.29	-2.69	-0.40
Total	53.10	50.69	-2.42

- 3.24 As Table 7.3 demonstrates, the UR's approach results in a deficit of £2.42 million compared with the RP5 outturn costs available via Financial Data RIGs.
- 3.25 NIE Networks submits that the UR should adopt a principled approach to assessing NIE Networks indirect costs for Market Operations activities. The UR's proposed approach in the DD is not rational. Instead, the UR should clearly identify in the Final Determination the general approach it is taking to determining the allowance (i.e. based on RP6 forecasts or RP5 actuals) and why this approach is appropriate. When departing from its general approach (e.g. if it adopts the RP5 actuals approach but determines that in relation to certain line items a higher allowance should be allowed to reflect increased costs arising in RP6 due to factors that were not present in RP5) the UR should explain clearly why it is departing from its general approach in that specific case and why the departure is justified.

NIE Networks' requested allowance

- 3.26 Accordingly, NIE Networks submits that the UR should correct the identified errors in its analysis and make an allowance in the Final Determination based on NIE Networks' RP6 forecast costs. NIE Networks has demonstrated that these costs are reasonable and efficient when properly benchmarked against RP5 actuals.

⁶¹ The UR has allowed NIE Networks proposed indirect costs for meter installs/changes and meter recertification (Annex N, 3.18 and 4.24) which is agreed.

⁶² See paragraph 3.7 above.

⁶³ See paragraphs 3.8-3.10 above.

- 3.27 If the UR continues with the approach adopted in the DD, this will represent a disallowance of £7.1 million. NIE Networks has demonstrated that this approach would be based on an error of fact and/or law arising from a failure to properly understand the presented evidence, and would be irrational given the unprincipled methodology applied. This would prejudice NIE Networks' ability to effectively deliver its Market Operations activities through allowed revenue.

New RP6 costs

Introduction

- 3.28 NIE Networks' Market Operations Business Plan included three new categories of indirect cost that were not incurred by NIE Networks during the period 2012/13 to 2015/16 (the period covered by the UR's assessment of RP5 actual costs for benchmarking purposes⁶⁴), namely:

- meter reading incremental costs – NIE Networks forecasts that these costs will increase at a rate of 0.8% per annum during RP6, resulting in a total increase of £1.01 million throughout the RP6 period compared to an allowance based on NIE Networks' submitted costs for 2015/16 of £3.66 million;⁶⁵
- meter inspector costs – NIE Networks' Market Operations Business Plan makes provision for six new meter inspectors during RP6 at a cost of £0.17 million per annum (£1.13 million total in RP6).⁶⁶ NIE Networks' intends to employ a small team of meter readers to carry out both full inspections of its equipment in customers' property in the course of their meter reading duties, as well as undertake some minor remedial electrical work when necessary. The additional cost represents the estimated net impact on meter reading costs of employing six new staff. This revised approach which is proposed for RP6 is considered to provide a more effective approach to inspection and remedial works compared to the current process whereby meter readers undertake inspections as part of their wider meter reading duties, but any remedial work requirements are reported for follow up visits by metering electricians;⁶⁷ and
- IT incremental costs – NIE Networks' Market Operation Business Plan makes provision for incremental costs associated with new non-network IT projects planned for RP6, totalling £0.62 million across the RP6 period.⁶⁸

⁶⁴ NIE Networks has explained the specific errors in the UR's assessment of the RP5 baseline above.

⁶⁵ Market Operations Business Plan, 1.17 and 5.15.

⁶⁶ Market Operations Business Plan, 7.8.

⁶⁷ Market Operations Business Plan, 7.8-7.11.

⁶⁸ Market Operations Business Plan, 7.21 and Chapter 7, Table 21.

3.29 In the DD, the UR has not proposed an allowance for any of these new costs.

The UR's approach

Meter reading incremental costs

3.30 The UR asserts that:

"We are of the view that NIEN have not provided evidence to support their proposed 0.8% increase".⁶⁹

3.31 Accordingly, the UR declines to set an allowance for incremental costs, and instead sets an allowance of £3.52 million per annum based on its analysis of RP5 outturn data.⁷⁰

Meter inspector costs

3.32 The UR has declined to provide an allowance for these costs on the basis that:

"we consider that the expected savings should allow this change in working practice to pay for itself".⁷¹

Non-network IT incremental costs

3.33 The UR's assessment of non-network IT operating costs is set out in DD, Chapter 7. The UR has declined to make an allowance for the new non-network IT opex costs arising in RP6 on the basis of the conclusion of their consultants (Gemserv) that overall IT operating costs should be able to reduce through RP6.⁷²

The errors in the UR's approach

Meter reading incremental costs

3.34 The UR's conclusion that NIE Networks has not provided sufficient evidence to support an incremental cost increase of 0.8% per year is flawed because the UR fails to have regard to the historic rate of customer growth, as evidenced by NIE Networks in Table 7.4 below, which demonstrates that a forecast growth of 0.8% throughout RP6 is a reasonable and prudent assumption.

3.35 The UR asked NIE Networks to substantiate its projected growth rate in query URQ127. Accordingly, NIE Networks explained that it had analysed actual customer growth in the period 2008/09 to 2015/16, which demonstrated a consistent growth rate in recent years of 0.8%.⁷³ A growth rate of 0.8% equates to an additional approx. 225k meter reading visits per annum by the end of RP6.⁷⁴

⁶⁹ Annex N, 7.6.

⁷⁰ NIE Networks has explained the specific errors in the UR's assessment of the RP5 baseline above.

⁷¹ Annex N, 8.12.

⁷² DD, Annex D, Section 5.1.

⁷³ NIE Networks response to UR queries URQ126-130 – Market Ops Business Plan, 21 October 2016, page 4.

⁷⁴ Market Operations Business Plan, 5.14.

- 3.36 Furthermore, NIE Networks has now assessed longer term trends from data available over the last 13 years which is the equivalent of two 6.5 year price control periods similar in duration to RP6. This data demonstrates that customer numbers have increased consistently year on year since 2003/04 with annual growth rates ranging from 0.6% to 2.2% per annum. This timeframe coincides with periods of varying economic conditions, including significant economic depression such as the unprecedented downturn in the NI housing market from 2008 onwards. This historical data is set out in Table 7.4 below. This demonstrates that overall, customer numbers have increased by approximately 128k (or 17%) over the last 13 years which is equivalent to an average annual growth rate of 1.25%. As shown in Table 7.4, since 2013/14 there have been consistent year-on-year growth rates of 0.8% which reflects a period of economic downturn and a recovering housing market. In essence, NIE Networks' forecast of incremental growth assumes these depressed economic conditions will continue through RP6.

Table 7.4: NIE Networks' Analysis of Historic Customer Growth rate 2003/04 to 2015/16

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Average Number of Customers Connected	734,264	750,099	765,997	777,718	794,897	806,022	814,690
Annual Growth %		2.2%	2.1%	1.5%	2.2%	1.4%	1.1%
	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Average Number of Customers Connected	822,003	826,859	835,154	841,698	848,117	854,580	862,165
Annual Growth %	0.9%	0.6%	1.0%	0.8%	0.8%	0.8%	0.9%

- 3.37 Accordingly, NIE Networks' forecast growth rate of 0.8% is prudent (if not conservative) and is supported by analysis of historic growth rates and the UR is incorrect to assert otherwise.
- 3.38 In any event, even if the UR does not agree with the precise scale of NIE Networks' growth estimates, it is clearly an error to base its allowance for these costs on the assumption that there will be no customer growth, in circumstances where it has adopted NIE Networks' customer growth forecasts in setting out other analysis of its own within the DD. The UR has confirmed that it has used NIE Networks' forecast of customer numbers in its analysis of average network charges as set out in DD, Chapter 12, Table 68.⁷⁵

Meter inspector costs

- 3.39 In principle, NIE Networks agrees with the UR's position that this proposal should be cost neutral. However, NIE Networks is concerned that it is not sufficiently clear on the basis of the mechanics set out in the DD that this is the case. Accordingly, NIE Networks requests that the UR confirms in the Final Determination that the remedial work carried out by these meter inspectors will be counted against the meter installs/changes volume driven allowance for direct capex, i.e. these unit cost allowances provided for by the UR will apply for the duration of RP6

⁷⁵ UR response to NIE Networks query provided on 24 April 2017.

irrespective of whether the work is carried out by metering electricians or meter inspectors. Should the UR adopt this clarification, NIE Networks accepts that no further allowance is required for meter inspector costs. Otherwise if the UR does not adopt this clarification, these costs should be allowed to ensure that NIE Networks remains cost neutral in implementing this change.

IT incremental costs

- 3.40 The UR's assessment of non-network IT operating costs is set out in DD, Chapter 7. The UR has declined to make an allowance for the new IT opex costs arising in RP6. NIE Networks considers that the UR has erroneously concluded that these costs should be disallowed by failing properly to consider the evidence provided by NIE Networks. This issue is considered in more detail in Chapter 6, section 9 of NIE Networks' Response.

NIE Networks' requested allowance

- 3.41 Accordingly, NIE Networks requests that in the Final Determination the UR adopts NIE Networks' requested allowance for meter reading incremental costs and IT incremental costs. These forecasts are supported by the available evidence and failing to adopt them would be an error of fact and/or law. Should the UR continue with the position set out in the DD, this would result in a total disallowance of £1.63 million, and would prejudice NIE Networks' ability to finance its regulatory activities via its regulated revenue.
- 3.42 In relation to meter inspector costs, NIE Networks requests that the UR confirms in the Final Determination that the works carried out by meter inspectors will be funded via the appropriate unit cost allowance for direct capex. If so, NIE Networks accepts that no further allowance is required, provided that the UR has regard to the fact that the volume reduction assumed in the Market Operations Business Plan will no longer apply, as this reduction was assumed on the basis of a separate allowance for meter inspector costs.⁷⁶

4. REVENUE PROTECTION INCENTIVE

Introduction

- 4.1 At present, NIE Networks' revenue protection incentive allows NIE Networks to retain 50% of the revenues recovered from detecting energy theft at premises that are not registered to an energy supplier.⁷⁷ However, such instances are relatively rare and make up only a small proportion of NIE Networks' revenue protection activities. In the vast majority of cases, the relevant premises are registered with a supplier and this current incentive does not apply despite NIE Networks' significant role in delivering revenue protection services.
- 4.2 Accordingly, NIE Networks proposed a strengthened revenue protection incentive for RP6, pursuant to which NIE Networks would receive 50% of the net gain (or

⁷⁶ Market Operations Business Plan, 7.11.

⁷⁷ RP6 Business Plan, 11.68.

loss) derived from its revenue protection services, irrespective of whether the relevant premises are registered with a supplier.⁷⁸

- 4.3 In the DD, the UR has rejected this proposed strengthening of the revenue protection incentive.⁷⁹

The UR's approach

- 4.4 The UR's objections to the revenue protection incentive are as follows:

- the incentive will not incentivise NIE Networks to deter theft, only to detect it once it has already taken place;⁸⁰ and
- there are already two work-streams in place to deal with electricity theft – i.e. meter replacement for theft programme and the Energy Theft Code of Practice.⁸¹

The errors in the UR's approach

- 4.5 Fundamentally, the UR has not recognised the significant benefits for customers of strengthening the revenue protection incentive for RP6 in the manner proposed by NIE Networks. Rather the UR focuses only on the potential upside for NIE Networks.⁸² However, NIE Networks has demonstrated that 90% of gains would pass through to the general body of electricity customers with the associated reduction in electricity theft leading to lower loss adjustments being applied to wholesale market prices, ultimately leading to lower customer bills.⁸³
- 4.6 In arguing that NIE Network's proposal would incentivise NIE Networks to detect theft, but points not to actively deter theft, the UR fails to recognise that the existing revenue protection incentive scheme (which is similar in form to what has been in place since 2006) has exactly the same characteristics as that proposed by NIE Networks for RP6 i.e. it incentivises detection rather than deterrence of theft. NIE Networks proposal expands the scope of the existing incentive, and does not amend the principles on which it is based. Moreover, the UR's refusal to provide an enhanced incentive mechanism provides a worse outcome for customers compared to NIE Networks' proposal, as it fails to incentivise both deterrence and detection of electricity theft beyond the scope of the existing incentive arrangements.
- 4.7 Furthermore, the UR refers to two work-streams as being in place to deal with the theft of electricity, the Meter Replacement for Theft Programme and the development of the Energy Theft Code of Practice. NIE Networks' is concerned that these will have limited impact on efforts to address electricity theft in RP6 on

⁷⁸ Annex N, 10.5 and 10.6.

⁷⁹ DD, 14.62.

⁸⁰ DD, 14.63.

⁸¹ DD,14.66-14.70.

⁸² DD, 14.63.

⁸³ Market Operations Business Plan, 7.54

the basis of the DD.⁸⁴ As discussed in section 2 above, funding for the Meter Replacement for Theft Programme is only confirmed for the first year of RP6, while the UR is not proposing any additional funding to reflect the introduction of the Energy Theft Code of Practice.⁸⁵

- 4.8 Overall, the UR has failed to demonstrate how any future significant increase in costs from any emerging revenue protection issue would be catered for in the RP6 price control arrangements. The UR itself expresses a concern that previous levels of proactive engagement to prevent theft are not what it would have expected,⁸⁶ but makes no significant provision within the RP6 price control (either through allowances or incentives) for NIE Networks to have the flexibility to spend more on revenue protection activities than historic RP5 levels.⁸⁷ Ultimately, this stance has the potential to mislead customers and retail market stakeholders by creating an impression that NIE Networks is able to effectively combat this issue on their behalf in circumstances where in practice it does not have the funding to do so.
- 4.9 By contrast, NIE Networks' proposal would provide NIE Networks with a strong and flexible incentive to adjust its revenue protection activities to detect theft according to the level of theft that becomes apparent in the course of RP6. This provides significantly more benefits to customers than the current scheme which the UR proposes to retain and is in customers' best interests.

NIE Networks' requested allowance

- 4.10 Accordingly, NIE Networks submits that the UR should grant the enhanced revenue protection incentive in the Final Determination. Doing so will enable NIE Networks to target electricity theft more effectively in response to the level and nature of theft that evolves during RP6, and will ultimately lead to significant customer benefits that will otherwise be lost.

⁸⁴ NIE Networks has addressed the UR's errors in failing to extend the meter replacement for theft programme above.

⁸⁵ Annex N, 10.18.

⁸⁶ DD, 14.65.

⁸⁷ Annex N, 10.9.

CHAPTER 8

REAL PRICE EFFECTS AND PRODUCTIVITY

1. INTRODUCTION

- 1.1 The UR's DD proposes a 'frontier shift' which takes account of (1) NIE Networks' input prices changing at a rate above or below inflation (real price effects, or "**RPE(s)**"), and (2) general improvements in productivity that NIE Networks is expected to achieve.¹ The frontier shift applied by the UR has the effect of reducing NIE Networks' allowances in each year of RP6.
- 1.2 NIE Networks considers the frontier shift proposed by the UR in its DD is too great because the UR has erred in its approach to calculating RPEs, leaving NIE Networks with an aggregate shortfall in allowances of approximately **£30 million**.
- 1.3 The DD proposes a productivity factor of 1% per annum whereas the evidence points to long term productivity trends of 0.7% per annum. These long term trends have been widely used by regulators when setting efficiency targets for utilities, including the CMA at RP5 and Ofgem at RIIO-GD1/T1.
- 1.4 NIE Networks considers that it would be able to deliver on a 0.7% productivity factor if the Final Determination provided a balanced and reasonable outcome on allowances for the efficiency-driving projects proposed in its RP6 Business Plan. That would mean a 5.6% productivity improvement by the end of RP6 (31 March 2024) compared to the 2015/16 base year. However, NIE Networks cannot deliver this very challenging productivity improvement absent investment in efficiency-driving projects.
- 1.5 Furthermore, allowance proposals in other areas of the price control are too low compared to the actual level of expenditure NIE Networks expects to incur, and accordingly this would mean the productivity stretch for NIE Networks would, in practice, be greater than 1%. Such a challenging productivity target is outside the bounds of reasonableness.
- 1.6 RPEs and productivity are considered separately in this chapter, which is structured as follows:
 - Section 2 describes errors of the UR in calculating RPEs; and
 - Section 3 sets out errors in the UR's approach to Productivity.
- 1.7 The submissions in section 2 of this chapter on RPEs are supported by a report from NIE Networks' advisers, NERA, which responds to the relevant sections of the DD ("**NERA May 2017 RPEs Report**", included as **Annex 8.1** to this

¹ DD, chapter 10; DD Annex C 'Frontier Shift: Real Price Effects & Productivity RP6'.

Response).² That report is an integral part of NIE Networks' submissions on these issues, and should be read in conjunction with this chapter.

2. REAL PRICE EFFECTS

Introduction: NIE Networks' previous submissions and the UR's provisional determination

- 2.1 As part of the development of the business plan, NIE Networks' economic advisers, NERA, forecasted changes in input prices during RP6, in a report submitted to the UR ("**NERA April 2016 Productivity and RPEs Report**").³ Recognising that it would face input price pressures over and above inflation, NIE Networks sought an ex ante RPEs allowance during RP6.
- 2.2 However the UR's proposed RPEs factors will leave NIE Networks with a significant aggregate shortfall in its RPEs allowance, estimated at around **£30 million** over the course of RP6.

The issue

- 2.3 The shortfall is explained by differences in the methodology for calculating RPEs. NIE Networks submits that the UR's methodology is flawed in the following respects:
- The UR has adopted a flawed approach to forecasting wage growth, specifically as regards:
 - o its decision not to distinguish between general and specialist electrical engineering labour;⁴ and
 - o its use of the forecasts from the Office for Budget Responsibility ("**OBR**") for economy-wide average earning growth. NIE Networks considers private sector-only earnings would be more appropriate.⁵
 - The UR has adopted a flawed approach to forecasting prices for materials, specifically:
 - o its approach is not transparent, with no apparent link to any form of economic analysis, and is likely to understate average growth rates over RP6 by ignoring the tendency for cyclical of materials input prices.⁶

² NERA Economic Consulting, 'Response to UR's Draft Determination on Real Price Effects for the RP6 Control Period', 15 May 2017 ("**NERA May 2017 RPEs Report**").

³ NERA, 'Forecasting Real Price Effects and Productivity Growth for RP6', 29 April 2016 ("**NERA April 2016 Productivity and RPEs Report**").

⁴ NERA May 2017 RPEs Report, section 2.2.

⁵ NERA May 2017 RPEs Report, section 2.1.

⁶ NERA May 2017 RPEs Report, section 2.3.

- The UR has adopted a flawed approach to forecasting Plant & Equipment, specifically:
 - o its approach is not transparent and is likely to provide for an inaccurate estimate over the course of RP6 by ignoring the tendency for cyclicalities of plant and equipment input prices.⁷

2.4 These issues are summarised below, but they should be read in conjunction with the NERA May 2017 RPEs Report which provides the full detail.

Flawed decision not to distinguish between general and specialist electrical engineering labour

(See NERA May 2017 RPEs Report, section 2.2.)

- 2.5 The UR's decision not to distinguish between general and specialist electrical engineering labour⁸ would prejudice NIE Networks' ability to fund its input costs for its regulated activities. The majority of the RPEs shortfall is attributable to this decision. This cost category makes up the largest share of NIE Networks' input costs and, accordingly, it is particularly important that the correct RPE allowance is made in this regard.
- 2.6 Section 2.2.2.1 of the NERA May 2017 RPEs Report demonstrates that in the electricity sector there is a long track record of specialist electrical engineering labour costs rising at a rate faster than average wages in the private sector as a whole. For example:
- the Building Cost Information Service ("BCIS") specialist data series Labour and Supervision (90/1) has grown at a rate of 1.28% per annum on average between 1992 and 2015 compared to the Office for National Statistics' Average Weekly Earnings ("ONS AWE") private sector average growth rate of 0.72% per annum over the same period, a difference of 0.56% per annum;
 - the British Electrotechnical and Allied Manufacturers Association ("BEAMA") Electrical Labour index has grown by 1.55% per annum since 1991, compared to the ONS AWE private sector series which has increased by 0.75% per annum over the same period, a difference of 0.80% per annum; and
 - the BCIS Electrical Installations Cost of Labour index has grown at a rate of 1.50% per annum since 1991, a difference of 0.75% per annum compared to growth in the ONS AWE private sector wage index over the same period.

⁷ NERA May 2017 RPEs Report, section 2.4.

⁸ See DD Annex C, 2.33.

- 2.7 NERA's approach to distinguishing between general and specialist electrical engineering labour mirrors the approach recommended by other subject matter experts. For example during the development of RIIO-ED1, First Economics (a consultancy that the UR frequently uses to advise it on price control matters) prepared submissions to Ofgem on behalf of SP Energy Networks and SSE Power Distribution, in which it argued that wage inflation for specialist electrical engineering labour has in the past exceeded, and is expected to continue to exceed, average earnings growth.⁹ First Economics recommended Ofgem add a significant premium to the base trend in average earnings for specialist electrical engineering labour.
- 2.8 In its business plan submission NIE Networks presented evidence to the UR showing that specialist electrical engineering labour experiences greater wage inflation than general labour, and asked the UR to distinguish between general and specialist electrical engineering labour in its RPEs calculations.¹⁰ Such an approach is consistent with the evidence NIE Networks presented¹¹ and with recent and relevant regulatory precedent, namely Ofgem's approach at RIIO-ED1 which used both general and specialist electrical engineering labour indices to set labour RPEs for the GB DNOs.
- 2.9 However, in its DD the UR has not distinguished between general and specialist electrical engineering labour. The UR appears to seek to justify this approach based on (i) the regulatory approach in GD17 and RP5, and (ii) flawed evidence regarding earnings growth rates at the industry level which it sets out in Annex C to the DD.¹²

The UR's flawed approach to regulatory precedent

(See NERA May 2017 RPEs Report, section 2.2.2.3 – 2.2.2.5.)

- 2.10 At paragraphs 2.21 and 2.22 of DD Annex C and in particular at Table 4, the UR discusses regulatory precedent. However, the UR does not consider the relevance or weight to be attached to any of the precedents cited.
- 2.11 NIE Networks submits that the UR has made inappropriate use of precedent in the following ways:
- GD17 should not be considered a relevant precedent for RP6 in the present context, because the GD17 price control is for gas rather than electricity and the skill sets are different across each industry.¹³

⁹ See First Economics, 'Real Price Effects, 2014/15 to 2022/23', 27 January 2014 (at https://www.spennergynetworks.co.uk/userfiles/file/App16_201408_FirstEc_ReviewOfRIIOED1DraftDetRPE.pdf). See also First Economics, 'RIIO-ED1: Real Price Effects', 26 August 2014 (at https://www.spennergynetworks.co.uk/userfiles/file/App16_201408_FirstEc_ReviewOfRIIOED1DraftDetRPE.pdf).

¹⁰ See NERA April 2016 Productivity and RPEs Report, section 2.3.2.

¹¹ E.g. in the NERA April 2016 Productivity and RPEs Report.

¹² DD Annex C, 2.21-2.35.

¹³ NERA May 2017 RPEs Report, section 2.2.2.4.

Following publication of the GD17 Final Determination, NERA provided the UR with a critique of its RPEs approach in GD17. In its report NERA presented evidence to suggest that the long term growth rates for specialist labour indices relevant to the gas distribution industry are not markedly different from the rates of earnings growth observed in the private sector of the economy as a whole. For instance, the ONS labour index for the construction sector that Ofgem used at RIIO-GD1 as a measure of specialist wages has grown only 0.02% per annum (in real terms) faster on average between 2001 and 2015 than average earnings in the private sector of the economy as a whole. This evidence suggests there is limited need for a separate RPE for specialist labour in the gas distribution industry (given this minimal difference), and therefore the UR's decision not to distinguish between general and specialist labour in GD17 may have been appropriate in that instance.

However, NERA also re-stated that, by contrast, there is a long track record of specialist labour costs in the electricity sector rising at a rate faster than average wages in the private sector as a whole, with the premium ranging 0.56-0.80% across the abovementioned BCIS and BEAMA indices at paragraph 2.6 above.

- The CMA's RP5 determination should also not be considered a relevant precedent for RP6, because the CMA's concerns are no longer applicable for RP6.¹⁴

At RP5 the CMA's decision not to make a distinction between specialist electrical engineering and general labour followed its concerns regarding the accuracy of the distinction between the two categories, i.e. whether the 'specialist' category suggested by NIE Networks indeed relates to a type of workers with a particular set of skills that is subject to different market pressures. The CMA did not question evidence submitted both by NIE Networks and the UR that certain specialist labour indices for the electrical engineering sector grow faster than average wages in the private sector as a whole.

Since the CMA's RP5 final determination, NIE Networks has undertaken a detailed review of its workforce, assessing person by person and role by role whether they meet the criteria necessary to belong to the specialised indices relevant to the electrical engineering segment of the labour market. Based on this detailed assessment, NIE Networks found that 77% of its workforce can be classified as "specialist electrical engineering". This evidence was submitted to the UR on 10 March 2017

¹⁴ NERA May 2017 RPEs Report, section 2.2.2.5.

and should be considered by the UR in the preparation of its Final Determination.¹⁵

- In contrast, at RIIO-ED1 Ofgem recognised the importance of the general/specialist labour split.¹⁶

In particular, at RIIO-ED1 Ofgem relied on both BCIS and BEAMA specialist electrical engineering labour indices in estimating DNOs' RPE allowance, acknowledging that specialist electrical engineering wages have the potential to grow faster than wages for general labour. Also, as part of its Regional Labour Adjustment ("**RLA**") work, Ofgem assumed that electricity and highly skilled engineering labour make up for 77% of a notional DNO's workforce (based on DNOs' average labour to gross expenditure ratio for each activity). This figure supports NIE Networks' findings of the split of general/specialist labour,¹⁷ as submitted in the evidence to the UR on 10 March 2017 as above, and has also been used by NIE Networks' external advisors, Cambridge Economic Policy Associates ("**CEPA**") to calculate the RLA factor for RP6.¹⁸ Overall this suggests that 77% could be an appropriate weighting to apply to the specialist electrical engineering versus general labour RPEs and is consistent with both Ofgem's and the UR's own assumption (based on advice from CEPA) for calculating RLAs.

- Finally, the UR fails to cite its own Final Determination for SONI's price control covering 2015-2020 where it provides for an estimated increase in real wages by 1%.¹⁹ How the UR arrives at this estimate is not presented in the paper, but it may be surmised that the UR achieves the 1% real increase by adopting an appropriate generalist/specialist labour split and applying a wage growth premium for specialist electrical engineering labour. This is because the OBR forecasts of general wage inflation are lower than 1% so it appears that the UR must have assumed and applied a specialist premium.

The UR's evidence arguments are without foundation

(See *NERA May 2017 RPEs Report*, section 2.2.2.4.)

2.12 The UR presents a graph as Figure 1 in DD Annex C,²⁰ which shows:

¹⁵ NIE Networks, 'RPEs: Specialist-Generalist Labour Split in NIE Networks', 10 March 2017 ("**NIEN March 2017 Labour Split Submission**").

¹⁶ NERA May 2017 RPEs Report, section 2.2.2.3.

¹⁷ As submitted to the UR in the NIEN March 2017 Labour Split Submission, p.2.

¹⁸ As inferred by NERA in the NERA May 2017 RPEs Report, section 2.2.2.3 and footnote 23.

¹⁹ SONI, 'Final Determination to the Price Control 2015-2020 for the Electricity System Operator for Northern Ireland (SONI)', 22 February 2016 (at https://www.uregni.gov.uk/sites/uregni.gov.uk/files/media-files/2016-2-22_SONI_PC_Final_Determination_2015-2020_Final.pdf), paragraph 192.

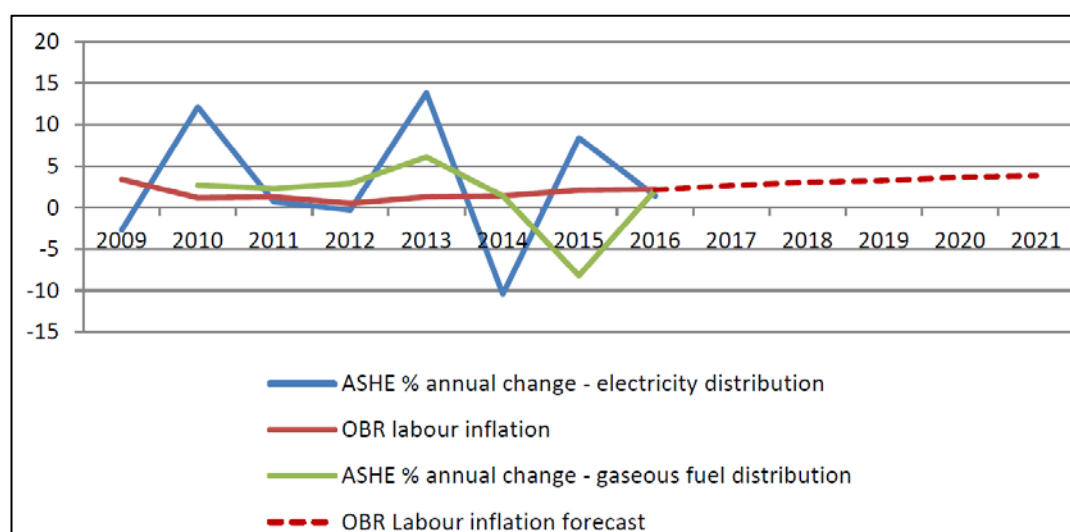
²⁰ DD Annex C, Figure 1: 'Labour cost annual change %'.

- the OBR labour inflation index from 2009 to 2016, and with forecasts to 2021;
- the ONS Annual Survey of Hours and Earnings ("**ONS ASHE**") earnings growth index for electricity distribution industry from 2009 to 2016; and
- the ONS ASHE earnings growth index for the gas distribution industry from 2009 to 2016.

2.13 The UR's narrative regarding Figure 1, in particular that *"the data for electricity and gas broadly appear to oscillate about the OBR line"*,²¹ suggests it believes the OBR labour inflation index is representative of both the electricity distribution industry and the gas distribution industry.²² On closer inspection this analysis is flawed.

2.14 Figure 1 of DD Annex C is reproduced as Figure 8.1 below for convenience.

Figure 8.1: Labour cost annual change %



(Source: DD Annex C, Figure 1. Original source: ONS ASHE, 2016: Table 16, OBR Economic and Fiscal Outlook, March 2017.)

2.15 This graph shows eight data points for outturn data (2009-2016), and then OBR forecasts for 2017 onwards. By inspection, there are two points where the blue line (ASHE % annual change - electricity distribution) is materially below the red 'OBR labour inflation' line (for 2009 and 2014), and there are six data points which are close to (2011, 2012, 2016) or materially above (2010, 2013, 2015) the OBR line.

2.16 Additionally, whereas the green line (ASHE % annual change - gaseous fuel distribution) hovers much closer to the OBR line for all data points, the blue line (ASHE % annual change - electricity distribution) is considerably more volatile.

²¹ DD Annex C, 2.30.

²² DD Annex C, 2.30.

- 2.17 Based on these observations, the UR's conclusions that follow in DD Annex C at paragraph 2.30 must be flawed. Specifically the UR states: "*When compared against the OBRs forecasts the data for electricity and gas broadly appear to oscillate about the OBR line*". While it is correct that the data do oscillate, they do so by different magnitudes and at different levels. In fact, based on new analysis provided by NERA, average earnings growth in the index the UR identifies as relevant to the gas industry is only 1.3% over the period 2010-2016 compared to the same in the index the UR identifies as relevant to the electricity industry of 3.2%, representing a difference of 1.9%.²³ Comparing these industry-specific growth rates to the average OBR labour inflation over the same period (of 1.7%), it is clear that earnings in the gas industry oscillate at a level around OBR inflation (minus 0.4%), whilst earnings in the electricity industry oscillate at a level much higher than OBR inflation (1.5%).
- 2.18 Paragraph 2.30 of DD Annex C concludes with the statement, "*Looking across the data from historic actual to forecast, the OBR labour inflation data appears to present as a somewhat central position relative to the separate industry data plot*". As NERA's analysis shows, however, this not true for the electricity distribution industry.²⁴
- 2.19 Based on these observations and NERA's new analysis, it is apparent that Figure 1 in DD Annex C actually supports NERA's statements made previously to the UR; namely that, whilst it may have been correct to assume generalist and specialist labour wage pressures are similar for GD17, the UR cannot adopt the same assumption for NIE Networks in RP6 (since specialist electrical labour experiences greater wage pressures than generalist labour, as is apparent in Figure 1 and the other evidence NERA presented to the UR which it appears to have ignored in reaching its conclusions in the DD).
- 2.20 Accordingly, the UR cannot use Figure 1 in DD Annex C to support its statements in paragraph 2.30.
- 2.21 The UR's discussion continues at paragraphs 2.43 to 2.49 of DD Annex C, where it considers trends in labour costs across the general economy. These trends are relevant in respect of general labour, but the discussion is silent on whether these trends are applicable to specialist electrical engineering labour. NIE Networks and NERA have presented the UR with evidence to support the claim that specialist electrical engineering labour wage growth tends to exceed that of general labour. The evidence presented by the UR in Annex C does not support the view that it is more appropriate to use the OBR labour inflation index to forecast specialist electrical engineering labour wage growth than the alternative indices NIE Networks has proposed.

²³ NERA May 2017 RPEs Report, Table 2.3.

²⁴ NERA May 2017 RPEs Report, Table 2.3.

- 2.22 In conclusion, the UR does not have sound evidence²⁵ to support its decision not to distinguish between general and specialist electrical engineering labour; and, on the contrary, there is robust and sound evidence to establish that specialist electrical engineering labour indices provide a better reflection of wage pressures experienced by NIE Networks' staff and that specialist electrical engineering labour indices have been growing faster than average earnings in the private sector.

The NI market for specialist electrical engineering labour

- 2.23 Tightness in the relevant segment of the NI labour market has been highlighted in a recent study by the Department for Employment and Learning of Northern Ireland ("**DELNI**"), which analyses the types of skills that are currently under or oversupplied in the labour market in NI. According to the study, "Civil Engineering" and "Electronic and Electrical Engineering" are among the five skills in highest undersupply.²⁶
- 2.24 An undersupplied market creates problems for NIE Networks in terms of recruiting skilled staff to fill vacant posts, and also in terms of retaining its existing staff. Both recruiting and retention are made much more challenging if NIE Networks is unable to offer competitive salaries. Problems of this nature have been, and continue to be, borne out by experience.
- 2.25 For example, recently:
- NIE Networks has a number of open vacancies that it has struggled to fill owing to either a lack of suitably qualified candidates, or where a suitably qualified candidate has turned down an offer because they received a better offer elsewhere; and/or
 - NIE Networks is aware of job offers made to its existing staff from other NI employers, for roles at a similar level and with similar responsibilities, but with salaries that are significantly higher than NIE Networks is able to match. Accordingly NIE Networks is losing skilled staff with an increasing frequency, and it expects this trend to continue.
- 2.26 Competitive wage increases are therefore necessary to ensure that NIE Networks can retain its specialist workforce at a time of strong demand from competing employers for its skilled labour. Together with the identified shortages in the supply and the high mobility that characterises this market, these factors have caused substantial upward pressures on labour costs for NIE Networks' specialist electrical engineering staff.

²⁵ After the UR published its DD, and prior to NIE Networks submitting this Response, NIE Networks asked the UR if it had any additional evidence to support its decision not to distinguish between general and specialist labour. The UR declined to respond, saying that it would address NIE Networks' concerns in its Final Determination.

²⁶ Ulster University (Prepared for the Department for Employment and Learning of Northern Ireland), 'NI Skills Barometer Findings Report: 'Skills in demand' [final report]', November 2015 (<https://www.economy-ni.gov.uk/sites/default/files/publications/del/Skills%20Barometer%20-%20Findings%20Report%20-%20241115.pdf>), slide 61.

- 2.27 In the recent past (e.g., during the development of the RP5 price control) NIE Networks provided the UR with a significant amount of robust evidence to demonstrate that salary levels for its specialist electrical engineering labour are efficient when compared to the appropriate market. NIE Networks and its customers have benefited from these low salaries in the recent past but, in particular in the light of the competition for skilled staff from elsewhere, meaningful increases in this relatively low base level of remuneration is required.
- 2.28 Consequently, NIE Networks will need to increase its wage rates over the course of RP6 by materially more than RPI, to ensure that it continues to be able to recruit and retain skilled electrical staff in the face of these strong competitive pressures.

Proposed approach for RP6

(See NERA May 2017 RPEs Report, section 2.2.5.)

- 2.29 Similar to Ofgem's approach at RIIO-ED1, NIE Networks submits that the UR sets RPEs for labour at RP6 that account for the difference between long term inflation rates for general and specialist electrical engineering labour. In reaching this decision the UR should have regard to the evidence provided to it by NIE Networks on 10 March 2017.²⁷
- 2.30 As set out in section 2.2.5 of the NERA May 2017 RPEs Report, a premium over the OBR private sector earnings growth forecast to set specialist electrical engineering labour RPEs in the short term should be included. Then the UR should rely on long term average growth rates in relevant specialist electrical engineering labour indices to estimate specialist labour RPEs for years when OBR forecasts are not available.
- 2.31 Should the UR adopt its position as currently outlined in the DD, it will be making a material error in setting the RPE allowance for RP6 by failing adequately to consider evidence regarding the high wage inflation in specialised electrical engineering labour categories, which make up for a substantial proportion of NIE Networks' workforce.
- 2.32 NIE Networks therefore submits that the UR should adjust its RPE calculation methodology to that proposed in section 2.2 of the NERA May 2017 RPEs Report, and as outlined above.

Incorrect use of economy-wide earnings indices instead of private sector-only earnings

(See NERA May 2017 RPEs Report, section 2.1.1.)

- 2.33 The UR's decision to use economy-wide earnings indices instead of private sector-only indices would prejudice NIE Networks' ability to fund its input costs for its regulated activities.

²⁷ NIEN March 2017 Labour Split Submission.

- 2.34 The UR's approach is to use ONS AWE private sector data to the date to which it is available (March 2017).²⁸ Thereafter the UR relies on the economy-wide OBR earnings forecast to estimate labour RPEs to 2021/22.²⁹ For the remainder of RP6 the UR assumes general labour input prices grow at a constant rate based on the OBR forecast of earnings inflation for 2021/22.
- 2.35 This approach is flawed because:
- it fails to address the problem that using two different approaches to estimating actual labour RPEs (in 2016) and future RPEs (2017 onwards) is inconsistent;
 - it does not account fully for the fact that NIE Networks is a private company, and, based on the OBR forecasts, private sector wages are expected to grow faster than wages in the economy as a whole.
- 2.36 Furthermore, the UR's approach to forecasting beyond 2021/22 is subjective and not supported by regulatory precedent. There is some subjectivity inherent in the choice between alternative techniques for long-term economic forecasting. However, in light of this, other regulators have assumed that relevant price/cost series will rise at their long term average growth rates when setting RPE allowances for years in which reputable third party forecasts (e.g. the OBR) are not available. Ofgem followed this relatively simple approach at RIIO-ED1 for instance.
- 2.37 Such an approach provides a more robust basis than assuming growth will remain constant from 2021/22 onwards.

Proposed approach for RP6

(See NERA May 2017 RPEs Report, section 2.1.3.)

- 2.38 NIE Networks submits that the UR should forecast inflation in general labour by relying on the OBR forecasts of private sector earnings growth until 2021/22, and thereafter by using the long term average growth rates in private sector average earnings (computed using the OLS approach).
- 2.39 Should the UR adopt its position as currently outlined in the DD, it will be making a material error in setting the RPE allowance for RP6 by its inconsistent approach to estimating actual and future labour RPEs and its failure to fully appreciate the effect of NIE Networks position as a private company. NIE Networks therefore submits that the UR should adjust its RPE calculation methodology to that proposed in section 2.1 of the NERA May 2017 RPEs Report and as outlined above.

²⁸ DD, Annex C, 2.56.

²⁹ DD, Annex C, 2.56.

The UR ignores the tendency for cyclicalities of materials input prices

(See NERA May 2017 RPEs Report, section 2.3.)

- 2.40 The UR's failure to account for the tendency for cyclicalities of materials input prices, would prejudice NIE Networks' ability to fund its input costs for its regulated activities.
- 2.41 As set out in section 2.3.2 of the NERA May 2017 RPEs Report, the UR has drawn on the same set of general indices of materials price inflation used at GD17 to forecast inflation in materials at RP6; namely, the BCIS Building Non-Housing Materials ("**NOCOS**") index, the BCIS Infrastructure Materials ("**FOCOS**") index, and the ONS Interim construction Output Price Indices ("**OPIs**").³⁰
- 2.42 The UR performs a linear interpolation between the current annual nominal growth rates over 3 years shown in these indices, after which it assumes the indices grow at their long run average growth rate in nominal terms.
- 2.43 The approach adopted by the UR in its DD is fundamentally flawed for the following reasons.
- The basis for the UR's materials RPE forecast is not transparent, with no apparent link to any economic analysis to justify its interpolation approach.³¹
 - o In the DD the UR states that *"Taken together the information and data gives us a summary of current inflationary pressures borne out in the available actual data. This helps set an initial view of materials price inflation"*.³² However, the UR fails to explain why or how it has done so.
 - The UR's materials RPE forecast ignores the link between nominal materials price inflation and RPI inflation.³³
 - o This could distort the UR's RPE forecast based on a nominal long-term average growth rates.
 - The UR's long run average growth rates are inaccurate because it uses arithmetic means of historical annual growth rates.³⁴
 - o This approach ignores compounding effects and so may give unreliable estimates of underlying growth rates.
 - The UR's forecast is likely to be biased downwards, through its partial (and arbitrary) treatment of cyclicalities.³⁵

³⁰ DD, 2.65.

³¹ NERA May 2017 RPEs Report, section 2.3.3.

³² DD, 2.68.

³³ NERA May 2017 RPEs Report, section 2.3.4.

³⁴ NERA May 2017 RPEs Report, section 2.3.5.

- o The UR has sought to reflect cyclicalities by assuming a gradual reversion to a long-run average growth rate.³⁶
- o However, the UR fails to account for the fact that, for cyclical materials prices series, periods of relatively slow growth tend to be followed by periods of relatively fast growth.
- o As a result, the UR's approach effectively assumes that recent downward shocks to materials price indices will persist permanently in the future, and therefore its estimate is biased downwards.
- o For instance, the NOCOS and FOCOS indices have typically moved cyclically around their long-term trend. Currently, both indices are below trend, so an extrapolation of their long-term trend ought to feature some reversion to trend during the RP6 control period.³⁷
- A wider range of materials price indices may be relevant at RP6.³⁸
 - o This would be consistent with the approach used by Ofgem at RIIO-GD1 and the approach of the CMA in RP5.³⁹

Proposed approach for RP6

(See NERA May 2017 RPEs Report, section 2.3.8.)

- 2.44 NIE Networks submits that the UR should set materials RPEs based on observed long term average growth rates in relevant indices as Ofgem did at RIIO-ED1.
- 2.45 NIE Networks also submits that the UR should widen the set of material indices used to forecast materials RPEs at RP6.
- 2.46 Should the UR adopt its position as currently outlined in the DD, it would be making material errors in setting the RPE allowance for RP6, by virtue of its flawed treatment of materials RPE forecasts, as set out above and in section 2.3 of the NERA May 2017 RPEs Report. Accordingly, the UR should adjust its calculation methodology to that proposed in the NERA report and as outlined above.

The UR does not justify its method of interpolation for plant and equipment

(See NERA May 2017 RPEs Report, section 2.4.)

- 2.47 The UR's use of a flawed method of forecasting RPEs for plant and equipment would prejudice NIE Networks' ability to fund its input costs for its regulated activities.

³⁵ NERA May 2017 RPEs Report, section 2.3.6.

³⁶ DD Annex C, 2.69-2.70.

³⁷ NERA May 2017 RPEs Report, section 2.3.6.

³⁸ NERA May 2017 RPEs Report, section 2.3.7.

³⁹ NERA May 2017 RPEs Report, section 2.3.7.

- 2.48 To forecast inflation in plant and equipment at RP6, NIE Networks understands from discussions with the UR that it draws on the same methodology used at GD17.
- 2.49 In reaching its decision, the UR relies on the unweighted average of the long term average growth rate of the ONS Machinery and Equipment PPI Index and BCIS Plant and Road Vehicle index indices to forecast RPEs from 2017 onwards.⁴⁰
- 2.50 The UR's approach is flawed and is likely to produce an inaccurate estimate of the long-term average growth rate in the relevant indices for the following reasons.
- The basis for the UR's plant and equipment RPE forecast is not transparent.⁴¹
 - o Specifically, based on the currently available information provided by the UR in the DD, it is unclear how the UR has estimated the 2016/2017 RPE (equal to 2.0% in nominal terms).⁴²
 - The UR's plant and equipment RPE forecast ignores the link between nominal materials price inflation and RPI inflation.⁴³
 - o This could distort the UR's RPE forecast based on a nominal long-term average growth rates.
 - The UR's long run average growth rates are inaccurate because it uses arithmetic means of historical annual growth rates.⁴⁴
 - o This approach ignores compounding effects and so may give unreliable estimates of underlying growth rates.

Proposed approach for RP6

(See NERA May 2017 RPEs Report, section 2.4.3.)

- 2.51 For RP6, the UR should use the OLS approach to estimate the long-term average trend growth rates in relevant plant and equipment indices, and to set an allowed RPE based on these long term trend growth rates.
- 2.52 Should the UR adopt its position as currently outlined in the DD, it will be making material errors in setting the RPE allowance for RP6, by virtue of its flawed treatment of plant and equipment RPE forecasts, as set out in section [2.4] of the NERA May 2017 RPEs Report and outlined above. NIE Networks therefore submits that the UR should adjust its RPE calculation methodology to that proposed in the NERA report and as outlined above.

⁴⁰ DD Annex C, 2.75.

⁴¹ NERA May 2017 RPEs Report, section 2.4.1.

⁴² DD Annex C, 2.78.

⁴³ NERA May 2017 RPEs Report, section 2.4.2.

⁴⁴ NERA May 2017 RPEs Report, section 2.4.2.

Conclusion as regards treatment of RPEs

(See NERA May 2017 RPEs Report, sections 3 and 4.)

- 2.53 For the reasons set out above, the UR has materially underestimated the extent of the real input price pressures NIE Networks is likely to face over the course of the RP6 price control, and its proposals lead to an estimated shortfall of around **£30 million**.
- 2.54 Applying the corrections noted above, overall, NIE Networks would expect input prices to grow over the period 2016/17-2023/24 by 0.4% per annum for general labour, 1.2% per annum for specialist electrical engineering labour, 0.3% per annum for materials and minus 0.6% per annum for plant and equipment.⁴⁵

3. PRODUCTIVITY

The UR's provisional decision and the issue

- 3.1 In its Business Plan, NIE Networks proposed a productivity assumption for RP6 of 0.7%.⁴⁶ This represented an average of the midpoint capex and opex productivity estimate ranges (of 0.6% and 0.8% respectively) as calculated and submitted in NERA's accompanying analysis in the NERA April 2016 Productivity and RPEs Report.
- 3.2 In its DD, the UR is proposing a productivity factor of 1% per annum.⁴⁷
- 3.3 An efficiency factor of 0.7% per annum remains consistent with data on long term productivity trends, as evidenced by NERA in its report. And NIE Networks considers that it would be able to deliver on a 0.7% productivity factor if the Final Determination provided a balanced and reasonable outcome on allowances for the efficiency-driving projects proposed in the RP6 Business Plan. That would mean a 5.6% productivity improvement by the end of RP6 (31 March 2024) compared to the 2015/16 base year. However, NIE Networks cannot deliver these very challenging productivity improvements absent that investment; and self-funded efficiency projects will not deliver the levels of productivity proposed in the DD.
- 3.4 Furthermore the UR must recognise that its productivity target rests on a premise that this represents the total productivity saving. However, the UR's proposals in other areas of the price control are inconsistent in this regard. Specifically: (1) the UR has not provided allowances for investments that will deliver efficiencies; (2) in some instances the UR is seeking to 'double bank' efficiency savings for customers; and (3) baseline allowances across the price control are in many instances set below the level of expenditure that NIE Networks expects to actually incur.

⁴⁵ NERA May 2017 RPEs Report, section 4.

⁴⁶ NIE Networks RP6 Business Plan, 5.83.

⁴⁷ DD, 3.28.

- 3.5 In consequence the productivity stretch for NIE Networks would in practice be greater than 1% and would be wholly unreasonable. Accordingly, NIE Networks submits the UR should amend its DD proposals (as detailed further below) so that the actual productivity stretch is consistent with the determined target, which NIE Networks considers should be 0.7%.

The errors in the UR's approach

- 3.6 First, the UR's proposed approach to setting the productivity factor is inconsistent, because it has proposed not to grant allowances for investments that will drive efficiencies in the business.
- 3.7 The specific areas of the price control where relevant recovery has provisionally not been allowed are as follows:
- the UR has provisionally disallowed costs of £3.5 million in respect of Non-Network IT project costs which will deliver efficiency savings, thereby preventing NIE Networks to make those efficiency savings which would be implicit in the overall 1% per annum productivity saving: see Chapter 6, section 2 (failure to allow appropriate allowance for IT projects delivering business efficiencies) and section 3 (failure to allow costs of certain IT projects on the flawed basis of optionality – in particular as regards the Regulatory Report Automation Project and the Operational Datastore Project) of this Response; and
 - the DD assumes Non-Network IT efficiency savings of £2.6 million associated with the managed service re-procurement, without properly recognising that this saving would be supplemental to the 1% per annum productivity saving: see Chapter 6, sections 4 and 10 of this Response. In adopting such an approach, the UR is effectively 'double banking' savings for customers.
- 3.8 The effect of the above is that the DD sets a productivity target of 1% per annum plus an additional £6.1 million.
- 3.9 Secondly, the UR has provisionally disallowed other costs without justification, and which NIE Networks considers it will need to incur in any event.⁴⁸ These disallowances would leave NIE Networks significantly short of its modelled efficient costs, and this in effect increases the productivity stretch beyond the 1% provisionally determined by the UR.

⁴⁸ These cases are dealt with in detail in other parts of this Response and include, for example: the UR provisionally setting the unit rate too low for certain direct capex projects (see generally Chapter 3 and Annex 3.1); the UR's incorrect assessment of efficient Indirect and IMF&T allowances for RP6 (see Chapter 5); and where the UR proposes to impose additional obligations without providing for funding such as in the case of changes to the compensation payments regime in the event of severe weather (see Chapter 9, section 3).

Conclusion: proposed approach for RP6

- 3.10 NIE Networks considers that its proposed evidence-based efficiency factor of 0.7% per annum remains appropriate. Moreover, NIE Networks would be able to deliver on a 0.7% productivity factor if the Final Determination provides a balanced and reasonable outcome on allowances for the efficiency-driving projects proposed in its RP6 Business Plan.
- 3.11 However, NIE Networks cannot deliver this very challenging productivity improvement absent investment in efficiency-driving projects. Furthermore the UR should not seek to 'double bank' efficiency savings for customers, and baseline allowances across the price control must be set at an appropriate and fair level, or else the productivity stretch will in practice be greater than the target determined by the UR in its Final Determination.

CHAPTER 9

RELIABILITY INCENTIVE AND GUARANTEED STANDARDS OF SERVICE

1. INTRODUCTION

1.1 This Chapter is structured as follows:

- Section 2 addresses issues with the UR's proposed calibration of a new reliability incentive scheme that it plans to introduce for RP6; and
- Section 3 addresses issues that would be created by the UR introducing changes to the severe weather exemption within the Guaranteed Standards of Service regime, in circumstances where it has, in the DD, erroneously disallowed investment in network reinforcement.

2. RELIABILITY INCENTIVE

Introduction

2.1 The UR has proposed to introduce a new reliability incentive scheme in RP6. The purpose of the incentive scheme is to ensure that:

"NIE Networks manage the trade-off between costs and reliability appropriately and in the best interests of customers".¹

2.2 The UR has proposed a reliability incentive designed by reference to Customer Minutes Lost ("**CML**") targets (a "**CML Incentive**").

2.3 NIE Networks welcomes the UR's proposal to introduce a reliability incentive based on CML targets in principle and considers this incentive to be beneficial to customers. NIE Networks set out its proposal for a CML Incentive in the Outcomes, Outputs and KPIs paper submitted with the RP6 Business Plan.

2.4 However, NIE Networks submits that the UR has made a number of errors in designing the proposed incentive as set out in the Draft Determination;² namely, the UR has erred in:

- its determination of the Value of Lost Load ("**VoLL**"), a monetary indicator expressing the costs associated with an interruption of electricity supply;

¹ DD, 14.25.

² DD, 14.22-14.60; and Annex M 'Reliability Incentive' ("**DD Annex M**").

- the identification of the customer numbers figure and the use of that figure to determine average consumption;
- the calculation of the glidepath; and
- the introduction of a deadband.

2.5 NIE Networks has engaged with the UR following the publication of the DD, and has presented a revised CML incentive. The details of NIE Networks' revised CML incentive are set out below. NIE Networks submits that the UR should consider this proposal and reflect it in the Final Determination.

The UR's approach

2.6 The design of the UR's proposed CML incentive is detailed in chapter 5 of Annex M to the DD. The UR's approach in relation to each of the areas of error identified by NIE Networks is detailed below.

Determination of the VoLL

2.7 The UR has adopted a VoLL of £14 per KWh. This is based on an estimate produced by Reckon in 2012 (based on the ESRI report³) which the UR states is the most recent estimate of VoLL in Northern Ireland. The UR notes that that this estimate falls below the estimate of VoLL adopted by Ofgem in RIIO-ED1, which the UR states reflects that willingness to pay by customers in Northern Ireland for increased reliability is less than in Great Britain ("**GB**").⁴

Customer Numbers

2.8 As part of its calculation of the CML Incentive rate, the UR used NIE Networks' customer numbers figure of 855,575 for 2014/15, taken from the NIE Networks Benchmarking Submission.⁵

2.9 The UR then applied this figure to determine the average consumption per customer per hour by dividing the total electricity consumption for Northern Ireland for 2014/15 (based on data from the Department for Business, Energy and Industrial Strategy) by this customer number figure to give average annual consumption, and then dividing that figure by the number of hours in a year.⁶

Calculation of the Glidepath

2.10 The UR has determined the unplanned CML target based on a historical average and on benchmarking against GB distribution network operators ("**DNOS**"). The UR's approach is to apply a 75% weight to the benchmark unplanned CML target and 25% to NIE Networks' historical average. The UR's methodology in determining the value of each of these components is:

³ Tol, R.S.J et al., "An Estimate of Value of Lost Load for Ireland", 6 October 2010 (<https://www.esri.ie/publications/an-estimate-of-the-value-of-lost-load-for-ireland/>).

⁴ DD Annex M, 5.8 and 5.9.

⁵ DD Annex M, Table 5.2.

⁶ DD Annex M, Table 5.2.

- **Historical Averages.** The UR takes NIE Networks' four year historical average for the low voltage ("LV") and high voltage ("HV") networks and the 10 year historical average for the Extra HV ("EHV") network.
- **Benchmarking.** The UR calculated a benchmark based on GB DNOs performance by aggregating performance across the LV, HV and EHV networks and by taking the 5 year average of CML per customer interruption for the average GB DNO.⁷

- 2.11 This resulted in an unplanned CML target for RP6 that amounts to an 8% improvement over the life of RP6, or a glidepath of approximately 1.3% per annum.⁸
- 2.12 For planned CML, the target was based on a 5 year historical average, as the UR considered that benchmarking would not be appropriate given that planned CML is inherently linked to the level of capital investment conducted by a given DNO.⁹ The planned CML target is unchanged throughout the RP6 period.¹⁰

Introduction of a Deadband

- 2.13 The UR has applied a 5% deadband either side of the target for both planned and unplanned CML. This equates to approximately 4.3 CML. The deadband must be exceeded before any incentive payments are made/penalties incurred. The UR states that the setting of such a '£0' deadband is consistent with the approach taken by Ofgem in relation to SSE Hydro.¹¹ The purpose of this is to:

"remove any excessive risk from customers and NIE Networks, which is important given this will be the first time a reliability incentive has been introduced in an electricity distribution and transmission price control in Northern Ireland".¹²

The Errors in the UR's Approach

Determination of the VoLL

- 2.14 The UR asserts that NIE Networks' proposed VoLL of £17.50 per KWh is based on a misinterpretation of the ESRI report. In particular, the UR asserts that NIE Networks has taken the applicable € per KWh figure (€17.50) and failed to convert it into £ per KWh, and if it had done so it would have arrived at the UR's figure of £14 per KWh.¹³
- 2.15 The UR misunderstands NIE Networks' position. NIE Networks agrees with the UR that the figure from the ESRI report was £14 per KWh. However, this figure is for

⁷ DD Annex M, 5.5(ii).

⁸ DD Annex M, Table 5.1.

⁹ DD Annex M, 5.5(iii).

¹⁰ DD Annex M, Table 5.1.

¹¹ DD Annex M, 3.3.

¹² DD Annex M, 5.5(i).

¹³ DD Annex M, 5.8(i)-(ii).

2007/08, and, accordingly, NIE Networks adjusted it to reflect RPI to derive a 2015/16 price of £17.40 per KWh, as demonstrated in **Table 9.1** below:

Table 9.1: NIE Networks VoLL Adjusted for RPI Calculation

Year:	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
VoLL (£ per KWh)	14.0	14.6	14.5	15.1	16.0	16.5	16.9	17.3	17.4

- 2.16 NIE Networks notes that Ofgem applied a VoLL of £16 per KWh two years prior to the start of the RIIO-ED1 price control period (i.e. 2013/14). In the absence of a similar pro-active approach by the UR to determining an up-to-date VoLL figure, NIE Networks submits that its approach of indexing the available historic data is the most accurate method of producing a reliable starting VoLL for RP6.
- 2.17 The impact of the UR's approach is to make it significantly more difficult for NIE Networks to outperform the incentive. NIE Networks considers that a VoLL of at least the GB equivalent is required to ensure parity with the GB DNOs and to ensure future benchmarking is fair.
- 2.18 More specifically, the difference between adopting NIE Networks' proposed VoLL of £17.50 and the UR's proposed VoLL of £14 is to decrease the value of each CML by 20%. Given that, on either approach, the total revenue exposed is £2.66 million, NIE Networks would need to deliver an additional improvement of around 25% to achieve the same reward using the UR's calibration.

Customer Numbers

- 2.19 The UR sources its customer numbers from the NIE Networks Benchmarking Submission. However, in its CML Incentive proposal, NIE Networks adopted a higher customer number of 889,212 which was prepared in accordance with industry standard G43 reporting guidelines. The UR's approach is erroneous as it is inconsistent with the approach to calculating CML in GB (where figures reported on the G43 basis are used) and is inconsistent with its general approach of benchmarking against GB DNOs. Whilst the Benchmarking Submission records the number of customers connected, CMLs are reported based on the overall number of connections in accordance with the G43 guidelines. This is because, during a fault, it is not possible for NIE Networks to accurately determine how many customers were connected to the part of the network experience the fault at any particular point in time, taking into account factors such as temporary disconnections.
- 2.20 Further, the UR adopts customer number figures from 2014/15. NIE Networks submits that this is an error and that the UR should use figures from 2015/16 as reported in accordance with G43 standards, so that the same base year is used for both customer numbers and VoLL, to ensure a robust calculation of the value of a CML which is driven by these two factors.

- 2.21 The impact of the UR's approach is to decrease the value of a CML by approximately 4%, which has a significant impact on NIE Networks' ability to outperform the CML Incentive, with the same detrimental impacts on NIE Networks' incentives and the success of implementing the CML Incentive.
- 2.22 Further, this approach results in a compound error in the UR's calculation of average consumption per customer hour. This is because customer numbers from the NIE Networks Benchmarking Submission include only customers with a metered supply. However, a number of NIE Networks' customers are supplied on a non-metered basis. The effect of the UR's approach is to disregard these customers in assessing the cost of CMLs.
- 2.23 As these customers are unmetered, NIE Networks does not hold precise data regarding their consumption. However, as a proxy NIE Networks proposed extrapolating the average consumption of metered suppliers across all unmetered connections, which was the most robust approach possible based on the available data. The UR's proposed approach assumes all other unmetered connections are not consuming electricity which is an error.
- 2.24 The impact of the UR's error in the calculation of average consumption is to further reduce the value of a CML by approximately 5%.

Calculation of the Glidepath

- 2.25 The UR's approach of benchmarking NIE Networks' unplanned CML target against the average GB DNO is an error as the UR incorrectly applies the Ofgem precedent. Ofgem calculated an individual benchmark for each DNO, as acknowledged by the UR.¹⁴ The purpose of this approach is to have appropriate regard to the individual network topography of each DNO. The UR has departed from the Ofgem approach of calculating individual benchmarks in favour of a more general benchmark.
- 2.26 This erroneous application of regulatory precedent fails to take account of the specific circumstances of NIE Networks' network which distinguish it from the GB DNO average, namely:
- the sparsity of the NIE Networks' customer base;
 - NIE Networks' higher percentage of overhead lines per customer compared with GB DNOs;
 - the differing definitions of severe weather used in Great Britain/Northern Ireland.¹⁵ The UR purports to deal with this by benchmarking NIE Networks against the average GB DNO as opposed to its usual approach of benchmarking NIE Networks against upper quartile GB DNOs.¹⁶ However,

¹⁴ DD Annex M, 2.10(iii).

¹⁵ A higher fault rate is used in the definition of 'severe weather event' for the purposes of CML reporting in NI. NIE Networks reports CML with exemptions for severe weather events where 13 times the normal fault rate is exceeded. By contrast, GB DNOs report CML with exemptions for 8 times the normal fault rate.

¹⁶ DD Annex M, 5.5(ii).

NIE Networks submits that this approach, which is adopted without justification, does not adequately reflect these differing definitions; and

- the significant proportion of spur lines in the NIE Networks.¹⁷ Where spur lines are used NIE Networks has no technical option of re-supply, severely limiting the scope for NIE Networks to reduce CML as it is not possible to temporarily reconfigure the network to restore supply to customers connected via spur lines.

2.27 Further, in calculating the glidepath, the UR has used Ofgem data for the period 2011-2016, covering the final four years of DPCR5 and the 1st year of RIIO-ED1. This fails to reflect that there was a significant step up in GB DNO CML performance in RIIO-ED1, reflecting the increased incentives introduced and building on the work that had already been done during DPCR5. Even though using data for 2010-2015, i.e. 5 years of DPCR5, would unfairly penalise NIE Networks as it would fail to take account of the fact that GB DNOs were, in this period, building on work already done following the introduction of the CML incentive in DPCR4 (and reliability allowances in DPCR3), whilst NIE Networks will be starting from scratch in RP6, NIE Networks would nonetheless be willing to accept such an approach. Further, adopting this approach would produce a glidepath of approximately 0.5% per annum. It should be noted that if the UR propose to introduce the GB severe weather exemption for reporting purposes in NI during RP6, the 8 times multiplier for 24 hour event must be applied when calculating CMLs incurred.

Introduction of a Deadband

- 2.28 The UR asserted that it was appropriate to include a deadband partly on the basis that this followed the approach adopted by Ofgem in relation to SSE Hydro.¹⁸ However, in subsequent correspondence with NIE Networks, the UR has conceded that this was an error.¹⁹ This is accordingly no support for the UR's approach in regulatory precedent, and the UR has not advanced any other justification for it.
- 2.29 Notwithstanding this error in the UR's application of regulatory precedent, NIE Networks submits that it is in any event an error to start the reward/penalty outside of the deadband at £0. With the deadband in place, NIE Networks would not receive any recognition until it achieved a reduction in average combined CML of 4.3. However, doing so would require significant investment that would not be funded based on the UR's approach. The inclusion of a deadband would also present a scenario where NIE Networks could outperform targets throughout RP6 and achieve no recognition. Therefore, NIE Networks considers the introduction of a deadband to be an error.

¹⁷ Around 60% of the overhead line network is spur lines, to which the majority of customers are connected.

¹⁸ DD Annex M, 3.3.

¹⁹ See email from [REDACTED] (UR) to [REDACTED] (NIE Networks) 12 April 2017 at 11:18.

- 2.30 To the extent that the UR has legitimate concerns regarding the impact of fluctuation risks, NIE Networks submits that these are adequately dealt with by developing the scheme by reference to historical average data, as volatility will be factored in and 'smoothed out' by adopting this approach.

Conclusion on the Errors in the UR's Approach

- 2.31 The cumulative effect of the errors in the design of the CML Incentive set out in the Draft Determination is that, in practice, NIE Networks would face significant penalties and will have to carry out substantial investment simply to stay within the UR's proposed deadband and avoid such penalties. This shows that the UR's proposed CML Incentive fails in its core aim of setting "*realistic and achievable*" targets. The proposed CML Incentive would appear likely to operate to minimise the value of a CML and therefore negate the possibility of NIE Networks obtaining any reward, and accordingly it would not have the desired effect of creating a proper and realistic incentive to improve network reliability.
- 2.32 Indeed, the UR's proposed CML Incentive results in a maximum reward/penalty at +/- 17 CML combined. By contrast, NIE Networks' proposed combined scheme had a cap/floor of +/- 9.7 CML. If NIE Networks reduced combined CML by 9.7 (which NIE Networks submits is a testing target), under its own proposal it would receive the maximum available reward of £2.66 million per annum throughout RP6 (assuming the UR's percentage of total revenue exposed of 1.5%²⁰). By contrast, the same achievement under the UR's proposed CML Incentive would result in a reward per annum of £1.51 million. This is a significant reduction which results from an approach to setting the parameters to minimise the value of the incentive.
- 2.33 In summary, so as to produce an effective incentive in the Final Determination, the UR should, for the reasons set out herein, adjust its CML Incentive as follows (and as further set out below):
- the UR should adopt a VoLL of £17.40 per KWh, which reflects an appropriate adjustment of the historic figures to reflect RPI and is consistent with regulatory precedent;
 - it should adopt the 2015/16 customer numbers provided by NIE Networks calculated in accordance with G43 guidance which are the industry standard reporting guidelines for CML. These figures should then be used to calculate average consumption per customer;
 - in its calculation of the glidepath for unplanned CML, either: carry out a full benchmarking exercise in accordance with the Ofgem model; or adopt the NIE Networks proposed glidepath of 0.5% per annum;
 - remove the deadband for consistency with regulatory precedent and to ensure NIE Networks is properly incentivised to improve network reliability; and

²⁰ DD Annex M, Table 5.2.

- if the GB severe weather standard is introduced in NI during RP6, the 8 times multiplier for 24 hour event must be applied when calculating CMLs incurred.

NIE Networks' Revised Proposal

- 2.34 NIE Networks has engaged with the UR post publication of the Draft Determination to discuss the errors highlighted above. Following this engagement, NIE Networks has reviewed the incentive model as proposed by the UR and modified it as set out in Table 9.2 and Table 9.3 below:

Table 9.2: NIE Networks revised inputs

Input Assumptions		
Variable Name	Figure / Calculation	Source
Annual Electricity Consumption	7,820,605,400 kWh (2014/15)	Department for Business, Energy & Industrial Strategy, 2016.
Number of meters installed	837,710	Department for Business, Energy & Industrial Strategy, 2016.
Customer numbers	889,212	Customer Number as defined under Engineering Recommendation G43.
Value of Lost Load (VoLL)	£17.40 per kWhr	Reckon RIIO-ED1 review report plus RPI to 2015/16.
% of distribution revenue exposed	1.5% = £2.66m	Based on average annual distribution revenue over the RP6 period, in 2015/16 prices (to be confirmed at Final Determination)

Table 9.3: NIE Networks revised calculations

Calculations		
Variable Name	Calculation	Details
Average Consumption per meter per hour	1.066 kWh	Annual electricity consumption / number of meters / total hours in a year
Cost per hour per customer	£18.54 per kWh	VoLL * average consumption per meter per hour
Cost of a customer hour lost	£16,489,107	Customer numbers * cost per hour per customer
Cost of a customer minute lost (unplanned)	£274,818	Cost of customer hour lost / 60
Cost of a customer minute lost (planned)	£137,409	Cost of unplanned CML * 0.5
Unplanned CML cap/floor	6.45	Unplanned CML revenue exposed = total revenue exposed * 2/3 = £1.77m £1.77m / £274.8k = 6.45
Planned CML cap/floor	6.45	Planned CML revenue exposed = total revenue exposed * 1/3 = £0.89m £0.89m / £137.4k = 6.45

CML Targets

- 2.35 NIE Networks agrees that the planned CML target should be based on the 5 year historical average and that this target should remain constant throughout RP6. This has been updated in Table 9.4 below using the latest 2016/17 data. For the reasons set out at paragraphs 2.10-2.12 above, NIE Networks proposes to adopt an improvement glidepath for unplanned CML using the UR's approach, albeit using five years of benchmarking data from DPCR5 only (2010-2015). This approach results in the annual targets set out in Table 9.4 below.

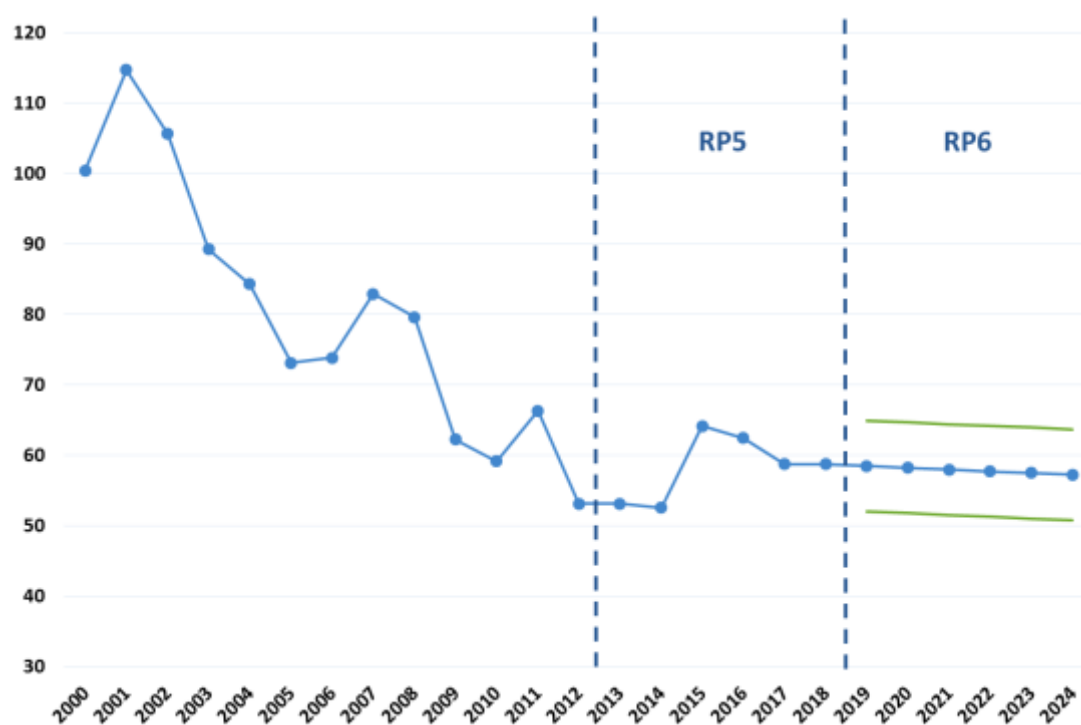
Table 9.4: NIE Networks revised CML targets

Target	Current Average (using 16/17 data)	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Unplanned CML target	58.70	58.45	58.20	57.95	57.70	57.45	57.20
Planned CML target	57.87	57.87	57.87	57.87	57.87	57.87	57.87

Unplanned CML

- 2.36 Using the data in Table 9.2, Table 9.3 and Table 9.4 above, NIE Networks proposes an unplanned incentive scheme that would operate within the boundaries shown in Figure 9.1 below. The solid blue line shows historical outturn CML up to the end of 2016/17, and target CML through the RP6 period. The cap and floor are illustrated by the solid green lines.

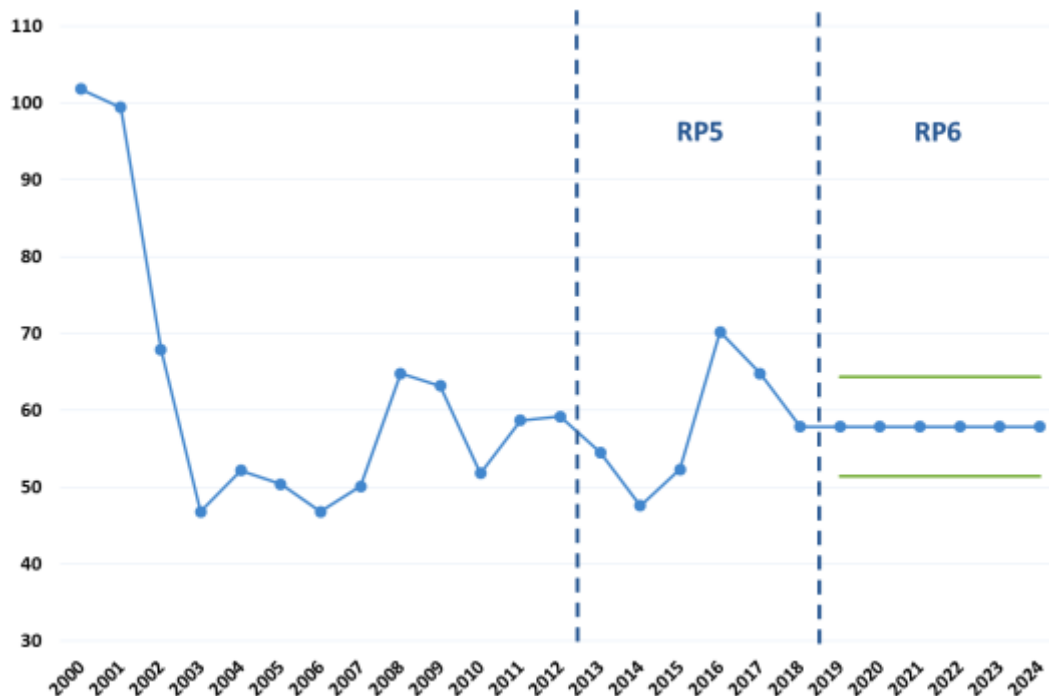
Figure 9.1: NIE Networks proposed unplanned CML Incentive



Planned CML

- 2.37 Using the data in Table 9.2, Table 9.3 and Table 9.4 above, NIE Networks proposes a planned incentive scheme that would operate within the boundaries shown in Figure 9.2 below. The solid blue line shows historical outturn CML up to the end of 2016/17, and target CML through the RP6 period. The cap and floor are illustrated by the solid green lines.

Figure 9.2: NIE Networks proposed planned CML Incentive



3. TREATMENT OF COSTS ASSOCIATED WITH PROPOSED CHANGES TO THE GUARANTEED STANDARDS OF SERVICE REGIME

Overview

- 3.1 The UR proposes that any additional costs associated with the introduction of a higher Guaranteed Standards of Service ("**GSS**") regime should not be recoverable at all.²¹
- 3.2 This is not a tenable position in the event that the UR removes or weakens the current severe weather exemption as part of the changes to the GSS regime – which it is proposing to do as noted in a separate UR consultation (the "**GSS Consultation**")²² – in light of the fact that the UR is also proposing not to allow for

²¹ DD, 4.31-4.32.

²² UR, "Electricity Guaranteed Standards of Service: Call for Evidence", 24 November 2016 (at <https://www.uregni.gov.uk/sites/uregni/files/media-files/Call%20for%20Evidence%20on%20Electricity%20GSS%2024%20November%202016.pdf>) ("**UR GSS Call for Evidence**"); NIE Networks, Response to UR's Review of Guaranteed Standards, 27 January 2017 ("**NIEN GSS Response**"); UR, "Electricity Guaranteed Standards of Service: Consultation

investments in improving network resilience (which would eventually improve the resilience of the network to severe weather incidents and thereby reduce likely compensation payments on account of network outages during periods of severe weather).²³

3.3 Furthermore, the timing of the UR's GSS Consultation is problematic and is out of step with the RP6 price control process. NIE Networks developed its Business Plan for RP6 having regard to the existing GSS regime. There was no mention in the UR's RP6 Final Approach Document²⁴ of a review of GSS and the potential impact it might have during the price control. Therefore, NIE Networks has not been given the opportunity, in preparing and submitting its Business Plan, to take account of this potential material change to the GSS regime.

3.4 Accordingly, and for the reasons set out in detail below, NIE Networks considers that the UR should:

- retain the existing severe weather exemption in the GSS regime for the time being (other standards could nonetheless be changed, as noted further below at paragraph 3.10);
- reconsider allowing funding for the 11kV network resilience programme to allow for key specific investments in network reliability;²⁵ and
- in due course, and in a later price control period, in light of the above investment in network reliability, re-consider making changes to the severe weather exemption.

3.5 It is noted that the specific proposed changes to the GSS regime are being considered in the GSS Consultation; however, this interplays with issues that the UR will determine in its RP6 price control determination and, accordingly, issues relevant to the latter are addressed in this response.

The UR's proposals in the DD

3.6 The UR is proposing to align the GSS regime in NI more closely with that in GB.²⁶ Consideration of the specific changes is being considered in the GSS Consultation. Crucially, however, the UR in its DD is not proposing any additional allowances in RP6 in respect of this change.²⁷ Moreover, as noted above,²⁸ the UR is not proposing to allow for specific investment which would be required in order for NIE

Paper", 12 April 2017 (at <https://www.uregni.gov.uk/sites/uregni/files/media-files/Consultation%20GSS%20Final.pdf>) ("UR GSS Consultation Paper").

²³ DD, 9.34. See also Chapter 4, section 2 of this Response.

²⁴ UR, "Northern Ireland Electricity Networks Ltd – Transmission & Distribution 6th Price Control (RP6) – Final Overall Approach", December 2015 (https://www.uregni.gov.uk/sites/uregni.gov.uk/files/media-files/2015-12-22_RP6_Final_Approach_Document_-_final.pdf) ("UR RP6 Final Approach Document").

²⁵ See also Chapter 4, section 2 of this Response.

²⁶ DD, 4.20, and under the heading 'Proposals' on p39.

²⁷ DD, 4.32. NIE Networks had made clear in its Business Plan that additional allowances would be required if higher standards were imposed (Business Plan, 6.6, 11.59), and proposed a re-opener mechanism for this (Business Plan, 11.59). The UR has provisionally rejected those proposals.

²⁸ Paragraph 3.2 and, more generally, in Section 2.

Networks eventually to be in a position to comply with the more onerous GSS in respect of supply restoration under severe weather conditions.

- 3.7 For the reasons set out further below, this does not take account of material and important differences between NIE Networks and the GB DNOs, which supports NIE Networks' view of the appropriateness of retaining the current severe weather exemption.

The GSS regime and the key proposed changes

- 3.8 NIE Networks is currently required to meet a series of standards concerning aspects of its service to customers. These standards are specified in a determination that the UR made under Article 43 of the Electricity (NI) Order 1992 and in Regulations made under Article 42 of the same Order.²⁹ The standards give customers experiencing shortfalls against set levels of performance a right to specified/fixed amounts of compensation from NIE Networks.
- 3.9 The GSS in NI and GB are currently broadly the same except for the length of time allowed to restore supplies after a fault (during normal weather conditions and separately during severe weather conditions); a GB requirement to offer 2-hour appointments instead of morning or afternoon appointments, as is currently the position in NI; and differing exemptions from the requirement otherwise to pay compensation in the case of severe weather. Out of a total of 14 standards, 11 are the same.³⁰
- 3.10 NIE Networks has made separate submissions in the ongoing GSS Consultation and intends to continue to do so as required. Its current position as regards specific changes, having had regard to the UR's most recent publication on this issue,³¹ is in summary as follows:
- as noted above, many GSS are already materially the same;
 - save for the issue below, NIE Networks considers that, broadly speaking, it would be able to comply with most of the changes now proposed³² (notwithstanding that some may increase its costs to a degree³³);
 - NIE Networks is broadly comfortable that it can operate to the UR's proposed 18 hour fault restoration standard under normal conditions, within an appropriately determined set of allowances for Indirects & IMFT (see Chapter 5 of this Response). However, the UR also states in its GSS Consultation that it may consider tightening this standard further to 12 hours at a later date. If such a move were to be considered during RP6, NIE Networks would not be adequately funded to operate to a 12 hour

²⁹ Electricity (Standards of Performance) Regulations 2015.

³⁰ See, e.g., NIEN GSS Response, Tables 1 and 2 on pp5-7.

³¹ UR GSS Consultation Paper.

³² It is noted that the UR does not propose to introduce two-hour appointment windows: see UR GSS Consultation Paper, 4.24. As NIE Networks has previously submitted, if introduced, this would cause issues for NIE Networks: see NIEN GSS Response.

³³ For example, a proposed move to an 18 hour rather than a 12 hour standard for service restoration.

standard. Therefore the UR should delay any further amendments beyond those proposed in the GSS Consultation until RP7 or later;

- the proposed changes to the severe weather exemption would cause significant problems for NIE Networks, in light of the UR's provisional view that no commensurate allowances have been made in RP6 for increased costs associated with this, and in light of the generally less resilient nature of NIE Networks' distribution network compared with those of the GB DNOs as a result of historical differences in funding and the UR's present proposals not to permit reliability enhancement programmes.

- 3.11 The UR's present proposal as regards severe weather is to align this with the position in GB.³⁴ This would have significant implications for NIE Networks compared to the present requirements. By way of example, NIE Networks estimates that, had the proposed changes been in place for the last 6 years, it would have had to pay out £2.5 million in GSS compensation payments,³⁵ compared with zero under the current regime.

Why it is not appropriate to align the severe weather compensation standards with GB now

- 3.12 It appears that the UR's proposal to change the severe weather exemption is motivated by a wish to align the arrangements with those prevailing in GB. But that would ignore fundamental differences between network design and conditions faced by NIE Networks in NI compared with DNOs in GB. In short, the GB distribution network is significantly more resilient today than the network in NI, due primarily to different network design and historic differences in funding.
- 3.13 The distribution network in NI would need to be brought up to a similar standard of resilience to that in GB, before a severe weather exemption aligned with that in the GB would be appropriate and workable. That will require both significant financial investment and time. Failing to provide for such investment during RP6 (as is the position the UR has adopted in the DD) will mean that the network will not attain a sufficient level of resilience even in the next price control period. And even if such investment is provided for during RP6, the work will take some time to complete which would mean that changes to the severe weather exemption should in any event not be implemented until a later point in time.
- 3.14 Accordingly, there are issues both with the current position of the distribution network in NI, as well as what the UR proposed to do in the future. The UR has not, thus far, properly considered either of those issues, (i) as regards the current position in its proposals in the GSS consultation to align the severe weather arrangements with GB; and (ii) as regards the future in its proposal not to allow sufficient investment by way of relevant allowances in RP6.
- 3.15 These matters are considered in further detail below.

³⁴ The current position is described in the UR GSS Consultation Paper, 4.15. The proposal to align the position with GB is described in the UR GSS Consultation Paper, 4.13-4.14.

³⁵ See NIEN GSS Response, 3.39.

Network design: small size of conductor on 11kV overhead line network and refusal to allow investment for improvements

- 3.16 A key network design issue faced by NIE Networks is the small size of overhead line conductor which is more prone to damage during bad weather.
- 3.17 NIE Networks' RP6 investment plan includes an option to address the three geographical areas of highest risk in this respect over 15 years, however the UR has provisionally determined in the DD not to permit these investments to be made.

Current state of the distribution network in NI

- 3.18 The background to the need for investment is set out in Chapter 8 of the RP6 Business Plan. A large amount of 11kV network was constructed during the 1950s, '60s and '70s when electrification schemes were being developed across the province. The lines were largely constructed using three sizes of steel cored aluminium conductor ("**SCA**") (25mm², 50mm² and 75mm²) although a small amount of Hard Drawn Copper conductor ("**HDC**") was used initially.
- 3.19 Some 70% of the network was constructed with the smallest size (25mm²) conductors, which was ample at the time to supply the small rural loads on a least cost technically acceptable basis. Today, around 60% of NIE Networks' 11kV network comprises 25mm² conductor.
- 3.20 The majority of lines have given adequate service over the last 30 years but with the knowledge obtained through the experience of several ice accretion storms, it is clear that the relaxation of standards during the electrification period has led to resilience problems on the network.
- 3.21 By contrast, current design standards mandate a minimum conductor size of 50mm².

The problem with 25mm² conductor in extreme weather conditions

- 3.22 Overhead lines constructed with 25mm² conductors are particularly vulnerable to ice accretion when weather conditions are extreme. Such extreme weather events are now occurring more frequently. Ice can form on conductors increasing the weight and stretching the conductor until it either touches the ground or breaks. Conductors with a smaller cross-sectional area (e.g. 25mm²) are much more prone to this kind of weather damage. Ice accretion can also lead to broken poles. By contrast, circuits that are built from stronger poles and conductors with a larger cross-sectional area are less likely to be damaged by ice accretion.
- 3.23 The impact of ice accretion events on homes and businesses can be significant. For example, the time required to restore supplies to all affected customers after such an event may be of the order of one week or longer depending on the area affected. The impact of widespread power cuts like these is often felt not just by domestic customers but also by businesses in the worst affected areas. This can have a knock-on effect on the local economy.
- 3.24 The most vulnerable parts of the network are the high ground areas in South Down, on the Antrim Plateau and in the Sperrin Mountains. Recent ice accretion events

have been in these areas, the most recent being in the Cloghmills area. There are approximately 3,600km of 11kV overhead line, one sixth of the total length, in these vulnerable areas and the majority of the lines were constructed with 25mm² conductor. Therefore NIE Networks proposed in its RP6 Business Plan an option to strengthen the network in these upland rural areas by increasing the conductor size on the circuits and by putting in stronger poles, which it considers is likely to reduce the network's susceptibility to damage from ice or snow.

- 3.25 The project would entail strengthening the network in these vulnerable areas over a 15 year period. Experience shows that 50mm² conductor has approximately one third of the number of faults during ice accretion events and that each fault location has significantly less damage.
- 3.26 This is in turn likely to reduce the likelihood of exceeding GSS restoration times resulting in less of a need for the severe weather exemption in its current form. If and when such work is completed, this may ultimately justify changes to the severe weather exemption to be more in line with that in GB.
- 3.27 The net additional expenditure incurred during RP6, over and above the core refurbishment and re-engineering work programmes, would be £25.6m.³⁶ NIE Networks directly addresses the UR's provisional determination not to permit this investment in section 2 of Chapter 4 of this Response. NIE Networks considers that without such investment having been permitted and the relevant work completed, there is no justification for imposing a more onerous GSS regime as regards severe weather.

Contrast with the position in GB

- 3.28 Unlike in NI, most of the 11kV overhead line networks in GB now use 50mm² conductor. This is primarily due to a major programme to replace 25mm² conductor which took place in the 1980s following recommendations by a GB panel enquiry in 1982 after major storms during the winter of 1980/81. This was well before privatisation of DNOs in GB and, accordingly, those DNOs never needed to seek approval from Ofgem or its predecessor authorities to fund this specific resilience investment, the type of which NIE Networks is requesting.

Network design: significantly greater prevalence of overhead line compared with GB DNOs

- 3.29 In NI there is approximately 3.5 times more overhead line per customer compared to the average UK DNO network. Overhead line networks are much more prone to faults, in particular during severe weather, compared with underground networks³⁷ and therefore customers will be off-supply for longer periods of time as a result of severe weather events.

³⁶ Further investment would be needed in RP7 and beyond, given the 15 year time period envisaged for the project.

³⁷ See NIEN GSS Response, 3.7.

The more favourable distribution of customers in GB mean it is quicker to re-connect supply

- 3.30 The GB DNOs have greater opportunity to resupply disconnected customers in 'bulk' through the deployment of medium sized generators following network outages (e.g. caused by severe weather), owing to the prevalence of customers located in hamlets. This opportunity is less available to NIE Networks since in a large number of cases individual rural customers are supplied by individual transformers. For example, NIE Networks has around 75,000 pole-mounted transformers which is much greater than the GB average.³⁸

GB DNOs have historically received funding to make relevant improvements, while NIE Networks has not

- 3.31 As noted above, the GB DNOs' networks already had a greater proportion of their overhead line networks constructed with 50mm² conductor (rather than the less resilient 25mm² which features significantly throughout NIE Networks 11kV network) at the time of privatisation.
- 3.32 Moreover, further to this, unlike NIE Networks, Ofgem has permitted the GB DNOs funding to enable further improvements, such as additional network automation, which would prevent some faults occurring and reduce the time to correct faults that do occur. This has been in the form of both opex and capex allowances, as well as significant opportunities to earn additional income through incentive mechanisms which have not been available in NI. The regulatory incentive structure in NI would become asymmetric if GSS (and most materially, the severe weather exemption provisions) were aligned to GB without also aligning the incentive mechanisms to balance the risk of compensation payments due under GSS.³⁹
- 3.33 To illustrate this point, significant sums of money have been made available to the DNOs since DPCR3 to drive improvements in service standards. In total Ofgem has allowed around £1.3bn⁴⁰ (2015/16 prices) since 2002 comprising around £328m in capex and opex allowances, and around £935m⁴¹ in additional revenues gained from quality of service incentive schemes. See **Table 9.5** below.

³⁸ See NIEN GSS Response, 3.8.

³⁹ See also section 2 above.

⁴⁰ This figure has been updated since the NIEN GSS Response, with the addition of £160m in revenues earned by the DNOs through the Interruptions Incentive Scheme during the first year of RIIO-ED1.

⁴¹ Same comment as above.

Table 9.5: Historical funding in GB to improve network performance, £m (2015/16 prices)⁴²

DNO group	Allowances granted in DPCR4 to improve CML / CI and response times		Revenues received from the Interruptions Incentive Scheme (IIS)			
	Capex	Opex	DPCR3	DPCR4	DPCR5	RIIO-ED1*
ENW	0.0	13.0	5.2	14.2	42.0	13.5
NPg	5.7	21.2	8.2	-12.3	46.0	21.8
WPD	57.0	48.7	14.1	52.6	267.0	46.6
UKPN	63.6	33.5	12.7	6.2	173.0	47.2
SPEN	0.0	23.9	3.4	-12.1	63.0	13.0
SSE	36.5	25.2	12.2	57.3	22.0	18.3
Total	162.8	165.6	55.8	105.9	613.0	160.5

* Rewards to the DNOs in 2015/16 from the Interruptions Incentive Scheme (IIS); taken from the RIIO-ED1 annual report for 2015/16.

- 3.34 On a pro-rata basis the historical funding received by the DNOs equates to around £38 per customer (on the basis of there being approximately 26 million customers), or the equivalent of around £32m against NIE Networks' 860,000 customers.⁴³ The DNOs have been able to use this funding to invest in their networks, to improve resilience or to introduce more network automation for example.
- 3.35 The absence of similar historic funding in NI means that NIE Networks is at a structural disadvantage if obliged to meet the same standards as GB DNOs. This would place an unbalanced regulatory burden on NIE Networks unless an overall approach which would bring NIE Networks in line with GB is implemented before the relevant GSS are changed; namely, an ability to fund the requisite network improvements over time.

Conclusion

- 3.36 In light of the above, it is perhaps unsurprising that, given a more resilient network, and the historical ability to fund network improvements that directly contribute to that resilience in particular to severe weather events, the GB DNOs are held to a higher standard of service in severe weather conditions than NIE Networks and are more likely to achieve such standards of service.
- 3.37 Accordingly, before any changes to bring GSS in respect of severe weather compensation in line with GB are made, NIE Networks must be given the opportunity to fund improvements to its network such that its resilience to severe weather will be comparable to that of the GB DNOs. What is required during RP6 in this regard is an allowance for the 11kV network resilience programme to allow for key specific investments in network reliability (as to which, see further section 2 of Chapter 4 of this Response).
- 3.38 It is only after the above measures have been implemented and NIE Networks has had the opportunity to improve its network in line with the GB DNOs that changes to the severe weather exemption to bring it in line with GB should be re-considered. This would be in a later price control period.

⁴² Figures up to and including DPCR5 have been taken from the NIEN GSS Response, Table 3.

⁴³ Further detail on historical funding in GB is set out in Appendix 1 of the NIEN GSS Response.

3.39 If, contrary to the above, the UR were to adopt the position it has taken in the DD (i.e. not allowing for the above investments while also indicating that it will not fund the costs of implementing future changes to the GSS regime) in combination with the provisional position it has reached in the GSS Consultation Paper (i.e. aligning the severe weather exemption with the position in GB), this would constitute errors of fact and law on account of:

- failing to take account of relevant considerations, namely the fundamental differences in the position of NIE Networks compared with DNOs in GB as articulated above;
- taking account of irrelevant considerations, in particular, that the relevant GSS should be aligned with the position in GB based on making comparisons that do not take account of fundamental differences between NI and GB;
- therefore not acting rationally;
- unlawfully fettering its discretion in deciding that costs of implementing future changes to the GSS regime should not be funded by consumers; and
- breaching its primary duty to secure that NIE Networks is able to finance its regulated activities, on the basis that NIE Networks would be liable to pay unfunded compensation to customers in circumstances where it has not had the opportunity to invest to develop its network in a way which could avoid breaches of relevant GSS.

CHAPTER 10

CONNECTIONS

1. INTRODUCTION

- 1.1 The UR has made a number of proposals in its DD in relation to the treatment of connections, and NIE Networks makes submissions below as regards the following:
- allowances in respect of contestability (Section 2);
 - removal of the connections pass-through charge (Section 3); and
 - treatment of housing sites with 12 or more dwellings (Section 4).

2. ALLOWANCES IN RESPECT OF CONTESTABILITY

The UR's provisional decision and the issue

- 2.1 The UR has recognised that NIE Networks has had to incur costs, and will continue to incur costs, in order to facilitate the opening of the connections market. Furthermore, the UR recognises that these costs should be recovered by NIE Networks.¹
- 2.2 NIE Networks advised the UR that it expected to incur £5.59 million to deliver contestability. The UR has considered these costs, and in its DD it proposes an allowance of £4.76 million be added to the opening RAB of RP6.²
- 2.3 NIE Networks' cost submission and the UR's proposed allowances are set out in Table 10.1 below.

Table 10.1: NIE Networks costs submissions and the UR's proposed allowances

Cost category	NIE Networks submission, £k	UR allowance, £k
External resources	2,841	2,592
IT expenditure	2,327	1,877
Miscellaneous expenditure	426	295
Total costs	5,594	4,764

- 2.4 Each category is dealt with in turn below.

¹ DD, 11.34-11.40.

² DD, 11.37-11.38. The UR's conclusions are based on an analysis undertaken by its external consultants, Gemserv, the findings of which are set out in a report which the UR has provided to NIE Networks: Gemserv, "Competition in Connections: Report on NIE Networks Cost Recovery Proposals", 10 April 2017. This is the report referred to in footnote 77 of the DD.

External resources

Legal work

- 2.5 Legal work completed for opening of the greater than 5MW market segment is considered sufficient by the UR to provide a strategic outline for the opening of the rest of the market, and so allowed costs have been reduced.
- 2.6 However, legal issues associated with introducing competition are significant. For example NIE Networks requires legal assistance across a range of matters including: understanding of its liabilities throughout implementation of contestability; assisting with the development and review of licence modifications to be introduced for contestability; advising on issues that may arise during the transition to contestability, for example, if a customer who has accepted an offer from NIE Networks subsequently wants to avail themselves of a contestable offer; and advising on point of connection issues.
- 2.7 Not providing the requested allowance will present risk in terms of future disputes with independent connection providers ("ICPs") and/or end-customers if weaknesses emerge in the legal framework due to having to manage within a reduced expenditure. There is a need to ensure that the legal difficulties experienced in the GB connections market are avoided as far as possible.

Audit

- 2.8 Only one further internal auditor's assurance has been allowed by the UR; NIE Networks had sought two.
- 2.9 It is best practice to conduct independent internal audits to ensure changes to processes, IT systems, structures, and systems are managed appropriately. This is a standard and appropriate governance process for complex change programmes. Given the scale of the changes involved for connections, NIE Networks requires a total of three internal audits (one has been conducted already) to verify that the changes are being managed appropriately.
- 2.10 NIE Networks is introducing very significant changes in its processes to bring in contestability, and it is imperative that it tests these processes adequately before full implementation. Such testing is all the more important given the very compressed timescales to which NIE Networks is working. Accordingly, NIE Networks considers that two further assurances from its internal auditors remain appropriate.

Market design costs

- 2.11 Not all market design costs have been allowed.
- 2.12 NIE Networks acknowledges that it had used 20 days instead of 18 for market design and therefore accepts the UR's proposal to disallow £28.7k of these costs.

IT expenditure

- 2.13 The UR has disallowed certain costs in relation to IT investments.
- 2.14 Investment in IT systems is critical to the success of the competitive market in terms of service delivery to ICPs and end-customers. Reducing the allowance for the ICP portal will result in less functionality being delivered and this is likely to lead to inefficiencies in the exchange of information between customers of ICPs and NIE Networks. Disallowing costs for mobile technology will adversely impact the level of service provided to customers.

Miscellaneous expenditure

- 2.15 The UR has proposed a lower allowance than requested for communications and training for the introduction of full contestability.
- 2.16 The introduction of contestability to the greater than 5MW market segment involved the training of a relatively small number of Connections staff (around 30) whereas the introduction of contestability to the rest of the market will involve around 300 staff. These staff will require training in competition law, competitive market design as well as the new and revised business systems and processes to support the market. Roles and responsibilities will also need to be updated to reflect new activities within the market such as design reviews, asset adoption, etc.
- 2.17 Training and communications are a vital part of any change programme. If NIE Networks is not granted the full allowance as requested it will have to make compromises to ensure that expenditure is maintained within allowances. NIE Networks is concerned that this could have an adverse impact on NIE Networks' ability to comply fully with contestability requirements, as well as on customers' experience once the market is opened fully.

Conclusion

- 2.18 In summary, NIE Networks is disappointed that the UR's proposals fall short of what it had requested. NIE Networks has responded positively to the UR's request that it open the connections market to competition. NIE Networks has successfully opened the market for connections greater than 5MW, and it is on track to open the rest of the connections market by the end of March 2018. Not only has this been done against a much-accelerated timetable compared to the experience in GB, but NIE Networks has also been working in good faith and without proper confirmation (until the RP6 DD) that costs it had incurred would be recoverable.
- 2.19 In such circumstances, and in light of the justifications provided, NIE Networks considers it would be reasonable and appropriate for the UR to grant it the requested allowances. If the allowances are not made, NIE Networks would then have to review the remaining programme of work, which would result in compromises having to be made to ensure overall expenditure remains within the lower proposed allowances. In effect there will be reductions in expenditure in some categories of costs to off-set the reduction in the overall allowance provided.

- 2.20 While it is anticipated that this will result in a reduction in the efficiency of the market for ICPs and end-customers, NIE Networks' view is that by reducing the allowances, particularly in respect of legal support (£84k) and programme assurance (£72k), this would introduce risk to operability of the market. Accordingly, NIE Networks considers that, at a minimum, the requested amounts for these allowances should be granted.

3. REMOVAL OF THE CONNECTIONS PASS-THROUGH CHARGE

- 3.1 The UR has proposed the removal of new or modified connections pass-through capex and opex costs for all types of distribution and transmission connections, to take effect from the start of RP6.³
- 3.2 The UR has asked whether introducing the proposed changes means there is an impact on over- or under-recovery which necessitates an adjustment to the opening RP6 RAB.⁴
- 3.3 NIE Networks does not consider that there should be a requirement for an adjustment to the opening RP6 RAB. NIE Networks accounts for costs and customer contributions in relation to connections in accordance with International Accounting Standards, under which costs in respect of connections are matched by customer contributions.
- 3.4 The exception to this is for housing sites with 12 or more dwellings which are subject to a standard connection charge. Under the charging arrangements for this customer type, NIE Networks will develop the necessary infrastructure for a complete housing site and the costs associated with these works are added to the RAB. The customer (i.e. the site developer) is then charged a standard connection charge per dwelling, as each dwelling becomes occupied, and contributions received from the customer are deducted from the RAB. As capacity of housing sites may be taken up over a number of years, differences in timing may arise between the costs incurred in developing the infrastructure and contributions received from customers.
- 3.5 If the pass-through mechanism was to continue in relation to housing sites with 12 or more dwellings, the treatment of costs and income outlined above would continue.
- 3.6 In the event the UR does decide to remove the pass-through for this customer type, it should apply only to new connection applications made from 1 October 2017 onwards. The existing standard charge would remain for connection applications made prior to 1 October 2017 and therefore all costs and customer contributions in relation to such connections would continue to be added to or subtracted from the RAB until such time that all associated costs are paid back in full.

³ DD, 13.28-13.46.

⁴ DD, 13.46.

4. **TREATMENT OF HOUSING SITES WITH 12 OR MORE DWELLINGS**

4.1 The UR proposes two options in respect of housing sites with 12 or more dwellings:⁵

- Option 1: to retain the pass-through charge; or
- Option 2: to remove the pass-through charge.

4.2 The UR states that, on balance, it is minded to remove the pass-through charge.⁶

4.3 If the UR's decision were to retain the pass-through charge, then (1) the existing standard charge applied in respect of housing sites would continue, and (2) the continuation of the standard charge would prevent this particular segment of the market from being opened to effective competition.

⁵ DD, 13.40-13.44.

⁶ DD, 13.43.

CHAPTER 11

PENSIONS AND RATES

1. PENSIONS

RP6 allowances¹

- 1.1 In its RP5 price control determination, the CMA concluded that the Focus section historic deficit should be split into historic and incremental deficits using the Ofgem Pension Regulatory Instructions and Guidance methodology; the cut-off date for the historic deficit being 31 March 2012. The historic deficit is funded by customers with any incremental deficit being funded by NIE Networks. The UR has maintained this principle and the proposed allowances in the DD are in line with NIE Networks' submission.² The UR has proposed a one-off adjustment to remove the regulatory fraction.³ NIE Networks agrees that this is appropriate and will simplify calculations going forward.
- 1.2 The DD includes a disallowance of £4.7 million per annum in respect of early retirement deficit contributions ("**ERDC**").⁴ Depending on pension scheme performance, the ERDC liability may be fully funded before the end of RP6 and the ERDC disallowance should cease at that point.
- 1.3 Overall, the proposed allowance in respect of pensions is in line with NIE Networks' RP6 submission and is therefore acceptable to NIE Networks.

Scheme expenses⁵

- 1.4 NIE Networks notes the UR's comments in relation to the NIE Networks pension scheme ("**NIEPS**") administration and investment expense costs. The UR's comments are based on sample data published by the Pensions Regulator. However, this sample data is of only very limited usefulness. Only around 40% of the sample data included all costs, including investment manager costs which make up the majority of the costs. The fees that NIEPS pays to its fund managers are competitive for each asset class and when compared to the fees paid by other schemes of a similar size. Investment manager fees for the year ended 31 March 2016 represented c.0.2% of scheme assets.

Pension Monitoring Framework⁶

- 1.5 In the DD the UR notes that it is considering a Pension Monitoring Framework within which the RP6 pension allowances may be reviewed.⁷ The UR suggests

¹ DD Annex F (Pensions) ("**Annex F**"), Chapter 7.

² DD, 8.58-8.59.

³ DD, 8.46-8.48; Annex F, 5.48-5.52.

⁴ DD, 8.60-8.62 and 8.66; Annex F, 5.13-5.17.

⁵ DD, 8.69; Annex F, Chapter 6

⁶ DD, 8.71; Annex F, Chapter 8.

trigger points of 70% and 110% of funding levels as respective downward and upward events compared to a funding level of 85% at the NIEPS 2014 actuarial valuation stated within Annex F. As reported in the results of the NIEPS Actuarial Valuation at 31 March 2014, the funding ratio resulting from that valuation was in fact 90% and therefore, the proposed trigger points of 70% and 110% would represent a 20% increase or decrease from the March 2014 position, equivalent to a deficit of circa £330 million and a surplus of circa £110 million based on liabilities of the scheme as at March 2014.

- 1.6 Given the significant differences between the UR's proposed trigger points and the March 2014 valuation funding level of 90%, such funding levels would likely require significant changes in deficit contributions, potentially in excess of what might be deemed 'material' changes. As stated in Annex F, the largest fall observed in the NIEPS's funding ratios was 12.3% - around the time of the 2007-08 global financial crisis⁸ and therefore NIE Networks submits that a decrease in excess of this would not be an appropriate trigger point.
- 1.7 Accordingly, NIE Networks submits that trigger points of 80% (equivalent to a circa £220 million deficit) and 100% (zero deficit) based on scheme liabilities at the March 2014 valuation) would be more reasonable as funding levels approaching these trigger points are likely to result in material changes to the level of deficit repair payments required to service the deficit. As proposed in the DD,⁹ these triggers would act as a basis for initiating a discussion between NIE Networks and the UR before the end of RP6. NIE Networks agrees with the UR's position that it would not be a simple mechanism for automatic action. Accordingly, action would need to be taken as appropriate in light of the circumstances at the time.

Ofgem true-up

- 1.8 On 7 April, Ofgem published its decision and next steps in relation to the funding of pensions scheme established deficits ("EDs"). Ofgem's framework includes a mechanism for the ED funding allowance to be revised every three years according to a set timetable. In general this timetable is aligned to the triennial valuation cycle.
- 1.9 Following completion of the triennial valuation (and the pension deficit allocation methodology and reasonableness review linked to that valuation), the ED funding allowance is revised by Ofgem. While the revised ED funding allowance takes account of the ED reported at the newly-completed valuation, the revised allowance also takes account of the payment history allowance – the cumulative variance between:
 - the licensee's historic ED contributions to the scheme; and
 - the licensee's historic allowances for ED repair.

⁷ 8.71.

⁸ 8.7.

⁹ Annex F, 8.2.

- 1.10 NIE Networks submits that this is an important feature of Ofgem's price control framework and that the UR should consider adopting an equivalent mechanism in NIE Networks' price control. NIE Networks notes that it may be necessary for the timing of when the true-up applies to vary from the Ofgem approach (i.e. for it to apply after RP6 rather than every three years).

2. **RATES**

Introduction

- 2.1 NIE Networks' rates liability amounted to circa £18 million in the latest financial year ending 31 March 2017, equivalent to c.10% of NIE Networks' total costs. It is therefore essential that an appropriate regulatory mechanism is adopted in respect of this very material cost line. NIE Networks' RP6 business plan proposes that the appropriate regulatory treatment is that rates should be allowed as pass through on the basis that the rates liability is uncontrollable.¹⁰
- 2.2 Accordingly, the figures included in NIE Networks' RP6 business plan submission were based on NIE Networks' actual rates costs in 2015/16. NIE Networks did not attempt to forecast a rates cost for RP6 as any such exercise would be purely speculative on the basis that NIE Networks does not know when the next valuation will be carried out; the approach Land and Property Services ("LPS") will adopt to the valuation (if there is one); or the regional rate and district poundage rates which will apply.
- 2.3 In the DD, the UR has declined to allow rates as a pass through item, and has instead proposed an ex ante allowance.¹¹

The UR's approach

- 2.4 The UR has declined to allow rates as a pass through item on the basis that the UR:

"consider that Rates are not wholly uncontrollable and there is an element of negotiation between NIE Networks and LPS".¹²

The errors in the UR's approach

- 2.5 NIE Networks submits that the UR is incorrect not to allow rates as a pass through item. The UR has provided no support for its approach, which fundamentally misunderstands NIE Networks' role in the rates setting process. LPS will present NIE Networks with a proposed valuation, in relation to which NIE Networks is entitled to make representations to ensure that the figures incorporated into LPS' model are correct. This is akin to NIE Networks role in relation to, for example, a tax assessment. NIE Networks notes that it is also open to it to appeal the decision of LPS, but: (1) NIE Networks is not aware of a DNO ever having appealed a rates setting decision in practice; and (2) that ability does not fundamentally alter the

¹⁰ 11.42-11.46.

¹¹ DD, 6.54-6.62.

¹² DD, 6.56.

nature of the rates setting process such that it can be said to be within NIE Networks' control.

- 2.6 The UR's conclusion in the DD is even more surprising in light of its recognition of the uncertainty regarding future valuations. The UR states that:

*"We are also uncertain as to whether the 2020 Rates revaluation will occur and the impact of this on NIE Networks' Rates bill – it may have no significant impact or alternatively it could result in a reduction or conversely an increase on the level of rates to be paid. Without firm evidence we do not plan to take any account of changes to Rates in 2020".*¹³

- 2.7 The UR therefore recognises the inherent uncertainty in the setting of rates, which would be mitigated if rates were allowed on a pass through basis, but then declines to make any allowance for the impact of future valuations.

- 2.8 The DD also makes no reference to Ofgem precedent in relation to rates. Indeed, the UR asserts that there is no established regulatory precedent in relation to rates,¹⁴ despite the fact that Ofgem has consistently allowed DNOs in GB to recover rates on a pass through basis.¹⁵ The Ofgem approach is to allow rates as a pass through item, provided that the DNO can demonstrate that appropriate actions have been taken to minimise valuations (i.e. the DNO has exercised its ability to make representations to ensure that the facts on which the rates setting methodology is based are correct). NIE Networks submits that this is the approach that the UR should adopt in the Final Determination.

- 2.9 The UR also suggests that NIE Networks raised the North South Interconnector as a specific area of rates uncertainty in RP6.¹⁶ This is factually incorrect. The UR raised a query regarding the potential rates impact of the North South interconnector, in reply to which NIE Networks advised the UR of what the cost might be following the approach adopted by LPS in the 2015 rates valuation. However, this estimate was purely hypothetical and does not take into account other major transmission projects which might occur during RP6 or indeed any other aspects of the RP6 plan.

- 2.10 The UR's response to the uncertainty that arises from providing an allowance for rates on a pass through basis is set out at DD, 6.51:

"It is common for regulated companies actual expenditure to deviate from allowances set by Regulators and deviations can be both positive and negative and may result in cost savings and cost increases. The company is in part shielded from these effects by various regulatory mechanisms including the 50/50 cost-sharing... mechanism and also via the setting of the rate of return".

¹³ DD, 6.60.

¹⁴ DD, 6.42.

¹⁵ See e.g. the summary of the RIIO-ED1 approach set out at CMA's RP5 Determination, 5.338.

¹⁶ DD, 6.50.

- 2.11 NIE Networks does not disagree with this general regulatory principle. However, the principle should not apply to costs which are outside NIE Networks control, including, for example, rates.
- 2.12 The CMA RP5 Determination included an upfront allowance of £15 million per annum for NIE Networks' rates liability. This allowance was in line with NIE Networks' rates liability up to 31 March 2015. However, following the revaluation on 1 April 2015, the rates liability increased to circa £18 million per annum which resulted in a £3 million per annum shortfall in the allowance (£1.5 million loss after 50/50 sharing) for the last two and a half years of RP5. This increase was outside NIE Networks' control and for company to suffer a material loss in such circumstances is inconsistent with the generally accepted principles of incentive-based regulation.
- 2.13 The CMA RP5 Determination stated that the Ofgem approach would not be suitable for NIE Networks because of the "*unique nature of NIE's rates revaluation process*".¹⁷ However, this is no longer the case. The basis for setting NIE Networks' rates has changed since the CMA's RP5 Determination. The LPS changed its approach in the 2015 valuation from one specified by the Department of Finance and Personnel to a "conventional" assessment based on forecast income and expenditure. This change in approach followed the GB electricity distribution network operators and National Grid, the transmission network operator who moved to conventional assessment in 2005. Therefore, since the valuation approach is now the same in GB and Northern Ireland, there is no reason why the regulatory treatment should be different in Northern Ireland.

Conclusion

- 2.14 NIE Networks submits that the UR should allow rates as a pass through cost in the Final Determination for the reasons stated above. NIE Networks notes that the UR has not completed its analysis of rates and that it intends to conduct a comprehensive review between the DD and the Final Determination to formulate a final view on the appropriate levels of rates for RP6, including giving separate consideration to the rates impact of the north south interconnector.¹⁸ As noted above, NIE Networks believe that any such analysis will be purely speculative given the inherent uncertainty in relation to the LPS' overall assessment of rates and the timing of future valuations and therefore submits that the UR's review should therefore focus on the evidence put forward by NIE Networks in favour of allowing rates as a pass through cost. Given the materiality of NIE Networks' rates liabilities small percentage changes in the rates charges can make a very material difference and it is important that an appropriate regulatory mechanism is adopted. NIE Networks is not seeking to gain from a different treatment of this cost – it is simply seeking to avoid an unjustified economic loss or gain.

¹⁷ 5.354.

¹⁸ DD, 6.62.

CHAPTER 12

FINANCEABILITY AND WACC



1. INTRODUCTION

Financeability

- 1.1 NIE Networks has serious concerns with the UR's approach to assessing financeability, because it is inadequate and is not fit for the purpose of assessing financeability.
- 1.2 NIE Networks proposes funding the RP6 plan through a combination of operating cash flows from revenue receipts, issue of new debt and retention of earnings as required. NIE Networks estimates that borrowings will increase to £950 million by the end of RP6 and it will require £500 million of new debt.
- 1.3 The UR is required under legislation to have regard to the need to secure that licence holders are able to finance their licence obligations and NIE Networks has a licence condition to maintain an investment grade rating which is a rating of BBB- or above (Fitch or Standard and Poor's).
- 1.4 GB and European regulatory precedent indicates that a strong investment grade credit rating of A- to BBB+ is appropriate for a high performing network operator. NIE Networks is currently rated BBB by Fitch and A- by Standard & Poor's on a standalone basis. Achievement of at least a standalone BBB+ credit rating with both Fitch and Standard & Poor's is important to:
 - enable NIE Networks to compete effectively for new funding in the market;
 - ensure NIE Networks has ongoing access to debt capital markets to efficiently finance infrastructure investment at interest rates that are competitive compared to those of its UK network peer companies; and
 - create a buffer above the minimum investment grade rating to ensure that NIE Networks' access to finance is resilient from adverse macroeconomic and market shocks.
- 1.5 This is further supported by evidence from the current credit ratings of electricity network operators in the rest of the UK, the majority of which have comfortable investment grade credit ratings of A- to BBB+ or equivalent on a standalone basis.
- 1.6 The financeability test in the DD suggests that the UR is targeting a company credit rating of BBB+. As outlined above, NIE Networks agrees that a strong credit

rating is very important to enable future efficient investment during RP6. However, the net result of the UR's financeability assessment is that the proposed RP6 cash flows are inadequate to maintain the necessary credit metrics consistent with achieving a BBB+ credit rating from Fitch (who currently rate NIE Networks). For the credit rating metrics outlined in the UR's financeability test to be achieved, the UR is making an unrealistic assumption that a significant equity injection would be required and no dividends could be paid during the RP6 period. In order to meet the financeability tests, the UR assumed a gearing level of 40% without proper justification. It has not considered the significantly higher gearing used by GB network regulators, nor NIE Networks' projected gearing level for RP6. The level of gearing assumed in the RIIO-ED1 price controls for GB electricity DNOs was 65%, which is consistent with the expected efficient capital structure of a regulated network infrastructure company.

- 1.7 Moody's Investor Service commented on the RP6 DD in its ESB issuer comment published 29 March 2017 that *"The regulator's proposals are negative for NIE Networks... The draft determination for NIE Networks is challenging, and if the final determination, to be published on 28 June 2017 is in line, then NIE's earnings will suffer..."*.¹
- 1.8 NIE Networks views this outcome as entirely unreasonable and considers that the UR has objectively failed to secure that NIE Networks is able to competitively and efficiently finance its licence obligations.

Weighted Average Cost of Capital ("WACC")

- 1.9 NIE Networks' WACC proposal of 4.08% (real, vanilla) is the weighted average of the cost of debt and the cost of equity that debt investors and equity investors expect from NIE Networks based on returns earned by comparable entities with similar business and financial risk profiles. It is a key driver of the financeability and credit rating of NIE Networks.
- 1.10 In the DD, the UR proposes a WACC of 3.29% (real, vanilla) compared to NIE Networks proposal of 4.08% (real, vanilla), resulting in a revenue and earnings shortfall of circa £105 million over the RP6 period.
- 1.11 NIE Networks, supported by its advisers, Frontier Economics, has identified a number of serious deficiencies in the UR's approach to setting WACC, including:
 - factual errors in interpretation of regulatory precedent;
 - the use of selective market evidence and lack of consistency with relevant regulatory precedent, most notably that of the CMA RP5 determination; and
 - cherry picking proposals made by NIE Networks.

¹ Moody's Investors Service, 'Issuer Comment – Electricity Supply Board (ESB) – Rating Positioning Remains Strong Despite Challenging Draft Determination for NIE Networks', 29 March 2017 (available at <https://www.researchpool.com/provider/moodys-investors-service/electricity-supply-board-esb-rating-positioning-remains-strong-desp>).

- 1.12 In particular, the UR's assumptions in respect of the risk parameters (asset and debt betas) and gearing which feed into the cost of equity are not supported by the consistent application of regulatory precedent and the latest market evidence.
- 1.13 There appears to be a trend in the draft WACC determination that regulatory precedent or the latest market evidence is followed when that leads to a reduction in allowed WACC but ignored or side-lined when it has the opposite effect. The net result is an imbalanced application of regulatory precedent and the latest market evidence which has a significant detrimental impact on NIE Networks' financial position and credit rating.
- 1.14 The remainder of this Chapter is structured as follows:
- Section 2 outlines NIE Networks' serious concerns regarding the UR's assessment of financeability for RP6.
 - Section 3 details why NIE Networks fundamentally disagrees with the UR's proposed approach to gearing.
 - Sections 4 and 5 describe issues with the UR's provisional determination of the cost of equity, and outline NIE Networks' concerns in respect of the parameters making up the cost of equity.
 - Sections 6, 7, and 8 detail issues with parameters provisionally determined by the UR in respect of the cost of debt.
 - Section 9 describes the UR's provisional determination in respect of adaptations proposed by NIE Networks to the rate of return adjustment mechanism for the cost of new debt.
 - Section 10 provides an overview of the issues detailed in this Chapter by way of conclusion.
- 1.15 The submissions in this Chapter are supported by two reports from NIE Networks' advisers, Frontier Economics:
- a report on total market return ("**Frontier Economics TMR Report**"),² included as **Annex 12.1** to these submissions; and
 - a report responding to aspects of the UR's provisional decision concerning the WACC ("**Frontier Economics Response to RP6 DD Report**"),³ included as **Annex 12.2** to these submissions.
- 1.16 Those reports are an integral part of NIE Networks' submissions on the issues above, and should be read in conjunction with this Chapter.

² Frontier Economics, 'Total Market Return for RP6: A report prepared on behalf of NIEN', 11 May 2017 ("**Frontier Economics TMR Report**").

³ Frontier Economics, 'Response to the Proposed Allowed Rate of Return for RP6: A report prepared for NIE Networks', 12 May 2017 ("**Frontier Economics Response to RP6 DD Report**").

2. FINANCEABILITY

The UR's decision and the issue

2.1 The UR's approach to assessing financeability is fundamentally flawed and not fit for purpose for the following reasons:

- it is inappropriate simply to reduce gearing when the test fails;
- the wrong criteria have been chosen for the target credit rating;
- the target credit rating is inconsistent with benchmarking used for bond indices in the proposed cost of debt; and
- the UR exacerbates the failure of the financeability test further by providing insufficient allowances.

Inappropriate to assume lower gearing when test fails

- 2.2 As outlined in the Frontier Economics Response to RP6 DD Report at section 3.2.1, the fundamental principle of financeability tests is to assess whether under the price control as framed a company has the ability to repay and service its debt with sufficient comfort to achieve credit metrics consistent with the target credit rating. The company and investors gain some assurance that the price control is sensibly calibrated where such financeability tests are properly applied therefore.
- 2.3 When the test is failed, as the UR acknowledge is the case for RP6 in the DD when it notes "*some uncertainty about the rating that NIE will be able to achieve, in practice*",⁴ recalibration of at least some of the elements of the price control would be required. However, rather than adopting such an approach, the UR instead takes the flawed approach of assuming that the company has less debt (inconsistent with the CMA's RP5 precedent) in order to pass the test. This renders the UR's test inadequate and not fit for purpose. NIE Networks also notes that the lower level of gearing assumed by the UR is outside the range identified by the UR for an efficient company.
- 2.4 When faced with financeability challenges at RP5, the CMA suggested that lower gearing as a short-term remedy for financeability challenges would not be appropriate for NIE Networks as the gearing assumption was already low at 46%.⁵ The UR's approach to its failed financeability test is not therefore supported by CMA precedent at RP5.
- 2.5 NIE Networks agrees with Frontier Economics' conclusion⁶ that the UR's approach to its failed financeability test is inconsistent with the UR's financeability duty, and no remedy has been offered. As a result, should the UR persist with this approach for the Final Determination, it would be at risk of breaching its relevant statutory obligations.

⁴ DD, 12.58.

⁵ CMA RP5 Determination, para 17.100 and 17.101.

⁶ Frontier Economics Response to RP6 DD Report, section 3.2.1 (p.13).

Wrong criteria for target rating

- 2.6 The UR indicates that it is targeting metrics consistent with a BBB+/Baa1 rated company.⁷ The DD states the criteria used as:
- adjusted interest cover ratio of at least 1.4 times or more,
 - FFO interest cover of 3.5 times or more, and
 - FFO to net debt of 10% or more.
- 2.7 In comparison, the appropriate Moody's metrics specific to the Baa rating (encompassing Baa1, Baa2 and Baa3) is as follows:
- adjusted interest cover ratio of 1.4 - 2 times;
 - FFO interest cover of 2.8 – 4 times; and
 - FFO to net debt of 11% - 18%.
- 2.8 The DD, in choosing the bottom end of these ranges for the first and third metric and the mid-point for the second, implies that at best a rating of BBB/Baa2, and more likely a rating of BBB-/Baa3, is achievable. A BBB+/Baa1 rating is not implied by the UR's chosen metrics despite its stated intention in the DD.
- 2.9 Accordingly, NIE Networks submits that the UR's chosen credit metrics to achieve a BBB+ rating are wrong. For its Final Determination the UR should apply the credit metrics consistent with a BBB+/Baa1 rating. If this is not to be the case, then the UR must acknowledge the need to correct its target rating to state BBB-/Baa3, or BBB/Baa2 at best. NIE Networks has already outlined the benefits for the company and customers of the former approach in its RP6 submission⁸ owing to the negative impact on the cost of debt of a BBB-/Baa3 and BBB/Baa2 credit rating.

Target credit rating inconsistent with benchmarking used for cost of debt

- 2.10 In estimating the cost of new debt, the DD proposes referencing the average of the iBoxx indices for both A and BBB rated corporate bonds.⁹ In order for NIE Networks to access debt at the cost implied by A and BBB rated bonds it is necessary for the company to achieve a rating between A- and BBB+. As outlined at paragraph 2.8 above, the credit metrics in the DD imply NIE Networks is more likely to achieve a BBB-/Baa3 credit rating. For this reason the methodology adopted is internally inconsistent.
- 2.11 In resolving this inconsistency for its Final Determination, as outlined at paragraph 2.9 above, the UR should target credit metrics consistent with the rating BBB+ in its financeability test having already been presented with the benefits of this

⁷ DD, 12.56.

⁸ Frontier Economics Report 'Cost of Capital and Financeability for RP6: A report prepared for NIE Networks', April 2016 ("**Frontier Economics April 2016 Cost of Capital and Financeability Report**"), section 2 (p.13) and Annex A (p.40).

⁹ DD, 12.36.

approach by NIE Networks in its submission.¹⁰ If this is not resolved in the Final Determination then a higher cost of debt must inevitably be allowed (e.g. by using only the BBB rated iBoxx index as a benchmark).

Insufficient allowances exacerbate the already failed financeability test

- 2.12 As laid out in the other Chapters of this Response NIE Networks has demonstrated that the allowances proposed in particular elements of the price control are inadequate. The UR's unjustified approach to setting these allowances will result in a further deterioration in the metrics in practice, thereby further exacerbating the failed financeability test.

Conclusion

NIE Networks has serious concerns about the UR's flawed approach to financeability and concurs with Frontier Economics' view that no meaningful solution to the failed financeability test has been offered.¹¹ NIE Networks submits that, for the Final Determination, the UR must recalibrate the price control, if necessary having targeted metrics consistent with a BBB+ rated company. In addition, consistency must exist between the target credit rating assumed in any financeability test and the benchmark index for the cost of debt. The UR must modify its approach to setting allowances to avoid further deterioration in the metrics in its failed financeability test for the Final Determination.

3. GEARING

The UR's decision and the issue

- 3.1 The UR's proposed level of gearing for RP6, being a point estimate of 45%,¹² is too low and sets the company out of line with its peers (inconsistent with the UR's approach to beta where it contends that no material differences exist between NIE Networks and its GB DNO peers). NIE Networks submits that it is imbalanced and unacceptable for the UR to choose to benchmark a selective element of the WACC against the GB DNOs, yet at the same time not benchmark NIE Networks gearing against the level of gearing deemed efficient by Ofgem for the GB DNOs in RIIO-ED1. Further, the UR's approach to gearing is not consistent with CMA precedent for RP5.

The proposed level of gearing is too low and misinterprets CMA precedent

- 3.2 The UR's advisers, First Economics, in Annex J to the DD at Table 9, identified a range of 45% to 65% for an efficient level of gearing.¹³ This range is derived from price control determinations made by Ofgem, Ofwat, the CMA and the UR with the

¹⁰ Frontier Economics April 2016 Cost of Capital and Financeability Report, section 2 (p.13) and Annex A (p.40).

¹¹ Frontier Economics Response to RP6 DD Report, para 3.2.4 (p.15).

¹² DD, 12.14.

¹³ DD, 12.14.

CMA's decision in respect of NIE Networks at RP5 being a clear outlier in the sample at 45% (the nearest level of gearing within the sample was determined by the UR for GD17 at 55%).

- 3.3 First Economics in section 4 of Annex J on the one hand state that they see no reason why NIE Networks should not be "in the pack" with other regulated utilities (this reason is also cited to support the UR's choice of asset and debt beta in the WACC calculation) yet on the other hand the UR ignores the significantly higher level of gearing applied by Ofgem to its electricity DNOs of 65% for the RIIO-ED1 price control.
- 3.4 In referencing the level of gearing set by the CMA at RP5, the UR has misinterpreted the CMA's approach to gearing. As Frontier Economics outline,¹⁴ the CMA at RP5 referenced NIE Networks' gearing and therefore did not ignore NIE Networks' own evidence for the level of anticipated gearing¹⁵ when it selected an assumed level of gearing of 45% based on the assumptions for the RP5 period. The UR should apply the CMA's approach for RP5 to the RP6 price control and, consistent with NIE Networks' submission, set gearing at 50%.¹⁶ CMA precedent therefore supports adopting a gearing level of 50% for RP6.
- 3.5 NIE Networks notes that its additional borrowings were factored into its cost of debt in the weightings for embedded and new debt (as outlined in paragraph 8.3 below). The UR has incorporated NIE Networks' weightings into its proposed cost of debt calculation for RP6, thereby accepting an increase in borrowings and gearing at 50%. However, the UR, in its overall WACC assessment, has inconsistently set gearing at 45% overall for the weighting of debt to equity, incorrectly interpreting the approach to the level of gearing set by the CMA at RP5.
- 3.6 NIE Networks' new borrowings at £500 million for RP6 were assessed before considering potential transmission load related projects to be proposed by SONI and approved by the UR (D5 spend – referred to within the NIE Networks RP6 Business Plan as uncertain¹⁷ to include the North-South Interconnector project). The UR deem these projects to now total £200 million¹⁸ for SONI alone (around 50% of the UR's total proposed allowances for direct capex in RP6)¹⁹ before consideration of NIE Networks' own incremental indirect costs for such projects. In paragraphs 2.2-2.5 above, NIE Networks demonstrated that it was inappropriate to reduce gearing when the financeability test fails. It is therefore entirely unreasonable for the UR to suggest that these D5 projects should be financed by the same mix of debt and equity.²⁰ Additional D5 expenditure exacerbates the existing fundamental flaws in the financeability assessment.
- 3.7 Any revision to the level of gearing for the UR's Final Determination must be consistently applied across the WACC parameters (asset beta, debt beta and

¹⁴ Frontier Economics Response to RP6 DD Report, 4.2 (p.16)

¹⁵ CMA RP5 Determination, 13.37.

¹⁶ NIE Networks RP6 Business Plan, Chapter 13 Table 41.

¹⁷ NIE Networks RP6 Business Plan, 11.17-11.19.

¹⁸ DD, 12.66.

¹⁹ DD, Table 39 (p.133): allowances total £404.7 million.

²⁰ DD, 12.61.

embedded:new debt ratio) and interpreted correctly in line with CMA precedent for RP5.

4. **COST OF EQUITY: RISK-FREE RATE AND OVERALL EXPECTED MARKET RETURN**

The UR's decision

- 4.1 In the context of determining the allowed rate of return for NIE Networks for RP6 the UR proposes to use a risk-free rate of 1.25%²¹ and an expected market return of 6.5%²² as components of the cost of equity. The expected market return as referred to by the UR is commonly known as the total market return being the sum of the risk-free rate and the equity risk premium.
- 4.2 The UR's proposals are consistent with the estimates determined by the CMA for RP5.²³
- 4.3 However, the UR's DD notes that it considers that both the risk-free rate and the expected market return may be at the high end of plausible current ranges. While the UR has not presented any specific evidence on which to base this view, it notes that it may revisit these for its Final Determination and that further analysis may be helpful.²⁴
- 4.4 NIE Networks' advisers, Frontier Economics, have undertaken such analysis, which is presented in the Frontier Economics TMR Report.
- 4.5 Frontier Economics has updated the methodology employed by the CMA for RP5 for the latest data available in respect of the total market return. The CMA's methodology at RP5 focused on historical evidence and has subsequently been adopted by infrastructure regulators.
- 4.6 Frontier Economics has found no evidence to support a decrease from the existing estimate for the total market return,²⁵ having followed the methodology employed by the CMA.
- 4.7 There is no reason to depart from the CMA's methodology, and there is no justification to consider a total market return lower than 6.5% in the UR's Final Determination.

²¹ DD, 12.19.

²² DD, 12.21.

²³ As the CMA succeeded the CC, for convenience NIE Networks simply refers to the CMA, rather than the CC (which made the determination in RP5), here and throughout.

²⁴ DD, 12.21.

²⁵ Frontier Economics TMR Report, section 3.1.

5. COST OF EQUITY: ASSET BETA AND DEBT BETA

The UR's decision and the issue

- 5.1 The asset beta and debt beta are two components of the cost of equity to be determined before applying the level of gearing to calculate the overall cost of equity as a component of the WACC.
- 5.2 The UR has provisionally determined an asset beta of 0.38 for NIE Networks,²⁶ notably at the bottom of its range. However, for the reasons outlined in the Frontier Economics Response to RP6 DD Report, the UR's approach to determining beta is flawed and inconsistent with its approach to other parameters for WACC. The UR's advisers, First Economics, have assumed a debt beta of 0.1²⁷ which the UR has applied in its DD, but this is inconsistent with the UR's own approach to gearing and notably serves unjustifiably to lower the WACC.
- 5.3 NIE Networks submits that the asset beta should be set at 0.44, with a debt beta of 0.05, for the reasons outlined in the Frontier Economics Response to RP6 DD Report.²⁸
- 5.4 The combined impact of the UR setting the asset beta at 0.38 and the debt beta at 0.1, compared with the appropriate values set out above, is a reduction in revenue to NIE Networks of around **£8.7 million** permissible revenue on average per annum.

The asset beta is inconsistent with precedent, latest empirical market evidence, and unjustifiably set at the bottom of the UR's range

- 5.5 The Frontier Economics Response to RP6 DD Report responds to the UR's approach to setting the asset beta.²⁹ The key points are as follows.
- 5.6 In determining the asset beta component of the cost of equity for NIE Networks, the UR has sought to establish a range based on the asset betas determined by other regulators. The asset betas, as presented in Table 56 of the DD, are not correctly interpreted by the UR (for example Ofgem did not publish its asset beta estimate for RIIO-ED1) nor are they internally comparable (NIE Networks' asset beta as determined by the CMA for RP5 was set along with a debt beta of 0.05 whilst a debt beta of 0.1 is applicable to the other asset beta estimates presented. Assuming a debt beta of 0.1, NIE Networks' asset beta would be comparable at 0.425 and not 0.40 as listed in Table 56 of the DD).
- 5.7 As the asset beta is a measure of a firm's risk relative to the market as a whole, in setting an asset beta of 0.38 for NIE Networks the UR has concluded that the risk profile of NIE Networks does not differ materially from that of the GB DNOs, and that, therefore, the asset beta applied by Ofgem in its most recent price control for

²⁶ DD, 12.22-12.28.

²⁷ Report included with the DD as Annex J: First Economics, 'An Estimate of NIE's RP6 Cost of Capital: Prepared for the Utility Regulator', 1 February 2017 ("**DD Annex J**"), section 3.1 (p.3).

²⁸ Frontier Economics Response to RP6 DD Report, section 5.2.3 (p.26).

²⁹ Frontier Economics Response to RP6 DD Report, section 5.2.2 (p.19).

the GB electricity DNOs (RIIO-ED1) is appropriate for NIE Networks also.³⁰ NIE Networks notes that similar arguments were made by the UR to the CMA in RP5 yet the CMA determined that NIE Networks' asset beta should sit at the top of its range owing to a less well established regulatory regime in NI as considered by the credit rating agency, Moody's.³¹ Moody's restated this view in respect of the NI regulatory regime as recently as May 2017 in its credit opinion for Phoenix Natural Gas Finance Limited.³²

- 5.8 NIE Networks met with the UR on 24 November 2016 where the UR indicated its intention to set an asset beta of 0.38. NIE Networks outlined its concerns with the UR's approach at a high level in its letter of 21 December 2016,³³ and further provided additional supporting evidence in a report from Frontier Economics on 1 February 2017.³⁴
- 5.9 As outlined previously to the UR, NIE Networks continues to see no reason to depart from the methodology used by the CMA at RP5 in setting the asset beta. An approach which uses up-to-date empirical estimates of the asset beta applying the CMA methodology provides accuracy and avoids the errors outlined above in interpreting precedent and using information that is not up-to-date. Using the CMA methodology NIE Networks has already provided evidence in support of its asset beta of 0.44 in its report from Frontier Economics and submits that the UR should reconsider this evidence.

The debt beta is inconsistent with both precedent and the level of gearing, and unjustifiably set to lower the cost of equity and WACC

- 5.10 In determining an appropriate debt beta for NIE Networks, the UR's advisers, First Economics, assume 0.1, stating that this is "...*(a value that economic regulators have commonly used in reviews of companies with approximately the same gearing as we identified in section 4)*".³⁵ The UR has determined NIE Networks' level of gearing for RP6 at 45%, however section 4 of First Economics' report lists the closest level of gearing to that assumed for NIE Networks at 55% with the gearing levels applied by Ofgem and Ofgem at 62.5% and 65% respectively. Gearing at a level at least 10% higher than that assumed for NIE Networks cannot be considered to be "*approximately*" the same.
- 5.11 The UR's approach is also inconsistent with CMA precedent whereby the CMA at RP5 clearly indicated that at 45% gearing a debt beta of 0.05 is appropriate having

³⁰ DD, 12.27-12.28.

³¹ CMA, 'Northern Ireland Electricity Limited price determination – A reference under Article 15 of the Electricity (Northern Ireland) Order 1992 – Final determination', 26 March 2014 (https://assets.digital.cabinet-office.gov.uk/media/535a5768ed915d0fdb000003/NIE_Final_determination.pdf) ("CMA RP5 Determination"), 13.181.

³² Moody's Investors Service, 'Issuer Comment – Phoenix Natural Gas Finance PLC – Update following outlook change to stable from negative and rating affirmation', 9 May 2017.

³³ Letter from NIE Networks () to the UR (), 'RP6 Key Concerns: WACC and Financeability', 20 December 2016 ("**NIE December 2016 WACC and Financeability Letter**").

³⁴ Frontier Economics, 'Additional evidence on specific aspects of NIE Networks' WACC and financeability – A report prepared for NIE Networks' RP6 price control', 31 January 2017 ("**Frontier Economics January 2017 WACC and Financeability Report**").

³⁵ DD Annex J, section 3.1 (p.3).

revised its debt beta from 0.1 with gearing at 50% between its provisional determination and final determination.³⁶

Conclusion

- 5.12 In provisionally setting the asset beta in its DD, the UR has failed to take account of relevant considerations, such as the CMA methodology on asset beta. It has also failed to take account of relevant evidence provided to it, including the application of the latest market information applied to the CMA methodology. The UR has also made an error in comparing asset betas which have been converted with different levels of assumed debt betas. Finally, its approach to the debt beta is inconsistent with its own conclusions on gearing and disregards CMA precedent.
- 5.13 The UR should set the asset beta at a level of 0.44, consistent with the application of the CMA's methodology in RP5 updated with the latest market data; and it should set the debt beta consistent with the level of gearing.

6. COST OF DEBT: TRANSACTION COSTS

The UR's decision and the issue

- 6.1 As a component of the cost of debt, the UR has allowed NIE Networks 20 basis points ("**bps**") for transaction costs on both embedded (i.e. existing) debt and new debt to be entered into during RP6.³⁷

Embedded debt: evidence provided supporting 30 bps has been ignored

- 6.2 The UR states that these transaction costs have been allowed "*to cover fees that the company incurred when entering into its borrowing arrangements*".³⁸
- 6.3 On 1 February 2017 NIE Networks sent a report to the UR from NIE Networks' advisers, Frontier Economics, which provided additional supporting evidence in respect of its submission on WACC. Section 3 of this report included evidence of the costs incurred by NIE Networks, which amounted to 30 bps at its last bond raising exercise, and not 20 bps as inferred by the UR.

New debt: evidence provided supporting 30 bps has been ignored and the UR's approach is inconsistent with its own precedent

- 6.4 The UR has also provisionally allowed 20 bps for transaction costs in respect of new borrowings in RP6.³⁹
- 6.5 The DD does not explicitly explain why the same transaction costs are permitted for new debt, but the reasoning is set out in the UR's earlier decision for GD17

³⁶ CMA RP5 Determination, 13.175(c).

³⁷ DD, 12.35-12.36.

³⁸ DD, 12.35.

³⁹ DD, 12.36

("UR GD17 Determination").⁴⁰ In that decision, the UR explained that transaction costs were allowed *"in line with the costs incurred in the companies' last debt-raising exercises"*,⁴¹ notably at 30 bps to 60 bps.

- 6.6 Consistent with that precedent, given the transaction costs incurred by NIE Networks previously were 30 bps as outlined at paragraph 6.3 above, the transaction costs for new debt should also be set at 30 bps.

Conclusion

- 6.7 In setting an allowance for transaction costs at 20 bps the UR has ignored the evidence presented by NIE Networks supporting 30 bps for such costs in respect of both embedded and new debt, and it has acted inconsistently with its own precedent (GD17 allowed 30-60 bps) without providing evidence to justify its chosen level. An allowance at the UR's proposed level would provide inadequate recovery of these costs for NIE Networks as these efficiently incurred costs cannot be recovered by any other means within the price control.
- 6.8 The impact of the UR setting transaction costs at 10 bps below the level of costs evidenced by NIE Networks would reduce NIE Networks' permissible revenue by **£0.8 million** per annum on average.
- 6.9 NIE Networks submits that the UR should fully consider the evidence presented regarding transaction costs and, in line with its own precedent for GD17, allow 30 bps for such costs.

7. COST OF DEBT: ILLIQUIDITY PREMIUM

The UR's decision and the issue

- 7.1 The UR has not included an illiquidity premium component for the cost of debt.⁴²
- 7.2 NIE Networks considers that the UR has wrongly rejected the evidence provided by NIE Networks of the necessity for an illiquidity premium, and in doing so, the UR has acted inconsistently with its own precedent for GD17.

Illiquidity premium rejected by the UR inconsistent with evidence provided and the UR's own precedent

- 7.3 In September 2016 the UR determined an illiquidity premium of 40 bps for new debt in its decision on the most recent price control (GD17) for Phoenix Natural Gas ("**PNG**"), stating that this was to reflect *"possible illiquidity of their bonds as compared to more actively traded GB utility debt."*⁴³ Accordingly, following that decision, NIE Networks subsequently requested an illiquidity premium of 40 bps in

⁴⁰ UR, 'Price Control for Northern Ireland's Gas Distribution Networks – GD17 – Final Determination', 15 September 2016 (https://www.uregni.gov.uk/sites/uregni.gov.uk/files/media-files/2016-09-15_GD17_Final_Determination_-_final_0.pdf) ("**UR GD17 Determination**").

⁴¹ UR GD17 Determination, 10.49.

⁴² DD, footnote 79.

⁴³ UR GD17 Determination, 10.49.

line with this UR precedent, on the basis of the provision of supplementary evidence of the existence of illiquidity in respect of NIE Networks' bonds.

- 7.4 That evidence was set out on behalf of NIE Networks in the Frontier Economics January 2017 WACC and Financeability Report, which provided additional supporting evidence in respect of NIE Networks' submission on WACC. Section 4 of this report provided evidence of illiquidity in NIE Networks' existing 2018 bonds compared to those of PNG, and in its 2026 bonds compared to GB utility bonds.
- 7.5 The UR has provisionally rejected NIE Networks' evidence despite this evidence demonstrating that its bonds are at least as illiquid as those of PNG (2018 bond) and more actively traded GB utility debt (2026 bond).⁴⁴
- 7.6 In not allowing an illiquidity premium of 40 bps, NIE Networks' reduction in permissible revenue per annum would total **£1.8 million on average**.
- 7.7 NIE Networks submits that the UR should re-consider NIE Networks' evidence in light of the UR's precedent for GD17.

8. **COST OF DEBT: RATIO OF EMBEDDED DEBT TO NEW DEBT**

The UR's decision and the issue

- 8.1 In setting an overall cost of debt for NIE Networks the UR is required to consider how much weighting should be given to existing debt as distinct from new debt that the company may enter into during RP6, i.e. embedded:new debt ratio.
- 8.2 The UR in the DD has made an error in determining the embedded:new debt ratio as it has determined this ratio inconsistently with its chosen level of gearing of 45%. NIE Networks fundamentally disagrees with this chosen level of gearing as outlined in Section 3 of this Chapter.

Embedded:new debt ratio inconsistent with the gearing level

- 8.3 In the DD the UR has applied the 4:5 ratio identified by NIE Networks in its submission i.e. £400 million existing debt:£500 million new debt.⁴⁵
- 8.4 The £500 million of new debt identified by NIE Networks implied a gearing level of 50% for RP6. However, in error, the UR has inconsistently determined the level of gearing at 45%⁴⁶ whilst adopting NIE Networks' ratio for the mix of embedded and new debt underpinning 50% gearing.
- 8.5 NIE Networks has recalculated that the level of new debt implied by the UR's determined level of gearing of 45% is approximately £400 million.⁴⁷ This ratio can be expressed as 400:400 or 1:1.

⁴⁴ DD, footnote 79.

⁴⁵ DD, 12.37 and Table 58.

⁴⁶ DD, 12.54.

⁴⁷ Difference in Net debt at 31 March 2024 between DD Annex L, Financeability worksheet with 45% gearing (£858 million), nominal prices and 50% gearing (£953 million), nominal prices.

- 8.6 Applying the corrected ratio to the cost of embedded and new debt in Table 58 of the DD results in a weighted average cost of debt of 5.28%. This is illustrated in Table 12.1 below.

Table 12.1: Recalculation of weighted average cost of debt

	Embedded debt	New debt	Revised weighted average cost of debt
Cost of debt – DD, Table 58	6.60%	3.95%	
Ratio embedded:new – 1:1	3.30%	1.98%	5.28%

- 8.7 The nominal cost of debt in Table 12.1 above is converted to a real cost of debt applying the projected rate of inflation per the DD of 3.20%⁴⁸ to give a real cost of debt of 2.01%. This has the effect of increasing the overall rate of return in Table 60 of the DD from 3.29% to 3.35% as corrected.
- 8.8 This correction to the overall rate of return has the effect of increasing NIE Networks' permissible revenue by £1.2 million per annum on average.
- 8.9 The UR states in the DD that these weightings may need to be revised in the Final Determination to reflect the final projections for capital expenditure.⁴⁹ In any revision at Final Determination NIE Networks would expect these weightings to be informed by, and consistent with, the level of gearing determined by the UR.

9. COST OF DEBT: RATE OF RETURN ADJUSTMENT MECHANISM FOR COST OF NEW DEBT

The UR's decision and the issue

- 9.1 The UR considers that a mechanism should be included to provide for the allowed rate of return to adjust up or down with prevailing interest rates⁵⁰ and NIE Networks is supportive of this approach in principle.
- 9.2 In proposing a design for that mechanism, the UR has provisionally concluded that the mechanism should be aligned with its approach in an earlier decision,⁵¹ namely the GD17 review of gas distribution price controls (although it notes that it will need to consider the precise implementation further before publishing its Final Determination)⁵².
- 9.3 However the UR has in fact already made two changes to the mechanism compared to GD17, first in adopting one change proposed by NIE Networks to reference the iBoxx A and BBB indices, and, second in changing the method of

⁴⁸ DD, 12.39.

⁴⁹ DD, 12.37

⁵⁰ DD, 12.7.

⁵¹ DD, 12.8-12.9; see also Annex H to the DD, 'Rate of Return Adjustment Mechanism' ("DD Annex H") which sets out the proposed design.

⁵² DD, 12.9.

true-up to occur in period. The UR has, however, failed to implement two important adaptations to the GD17 mechanism which were proposed by NIE Networks, without any proper basis for doing so.

Unjustified rejection of proposed adaptations to the adjustment mechanism

Initial proposal to include an adjustment mechanism

- 9.4 In NIE Networks' meeting with the UR on 24 November 2016 and its subsequent letter to the UR on 21 December 2016,⁵³ NIE Networks outlined its view that, given the impact of prevailing market uncertainty on setting a forward rate for the cost of new debt, an appropriate market-reflective rate of return adjustment mechanism for NIE Networks would provide an alternative to setting an ex-ante allowance for the cost of new debt.

The proposed adaptations to the GD17 mechanism

- 9.5 On 1 February 2017 NIE Networks submitted additional evidence in the Frontier Economics January 2017 WACC and Financeability Report, detailing proposed adjustments to the mechanism designed at GD17. Section 6.3 of that report proposed three adaptations to the GD17 mechanism as follows along with the rationale for each:
1. Removal of the 80:20 sharing mechanism.
 2. For true-up, the mechanism should reference the indices consistent with the target credit rating for financeability i.e. A and BBB indices.
 3. Shorten the averaging window to +/- 10 days either side of the debt issue date.
- 9.6 In paragraph 12.8 of the DD the UR acknowledges that "*NIE suggested a number of possible ways in which the GD17 mechanism could be improved.*" However the UR then cite a desire to "*aid outsiders' understanding of the regulatory regime in Northern Ireland*"⁵⁴ by applying a common design across price controls as the reason for not accepting these adaptations.
- 9.7 However, notwithstanding this, the UR has already made two adaptations to the mechanism for RP6 compared to that determined for GD17. Accordingly, these mechanisms are not identical across sectors in any event. The UR has accepted adaptation 2 above,⁵⁵ as this is now a feature of the mechanism for RP6. In addition, Annex H to the DD outlines a method of true-up during RP6 after the debt has been raised,⁵⁶ as distinct from at the beginning of the next price control period as is the case with the GD17 mechanism.

⁵³ NIE December 2016 WACC and Financeability Letter.

⁵⁴ DD, 12.8; also DD Annex H, 1.6.

⁵⁵ Outlined at DD, 12.36 (first bullet).

⁵⁶ DD Annex H, 1.12.

- 9.8 The UR's reason for rejecting NIE Networks' adaptations 1 and 3 as stated in paragraph 12.8 of the DD is wholly inconsistent with, and unsupported by, the fact that it has proposed a mechanism for RP6 that already differs to that determined for GD17.
- 9.9 It is not a reasonable approach to disregard improvements for customers and NIE Networks simply in the interests of aiding an understanding of the regulatory regime by not improving on established precedent. Rather, where improvements are highlighted these should be given due consideration and adaptations made where warranted from price control to price control. To do otherwise would undermine the effectiveness of regulation.
- 9.10 NIE Networks notes that, as explained in Section 2 above, if the Final Determination retains the same target credit rating as the DD for assessing financeability, then adaptation 2 should not be adopted in isolation but rather the referenced index should be consistent with the target credit rating.

Conclusion

- 9.11 These adaptations were not proposed by NIE Networks to allow a higher cost of debt for NIE Networks. Rather, they are justified improvements over the GD17 mechanism, being more reflective of market movements and minimising forecast error (set out further in the Frontier Economics January 2017 WACC and Financeability Report). The UR should therefore apply adaptations 1 and 3 set out above in its Final Determination.

10. FINANCEABILITY AND WACC – CHAPTER CONCLUSION

- 10.1 The UR's financeability assessment is fundamentally flawed as it simply circumvents rather than addresses the issue of its failed financeability test.
- 10.2 Additionally, the UR's approach to the estimation of WACC is wholly inadequate, falling well short of best practice and ultimately resulting in a significant underestimate of WACC for RP6.
- 10.3 Table 12.2 below summarises the issues presented in this Chapter in respect of financeability and WACC along with the required remedies (in summary form) for the Final Determination.

Table 12.2: Summary

Issue	Exhibited in (paragraph reference)	Remedy for Final Determination
Factual errors	Invalid comparison of asset beta to GB electricity DNOs in regulatory decisions presented (5.6-5.7)	Present asset beta consistent with CMA RP5 precedent
	Credit metrics consistent with lower rating than UR stated target (2.8-2.9)	Adjust target metrics to achieve A-/BBB+ credit rating
Lack of robust analysis	Asset beta – not consistent with CMA RP5 precedent and not supported by up-to-date empirical analysis (5.6-5.9)	Set asset beta consistent with CMA precedent for RP5 and based on up-to-date empirical analysis (include SSE in data set)
	Gearing – referenced only to CMA decision which is misinterpreted (3.2-3.4)	Set gearing level informed by evidence presented
	Transaction costs – no justification for 20 basis points (6.3-6.6)	Set transaction costs at 30 basis points informed by evidence presented
Lack of internal consistency	Gearing of 45% yet: 50% existing:new debt (8.4) and debt beta based on 50% (5.10-5.11)	Set debt beta and new debt parameters within WACC consistent with the level of gearing
	Gearing level below range of Ofgem and Ofwat regulatory precedent and CMA's methodology for RP5 to satisfy financeability test (3.2-3.5)	Apply determined level of gearing consistently with CMA RP5 precedent when modelling financeability
	New debt referenced to A-/BBB+ rating yet metrics target below this rating (2.8-2.11)	Adjust target metrics to achieve A-/BBB+ rating and set cost of debt by reference accordingly
Lack of consistency with relevant regulatory precedent	Asset beta – point estimate at bottom of range (5.7), not consistent with CMA RP5 precedent and not supported by up-to-date empirical analysis (5.6-5.9)	Set asset beta consistent with CMA RP5 precedent

Issue	Exhibited in (paragraph reference)	Remedy for Final Determination
	Gearing – carry-over assumption from RP5 used to set gearing and gearing lowered to satisfy financeability test (3.2-3.6)	Set gearing level informed by CMA RP5 precedent correctly interpreted and consistently applied
	Illiquidity premium – no premium allowed inconsistent with GD17 (7.3-7.6)	Allow premium in line with UR precedent for GD17
Use of selective evidence and cherry picking	Choice of precedent and data for update deriving lowest WACC e.g. cost of new debt and inflation updated yet asset beta is not for GB DNOs (3.2-3.4, 5.6-5.9)	Use latest available data and apply relevant precedent consistently
	Cost of new debt – accept NIE Networks existing: new ratio (8.3-8.4) and only one of three adaptations proposed by NIE Networks on cost of debt mechanism (9.7-9.8)	Accept NIE Networks' proposals for the benefit of customers and NIE Networks

NIE Networks RP6 Business Plan 2017-2024

Response to the Utility Regulator's Draft Determination

Annexes to Response



19 May 2017

ANNEX A3.1

DIRECT CAPEX

ANNEX 3.1

DIRECT CAPEX

1. INTRODUCTION

- 1.1 Direct capex includes replacement of end-of-life assets on the network, caters for load growth, investing to comply with safety legislation, low carbon technology growth, and innovation. This work is required to ensure that NIE Networks can deliver a safe, reliable and efficient service to customers in accordance with statutory requirements and its licence obligations.
- 1.2 In general, there has been constructive engagement between the UR and NIE Networks in relation to direct capex, with the DD recognising the need for significant on-going investment, including in relation to new cost categories.
- 1.3 However, there are gaps between the allowances proposed by the UR in the DD and the allowances sought by NIE Networks for certain categories of work. These were summarised in Chapter 3 of this Response and are detailed further in this Annex. It is essential that the UR corrects these errors and sets appropriate allowances in the Final Determination.
- 1.4 This Annex sets out the specific errors in the UR's approach grouped by the nature of the error as follows:
 - Section 2 – Failure to take account of the nature and scope of the work;
 - Section 3 – Failure to have regard to the latest available RP5 outturn data;
 - Section 4 – Proposed allowance based on inappropriate data source;
 - Section 5 – Errors related to distribution ESQCR;
 - Section 6 – Errors relating to allowances for distribution network reinforcement;
 - Section 7 – Errors in setting the Severe Weather allowance;
 - Section 8 – Issues relating to the structure of the price control; and
 - Section 9 – Other issues raised by the DD.

2. FAILURE TO TAKE ACCOUNT OF THE NATURE AND SCOPE OF THE WORK

D10 – Undereaves

Introduction

- 2.1 As explained in NIE Networks' Investment Plan dated 29 June 2016 (the "**Network Investment Plan**"),¹ NIE Networks requires an allowance for replacement of undereaves wiring, in particular for replacement of PolyButylJute ("**PBJ**") insulated wiring and to begin a programme of replacement of PolyVinylChloride ("**PVC**") insulated wiring during RP6. Such investment is necessary to remove the hazards associated with end-of-life undereave wiring and to ensure that NIE Networks remains compliant with safety legislation.
- 2.2 NIE Networks proposed a unit cost of £513 per property.
- 2.3 In the DD, the UR has proposed to allow a lower average unit cost of £408 per property for RP6 based on actual outturn unit costs for the first four years of RP5.²

The UR's approach

- 2.4 In justifying its proposed unit cost in the DD the UR has stated that

*"At a pre-DD engagement NIE Networks explained that the unit rate will increase during the later stages of RP5 due to sparsity of works caused by the advanced nature of the undereaves replacement programme. We were not convinced by this argument given the proposed continued run-rate of 3000 properties during RP6."*³

The errors in the UR's approach

- 2.5 The proposed uplift to the average unit cost required for RP6 as compared to that presented by the UR in the DD is driven by a change in scope and nature of works from RP5 to RP6. Undereaves replacement over RP4 and RP5 has focused on the removal of PBJ insulated conductors only from the network and as these schemes have now largely been delivered, the average number of properties per scheme has decreased (see Graph A3.1 below) resulting in costs rising as the result of sparsity of works. NIE Networks proposes to conclude the remaining PBJ insulated conductor replacement scheme and to start PVC replacement during RP6.
- 2.6 In disregarding NIE Networks' argument, the UR has failed to appreciate that the scope and nature of work to be undertaken in RP6 differs from that in RP4 and RP5 and comprises of 1,538 PBJ properties per annum (a significant ramping down of like-for-like property types, representing approximately half of the RP5 run rate) with the remainder being a new category of single PVC insulated wired properties (being approximately half of the RP6 work programme).

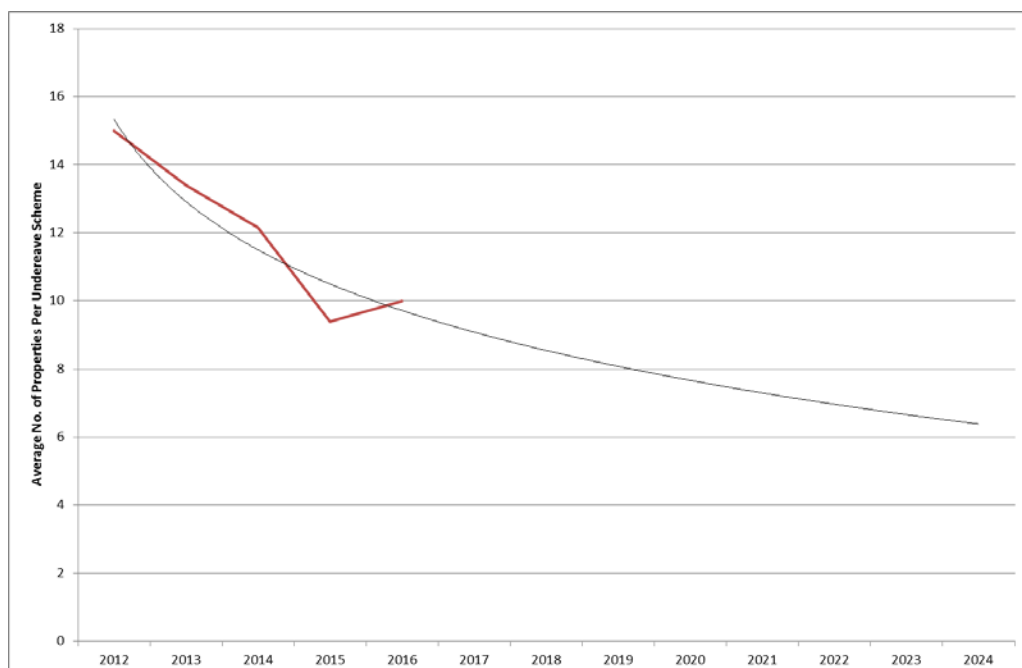
¹ 811.

² DD, Annex O (Network Investment Direct Allowances) ("**Annex O**"), 2.114 and Table 2.17.

³ Annex O, 2.114.

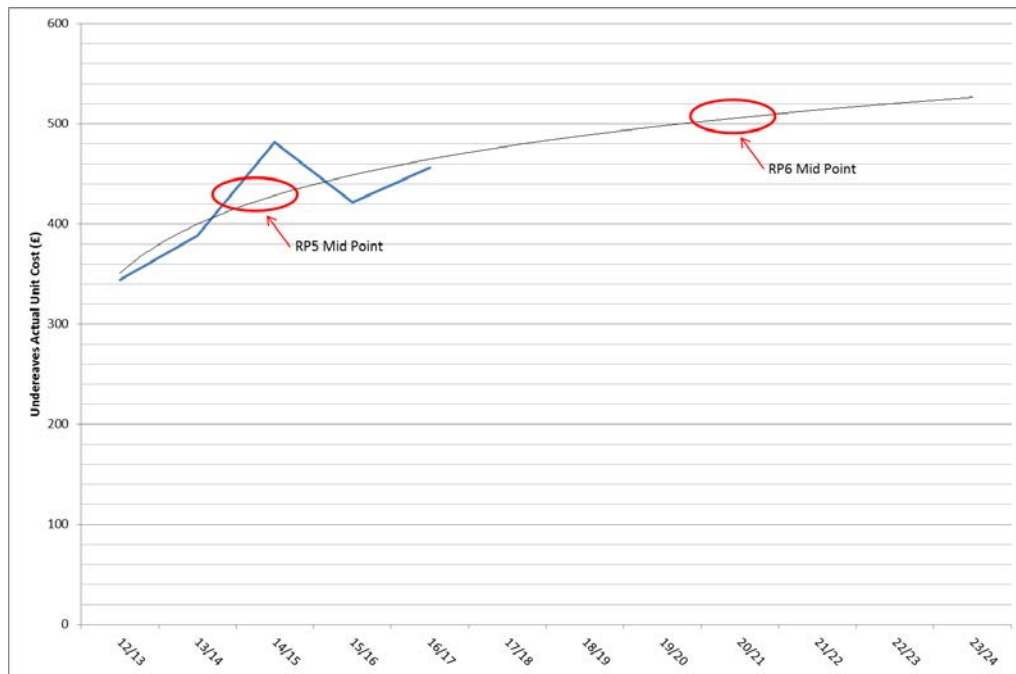
- 2.7 As NIE Networks progresses through the PBJ replacement programme, the economies of scale will diminish as the larger housing estates being addressed in RP5 will be largely completed and it will be necessary in RP6 to progress smaller developments each with fewer volumes of dwellings. This means that amongst other things, travel times, set up times and scaffolding costs are all set to increase on a per property basis between RP5 and RP6, with fewer properties delivered at each circuit outage. Therefore, although the overall property run rate will be consistent throughout RP5 and RP6, there will be an increase in the number of outages and schemes associated with the RP6 programme (i.e. fewer properties will be delivered per scheme requiring a higher number of schemes to deliver the same number of properties). It is therefore incorrect to conclude that the sparsity driver has no bearing on unit costs for the remaining undereaves properties programme on the observation that the number of properties addressed annually during RP6 is the similar to RP5.
- 2.8 NIE Networks submits that it would be an error for the UR to disregard the change of scope and nature of the works from higher density housing to lower density housing and the associated unit cost impact. Evidence of this can be found in Graph A3.1 below, which shows a clear downward trend in the number of properties addressed per scheme. The data for this graph was produced by analysing survey records for the past five years. The redline plots the average number of properties per scheme averaged for the first five years of RP5, and the grey line plots NIE Networks' forward looking forecast.

Graph A3.1: Undereaves Properties Per Scheme Trend Projected Into RP6



- 2.9 There is a difficulty in accurately estimating the precise financial impact this will have on the unit cost, however, based on its expert engineering judgment following an analysis of its trend forecast, NIE Networks considers that an uplift to the existing RP5 forecast unit cost of 20% is justified as set out in Graph A3.2 below.

Graph A3.2: Undereaves Unit Cost Trend Projected Into RP6



- 2.10 Graph A3.2 above has trended the unit cost of delivery during the first five years of RP5. The RP5 trend demonstrates clearly that the unit cost is increasing as the larger housing clusters are completed leaving the smaller clusters (as illustrated in Graph A3.1) to be addressed. It has been NIE Networks' approach to prioritise the larger cluster sites during RP5 leaving smaller ones and single dwellings until RP6 as the most efficient way of reducing the risk associated with undereaves wiring. Extrapolating the unit cost trend, using a logarithmic trend line to reflect costs will start to level out during the RP6 period, would support a calculated cost of £513 as submitted by NIE Networks (the RP6 mid-point is in the region of £500 - £520 as compared to the RP5 mid-point which is in the region of £420 - £440, which accords with the current RP5 actual observed in the outturn data).
- 2.11 Analysis of the actual unit cost of undereaves replacement up to the end of March 2017 (five years of RP5 as opposed to four years used by the UR in the DD) illustrates this upward trend over time. Whilst NIE Networks has incurred an average unit cost of £419 per property over the first five years of RP5, the 2016/17 unit cost is approximately £460 per property, which is in itself is higher than the proposed allowance set out in the DD. Cognisance should be taken of the fact that the unit cost trend for these activities continues to rise into and throughout RP6.

NIE Networks' requested allowance

- 2.12 In light of the above, NIE Networks requests that the UR adjusts the allowance in its DD to take account of the additional costs that NIE Networks will incur in delivering the RP6 undereaves wiring replacement programme and to grant the requested unit cost of £513 per property, as submitted in its Investment Plan and demonstrated above to be reasonable.
- 2.13 The errors of the UR in arriving at its proposed unit cost for undereaves in its DD, as outlined above, would have the effect of disallowing £2.05 million investment required by NIE Networks to replace end-of-life undereaves wiring during the RP6 period.
- 2.14 Such a significant disallowance would put NIE Networks in a position where it is unable to properly finance the anticipated volume of undereave cables replacements through its regulated revenue.

D7 – 33 kV overhead line refurbishment

Introduction

- 2.15 NIE Networks requires an allowance to fund refurbishment of 33 kV overhead line ("OHL") networks, in particular replacement of decayed wooden poles and components no longer fit for service, due to age-related deterioration and condition.
- 2.16 NIE Networks submitted an average unit cost for RP6 33 kV OHL refurbishment of £1.63k per km. This figure was based on RP5 outturn costs, with an uplift to reflect additional costs that will be incurred in RP6. As explained in NIE Networks' response to the UR Query URQ093⁴, the proposed uplift to the average unit cost required for RP6 is driven by the introduction of climbing inspections and associated remedial works to the 33 kV refurbishment specification, applicable from Q4 2015, at an incremental estimated cost of £125 per km consistent with the specification operated by distribution network operators in GB. At the time of preparing its Business Plan submission, NIE Networks did not have outturn data covering this late stage of RP5 and therefore these additional works are not reflected in those outturn costs.
- 2.17 This additional specification item is required to mitigate the health and safety risks associated with pole top decay. NIE Networks has a statutory duty to provide a safe, reliable and efficient network.⁵ In particular, NIE Networks is subject to a duty to ensure the network is safe both for staff working on the overhead line network and for customers living near or connected to the overhead line network. This additional refurbishment work is required to comply with that duty.

⁴ Response to the UR Query 093 sent 25 October 2016.

⁵ Electricity (NI) Order 1992, section 12.

- 2.18 In its DD, the UR proposed a reduced allowance of circa £1.50k per km for this work based on forecast RP5 outturn costs presented in Q2 2016 in NIE Networks' 5.5 year latest business estimate ("**LBE**") for RP5.⁶

The UR's approach

- 2.19 The UR stated in its DD that:

*"additional inspections may be beneficial but, in our opinion, they should be self-funded through efficiency savings gained during the refurbishment process and the reduction of remedial and/or fault costs. NIE Networks have not demonstrated where the reduction in overall costs due to this increased inspection will be realised for customers."*⁷

The errors in the UR's approach

- 2.20 The UR has accepted NIE Networks' rationale that these inspections will be beneficial,⁸ however, the UR asserts that NIE Networks should be able to fund this additional work through efficiencies gained in either refurbishment activity or in reduced remedial/fault costs.⁹ In the case of refurbishment, aside from the additional cost of the inspections themselves, any defective poles uncovered during inspection are required to be replaced. There would thus be no direct efficiency benefit from these costs. In the case of fault/remedial costs, efficiency benefits would be minimal on the basis that 33 kV pole failure rates are in any case low.
- 2.21 The main driver for this work is ensuring that any pole top decay (as opposed to base of pole decay) not previously identified is addressed, particularly on poles with pole top equipment such as switches where operator safety is paramount.
- 2.22 However, the UR has failed to appreciate that this additional inspection work supplements the existing inspection regime to enhance the safety inspection. NIE Networks' requested allowance also includes resultant pole replacement where pole top decay is found. The UR has not reflected the costs of this activity in the DD. The result of this is that the DD does not provide any allowance for NIE Networks to carry out pole replacement for pole top decay.
- 2.23 In any event, actual outturn data for the first years of RP5 up to the end of March 2017, which includes the actual cost of this refurbishment activity, demonstrates that NIE Networks has incurred an average unit cost of £1.67k per km and work is forecast to continue at this rate or higher for the remainder of RP5. This unit rate of £1.67k per km includes the additional pole top inspections and associated pole replacements since Q4 2015. As noted above, data concerning the actual costs of this work was not available to NIE Networks when making its Business Plan submission in June 2016, and therefore it had to forecast accordingly.

⁶ Annex O, Table 2.13.

⁷ Annex O, 2.89 ii.

⁸ Annex O, 2.89 ii.

⁹ Annex O, 2.89 ii.

- 2.24 Further, requiring NIE Networks to fund this work from the efficiencies that may result from its implementation double counts the efficiency savings and is inconsistent with the general efficiency target levied against the NIE Networks Network Investment Plan.
- 2.25 Therefore, as the UR used the then available outturn unit rate as the basis of setting allowances for this category in the DD, and in view of the up to date average outturn unit cost for RP5 (which includes actual costs of these work items) supporting a unit cost of £1.67k per km, NIE Networks considers that its submitted unit rate for RP6 of £1.63k per km is justified by the available data and is demonstrably efficient and should be allowed in full.

NIE Networks' requested allowance

- 2.26 NIE Networks therefore submits that in the Final Determination the UR should adopt an allowance for this work of £1.63k per km, which is supported by the latest RP5 outturn data. In assessing this allowance, the UR should have account of the mandatory health and safety element of this work item.
- 2.27 Should the UR instead continue to adopt the position it has adopted in the DD, which does not provide any allowance for the inclusion of pole top inspections and associated pole replacements on the 33 kV OHL refurbishment programme, the UR would be failing to ensure that NIE Networks is sufficiently financed to conduct its regulated activities and importantly to meet statutory requirements. Omitting allowances for this activity from the scope of work would represent a disallowance of £114k and would prejudice NIE Networks' ability to protect its staff and the public from the dangers of the distribution of electricity.

D8 – 11 kV OHL refurbishment

Introduction

- 2.28 NIE Networks requires an allowance to fund refurbishment of 11 kV OHL networks, in particular replacement of decayed wooden poles and earthing components no longer fit for service, due to age and condition.
- 2.29 NIE Networks originally submitted a unit cost for such refurbishment work of £1.89k per km. This figure was based on RP5 outturn costs, with an uplift to reflect additional costs that will be incurred in RP6. As explained in NIE Networks' response to the UR Query URQ093,¹⁰ the proposed uplift to the average unit cost required for RP6 is driven by the introduction of climbing inspections and associated remedial works and also earth testing plus associated remedial works to the 11 kV refurbishment specification, applicable from Q4 2015, at an incremental estimated cost of £181 per km. At the time of preparing its Business Plan submission, NIE Networks did not have outturn data covering this later stage

¹⁰ Response to the UR Query 093 sent 25 October 2016.

of RP5, and therefore these additional works are not reflected in those outturn costs.

- 2.30 These additional specification items are required to mitigate the health and safety risks associated with pole top decay and inadequate earthing. NIE Networks has a duty to provide a safe, reliable and efficient network. In particular, as noted at 2.17 above, NIE Networks is subject to a duty to ensure that the network is safe both for staff working on the overhead line network and for customers living near or connected to the overhead line network. This additional refurbishment work is required to comply with that duty.
- 2.31 In its DD, the UR has proposed to reduce the submitted average unit cost for RP6 11 kV OHL Refurbishment to circa £1.71k per km, based on forecast RP5 outturn costs presented in Q2 2016 in NIE Networks' 5.5 year LBE for RP5.¹¹

The UR's approach

- 2.32 The UR stated in its DD that:

"NIE Networks state that this is due to an additional £181/km for climbing patrols to check for pole top rot. As with the 33 kV refurbishment we do not consider this a justifiable additional cost as NIE Networks have not demonstrated where the cost savings of this additional investment will be seen by customers. We therefore propose a unit cost based on RP5 forecast outturn".¹²

- 2.33 Therefore, as with 33 kV refurbishment, as outlined at 2.15 - 2.27 above, the UR states that:

"additional inspections may be beneficial but, in our opinion, they should be self-funded through efficiency savings gained during the refurbishment process and the reduction of remedial and/or fault costs". NIE Networks has not demonstrated where the reduction in overall costs due to this increased inspection will be realised for customers".¹³

The errors in the UR's approach

- 2.34 The UR has accepted NIE Networks' rationale that these additional items will be beneficial,¹⁴ however the UR asserts that NIE Networks should be able to fund this additional work through efficiencies gained in either refurbishment activity or in reduced remedial/fault costs. However, in the case of refurbishment, aside from the additional cost of the inspections themselves, any defective poles uncovered during inspection are required to be replaced. There would therefore be no direct efficiency benefit from these costs. In the case of fault/remedial costs, efficiency

¹¹ Annex O, 2.90 Table 2.13.

¹² Annex O, 2.90 ii).

¹³ Annex O, 2.89 ii).

¹⁴ Annex O, 2.89 ii and 2.90 ii).

benefits would be minimal on the basis that 11 kV pole failure rates are in any case low.

- 2.35 The main driver for this work is ensuring that any pole top decay (as opposed to base of pole decay) not previously identified is addressed, particularly on poles with pole top equipment such as switches where operator safety is paramount. In addition, at 11 kV the additional costs are to cover for checking the integrity of the transformer earthing and addressing issues found.
- 2.36 The UR has failed to appreciate that this additional inspection and earthing testing work is an addition to the existing refurbishment regime. NIE Networks' requested allowance includes resultant pole replacement where pole top decay is found and transformer earth modifications where earthing is found to be inadequate. The UR has not reflected the costs of these activities in the DD. The result is that the DD does not provide any allowance for NIE Networks to carry out pole replacement for pole top decay and transformer earth modifications where earthing is inadequate.
- 2.37 In any event, actual outturn data for the first five years of RP5 up to the end of March 2017, which includes the actual cost of this refurbishment activity, demonstrates that NIE Networks has incurred an average unit cost of £1.92k per km and work is forecast to continue at this rate or higher for the remainder of RP5. This unit rate of £1.92k per km includes the additional refurbishment items since Q4 2015. As noted above, data concerning the actual costs of this work was not available to NIE Networks when making its Business Plan submission in June 2016, and therefore it had to forecast accordingly.
- 2.38 Further, requiring NIE Networks to fund this work from the efficiencies that may result from its implementation double counts the efficiency savings and is inconsistent with the general efficiency target levied against the NIE Networks Network Investment Plan.
- 2.39 Therefore, as the UR used the then available outturn unit rate as the basis of setting allowances for this category in the DD, and in view of the up to date average outturn unit cost for RP5 (which includes actual costs of these work items) supporting a unit cost of £1.92k per km, NIE Networks considers that its submitted unit rate for RP6 of £1.89k per km is justified by the available data and is demonstrably efficient, and should be allowed in full.

NIE Networks' requested allowance

- 2.40 NIE Networks therefore submits that in the Final Determination the UR should adopt an allowance for this work of £1.89k per km, which is supported by latest RP5 outturn data. In assessing this allowance, the UR should take full account of the mandatory health and safety element of this work item.
- 2.41 Should the UR instead continue to adopt the position it has adopted in the DD, which does not provide any allowance for pole top inspections or transformer earth testing on the 11 kV OHL refurbishment programme, the UR would fail to ensure that NIE Networks is sufficiently financed to conduct its regulated activities and

importantly to meet statutory requirements. Omitting this activity from the scope of work would represent a disallowance of £1.1 million and would prejudice NIE Networks' ability to protect its staff and the public from the dangers of the distribution of electricity.

D11 – Cut-outs

Introduction

2.42 The Ofgem definition of a cut-out is as follows:

*"A cut out assembly is defined in BS 7657: 2010 as a combination of fuse-link(s), neutral terminal(s), earth terminal(s), combined neutral and earth terminal(s), ancillary terminal block(s), connecting units and anti-tamper facilities, as applicable, so as to provide facilities for terminating service cables and a means of protection, isolation, and earthing of electricity supplies to buildings. Outside of the RIGs cut outs are sometimes referred to as "service terminations"."*¹⁵

2.43 NIE Networks requires an investment allowance to proactively replace age-expired, overloaded and defective cut-outs during RP6. In-service failure of these poor-condition cut-outs can cause overheating, resulting in fire and posing significant risk to NIE Networks' customers and their property.

2.44 There are two types of cut-out replacement: 'simple' cut-out replacements, which are like-for-like replacements that can be replaced without changing the service cable; and 'complex' cut-out replacements which require partial replacement of the service cable.¹⁶

2.45 In its Network Investment Plan, NIE Networks requested an allowance of £3.3 million to conduct cut-out replacements during RP6.¹⁷ This was based on 9,455 simple replacements at £227 per unit and 945 complex replacements at circa £1.22k per unit.¹⁸

2.46 During the course of pre-DD engagement with the UR, NIE Networks revised its proposed unit costs for complex replacements to £888, to reflect additional RP5 outturn data.¹⁹ This resulted in proposed unit costs for simple and complex replacements of £227 and £888 respectively, and a total proposed allowance of circa £2.99 million.²⁰

¹⁵ Ofgem, RIIO-ED1 regulatory instructions and guidance: Annex A – Glossary v1.0, 18 June 2015.

¹⁶ Complex cut-outs are those located close to floor level such that they require the service cable to be part replaced to facilitate re-termination into the new cut-out. This involves digging up the service cable outside the property and installing a new length of cable and then making good the excavation.

¹⁷ 707-709.

¹⁸ 707-709.

¹⁹ UR Initial View on Network Direct Investment - NIE Networks Response post engagement and queries – Part 2 ("**NIE Networks Response post engagement and queries – Part 2**"), 2.3.

²⁰ NIE Networks Response post engagement and queries – Part 2, 2.3.

- 2.47 In the DD, the UR has proposed a single unit cost of £208 for all replacements equating to a total allowance of £2.16 million.²¹

The UR's approach

- 2.48 In the DD the UR has adopted a single unit cost allowance for all cut-out replacements by reference to "*the industry median unit cost determined by Ofgem for the GB DNOs*".²²

The errors in the UR's approach

The UR's approach in adopting a single unit cost for all replacements is flawed

- 2.49 NIE Networks has reviewed the Ofgem source data used to produce the median unit cost for GB DNOs and submits that the £208 (£197 12/13 prices) recorded as the median for the combined periods DPCR5 and RIIO-ED1 by the UR is not accurate. When the source data for these two periods is taken together, the combined median is in fact £225 which is under 1% variance from NIE Networks' submitted cost. Instead, it appears that the UR has adopted Ofgem's 'expert view'.
- 2.50 Furthermore, the unit cost adopted by Ofgem is based purely on simple cut-out replacement, which fails to take into account the scope of works proposed by NIE Networks, including complex cut-out replacements.²³ A simple cut-out change involves like-for-like replacement, whereas the more complex type replacements involve part-replacement of the service cable.
- 2.51 The UR appears to have assumed that the unit cost of a cut-out replacement sought by NIE Networks is for the replacement of the cut-out alone, with no allowance required for the part-replacement of the service cable. The UR has therefore failed to provide an allowance for this element of complex work.
- 2.52 The UR also asserts that:
- "We were not convinced by NIE Networks' case for increased funding and are concerned that should they receive a higher level of funding they could again choose to deliver less complex replacements during RP6".²⁴*
- 2.53 This assertion fails to have regard to the way in which proposed volumes for cut-out replacements are determined. The volumes proposed for replacement during RP6 are informed by NIE Networks' cut-out replacement database which prioritises replacement of units using a risk based approach. During RP5, NIE Networks sought to address the highest risk units within the approved RP5 volumes. As such, of the units replaced during RP5, 8,650 were simple cut-outs and 150 were complex units, i.e. approximately 2% of all units were complex.

²¹ Annex O, Table 2.8.

²² Annex O, 2.59.

²³ See Ofgem, RIIO-ED1 regulatory instructions and guidance: Annex A – Glossary v1.0, 18 June 2015.

²⁴ Annex O, 2.58.

- 2.54 At present, the cut-out risk database indicates that of the remaining units to be addressed approximately 10% are complex units. This is a risk-based approach to address the worst condition units as and when they are identified. It is NIE Networks' intention that these units will be replaced during RP6. The UR's proposed approach of not providing an allowance for complex cut-out replacement on the basis that NIE Networks may only carry out simple cut-out replacement is therefore unjustified.

NIE Networks' proposed unit costs are supported by available RP5 outturn data

- 2.55 Regarding the proposed units costs, NIE Networks' proposed unit cost of £227 for a simple cut-out was based on the RP5 forecast outturn unit rate for this activity. As set out in Table A3.1 below, NIE Networks now has actual outturn costs for the first five years of RP5 which would in fact support a slightly higher unit cost of £235. NIE Networks proposes a unit cost for simple cut-out replacements of £227, as originally sought.
- 2.56 NIE Networks' initial proposed unit cost for complex cut-out replacement was based on the average outturn unit cost of the limited number of units delivered at that time. The average outturn cost generated by the sample completed was supported by the PB Benchmark rate calculated by NIE Networks' external advisers WSP Parsons Brinckerhoff ("**WSP**") for this activity of £1.30k per unit (which is higher than NIE Networks' proposed unit cost).²⁵ However, since the submission, NIE Networks has ramped up delivery of complex units and now has actual RP5 outturn data which supports its revised proposed unit cost of £888. This is set out in Table A3.1 below.
- 2.57 This reduced unit rate for complex cut-out replacement compared with NIE Networks' original RP6 submission was communicated to the UR during the engagement process.²⁶
- 2.58 The five year outturn costs for both simple and complex cut-out activity in RP5 as detailed below support NIE Networks' revised position.

²⁵ Network Investment Plan, Appendix NIPA8 'RP6 Unit Cost Benchmarking Final'.

²⁶ NIE Networks Response post engagement and queries – Part 2 – 2.3.

Table A3. 1: RP5 5 year actual outturn costs

CMA Allowance Cost		2012/13	2013/14	2014/15	2015/16	2016/17	Total
Total							
2,153,640	Costs	312,066	515,281	427,666	395,956	442,171	2,093,140
8,800	Outputs	1,628	2,479	1,790	1,371	1,216	8,484
	U/C	192	208	239	289	364	247
Simple	Costs	312,066	515,281	427,666	395,956	308,844	1,959,813
8,650	Outputs	1,628	2,479	1,790	1,371	1,066	8,334
	U/C	192	208	239	289	290	235
Complex	Costs					133,327	133,327
150	Outputs					150	150
	U/C					888	888

Conclusion

- 2.59 Considering the mix of work for delivery during RP6 and the variation in respective unit costs, NIE Networks submits that setting an allowance based on the industry expert view of unit cost for delivering simple cut-outs only, represents an error by the UR as this fails to take account of the scope of the work involved with the replacement of complex units.

NIE Networks' requested allowance

- 2.60 For the reasons set out above, NIE Networks submits that it is appropriate to split the allowance for this investment category in RP6 into two categories, simple and complex. This approach will provide transparency from the UR's perspective regarding the mix of work being delivered in the period.
- 2.61 Accordingly, in the Final Determination the UR should adopt the allowances set out in Table A3.2 below. These figures are consistent with NIE Networks' revised cost estimate presented to the UR on 22 February 2017,²⁷ and represent a total reduction of approximately £311k when compared to NIE Networks' initial submission.

²⁷ NIE Networks Response post engagement and queries – Part 2, 2.3.

Table A3.2: NIE Networks' proposed allowance for cut-outs in RP6

Cut-out category	RP6 volume	Revised unit cost	Total cost
Simple	9,455	£227	£2.15 million
Complex	945	£888	£0.84 million
	10,400		£2.99 million

- 2.62 Should the UR instead continue with the proposed approach set out in the DD, it would have failed to have regard to the different scope of works required to replace complex cut-outs resulting in a disallowance of £822.25k. The consequence of which would be that NIE Networks would not be financed to deliver complex cut-out replacement via its regulated revenue.

3. FAILURE TO HAVE REGARD TO THE LATEST AVAILABLE RP5 OUTTURN DATA

D9 – LV Lines (Land-locked poles)

Introduction

- 3.1 NIE Networks requires an allowance to replace lines on the Low Voltage ("LV") distribution network where parts of the network are 'land-locked' i.e. the line runs across what is now a mature private development and no vehicular access is possible, such that the line can only be accessed via crane. In these circumstances, NIE Networks proposes to replace the OHL with underground cables.²⁸
- 3.2 NIE Networks originally requested a unit allowance of £164.14k per km, which was based on NIE Networks' forecast costs at March/April 2016.
- 3.3 The UR adopted an alternative dataset, and included a proposed allowance in the DD of circa £125.52k per km.²⁹ This represents a disallowance of £1.52 million across the 13 km of work it has been agreed will be delivered during RP6.
- 3.4 Based on revised cost information now available to NIE Networks as explained further below, NIE Networks proposed a revised allowance of £242.81k per km.

The UR's approach

- 3.5 The UR based its proposed allowance on NIE Networks' RP5 forecasts as at June 2016. This data was based partly on RP5 outturn costs for 3 km of completed work, and on forecast costs for a further 8 km. The UR derived its proposed allowance of circa £125.52k per km by averaging the total cost across the 11 km of completed/forecast work.

²⁸ Network Investment Plan, 802-804.

²⁹ Annex O, Table 2.15.

- 3.6 In February 2017, NIE Networks provided the UR with a revised submission, which was based on a larger volume of completed works and outturn costs.³⁰ In this submission NIE Networks explained that the actual outturn costs supported a unit cost of £242.81k per km. In the DD, the UR has not had regard to NIE Networks' revised data which it has dismissed on the basis that:

"At the time of writing, we have received little documentary evidence of increased costs; hence we have taken no action to increase this allowance".³¹

The error in the UR's approach

- 3.7 NIE Networks submits that the UR was wrong to dismiss the revised evidence provided by NIE Networks in February 2017, which was based on a greater proportion of completed works than the dataset used by the UR in setting the proposed allowance. NIE Networks submits that this data is a much more reliable source and is less subject to forecasting errors. The cost of replacing a section of land-locked poles is very site specific and therefore basing an allowance on a small proportion of actual costs is likely to result in the allowance failing to reflect the costs variability.³²
- 3.8 In any event, NIE Networks is now able to provide actual data for five years of RP5. In this period, NIE Networks' total expenditure was £1.38 million for a completed volume of 5.58 km. This equates to an unit cost of £246.70k per km. NIE Networks submits that this data, based on a much higher proportion of completed works than the dataset relied upon by the UR, is a much more reliable basis for setting an allowance for the reasons explained above. NIE Networks considers that the five year outturn report is sufficient evidence to address the UR's concerns noted above in 3.6.

NIE Networks' requested allowance

- 3.9 Accordingly, NIE Networks submits that the revised unit cost of £242.81k per km is supported by the more robust data that NIE Networks is now in a position to provide (which actually supports a slightly higher allowance of £246.70k per km) and represents an efficient unit cost.
- 3.10 Should the UR fail to adjust its unit cost allowance appropriately in line with evidence provided by NIE Networks, it would fail to have regard to the latest evidence resulting in a disallowance of £1.53 million and would prejudice NIE Networks' ability to fund what the UR has acknowledged is a challenging but important replacement programme from its regulated revenue.

³⁰ NIE Networks Response post engagement and queries – Part 2, 2.2.2.

³¹ Annex O, 2.101.

³² NIE Networks Response post engagement and queries – Part 2, 2.2.2.

D13 – Primary Plant

Introduction

- 3.11 The UR has proposed unit cost allowance for two items of primary plant, namely 33 kV Indoor Switchgear and 11 kV and 6.6 kV Primary Switchgear.³³

33 kV Indoor Switchgear

- 3.12 33 kV Indoor Switchgear includes both double busbar and single busbar switchboards. The former are more complex and expensive to replace therefore the ratio of double busbar to single busbar switchboards replaced is an important driving factor behind the average unit cost for this work item. The choice of switchboard to adopt in any situation is dependent on the network configuration and development needs.

- 3.13 NIE Networks put forward an average unit cost of £137.67k for the replacement of one circuit breaker.³⁴ The total volume of 36 replacements during RP6 is agreed.

- 3.14 In the DD, the UR has proposed a deduction of £23.83k per unit, leaving a proposed average allowed unit cost of circa £113.84k.³⁵

11 kV & 6.6 kV Primary Switchgear

- 3.15 All 11 kV and 6.6 kV Primary Switchgear is configured using a single busbar and therefore the complexities identified for 33 kV Indoor Switchgear do not arise.

- 3.16 NIE Networks put forward an average unit cost of £46.59k for the replacement of one circuit breaker. The total volume of 200 replacements during RP6 is agreed.³⁶

- 3.17 In the DD, the UR has proposed a deduction of £2.48k per unit, leaving a proposed allowed average unit cost of £44.10k per unit.³⁷

The UR's approach

33 kV Indoor Switchgear

- 3.18 The UR's proposed allowance is based on the forecast costs for RP5 outturn provided by NIE Networks with its RP6 Business Plan, not the forecast costs based on works proposed for RP6 by NIE Networks. The RP5 forecast costs predicted a total spend of £4.44 million for a total of 39 replacements, from which the UR has calculated its proposed unit cost allowance of circa £113.84k.

³³ NIE Networks notes also that the UR has proposed a reduction in the unit cost allowance requested by NIE Networks for 33 kV outdoor switchgear and 33 kV outdoor to indoor switchgear. NIE Networks is content with the UR's proposed unit costs on the basis that they are in line with the latest outturn data available to NIE Networks. See NIE Networks Response post engagement and queries – Part 1 dated 16 February 2017, Sections 2.4.3 and 2.4.4.

³⁴ Circuit breaker also includes the panel and associated protection and wiring.

³⁵ Annex O, 2.11(i).

³⁶ NIE Networks Response post engagement and queries – Part 1 dated 16 February 2017 ("**NIE Networks Response post engagement and queries – Part 1**"), 2.4.5.

³⁷ Annex O, 2.14(i).

11 kV & 6.6 kV Primary Switchgear

- 3.19 The UR's proposed allowance is based on the forecast costs for RP5 outturn provided by NIE Networks with its RP6 Business Plan, not the forecast costs based on works proposed for RP6 by NIE Networks. The RP5 forecast costs predicted a total spend of £11.51 million for a total of 261 replacements, from which the UR has calculated its proposed unit cost allowance of £44.10k.

The errors in the UR's approach

33 kV Indoor Switchgear

- 3.20 NIE Networks submits that the UR's proposed allowance should not be based on forecast RP5 outturn average unit costs. NIE Networks had to provide forecast data, not actual outturn, due to the low level of project delivery at the time of preparing its RP6 Business Plan submission. This is because, although switchgear replacement projects can span many years, NIE Networks only reports the outputs as complete (such that they contribute to actual outturn data) once the projects are energised.
- 3.21 Further, as explained to the UR during the pre-DD engagement process,³⁸ the RP5 outturn forecasts provided by NIE Networks include a lower proportion of the more expensive double busbar circuits than will be delivered during RP6 (and were therefore assumed in NIE Networks' RP6 forecasts) as a lower proportion of such units were replaced during RP5. The effect of this is that the UR has failed to have regard to the higher blended unit cost that NIE Networks will incur during RP6.
- 3.22 NIE Networks' position is supported by the data that is now available. During the first five years of RP5, NIE Networks incurred total costs of £5.08 million in delivering 39 replacements. This translates into an actual unit cost of £130.38k. In addition, there are two further factors which support an upwards revision of this figure in setting the RP6 allowance which the UR has not taken into consideration:
- whilst the replacements delivered and reported during RP5 are reflective of units energised, some civil engineering works relating to these projects are still on-going, and therefore the actual unit cost for sites where work is yet on-going will increase; and
 - of the 39 units delivered during RP5, 29 are double busbar units (74%) with the balance being single busbar units. Within the sites identified for replacement during RP6, the ratio of the more expensive double busbar units is higher at 82% (31 units) of total replacements. Accordingly, the average unit cost in RP6 will be higher than that observed during RP5.

11 kV & 6.6 kV Primary Switchgear

- 3.23 As with 33 kV Indoor Switchgear, NIE Networks does not consider that forecast outturn costs for RP5 are a reliable basis on which the UR can set an allowance

³⁸ NIE Networks Response post engagement and queries – Part 1, 2.4.2.

for RP6. They are demonstrably unreliable in light of two items of evidence which NIE Networks is now in a position to provide and which the UR has not taken into consideration:

- the actual outturn costs for the first five years of RP5. This data contains an actual outturn cost of £44.60k per unit; and
- the results of the procurement process which NIE Networks completed in February 2016, which resulted in an increase in materials costs of £2.30k per unit for RP6 compared with RP5.³⁹

3.24 Taken together, these factors evidence a RP6 unit cost of £46.89k against which NIE Networks' proposed unit cost of £46.59k should be assessed.

NIE Networks' requested allowance

3.25 For the reasons explained above, NIE Networks submits that its requested unit cost allowances for 33 kV Indoor Switchgear and 11 kV & 6.6 kV Primary Switchgear are reasonable, efficient and supported by most reliable evidence now available. Accordingly, NIE Networks submits that the UR should set the following unit costs allowances in the Final Determination:

- 33 kV Indoor Switchgear - £137.67k per unit; and
- 11 kV & 6.6 kV Primary Switchgear - £46.60k per unit.

3.26 If the UR were, in the Final Determination, to fail to have regard to the relevant latest evidence provided by NIE Networks based on actual outturn data and therefore adopt the proposed allowances set out in the DD, this would equate to a total disallowance of £1.35 million across RP6 for these two work items. A disallowance of this scale would prejudice NIE Networks' ability to deliver the necessary scope of work.

D15 – Secondary Plant

Introduction

3.27 Secondary substations include all manner of 6.6/0.4 kV and 11/0.4 kV ground mounted substations, containing a high voltage switch or protection device, a 6.6/0.4 kV or 11/0.4 kV transformer and a low voltage distribution facility either located in a cabinet or a wall mounted open terminal arrangement.

3.28 In its proposed allowances set out in the DD, the UR has made unit costs reductions on three subcategories of investment within this category which NIE Networks contests are not justified.⁴⁰

³⁹

⁴⁰

NIE Networks notes also that the UR has proposed a reduction in the unit cost allowance requested by NIE Networks for sectionaliser replacement. NIE Networks is content with the UR's proposed unit cost calculated on the basis of the RP5 forecast outturn unit rate provided that an appropriate flexibility mechanism is put in place. See NIE Networks Response post engagement and queries – Part 1, 2.6.7.

- Substation replacement;
- Substation replacement including use of a temporary substation; and
- H pole mounted LV cabinets.

Substation replacement

- 3.29 NIE Networks submitted a unit cost of £37.06k per replacement. The total volume of 395 replacements during RP6 is agreed.
- 3.30 In the DD, the UR has proposed a deduction of £3.76k per unit, leaving a proposed allowed unit cost of £33.30k per unit.⁴¹

Substation replacement including use of a temporary substation

- 3.31 NIE Networks initially submitted a proposed unit cost of £51.68k per replacement. During the pre-DD engagement process, NIE Networks provided a revised proposal of £48.20k per unit.⁴² The total volume of 50 replacements during RP6 is agreed.
- 3.32 In the DD, the UR has proposed a deduction of £4.10k per unit compared with NIE Networks' revised proposal, leaving a proposed allowed unit cost of £44.10k per unit.⁴³

h pole mounted lv cabinets

- 3.33 NIE Networks submitted a unit cost of £4.60k per replacement. The total volume of 40 replacements during RP6 is agreed.
- 3.34 In the DD, the UR has proposed a deduction of £900 per unit, leaving a proposed allowed unit cost of £3.70k per unit.⁴⁴

The UR's approach

- 3.35 For each of these items, the UR's approach has been to calculate a proposed unit cost by determining the average RP5 outturn cost for equivalent works and to use that to derive its proposed RP6 allowance without making any adjustments to reflect the increased unit costs that NIE Networks will experience during RP6 that were not a factor during RP5. The UR asserts that the RP5 unit costs:

"include sufficient provision for these cost increases"

And that setting the RP6 allowance on the basis of these costs will:

"provide sufficient incentive to NIE Networks to deliver RP6 investment plan efficiently".⁴⁵

⁴¹ Annex O, Table 2.6.

⁴² NIE Networks Response post engagement and queries – Part 1, 2.6.4.

⁴³ Annex O, Table 2.6.

⁴⁴ Annex O, Table 2.6.

⁴⁵ Annex O, 2.47.

The errors in the UR's approach

Substation replacement and substation replacement including use of temporary substation

- 3.36 NIE Networks submits that RP5 outturn costs alone are not a sufficient basis for determining the RP6 allowance. This is because, as has been explained to the UR on several occasions,⁴⁶ there are three distinct cost drivers that will increase unit costs for RP6 that were not a feature in RP5, namely:
- increased transformer costs driven by the requirements of the Eco Directive⁴⁷ - £516 per unit;
 - enhanced LV cabinet specifications - £1.81k per unit; and
 - increased substation shell costs - £1.78k per unit.
- 3.37 As noted, in setting the proposed allowance in the DD, the UR has asserted that the RP5 outturn costs are sufficient to absorb these cost increases, and in any event that disallowing these costs provides incentive to carry out the necessary works efficiently. NIE Networks submits that this is not correct.
- 3.38 During the first five years of RP5, actual outturn costs demonstrate that in the case of substation replacement, NIE Networks incurred an average unit cost of £32.59k across 391 units. In the case of substation replacement including use of a temporary substation, NIE Networks incurred an average unit cost of £43.60k across 45 units. Each of these is effectively equivalent to the UR's proposed unit allowances of £33.30k and £44.10k respectively.
- 3.39 These outturn costs however, do not reflect any of the three cost drivers that will impact on RP6 costs because:
- the more expensive Eco Directive compliant transformers are not yet in use as RP5 replacements have been completed by utilising existing stock pre-dating the implementation of the Eco Directive;^{48, 49}
 - the procurement exercise for the enhanced LV cabinets has only recently completed;⁵⁰ and
 - the procurement exercise for substation shells is currently at an advanced stage, but is not yet complete.⁵¹ NIE Networks anticipates that this procurement exercise will complete in June 2017.

⁴⁶ NIE Networks response to the UR Query URQ095; and NIE Networks Response post engagement and queries – Part 1, 2.6.3 and 2.6.4.

⁴⁷ Directive 2009/125/EC.

⁴⁸ Contract [REDACTED].

⁴⁹ Further, NIE Networks notes that the scope of the Eco Directive will be extended in July 2021 (i.e. during RP6), which is likely to result in a further increase in transformer costs.

⁵⁰ Contract [REDACTED].

3.40 There is clearly a change in scope for substation replacement between RP5 and RP6 that justifies a corresponding uplift in unit costs. NIE Networks has demonstrated that this change in scope has not had any impact on RP5 outturn costs and therefore it is erroneous for the UR to base its allowance on RP5 outturn costs alone.

3.41 Further, the UR is incorrect to assert that the cost increases resulting from this change of scope can be absorbed by NIE Networks via efficiencies. The level of expected cost increase is such that NIE Networks would be required to deliver efficiencies in this activity of 10% in the case of substation replacement and 8.5% in the case of substation replacement including the use of a temporary substation throughout RP6 in order to achieve the UR's proposed allowance. NIE Networks submits that such efficiency targets are unreasonable given that they are inconsistent with the general efficiency target levied against the NIE Networks Network Investment Plan.

H pole mounted LV cabinets

3.42 NIE Networks submits that RP5 outturn costs alone are not a sufficient basis for determining the RP6 allowance. This is because, as has been explained to the UR previously,⁵² the materials cost of LV cabinets will increase during RP6 as a result of the recently completed competitive tender for this contract.⁵³

3.43 During the first five years of RP5, actual outturn costs demonstrate that NIE Networks delivered 27 units at an average unit cost of £3.84k. This is in itself in excess of the UR's proposed allowance of £3.70k per unit and does not take account of the increased costs that will be experienced during RP6 given that the tender process for the new LV cabinets has only recently completed.

NIE Networks' requested allowance

3.44 Accordingly, NIE Networks submits that the UR should determine the RP6 unit cost allowance for these work items as follows:

- substation replacement - £37.06k per unit;
- substation replacement including use of a temporary substation - £48.20k per unit; and
- H pole mounted LV cabinets - £4.60k per unit.

3.45 In the case of each of substation replacement, substation replacement including use of a temporary substation and H pole mounted LV cabinets replacement, these costs are calculated by reference to RP5 outturn costs (in accordance with the UR's methodology) but with an appropriate uplift to account for the evidenced

⁵¹ Contract [REDACTED].

⁵² NIE Networks response to UR Query URQ095; and NIE Networks Response post engagement and queries – Part 1, 2.6.6.

⁵³ Contract [REDACTED].

increase in costs between RP5 and RP6 to which, as explained above, the UR has failed to reflect.

- 3.46 Should the UR fail to adjust its approach to the determination of unit costs and adopt the unit costs submitted by NIE Networks, its approach will fail to have regard to the evidence NIE Networks has provided as to the inadequacies in calculating these allowances purely based on RP5 outturn costs. Based on the agreed volumes of all work items, this would result in a total disallowance of £1.73 million as detailed in Table A3.3.

Table A3.3: D15 – Secondary Substations – UR Proposed Disallowance

Secondary Substations £000s	Secondary Substations Including Use of Temporary Substation £000s	H Pole Mounted LV Cabinets £000s	Total £000s
1,485	205	36	1,726

T10 – 110 kV Switchgear

Introduction

- 3.47 NIE Networks submitted a unit cost of £420k for this investment category in its RP6 Business Plan.
- 3.48 In its DD, the UR has proposed to reduce the unit cost allowance to £314k.⁵⁴
- 3.49 Since the publication of the DD, NIE Networks has reassessed its proposed unit cost for this activity due to additional RP5 outturn data becoming available. This review concluded that a revised unit cost of £378k is appropriate to deliver the units identified for completion at the two specific 110 kV substation locations during RP6.
- 3.50 NIE Networks submits that the UR has mistakenly determined its DD unit cost allowance based on information submitted at the time in the Network Investment Plan and that it should now adopt NIE Networks' revised unit cost for this investment category as detailed within Table A3.5 below. This revised unit cost is based on the forecast outturn unit rate for the full 5.5 year period of RP5, adjusted to reflect the additional site specific costs that NIE Networks will incur during RP6.

The UR's approach

- 3.51 The UR has proposed to reduce the unit cost allowance for this investment category based on the outturn costs presented in the Network Investment Plan and using a volume of 9 units delivered to derive a unit rate for RP6 of £314k.⁵⁵

⁵⁴ Annex O, 6.21.

⁵⁵ Annex O, 6.21.

The errors in the UR's approach

The use of the Network Investment Plan

- 3.52 The £420k unit rate initially proposed in NIE Networks' RP6 submission was based on the forecast outturn unit rate for the full 5.5 year period of RP5 available at the time, as presented in the extract below taken from the Business Plan Template submission,⁵⁶ which was presented alongside NIE Networks' RP6 Business Plan.

Table A3.4: RP5 forecast outturn unit rate for 5.5 year period as presented in the 2016 BPT submission

REPORTING YEAR	LINE ITEM	PROJECT NAME	ASSET IDENTIFICATION	VOLTAGE	UOM	QUANTITY	UNIT COST	DIRECT EXPENDITURE
2013	T10a	110kV Switchgear Replacement	Replace SWGR at 3 substations	110kV	Nr	0		82,665
2014	T10a	110kV Switchgear Replacement	Replace SWGR at 3 substations	110kV	Nr	0		589,322
2015	T10a	110kV Switchgear Replacement	Replace SWGR at 3 substations	110kV	Nr	1	663,219	663,219
2016	T10a	110kV Switchgear Replacement	Replace SWGR at 3 substations	110kV	Nr	0		1,488,155
2017	T10a	110kV Switchgear Replacement	Replace SWGR at 3 substations	110kV	Nr	6	289,807	1,738,841
Sep-17	T10a	110kV Switchgear Replacement	Replace SWGR at 3 substations	110kV	Nr	9	237,994	2,141,944
Total						16	419,009	6,704,145

- 3.53 The Network Investment Plan stated that nine circuit breakers had already been replaced and the cost incurred to 31 March 2016 was £2.82 million.⁵⁷ This equated to a unit cost of £314k, which the UR has now proposed adopting for RP6.
- 3.54 However, the stated volume/quantity of units delivered in the Network Investment Plan was in error as this report related to the circuit breaker replacement only. As such, the unit cost calculated by the UR does not reflect the full scope of works required to recognise an output within this investment category, namely full switchgear bay refurbishment and associated civil works. Only one of these full bay replacement units was actually completed at the time of the RP6 submission.
- 3.55 As the costs incurred to 31 March 2016 in the Network Investment Plan do not include the full costs associated with fully replacing a bay of equipment, NIE Networks considers the UR's approach to calculating the unit cost to be an error. This is because a full unit bay cost includes not just replacement of the primary component of a circuit breaker but also the associated civil works for structures, replacement of current transformers, voltage transformers and isolators which had not been completed. The very nature of these refurbishment projects requires multiple outages and thus full bay completion can span years.
- 3.56 Notwithstanding this error, NIE Networks has now revised its RP5 cost forecast for this activity based on the availability of latest outturn costs associated with 13 completed units of the total 16 units to be delivered during RP5. It is now estimated that NIE Networks will complete all 16 units during RP5 at an average unit cost of £297k.
- 3.57 In estimating an appropriate unit cost for the two specific RP6 sites, NIE Networks has used this RP5 figure as a representative baseline cost and uplifted it by £81k

⁵⁶ NIE Networks RP6 Business Plan Template, Network Investment, v-2, submitted September 2016.
⁵⁷ Network Investment Plan, 97.

per bay to reflect the impact of site specific costs that will be incurred in this category at Strabane substation in RP6. This is a severely restricted site due to the encroachment of housing, and thus it requires significant civil alterations to enable the bay asset replacement to be achieved, including tower alterations not required at any of the RP5 sites. Allowances for these atypical costs have not been sought elsewhere in the RP6 plan (specifically not under T12 '110 kV ancillaries'). These atypical costs are detailed in Table A3.5 below.

- 3.58 NIE Networks therefore submits a revised unit cost submission for RP6 of £378k per unit. Acceptance of this revised unit cost would reduce the cost of this category by £460k during RP6, when compared with NIE Networks' original RP6 submission.

RP5 actual data

- 3.59 NIE Networks considers that to develop an appropriate unit cost for this investment category, the latest business estimates for the full RP5 period and consideration of the specific programmed units for the RP6 period requires to be factored into the analysis. This is the approach taken by NIE Networks in arriving at its revised position regarding an appropriate unit cost for this activity in RP6, as outlined in 3.56 to 3.57 above.

NIE Networks' bottom-up analysis

- 3.60 In the light of the considerations of the site specifics in RP6 and the availability of additional actual outturn data for RP5, NIE Networks has revised its costs for this activity to £378k per bay replacement including all associated works.
- 3.61 Separately to its analysis of outturn costs as above, NIE Networks has carried out a bottom-up analysis of the costs of the work that will be carried out during RP6 in order to support its proposed allowance of £378k per unit.
- 3.62 NIE Networks will refurbish two sites during RP6, requiring a total of 11 bays to be refurbished:
- Limavady substation – four bays; and
 - Strabane substation – seven bays.
- 3.63 Table A3.5 below sets out the work required to be done at each of these sites, and the associated costs:

Table A3.5: Bottom-up analysis of RP6 unit costs

110 kV Substation refurbishment		Limavady		Strabane	
	Unit cost	No.		No.	
Bay cost (inc. plant and steel work costs and installation)		4	1.19 million	7	2.08 million
Cable cost (inc. 100mts cable, install and test)	220k		0	2	440k
Tower costs (inc. steelwork and construction)	110k		0	2	220k
Tower costs (inc. foundation and access road)	60k		0	2	120k
Site extension (inc. land purchase, civils, fencing and earthing)	110k		0	1	110k
Total (£)			1.19 million		2.97 million
Total Category Costs (£)					4.16 million
Category Unit cost (£)					377.91k

3.64 It can be noted from Table A3.5 that there are significant ancillary works required at Strabane substation. These ancillary works have not been accounted for in the T12 '110 kV ancillaries' allowance and therefore were factored into the submitted unit cost for this category.

NIE Networks' requested allowance

3.65 Accordingly, NIE Networks submits that the UR should adopt NIE Networks' proposed unit cost of £378k per unit in the Final Determination. This cost is supported by:

- latest available RP5 outturn cost evidence; and
- a comprehensive bottom-up analysis of the specific sites in RP6.

3.66 Should the UR continue with the approach as set out in the DD, based on inaccurate data set out in the Network Investment Plan, this would represent a disallowance of £710k over the RP6 period for these two substation sites. This approach would be flawed as it would rely on outdated evidence and would disregard the more robust evidence put forward by NIE Networks. Such an approach would prejudice NIE Networks' ability to finance its regulated activities from its regulated revenue.

4. **PROPOSED ALLOWANCE BASED ON INAPPROPRIATE DATA SOURCE**

D101 – Network Alterations

Introduction

4.1 An allowance is required for alterations to the network requested by customers or otherwise required which cannot be recovered from customers. These alterations can be split into three categories:

- Non-recoverable alterations ("**NRAs**") – alterations that must be carried out free of charge to the customer, e.g. due to the terms of existing Wayleave Agreements;⁵⁸
- Part-recoverable alterations ("**PECRs**") – similar to NRAs, part-recoverable alterations arise where NIE Networks is unable to charge for a requested alteration due to the terms of existing Wayleave Agreements. However, should a customer request an alteration that is not the 'Least Cost Technically Available' ("**LCTA**") alteration, the customer will fund the difference in cost between the LCTA alteration and the actual alteration delivered. NIE Networks requires an allowance to cover the LCTA portion of the alteration;⁵⁹ and
- NI Roads Authority and Utilities Committee ("**NIRAUC**") schemes – an allowance is required to fund NIE Networks' proportion of any roads, bridge or transport infrastructure work impact on its distribution network.⁶⁰

4.2 NIE Networks submitted a total allowance of £15.68 million sub-divided as follows: NRAs - £12.00 million; PECRs – £3.55 million; and NIRAUC Schemes - £135.66k. This allowance was calculated by extrapolating forecast outturn costs for RP5 across the RP6 period. The UR has confirmed that it agrees that historic expenditure is a reliable indicator of future expenditure in this area given the reactive nature of the work.⁶¹

4.3 In the DD, the UR has set out a proposed allowance of £13.67 million, subdivided as follows: NRAs and PECRs combined - £13.53 million; and NIRAUC Schemes - £135.66k.

The UR's approach

4.4 The UR has observed that the actual outturn expenditure recorded against NRAs for the first four years of RP5 (2012/13 – 2015/16) was £8.41 million based on Financial Data RIGs. It has extrapolated this across the 6.5 years of RP6 to determine its total allowance of £13.67 million.⁶² It has then deducted NIE

⁵⁸ Network Investment Plan, 1080-1082.

⁵⁹ Network Investment Plan, 1088-1091.

⁶⁰ Network Investment Plan, 1098 – 1104.

⁶¹ Annex O, 2.155.

⁶² Annex O, 2.157.

Networks' proposed allowance for NIRAUC schemes from this to determine its combined allowance for NRAs and PECRs.

The errors in the UR's approach

- 4.5 The UR's starting point is incorrect. The RP5 outturn costs that it has used in setting its allowance related to NRAs only, they do not include any PECR or NIRAUC Scheme expenditure and cannot form an appropriate basis for setting an allowance for these items.
- 4.6 NIE Networks has explained to the UR that this is the case on a number of occasions prior to the publication of the DD. In NIE Networks' response to the UR Query 191, NIE Networks explained that during RP5 PECR costs had been erroneously recorded against Network Access and Commissioning costs,⁶³ and therefore could not have been included in the NRA outturn costs. The UR subsequently asked NIE Networks to confirm where the PECR and NIRAUC Scheme costs were recorded during RP5, and NIE Networks expressly confirmed that they were recorded as opex in the SAP system.⁶⁴
- 4.7 Notwithstanding that the position had been made clear to the UR prior to the publication of the DD, the UR has failed to have regard to this in the DD, where it states that it has worked on the basis that NRA and PECR costs were recorded together.⁶⁵ In adopting this approach, the UR has failed to set any allowance at all for PECRs, and has only set an allowance for NIRAUC Schemes by in effect reducing the allowance for NRAs.
- 4.8 In any event, actual costs incurred for NRAs is now available for the first five years of RP5 (2012/13 – 2016/17). This data is set out in Table A3.6 below. The total costs of £12.1 million over five years when extrapolated for a 6.5 year period support an allowance of £15.7 million for RP6 for NRAs alone.

Table A3.6: RP5 Financial Data RIGs – NRAs costs – 2012/13 to 2016/17

2012/13	2013/14	2014/15	2015/16	2016/17	Total
£1.82 million	£2.01 million	£2.22 million	£2.36 million	£3.75 million	£12.16 million

NIE Networks' requested allowance

- 4.9 Accordingly, NIE Networks submits that in the Final Determination the UR should adopt NIE Networks' proposed allowance of £15.68 million, sub-divided as detailed in paragraph 4.2 above.

⁶³ NIE Networks response to the UR Query NO URQ191 – NIBP – Network Access & Commissioning, 5 December 2016, p.4.

⁶⁴ Email from [REDACTED] (NIE Networks) to [REDACTED] (UR), 1 March 2017 at 17:20.

⁶⁵ Annex O, 2.156. NIE Networks notes that this conclusion is based on paragraph 1079 of the Network Investment Plan which includes a typo and should read "*It should be noted that in RP5, Non recoverable alterations and Part recoverable alterations are not recorded together*" (bold underlined text added).

- 4.10 Should the UR continue with its proposed approach, which produces a disallowance of £2.01 million and fails to have regard to any evidence of PECCR or NIRAUC costs, the UR will in effect make no allowance for these work items. This will severely prejudice NIE Networks' ability to respond to customer requests and deliver alterations during RP6.

D604 – Connection Driven System Work

Introduction

- 4.11 As explained in the RP6 Network Investment Plan,⁶⁶ NIE Networks requires an allowance for Connection Driven System Work ("**CDSW**") to fund work required to provide new connections to customers or alterations to existing connections where such works are requested by customers and the works required are not chargeable to the customer pursuant to NIE Networks' Statement of Charges.
- 4.12 CDSW is inherently reactive, and accordingly NIE Networks proposed an allowance based on the average run rate observed in RP5 as recorded in the NIE Networks Job Management System ("**JMS**"),⁶⁷ resulting in a proposed RP6 allowance of £7.3 million based on an annual average during RP5 of £1.1 million.⁶⁸ This approach was consistent with the Method 'A' approach that NIE Networks adopted when putting together its direct investment allowances generally.⁶⁹
- 4.13 In the DD, the UR has proposed to reduce the RP6 allowance sought by NIE Networks for CDSW by £4.27 million to £2.99 million.⁷⁰ Based on revised costs information now available as explained further below, NIE Networks proposes an allowance of £4.32 million.

The UR's approach

- 4.14 The UR's proposed allowance is based solely on outturn costs, as it has disregarded forecast costs due to the reactive nature of CDSW.⁷¹
- 4.15 The UR has based its approach on four years of RP5 outturn costs.⁷² The UR's approach was based on data provided by NIE Networks on 21 February 2017 in the form of a schedule detailing distribution direct capex for RP5 and RP6 prepared by reference to the C1 RIGs matrix. This schedule include data from two sources:
- For years one to three of RP5 (2012/13 to 2014/15) it has used costs reported via the Financial Data RIGs, as set out in Table A3.7 below:

⁶⁶ 1111-1115.

⁶⁷ This information was presented to the UR as part of NIE Networks' response to UR Query UR1005 date 18 August 2016.

⁶⁸ Network Investment Plan, 1110.

⁶⁹ Network Investment Plan, 530.

⁷⁰ Annex O, Table 2.27.

⁷¹ Annex O, 2.164.

⁷² Annex O, 2.163.

Table A3.7: RP5 Financial Data RIGs – CDSW costs – 2012/13 to 2014/15

2012/13	2013/14	2014/15	Total
£877.55k	£522.81k	£624.56k	£2.025 million

- For year four (2015/16), where no outturn costs were available via Financial Data RIGs at the relevant time, NIE Networks provided actual data available via its SAP system. The SAP data for 2015/16 included a cost figure of only £90k for CDSW based on actual outturn data. The reason for this is that, during Q3 2015, a business process change was implemented by NIE which was intended to automate recharges for CDSW activities within the SAP system. It is clear that this process change had not fully taken effect for 2015/16, hence the very low figure recorded. Nonetheless, NIE Networks included this data as it was the best available at that time.

- 4.16 To derive its proposed allowance, the UR has taken the average annual expenditure across years one to four of RP5, extrapolated this across the 6.5 years of RP6, and then deducted £69k per annum to offset CDSW costs included in its opex benchmark. From this it concluded an allowance of £2.99 million.⁷³

The errors in the UR's approach

Using the RP5 year four costs reported via SAP

- 4.17 NIE Networks submits that the UR has erred by using the actual costs figure of £90k for year four of RP5 set out in the SAP data. This figure is clearly an outlier when compared with the average annual outturn cost for years one to three as reported via RIGs and available to the UR as set out in Table A3.7 above. The UR should have been aware that this was a result of the process change and should have disregarded the year four data in its calculation.
- 4.18 In any event, as set out in Table A3.9 below, cost data for year four of RP5 is now available via Financial Data RIGs which is consistent with the data for years one to three and clearly demonstrates that the year four data available via SAP was erroneous and should not form the basis for the UR's allowance in the Final Determination.

Making a deduction for costs included in the opex benchmark

- 4.19 As noted above,⁷⁴ the UR deducted £69k per annum from its proposed allowance to reflect costs included in the opex benchmark. NIE Networks submits that this approach is incorrect because the cost estimate for RP6 (both the initial cost estimate set out in the Network Investment Plan and based on JMS data and the revised set out below based on Financial Data RIGs) is based on actual direct costs incurred during RP5. This approach is consistent with the methodology

⁷³ Annex O, 2.166.

⁷⁴ 4.16.

employed across a range of other direct investment categories where the UR has not made a similar adjustment. It is therefore inappropriate in this case to adjust the direct cost allowance on the basis of the Opex benchmarking undertaken by the UR.

Use of Financial Data RIGs in place of JMS data

- 4.20 As explained above, the UR's proposed allowance is based on Financial Data RIGs not on the JMS data used by NIE Networks in preparing the proposal set out in the Network Investment Plan. The difference between these two sources for years one to three of RP5 is summarised in Table A3.8 below:

Table A3.8: RP5 CDSW Costs – Financial Data RIGs and JMS Data – 2012/13 to 2014/15

	2012/13	2013/14	2014/15	Total
JMS:	£1.03 million	£1.57 million	£0.89 million	£3.85 million
Financial Data RIGs:	£0.88 million	£0.52 million	£0.62 million	£2.02 million

- 4.21 Since the publication of the DD, NIE Networks has carried out a verification exercise with a view to reconciling the variances observed in the figures set out in Table A3.8. In doing so, NIE Networks has determined that JMS costs reflect the costs of the jobs closed in the year in question, rather than the actual costs booked against CDSW during the relevant year.
- 4.22 In light of the results of this verification exercise, NIE Networks agrees with the UR's approach of determining the RP6 allowance for CDSW costs based on RP5 outturn data reported via Financial Data RIGs.

NIE Networks' requested allowance

- 4.23 Accordingly, NIE Networks proposes a RP6 allowance for CDSW costs of £4.32 million (£2.9 million less than NIE Networks original submission). This is based on the average annual cost observed across years one to four of RP5 based on the information now available via Financial Data RIGs of £665k per annum. Table A3.9 sets out the outturn costs for CDSW activities in years one to four of RP5. Data for years one to three is from Financial Data RIGs as per Table A3.7 above. Data for year four is based on a combination of Financial Data RIGs and SAP data as a result of the process change described at paragraph 4.15, second bullet, above. Using a combined Financial Data RIGs/SAP dataset for year four overcomes the fact that the process change had not fully taken effect during year four.

Table A3. 9: RP5 CDSW Costs – Financial Data RIGs – 2012/13 to 2015/16

2012/13	2013/14	2014/15	2015/16	Total
£0.88 million	£0.52 million	£0.62 million	£0.64 million	£2.66 million

- 4.24 The average annual cost of £665k is further supported by the RP5 year five actual data currently available via the SAP system, which shows a cost of £665k for 2016/17. RP5 year five is the first full year where the process change described above is in effect and CDSW costs have been reported via the SAP system.
- 4.25 NIE Networks therefore submits that its proposed allowance of £4.32 million is reasonable and is supported by all available evidence. It would clearly be an error for the UR to reduce this allowance by reference to an erroneous data set (the RP5 year SAP data) or by applying a deduction to reflect the opex benchmarking exercise that has not been applied for other categories of direct investment.
- 4.26 If the UR adopts its proposed allowance of £2.99 million this will represent a deduction of £1.33 million compared with NIE Networks revised submission. This is a significant deduction that will not allow NIE Networks sufficient funding to carry out the anticipated volume of CDSW during RP6 without placing an undue financial burden on its shareholder.

5. **ERRORS RELATED TO DISTRIBUTION ESQCR**

LV poles refurbishment and ESQCR works

Introduction

- 5.1 NIE Networks requires an allowance to carry out works necessary to ensure compliance with the Electricity Supply, Quality, and Continuity (Northern Ireland) Regulations 2012 ("ESQCR").
- 5.2 In the RP5 Determination, the CMA granted NIE Networks an allowance to carry out ESQCR patrol and trial works for the purposes of establishing an accurate basis for estimated ESQCR costs during RP6. Accordingly, NIE Networks carried out trials in relation to the 33 kV, 11 kV and LV distribution networks.
- 5.3 Further, the ESQCR works that NIE Networks is required to carry out in relation to the LV network are closely related to the general refurbishment activities that are required for this network. It would therefore be inefficient to carry out these activities separately and the two should accordingly be subject to a single allowance. NIE Networks welcomes the UR's agreement with this position.⁷⁵
- 5.4 NIE Networks therefore requested an allowance of £21.30k per km for LV refurbishment and ESQCR works and proposed a total volume of 1,045 km. This was based on the actual costs incurred in carrying out trial works during RP5 (£5.3 million) divided by the total volume of work delivered during the trial period (242 km).

⁷⁵ Annex O, 2.98.

- 5.5 In the DD, the UR has proposed an allowance of £18.38k per km for these works.⁷⁶ The UR agrees with NIE Networks' proposed volume.⁷⁷

The UR's approach

- 5.6 NIE Networks notes the UR's inconsistency in approach as the UR has accepted the output from the trials for similar work on the 33 kV and 11 kV networks; however it has challenged the output from the more extensive trials on the LV network.⁷⁸
- 5.7 The UR observes that there is a lack of historic data for combined ESQCR and refurbishment works. Accordingly, it adopted an approach based upon using the median unit costs for similar work elements carried out by GB DNOs as calculated by Ofgem.⁷⁹ Using these costs (and adopting the methodology discussed in more detail below) the UR determined a proposed unit cost allowance of £18.38k per km.

The errors in the UR's approach

- 5.8 Having analysed in detail the methodology adopted by the UR in determining the proposed allowance set out in the DD,⁸⁰ NIE Networks has identified a number of errors which undermine the UR's assessment of costs for this work.

Trial Scheme sample size

- 5.9 The UR's calculations are based on a sample of 12 of the 28 trial schemes carried out by NIE Networks, representing 42% of the total 242 km of ESQCR and refurbishment works that were completed during the trial period. NIE Networks submits that the correct approach is to factor all trial circuits into the calculation. NIE Networks' proposed approach would be in keeping with the purpose of the CMA's decision in the RP5 Final Determination to make an allowance for the trial schemes for the purposes of determining a reliable basis for NIE Networks' RP6 costs submission.

Comparison with GB DNO Costs

- 5.10 As set out in Annex O, 3.31, the UR's analysis of GB DNO costs as calculated by Ofgem is based on four elements of work only: (i) replacement of LV Main (OHL) conductor; (ii) replacement of LV Service (OHL); (iii) replacement of LV Pole; and (iv) refurbishment of LV Pole. NIE Networks notes that the scope of these categories is ambiguous in the RIGs definitions and therefore it is not clear precisely what work items were taken account of by Ofgem within these categories. However, it is clear that at least the following items that are included within NIE Networks outturn costs for the RP5 trials and therefore form the basis of its RP6 submission are not included in the costs considered by the UR: (i) undergrounding LV Mains, (ii) undergrounding LV Services and (iii) traffic management. NIE

⁷⁶ Annex O, Table 3.7.

⁷⁷ Annex O, Table 3.7.

⁷⁸ Annex O, 3.30.

⁷⁹ Annex O, 3.31.

⁸⁰ As set out in the UR's response to query NIE012 dated 28 March 2017.

Networks submits that the GB DNO costs calculated by Ofgem are therefore not an appropriate comparator given the difference in scope of works compared with the costs submitted by NIE Networks.

Number of poles refurbished per LV circuit

- 5.11 The UR has adopted two different approaches for determining the number of poles on which work will be carried out in any given LV circuit. It has adopted this approach on the basis of the erroneous assumption that no work will be carried out in relation to some poles. However, as NIE Networks has explained previously,⁸¹ at the very least all poles will be fitted with warning signs. Accordingly, the correct starting assumption is that work will be carried out on all LV poles.

Number of poles replaced per LV circuit

- 5.12 The UR adopts the following approach to determining the number of poles that are replaced per trial circuit for ESCQR purposes:

ESCQR Pole Replacements = Total Poles Replacements – No. of Decayed Poles

- 5.13 The number of decayed poles is obtained from data obtained by patrollers as part of the RP5 ESCQR works and includes all decayed ("D") and suspect ("S") poles. D poles can be further subcategorised based on the extent of the decay in to D1, D2, D3 and D4 poles, with D1 being the most decayed and D4 the least.
- 5.14 NIE Networks agrees with the UR's approach to determining the number of ESCQR pole replacements. However, despite adopting this calculation, the UR instead bases its allowance on the average number of pole replacements during RP5.⁸² In doing so, the UR fails to have regard to the fact that during the earlier years of RP5 up to June 2015, only D1 and D2 poles were replaced. As set out in Annex NIPX7.3 to NIE Networks' Network Investment Plan, this specification changed during RP5 so that all D and S poles are replaced during the refurbishment works. This is in line with the approach adopted by NIE Networks for 110 kV, 33 kV and 11 kV wood poles and NIE Networks submits that it is not appropriate for the approach taken for the LV network to be inconsistent with that for other voltage levels. As the UR is aware, the approach of only replacing D1 and D2 poles was never intended as a long term measure, and was only intending to be adopted on a temporary basis until a suitable cyclic programme for total replacement could be established.⁸³
- 5.15 The effect of the UR's proposed approach is a conclusion that only 15% of poles on the LV network should be replaced due to decay.⁸⁴ However, the trial data dictates that 29% of poles should be replaced, and therefore a higher unit cost per km is required.

⁸¹ Network Investment Plan, 1203.

⁸² Annex O, 3.32.

⁸³ RP5 Strategy Paper D4 – LV wood pole OHLs.

⁸⁴ Annex O, 3.32.

- 5.16 Notwithstanding NIE Networks' submission that all decayed poles should be replaced, there is nonetheless a fundamental flaw in the UR's calculation of total pole replacement. Should the UR insist that D3, D4 and S poles are not included as standard, an allowance must be made for replacing these poles when Aerial Bundled Conductor ("**ABC**") is strung on the span for safety reasons. NIE Networks' analysis of the trial data shows that up to 67% of D3, D4 and S poles will require replacement as a result of ABC work, and therefore the unit cost using the UR methodology would in fact be greater than that submitted by NIE Networks.

The UR's regional adjustment

- 5.17 The UR has applied a 5% 'regional adjustment' to decrease the overall costs of the LV ESQCR and refurbishment programme. NIE Networks submits that this approach is unjustified. NIE Networks' RP6 submission was based on costs observed during the RP5 trials. These are actual costs observed across a range of different circuits, the majority of which were incurred following a competitive tendering process. It would therefore be an error for the UR to adopt this additional adjustment in the Final Determination, particularly as the combined effect of this adjustment and the overall efficiency target for this programme is to reduce NIE Networks' allowance for this programme by circa 10%.

Impact of the errors in the UR's approach

- 5.18 The cumulative effect of the identified errors in the UR's approach is that the UR's proposed allowed unit cost set out in the DD are manifestly inadequate for the scope of works that NIE Networks is required to deliver. Across the life of the RP6 programme, the UR's proposed unit cost equates to a disallowance of £3.03 million.
- 5.19 Furthermore, the UR's proposed approach would undermine the CMA's decision in the RP5 Final Determination to grant NIE Networks an allowance to conduct trials for the purposes of establishing a robust cost basis for NIE Networks' RP6 submissions.

NIE Networks' requested allowance

- 5.20 NIE Networks has demonstrated that the approach adopted by the UR in calculating the proposed allowance in the DD is fundamentally flawed. Instead, the UR should grant the allowance proposed by NIE Networks of £21.30k per km which is derived from the actual costs observed in completing the trial circuits.
- 5.21 By way of illustration, NIE Networks has corrected the identified errors in the UR's approach in Table A3.10 below. The table shows the impact on the UR's calculations where the following corrections are made:
- volumes per km are based on average of all trial circuits, including all pole replacements;
 - an allowance is included for undergrounding services calculated by totalling the cost of all undergrounding carried across the trial circuits and dividing by the total kms of the trial circuits;

- an allowance is included for undergrounds mains via the same approach; and
- the regional adjustment is removed.

5.22 This leads to a unit cost of £22.25k per km. This clearly shows that NIE Networks' requested allowance based on the actual costs of carrying out the trials is efficient.

Table A3. 10: UR Replacement Rate and Unit Cost Calculation – Corrected

Replacement Rate Calculation		
	Replacement Rate	Replacements/km
Decayed Poles Replacement	29%	5.81
ESQCR Pole Replacement	7%	1.42
Total Pole Replacement	37%	7.22

Unit Cost Calculation			
Task	Ofgem Expert View (£)	Volume/km	Cost (£/km)
LV Main (OHL) Conductor)	14.69k	0.35	5.09k
LV Service (OHL)	415	4.25	1.77k
LV Pole Replacement	1.43k	7.22	10.36k
LV Pole Refurb	349	12.78	4.46k
U/G Service			261
U/G Mains			323
Sub-Total			22.25k
Removal of Regional Adjustment			0
Total			22.25k

5.23 NIE Networks therefore submits that that in the Final Determination the UR should adopt the unit cost allowance for LV ESQCR and refurbishment set out NIE Networks' submission based on trial costs observed during RP5.

5.24 Should the UR adopt the proposed allowance set out in the DD this will represent a significant disallowance of £3.03 million. This would be erroneous not only because of the specific errors in the UR's methodology identified herein, but also because the UR would put NIE Networks in a position where it is not properly able to finance the entirety of the LV ESQCR and refurbishment programme proposed for RP6 from its regulated revenue.

Looped Services

Introduction

- 5.25 In the Network Investment Plan, NIE Networks requested an allowance under the ESQCR category of investment to replace 1,000 looped services (circa 10% of the number of looped services in total on the network) at a unit cost of £2.45k each.⁸⁵ These services are not compliant with ESQCR legislation and as such NIE Networks are required to replace them.
- 5.26 The total volume of 1,000 replacements is agreed.⁸⁶
- 5.27 The UR has proposed a unit cost reduction to circa £1.46k each.⁸⁷
- 5.28 NIE Networks has submitted a revised unit cost for this work of £1.97k, as explained below.

The UR's approach

- 5.29 In its DD, the UR has disallowed £986 from the unit cost from NIE Networks' submitted cost of £2.45k, resulting in a DD allowance of circa £1.46k per unit.
- 5.30 The UR's approach in determining this allowance is to start with the Ofgem DPCR5 industry median cost for a replacement service of £1.44k and then to add the NIE Networks material cost for a cut-out of £25.⁸⁸

The errors in the UR's approach

- 5.31 The UR's approach is inappropriate and not comparable or representative of the scope of works required to be undertaken by NIE Networks to rectify its looped services in NI, on the basis that the proposed cost does not include for creating a new entry point into the 'looped' property. These premises have internal meter positions with no existing entry point for the new service cable from the outside. As per Table A3.11 below, the Contractor rate for this activity (i.e. to install new 100 mm duct) is £500, which when added to £1.44k is largely in line with the NIE Networks revised position of £1.97k.
- 5.32 NIE Networks has now arrived at a revised unit costing of £1.97k for this work based on the typical scope of works detailed in Table A3.11 below for a typical unit to be delivered. The cost estimates for each cost component are based upon existing material costs and current contractor rates.

⁸⁵ 1220.

⁸⁶ Annex O, 3.40

⁸⁷ Annex O, 3.41.

⁸⁸ Annex O, 3.41.

Table A3.11: detailed unit cost breakdown for looped service replacement

Description	Unit Costs	Number	Cost Type	Costs	Total Costs
Excavate Joint Bay (Mains)	£500.00	1	Contractor rate	£500.00	£1,892.92
Excavate Joint Bay (Service)	£375.00	1	Contractor rate	£375.00	
Excavate Track	£20.17	6	Contractor rate	£121.02	
Install New 100mm Duct	£500.00	1	Contractor rate	£500.00	
Lay Service Cable	£1.65	6	Contractor rate	£9.90	
Cut & Joint cable	£65.54	1	Contractor rate	£65.54	
Change cut-out	£168.46	1	Contractor rate	£168.46	
Multi-service Joint	£130.00	1	Contractor rate	£130.00	
Fit Cut-out	£23.00	1	Contractor rate	£23.00	
Service Joint	£7.23	1	Material cost	£7.23	£77.63
Connectors	£0.56	3	Material cost	£1.68	
SNE Cut-out / pro-chamber	£5.67	1	Material cost	£5.67	
SNE Cut-out / pro-chamber	£5.67	1	Material cost	£5.67	
Joint Shell	£6.63	1	Material cost	£6.63	
8.0Lt Resin	£11.19	3	Material cost	£33.57	
Connectors (Phase & Neutral)	£1.18	2	Material cost	£2.36	
Earth Connector	£0.78	1	Material cost	£0.78	
1/35mm Sp/Conc Cable	£2.34	6	Material cost	£14.04	
				Total	£1,970.55

5.33 This table sets out a revised detailed breakdown of the relevant unit cost for each looped service replacement, including all constituent parts.

5.34 The UR's provisional decision does not take account of the full scope of work involved in a looped service replacement by using an industry median cost for more general replacement services as the basis of determining the unit cost.

NIE Networks' requested allowance

5.35 NIE Networks submits that in the Final Determination the UR should adopt NIE Networks' revised unit cost of £1.97k for rectifying looped services.

5.36 If the UR fails to do so, NIE Networks will face significant difficulty in carrying out what the UR has acknowledged is an appropriate solution to the issue presented by existing looped services, as it would not be adequately funded to do so. The adoption of the proposed unit cost in the DD by the UR would represent a disallowance of £507k from NIE Networks revised submitted costs across the entire RP6 period. As a result of the UR's errors in its methodology NIE Networks would therefore be in a position whereby it would be unable to finance replacement of the looped services via its regulated revenue.

6. ERRORS RELATING TO ALLOWANCES FOR DISTRIBUTION NETWORK REINFORCEMENT

D602 – Investing for the Future

- 6.1 NIE Networks plans for innovation in RP6 are primarily focused on integrating suitably advanced smart solutions into 'business as usual' ("**BaU**") activity. NIE Networks plans to do this by undertaking a programme of focused integration projects with the objective of developing cost effective alternatives to conventional network expenditure. NIE Networks requires suitable allowances to do so. NIE Networks anticipates that these projects should deliver substantial benefits and savings to NI customers in the future.
- 6.2 Whilst the UR in its DD has concluded that *"much of the work proposed has potential"*,⁸⁹ it has invited NIE Networks to submit its views on the issues outlined in its DD, which it will then incorporate into its Final Determination.⁹⁰
- 6.3 Accordingly, NIE Networks wishes to address four areas of concern:
- exclusion of Facilitation of Energy Storage Services ("**FESS**") project costs;
 - exclusion of NIE Networks indirect costs associated with innovation projects;
 - replacement of Remote Terminal Units ("**RTUs**") ; and
 - the UR's request for further work to confirm that the projects proposed will deliver value.

Exclusion of FESS project costs

Introduction

- 6.4 NIE Networks does not currently prevent the connection of energy storage technologies to the distribution system but these technologies are treated as both 'demand' and 'generation' sources and are therefore subject to the same queuing principles.
- 6.5 NIE Networks needs to develop a suitable framework for arrangements with energy storage service providers and to integrate such activities within NIE Networks' regulatory and business structures.
- 6.6 The FESS project is seeking to facilitate activities which will leverage potentially significant benefits from energy storage technologies for the distribution system and address barriers that currently exist to the connection of energy storage, such as the queuing treatment. As highlighted in NIE Networks' RP6 Business Plan, 7.84, NIE Networks anticipates that energy storage solutions will assist with

⁸⁹ 9.38.

⁹⁰ 9.40.

smoothing current demand profiles on the network. This in turn will mean that energy storage solutions will help to both reduce generation costs and at the same time represent a real alternative to investing in conventional network reinforcement in future price control periods. This investment ultimately could have significant benefits for customers.

6.7 This activity is not regarded as a BaU activity that is currently available as an alternative to conventional network reinforcement. This is because storage is both a load connection and a generation export connection (i.e. storage both exports electricity to the network and imports electricity from it) and is at early stages of development and implementation. Therefore, significant development work and investment is required including the development of commercial contracts, operational and control procedures, and locational pricing signals to facilitate the transition of energy storage connections into BaU.

6.8 In the Network Investment Plan, NIE Networks sought an allowance of £300k for the FESS project.⁹¹

6.9 In the DD, the UR has concluded that no allowance should be granted.⁹²

The UR's approach

6.10 In the DD, the UR has proposed that FESS costs should be excluded on the grounds that no cost benefit analysis has been provided for the project and because it considers the activity of connecting energy storage technology to be BaU.⁹³

The errors in the UR's approach

6.11 If the costs associated with the FESS project are excluded from the Final Determination, this will have detrimental consequences for the NI customer and for energy storage providers, because:

- NIE Networks will be unable to develop distribution network services that may enable energy storage devices to defer capital expenditure, thus preventing cost reductions from being passed through to the end customer. The Transform model has identified that cost savings of greater than £12 million in discounted capital expenditure by 2061 may be realised through this project, associated solely with Low Carbon Technologies ("LCT") related demand growth. Energy storage technologies will also be able to defer capital expenditure associated with normal load growth and therefore this figure is anticipated to be an underestimate of the overall potential benefit of the FESS project;
- moreover, energy storage service providers will not have the potential to access both DNO and transmission system operators ("TSO") markets,

⁹¹ Table 71.

⁹² Annex O, 4.40.

⁹³ Annex O, 4.40.

reducing the financeability of energy storage projects and limiting the potential deployment of energy storage devices on the NI distribution system; and

- to ensure that the connection of energy storage to NIE Networks' distribution system is as timely and cost effective as possible, it is necessary to identify and resolve the barriers that currently exist to the deployment of this technology. Development work required will include, but is not limited to, amendment of engineering recommendations, development of energy storage requirement document(s)⁹⁴ and queuing treatment of energy storage services. In the absence of this development work, energy storage technologies will continue to be treated as both demand and generation, subject to the same queuing treatment and associated connection timescales.

6.12 The UR has itself acknowledged that the queuing treatment of energy storage as an important consideration in its recent consultation '*Review of Electricity Distribution and Transmission Connections Policy, Consultation*' under *next steps* where it stated:

*"Certain technologies, such as storage, may be connected before others, such as generation"*⁹⁵

and has advised that NIE Networks and SONI ensure that a robust process is in place for considering new applications.

6.13 This has also been recognised by Ofgem in its recent '*Call for evidence, a smart, flexible energy system*'⁹⁶ where it stated:

"Storage may need to queue for a long time behind generation for a connection even if it can relieve constraints"

and suggested that the following further work is required:

"If a DNO can demonstrate that other customers within the queue can benefit from storage connecting (by enabling quicker and less costly connections through avoided need for reinforcement) then DNOs should promote storage".

6.14 Accordingly, the UR has failed to have regard to the clear benefits (which it itself has acknowledged) that arise from innovative FESS projects.

⁹⁴ Analogous to the WFPS Setting Schedule.

⁹⁵ UR, 'Review of Electricity Distribution and Transmission Connections Policy, Consultation on next steps', 3 April 2017, 1.48 [<https://www.uregni.gov.uk/sites/uregni/files/media-files/Electricity%20Connections%20next%20steps%20consultation%20FINAL.PDF>].

⁹⁶ Ofgem, 'Call for evidence, a smart, flexible energy system', November 2016, Table 3 [<https://www.gov.uk/government/consultations/call-for-evidence-a-smart-flexible-energy-system>].

NIE Networks' requested allowance

- 6.15 NIE Networks therefore submits that the UR should allow the costs proposed by NIE Networks for the FESS project, given the clear benefits to NI end customers and energy storage service providers in allowing NIE Networks to enable the integration of energy storage into the electricity network in NI.
- 6.16 Should the UR insist on excluding the associated FESS costs in its Final Determination, it will hinder NIE Networks' ability to utilise these new techniques to secure a diverse, viable and environmentally sustainable long term energy network.

Exclusion of NIE Networks' indirect costs associated with Innovation Projects

Introduction

- 6.17 In line with GB / Ofgem practice as demonstrated below, NIE Networks has requested an allowance for indirect costs required to support innovation projects of £0.97 million.
- 6.18 The UR has declined to include a proposed allowance for such indirect costs in its DD.⁹⁷

The UR's approach

- 6.19 The UR has proposed excluding indirect costs required to resource the innovation projects from NIE Networks' allowance for these activities on the basis that these costs are

"covered under the general indirect costs set out in Section 5".⁹⁸

The errors in the UR's approach

- 6.20 In reaching its conclusion, the UR has not recognised that the GB DNOs report indirect costs associated with innovation projects separately to their overall indirects allowance and that therefore the UR's proposed approach is not supported by the benchmarking it has carried out by reference to GB DNOs.
- 6.21 The approach of equivalent GB DNOs is illustrated in a guidance note for similar innovation projects in GB in relation to RIIO-ED1, produced by Ofgem in June 2015.⁹⁹ This note contains the following guidance as to the treatment of indirect costs.

- *"The table "Costs allocated by PCFM [Price Control Financial Model ("PCFM")] cost type" requires the DNO to allocate total costs on Eligible NIA Projects and Eligible NIC Bid Preparation Costs to the relevant PCFM Cost Type and by year incurred. These costs should include indirects.*

⁹⁷ DD, 9.38.

⁹⁸ DD, 9.38.

⁹⁹ Ofgem, 'RIIO-ED1 regulatory instructions and guidance: Annex B – Costs and Volumes', 18 June 2015, 4.287- 4.289 [<https://www.ofgem.gov.uk/ofgem-publications/95421/annexbcostsandvolumes-pdf>].

- The table “Eligible NIA [Network Innovation Allowance (“NIA”)] Expenditure by Project” should be used to record costs by project and by year for all projects funded through the NIA. These costs should include indirects.
- The table “Eligible NIC [Network Innovation Competition (“NIC”)] Bid Preparation Costs” should be used to record costs by year related to preparing bids for the NIC. These costs should include indirects.”¹⁰⁰

6.22 It is clear therefore from comparable Ofgem guidance, that the indirect benchmarking exercise performed by the UR has not taken account of the way in which indirect costs associated with innovation projects are incurred and reported by GB DNOs.

6.23 The UR’s approach in this instance would represent an error as NIE Networks has not been granted an innovation allowance which covers all of its innovation associated indirect costs in the same way as has been granted to GB DNOs. Furthermore, the indirect cost estimates included in each of the innovation projects have been developed on a bottom up basis for each specific project in consultation with NIE Networks’ external advisers WSP.

NIE Networks’ requested allowance

6.24 NIE Networks submits that in the Final Determination the UR should include the costs of indirects associated with innovation projects (£0.97 million) as per NIE Networks’ Business Plan proposal, in order to bring the treatment of these costs in line with the GB DNOs.

6.25 If the UR decides to deduct indirect costs associated with innovation projects from NIE Networks’ submission in the Final Determination, its approach will not be supported by its benchmarking exercise and will be an unjustified departure from regulatory precedent. Further, it will have the effect of placing NIE Networks in a position where it is unable to finance innovation works to the NI network via its regulated revenue.

Replacement of the proposed Substation RTUs

Introduction

6.26 NIE Networks currently expects to replace 50% (122) of the existing RTUs under the RP6 Network IT and Telecommunications programme. This will also facilitate progression towards compatibility with Internet Protocol (“IP”) telecommunications standards in RP6. These RTUs will be of an age where the probability of failure is increasing, possibly impacting on network performance. The replacement of RTUs every 15 to 20 years is in line with the approach taken by GB DNOs (e.g. WPD and Scottish Power). This element of the RTU programme has been agreed with the UR in the DD.

¹⁰⁰ Ofgem, ‘RIIO-ED1 regulatory instructions and guidance: Annex B – Costs and Volumes’, 18 June 2015, 4.287- 4.289 [<https://www.ofgem.gov.uk/ofgem-publications/95421/annexbcostsandvolumes-pdf>].

- 6.27 In its Network Investment Plan, NIE Networks additionally proposed to advance the upgrades to the remaining 50% of the RTU population, originally due to take place in RP7, to move them forward into RP6 to complete the RTU programme and become 'IP ready'. It proposed to do so in order to start to facilitate the use of innovative solutions (over conventional only solutions) in addressing LCT investment requirements in RP7 and beyond.¹⁰¹
- 6.28 The cost associated with completing NIE Networks' proposed RTU replacement programme in RP6 is £3.9 million.
- 6.29 In the DD, the UR has proposed replacement of 50% of the additional RTUs (i.e. 25% of total population) in the latter half of the RP6 period, with the remaining 25% of the population being replaced in the first half of the RP7 period. Accordingly, it has proposed an allowance of only £1.95 million.¹⁰²

The UR's approach

- 6.30 In the DD, the UR confirmed that it has analysed the forecast marginal costs associated with the conventional reinforcements that would otherwise be required due to delaying RTU replacements against the use of smart solutions. The UR concluded that the optimised roll out of RTUs could be achieved through the replacement of 50% of the proposed additional RTUs in the latter half of RP6 period and the remainder of the population in the first half of the RP7 period.¹⁰³ Accordingly, the UR proposed an allowance of £1.95 million to cover a programme of 50% of additional RTU replacement in the RP6 period.¹⁰⁴

The errors in the UR's approach

- 6.31 The UR's approach does not consider the impact on the rollout of innovation projects in RP7 as solutions of normal load related growth as well as LCT related load growth. NIE Networks' Business Plan requested for all RTUs to be replaced in RP6 such that the network could be IP ready at the start of RP7.
- 6.32 The downside of not proceeding with this strategic investment during RP6 is that NIE Networks will be unable to roll-out smarter solutions across the network from the start of RP7 and, as a result, the savings that would otherwise be achievable from the adoption of smart solutions will be deferred.
- 6.33 The purpose of the innovation integration trials is to allow NIE Networks to include these new technologies in its analysis for future investment plans in RP7 and beyond. Deferring the replacement of 25% of the RTU population (50% of the total that will be replaced as part of project D602) would introduce uncertainty with regard to the RP7 Business Plan and the achievement benefits identified in the Transform model would be delayed. Until all the RTUs are migrated to ones which

¹⁰¹ 1442-1445.

¹⁰² Annex O, 4.42 and Table 4.13.

¹⁰³ Annex O, 4.44.

¹⁰⁴ Annex O, 4.42 and Table 4.13.

are IP-compatible, additional capacity on the radio network cannot be released, therefore hindering the connection of significant numbers of smart devices.

NIE Networks' requested allowance

- 6.34 NIE Networks considers the UR should allow for the entire RTU replacement programme to be carried out during RP6. NIE Networks submits that, in doing so the UR should grant the allowance of £3.9 million for this work as requested in the Network Investment Plan.
- 6.35 Failure by the UR to provide an adequate allowance to facilitate replacement of all RTU units during RP6 will mean that NIE Networks will not be positioned to accommodate the wider roll out of smart solutions on its networks from the beginning of RP7. By deferring the implementation of IP ready solutions unnecessarily, the UR would be failing to protect the interests of consumers whom would otherwise benefit from improvements to the network and savings achievable from the adoption of smart solutions.

Further work to confirm that the projects proposed will deliver value

Introduction

- 6.36 In the selection of the innovation integration projects in its RP6 Business Plan and as clearly and fully set out in its Investment Plan,¹⁰⁵ NIE Networks engaged with leading consultants (including EA Technology and WSP) to facilitate the selection and development of innovation integration project proposals for inclusion in NIE Networks' RP6 submission.
- 6.37 Projects were selected based on outputs from the Transform Model,¹⁰⁶ assessment by EA Technology of innovation projects carried out in GB including site visits to various DNOs,¹⁰⁷ and assessing the specific investment needs within NIE Networks in part through NIE Networks' internal 'Futures Forum'.¹⁰⁸ NIE Networks used the best information available at that time to develop project proposals, including an assessment of costs and benefits to the customer. NIE Networks submitted cost benefit analysis for reach of the projects identified for completion in RP6 to the UR, with the exception of FESS as this involves development expenditure only during RP6.

The UR's approach

- 6.38 The UR has concluded in its DD that further work is required to confirm that the projects proposed will deliver value to NI customers, and that

¹⁰⁵ 494-501.

¹⁰⁶ Annex NIP X10 'Innovation Integration Project Selection based on Transform Model Outputs'.

¹⁰⁷ presented in Appendix NIP A6 'NIE Networks Review of Innovation Strategies and Projects'.

¹⁰⁸ Network Investment Plan, 497.

"NIE Networks should complete this work and submit the results to the UR before embarking on the procurement of assets and systems and the trials themselves".¹⁰⁹

The errors in the UR's approach

- 6.39 NIE Networks considers the purpose of the innovation integration trials is to determine the feasibility and benefits of each technology, and an output of the trials will be to inform RP7 investment requirements.
- 6.40 As such, it would be an error for the UR to request the additional information as detailed in DD, 9.39 at this stage, as this information will only become available during project implementation throughout the course of RP6.

NIE Networks' requested allowance

- 6.41 NIE Networks submits that the UR would be expected to promote innovation projects in the customers' interests and accept that the information requested in DD 9.39 is not appropriate at this stage.
- 6.42 In requesting information that cannot be obtained prior to the trials commencing, the UR is failing to promote research into, and the development and use of, new techniques by or on behalf of persons engaged in electricity generation, supply, distribution or transmission.

Summary of issues relating to Investing for the Future

- 6.43 Should the UR retain its current position in the Final Determination with respect to the above issues, NIE Networks will not be in a position to trial innovation projects which are shown to have real benefits in developing cost effective alternatives to conventional network investment. Significant progress has already been made in this regard by GB DNOs.
- 6.44 Should the UR fail to adjust its approach to investing in innovation trials to reflect the above evidence submitted by NIE Networks, NIE Networks would be restricted in its ability to promote research and development of new technologies/schemes that could deliver significant benefit to the NI consumer in future regulatory periods.

D57d – Fault Level

Introduction

Reason for investment

- 6.45 When electrical insulation breaks down or when electrical conductors otherwise come into contact with each other or with the ground, very high currents (fault current) can flow until those sections of the network are disconnected automatically by incorporated protection devices. Whilst the network is designed to withstand these fault currents up to the assigned fault rating of the relevant

¹⁰⁹ 9.39.

protection devices, continual reinforcement of the distribution network combined with the increasing number of generators and large motors connected to it can cause prospective fault currents to increase to a point where they may exceed the assigned rating of some of the older operational equipment. This introduces a risk of catastrophic failure when this equipment is exposed to such excessively high current during fault conditions, which carries significant health and safety implications.

- 6.46 NIE Networks has a duty of care to its employees and members of the public to ensure that they are not at risk of injury due to the failure of the company's assets.
- 6.47 Accordingly, NIE Networks has proposed this programme of investment to ensure that all items of switchgear on the NIE Networks distribution system from 33 kV down to 6.6 kV level are operated within their fault level rating. More specifically, this programme of investment is intended to ensure that all switchgear on, or to be connected to, the distribution network can withstand the maximum prospective fault currents that could be expected at the point of connection of that switchgear. This is required so as to comply with the ESQCR.

NIE Networks' assessment of need

- 6.48 The adopted methodology used by NIE Networks to assess the prospective fault level at each network node is based on the *Energy Networks Association, Engineering Recommendation G74* (Procedure to meet the requirements of IEC 909 for the calculation of short-circuit currents in three phase ac power systems).¹¹⁰
- 6.49 The fault-level analysis undertaken by NIE Networks during RP5 has identified substations with switchgear exposed to a fault level in excess of 90% of its nameplate rating. Due to the high level of risk associated with excessive fault currents, equipment should not be operated at its maximum design fault level rating. The 90% threshold has been selected by NIE Networks to cover any inherent inaccuracies within the calculation (e.g. customers operating generation equipment without informing NIE Networks and/or obtaining its consent), potential for reduced assigned rating on older equipment, and to allow for incremental growth of fault currents in the intervening period to replacement.

Requested allowance

- 6.50 Accordingly, NIE Networks requested an allowance that would enable it to either up-grade/reinforce existing switchgear to ensure its fault level remained below 90%, or replace the switchgear with a modern higher fault rated equivalent. NIE Networks sought an allowance of £1.83 million in order to do so.¹¹¹
- 6.51 However, in the DD the UR proposed replacing only that switchgear which currently exceeded 95% of its fault rating,¹¹² and proposed an allowance of £1.68

¹¹⁰ Network Investment Plan, 1338.

¹¹¹ Network Investment Plan, Section 13, Tables 67 and 68.

¹¹² Annex O, 4.28.

million to enable NIE Networks to do so, equating to a disallowance of approximately £151k.¹¹³

The UR's approach

- 6.52 The UR has allowed for investment in relation to switchgear currently experiencing a fault level of 95% on the basis that this was the approach described in Ofgem guidance; '*Strategy Consultation for the RIIO-ED1 electricity price control – Tools for cost assessment – Supplementary annex to RIIO-ED1*'. In particular, paragraph 5.89 of that document states that forecasting the likely level and location of fault issues is difficult, and accordingly Ofgem's approach has been to set the baseline by reference to switchgear with a current fault level in excess of 95% of its current fault rating.¹¹⁴

The errors in the UR's approach

- 6.53 NIE Networks wishes to emphasise that the fault rates set out in its Business Plan submission are not forecast values to the end of RP6 but are current values established some time prior to preparation of the RP6 submission. NIE Networks also submits that equipment with current fault levels in excess of 90% fault level will exceed the 95% limit during RP6 due to:
- an increase in normal customer demand;
 - reduced system impedance through network reinforcement at higher voltage levels;
 - increasing network X/R ratio; and
 - the rate of increase in installation of generating equipment at the lower voltage level (including domestic solar panels). This increase in distributed generation will have the greatest impact on the fault level on the distribution network.
- 6.54 Furthermore, proposed new major synchronous generation planned to be connected to the transmission network over the RP6 period, i.e. CAES at Ballylumford and Evermore at Castlereagh GSP, will have a significant impact on increasing fault levels in areas where equipment already operating in excess of 90% of its fault rating is located.
- 6.55 NIE Networks undertook fault level analysis for the entire distribution network in RP5, based on data for the level of generation connected to the network in 2015. Therefore, the results of the study do not, for example, take account of increased generation levels subsequent to this date nor the potential for fault level growth

¹¹³ Annex O, Table 4.7.

¹¹⁴ Annex O, 4.26.

over the 6.5 year RP6 period (a total period of 8.5 years from 2015, being the date of the data used for NIE Networks' fault level analysis).

- 6.56 In the light of the inherent potential inaccuracies in the calculation, the decrease in performance of older equipment and the high likelihood of growth in the fault level on the distribution network during RP6 and given the consequences of a catastrophic failure of any of this equipment due to operation exceeding its fault rating, the risk of continuing to operate equipment where the rating is greater than 95% of original rating is not acceptable. The 5% tolerance between nameplate rating and operational conditions provides an unacceptably narrow safety margin. Accordingly, equipment must be disconnected and managed off the network once it approaches this point.

Consequences of the UR's approach

- 6.57 Exceeding fault level rating of equipment is a breach of ESQCR and the consequent risk of catastrophic failure of equipment creates a real risk of injury or death.
- 6.58 By way of illustration, the effect of the UR's disallowance is to prevent NIE Networks from carrying out reinforcement and/or replacement in relation to seven 11 kV and 6.6 kV oil filled Ring Main Units in RP6.
- 6.59 The units in question date from the late 1970s and 80s. Due to their early design, oil filled Ring Main Units have lower assigned fault ratings in comparison to their modern equivalents and therefore pose associated operator safety and network risk. Oil filled switchgear is based on obsolete designs from the 1950s, which were tested in accordance with the now withdrawn standard, BS116. The performance standards set within BS116 would not meet current requirements in terms of safety, performance and environmental requirements.
- 6.60 In particular, oil filled Ring Main Units are not internal arc fault tested and therefore any internal fault could result in catastrophic failure of the Ring Main Unit, have an associated risk of an oil based explosion and subsequent fire, and a clean-up procedure for the surrounding environment.
- 6.61 Therefore, given the high risks associated with the continued operation of switchgear approaching 95% of its nameplate rating, NIE Networks submits that it is necessary to fund appropriate mitigation measures for equipment shown to be at a fault level of > 90% at the time of NIE Networks' analysis, to allow for increases in fault level over the RP6 period. With the high level of generation connection in NI, sites already at or exceeding 90% fault level rating are likely to move into the 95% or above fault level category before the end of the RP6 period. NIE Networks is obliged under the ESQCR to reinforce or replace equipment once it approaches a 95% fault level.

NIE Networks' requested allowance

- 6.62 NIE Networks therefore submits that, in the Final Determination, the UR should grant NIE Networks its requested allowance of £1.83 million to fund the

reinforcement and/or replacement of all switchgear with a fault level of 90% or higher of its maximum fault rating at the time of NIE Networks' analysis.

- 6.63 If the UR were, in its Final Determination, to adopt the proposed approach set out in the DD, it will have failed to have regard to the evidence submitted by NIE Networks and will leave NIE Networks with insufficient funding to carry out the work required to proactively ensure that all items of switchgear on the distribution system are operated within their fault level rating. Such a decision would also prejudice NIE Networks' ability to meet ESQCR requirements from its regulated revenue.

D601 – 33 kV Congestion

Introduction

Reason for investment

- 6.64 It is possible to connect moderate levels of embedded generation to the network (i.e. generation connected directly to the distribution network) provided that the aggregated output of such connection is below the minimum load (i.e. minimum demand) at the local primary substation. However, the risk to continuity of supply and likelihood of power quality issues increases substantially if the level of embedded generation exceeds the minimum load, as this creates reverse power flows on the distribution network, which was only originally designed for power flow in one direction. Similarly, if the level of minimum load reduces below the level of embedded generation, the same risk of reverse power flows arises. Such load erosion results in part from the general energy efficiency initiatives undertaken by customers to reduce their electricity demand and from localised economic downturn.¹¹⁵
- 6.65 NIE Networks anticipates that further load erosion will occur during RP6 as a result of the integration of other new incentivised markets accessing the distribution network, including load reduction schemes such as Demand Side Units ("**DSUs**") and other TSO ancillary services. The result of these initiatives is the capacity saturation of substantial sections of the 11 kV distribution network and the appearance of reverse power flows at a significant number of 33/11 kV primary substations.
- 6.66 NIE Networks must therefore make the necessary investments in reinforcement programmes to ensure an acceptable continuity and quality of supply is provided to the NI customer during the RP6 period and beyond.
- 6.67 This investment will also:
- enable SONI Ltd, the TSO, greater access to distribution connected customers for the provision of non-export system services in the Single Electricity Market ("**SEM**"), such as DSUs;

¹¹⁵ Network Investment Plan, 1351-1375.

- remove distribution network constraints which would otherwise stifle the development of zero export generation connections for existing demand customers across NI (as otherwise NIE Networks would be unable to accommodate such connections given the associated load erosion);
- cater for the impact of load erosion on the distribution network resulting from the on-going growth/adoption of G83 micro generation (i.e. the installation of microgeneration assets such as solar panels and hydro or wind turbines on domestic properties and small commercial sites); and.
- facilitate the development of energy storage opportunities at both the domestic and commercial level.¹¹⁶

NIE Networks' assessment of need

- 6.68 In order to determine the level of investment required, NIE Networks commissioned an independent review into reverse power flow capacity on the 33 kV distribution network by its external consultants, WSP. This review confirmed the capacity of the existing distribution network and the reinforcement required to meet the existing committed generation connections, as at December 2015, once anticipated localised load erosion is taken into account.
- 6.69 The distribution network is already experiencing reverse power flows in areas with low levels of minimum demand. At the same time, NIE Networks is receiving increasing numbers of requests from customers who wish to manage their own load by becoming 'energy self-sufficient'. As a result of this, NIE Networks notes that there is a high risk of the already low levels of minimum demand in some areas being substantially eroded. Therefore, NIE Networks instructed WSP to assess the potential longer term impact of 100% load erosion occurring in these areas.
- 6.70 The results of this independent study identified 36 sections of the 33 kV distribution network, including circuits and primary transformers, which are at risk of experiencing reverse power flows at a level which would breach NIE Networks' distribution licence and statutory obligations during RP6 unless remedial action is taken to reinforce the distribution network.¹¹⁷

NIE Networks' requested allowance

- 6.71 In determining its requested allowance, NIE Networks excluded from the 36 sites identified by WSP any sites where these issues would be resolved by other investment projects set out in the Network Investment Plan, such as asset replacement. NIE Networks therefore submits an investment proposal for RP6 of 12 discrete projects at a total cost of £10.4 million.¹¹⁸

¹¹⁶ As outlined at 6.4-6.16 above.

¹¹⁷ Network Investment Plan, Annex NIP A5 'WSP Parsons Brinkerhoff, 33kV Reverse Power Flow report'

¹¹⁸ Network Investment Plan, 1360 and Table 70.

- 6.72 In the DD, the UR has proposed disallowing 2 of these projects, and setting an allowance of £8.9 million.¹¹⁹ This equates to a disallowance of £1.5 million.

Uncertainty mechanism

- 6.73 In addition, NIE Networks proposed an uncertainty mechanism associated with reinforcement of the primary (33 kV) distribution network, to facilitate connection of further embedded generation beyond that factored into the WSP analysis (i.e. in addition to generation already connected or committed at the time of the WSP analysis in December 2015).¹²⁰ NIE Networks considered that further engagement with the UR was required to review all potential solutions and possible funding options, with a view to issuing a public consultation before finalising the mechanism. NIE Networks proposed that this process be concluded before the commencement of the RP6 period. However, the UR has not proposed or commented on a suitable uncertainty mechanism within the DD.

The UR's approach

- 6.74 In the DD, the UR notes that NIE Networks' proposal assumed a 100% load erosion scenario, but also includes sensitivities for 75%, 50% and 25% load erosion.¹²¹ The UR asserted that the more appropriate basis for analysing the need of reinforcement is to assume that 75% of historic minimum demand will be maintained during RP6, equating to load erosion of only 25%.¹²² The UR does not explain in the DD how it came to this conclusion.
- 6.75 The DD states that the sensitivity analysis adopted by the UR has illustrated that a number of transformer reinforcements may not be necessary when load erosion of only 25% is assumed, and therefore disallowed 2 of the 12 projects put forward by NIE Networks.¹²³

Uncertainty mechanism

- 6.76 The UR asserts that managing congestion on the 33 kV distribution network can be more effectively dealt with by way of an ex ante allowance, and therefore has not included any proposed uncertainty mechanism in the DD.¹²⁴

The errors in the UR's approach

- 6.77 NIE Networks submits that in the current climate where demand customers are asking for greater control over their own demand, reinforcement to facilitate only a 25% reduction in minimum load, as proposed by the UR, is overly optimistic and fails to reflect the evidence put forward by NIE Networks.

¹¹⁹ Annex O, 4.36 and Table 4.10 – NIE Networks notes that DD 4.36 erroneously refers to 3 projects being disallowed.

¹²⁰ Network Investment Plan, 1875-1881.

¹²¹ Annex O, 4.33.

¹²² Annex O, 4.34.

¹²³ Annex O, 4.36.

¹²⁴ 13.78.

- 6.78 The WSP study was carried out based on generation data from December 2015. Subsequent to this date, NIE Networks has received approximately 125 zero export applications from demand customers wishing to take control of their own load, by becoming energy self-sufficient. Of these, there are currently 10 live applications for either generation export or load drop projects being assessed by NIE Networks that have been made by customers supplied from two sites which the UR has excluded for reinforcement under its sensitivity analysis in the DD. If NIE Networks is required to limit load erosion to 25% during RP6, not all these sites' applications could be approved during RP6.
- 6.79 Accordingly, should the UR adopt this approach in the Final Determination, NIE Networks would be forced into a position of limiting the zero export applications it can grant on safety grounds to a first come first served basis until the 25% load reduction limit is reached, and would then be unable to grant any further zero export load reduction or generation connection applications from existing customers.
- 6.80 The UR has attempted to justify its stance in allowing only for a 25% reduction of the minimum load on the basis that load erosion rates may also be combatted by the take-up of LCT.¹²⁵ NIE Networks has recognised in its Business Plan that load growth on the distribution network will occur as a result of LCT take-up and has sought provision for such growth elsewhere in this Annex.¹²⁶ However, NIE Networks is not able to determine at this stage where and when specific LCT clustering will occur on the network. The UR's statement that take-up of LCT may combat load erosion rates is therefore too general an assessment of overall load growth, whereas NIE Networks has recognised specific load problems at specific locations on the 33 kV network, which need to be addressed in RP6.

NIE Networks' requested allowance

- 6.81 NIE Networks therefore requests that in the Final Determination the UR:
- provides the full allowance of £10.4 million requested by NIE Networks to enable it to mitigate the technical and safety issues that are arising due to 33 kV congestion based on distribution generation connected up to December 2015 by carrying out all 12 reinforcement projects identified by NIE Networks; or, alternatively
 - confirms that NIE Networks would not be required to grant zero-export applications once the 25% load reduction limit is reached on the distribution network.

¹²⁵ Annex O, 4.35.

¹²⁶ See paragraphs 8.1-8.26 below.

- 6.82 Should the UR not reflect the above proposals in its Final Determination, NIE Networks would be unable to guarantee that all reasonable demands for electricity in NI are adequately met in RP6 and beyond, and would be unable to properly finance essential reinforcement works required to mitigate against 33 kV congestion via its regulated revenue.

Uncertainty Mechanism

- 6.83 NIE Networks is aware of the UR's ongoing consultation process reviewing 'Electricity Distribution and Transmission Connections Policy' and the recently released 'Consultation on Next Steps', issued on 3 April 2017. NIE Networks notes that the consultation does not propose changes to the existing customer charging policy but considers changes to NIE Networks' distribution licence to permit NIE Networks to refuse further connections on grounds of insufficient capacity unless it is shown to be economically efficient to grant the connection.
- 6.84 NIE Networks therefore expects that the outcome of the consultation process will address this uncertainty for both NIE Networks and for NI customers. NIE Networks further submits that, should the resulting proposal provide for an economic test to determine if it is economically efficient to make a connection offer, it would be necessary for the UR to establish an appropriate uncertainty mechanism to allow NIE Networks to recover any associated investment that is not directly chargeable to the applicant.
- 6.85 Should the public consultation prove inconclusive in this area of primary network reinforcement, NIE Networks requests that a suitable allowance or alternative mechanism for the recovery of costs be included in the Final Determination to account for the uncertainty associated with connection of further generation beyond the December 2015 assessment.

7. ERRORS IN SETTING THE SEVERE WEATHER ALLOWANCE

Introduction

- 7.1 NIE Networks put forward a proposed allowance to cover severe weather events during RP6 of £4.6 million. This was based on the actual data available for the first 3.7five years for RP5 in accordance with Method 'A'.¹²⁷
- 7.2 In the DD, the UR has adopted a bespoke method for benchmarking NIE Networks' severe weather costs against those incurred by GB DNOs, and has determined a proposed allowance of £2.11 million.

The UR's approach

- 7.3 The key steps in the UR's approach to determining the proposed RP6 allowance for severe weather costs are as follows:

¹²⁷ Network Investment Plan, 530.

- the UR calculates an average cost for GB DNOs of £307.32k per annum by using six years (2010/11 – 2015/16) of data available from Ofgem RIIO-ED1 RIGs;¹²⁸
- the UR calculates NIE Networks' average costs across the previous 13 years (2003/04 – 2015/16) to determine an average cost of £563.52k per annum;¹²⁹
- the UR weights together the average GB DNO cost and the average NIE Networks' cost by: multiplying the average GB DNO cost by 14 (as there are 14 GB DNOs); adding the average NIE Networks cost; and dividing this total by 15 (14 GB DNOs plus NIE Networks) to determine a weight average cost of circa £324.39k per annum;¹³⁰ and
- extrapolating this weighted average across the 6.5 years of to determine the RP6 allowance of £2.11 million.¹³¹

The errors in the UR's approach

- 7.4 The fundamental flaw in the UR's approach is that it fails to take account of the increased probability of a severe weather event in NI. This is despite the UR acknowledging that so-called '1 in 20' severe weather events (i.e. severe weather events that should occur once every 20 years) have occurred 6 times in NI in the past 13 years.¹³²
- 7.5 This is in stark contrast to the benchmarking approach adopted by Ofgem in the RIIO-ED1 price control, where Ofgem combined three factors in determining the severe weather allowance for the GB DNOs: (1) actual expenditure during DPCR5; (2) the probability of a severe weather event occurring during RIIO-ED1; and (3) the DNO's forecast expenditure for RIIO-ED1. In determining the probability of a severe weather event, Ofgem had regard to the amount of exposed overhead line each DNO had. Ofgem allocated the total expenditure across all DNOs by reference to the modern equivalent asset value ("MEAV") of each DNO's exposed OHL, therefore recognising the relative risk faced by each DNO.
- 7.6 As part of this exercise, Ofgem effectively excluded UK Power Networks ("LPN") given that the vast majority of its network is underground and therefore significantly less susceptible to severe weather events. The UR's inclusion of LPN in its benchmarking alone accounts for an erroneous disallowance of £0.15 million.
- 7.7 Table A3.12 demonstrates the approach taken by Ofgem to setting severe weather allowances in RIIO-ED1.

¹²⁸ DD, 6.34.

¹²⁹ DD, 6.35.

¹³⁰ DD, 6.36 and 6.37.

¹³¹ DD, 6.38.

¹³² DD, 6.5-6.6.

Table A3.12: Ofgem allocation of severe weather allowances based on OHL MEAV

DNO	MEAV (£k)	Percentage	Proportional Allowance	RIIO-EDI Allowance	Per Annum
ENWL	991.04	6	4.0	4	0.50
NPgN	1092.54	6	4.4	4	0.55
NPgY	918.36	5	3.7	3	0.46
WMID	1561.53	9	6.3	6	0.78
EMID	1530.28	9	6.1	6	0.77
SWALES	1264.71	7	5.1	5	0.63
SWEST	1823.92	10	7.3	8	0.91
LPN	-	-	-	-	-
SPN	922.71		3.8	4	0.48
EPN	2171.60	12	8.7	9	1.09
SPD	951.47	5	3.8	4	0.48
SPMW	1327.16	7	5.3	4	0.66
SSEH	1559.04	9	6.2	7	0.78
SSES	1870.28	10	7.5	8	0.94
Total	£ 17.98 million				

7.8 NIE Networks' equivalent overhead line MEAV is £1.77 million.¹³³ Accordingly, adding this to the total and using the Ofgem methodology to calculate NIE Networks' allowance on a per annum basis and then extrapolating this across the 6.5 years of RP6 would lead to an allowance of £6.46 million. This is in stark contrast to the proposed allowance of £2.11 million set out by the UR in the DD, and is also greater than NIE Networks proposed allowance of £4.6 million. This clearly demonstrates the inadequacies in the UR's proposed approach, and the efficiency of the allowance proposed by NIE Networks when properly benchmarked against GB DNOs.

NIE Networks' requested allowance

7.9 NIE Networks submits that the UR should adopt NIE Networks' proposed allowance of £4.6 million in the Final Determination. NIE Networks has clearly demonstrated that this is efficient in light of the equivalent allowances for GB DNOs when properly benchmarked using an approach based on established regulatory precedent that better reflects the realities of the allowance in question.

7.10 If the UR adopts its proposed allowance of £2.11 million in the Final Determination, its approach will not be supported by the available evidence and will represent an unjustified departure from regulatory precedent. Overall, it will result in the UR

¹³³ 110 kV, 33 kV, 11 kV and LV total.

failing to have regard to the higher likelihood of severe weather events in NI as compared with GB, and will prejudice NIE Networks' ability to respond effectively to such events during RP6.

8. ISSUES RELATING TO THE STRUCTURE OF THE PRICE CONTROL

Load/LCT Re-opener

Introduction

Background

- 8.1 NIE Networks requires allowances to accommodate future changes to network demand and load levels brought about by growth in the economy, EU driven energy efficiency initiatives, government policy and more latterly over the course of RP6 by the potential uptake of LCT in NI.
- 8.2 While it is expected that the drive for energy efficiency will create a downward pressure on electricity demand, many of the LCT are designed to reduce the use of carbon fuels through the increased use of electricity for heating and transport (e.g. heat pumps and electric vehicles). This increase in demand places additional pressure on network capacity, particularly in areas where the technologies are clustered. Where there is a reduction in demand, it is possible that embedded generation can cause reverse power flows on the network which can create network loading and voltage drop problems. Consequently, the additional cost of network reinforcement to cater for both scenarios must be included in NIE Networks' forecast for distribution expenditure.
- 8.3 Furthermore, given the uncertainty about the amount, timing and location of LCT uptake and the resultant difficulty in predicting associated future investment requirements, an appropriate uncertainty mechanism is required, i.e. a reopener, during the RP6 period to limit the risk to both NIE Networks and customers should the uptake of LCT be higher or lower than predicted.

NIE Networks' assessment of need

- 8.4 EA Technology has developed an industry accepted parametric model to forecast various up-take scenarios for LCT and the corresponding impact this will have on distribution networks in terms of capacity and investment needs. This is known as the Transform model and it was used extensively by the DNOs and Ofgem in the forecast of LCT expenditure for the regulatory period RII0-ED1.¹³⁴
- 8.5 NIE Networks has engaged EA Technology to develop a similar model specifically for the NI economy and its distribution network and it is this specific model which NIE Networks has used in preparation of its RP6 Business Plan.
- 8.6 NIE Networks has used the Transform model to consider annual growth rates at individual voltage levels (11 kV, 6.6 kV and LV) taking account of the development of LCT in the short term and the sensitivities to their uptake within the RP6 period

¹³⁴ NIE Networks RP6 submission - NIP A4 EA Report 'Transform Model', 2.3.2.

and beyond. The model incorporates load growth associated with LCT in new properties and the retro-fitting of LCT in existing properties.

- 8.7 As an input to the Transform model, EA Technology (along with Element Energy) has produced three scenarios (low, central and high) based on the potential uptake of three individual low carbon technologies (heat pumps, electric vehicles and solar photovoltaic) in NI. As current uptake trends are low, NIE Networks has taken a conservative approach, i.e. the low scenario, when assessing the likely level of LCT uptake during RP6 and the corresponding investment required. It is certainly possible, if not probable, that NIE Networks forecast of uptake and investment expenditure may be low and it is unlikely that it would be high.
- 8.8 The predicted expenditure associated with the uptake of LCT over the RP6 period has been estimated at £13.1 million.¹³⁵
- 8.9 However, it is recognised that there is a high level of uncertainty around the uptake of LCT during the RP6 period, in particular the rate of uptake and clustering effect of LCT. Therefore, within its Business Plan submission NIE Networks proposed a mid-point reopener for load related investment that it believed protected both shareholder and customers from either a significantly higher or lower level of investment in this area.¹³⁶

NIE Networks' reopener proposal

- 8.10 NIE Networks proposes that the UR grant the full ex ante allowance of £13.1 million to ensure NIE Networks has sufficient funding to manage the growth of LCT in NI.
- 8.11 In conjunction with this and to deal with the uncertainty associated with investment in distribution reinforcement and in particular, that which is driven by LCT and load erosion, NIE Networks proposed that an approach similar to the Ofgem re-opener for RIIO-ED1 be adopted.¹³⁷
- 8.12 This proposal allowed a mid-point review and re-opener opportunity in March 2021 for NIE Networks, if required, to demonstrate that efficiently incurred and forecast costs to the end of the period are expected to exceed the allowance (£13.1 million) for LCT driven investment on the 11 kV and LV networks. This would allow the UR to re-evaluate LCT investment up to that point and evaluate forecast LCT growth rates and expenditure to the end of the period. On that basis a revised total ex ante allowance would be set for the period. Expenditure incurred prior to the mid-point review would be subject to the normal D1 cost sharing mechanism.
- 8.13 In the DD the UR has set an inadequate allowance against forecasted load related expenditure of £2.63 million and its analysis of the phasing of expenditure is flawed, as set out below. This low level of allowance means that in all likelihood NIE

¹³⁵ Network Investment Plan, 1317-1334.

¹³⁶ NIE Networks RP6 Business Plan 2017-2024, 11.7.

¹³⁷ Network Investment Plan, 1870-1874.

Networks would have insufficient funds to meet its investment requirements prior to the reopener.

The UR's approach

- 8.14 The UR has identified and agreed the need for a mid-point reopener and has provided an up-front ex ante allowance of £2.63 million (approximately 20% of the LCT investment proposed by NIE Networks), with the balance of £10.5 million ring-fenced and to be determined at the mid-point reopener. The Table (Table A3.13) below shows the reduction (of approximately 80%) in the ex ante allowance for LCT investment and the reopener as proposed by the UR in its DD in comparison to NIE Networks' Business Plan proposal.

Table A3.13

Category	NIE Networks RP6 submission	UR DD
D57 LCT secondary network investment	£13.1 million ex ante allowance with reopener at March 2021	£2.63 million ex ante allowance with £10.5 million ring fenced to be reviewed at March 2021 reopener.

- 8.15 In the UR's DD, the additional allowance of £10.5 million is ring fenced for LCT driven investment only. Its proposal is that this will be replaced by an ex ante allowance to be determined on the basis of assessment of LCT driven expenditure at the mid-point of the RP6 period. NIE Networks is required to make a submission setting out its assessment of LCT uptake and forecast for the last three years of RP6 by 1 September 2020.
- 8.16 In the DD, the UR sets out 4 areas of information that would be expected to be made available by NIE Networks at this mid-point review. Based on this information, e.g. forecasts and estimates, the UR proposes making a preliminary determination of the ex ante allowance by 15 December 2020 and a final determination by 1 March 2021.
- 8.17 In addition, the UR, in response to a query raised in March 2017,¹³⁸ has confirmed that actual expenditure prior to the mid-point reopener would be subject to the 50:50 sharing mechanism and as such NIE Networks would be exposed to any overspend up to the mid-point reopener.

The errors in the UR's approach

- 8.18 NIE Networks' proposed reopener mechanism protected both the shareholder and customers from either a higher or lower level of investment required to accommodate the uptake of LCT in the secondary network. NIE Networks submits

¹³⁸ UR response to NIE Networks DD query NIE012, 28 March 2017.

that the UR's proposal is not appropriate since an inadequate allowance is proposed to fund LCT driven expenditure prior to the mid-period reopener.

- 8.19 The UR's proposal holds back the determination of the total allowance until March 2021 with only a guaranteed ex ante allowance of £2.6 million available up to that point. NIE Networks' forecast expenditure up to the end of 2020 based on the Transform model, is £4.84 million.¹³⁹ This is based on the low LCT uptake scenario. Consequently, if LCT uptake and associated investment is as predicted, NIE Networks would potentially have committed £2.2 million additional investment over the set ex ante allowance before the mid-point reopener in order to maintain licence and statutory network performance obligations by accommodating LCT.
- 8.20 Without an increased up-front ex ante allowance, NIE Networks is exposed to risk which would be further exacerbated should the LCT uptake in fact be higher than forecast at the low level uptake scenario.
- 8.21 The UR states that the ex ante allowance of £2.63 million is based on allowing proposed investment to March 2021 on the principle that investment occurs in the year after the need is predicted by the Transform model.¹⁴⁰
- 8.22 NIE Networks cannot agree with this assertion on two accounts;
- The majority of investment proposed by the Transform model is associated with primary transformer changes. NIE Networks has reviewed the expenditure profiles of similar projects completed during RP5 which show cash flow commencing within three months of the project being sanctioned and 94% of the expenditure occurring within seven months of project sanction.¹⁴¹
 - NIE Networks is already collecting data on the uptake and locations of photovoltaics, heat pumps and electric vehicle installations that will allow for the early identification of potential hot spots ahead of need permitting us to deliver 'just in time' investment. NIE Networks submits that this is critical as the expected high growth rates for LCT load will impact on network performance and customer access if NIE Networks' delays in implementing appropriate mitigation measures.
- 8.23 NIE Networks therefore considers the UR's decision to base the allowance up to March 2021 on investment being made in the year after the need is predicted by the Transform model to be inappropriate. This approach would place NIE Networks at a disadvantage by failing to accurately reflect the way in which expenditure is incurred.

¹³⁹ NIE Networks response UR Query 230.

¹⁴⁰ Annex O, 4.20-4.21.

¹⁴¹ Based on SAP output report on project spend – monthly profile.

NIE Networks' requested allowance

- 8.24 NIE Networks requests that in the final determination, the UR increases the allowance to be provided for the first half of the period in line with the low scenario cash flow predicted and, as suggested by the UR, to determine an ex ante allowance for the remainder of the period following a mid-term review.
- 8.25 If the UR adopts its proposed ex ante allowance of only £2.63 million to cover load growth expenditure up to the re-opener (despite Transform model uptake and expenditure forecasts that NIE Networks will require £4.84 million up to the end of 2020) and if it adopts the re-opener mechanism in its current form (subject to the 50:50 sharing mechanism), NIE Networks will bear the risk of covering 50% of any over expenditure it incurs prior to the re-opener, notwithstanding that such over expenditure will be outside of the control of NIE Networks as it will be the result of unpredictable changes in load levels. If current Transform model uptake expenditure forecasts (£4.84 million) are proved accurate or conservative, NIE Networks already faces the risk of incurring at least an additional £1.1 million prior to the reopener as a result of the UR's reduced ex ante allowance and after the application of the 50:50 cost-risk sharing mechanism.
- 8.26 This represents a significant and indeterminate risk and would not secure NIE Networks ability to fund the works necessary to accommodate changes in load levels as a result of unpredictable uptake of LCT.

I-SEM / DS3

Introduction

- 8.27 In its RP6 Business Plan, NIE Networks outlined that changes to its market operations will be required in order to facilitate the introduction of the Integrated Single Electricity Market ("I-SEM").¹⁴² DS3 is a programme of work that is required to identify the technical changes necessary to allow customers to participate in the provision of services to the TSO, under I-SEM.
- 8.28 The extent of such changes is currently unknown and is beyond NIE Networks' control, and accordingly NIE Networks submitted that the RP6 price control should allow for a mechanism by which the UR can approve additional funding during RP6 as and when it arises.
- 8.29 In the DD, the UR has declined to do so, stating that the current change of law provisions are adequate to allow for any unforeseen future costs.¹⁴³

The errors in the UR's approach

- 8.30 The UR's approach fails to have regard to the fact that NIE Networks may be required to incur significant expenditure as part of the DS3 project. This expenditure could result from further steps to implement the DS3 project which would not require a change of law and therefore, on the basis of the UR's DD, no

¹⁴² NIE Networks RP6 Business Plan 2017-2024, 11.36-11.38.

¹⁴³ 13.62.

mechanism would exist to fund these costs. For example, NIE Networks will be required to invest in network infrastructure and control capability to facilitate the rolling out of I-SEM DS3 System Services to distribution connected customers, otherwise this important market development will be stifled going forwards.

The DS3 Programme

- 8.31 NIE Networks has been heavily engaged in the DS3 programme, which is driven by the TSO to facilitate increased penetration of renewable energy sources, into the market without jeopardising the performance and security of the system. This is necessary to achieve government targets for energy from renewable sources. However, as the majority of renewable energy sources are connected to the distribution network, proposed changes to customer protection settings and utilisation of their capacity to deliver system services will impact on distribution network performance. Therefore, NIE Networks is working in conjunction with the TSO to deliver this programme.
- 8.32 The DS3 programme has so far been a success, and has delivered significant benefits including, but not limited to, enabling System Non-Synchronous Penetration, particularly wind generation, to increase from 50% to 60% of the total generation connected in Ireland across both systems, and reducing the reactive power demand on the Transmission System. However, continued work and investment is required to ensure that distribution connected customers can avail themselves of the additional benefits/services.
- 8.33 An integral part of the DS3 Programme is the development of the 'System Services' market which aims to establish 14 System Services which customers can deliver to the TSO. The Single Electricity Market Committee's *DS3 System Services Future Programme Approach* (SEM-17-017),¹⁴⁴ published on 23 March 2017, states that the annual expenditure cap for the amount payable for System Services will increase from €60 million to €235 million by 2020, such cap to be managed by the TSO.
- 8.34 NIE Networks anticipates that the majority of System Service providers will be connected to the distribution network. This is because, at present, the TSO will have contracted with existing transmission connected sources up to the present cap of €60 million; therefore in order to meet its requirement for System Services up to the cap of €235 million, the TSO will be driven to contract with distribution connected customers. NIE Networks will therefore incur significant expenditure in order to ensure the efficient provision of System Services from the distribution network.
- 8.35 In addition, to enable distribution connected customers to efficiently avail themselves of the DS3 System Services as well as providing better coordination

¹⁴⁴ SEM Committee, 'DS3 System Services Future Programme Approach, Information Paper, SEM-17-017' ("SEM-17-017"), 23 March 2017 [<https://www.semcommittee.com/sites/semcommittee.com/files/media-files/SEM-17-017%20DS3%20System%20Services%20Future%20Approach%20Information%20Paper.pdf>].

between the TSO and NIE Networks as DNO, NIE Networks has begun to consider its transition from DNO to a distribution system operator ("**DSO**"), which transition is necessary to develop the distribution network to allow connected customers to participate in available markets. NIE Networks is engaged in multiple Energy Network Association ("**ENA**") working groups considering the development of these markets. A DSO has been defined by ENA DNO/DSO Steering Group as: *a system operator that securely operates and develops an active distribution system comprising demand, generation and other flexible distributed energy resources. It will also facilitate neutral markets to enable the optimal use of resources on its networks to deliver security, sustainability and affordability to the whole electricity system. DSO enables the prosumer, customer accessibility, customer choice, great customer service and the promotion of competition.*

- 8.36 At this stage, the work required to the distribution system and expenditure associated with DS3 System Services and NIE Networks' wider transition from a DNO to a DSO is unknown.
- 8.37 The SEM-17-017 paper also states that, during 2018, the Commission for Energy Regulation and the UR will commence the scoping of a potential incentive mechanism for SONI to improve efficiency in operating the transmission network for the benefit of the consumers. NIE Networks submits that unless such an incentive is applicable also to it, then the efficient and wide-spread provision of System Services from the distribution system will not be achieved.

Why the UR's approach is flawed

- 8.38 It is NIE Networks' understanding that a change of law is not a prerequisite for the development of the DS3 System Services market and therefore risk mitigation for NIE Networks associated with DS3 System Services or the wider transition to a DSO cannot be achieved through a 'Change of Law' mechanism. If NIE Networks is not able to fund investment from its regulated revenue to facilitate the rolling out of System Services to distribution connected customers, it will stifle the market and therefore prevent the TSO from maintaining stability of the system and ultimately preventing the achievement of targets for renewable energy penetration.
- 8.39 Consequently, in the absence of the Final Determination providing for a reopener mechanism similar to the Dt mechanism within the SONI Final Determination in relation to DS3,¹⁴⁵ and the development of an NIE Networks' incentive mechanism in line with the process outlined within the SEM-17-017 paper¹⁴⁶, the efficient and wide-spread delivery of System Services from the distribution system and the wider transition to a DSO may not be achievable.

¹⁴⁵ UR, 'Final Determination to the Price Control 2015-2020 for the Electricity System Operator for NI (SONI)' ("**SONI Final Determination**"), 22 February 2016, [\[https://www.uregni.gov.uk/sites/uregni.gov.uk/files/media-files/2016-2-22_SONI_PC_Final_Determination_2015-2020_Final.pdf\]](https://www.uregni.gov.uk/sites/uregni.gov.uk/files/media-files/2016-2-22_SONI_PC_Final_Determination_2015-2020_Final.pdf).

¹⁴⁶ SEM-17-017, p. 24-25 [\[https://www.semcommittee.com/sites/semcommittee.com/files/media-files/SEM-17-017%20DS3%20System%20Services%20Future%20Approach%20Information%20Paper.pdf\]](https://www.semcommittee.com/sites/semcommittee.com/files/media-files/SEM-17-017%20DS3%20System%20Services%20Future%20Approach%20Information%20Paper.pdf).

NIE Networks' requested allowance

- 8.40 NIE Networks submits that costs incurred associated with the development of DS3 and the wider transition to a DSO during RP6 should be allowed through the same reopener mechanism that was included within the SONI Final Determination i.e. the overall allowance applicable to SONI will increase during the price control period once the I-SEM and DS3 implementation costs have been established and approved by the relevant authority.
- 8.41 It is also submitted that a suitable NIE Networks' incentive mechanism, in line with the process outlined within the SEM-17-017 paper,¹⁴⁷ needs to be developed for the efficient provision of DS3 System Services from the distribution system. The SONI Final Determination mentions that a further incentive will be considered for DS3 System Services by the SEM committee. The details of this incentive have not yet been published.¹⁴⁸ NIE Networks submits that when that incentive is detailed, a similar incentive should be available to it as the DNO/DSO.
- 8.42 Should the UR instead adopt the position as currently provided for in the DD, NIE Networks would be unable to finance costs incurred beyond its control from its regulated revenue as a result of necessary changes under DS3 and I-SEM, and its ability to secure a diverse, viable and environmentally sustainable long term system would be impeded.

Public Realms

Introduction

- 8.43 In its RP6 Business Plan, NIE Networks put forward a proposal for a mechanism to be included in the RP6 price control to accommodate for unpredictable but potentially large public realm schemes and NIRAUC road schemes. NIE Networks is subject to a statutory obligation to contribute to the funding of NIRAUC schemes.¹⁴⁹
- 8.44 NIE Networks initially proposed that a mechanism should apply to schemes which required contributions from NIE Networks of greater than £100k.¹⁵⁰ During engagement and provision of further data, NIE Networks revised this threshold to £500k.
- 8.45 In the DD, the UR has not proposed to introduce such a mechanism during RP6.¹⁵¹

The need for a mechanism

- 8.46 In its RP6 Business Plan NIE Networks highlighted the names of those specific proposed future schemes which were known to NIE Networks at the time of submission and which, if and when progressed, would require contributions from

¹⁴⁷ SEM-17-017, [<https://www.semcommittee.com/sites/semcommittee.com/files/media-files/SEM-17-017%20DS3%20System%20Services%20Future%20Approach%20Information%20Paper.pdf>].

¹⁴⁸ SONI Final Determination, [https://www.uregni.gov.uk/sites/uregni.gov.uk/files/media-files/2016-2-22_SONI_PC_Final_Determination_2015-2020_Final.pdf].

¹⁴⁹ 11.28-11.33.

¹⁵⁰ 11.3.

¹⁵¹ 13.55.

NIE Networks during RP6. However, this could obviously not be an exhaustive list as other schemes will be developed during the lifetime of RP6. It is therefore impossible to accurately predict NIE Networks' expenditure on contributions to such large schemes on an ex ante basis, and a reopener, or similar mechanism, is required to ensure that NIE Networks can fund these contributions via its regulated revenue.

8.47 In support of the proposed £500k threshold, NIE Networks provided analysis to the UR which demonstrated that a range of such schemes that fall below this threshold can be accommodated within NIE Networks' allowances for asset replacement, load related or alteration investment categories.¹⁵²

8.48 Accordingly, the purpose of the mechanism requested by NIE Networks is to ensure that funding can be put in place for NIE Networks' required contributions to larger schemes where required.

The UR's approach

8.49 The UR asserts at DD, 13.55 that it is not appropriate to establish a new mechanism to address changes in requirements for public realm or major road schemes, which it states is an area which is one of many risks and opportunities within the planned network investment programme. The UR justifies its position on the basis that:

"...public realm work and major road schemes are funded by the NI Executive. Major schemes must compete for funding with each other and within the overall Executive budget. In the current economic climate, there are on-going pressures on government investment and there is no indication of any general increase in investment in roads compared to recent years. While there may be some large individual schemes in the future, this may be at the expense of smaller schemes".¹⁵³

The errors in the UR's approach

8.50 In general, the UR is correct to note that there is a limit on public funding for such schemes. However, the UR's approach fails to take account of the possibility of additional funding becoming available for specific major developments. The UR's position also does not take account of the specific level of funding being targeted by the NI Executive at areas where the network infrastructure is much denser and older resulting in a disproportionate requirement for associated investment by NIE Networks. NIE Networks highlighted two such areas in its RP6 Business Plan: Belfast Streets Ahead and York Street interchange.¹⁵⁴

8.51 Should such major projects be commissioned by the NI Executive, which would be beyond NIE Networks' control, the UR's approach would put a disproportionate burden on NIE Networks' existing allowances for other investment categories, in

¹⁵² Email from [REDACTED] (NIE Networks) to [REDACTED] (UR), 3 March 2017 – RP5 Public Realm Schemes.
¹⁵³ DD, 13.54.
¹⁵⁴ 11.31.

particular asset replacement, load related or alteration investments, leading to a risk of overspend in these areas which could not be adequately funded via NIE Networks' regulated revenue. This risk increases in proportion to the size of the project in question. In particular for NIRAUC road schemes, where the agreement between NIRAUC and NIE Networks dictates that NIE Networks' contributions are triggered once the cabling affected by the scheme works exceeds a specified length.

- 8.52 The UR's approach is also an unjustified departure from the approach taken by the CMA during RP5. In RP5 a specific ex ante allowance was set for public realms-related expenditure. Whilst with the benefit of hindsight, and for the reasons outlined above, this approach was not appropriate given the unpredictable and unavoidable nature of expenditure on such schemes, it does demonstrate that there is need for a specific mechanism to account for these activities, in addition to the other specific investment allowances identified herein.

Conclusion

- 8.53 For the reasons stated above, NIE Networks submits that, in the Final Determination, the UR should introduce a specific mechanism to release finance for any public realm or NIRAUC road schemes requiring contribution from NIE Networks in excess of £500k.
- 8.54 Should the UR fail to adopt this approach, it will prejudice NIE Networks' ability to adequately fund its regulated activities from its regulated revenue.

Substitution Mechanism

Introduction

- 8.55 It is inevitable that during RP6, priorities to replace particular types of assets or to undertake particular projects will change. For example, a new investment stream may be required as a result of asset type failures not originally included in NIE Networks' plan or a higher volume of replacement than predicted may be required.
- 8.56 Therefore, NIE Networks requires a suitable substitution mechanism to deal with this uncertainty and proposed such a mechanism to the UR in its RP6 Business Plan¹⁵⁵ and Network Investment Plan¹⁵⁶. NIE Networks' proposed mechanism provided the flexibility to substitute higher priority outputs or projects for those with a lower priority and to defer the latter to a later date without financial penalty. NIE Networks also proposed an overall cap on substitutions during RP6 equal to 15% of the overall RP6 asset replacement programme (excluding the rolling programmes).¹⁵⁷
- 8.57 The UR has acknowledged in the DD that:

¹⁵⁵ 11.2-11.4.

¹⁵⁶ 1867-1869.

¹⁵⁷ NIE Networks RP6 Business Plan 2017-2024, 11.4 and Network Investment Plan, 1869.

"additional flexibility is necessary to allow it [the company] to respond to changes in priorities and emerging pressures by substituting one type of work for another without either suffering a financial penalty or requiring a separate decision from the Utility Regulator to do so".¹⁵⁸

- 8.58 NIE Networks welcomes the UR's recognition in the DD that additional flexibility is required to deal with such uncertainty. However, NIE Networks submits that the substitution mechanism currently proposed by the UR in its DD would benefit from further consideration for the reasons outlined below.

The UR's approach

- 8.59 The UR sets out its initial proposals in relation to substitution in the sections of the DD concerned with 'Uncertainty Mechanisms' and 'Incentive Mechanisms',¹⁵⁹ *"with a view to further engagement and discussion in advance of the final determination"*.¹⁶⁰
- 8.60 The UR did not accept the "open ended" substitution mechanism put forward by NIE Networks,¹⁶¹ and instead proposed a mechanism which would allow NIE Networks to substitute investment allowances in respect of a defined list of activities only as set out in Annex P to the DD.¹⁶² This is subject to a 20% limit on the value of outputs which can be substituted out of any individual allowance.¹⁶³
- 8.61 This mechanism would be subject to an ex post assessment of its operation, and the UR set out the principles that it proposed would guide this assessment in the DD.¹⁶⁴
- 8.62 The UR and NIE Networks held a meeting on this subject on 12 April 2017, largely to allow NIE Networks to present its initial views on the DD proposals for discussion and to allow the UR to consider further the issue and to clarify its views. While the meeting was constructive and the UR understood NIE Networks' concerns, there remain a number of areas which require further consideration in relation to the substitution mechanism.

Issues with the UR's proposal

- 8.63 Whilst NIE Networks welcomes the UR's proposals, it submits that the substitution mechanism currently proposed by the UR in its DD would benefit from further consideration to address the following:
- the exclusion of new reactive programmes of work from the substitution mechanism;

¹⁵⁸ 13.14.

¹⁵⁹ 13.8-13.19 and 14.11-14.21.

¹⁶⁰ DD, 14.17.

¹⁶¹ DD, 13.15.

¹⁶² DD, 13.16.

¹⁶³ DD, 13.17.

¹⁶⁴ DD, 14.17.

- the use of the lower of the unit costs provided for in Annex P of the DD and outturn unit costs in assessing 'fair value' in substitutions;
- the suggested application of a 20% cap on the value of outputs which can be substituted out of any single allowance as opposed to an overall cap on the level of substitution;
- the expectations with regards to volumes and unit costs in RP7;
- the approach to treatment of substituted volumes of work as pre-funded costs; and
- the approach to the assessment of substituted expenditure at the end of the RP6 period.

The UR's exclusion of new reactive programmes of work from the substitution mechanism

- 8.64 The UR's proposed substitution mechanism excludes arrangements for the introduction of any new programme of work not already outlined in Annex P,¹⁶⁵ which would result in asymmetric application of the 50:50 cost-risk sharing mechanism.
- 8.65 This asymmetry arises because, under the RP5 arrangement, any unforeseen work would be additional to that catered for in the regulatory allowance for the period (i.e. outside of that provided for in Annex P of the RP6 DD in this instance) and would therefore be subject to the D1 50:50 cost-risk sharing mechanism so that NIE Networks would only be able to recover 50% of the cost of any additional work carried out during the period via its regulated revenue.
- 8.66 NIE Networks considers that unexpected/reactive programmes of work should be included within the scope of the substitution mechanism, subject to an ex post review to be carried out by the UR at the end of RP6.
- 8.67 The introduction of such an arrangement would not result in or require an increase in the ex ante allowance since new work introduced would have to be offset by a reduction in lower priority work in a similar manner as for other substitution.
- 8.68 At the meeting on 12 April 2017, the UR appeared to recognise NIE Networks' case for expanding the substitution mechanism to include reactive programmes and that NIE Networks should in principle have the flexibility to alter its investment plan to accommodate such programmes without recourse to the UR on each occasion. NIE Networks therefore encourages the UR to reflect its recognition of this principle in its Final Determination.

¹⁶⁵ DD, 13.16.

- 8.69 It is not possible precisely to quantify the impact of not accommodating this approach as it is not possible to forecast the volume of additional/reactive work due to the nature of that work. However, at this time NIE Networks estimates that c. £5 million of additional unforeseen work might possibly be required, of which only 50% would be recoverable via the D1 mechanism, thereby placing a significant additional financial burden on NIE Networks.

The UR's use of the lower of the unit costs set out in Annex P or those revealed during RP6 in assessing 'fair value' in substitutions

- 8.70 The UR has stated in the DD that it expects the company *"to demonstrate that there is fair value in the substitution of investment and associated volumes within sub-allowances and between the allowances"*.¹⁶⁶ In order to do so, the UR will *"use the lower of the unit cost in Annex P or the revealed unit cost in RP6 to determine fair substitution"*.¹⁶⁷
- 8.71 NIE Networks submits that this approach of selecting the lower of the set unit costs in Annex P or outturn unit costs when evaluating fair value in substitutions, as suggested in the DD,¹⁶⁸ may not always work in the customers' favour depending on how it is applied.
- 8.72 When discussed with the UR on 12 April 2017, the UR accepted this point and suggested instead that there should be no hard and fast rules as to how 'fair value' would be assessed and proposed that an ex post review would be carried out when the full data from the RP6 period became available (some time after the end of RP6). This approach would result in a degree of regulatory uncertainty and the possibility that such a review would be informed by hindsight.
- 8.73 In particular, the determination of outturn unit costs during the price control period is problematic in many categories due to the timing of incurred expenditure and reporting of outputs, especially in low volume work categories. It would be unworkable for NIE Networks to make informed asset management decisions at different times during the period if it was required to attempt to take into consideration the lower of Annex P set allowances and outturn unit costs before determining what outputs to substitute. This aspect of the UR's proposal could ultimately render the substitution method unworkable from NIE Networks' perspective insofar as NIE Networks may be unable to avoid either unintentional deferral of asset replacement or over delivery of outputs.
- 8.74 Accordingly, NIE Networks submits that the Final Determination should set out that the ex post review of the operation of the substitution mechanism to be carried out by the UR will be done by reference to the unit costs stated in Annex P for all unitised work items included in Annex P.

¹⁶⁶ 14.17(i).

¹⁶⁷ DD, 14.17(i).

¹⁶⁸ 14.17(i).

- 8.75 At the meeting on 12 April 2017, NIE Networks outlined its concerns on this point and presented worked examples for the UR to review.¹⁶⁹ NIE Networks has since requested a further update from or further engagement with the UR to review any further developments in this area,¹⁷⁰ however there has been no further engagement on this issue up to date of this Response.

The UR's suggested application of a 20% cap on the value of outputs which can be substituted out of any single allowance

- 8.76 NIE Networks submits that the UR's proposal to limit substitution in any one asset category to 20% in its DD,¹⁷¹ would not provide the optimum asset management solution that the UR intended since it could force NIE Networks to substitute volumes of work out of higher risk assets than would otherwise be necessary if the cap applied to the overall RP6 asset replacement programme as proposed by NIE Networks.
- 8.77 This is because, unless the entire required substitution can be refinanced by a reduction in replacement volumes of the lower risk assets, some of the substitution would have to be refinanced by a reduction in volumes in a higher risk category. This approach is obviously undesirable. NIE Networks notes that the flexibility limiting impact of this approach may be more restrictive than the UR intends.
- 8.78 At the meeting on 12 April 2017, NIE Networks reiterated this risk and suggested that a 20% overall limit across overall reportable outputs would be acceptable. NIE Networks invites the UR to adopt this approach in the Final Determination.
- 8.79 In addition, at the 12 April 2017 meeting the UR also confirmed that the unexpended 'Lump Sums' allowances, for work where there are no defined quantifiable outputs, could also be used for reallocation. NIE Networks is grateful for this confirmation.

The UR's expectations with regards to volumes and unit costs in RP7

- 8.80 The UR has stated that two of the principles governing its proposed approach to ex post review of the operation of the substitution mechanism are that it expects that unit costs will not increase between those forming the basis of substitution in RP6 and those forming the basis of allowances in RP7, and that RP7 volumes will be based on the same run-rate as originally planned for RP6.¹⁷² This approach does not take into consideration the drivers for unit cost and volumes changes. In setting RP7 allowances, due care and attention will have to be given to all volumes and unit costs forecasts and while the historic RP6 costs may be a useful starting point for analysis, there should not be a presumption that increases in unit costs into RP7 or volumes exceeding those planned for RP6, are indicative of an element of deferral of investment.

¹⁶⁹ See spreadsheet 'Flexibility Scenarios - 10 April 2017. xlsx', provided to the UR.

¹⁷⁰ Email from [REDACTED] (NIE Networks) [REDACTED] and [REDACTED] (UR), 27 April 2017 at 11:49.

¹⁷¹ 13.17.

¹⁷² DD, 14.17 (ii)–(iv).

- 8.81 Volumes required in RP7 will depend primarily on the risk attached to retaining assets in service for the duration of the period. Due to the age profile of the asset base, there is a challenge to manage the risk of an increasing ageing population of assets which means asset replacement quantities in certain categories can reasonably be expected to increase in the future. The question of prefunding is addressed below.
- 8.82 The UR's expectations with respect to sustainable benefits of out-performance also fail to take into account real world considerations. For instance industrial strikes, an outbreak of foot and mouth disease, changes in practice to comply with health and safety law or availability of contractor resources can all have an adverse effect on costs and deliverability of projects and work programmes. For unit cost reductions sustainable benefits may be available but not where opportunistic reductions might have been possible due to the particular circumstances pertaining at the time, for instance, the availability of excess stock being made available by suppliers at a reduced rate. Otherwise, with respect to volume reductions at best there may be a situation of diminishing opportunities for further reductions in the future.

The UR's approach to treatment of substituted volumes of work as pre-funded costs.

- 8.83 With respect to the assessment of pre-funded costs, the UR's position, as stated in the DD,¹⁷³ is as follows:

"The assessment of pre-funded costs is not a purely mechanistic exercise of comparing volumes of different types of network investments. It is partly a qualitative exercise, drawing on information on how NIE Networks has adapted its investment and asset management over time".

- 8.84 It is unclear from this if the UR's interpretation of this clause is in line with the CMA's interpretation in its RP5 Final Determination, which goes on to say that:

"Any shortfalls against planned volumes should be considered as potential pre-funded costs, but further review would be needed and NIE should have an opportunity to assess whether specific shortfalls qualify as pre-funded costs (e.g. such shortfalls would not lead to pre-funded costs if they have not increased future investment requirements, perhaps because circumstances changed or NIE addressed the need for the planned investment in a different way)".¹⁷⁴

- 8.85 NIE Networks submits that, in the Final Determination, the UR should clarify how it intends to assess the question of pre-funded costs, and in particular whether its 'qualitative' approach will extend as far as that adopted by the CMA in RP5. This is essential to reduce regulatory uncertainty.

¹⁷³ 14.15(v).

¹⁷⁴ CMA RP5 Final Determination, 5.140.

The UR's approach to the assessment of substituted expenditure at the end of the RP6 period.

- 8.86 NIE Networks requires as much certainty as possible in the Final Determination as to how its substituted expenditure is to be evaluated by the UR at the end of the period. Having the company's decisions challenged on an ex post basis, with the benefit of hindsight, rather than on the primary concept of delivering outputs against ex ante allowances, clearly increases regulatory uncertainty for NIE Networks.
- 8.87 NIE Networks considers that, if the UR intends to implement such a course of action, it should be subject to the same high bar as an ex post efficiency assessment, i.e. there should be significant, unambiguous and demonstrable evidence of a lack of 'fair value' before any more detailed analysis is carried out. Further, the UR should base its assessment on the information available to NIE Networks at the time the investment decision was made rather than on hindsight at the end of the price control period.

Conclusion

- 8.88 For the reasons set out above, NIE Networks submits that the substitution mechanism as proposed by the UR would not work in its current form.
- 8.89 This is because, should the UR adopt the mechanism in the form proposed in the DD, NIE Networks would not be financed via its regulated revenue to carry out any unforeseen work the nature of which is not identified in Annex P. This would mean that NIE Networks would be faced with the choice of either: being unable to carry out such unexpected work streams due to want of funding, and therefore be required to forego any resulting efficiency savings; or accepting a reduced WACC in order to carry out the work.
- 8.90 Accordingly, NIE Networks submits that the substitution mechanism adopted in the Final Determination should employ the proposals put forward by NIE Networks. Such approach will provide NIE Networks the flexibility to introduce new work programmes as and when the need to do so arises, subject to an overall cap on the value of work programmes that can be substituted. The adoption of an overall cap will ensure that NIE Networks is able to substitute in high priority work items at the expense of low priority ones, without having to sacrifice existing high priority work items.
- 8.91 The operation of the substitution mechanism would then be assessed on an objective ex post basis against the ex ante unit costs set out in Annex P in a simple and straightforward manner as set out in NIE Networks' proposed mechanism. NIE Networks' proposed mechanism was presented to and discussed with the UR on 26 January 2017 / 12 April 2017, together with spreadsheet examples provided. This approach would reduce the level of regulatory uncertainty

associated with a subjective ex post review. NIE Networks considers that this approach would work in the best interests of customers.

9. OTHER ISSUES RAISED BY THE DD

RP6 Outcomes, Outputs and KPIs

- 9.1 In its RP6 Business Plan NIE Networks submitted a number of proposed Outcomes, Outputs and KPIs to be delivered during RP6. This approach was in accordance with the UR's RP6 Approach Paper. In the DD, the UR has stated that it will consider these proposals alongside other developmental objectives in putting together the final set of Outcomes, Outputs and KPIs that will be recorded in the Final Determination.
- 9.2 Table 4 of the DD¹⁷⁵ details the outputs the UR expects to be delivered during RP6, the developmental objectives it expects NIE Networks to work towards and the KPIs it will require NIE Networks to report against. Although NIE Networks is broadly in agreement with the proposed approach set out in Table 4, it submits that the UR should have regard to the following when finalising its approach in the Final Determination:
- one output identified by the UR is "ongoing consumer and stakeholder engagement". NIE Networks has set out its concerns in relation to the UR's approach to stakeholder engagement in Chapter 4 of this Response;
 - further, the UR has indicated that there will be new customer advocacy and survey metrics to be developed from start of RP6 through to Year three. These will then be considered as KPIs from Year three of RP6. NIE Networks recognises the value in customer advocacy and survey metrics and submits these should be developed in line with the approach taken by Ofgem for GB DNOs, and should form the basis of a stakeholder engagement incentive mechanism. NIE Networks has set out its proposals in this regard in more detail in Chapter 4 of this Response; and
 - in Table 4, the UR combines "*Asset Health and Load Indices*" as a single KPI. NIE Networks submits that this approach is not appropriate. NIE Networks has developed Load Indices over a number of years and this data is at a mature stage for annual reporting and therefore can be considered as a KPI throughout RP6. However, Asset Health Indices is not currently reported, and as such investment in IT systems would be required to enable production and reporting of this KPI during RP6. Specifically, this reporting metric will require the implementation of new Condition Based Risk Management ("**CBRM**") IT systems to be in place and therefore will not be implemented until the latter stages of RP6. In its DD, the UR has

¹⁷⁵ P. 41-42.

proposed to disallow the expenditure requested to fund this investment.¹⁷⁶ NIE Networks therefore submits that Asset Health Indices should only be included as a developmental objective with a view to implementing it as a KPI in the latter part of RP6, subject to an adequate allowance being made available in the Final determination to undertake the necessary IT investment.

- 9.3 In addition to the above, the UR has identified a number of specific nominated outputs to be delivered in RP6 which are listed in the DD, 4.43. NIE Networks will introduce reporting on progress against these outputs in RP6.

D5 Uncertainty Mechanism

Introduction

- 9.4 The D5 mechanism was introduced by the CMA in its RP5 Final Determination, to allow the UR to increase NIE Networks' revenue during the price control period to allow for the costs of additional investment to increase the capacity of the transmission system.¹⁷⁷ However, two specific asset replacement projects (Ballylumford Switchboard and Coolkeeragh – Magherafelt transmission line)¹⁷⁸ were also included in the CMA RP5 Final Determination.

D5 in RP6

- 9.5 NIE Networks welcomes that in the DD, the UR has proposed widening the scope / extending the D5 mechanism to cover three more specific asset replacement projects and distribution works, as follows:¹⁷⁹

- The Ballylumford to Castlereagh 110 kV transmission line refurbishment project;¹⁸⁰ and
- Two distribution reinforcement projects, Armagh Main and Airport Road.¹⁸¹

- 9.6 The reason for the inclusion of these three additional projects are (a) the need to develop firm costs through a pre-construction exercise (in the case of the Ballylumford to Castlereagh line) and (b) the association of two distribution projects which are linked to transmission projects under consideration by SONI for RP6 under the D5 mechanism.

The future of the D5 mechanism

- 9.7 In its DD, the UR proposes that the D5 mechanism should not be the norm for large uncertain asset replacement projects and distribution works, and that ex ante

¹⁷⁶ NIE Networks' response to the UR's proposal to disallow the costs associated with the implementation of CBRM IT systems is set out at Chapter 6, Section 2 of this Response.

¹⁷⁷ CMA RP5 Final Determination, 7.39.

¹⁷⁸ CMA RP5 Final Determination, 5.26.

¹⁷⁹ 9.25 (ii) and (iii).

¹⁸⁰ 9.25 (ii).

¹⁸¹ 9.25 (iii).

allowances should instead be proposed where possible. Such ex ante allowances would be based on costs submitted as a result of pre-construction exercises conducted in advance by NIE Networks.

9.8 In particular, the UR states in the DD that:

"while there is a case of determining allowances at a later date under the D5 mechanisms where the scope, cost and programme are not well defined, this should not be viewed as the norm".¹⁸²

9.9 NIE Networks submits that the D5 mechanism, or a similar mechanism, should continue to be made available in future price control periods.

9.10 It can be reasonably anticipated that in NIE Networks' RP7 business plan submission, there will be similar uncertainty and project issues, which will require a similar mechanism as currently provided for under the D5 mechanism. However, in the DD the UR states that:

"It is for the company to plan development work on this type of project to ensure that, where possible, ex ante allowances can be included in the Price Control determination rather than delayed to a later date".¹⁸³

9.11 In order to arrive at a submission cost suitable to assess and make ex ante allowances, it would be necessary for NIE Networks to be provided with an allowance in RP6 to carry out the pre-construction works needed to put it in a position where it is able to provide a sufficiently detailed and accurate submission with respect to projects to be carried out in RP7. NIE Networks will endeavour to submit for ex ante allowances wherever possible in future price controls, but a mechanism should remain for a D5 type approach for atypical projects, particularly where predicting the scope and cost of large projects over longer timeframes is difficult. In reality, there is little difference in the nature, scope or scale of large transmission asset replacement and transmission load-related projects, the latter of which are subject to a pure D5 approach for all projects as embodied in the CMA RP5 Final Determination.¹⁸⁴

9.12 Whilst the immediate consequences for RP6 projects are minimal, as the D5 mechanism is proposed to continue for RP6 projects, NIE Networks is concerned about the risk for future price control projects of not having such a mechanism available to it. At present, NIE Networks would not have funding to perform pre-construction activities during RP6 in order to inform calculation of ex ante costs for submission of its RP7 business plan.

D5 as a licence condition

9.13 Separately, NIE Networks looks to the Utility Regulator to address in its Final Determination a significant weakness in the D5 mechanism (as well as other such

¹⁸² 9.27.

¹⁸³ 9.27.

¹⁸⁴ CMA RP5 Final Determination, 5.246 - 5.279.

flexibility mechanisms) arising from the fact that it necessarily involves the UR determining an allowance for a particular D5 project subsequent to the finalisation of the ex ante price control. As such, under present arrangements, the UR's determination in relation to a D5 project is not subject to the same statutory appeal mechanism as applies to the periodic review. If NIE Networks disagrees with the UR's assessment, its only recourse is to judicial review in the High Court, a body that is not usually required to make expert judgements on matters of economic regulation.

- 9.14 The solution to this anomaly is for the D5 mechanism to be structured so that it takes effect as a modification to NIE Networks' licence. Under the licence modification regime that now applies, it would then be open to NIE Networks to appeal the matter to the CMA - a body that is ideally placed to make its own assessment of the matters that form the basis of a determination made through the D5 mechanism. That would address the concern that the UR's current approach to the D5 mechanism effectively by-passes the checks and balances which legislation has established for price controls (and other forms of licence modification), which in principle is likely to result in lower quality decisions by reason of the fact that the risk that such decisions might be subject to scrutiny by an expert sister regulator is eliminated.
- 9.15 There is no reason to suppose that such a solution would add significantly to the burden on the UR in making a D5 assessment. All that would be required in addition to the present mechanism would be a short licence modification recording that an allowance of £X had been allowed for a named project under the D5 mechanism. The statutory consultation would make use of material that will already have been produced for the purposes of the D5 evaluation. This approach would be consistent with the approach adopted by Ofgem for under the Strategic Wider Works or "SWW" programme. The SWW arrangements were introduced by Ofgem to provide flexibility to bring forward projects when more information is available (rather than only allowing projects that were agreed at the start of the price control). Similar to D5, this helps to manage uncertainty and ensure value for money for consumers by ensuring that network infrastructure projects are progressed at the most appropriate time.
- 9.16 In addition, as further considered in Chapter 5, Section 6 of this Response, the DD is silent on how indirect costs are to be treated if/when NIE Networks applies for D5 approvals during RP6. It is reasonable to infer from the DD that the UR will consider and grant additional allowances for indirect costs associated with D5 projects, however, NIE Networks considers that this should be made explicit in the Final Determination. For the avoidance of doubt, NIE Networks considers that it would be an error if the UR were to exclude the possibility that indirect costs would be allowed for D5 projects.

Conclusion

- 9.17 NIE Networks seeks assurances from the UR that the D5 mechanism (or similar mechanism) as applied in RP5 and in particular the wider scope of its application in RP6, will be maintained for future price control periods.
- 9.18 Should the UR be minded to withdraw the availability of the D5 mechanism or significantly limit its scope in RP7 and beyond, NIE Networks would be prejudiced in its ability to finance its regulated activities from its regulated revenue.
- 9.19 In addition, NIE Networks requests that the UR confirm in its Final Determination that it is content to adopt this approach as it is in the interests of better regulation and reflects the material nature of the projects likely to be approved under the D5 Mechanism, which requires the UR to take a proportionate approach to assessment that should be subject to the scrutiny provided for in the statutory regime.

ANNEX A3.2

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ANNEX A5.1

NERA MAY 2017 INDIRECT AND IMFT REPORT



Response to UR's Draft Determination on Benchmarking Indirect and IMFT for RP6

Prepared for NIE Networks

15 May 2017

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Executive Summary

On 24 March 2017, the Utility Regulator of Northern Ireland (UR) released its Draft Determination (DD) for the sixth electricity distribution and transmission networks' price control (RP6) that begins on 1 October 2017.¹ For RP6 UR has undertaken comparative benchmarking to assess the efficient distribution Indirect and Inspection, Maintenance, Faults and Tree cutting (Indirect and IMFT) costs for NIE Networks (NIE).

In this context, NIE has commissioned NERA Economic Consulting (NERA) to review UR's DD and the accompanying papers produced for UR by Cambridge Economic Policy Associates (CEPA). This report reviews the key elements of UR and CEPA's methodology to benchmarking and setting allowances for Indirect and IMFT costs.

Reflecting the limitations of UR's benchmarking models, we then present a set of special factor adjustments intended to make the benchmarking better control for the differences between NIE and the British Distribution Network Operators (DNOs). UR indicates in the DD that it will consider making special factor adjustments before publishing the Final Determination (FD) on 28 June 2017.²

As we discuss in this report, UR's approach to setting allowances does not account for changes in efficient Indirect and IMFT during RP6 due to changing requirements. This paper therefore also estimates the changes in efficient Indirect and IMFT that NIE will incur during RP6, which we recommend UR considers in the FD.

Assessment of UR's Approach to Benchmarking at RP6

UR appears to have cherry-picked those models showing NIE in the least favourable light

UR's model selection process undermines its ability to robustly compare NIE's costs to those of the British DNOs. UR has based its DD allowances on only a subset of the models recommended by CEPA, ignoring CEPA's recommended disaggregated models, without providing any explanation for its approach. UR's decision to rely solely on top-down models also appears at odds with recent regulatory precedent from Ofgem and the CMA and contradicts its own statements within the DD which support the use of a wider range of models and drivers.

UR also ignores the disaggregated benchmarking evidence submitted alongside NIE's business plan by NERA, which finds NIE to be above the efficiency frontier. The arguments for ignoring the disaggregated modelling are incorrect and contradictory. Finally, UR's decision to ignore the MEAV-based models recommended by CEPA is similarly unjustified.

In essence, UR seems to have cherry-picked those models that show NIE in a less favourable light, ignoring those models that show NIE to be efficient.

¹ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination".

² Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.18.

UR's approach does not control for important differences between NIE and the British DNOs related to connections and wayleaves

Historically, NIE has been the only party carrying out connections work in Northern Ireland, whereas connections work is a contestable activity for British DNOs. At RP5 the CC accounted for the different scope of connection activities between NIE and its comparators by excluding indirect costs related to connections activities. However, UR proposes to place a 50% weight on “pre-allocation” models which include indirect costs allocated to connections.

Additionally, UR's approach fails to address differences between NIE's connections workload compared to the British DNOs, a problem which the CC identified at RP5. This flaw in UR's approach will cause its benchmarking to understate NIE's relative efficiency and cause its allowances to understate NIE's efficient costs.

UR's models also fail to account for NIE's higher wayleaves costs due to the higher proportion of overhead lines in its network. UR includes wayleaves payments in its benchmarking, in contrast with Ofgem's approach at RIIO-ED1. UR's failure to control for NIE's relatively high wayleaves costs will cause its benchmarking to understate NIE's relative efficiency and cause its allowances to understate NIE's efficient costs.

UR exaggerates the benefit NIE gains from being in a relatively low wage region

Like Ofgem at RIIO-ED1/GD1, UR adjusts NIE and British DNOs' labour costs using a Regional Wage Adjustment to control for different wages around the country. However, UR argues that because it cannot find the source of Ofgem's assumptions on the proportion of labour which must be located locally, that it is appropriate to reduce by 50% the proportion of labour that it assumes must be located in the same region as the DNO.

As CEPA itself acknowledges, models that fail to make this adjustment exaggerate the adjustment for regional labour costs in the benchmarking.³ Therefore, UR's approach exaggerates the modelled inefficiency of companies (like NIE) in relatively low wage regions.

We recommend UR reconsiders its benchmarking approach in the FD

The problems identified above have material consequence for NIE's modelled efficiency gap. Correcting these problems, we estimate NIE's efficiency gap would fall to between *minus* 7.45% and *minus* 8.02%, from UR's current estimate of 1.96%. Hence, consistent with the finding from earlier benchmarking work conducted by NERA, we conclude UR's analysis suggests no evidence of technical inefficiency embedded within NIE's current level of Indirect and IMFT costs.

Special Factor Adjustments

UR acknowledges that its chosen econometric benchmarking models do not necessarily control for all differences between NIE and the British DNOs.⁴ As a result, UR invites

³ CEPA (March 2017), “Regional Wage Adjustment, The Northern Ireland Utility Regulator (UR): Final Report”, p. 18.

⁴ Utility Regulator (24 March 2017), “Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination”, p. 81.

respondents to the DD to demonstrate and quantify any special factors which should be applied to NIE's benchmarked costs.

We have identified potential special factors in our previous work

In the context of preparing its RP6 business plan, NIE commissioned NERA in 2016 to investigate the differences between NIE and the British DNOs that were likely to materially affect the results of comparative benchmarking.⁵ Building on this earlier work, we have identified a number of differences that are sufficiently material to justify special factor adjustments in UR's benchmarking.

Applying the special factors for which UR's chosen models do not control shows NIE is more efficient than the upper quartile

All three of UR's chosen models use general "scale" variables to account for differences in a DNO's total costs. As such, they do not take account for factors which cause NIE to carry out more work relative to the size of network or number of customers. From the potential special factors which we have previously identified, we have found that there are three principal special factors of which UR's models do not take account:

- High IMFT costs related to the rurality of NIE's service region and the design of its network;
- High wayleaves costs due to NIE's high proportion of overhead network; and
- High indirect costs associated with connections due to less contestability and faster customer growth.

We have quantified each of these special factors using disaggregated benchmarking models which explicitly account for the cost drivers most relevant to these cost items.

We have also estimated the impact on NIE's costs of offsetting factors which reduce NIE's costs relative to British DNOs. Offsetting factors apply due to a more demanding GSS in Great Britain and differences in the timing of NIE's ESQCR compliance programme.

The combined effect of these special factors on NIE is shown in Table 1. The special factor claim is higher in pre-allocation models which do not control for NIE's additional connections work, and is also largest in the M4 model, which is least capable of capturing the effect of NIE's long overhead network on its costs, as it imposes a relatively high weight on customer numbers and units distributed.

⁵ NERA (28 June 2016), "*Special Factors Affecting NIE's Costs Relative to the British DNOs, Prepared for NIE Networks*".

Table 1
Annual Average Special Factor Claim
Reported in Million Pounds (Oct-2015 Prices)

Model	Pre-Allocation		Post-Allocation	
	No LLA	Full LLA	No LLA	Full LLA
1. CEPA	4.99	7.27	1.74	2.06
2. M4	8.76	10.44	5.48	5.47
3. M6	5.52	7.81	1.81	2.14

Source: NERA analysis of Ofgem and NIE data.

Applying the special factor adjustments shown in Table 1, we estimate that NIE's efficiency gap falls to *minus* 0.67%, since NIE becomes more efficient than the upper quartile company.⁶

UR's Approach to Setting Allowances in RP6

UR's approach to setting allowances for RP6 is to take modelled efficient costs for the base year (2015/16) and roll forward based on its assumed frontier shift target, which reflects assumed productivity improvement, offset by forecast growth in input prices. There are two problems with this approach:

- UR's approach does not control for the fact that expenditure in 2015/16 may not reflect expenditure in a "typical" year, which could cause allowances set for RP6 to be higher or lower than the efficient costs NIE expects to incur in the coming years; and
- UR's approach does not account for any change in efficient Indirect and IMFT costs due to changes in the volume of required work, for reasons such as growth in the company's allowed capital programme, new regulations or the cost of meeting higher standards.

We have identified number of factors that will cause NIE to incur additional Indirect and IMFT costs during RP6 due to increases in workload:

- ESQCR and Tree Cutting (Safety Clearance) costs: Growth in NIE's tree cutting programme, partly due to ESQCR, will increase tree cutting costs during RP6.
- ESQCR and I&M costs: Meeting the new ESQCR requirements will increase NIE's I&M costs, as it needs to inspect its network to assess the extent to which it complies with the new regulations, and in some cases conduct maintenance work to ensure compliance.
- Capex programme and CAI costs: Growth in NIE's capex programme will also cause some increase in indirect costs to plan and manage the additional direct expenditure.
- Wayleaves requirements and costs: Growth in NIE's network length will increase NIE's wayleaves requirements and therefore wayleaves costs.

⁶ Note, we calculate this adjusted efficiency gap before applying our recommended changes to the benchmarking to broaden the range of models used for UR's "triangulation" and apply the local labour adjustment in full.

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We have estimated that NIE's efficient costs during RP6 will be approximately £4.2 million per year higher than in UR's base year due to these changes in workload (see Table 2).⁷

Table 2
Summary of Efficient Additional Revenue Requests
Reported in Million Pounds Per Year (Oct-2015 Prices)

	£m
Tree Cutting (Safety Clearance)	0.8
I&M	0.3
CAI - ESQCR	1.4
CAI - Change in Capex	0.9
CAI - 33kV Congestion	0.3
CAI - Investing for Future	0.3
Wayleaves	0.1
Total	4.2

Source: NERA analysis of Ofgem and NIE data.

⁷ Based on the average workload during UR's chosen benchmarking period, the first four years of RP5.

1. Introduction and Background

On 24 March 2017, the Utility Regulator of Northern Ireland (UR) released its Draft Determination (DD) for the sixth electricity distribution and transmission networks' price control (RP6) that begins on 1 October 2017.⁸ For RP6 UR has undertaken comparative benchmarking to assess the efficient distribution Indirect and Inspection, Maintenance, Faults and Tree cutting (Indirect and IMFT) costs for NIE Networks (NIE).

In this context, NIE has commissioned NERA Economic Consulting (NERA) to review UR's DD and the accompanying papers produced for UR by Cambridge Economic Policy Associates (CEPA). This report reviews the key elements of UR and CEPA's methodology to benchmarking and setting allowances for Indirect and IMFT costs.

Reflecting the limitations of UR's benchmarking models, this paper then presents a set of special factor adjustments intended to make the benchmarking better control for the differences between NIE and the British Distribution Network Operators (DNOs). UR indicates in the DD that it will consider making special factor adjustments before publishing the Final Determination (FD) on 28 June 2017.⁹

As we discuss in this report, UR's approach to setting allowances does not account for changes in efficient Indirect and IMFT during RP6 due to changing requirements. This paper therefore also estimates the changes in efficient Indirect and IMFT that NIE will incur during RP6, which we recommend UR considers in the FD. This report should be read alongside an accompanying NERA report which reviews UR's proposed allowances in the DD for Real Price Effects (RPEs) and ongoing productivity improvement.¹⁰

1.1. The RP6 Price Control Review Process

1.1.1. Overview of the process to date

In December 2015, following a consultation process, UR published its Final Overall Approach to NIE's 6th Transmission and Distribution Price Control (RP6).¹¹ This Final Approach document sets out the approach UR intends to follow in setting NIE's revenue cap for RP6, as well as a detailed timetable of the price control review process. After receiving NIE's RP6 Business Plan in June 2016, UR issued its DD in March 2017. Following a consultation period, UR expects to publish its FD by 28 June 2017.

⁸ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination".

⁹ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.18.

¹⁰ NERA (15 May 2017), "Response to UR's Draft Determination on Real Price Effects for the RP6 Control Period, Prepared for NIE Networks".

¹¹ Utility Regulator (22 December 2015), "Northern Ireland Electricity Networks Ltd, Transmission & Distribution 6th Price Control (RP6): Final Approach Document".

1.1.2. Comparative benchmarking submitted with NIE's RP6 business plan

As part of the RP6 process, UR indicated in its Final Approach document that it intended to employ comparative benchmarking models in determining NIE's revenue cap for the RP6 control period. Therefore, UR required NIE to provide evidence that it had conducted benchmarking of its own costs to inform its RP6 business plan submission:

“We expect NIE Networks to have carried out sufficient benchmarking to inform its decision on the scope for improving efficiency that it has included in its RP6 Business Plan. We expect to see this justification together with information for us to be able to carry out benchmarking checks against peer enterprises operating elsewhere in the UK and Europe”.¹²

In this context, NIE's business plan submission in June 2016 was accompanied by a NERA report.¹³ In this report, we performed a comparative benchmarking analysis of NIE's Indirect and IMFT costs against the British DNOs, for the purpose of informing NIE and UR of the extent of efficiency (or inefficiency) in the company's current expenditure, and thus the scope for efficiency improvement that should be factored into the RP6 business plan.

Our approach implemented the methods used by Ofgem at the recent RIIO-ED1 price control review in Great Britain and the Competition Commission (CC) following the referral of NIE's RP5 price control. We found that NIE's Indirect and IMFT costs between 2012/13 and 2014/15 were around 4.2% lower than the modelled efficient frontier, and that NIE ranked 2nd out of the 15 DNOs. Hence, the Ofgem benchmarking methodology showed no evidence of technical inefficiency embedded within NIE's current level of Indirect and IMFT costs.¹⁴

In October 2016, NIE submitted an updated version of the NERA benchmarking report, which included the results of the benchmarking analysis using NIE's latest 2015/16 RIGs data.¹⁵ This updated report confirmed the conclusion from the earlier work, that the models used suggested there was no evidence of inefficiency embedded in NIE's current Indirect and IMFT costs.

1.1.3. Comparative benchmarking used in the Draft Determinations

Since the submission of NIE's RP6 business plan, UR and its advisors (CEPA) have been working to develop their own benchmarking models. CEPA's benchmarking report sets out

¹² Utility Regulator (22 December 2015), “*Northern Ireland Electricity Networks Ltd, Transmission & Distribution 6th Price Control (RP6): Final Approach Document*”, p. 25.

¹³ NERA (28 June 2016), “*Comparative Benchmarking to Support Preparation of NIE Networks' RP6 Business Plan, Prepared for NIE Networks*”.

¹⁴ NERA (28 June 2016), “*Comparative Benchmarking to Support Preparation of NIE Networks' RP6 Business Plan, Prepared for NIE Networks*”, p.ii.

¹⁵ NERA (31 October 2016), “*Updated Benchmarking Analysis Using 2015/16 RIGs Data, Prepared for NIE Networks*”.

its recommended models,¹⁶ some of which UR has used in determining the adjustment to NIE's baseline costs in 2015/16.¹⁷

In particular, as we explain more in detail in Chapter 2, UR has ultimately relied on three aggregated Indirect and IMFT models which use generic scale variables as cost drivers, under two different scenarios for the allocation of indirect costs related to connections, and two different scenarios regarding the share of labour that needs to be located in the same part of the country as DNOs' network assets. Hence, UR has relied on twelve benchmarking models to assess the efficiency of NIE's current Indirect and IMFT costs. Placing an equal weight on each model, UR obtains a triangulated catch-up efficiency factor for NIE of 1.96%.

1.1.4. UR's proposal to consider special factors adjustments

In its DD, UR invites NIE and other stakeholders to make special factor claims that address the limitations of UR's chosen benchmarking models since it recognises that they "may not take into account all differences between companies, especially if these circumstances are unique".¹⁸ As explained in more detail in Chapter 4, the DD provides guidelines on the criteria against which UR will consider special factor claims in its FD.¹⁹

1.1.5. UR's approach to setting NIE's opex allowance at RP6

According to the DD, to obtain NIE's Indirect and IMFT expenditure allowance during RP6 UR will apply the triangulated catch-up efficiency factor for NIE (equal to 1.96%) to NIE's base year Indirect and IMFT costs in 2015/2016.²⁰ This will then be rolled forward to account for UR's assumed frontier shift, which reflects its expected rate of productivity improvement less forecast growth in input prices.

As we discuss in more detail in Chapter 5, as part of its business plan submission in June 2016, NIE identified additional Indirect and IMFT costs that it will incur in the future to accommodate changing requirements during RP6 (for example due to new regulations and growth in its capex programme). However, in the DD UR rejects all requests made by NIE for increases in Indirect and IMFT costs during RP6 on grounds that the GB comparators, against which NIE's costs are benchmarked, were already carrying out the additional work referenced by NIE in requesting additional funding.

¹⁶ CEPA (March 2017), "RP6 Efficiency advice, The Northern Ireland Utility Regulator (UR): Final Report", p.37-38.

¹⁷ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.92.

¹⁸ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.81, para.5.144.

¹⁹ The DD does not provide information regarding UR's approach to including these claims to set NIE's allowance for RP6. However, based on the most recent discussions between UR and NIE and NERA, we understand that UR is planning to use a post-modelling special factor adjustment approach in order set NIE's RP6 allowance for Indirect and IMFT costs.

Source: Discussions between UR, NIE and NERA during the workshop organised by UR at its premises in Belfast on 9 May 2017.

²⁰ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.92.

1.2. Structure of this Report

The remainder of this report is structured as follows:

- Chapter 2 describes the comparative benchmarking approach used in the DD;
- Chapter 3 reviews UR's proposed methods for setting NIE's RP6 allowances for Indirect and IMFT costs;
- Chapter 4 summarises our work to compute special factor claims that control for some of the limitations of UR's benchmarking models that arise due to specificities of NIE or its service region that are not controlled for by the cost drivers in UR's chosen models;
- Chapter 5 estimates the change in NIE's efficient Indirect and IMFT costs over the RP6 period due to changes in circumstances, such as new regulatory requirements and changes in the scale of its direct operating and capex programmes;²¹ and
- Chapter 6 concludes.

²¹ Note, our estimate of changes in NIE's efficient opex due to "frontier shift" (ie. RPEs, less ongoing productivity improvement) are discussed in a separate NERA report.

2. UR's Approach to Benchmarking Indirects and IMFT at RP6

2.1. UR's Comparative Benchmarking Models for RP6

In its DD for NIE's RP6 price control, UR has used comparative benchmarking techniques to estimate NIE's efficient level of Indirect and IMFT expenditure. UR's benchmarking models for RP6 were developed by CEPA.^{22,23}

CEPA's benchmarking analysis followed a process of model selection and drew conclusions as to its range of recommended benchmarking models for use at RP6. The models vary according to the choice of drivers used to explain variation in costs across companies, choices as to which categories of costs are included in/excluded from the models, and the level of granularity.

In particular, CEPA's recommended models reflect different levels of cost granularity:

- "Top-down" or "aggregate" models, which model at the level of total Indirect and IMFT costs;
- "Middle-up" models, which model at the level of total IMFT costs and individual elements of Indirect costs (eg. Business Support and Closely Associated Indirects); and
- "Disaggregated" models, which model individual elements of Indirect and IMFT costs (eg. tree cutting, faults, inspection and maintenance).

From the range of models recommended by CEPA, UR selected three preferred aggregate models (ie. modelling total Indirect and IMFT costs) and three preferred middle-up (ie. modelling Network Operating Costs, Closely Associated Indirects, and Business Support), described in the table below.

Table 2.1
UR's Preferred Benchmarking Models in the RP6 DD

Model Number	Modelled Cost	Cost Driver
1	IMFT & Indirects (CEPA preferred)	Network length, network density
2	IMFT & Indirects (CC RP5 M4 Model)	CSV, time dummies
3	IMFT & Indirects (CC RP5 M6 Model)	Length/customer numbers, time dummies
4	Network Operating Costs (NOCs)	Network length, network density

²² Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.48.

²³ CEPA (March 2017), "RP6 Efficiency advice, The Northern Ireland Utility Regulator (UR): Final Report".

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Model Number	Modelled Cost	Cost Driver
5	Closely Associated Indirects (CAI)	CSV, time dummies
6	Business Support	CSV, time dummies ²⁴

Source: *Utility Regulator Draft Determination*, pp.62, 65-66.

As Table 2.2 explains, UR estimated all these models using two different treatments of the indirect costs allocated to connections activity: one approach includes all indirect costs allocated to connections in the modelling, and the other excludes all such costs. UR also runs the models using three different approaches to controlling for variation in labour costs across the country, which differ according to the share of labour that UR assumes needs to be co-located with each DNO's network assets, as the table below also explains.

Table 2.2

UR's Assumptions on Cost Allocation to Connections and the Local Labour Adjustment

Modelling Choice	UR Description	Details
Allocation of Connection Costs	Pre-allocation	UR modelled at the level of total gross costs, including indirect costs related to connection activities for both NIE and the British DNOs
	Post-allocation	UR used total gross costs, excluding indirect costs related to connection activities for both NIE and British DNOs
Local Labour Adjustment	CEPA Baseline	UR assumed no local labour adjustment, implying that DNOs need to co-locate all labour with their network assets.
	Local labour sensitivity 1	UR assumed the same proportion of all DNOs' labour needs to be co-located with the DNOs' network assets as Ofgem's at RIIO-ED1
	Local labour sensitivity 2	UR used Ofgem's RIIO-ED1 local labour adjustment for the British DNOs, but assumed that NIE needs to locate all its labour with its network assets.

Source: *Utility Regulator Draft Determination*, p.65-66.

Having tested all the above models, UR proposed to set NIE's final allowance using the aggregate models only (therefore ignoring the middle-up and disaggregated models). It has proposed to take an average of both cost allocation scenarios related to connections activity

²⁴ We note that in Table 8 of the Draft Determination, UR erroneously indicates that the drivers of the Business Support model are network length per customer and time dummies, instead of CSV. See: Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.6, Table 8.

(ie. pre-allocation and post-allocation described above). It has also proposed to take an average of the CEPA Baseline and Sensitivity 1 assumptions regarding the share of labour that needs to be co-located with DNOs' network assets. Therefore, UR has relied on twelve benchmarking models to assess the efficiency of NIE's Indirect and IMFTs costs at RP6.

To obtain an overall catch-up efficiency factor for NIE, UR has used a "triangulation" approach that places equal weight on each selected model (ie. 8.33%).²⁵ UR then set its estimate of efficient costs such that the fourth placed company out of the 15 DNOs (which is approximately the upper quartile company), sets the efficient frontier. Based on this approach, UR obtains a triangulated catch-up efficiency factor for NIE of 1.96%. By contrast, NIE's RP6 business plan included no catch-up efficiency target, based on the results of the previous NERA report that found no evidence of embedded inefficiency within NIE's current operating cost base.²⁶

Table 2.3
UR's Efficiency Gaps for Each Model and Overall Catch-up Efficiency Target

		Weighted time average efficiency gap (2012/13 to 2015/16)			
		No LLA	Full LLA	No LLA	Full LLA
Model	Modelled Costs	Pre-allocation		Post-allocation	
1	IMFT & Indirects (CEPA preferred)	7.90%	0.21%	1.19%	-1.71%
2	IMFT & Indirects (CC RP5 M4 Model)	10.66%	1.74%	3.36%	-2.34%
3	IMFT & Indirects (CC RP5 M6 Model)	8.09%	1.27%	5.77%	0.11%
Overall Catch-up efficiency		1.96%			

Note: LLA: Local Labour Adjustment

Source: Utility Regulator Draft Determination, p.89-90.

To obtain NIE's Indirect and IMFT expenditure allowance for RP6, UR reduced NIE's base year (ie. 2015/16) Indirect and IMFT costs by the 1.96% catch-up factor.²⁷ UR then reduced NIE's allowance each year by its forecast of frontier shift, which we discuss in a separate report. It also disallowed all NIE's claims for increases in operating costs over RP6 due to factors such as changes in regulation that NIE's business plan predicted would increase its future operating costs.

²⁵ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.90.

²⁶ NERA (28 June 2016), "Comparative Benchmarking to Support Preparation of NIE Networks' RP6 Business Plan, Prepared for NIE Networks", p.ii.

²⁷ Note: We understand that NIE has concerns about UR's approach to calculating base year Indirect and IMFT costs, as presented in the DD. We have not commented on these concerns in this report.

As a result of these adjustments, UR proposed to reduce NIE's RP6 expenditure forecast by about 10%.²⁸ However, UR also invites NIE and other stakeholders to make special factor claims that address the limitations of its chosen benchmarking models since UR recognises that they "may not take into account all differences between companies, especially if these circumstances are unique."²⁹

2.2. NERA's Replication of UR's Cost Benchmarking Models

For the purpose of preparing this report, NERA replicated UR's cost benchmarking models on the basis of information provided in the DD and through subsequent engagement with UR and CEPA. However, due to data confidentiality issues, NIE and NERA have not been provided with the entire dataset and benchmarking models used by UR and CEPA to perform their comparative benchmarking. As a result, we have been unable to exactly replicate the benchmarking results from the CEPA models used by UR to set its proposed catch-up efficiency target of 1.96%.

However, given that the difference between UR's estimated efficiency gap for NIE and our attempted replication of this result is not material (less than 0.01 percentage points), the analysis presented in this report relies on our replicated models, such as to calculate special factor claims and estimate future efficient opex as explained in the subsequent chapters.

²⁸ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.14.

²⁹ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.81, para.5.144.

3. Assessment of UR's Approach to Benchmarking at RP6

In this chapter we review UR's approach to comparative benchmarking of NIE's Indirect and IMFT costs at RP6, as set out in the Main Report of the DD and supported by CEPA's accompanying benchmarking report.³⁰

As described below, we identify flaws in UR's modelling approach, which undermine UR's ability to robustly estimate NIE's efficient Indirect and IMFT expenditure through benchmarking against the British DNOs. In particular, we have identified a number of elements of UR's approach which, if not addressed, would cause UR to materially underestimate the extent of NIE's efficiency relative to the British DNOs:

- **Model selection process:** UR has relied on an arbitrary and subjective model selection process, through which it ignored a range of alternative modelling approaches that meet CEPA and UR's own economic and econometric model selection criteria. As we discuss in Section 3.1, these alternative models show NIE to be more efficient than the models UR selected, suggesting UR has cherry-picked those models that show NIE in a relatively unfavourable light.
- **Indirect costs related to connections:** UR's treatment of indirect costs related to connection activities only partially controls for the wider scope of connection activities undertaken by NIE compared to the British DNOs. As we discuss in Section 3.2, the effect of UR's approach is to underestimate the extent of NIE's efficiency compared to the British DNOs.
- **Wayleaves payments:** UR's treatment of wayleaves payments fails to account for NIE's higher than average ratio of overhead lines to underground cables. As we discuss in Section 3.3, UR's approach of including wayleaves payments within the benchmarking models causes it to understate NIE's efficiency relative to the British DNOs.
- **Local labour adjustment:** UR's approach to controlling for regional variation in wages across the UK controls inadequately for the proportion of DNOs' workforces that need to be located in the same region as their network assets. As we discuss in Section 3.4, this causes UR to understate NIE's efficiency because it overstates the benefit NIE realises relative to other companies by being in a low wage region of the UK.

3.1. Model Selection Process

In this section we discuss the methodology UR uses to select its benchmarking approach, including the level of granularity of the modelling (ie. the choice between aggregated and disaggregated models) and the choice of cost drivers.

3.1.1. UR has based its proposed decision on only a subset of the models recommended by CEPA

UR explains in the DD that "CEPA have tested the inclusion of different cost drivers that are often used to explain differences in costs across electricity distribution companies", including

³⁰ CEPA (March 2017), "RP6 Efficiency advice, The Northern Ireland Utility Regulator (UR): Final Report".

customer numbers, energy throughput, network length, network density, peak demand, MEAV, composite scale variables (CSV), spans cut and inspected and number of faults.³¹

Through a “general-to-specific” model selection process, CEPA selected a list of recommended cost drivers, namely network length, network density, CSV and MEAV for both top-down and middle-up models, and number of faults and spans cut for the faults and tree cutting models respectively (see Table 3.1 below).

Table 3.1
Overview of Selected Cost Drivers and Models by CEPA and UR

Modelled Cost	Cost Driver	Selected by UR
CEPA's Recommended Models		
IMFT & Indirect	Network length, network density	✓
NOCs	Network length, network density	✗
Tree Cutting	Spans cut	✗
LV HV OHL faults	LV HV OH faults ³²	✗
CAI	CSV	✗
Business Support	CSV	✗
CEPA's Potential Alternative Models		
IMFT & Indirect (CC RP5 M4 Model)	CSV, time dummies	✓
IMFT & Indirect (CC RP5 M4 Model)	Length/customer numbers, time dummies	✓
IMFT & Indirect	MEAV	✗
NOCs	MEAV	✗
CAI	MEAV	✗
Business Support	MEAV	✗

Source: CEPA RP6 Efficiency Advice, p.37-38.

Following CEPA's analysis, as explained in Chapter 2, UR considered three aggregate models and three middle-up models which use as drivers network length, network density, network length per customer, and a CSV. However, under its triangulation approach in the DD, UR ultimately sets NIE's Indirect and IMFT allowance for RP6 solely based on the three aggregated Indirect and IMFT models using network length and network density, CSV, and network length per customer as drivers, as noted on the right hand side of Table 3.1.

³¹ Utility Regulator (24 March 2017), “Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination”, p.63, para.5.90.

³² Excluding switching events.

Therefore, UR has ignored the more disaggregated models recommended by CEPA (such as the faults and tree cutting models), without providing any explanation for this decision. Also, as we explain in Section 3.1.6, UR's arguments to dismiss the aggregate MEAV-based models are also unfounded.

3.1.2. UR ignores the disaggregated modelling approach recommended by CEPA, despite the benefits of this approach noted by the CMA

UR's decision to rely solely on top-down models also contradicts recent regulatory precedent. At RIIO-ED1 and RIIO-GD1 Ofgem combined the results of its aggregated totex modelling with the results of its detailed activity-based (or disaggregated) models, placing a 50% weight on each method. For similar reasons, the CMA's Final Determination on the Bristol Water referral limited the application of top-down benchmarking models since these may not take proper account of a wider range of factors that could impact companies' expenditures. The CMA also recommended that Ofwat collect more data to facilitate more granular and disaggregated modelling at future reviews.^{33,34}

UR's decision to ignore more disaggregated models also seems to be contradicted by the discussion in its own DD document, which advocates the use of disaggregated models alongside more aggregated models when assessing companies' efficient costs:

“disaggregated analysis can be useful in supporting, reinforcing and sense-checking the findings from top-down benchmarking analysis. Taking this into account we have supported our top-down IMF&T and Indirects models with middle-up models for NOCs, CAI and Business Support. We believe this approach appropriately manages the trade-offs between the aggregated and more disaggregated benchmarking analyses sufficiently.”³⁵

“The potential benefit of this approach [ie. of running disaggregated middle-up models] is that we are able to select cost drivers that better reflect these costs on a disaggregated basis than those chosen in the total IMF&T and Indirect models.”³⁶

Moreover, the approach of combining aggregated and disaggregated models is also consistent with the hypothetical approach to triangulating benchmarking results across different models

³³ More specifically, the CMA argued: “It is ambitious to seek to model the entire wholesale water business through this type of high-level econometric model, which may fail to take proper account of the wide range of factors that affect companies' expenditure requirements. Ofwat's exclusive focus on aggregated models in the calculation of the basic cost threshold for each company seemed to give insufficient weight to the benefits of more disaggregated models. Disaggregated models or more granular forms of benchmarking analysis may allow a more accurate estimation of the relationship between expenditure and specific cost drivers and allow a greater number of cost drivers to be taken into consideration.” Source: Competition and Markets Authority (6 October 2015), “*Bristol Water plc, A reference under section 12(3)(a) of the Water Industry Act 1991: Final Report*”, p.69, para.4.46.

³⁴ Competition and Markets Authority (6 October 2015), “*Bristol Water plc, A reference under section 12(3)(a) of the Water Industry Act 1991: Final Report*”, p.131, para.4.268.

³⁵ Utility Regulator (24 March 2017), “*Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination*”, p.67-68, para.5.111.

³⁶ Utility Regulator (24 March 2017), “*Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination*”, p.66, para. 5.101.

to obtain a catch-up efficiency target for NIE, which UR describes in the DD.³⁷ UR's hypothetical triangulation approach envisages taking into account the modelled costs from the "NOCs, CAI and Business Support middle-up models to obtain total predicted Indirect and IMFT costs" along with the modelled costs from the top-down Indirect and IMFT costs models before calculating the efficiency gaps.³⁸

UR's explanation of triangulating results across different models and its arguments supporting the use of disaggregated modelling contradict its decision not to consider disaggregated modelling results when setting RP6 allowances.

3.1.3. Unlike UR, both the NERA and CEPA reports draw on a mix of aggregated and disaggregated models

As well as ignoring the disaggregated and middle-up models developed independently by CEPA, UR has decided to ignore the benchmarking evidence submitted alongside NIE's business plan, which NERA prepared using the disaggregated methods used by Ofgem at RIIO-ED1, cross-checked against the aggregate methods used by the CC at RP5.³⁹ The NERA report (updated in October 2016) found that NIE's ranks second out of the 15 DNOs, with an efficiency gap of *minus* 3.1% over the 2012/13 to 2015/16 period.

While we also conducted more aggregated modelling using the CC's RP5 approach, we also identified a number of reasons why this disaggregated modelling was likely to be more robust than the more aggregate CC models as a means of comparing NIE's operating costs to those of the British DNOs.⁴⁰ In particular:

- Ofgem's models emerged from a longer and more detailed regulatory review than the CC RP5 referral, and have been subject to scrutiny from a wide number of stakeholders, including all 14 British DNOs and other interested parties (notably, energy retailers like British Gas Trading that ultimately appealed some other aspects of the determination);⁴¹
- They allow for a wider range of cost drivers than can be included in the more aggregated models; and

³⁷ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.89, para.5.179.

³⁸ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.89, para.5.179.

³⁹ NERA (28 June 2016), "Comparative Benchmarking to Support Preparation of NIE Networks' RP6 Business Plan, Prepared for NIE Networks".

⁴⁰ NERA Updated Report, p. 10. We corroborated our conclusion drawn from modelling using the Ofgem disaggregated approach that there is no evidence of material technical inefficiency embedded within NIE's historic level of Indirect and IMFT costs through a set of sensitivities and by cross-checking our results with the CC models used at RP5.

⁴¹ NERA (28 June 2016), "Comparative Benchmarking to Support Preparation of NIE Networks' RP6 Business Plan, Prepared for NIE Networks", p.11.

- As illustrated in CEPA's report, the econometric models used by Ofgem meet the required model selection criteria that CEPA used in its own model selection process.⁴²

3.1.4. UR's justification for ignoring disaggregated modelling evidence is flawed

In explaining its decision to dismiss the Ofgem disaggregated models, UR makes a series of incorrect and contradictory arguments, as we explain below. And, moreover, UR's DD does not attempt to explain why it has ignored CEPA's recommended disaggregated models for tree cutting and faults.

First, UR suggests that its decision not to account for the Ofgem disaggregated approach may be justified on grounds that NERA "fails to gain an understanding of whether alternative models and modelling approach may be more appropriate for NIE Networks. [...] especially [...] given [that] additional historical data has become available since Ofgem conducted their RIIO-ED1 benchmarking, and costs allocations have also changed for some cost categories."⁴³

This explanation simply notes the importance of updating previously estimated disaggregated models with new data and ensuring that previously estimated models remain statistically robust when they are extended to include NIE. We performed both of these steps in our previous report. However, this explanation does not justify the decision not to consider disaggregated models. In any event, CEPA's sensitivity analysis finds that using DPCR5 RIGs data (reflecting Ofgem's older DPCR5 RIGs guidance) instead of the latest RIIO-ED1 RIGs data does not affect the disaggregated models' robustness.⁴⁴

Second, UR attempts to justify its decision to ignore Ofgem's disaggregated models on grounds that "NERA have only used a certain proportion of Ofgem's benchmarking / cost assessment approach".⁴⁵ In fact, we implemented Ofgem's approach to benchmarking Indirect and IMFT costs in its entirety. We took the decision not to apply Ofgem's "totex" benchmarking due to differences in capex requirements between NIE and the British companies,⁴⁶ a decision with which UR agrees. UR acknowledges: "Utility Regulator does not feel it is appropriate to use a totex approach to benchmarking and cost assessment at RP6

⁴² CEPA (March 2017), "RP6 Efficiency advice, The Northern Ireland Utility Regulator (UR): Final Report", p.35-37.

Note: CEPA's recommended tree cutting model differs only slightly from the Ofgem tree cutting model, due to the omission of the "spans inspected" explanatory variable.

⁴³ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.67, para.5.107.

⁴⁴ CEPA (March 2017), "RP6 Efficiency advice, The Northern Ireland Utility Regulator (UR): Final Report", p.49-55.

⁴⁵ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.66, para.5.108.

⁴⁶ NERA (28 June 2016), "Comparative Benchmarking to Support Preparation of NIE Networks' RP6 Business Plan, Prepared for NIE Networks", p.6.

given that NIE Networks' capex requirements are likely to differ significantly from the capex requirements of GB DNOs".⁴⁷

UR also states that NERA "may have ignored the potential benefits of more aggregate top-down/middle up IMFT & Indirect benchmarking [which] is not influenced by trade-offs between activities and reporting differences, and avoids 'cherry-picking' between different models".⁴⁸ This statement is incorrect:

- UR's suggestion that the results of disaggregated models do not account for trade-offs between cost categories is incorrect. While the results of one individual disaggregated model for particular line items of costs can be influenced by decisions on cost allocation between line items, the effect is mitigated when the results of various disaggregated models are combined across all line items.
- UR is not justified in suggesting our approach "cherry-picks" certain models; we apply all Ofgem's disaggregated Indirect and IMFT benchmarking models, not a "cherry picked" selection of them.
- UR is also wrong to suggest that we have not considered more aggregate models. The NERA benchmarking report cross-checked the Ofgem disaggregated modelling with results from the more aggregated models used by the CC at RP5 (ie. the same top-down Indirect and IMFT models recommended by UR in its DD for RP6). Hence, while the NERA and CEPA reports both presented a mix of aggregated and disaggregated modelling of Indirect and IMFT costs, UR has failed to do so by relying solely on aggregated models when setting allowances, as we explained in Section 3.1.2 above.

Finally, UR has suggested that its decision not to account for Ofgem's approach may be justified on grounds that "Ofgem's disaggregated modelling is mostly unit cost analysis" and "may not suitably take into account the differences between British DNOs and NIE Networks".⁴⁹ This statement provides no reason to ignore the Ofgem approach in favour of the more aggregate models used by UR:

- Those cost items benchmarked by Ofgem using regression analysis make up almost 50% of NIE's Indirect and IMFT costs between 2012/13 and 2015/16, so to suggest Ofgem's approach is "mostly" unit cost analysis is an exaggeration.
- Also, Ofgem's unit cost analysis, as part of a broader set of disaggregated models, controls for a much wider range of factors that affect NIE's costs relative to the British DNOs than UR's highly aggregated models. Hence, the Ofgem models (whether they are unit cost models or regression based models) take into account a much wider range of differences between British DNOs and NIE Networks.

⁴⁷ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.66, para.5.105.

⁴⁸ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.67, para.5.108-5.109

⁴⁹ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.67, para.5.110.

- Finally, UR offers no evidence or argumentation as to why unit cost analysis is necessarily less reliable than other forms of benchmarking. Indeed, unit cost modelling is effectively a particular form of regression analysis that excludes a constant term.

3.1.5. We recommend UR draws on evidence from disaggregated modelling in the FD

We therefore conclude that UR has failed to justify its decision to dismiss the Ofgem and CEPA disaggregated models. Its decision to focus solely on more aggregated models appears to cherry-pick those models that show NIE in the least favourable light. For instance, our own disaggregated modelling using the Ofgem approach shows NIE to be more efficient than the upper quartile so considering Ofgem's disaggregated models in UR's triangulation would reduce NIE's efficiency gap (see Section 3.5 below). We recommend UR reconsiders this aspect of its decision in the FD.

3.1.6. UR's proposed decision to ignore the MEAV-based models recommended by CEPA is similarly unjustified

UR has suggested that its decision to use CSV models and disregard MEAV as a cost driver may be justified on grounds that the definition of the MEAV variable requires some degree of discretion, and in light of "regulatory precedent from the CC RP5, who also used models with the same CSV".⁵⁰

Ofgem has used CSVs as explanatory variable in its benchmarking regressions since 1999 (though with different weights).⁵¹ Ofgem first used the CSV proposed by UR and CEPA for RP6 (50% network length, 25% customer numbers, and 25% units distributed) at DPCR4, and it was used by the CC at RP5.⁵² However, Ofgem abandoned its use at RIIO-ED1 in favour of a wider set of cost drivers (including MEAV). UR is therefore ignoring this improvement in the modelling approach implemented by Ofgem since RP5 that led to the increased use of MEAV, reducing the reliance on CSVs.

UR has also ignored the advantages of MEAV, which captures both the scale and the complexity of DNOs' networks, which simpler scale variables such as network length or density fail to do.

It is also contradictory for UR to argue that the definition of MEAV requires "discretion". In fact, MEAV relies on expert technical analysis to estimate the unit costs of different asset types, which Ofgem performed during the RIIO-ED1 process.

By contrast, UR's CSV uses weights based on Ofgem's subjective judgment from DPCR4, that Ofgem itself has since then abandoned. These weights have no grounding in technical

⁵⁰ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.71, para.5.118.

⁵¹ Ofgem (30 September 2003), "Background study on the use of benchmarking to assess efficiency for the 2005 Distribution Price Control Review", study conducted by Cambridge Economics Policy Associates (CEPA), p.70.

⁵² Competition Commission (26 March 2014), "Northern Ireland Electricity Limited price determination, A reference under Article 15 of the Electricity (Northern Ireland) Order 1992: Final Determination", p.8-22, para.8.118.

analysis. Indeed, where Ofgem did use CSVs at RIIO-ED1 it computed weights using a regression procedure, or based on the shares of cost deemed relevant to explaining particular elements of cost modelled in the regression equation:

- *Top-down totex model:* Ofgem used a CSV which combines MEAV (88%) and customer numbers (12%), with weights derived using regression analysis.⁵³
- *Bottom-down totex model:* Ofgem used a CSV which combines drivers used in the disaggregated analysis, such as MEAV, number of faults, number of ONIs, spans cut, etc. The weights in this CSV were based on the “industry spend proportions for the activity level cost areas to which the drivers apply.”⁵⁴

Based on the above, as a minimum we recommend UR reconsiders its selection of cost drivers to include also a MEAV-based Indirect and IMFT model, which CEPA also recommends, along with the top-down models currently proposed by UR in the DD. In Section 3.5 below, we illustrate the effect on NIE's modelled efficiency gap from including a MEAV model in UR's triangulation.

3.2. Treatment of Indirect Costs Related to Connection Activities

Historically, connection activities have not been contestable in Northern Ireland, so NIE was the only party designing and building connections to the distribution system over the four year assessment period used by UR for benchmarking purposes. During this period, the market for new connections in Great Britain was contestable with some connections activities open to competition from independent providers.

As a result, over the assessment period, the role of British DNOs and NIE in performing connection activities has been substantially different, with NIE having carried out more connection work relative to DNOs in other part of the UK.

NIE also faces the fastest growing customer base in the UK, and it has the highest number of new connections per customers, as illustrated in more detail in Section B.2 of Appendix B.

For these reasons, NIE's indirect costs required to support this larger volume of connections work will also tend to be higher than for the British DNOs.

3.2.1. At RP5 the CC accounted for the different scope of connection activities between Great Britain and Northern Ireland

At RP5 the CC tested both models that included and excluded indirect costs related to connections, but ultimately decided to rely solely on models that exclude all indirect costs allocated to connections (ie., “post-allocation” models). In taking this decision, the CC noted the following:

⁵³ For further details on Ofgem's approach see: Ofgem (28 November 2014), “*RIIO-ED1: Final determinations for the slow-track electricity distribution companies, Business plan expenditure assessment*”, Appendix 5, p.198.

⁵⁴ Ofgem (28 November 2014), “*RIIO-ED1: Final determinations for the slow-track electricity distribution companies, Business plan expenditure assessment*”, Appendix 5, p.198-199.

- Excluding indirect costs allocated to connections allows “a better alignment” between the costs used for the benchmarking analysis and the costs for which a revenue allowance is made.⁵⁵
- Excluding indirect costs allocated to connection helps to address a possible limitation of the econometric benchmarking models in accounting for the different scope of connection activities between Great Britain and Northern Ireland. Precisely, the CC noted that the selected econometric models (which UR uses in its DD) are “not well suited to taking account of variations between different companies in the amount of connection work that each company is required to carry out in any financial year”.⁵⁶ In fact, whilst capturing differences in companies’ scale, the chosen explanatory variables do not capture “differences in the amount of new connection activity”.⁵⁷ The latter point, according to the CC, is particularly important since “there is greater scope for competitive third parties to carry out connections in GB than Northern Ireland, which will tend to reduce the role of British DNOs in connection work.”⁵⁸

3.2.2. UR’s approach at RP6 fails to address differences in the scope of connections work between NIE and the British DNOs

In contrast with the CC’s approach at RP5, in its DD for RP6 UR has proposed to place a 50% weight on post-allocation models (ie., excluding all indirect costs allocated to connection) and a 50% weight on pre-allocation models (ie., including all indirect costs related to connections). By placing 50% weight on pre-allocation models, UR’s approach addresses only partially the different scope of connection activities between Great Britain and Northern Ireland. The effect of UR’s approach is to underestimate the extent of NIE’s efficiency compared to the British DNOs.

In discussing the choice between pre-allocation and post-allocation models, UR and CEPA note a trade-off between the incentives NIE has to allocate costs to connections activities under post-allocation models, and the benefits of focusing the benchmarking on the regulated activity:⁵⁹

- UR suggests that pre-allocation models would “not create any adverse incentive for NIE to inefficiently allocate indirect costs to connections” but would involve “modelling of

⁵⁵ In particular, the CC noted: “A large element of NIE’s connection costs are funded by customer contributions and should not be funded as part of the expenditure allowance set as part of our determination. Excluding connection costs allows a better alignment between the costs used for benchmarking analysis and the costs for which we want to make an allowance as part of our cost assessment”. Source: Competition Commission (26 March 2014), “*Northern Ireland Electricity Limited price determination, A reference under Article 15 of the Electricity (Northern Ireland) Order 1992: Final Determination*”, p.8-31, para.8.172.

⁵⁶ Competition Commission (26 March 2014), “*Northern Ireland Electricity Limited price determination, A reference under Article 15 of the Electricity (Northern Ireland) Order 1992: Final Determination*”, p.8-32, para.8.172.

⁵⁷ Competition Commission (26 March 2014), “*Northern Ireland Electricity Limited price determination, A reference under Article 15 of the Electricity (Northern Ireland) Order 1992: Final Determination*”, p.8-32, para.8.172.

⁵⁸ Competition Commission (26 March 2014), “*Northern Ireland Electricity Limited price determination, A reference under Article 15 of the Electricity (Northern Ireland) Order 1992: Final Determination*”, p.8-32, para.8.172.

⁵⁹ Utility Regulator (24 March 2017), “*Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination*” p.59, para. 5.71.

both regulated and unregulated costs” and require a larger number of regulatory decisions to make adjustment to set NIE’s final allowance;

- Conversely, UR suggests that post-allocation models have “the potential to adversely incentivise NIE Networks to allocate a large proportion of indirect costs to connections” but would allow focusing on regulated costs and not require any further regulatory decision by UR.

The main problem with this explanation is that it ignores a major problem with pre-allocation models, that they provide a less reliable means of comparing NIE’s Indirect and IMFT costs against the British DNOs due to differences in the scale and scope of NIE’s connections activities.

As the CC noted at RP5, UR’s econometric benchmarking models, by relying on generic scale variables, are not well-suited to account for variation between different companies in the amount of connection works, which is especially relevant in this case given the non-contestable nature of the connections market in Northern Ireland as opposed to Great Britain. This problem, the CC concluded, led it to use post-allocation models, deciding that the benefit of these models outweighs the potentially “adverse” incentives on the company to allocate costs to connections activity.⁶⁰

In any event, UR does not consider the role of the RIGs guidance in limiting any “adverse” incentive to gain advantage by allocating costs to connections activities.

3.2.3. We recommend UR places 100% weight on post-allocation models

Differences in NIE’s connections workload compared to the British DNOs are only partly mitigated through UR’s apparent proposal to place a 50% weight on post-allocation models. We recommend UR places a 100% weight on post-allocation models to avoid placing a significant weight on a misleading model in its FD.

In Section 3.5 below, we illustrate the effect on NIE’s efficiency gap from using solely post-allocation models. Alternatively, as we explain in Section 4.4, another way to address this problem is through a special factor adjustment.

3.3. Treatment of Wayleaves Payments

Electricity network operators make wayleaves payments to property owners and occupiers in order to obtain permission to install and maintain apparatus on their property. Wayleaves payments can be required for both the overhead and underground parts of the networks. However most of the equipment installed on privately owned land and subject to wayleaves payments is overhead lines.⁶¹

⁶⁰ Competition Commission (26 March 2014), “*Northern Ireland Electricity Limited price determination, A reference under Article 15 of the Electricity (Northern Ireland) Order 1992: Final Determination*”, p.8-32, para.8.173.

⁶¹ Ofgem (28 November 2014), “*RIIO-ED1: Final determinations for the slow-track electricity distribution companies, Business plan expenditure assessment*”, p.127, para.10.29.

3.3.1. Ofgem's approach at RIIO-ED1

At RIIO-ED1, Ofgem changed its benchmarking approach towards wayleaves payments between its Draft Determination and Final Determination, ultimately opting to exclude wayleave payments from the CAI regression model and perform a separate unit cost assessment based on the number of overhead line supports, rather than network length. When reviewing the use of network length as a cost driver for wayleaves payments, Ofgem noted the following.

- Since wayleave payments are driven mainly by overhead lines, by including underground cables in the network length driver there would be a “risk of disadvantaging those DNOs with a higher than average ratio of overhead line to underground cable”.⁶²
- Second, Ofgem noted that the number of supports (towers and poles) is a more appropriate cost driver than the length of the network for overhead lines since “it is these supports that more directly influence compensation payments as it is the supports that sterilises the land owners’ use of the ground.”⁶³

In line with Ofgem's approach, in our benchmarking report submitted along with NIE's business plan in June 2016, we excluded wayleaves payments from the CAI regression and performed unit cost assessment based on the number of OHL supports.⁶⁴

3.3.2. UR fails to account for NIE's higher than average ratio of overhead line to underground cable

Contrary to Ofgem's approach, in its DD for RP6 UR has followed the CC approach at RP5 which did not exclude wayleaves payments from the benchmarking of NIE's Indirect and IMFT costs on grounds that the rates paid by NIE are to some extent “a controllable choice by the company”.⁶⁵ UR's inclusion of wayleaves payments within the Indirect and IMFT cost assessment understates NIE's efficiency relative to the British DNOs:

- First, UR has failed to explain the reasons why it considers the rates paid by NIE to be “controllable”. Based on the information provided by NIE as part of its business plan in June 2016, the level of wayleaves payments paid by NIE is not determined on a case by case basis, but according to a standardised tariff, based on the rates used by Scottish Power, which in turn are recommended by the Energy Networks Association (ENA).⁶⁶ Moreover, NIE could only reduce the number of wayleaves payments it makes to

⁶² Ofgem (28 November 2014), “RIIO-ED1: Final determinations for the slow-track electricity distribution companies, Business plan expenditure assessment”, p.127, 10.29.

⁶³ Ofgem (28 November 2014), “RIIO-ED1: Final determinations for the slow-track electricity distribution companies, Business plan expenditure assessment”, p.127, 10.30.

⁶⁴ NERA (28 June 2016), “Comparative Benchmarking to Support Preparation of NIE Networks' RP6 Business Plan, Prepared for NIE Networks”, p.7.

⁶⁵ Utility Regulator (24 March 2017), “Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination” p.58, para. 5.64.

⁶⁶ NIE Networks (2016), “RP6 business plan 2017-2024”, p.99-100.

landowners by changing the design of its network, and we assume network design is only controllable to a very limited extent.

- Second, and most important, UR's proposed Indirect and IMFT models fail to account for the fact that NIE incurs higher wayleaves costs with respect to the British DNOs due to the high proportion of overhead lines on its network (see Section B.1 in Appendix B). Specifically, none of UR's chosen Indirect and IMFT models include drivers which take into account the different wayleaves costs associated with overhead lines and underground lines.

In fact, the general scale variables chosen by UR to assess NIE's Indirect and IMFT costs (such as network length and network density) neither account for the volume of overhead line supports in a DNO's network, nor the ratio of overhead cables to underground cable. As Ofgem acknowledged at RIIO-ED1, both these factors are important drivers of DNOs' wayleave costs. Hence, UR's decision to include wayleaves payments in its top-down benchmarking models understates NIE's efficiency relative to the British DNOs, which have a lower proportion of overhead lines and thus lower wayleave costs.

3.3.3. We recommend UR adjusts its approach to wayleaves in the FD

Based on the above, we recommend that UR adjusts its comparative benchmarking approach in the FD to account for NIE's higher proportion of overhead lines, and therefore higher wayleave costs. In particular, UR could take one of the following approaches in relation to wayleaves payments:

1. Exclude wayleaves costs from the aggregated benchmarking models and conduct a separate assessment of efficient wayleaves costs, as Ofgem did at RIIO-ED1.
2. Include wayleaves costs and apply a special factor adjustment to account for NIE's higher wayleaves costs. We present our proposed approach to quantifying a special factor adjustment for wayleaves in Section 4.4.

In Section 3.5 below, we illustrate the effect on NIE's efficiency gap from adopting each of these alternative approaches.

3.4. Regional Labour Adjustment

CEPA and UR use RLAs to quantify differences in the wages of the types of labour required by DNOs across different regions of the country.

As CEPA notes in its report, there is substantial overlap between its approach and the approach we proposed in our own report on this subject that NIE submitted to UR alongside its RP6 business plan.⁶⁷ However, there are still several elements of CEPA's approach that fail to reflect differences in the labour costs NIE faces relative to DNOs in other parts of the country. The effect of these problems, as we discuss below, would be to exaggerate the

⁶⁷ NERA (14 April 2016), "Regional Labour Cost Adjustments for RP6, Prepared for NIE Networks".

benefit that NIE receives from being in a relatively low-wage region of the UK, and thus distort NIE's modelled efficiency scores.

3.4.1. UR and CEPA's method for computing RLAs

In our April 2016 report on regional labour costs that NIE submitted alongside its RP6 business plan, we derived an Regional Labour Adjustment (RLA) index measuring variation in wages across the UK.⁶⁸ Regions like Northern Ireland with wages below the national average have an RLA below 1, and vice versa. Following the methods used in a range of recent regulatory decisions, we estimated an RLA for Northern Ireland of 0.927, suggesting that the types of labour employed by NIE are 92.7% as expensive as the UK average.

In January 2017, NIE submitted a NERA report on regional labour costs in which we reviewed a draft paper produced for UR by CEPA containing the methodology for estimating RLA factors.⁶⁹ As we explained in that report, there was substantial overlap between the NERA and CEPA approaches to computing RLAs. However, we identified several elements of CEPA's approach that failed to reflect differences in the labour costs NIE faces relative to DNOs in other parts of the country:⁷⁰

- a. The choice of Standard Occupational Classification (SOC) code level (2, 3 or 4-digits), which defines the level of granularity of wage data used to compute RLAs;
- b. The inclusion or exclusion of overtime in the definition of wages used to compute RLAs;
- c. The averaging approach (ie. mean vs. median wages); and
- d. The share of DNOs' labour costs to which the RLA is applied, which defines the share of labour that the benchmarking analysis assumes needs to be co-located with the network.

As we explained, the effect of these problems would be to exaggerate the benefit that NIE receives from being in a relatively low-wage region of the UK, and distort NIE's modelled efficiency scores. We made a set of recommendations to CEPA to tackle these problems.⁷¹

In its final paper on RLAs appended to the DD for RP6, CEPA has not changed its approach (or the arguments supporting its approach).⁷² Therefore, with respect to the problems (a) to (c) listed above, which have a relatively modest effect on the RLA, we summarise below the recommendations set out in NERA's January 2017 report:

- We recommended that CEPA either adopts an average of 2, 3 and 4-digit SOC codes or relies exclusively on 3-digit SOC codes. Its sole reliance on 2-digit SOC codes is not justified by its analysis of the ASHE data, or by CMA precedent;

⁶⁸ NERA (14 April 2016), "Regional Labour Cost Adjustments for RP6, Prepared for NIE Networks".

⁶⁹ NERA (10 January 2017), "Response to CEPA's Regional Labour Adjustment Approach, Prepared for NIE Networks".

⁷⁰ Please refer to Chapters 2 and 3 of NERA's January 2017 report for more details.

⁷¹ NERA (10 January 2017), "Response to CEPA's Regional Labour Adjustment Approach, Prepared for NIE Networks", p.13.

⁷² CEPA (March 2017), "Regional Wage Adjustment, The Northern Ireland Utility Regulator (UR): Final Report".

- We recommended that CEPA uses a measure of wages that includes overtime pay when computing RLAs. By excluding overtime pay from the comparison, CEPA ignores one way in which upward wage pressure in some regions may show up in published data. The amount of overtime NIE and other DNOs use is irrelevant to this adjustment, which should use the most reliable measure of wages possible; and
- We recommended that CEPA adopts an averaging approach to computing a single RLA index which reflects the greater importance of relatively high-wage employees in computing RLAs.

However, problem (d) relating to the assumed share of labour that needs to be located locally, has a much larger effect on NIE's modelled efficiency gap, as explained below.

3.4.2. The role of the local share of labour adjustment

As explained in our previous reports on RLAs, it is important to control for the fact that some categories of labour are effectively sourced from a national labour market: in essence, staff could be located anywhere in the country (or even abroad). Hence, DNOs in low-wage areas, like Northern Ireland, do not enjoy a cost savings relative to other DNOs for those employees. Applying the RLA to DNOs' entire labour share unfairly penalises those DNOs in low-wage regions and rewards DNOs in high-wage regions.

At RIIO-ED1, Ofgem accounted for "the proportion of work that is done in these areas and elsewhere".⁷³ It assumed $\frac{1}{3}$ % of labour required for CAI and Non Op Capex needs to be located with the network assets, $\frac{1}{3}$ % of Business Support, and $\frac{1}{3}$ % of all other cost categories.⁷⁴ According to CEPA, these numbers were "informed by submissions from the DNOs regulated by Ofgem".⁷⁵

3.4.3. CEPA's recommends an approach that it acknowledges is biased

CEPA acknowledges that "competitive pressure should therefore eliminate price differentials across regions" for some proportion of labour.⁷⁶ It notes that "if a proportion of a DNO's labour costs are not sourced locally" an RLA approach which "assumes that all cost are regional would 'over-adjust' the costs of the company".⁷⁷ In practice, using CEPA's wording "when the regulator applies the adjustment to all costs", companies operating in a relatively low wage area "will seem to be less efficient (ie., relatively higher cost)".⁷⁸

Despite acknowledging the need for a local labour adjustment to prevent biasing the results of comparative benchmarking, CEPA does not propose to make an adjustment for non-local labour because "it is difficult to pinpoint the total proportion of labour that can realistically be

⁷³ Ofgem (28 November 2014), "RIIO-ED1 Final Determinations – Expenditure Assessment", para. 4.12.

⁷⁴ Based on RIIO-ED1 modelling files.

⁷⁵ CEPA (March 2017), "Regional Wage Adjustment, The Northern Ireland Utility Regulator (UR): Final Report", p.17.

⁷⁶ CEPA (March 2017), "Regional Wage Adjustment, The Northern Ireland Utility Regulator (UR): Final Report", p.17.

⁷⁷ CEPA (March 2017), "Regional Wage Adjustment, The Northern Ireland Utility Regulator (UR): Final Report", p.18.

⁷⁸ CEPA (March 2017), "Regional Wage Adjustment, The Northern Ireland Utility Regulator (UR): Final Report", p.18.

procured nationally (or internationally)”.⁷⁹ Hence, CEPA recommends an approach which it acknowledges is biased against NIE.⁸⁰

3.4.4. UR's failure to adjust fully for the local labour share constitutes a material error

Following our response to CEPA's draft report in January 2017, UR acknowledged our concerns with CEPA's recommendations “with regards to how certain business support functions could in theory be located anywhere in the world” and therefore, if an RLA is applied to DNOs total labour costs it “would penalise those DNOs in low-wage regions”, such as NIE.⁸¹

Nonetheless, under the triangulation approach set out in the DD, half of the benchmarking models proposed by UR to determine NIE's allowances for Indirect and IMFT costs ignore this effect by making no local labour cost adjustment at all. In attempting to justify its approach, UR relies on flawed arguments:

- UR and CEPA have suggested that making no local labour cost adjustment might be justified on grounds that they were unable to retrieve the detailed source of Ofgem's assumptions and therefore were unable to assess whether these assumptions would hold for a utility based in Northern Ireland.^{82,83} Both UR and CEPA agree that some adjustment to account for the share of labour that can be sourced nationally is required. Given this acknowledgment, UR should therefore either rely on Ofgem's local labour adjustment factor, irrespective of whether it can identify the basis for it, or else perform its own independent assessment to compute a local labour adjustment factor. UR has adopted neither approach. Instead it has arbitrarily halved Ofgem's local labour shares (ie. by placing 50% weight on models with and without this adjustment applied), and made no attempt to develop its own local labour adjustment factor.
- UR has suggested, based on CEPA's recommendations, that not applying Ofgem's local labour assumption in full might be justified because there are likely to be asymmetric incentives between companies located in high wage areas (likely to be an incentive to relocate to cheaper areas) and those located in low wage areas (“less likely to go to other market where they would face higher costs”).⁸⁴ This argument does not justify UR's decision not to make a local labour adjustment. The *incentive* to relocate labour to cheaper regions does not create the need for the adjustment. In fact, the adjustment is

⁷⁹ CEPA (March 2017), “Regional Wage Adjustment, The Northern Ireland Utility Regulator (UR): Final Report”, p.17.

⁸⁰ Utility Regulator (24 March 2017), “Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination”, p. 83, para.5.160.

⁸¹ Utility Regulator (24 March 2017), “Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination”, p. 83-84.

⁸² CEPA (March 2017), “Regional Wage Adjustment, The Northern Ireland Utility Regulator (UR): Final Report”, p. 17.

⁸³ Utility Regulator (24 March 2017), “Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination”, p. 84, para.5.163.

⁸⁴ Utility Regulator (24 March 2017), “Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination”, p.84, para.5.163.

required to reflect the *ability* of some companies to relocate labour from relatively high to relatively low wage regions. Failing to control for this causes UR's benchmarking to understate NIE's relative efficiency compared to companies in higher wage regions.

- UR has suggested that its approach to applying a local labour adjustment (based on Ofgem's shares at RIIO-ED1) only to 50% of its models might be justified on grounds that "in reality" there could be other factors that may limit DNOs incentives to relocate some functions nationally to lower cost regions within the UK or internationally. Amongst these factors, UR/CEPA mention: "the existence of cheaper regions inside of the area served by the DNO; joint provision of services across DNOs in the same group; political pressure to keep jobs in the area or degree of control required by the company over the provision of these services; and quality of service incentives".⁸⁵ To substantiate this argument, UR provides evidence that the British DNOs locate their customer service centres and new connection centres within the region they operate.⁸⁶ However, this discussion does not support UR's case for only applying the local labour adjustment to half of the models in its triangulation:
 - As noted above, the *incentive* to relocate labour to cheaper regions does not create the need for the adjustment. In fact, the adjustment is required to reflect the *ability* of some companies to relocate labour from relatively high to relatively low wage regions, and we assume this ability to relocate labour is reflected in the assumptions Ofgem used when applying the local labour adjustment at RIIO-ED1;
 - The joint provision of services by DNOs at a group level highlights the need for a local labour adjustment. If DNO groups can provide services at a group level, they may be able to choose to locate shared services in the most economically advantageous region, considering differences in wages across regions;
 - UR does not explain why quality of service incentives have anything to do with where DNOs choose to locate labour;
 - We would expect any "political pressure" to keep jobs in a particular area would be moderated by the strong incentives to reduce costs conveyed by incentive regulation and private ownership of DNOs; and
 - UR's review of particular DNOs' decisions on where to locate some staff and services is partial and anecdotal, and therefore does not provide a basis for estimating the proportion of DNOs' staff need to be co-located with the network. For instance, in its RIIO-ED1 business plan UKPN states that it has relocated parts of operations to cheaper areas of the country "for many aspects of its administrative and back-office operations".⁸⁷

⁸⁵ CEPA (March 2017), "*Regional Wage Adjustment The Northern Ireland Utility Regulator (UR): Final Report*", p. 18.

⁸⁶ Utility Regulator (24 March 2017), "*Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination*", p.85, para.5.166.

⁸⁷ UK Power Networks (March 2014), "*Business Plan (2015 to 2023), Annex 13a: Regional Cost Justification*", p. 8.

3.4.5. We recommend UR places a 100% weight on local labour adjusted models in the FD

Based on the above, UR's decision to arbitrarily make only half of the local labour adjustment constitutes a material error. Failing to apply a local labour adjustment in full biases the benchmarking results in a way that exaggerates NIE's inefficiency. In Section 3.5 below, we illustrate the effect on NIE's efficiency gap from placing a 100% weight on local labour adjusted models.

3.5. Conclusion

3.5.1. Flaws in UR's modelling approach

As explained in this chapter, we have identified major flaws in UR's modelling approach which undermine UR's ability to robustly estimate NIE's efficient Indirect and IMFT expenditure through benchmarking against the British DNOs. In particular, we have identified a number of elements of UR's modelling approach to benchmarking which, if not addressed, would tend to underestimate the extent of NIE's efficiency relative to the British DNOs:

- **Model selection process:** UR has relied on an arbitrary and subjective model selection process, through which it ignored a range of alternative modelling approaches (notably disaggregated and MEAV based models) that meet CEPA and UR's own model selection criteria. These alternative models show NIE to be more efficient than the models UR selected, suggesting UR has cherry-picked those models that show NIE in a relatively unfavourable light.
- **Indirect costs related to connections:** UR's treatment of indirect costs allocated to connection activities only partially addresses the different scope of connection activities between Great Britain and Northern Ireland. The effect of UR's approach is to underestimate the extent of NIE's efficiency compared to the British DNOs.
- **Wayleaves payments:** UR's treatment of wayleaves payments fails to account for NIE's higher than average ratio of overhead line to underground cable. UR's approach to including wayleaves payments within cost assessment understates NIE's efficiency relative to the British DNOs.
- **Local labour adjustment:** UR's approach to controlling for regional variation in wages across the UK controls inadequately for the proportion of DNOs' workforces that needs to be located in the same region as network assets. This causes UR to understate NIE's efficiency because it overstates the benefit NIE realises relative to other companies by being in a low wage region of the UK.

3.5.2. The impact on NIE's modelled efficiency gap

These shortcomings of UR's approach materially affect UR's "triangulated" efficiency gap, which it uses to set NIE's allowance for RP6, as shown in Table 3.2 and Table 3.3 below.

In Table 3.2 we re-estimate NIE's efficiency gap by (i) placing 50% weight on UR's proposed aggregated Indirect and IMFT models and CEPA's recommended Indirect and IMFT MEAV-based model; (ii) placing 50% weight on Ofgem's disaggregated models,

updated since our latest submission;⁸⁸ (iii) placing 100% weight on post-allocation models; (iv) placing 100% weight on models that adjust for the local share of labour; and (v) excluding wayleaves costs from aggregated models and conducting a separate unit cost analysis.⁸⁹

Note that our approach of placing a 50% weight on disaggregated and aggregated models reflects Ofgem's approach at RIIO-ED1 of placing equal weight on these alternative forms of analysis. By contrast, placing equal weight on each model would implicitly place a much higher weight on the aggregate modelling approach.

Under this approach we find NIE's efficiency gap falls to *minus* 8.02%, in contrast to UR's estimate of *positive* 1.96%.

Table 3.2
NIE's Triangulated Efficiency Gap with Separate Assessment of Wayleaves

Model Weights	Pre-Allocation		Post-Allocation	
	No LLA	Full LLA	No LLA	Full LLA
CEPA Preferred				12.50%
M4 Model				12.50%
M6 Model				12.50%
MEAV				12.50%
Ofgem				50.00%
Disaggregated				

NIE Efficiency Gap **-8.02%**

Source: NERA analysis of Ofgem and NIE data.

In Table 3.3 we have re-estimated NIE's efficiency gap by using the same adjustments (i) to (iv) set out above, but we have included wayleave costs and applied a special factor adjustment to NIE's modelled costs in each of the aggregate models to account for the NIE's higher wayleaves costs (see Section 4.4 below).⁹⁰ Under this approach, we find NIE's efficiency gap falls to *minus* 7.45%, in contrast to UR's estimate of *positive* 1.96%

⁸⁸ In particular we have updated the results of Ofgem's disaggregated models from NERA's previous benchmarking submission to use the updated GB RIGs data, use the same 4-year timeframe as UR's benchmarking models, and use the CEPA specification for the tree cutting model. See Appendix C for a summary of the updated disaggregated modelling results.

⁸⁹ Note we assume excluding wayleave costs only from the aggregate models since the Ofgem disaggregate models already exclude wayleave costs and perform a separate assessment.

⁹⁰ In addition to the wayleaves special factors against the CEPA Preferred, M4 and M6 models set out in Section 4.4, we have also applied a wayleaves special factor to the MEAV model using the same methodology.

Table 3.3
NIE's Triangulated Efficiency Gap with Wayleaves Special Factor

Model Weights	Pre-Allocation		Post-Allocation	
	No LLA	Full LLA	No LLA	Full LLA
CEPA Preferred				12.50%
M4 Model				12.50%
M6 Model				12.50%
MEAV				12.50%
Ofgem				50.00%
Disaggregated				

NIE Efficiency Gap **-7.45%**

Source: NERA analysis of Ofgem and NIE data.

When updating the above analysis to include NIE's most recently updated 2015/16 cost data, we find NIE's efficiency gap is comparable to the results presented above i.e.: equal to *minus* 9.21% according to the first specification (wayleaves separate assessment), and equal to *minus* 8.63% according to the second specification (wayleaves special factor).

3.5.3. Recommendations for the FD

NERA's detailed comparative benchmarking submitted alongside NIE's business plan in June 2016 (and updated in October 2016), found NIE to be more efficient than the upper quartile company. Our approach relied on the disaggregated methods used by Ofgem at RIIO-ED1 which, as we explained, are a more robust basis for comparing NIE's costs against the British DNOs than more aggregate methods (eg. used by the CC at RP5).

UR's benchmarking approach in the DD for RP6 suffers from various shortcomings which have a material consequence for NIE's modelled efficiency gap. If UR were to address these shortcomings by following the recommendations below, UR's analysis would suggest no evidence of technical inefficiency embedded within NIE's current level of Indirect and IMFT costs, consistent with our previous findings. We recommend that UR:

- Places 50% weight on aggregated Indirect and IMFT models, including the MEAV-based model alongside UR's other recommended models;
- Places 50% weight on Ofgem's disaggregated models;
- Places 100% weight on post-allocation models;
- Places 100% weight on models that adjust for the local share of labour; and
- Uses one of the following approaches to wayleaves payments:
 - Exclude wayleaves costs from aggregate models and conduct a separate unit cost analysis; or
 - Include wayleaves costs and applying a special factor to NIE's modelled costs.

4. Developing Special Factor Adjustments

In the previous chapter, we identified a number of problems with UR's benchmarking methods. As well as these specific problems, all benchmarking models have a limited ability to identify and control for differences between companies' conditions that affect costs. As such, it is common for regulators to consider "special factor claims".

In its DD, UR acknowledges that its chosen econometric benchmarking models do not necessarily control for all differences between NIE and the British DNOs.⁹¹ UR states it "keep[s] an open mind as to whether special factors may apply for NIE Networks", and therefore, UR invites respondents to the DD to "consider whether they consider that there are any special factors that need to be applied with regards to the ... benchmarking models".⁹²

This chapter summarises our approach to identifying and estimating potential special factors for NIE, and provides an overview of the resulting special factor claims relating to NIE's Indirect and IMFT costs. In particular:

- In Section 4.3 we identify specificities of NIE which affect IMFT costs and compute a special factor claim that also takes into account potential offsetting factor (ie. negative special factors); and
- In Section 4.4 we identify specificities of NIE which affect Indirect costs and compute a special factor claim that also takes into account potential offsetting factor.

We provide more details of the calculations summarised in this chapter in Appendix A and Appendix B.

4.1. Potential Special Factors Identified in Our Previous Work

In the context of preparing its RP6 business plan during 2016, NIE commissioned NERA to investigate the differences between NIE and the British DNOs.⁹³ We produced a report that assessed the extent to which the differences we identified were likely to materially affect the results of comparative benchmarking between NIE and the British DNOs, whether alternative models could adequately control for these differences, and, if the effect of specific differences could be quantified.

Table 4.1 summarises the differences between NIE and the British DNOs that we identified in our 2016 report as potentially influencing the results of comparative benchmarking between NIE and the British DNOs.

⁹¹ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p. 81.

⁹² Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", pp. 81-82.

⁹³ NERA (28 June 2016), "Special Factors Affecting NIE's Costs Relative to the British DNOs".

Table 4.1
Specificities of NIE Identified in NERA's Previous Report on Special Factors

Difference Between NIE and the British DNOs	Description / Impact on NIE's Costs
Sparsity, Rurality and Network Design	▪ NIE serves a relatively rural area with a relatively dispersed customer base. It is also subject to more extreme weather compared to the rest of the UK. ▪ Severe weather means NIE's fault rates (per km of line) tend to be high compared to the rest of the UK. NIE has also benefited from less historical funding for reducing interruptions than the British DNOs, eg. there has been no interruptions incentive scheme in NI. ▪ The rural, dispersed nature of the network means it incurs relatively high network operating costs per customer compared to most British DNOs. This comes about from having a higher proportion of overhead lines: – Overhead lines tend to have higher fault rates than underground cables and require maintenance due to exposure to the weather. – Having more overhead line also leads to higher tree cutting costs and wayleaves costs.
Connections Activities	▪ Historically, NIE Networks has been the only party in Northern Ireland which can carry out customer connections to the network. In Great Britain, the connections market has been contestable throughout the period of UR's benchmarking. ▪ NIE therefore carries out more connections activities than DNOs in the rest of the UK, and therefore incurs indirect costs to support this higher volume of connections work.
Regional Labour Costs	▪ NIE operates in a relatively low wage region of the UK. However, an offsetting factor may be the larger share of specialists employed within its workforce to ensure a sufficient diversity of skills and capability within its smaller overall workforce.
ESQCR Programme	▪ ESQCR regulations implemented by the Health and Safety Executive cause DNOs to incur additional Indirect and IMFT costs. British DNOs carried out additional work to comply with the regulations during R10-ED1 and DPCR5. ▪ In Northern Ireland, the regulations were not passed until 2012, so NIE will incur these costs in the RP6 period. This difference in timing between NIE and the British DNOs may require a special factor adjustment to NIE's I&M and CAI costs.
Small Scale / Singleton DNO	▪ NIE's smaller scale compared to the British DNOs increases the share of fixed costs in total costs. Furthermore, NIE cannot benefit from sharing of overheads across other DNOs within licensee group and may face higher financing costs due to its small size. ▪ NIE is also geographically isolated from the GB Network, and is not connected to adjacent DNOs. As a result, NIE cannot rely on adjacent network operators in emergencies such as severe weather, and must incur additional costs to store more spare parts.
Potential for Smart Grid Savings	▪ In the past, NIE has received substantially lower innovation funding than British DNOs. Therefore NIE's network has a limited adoption of smart/advanced technologies relative to British DNOs and faces higher costs.

4.2. UR's Criteria for Considering Special Factors

The DD provides guidelines on the criteria against which UR will consider special factor claims in its FD:⁹⁴

- “What is different about the circumstances that cause materially higher cost claims which amount to greater than 1% of the total modelled costs in question?
- “Why do these circumstances lead to higher costs?
- “What is the net impact of these costs on prices over and above that which would be incurred without these factors? What has been done to manage the additional costs arising from the different circumstances and to limit their impact?
- “Are there any other different circumstances that reduce the company's costs relative to industry norms? If so, have these been quantified and offset against the upward cost pressures?”

UR sets a threshold for the materiality of special factor claims of 1% of total modelled costs. It is not clear from the DD how UR intends to apply this threshold (ie. at which level of granularity in the cost data). However, we understand it will apply at the level of total modelled Indirect and IMFT costs, which varies across UR's 12 models. In this report, we therefore only present special factor claims above this threshold, calculated as shown in Table 4.2.

Table 4.2
Estimated UR Materiality Threshold
Reported in Million Pounds, 2013 – 2016 Total (Oct-2015 Prices)

Model	Pre-Allocation		Post-Allocation	
	No LLA	Full LLA	No LLA	Full LLA
1. CEPA	3.59	3.47	3.13	3.03
2. M4	3.47	3.40	3.02	2.96
3. M6	3.46	3.35	3.02	2.92

Source: NERA analysis of Ofgem and NIE data.

4.3. Specificities of NIE Affecting IMFT Costs

4.3.1. Special factor

NIE Networks serves an area which is more rural and sparsely populated than Great Britain. NIE's historic network design also imposes additional costs relative to British DNOs. In our 2016 special factors report, we discussed in depth how this affects each component of NIE's IMFT costs and why it warrants the development of a special factor claim:⁹⁵

⁹⁴ Utility Regulator (24 March 2017), “Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination”, p. 82.

⁹⁵ NERA (28 June 2016), “Special Factors Affecting NIE's Costs Relative to the British DNOs”, pp. 17-22.

- **Inspections and Maintenance:** NIE has higher I&M costs per customer and per km of network due to its high proportion of overhead lines.
- **Faults:** NIE suffers more faults due to its relatively high ratio of overhead lines to underground cables and its historic network design.
- **Tree Cutting:** NIE carries out more tree cutting work due to the larger overhead network, and the topography of Northern Ireland.

None of UR's models account for these factors which drive NIE's additional IMFT costs relative to the British DNOs. All UR models benchmark NIE's total Indirect and IMFT costs using general "scale" variables such as network length and customer numbers. However, none of UR's selected model controls separately for overhead network and underground network, nor does any model take account of the additional volumes of work NIE must undertake in I&M, faults or tree cutting.

We considered a variety of approaches to calculating a special factor claim to take account of these factors, as described in more detail in Section A.3.1:

1. **Engineering assessment:** A detailed engineering assessment of the additional costs NIE incurs.
2. **Adding explanatory variables:** Adding drivers to UR's existing models and computing a special factor from the resulting change in NIE's modelled costs.
3. **Using disaggregated models:** Removing the affected cost categories in turn from UR's top-down models, modelling NIE's costs using disaggregated models that are better able to explain the elements of NIE's costs affected by its sparsity, rurality and network design.

We consider that approach (1) would only be feasible if more detailed cost and technical information were available for both NIE and the British DNOs than is contained in the RIGs. We considered approach (2), but the new models we generated did not pass UR's robustness criteria. Therefore, we ultimately computed this special factor claim using approach (3), using the following disaggregated models:

- **Inspections and Maintenance:** Unit cost analysis of I&M costs, using OHL and Plant MEAV as the cost driver;⁹⁶
- **Faults:** Regression-based modelling of OHL faults expenditure against the volume of OHL faults; and
- **Tree Cutting:** Regression-based modelling of tree cutting expenditure, in which tree cutting expenditure is regressed on the number of spans cut.

The disaggregated models used for Faults and Tree Cutting are the same as those recommended by CEPA for benchmarking NIE's costs.⁹⁷ Since CEPA did not recommend a

⁹⁶ The OHL and Plant MEAV is a weighted average of (1) the MEAV specific to switchgears and transformers (75% weight) and (2) the MEAV specific to overhead tower and pole lines (and their support) (25% weight).

⁹⁷ CEPA (March 2017), "RP6 Efficiency advice, The Northern Ireland Utility Regulator (UR): Final Report", Table 6.1 "Recommended models", p. 37.

model for I&M expenditure, we ran a modified version of Ofgem's RIIO-ED1 disaggregated model for I&M, using the same 4 years of data as in UR's benchmarking models.

Our methodology for using the disaggregated models to calculate a special factor claim is described in more detail in Section A.3.2. This approach finds a material special factor claim against each of UR's 12 models. Our results are shown in Table 4.3.

Table 4.3
Special Factor Claim Using Disaggregated Models
Reported in Million Pounds, 2013 – 2016 Total (Oct-2015 Prices)

Model	Pre-Allocation		Post-Allocation	
	No LLA	Full LLA	No LLA	Full LLA
1. CEPA	10.36	11.11	10.17	10.83
2. M4	19.82	19.58	19.92	19.68
3. M6	10.52	11.35	10.22	10.95

Source: NERA analysis of Ofgem and NIE data.

We find the largest special factors against the “M4” model, in which total Indirect and IMFT costs are explained by the CSV variable. This is an intuitive result, since the CSV used in the M4 model restricts the weight which the model places on each component, to place greater weight on customer numbers and units distributed, which are less able to capture some of the specificities of NIE that cause it to have relatively high IMFT costs (ie. a relatively long overhead network).

4.3.2. Offsetting factors

We also recognise there are two “offsetting factors” which may have reduced NIE's IMFT costs relative to the British DNOs during the benchmarking period, but for which UR's models do not account.

First, NIE operates at a lower Guaranteed Standard of Service (GSS) than the British DNOs. NIE operates at a 24-hour restoration standard compared to an 18-hour standard in Britain that changed to a 12-hour standard in 2015/16. As we explain more in detail in Section A.4.1, NIE has estimated that this difference in the GSS saved it approximately £265,000 in compensation payments over the four years compared to the British DNOs.

Second, NIE did not undertake the large-scale ESQCR programme that British DNOs undertook between 2013 and 2016. The programme led British DNOs to carry out additional I&M work which is not accounted for in either UR's models or our disaggregated models above. In our previous special factors report, we estimated NIE's saving in I&M costs between 2012/13 and 2015/16 due to the difference in the timing of the ESQCR programme, using an econometric model to model I&M costs while controlling for differences in

companies' direct ESQCR expenditure.⁹⁸ Using the same model, we estimate an *upper-bound* of NIE's cost savings at £1.3 million over the four-year benchmarking period.

4.3.3. Resulting special factor claim related to NIE's IMFT costs

Therefore, after offsetting the positive special factor claim for NIE's sparsity, rurality and network design with negative special factors for differences in GSS and ESQCR, we estimate the following combined special factor claim (Table 4.4).

Table 4.4
Special Factor Claims Related to IMFT
Reported in Million Pounds, 2013 – 2016 Total (Oct-2015 Prices)

Model	Pre-Allocation		Post-Allocation	
	No LLA	Full LLA	No LLA	Full LLA
1. CEPA	8.82	9.56	8.63	9.28
2. M4	18.27	18.03	18.37	18.14
3. M6	8.98	9.81	8.67	9.40

Source: NERA analysis of Ofgem and NIE data.

4.4. Specificities of NIE Affecting Indirect Costs

4.4.1. Special factors

As we demonstrate in Appendix B, NIE incurs higher wayleaves costs per customer and per km of network than British DNOs due to the higher proportion of its network which is above ground. NIE also incurs higher levels of indirect costs allocated to connections because it carries out more connections per customer than British DNOs.

UR's chosen benchmarking models do not control for NIE's relatively high wayleaves costs, as we also discuss in Section B.1.2 and in Section 3.3 above. All three of UR's models rely on general "scale" cost drivers, and while all models control for network length (at least to some extent), no model controls specifically for overhead network length, for example.

UR's "pre-allocation" models, on which a 50% weight is applied when setting NIE's baseline allowance, also fail to control for the volume of NIE's connections work, which is incomparable to British DNOs, since the connections market was contestable in GB but not in Northern Ireland during the historical benchmarking period (see Section B.2.1 and Section 3.2 above).

We considered a variety of approaches to calculating a special factor claim to take account of NIE's relatively high wayleaves and connections costs, as described in more detail in Section A.3.1:

⁹⁸ NERA (28 June 2016), "Special Factors Affecting NIE's Costs Relative to the British DNOs", pp. 28-29.

1. **Engineering assessment:** we deemed a detailed engineering assessment of the additional costs NIE incurs not feasible due to data constraints for British DNOs.
2. **Adding explanatory variables:** For wayleaves, we considered adding the volume of OHL supports to UR's models but this did not produce econometrically robust models. For connections, we considered adding the volume of connections undertaken, but found these models did not consistently pass UR's diagnostic tests.
3. **Using disaggregated models:** Therefore we generated special factor claims using the following "disaggregated models" which take account of each factor:
 - Unit cost benchmarking of wayleaves costs per OHL support, in line with Ofgem's RIIO-ED1 disaggregated model for wayleaves; and
 - Unit cost benchmarking of indirect costs allocated to connections, per connection.

Our full methodology is detailed in sections B.1.3 and B.2.2. For wayleaves, we find a material special factor claim against all of UR's models (see Table 4.5). As in Section 4.3, the special factor claim is highest against the M4 model, since two of the three components of the CSV (units distributed and customer numbers) are particularly poor measures of efficient wayleaves expenditure which depends on the number of overhead supports and the length of the overhead network. For connections, we find a material special factor claim against all of UR's "pre-allocation" models (ie. those which include indirect costs allocated to connections – see Table 4.6).

Table 4.5
NIE's Wayleaves Special Factor Claim
Reported in Million Pounds, 2013 – 2016 Total (Oct-2015 Prices)

Model	Pre-Allocation		Post-Allocation	
	No LLA	Full LLA	No LLA	Full LLA
1. CEPA	4.22	4.81	3.78	4.38
2. M4	9.20	9.40	8.98	9.20
3. M6	4.47	5.04	3.99	4.58

Source: NERA analysis of Ofgem and NIE data.

Table 4.6
NIE's Connections Special Factor Claim
Reported in Million Pounds, 2013 – 2016 Total (Oct-2015 Prices)

Model	Pre-Allocation		Post-Allocation	
	No LLA	Full LLA	No LLA	Full LLA
1. CEPA	12.35	20.16	0.00	0.00
2. M4	13.02	19.75	0.00	0.00
3. M6	14.07	21.84	0.00	0.00

Source: NERA analysis of Ofgem and NIE data.

4.4.2. Offsetting factors

In the DD, UR suggests there may be three offsetting factors that may reduce NIE's indirect costs relative to the British DNOs. UR suggests that:⁹⁹

- The British DNOs undertook a larger capex programme during 2012/13-2015/16 due to their earlier need to meet new ESQCR requirements, thus incurring additional costs across some categories of CAI;
- They undertook more innovation expenditure than NIE during 2012/13-2015/16; and
- They carry out more customer engagement work than NIE.

As explained in Section B.4, innovation and customer engagement do not warrant negative special factor claims. UR does not present evidence that NIE spends less than British DNOs *relative to the scale of the company*, and UR's chosen models control for the general "scale" of the DNOs. Also, we see no evidence that customer engagement costs are sufficiently large such that any difference in customer engagement between NIE and the British DNOs would result in a material special factor claim. For example, customer engagement expenditure is not identified as a line item in the RIGs. Finally, if NIE were spending less on innovation relative to its size, we would also expect the degree of cost savings it can achieve from innovation schemes to also be lower, which would justify an offsetting adjustment.

In our 2016 special factors report, we estimated NIE's CAI savings relative to British DNOs as a result of the ESQCR programme undertaken in GB, using the coefficient on the asset additions variable of the Ofgem RIIO-ED1 disaggregated model for CAI costs.¹⁰⁰ Using the same model, we estimate that a negative special factor of £1.4 million per year (£5.4 million over the four years) should be applied to NIE's CAI costs. As we explain in Section B.4.1, given that CEPA's replication of this Ofgem model suggests a lower coefficient on asset additions which is not statistically significantly different from zero, this adjustment is highly conservative.¹⁰¹

4.4.3. Resulting special factor claim related to NIE's Indirect costs

The combination of the special factor claims for wayleaves and connections, and the CAI-related ESQCR expenditure offsetting factor is presented in Table 4.7 below. Since the connections special factor is only applicable to pre-allocation models, we find the largest special factor claims in these models. As before, the special factor claims are also slightly larger for the M4 model, which is least able to capture NIE's higher wayleave costs.

⁹⁹ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p. 56.

¹⁰⁰ NERA (28 June 2016), "Special Factors Affecting NIE's Costs Relative to the British DNOs", pp. 29 - 30.

¹⁰¹ CEPA (March 2017), "RP6 Efficiency advice, The Northern Ireland Utility Regulator (UR): Final Report", "RP6 Efficiency Advice – Final Report", p. 34.

The special factor claims are negative in some cases (models 1 and 3, post-allocation), where the negative special factor claim for ESQCR outweighs the positive special factor claims for wayleaves.¹⁰²

Table 4.7
NIE's Indirects Special Factor Claim
Reported in Million Pounds, 2013 – 2016 Total (Oct-2015 Prices)

Model	Pre-Allocation		Post-Allocation	
	No LLA	Full LLA	No LLA	Full LLA
1. CEPA	11.14	19.53	-1.65	-1.05
2. M4	16.78	23.71	3.55	3.76
3. M6	13.11	21.45	-1.45	-0.86

Source: NERA analysis of Ofgem and NIE data.

4.5. Summary of Special Factor Claims

We have calculated special factor claims for NIE's Indirect and IMFT costs which reflect three factors that cause NIE to have relatively high costs compared to the British DNOs:

- NIE operates in a more sparsely populated, rural area, and incurs additional costs due to its historic network design. This affects NIE's IMFT costs, particularly because these factors cause it to have a relatively high proportion of overhead lines that require higher IMFT expenditure;
- NIE also incurs higher wayleaves costs (a component of indirect costs) than British DNOs because it has a higher proportion of overhead lines; and
- NIE carries out more connections work than British DNOs, meaning it incurs additional indirect costs in relation to connections activities.

We have estimated the impact on NIE's costs of offsetting factors which reduce NIE's Indirect and IMFT costs relative to British DNOs as a result of GSS and the different timing of its ESQCR programme.

Table 4.8 presents our estimate of these combined special factor claims against each of UR's models. As the tables show, the special factor claims are substantially higher on "pre-allocation" models, as these do not control for NIE's additional connections work. The special factor claim is also largest in the M4 model, which is least capable of capturing the effect of NIE's long overhead network on its IMFT and wayleaves costs, as it imposes a relatively high weight on customer numbers and units distributed. Table 4.9 and Table 4.10 also show the quantum of the special factor claims as annual average and percentage adjustments.

¹⁰² Because these negative special factor claims are below (in absolute terms) the materiality threshold shown in Table 4.2, arguably they should be set equal to zero. However, we have been conservative in our application of these special factors and continued to apply them as shown in Table 4.7.

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Table 4.8
Total Special Factor Claim Between 2012/13 and 2015/16
Reported in Million Pounds (Oct-2015 Prices)

Model	Pre-Allocation		Post-Allocation	
	No LLA	Full LLA	No LLA	Full LLA
1. CEPA	19.95	29.09	6.98	8.23
2. M4	35.05	41.74	21.92	21.90
3. M6	22.08	31.25	7.22	8.54

Source: NERA analysis of Ofgem and NIE data.

Table 4.9
Annual Average Special Factor Claim Between 2012/13 and 2015/16
Reported in Million Pounds (Oct-2015 Prices)

Model	Pre-Allocation		Post-Allocation	
	No LLA	Full LLA	No LLA	Full LLA
1. CEPA	4.99	7.27	1.74	2.06
2. M4	8.76	10.44	5.48	5.47
3. M6	5.52	7.81	1.81	2.14

Source: NERA analysis of Ofgem and NIE data.

Table 4.10
Special Factor Claim Between 2012/13 and 2015/16
Reported in % of NIE's Indirect and IMFT Costs

Model	Pre-Allocation		Post-Allocation	
	No LLA	Full LLA	No LLA	Full LLA
1. CEPA	5.66%	8.76%	2.44%	3.04%
2. M4	9.94%	12.57%	7.66%	8.10%
3. M6	6.26%	9.41%	2.53%	3.16%

Source: NERA analysis of Ofgem and NIE data.

We understand that UR proposes to add NIE's combined annual average special factor (see Table 4.9) to NIE's "time averaged predicted costs", and re-calculate NIE's efficiency gap.¹⁰³ Using this approach, we have re-estimated NIE's efficiency gap with special factors applied according to the same set of 12 models used at DD. We find that NIE's efficiency gap falls to *minus* 0.67%, since NIE becomes more efficient than the frontier company.¹⁰⁴

¹⁰³ Based on discussions between UR and NIE and NERA.

¹⁰⁴ Note, in estimating the impact of applying special factor adjustments, we did not apply any of the recommendations made in Chapter 3.

5. UR's Approach to Setting Allowances in RP6

UR's approach to setting allowances for RP6 is to take modelled efficient costs for the base year (2015/16) and roll forward based on its assumed frontier shift target, which reflects assumed productivity improvement, offset by forecast growth in input prices. There are two problems with this approach:

- UR's approach does not control for the fact that expenditure in 2015/16 may not reflect expenditure in a "typical" year, which could cause allowances set for RP6 to be higher or lower than the efficient costs NIE expects to incur in the coming years; and
- UR's approach does not account for any change in efficient Indirect and IMFT costs due to changes in the volume of required work, for reasons such as growth in the company's allowed capital programme, new regulations or the cost of meeting higher standards.

We discuss these problems and measures UR could take to address them in the remainder of this chapter.

5.1. UR's Failure to Control for Atypical Costs in 2015/16

UR proposes to set NIE's allowance according to a 2015/16 base year. UR's reliance on a single year of cost data to set a baseline for RP6 allowances means that any atypical factors which positively or negatively affect NIE's costs in the base year will be "rolled forward" throughout RP6. In the DD, UR argues that the CC indicated that a 2015-16 base year should be used for RP6 in its RP5 determination,¹⁰⁵ referencing the CC's determination.¹⁰⁶

"We found that the availability of RIGs reporting in 2015/16, the base year for the next price control, was very important and in the public interest. We considered it was important that both NIE and the Utility Regulator had one year of exposure to RIGs reporting before the base year, even if that first year of reporting (2014/15) had a number of areas with low confidence grading or had some gaps, which would be agreed with the Utility Regulator."

However, this statement from the CC does not represent a recommendation that a single year (2015/16) should be used as a baseline for the next review. Rather, the paragraph to which UR refers argues that RIGs reporting should be implemented in full by 2015/16 to better inform UR (or the CMA) in setting the next price control. The CC's conclusion does not prescribe a particular method for rolling forward historical costs during RP5 into the next control period.

¹⁰⁵ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p. 92.

¹⁰⁶ Competition Commission (2014), "Northern Ireland Electricity Limited price determination", para. 18.75.

The CMA itself addressed this question in the context of the Bristol Water referral, at which it concluded that “a single year may be unrepresentative” of a typical year over the price control, and that “an average was therefore a more robust approach”.¹⁰⁷

We therefore suggest that for the FD UR reconsiders its DD approach to setting baseline for RP6 allowances to adopt a more robust approach which relies on taking the average NIE's expenditure over all four years.

5.2. Controlling for Changes in Efficient Opex During RP6

NIE's RP6 business plan forecasts growth in a number of components of Indirect and IMFT costs as a result of additional work to be undertaken during RP6. UR's approach to setting allowances (rolling forward modelled efficient costs for a base year at the rate of the frontier shift) may necessitate adjustments to account for changes in the volume of required work, and thus ensure NIE's revenues stay in line with efficient costs.

Based on NIE's business plan and UR's DD, we have identified the following factors that are will lead NIE to incur higher Indirect and IMFT costs during RP6 relative to UR's four year benchmarking period:

- **ESQCR and Tree Cutting (Safety Clearance) costs:** Growth in NIE's tree cutting programme, partly due to ESQCR safety clearance requirements, will increase tree cutting costs during RP6.
- **ESQCR and I&M costs:** Meeting the new ESQCR requirements will increase NIE's I&M costs, as it needs to inspect its network to assess the extent to which it complies with the new regulations, and in some cases conduct maintenance work to ensure compliance. It will also cause some increase in indirect costs to manage the additional direct expenditure on opex and capex required to meet new standards.
- **Capex programme and CAI costs:** Growth in NIE's capex programme will also cause some increase in indirect costs to plan and manage the additional direct expenditure.
- **Wayleaves requirements and costs:** Growth in NIE's network length will increase its wayleaves requirements and therefore wayleaves costs.

In the DD, UR rejects all additional requests made by NIE for increases in Indirect and IMFT costs on the grounds that GB comparators, against which NIE's costs were benchmarked, were already carrying out the additional work referenced by NIE in requesting additional funding.¹⁰⁸

As set out in the previous chapter, there are a range of differences between NIE and the British DNOs, which we recommend UR takes account of through a mix of positive and negative special factors when computing efficient base year costs. However, once UR

¹⁰⁷ CMA (2015), “Bristol Water plc, A reference under section 12(3)(a) of the Water Industry Act 1991”, p. 146.

¹⁰⁸ Utility Regulator (24 March 2017), “Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination”, p. 93.

controls historical differences using special factors, UR should also estimate how modelled efficient costs will change during RP6 as the requirements placed on NIE change.

As an illustration of the need for this adjustment, at RIIO-ED1 Ofgem set an efficiency frontier which accounted for the difference between DNOs' forecast costs (in their business plan submissions) and the modelled projections of their future costs over the course of ED1 control period. Furthermore, Ofgem used benchmarking models that took account of forecast increases in cost driver volumes, for example tree cutting work and fault rates (see Section A.3.2). Ofgem's approach therefore implicitly controlled for changing future requirements, but UR's approach of setting allowances by rolling forward base year costs requires an adjustment for changes in efficient costs in the future.

Using the special factor claims and disaggregated cost models discussed in Chapter 4, we have estimated how the efficient level of NIE's Indirect and IMFT costs changes, as the requirements placed on NIE change. We use the disaggregated models which estimate an efficient expenditure as a result of additional work in the areas of tree cutting, I&M, and CAI costs.

5.2.1. Impact of additional tree cutting volumes on NIE's efficient costs

NIE expects to incur additional tree cutting costs during RP6 due to an increase in tree cutting volumes, which is required to address ESQCR requirements. The ESQCR legislation affects tree cutting in two areas:

- A "safety clearance" requirement, to reduce the risk of trees coming into contact with overhead lines;¹⁰⁹ and
- A "resilience" requirement, to reduce the risk of falling trees causing interruption to electricity supply.¹¹⁰

CEPA's disaggregated model for tree cutting can be used to estimate the efficient cost of NIE's additional tree cutting workload in relation to the safety clearance requirement. CEPA's model estimates tree cutting costs as a function of spans cut.¹¹¹ CEPA finds this model to be econometrically robust, and it forms one of its "recommended models".¹¹²

CEPA's tree cutting model estimates the following regression equation:¹¹³

$$\ln(\text{tree cutting}) = \alpha + \beta * \ln(\text{spans cut})$$

¹⁰⁹ NIE (3 August 2016), "RP6 Network Investment Plan", p. 147.

¹¹⁰ NIE (3 August 2016), "RP6 Network Investment Plan", p. 154.

¹¹¹ CEPA (March 2017), "RP6 Efficiency advice, The Northern Ireland Utility Regulator (UR): Final Report", pp. 15-16.

¹¹² CEPA (March 2017), "RP6 Efficiency advice, The Northern Ireland Utility Regulator (UR): Final Report", Table 6.1, p. 37.

¹¹³ CEPA omit LPN from the tree cutting model, since LPN is almost entirely an underground network.

CEPA finds a coefficient for spans cut (β) of 0.55. Since both tree cutting and spans cut are logged variables, this equation implies that a 1% increase in spans cut will increase NIE's efficient tree cutting costs by 0.55%.

According to the information provided by NIE, the additional ESQCR (safety clearance) workload will require NIE to cut approximately 8,000 more spans per year than during RP5, a 31% increase relative to RP5.¹¹⁴ Therefore, we estimate that ESQCR safety clearance requirements will lead NIE to incur an additional £0.8 million per year in tree cutting costs during RP6.

5.2.2. Impact of ESQCR on NIE's efficient inspections and maintenance costs

The new ESQCR requirements will cause NIE to incur additional I&M costs, since extra inspections are required to identify non-compliance with ESQCR regulations and additional maintenance in order to rectify issues.

While the disaggregated model for tree cutting can be used to calculate efficient costs for additional tree cutting volumes (see Section 5.2.1), the disaggregated model for I&M, which estimates I&M costs as a function of OHL and Plant MEAV, cannot be used in the same way to calculate additional workload, since the additional ESQCR workload is not necessarily correlated with OHL and Plant MEAV across companies.

In calculating a special factor for I&M costs (see Section A.4.2), we used the coefficient on ESQCR capex in a linear regression model which estimates I&M costs as a function of ESQCR capex and OHL and Plant MEAV, as in our 2016 special factors report:¹¹⁵

$$I\&M = \alpha + \beta * ESQCR + \gamma * OHL \text{ and Plant MEAV}$$

The model finds that every additional £1 of ESQCR capex tends to be associated with an extra £0.05 in I&M costs.

We understand NIE incurred £1.6 million per year on ESQCR related trials between 2012/13 and 2015/16, compared to £8.3 million per year of planned ESQCR capex during RP6. Therefore, NIE's ESQCR expenditure will rise by £6.7 million per year during RP6. We therefore estimate that NIE will incur additional I&M costs of £0.3 million per year, a total of £2.1 million, over the course of RP6.

As discussed in Section A.4.2, the coefficient on ESQCR is not statistically significant, likely as a result of the noise in the dataset. However, since we have applied the same technique to estimate negative special factor that adjusts baseline costs in 2015/16, we use the equivalent

¹¹⁴ NIE has estimated this increase in spans cut using a forecast of additional tree cutting requirements at each voltage level in km multiplied by the average length of a span cut at each voltage level in 2015/16. Since the average length of a span cut falls between 2012/13 and 2015/16, this is a more conservative approach than using a four-year average span length.

¹¹⁵ NERA (28 June 2016), "Special Factors Affecting NIE's Costs Relative to the British DNOs, Prepared for NIE Networks", p. 28-29.

calculation to readjust NIE's I&M expenditure in future years in a way that ensures consistency with the modelling of historical costs.

5.2.3. The impact of additional capex costs on NIE's efficient CAI costs

During RP6, NIE forecasts it will carry out a larger capital programme than between 2012/13 and 2015/16, partly in order to ensure compliance with the new ESQCR requirements,¹¹⁶ plus some new capex programmes to relieve congestion on the 33kV network and to implement the "Investing for the Future" programme. These additional capital costs will lead NIE to incur higher CAI costs, as NIE plans and manages the expanded capex programme.¹¹⁷

The British DNOs undertook the majority of work under their ESQCR programmes during the DPCR5 control period, with some limited work continuing during the RIIO-ED1 period. UR states in the DD that an additional allowance for NIE's ESQCR-related indirect costs is unwarranted, since the GB comparators against which NIE is benchmarked undertook these additional ESQCR costs in the years in which NIE is benchmarked.¹¹⁸ However, if UR applies a negative special factor to account for the lack of ESQCR expenditure for NIE's historic costs (see sections B.4.1 and 4.4.1), it would also be necessary to apply an adjustment to NIE's future costs in the RP6 allowance.¹¹⁹

As explained in Section 4.4.2, we estimated the ESQCR special factor for CAI using Ofgem's RIIO-ED1 CAI disaggregated model. Ofgem's CAI model estimates that a 1% increase in *asset additions* (a proxy for capex) results in a 0.34% increase in CAI costs.¹²⁰ The same approach can be employed to estimate the effect of additional capex on NIE's efficient costs during RP6.

NIE will incur the following increases in CAI costs:

- **ESQCR:** NIE's capex costs will increase by approximately £ 6.7 million per year in RP6 compared to 2012/13 to 2015/16, or £43.8 million in total during RP6, leading to a 4.1% increase in asset additions. This will cause NIE to incur an additional £1.4 million per year in CAI costs.
- **33kV Congestion:** This new capex programme will cost approximately £10.4 million over RP6, leading to a 1.0% increase in asset additions. This will cause NIE to incur approximately £0.3 million in additional CAI costs per year.

¹¹⁶ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", pp. 129-130.

¹¹⁷ We would expect CAI costs to increase across the following categories: network design and engineering, project management, system mapping, EMCS, stores, network policy, control centre, and call centre.

¹¹⁸ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p. 95.

¹¹⁹ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p. 56.

¹²⁰ NERA (28 June 2016), "Special Factors Affecting NIE's Costs Relative to the British DNOs, Prepared for NIE Networks", pp. 29 - 30.

- **Investing for the Future:** This new capex programme will cost approximately £10.5 million over RP6, leading to a 1.0% increase in asset additions. This will cause NIE to incur approximately £0.3 million in additional CAI costs per year.
- **Growth in the General Capex Programme:** Excluding ESQCR, NIE incurred capex costs of approximately £38.8 million per year between 2012/13 and 2015/16 on average. This is forecast to increase to £43.6 million per year during RP6 (excluding the above mentioned new programmes). This 2.9% increase in asset additions will cause NIE to incur an additional £0.9 million in additional CAI costs per year.

In total, therefore, NIE will incur additional CAI costs of £2.9 million per year during RP6, or £19.2 million over the course of RP6.

5.2.4. Additional wayleaves requirements

NIE will incur additional wayleaves costs during RP6 due to growth in its network. To estimate additional efficient wayleaves costs, we use a version of Ofgem's disaggregated wayleaves model, as we use for the wayleaves special factor in Section B.1.3.

Ofgem conducted unit cost benchmarking of wayleaves costs against the number of OHL supports, recognising that OHL supports are the principal driver of wayleaves costs. We have updated Ofgem's unit cost benchmarking, using a four year time horizon between 2013 and 2016. This model links DNOs' efficient wayleaves costs to median unit cost per OHL support, multiplied by DNOs' total number of OHL supports.

NIE forecasts its network length will increase by approximately 3% between 2016 and 2024.¹²¹ Assuming the same ratio of network length to OHL supports in RP6 as was observed between 2012 and 2016, NIE has estimated the growth in OHL supports due to the additional network in each year of RP6 (see Table 5.1).

Table 5.1
Additional Wayleaves Payments
Reported in Numbers (OHL Supports) and Million Pounds (Oct-2015 Prices)

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
OHL Supports	28,7319	28,7967	28,9120	29,0277	29,1439	29,2606	29,3778	29,4954
New Supports		648	1801	2958	4,120	5,287	6,459	7,635
Total Costs (£m)	5.44	5.45	5.47	5.49	5.52	5.54	5.56	5.58
Additional Costs (£m)		0.01	0.03	0.06	0.08	0.10	0.12	0.14

Source: NERA analysis of Ofgem and NIE data.

Since NIE's network will grow gradually over RP6, we estimate NIE's efficient wayleaves costs will increase gradually; becoming approximately £140,000 higher than the base year by

¹²¹ The increase refers to NIE's distribution network length, 110kV or lower.

2023 (see Table 5.1). Overall, we estimate that NIE will incur additional wayleaves costs of approximately £0.5 million over RP6 (ie. from 2017/18 to 2022/23).¹²²

5.3. Conclusion

UR proposes to set NIE's Indirect and IMFT allowance based on its estimate of NIE's efficient expenditure in 2015/16 and rolled forward by an assessment of potential frontier shift based on its target for productivity improvement, less forecast RPEs.

As discussed above, we identify two problems with UR's approach. First, it does not control for the fact that expenditure in 2015/16 may not be "typical", which could cause allowances set for RP6 to be higher or lower than the efficient costs NIE expects to incur in the coming years. We therefore recommend, in line with the CMA's approach in the Bristol Water referral, that UR uses a more robust approach by relying on a 4-year average of NIE's expenditure to set the baseline cost for RP6.

Second, UR's approach does not account for any change in efficient Indirect and IMFT costs due to changes in the volume of required work during RP6, which affects its tree cutting, I&M and CAI costs. In particular, in its DD, UR rejects NIE's requests for increases in allowed opex, citing a lack of evidence and/or that an additional allowance is unwarranted because the British DNOs delivered similar levels of workload in the historical benchmarking period. However, as we explained, once UR controls historical differences using special factors, UR should also estimate how modelled efficient costs will change during RP6 as the requirements placed on NIE change.

While we understand the NIE business plan opex forecasts were estimated on a "bottom-up" basis, we have conducted our own analysis as a cross-check to these forecasts. Specifically, to estimate how NIE's efficient Indirect and IMFT costs may change during RP6 due to changes in workload or other requirements, we have drawn on the same techniques we have used to quantify special factors to account for differences between NIE and the British DNOs during the historical benchmarking period.

We estimate that changes in NIE's efficient Indirect and IMFT costs due to planned changes in workload or new requirements would increase NIE's efficiency costs in RP6 by approximately £4.2 million per year (see Table 5.2). Overall, we estimate NIE's efficient Indirect and IMFT costs will be £27.1 million higher during RP6 (see Table 5.3).

¹²² Note, this approach assumes no growth in real terms in wayleave rental prices.

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Table 5.2
Summary of Efficient Additional Revenue Requests per year
Reported in Million Pounds (Oct-2015 Prices)

	£m
Tree Cutting (Safety Clearance)	0.8
I&M	0.3
CAI - ESQCR	1.4
CAI - Change in Capex	0.9
CAI - 33kV Congestion	0.3
CAI - Investing for Future	0.3
Wayleaves (Annual Average)	0.1
Total	4.2

Source: NERA analysis of NIE data.

Table 5.3
Summary of Efficient Additional Revenue Requests over RP6
Reported in Million Pounds (Oct-2015 Prices)

	£m
Tree Cutting (Safety Clearance)	5.2
I&M	2.1
CAI - ESQCR	8.8
CAI - Change in Capex	6.1
CAI - 33kV Congestion	2.1
CAI - Investing for Future	2.1
Wayleaves	0.6
Total	27.1

Source: NERA analysis of NIE data.

6. Conclusion

This report presents the findings of NERA's review of UR's DD of NIE's allowed Indirect and IMFT costs for RP6. We have reviewed and assessed the key elements of UR's approach to benchmarking NIE's costs, and the justification behind UR's modelling decisions. We have also quantified special factors claims that could be used to address the limited ability of UR's existing benchmarking models to control for differences between the British DNOs and NIE. Finally, we have also reviewed UR's approach to setting an allowance at RP6, and estimated how expected changes in NIE's workload over RP6 will affect its modelled efficient operating costs.

6.1. Assessment of UR's Approach to Benchmarking at RP6

6.1.1. UR appears to have cherry-picked those models showing NIE in the least favourable light

UR's model selection process undermines its ability to robustly compare NIE's costs to those of the British DNOs. UR has based its DD allowances on only a subset of the models recommended by CEPA, ignoring CEPA's recommended disaggregated models, without providing any explanation for its approach. UR's decision to rely solely on top-down models also appears at odds with recent regulatory precedent from Ofgem and the CMA and contradicts its own statements within the DD which support the use of a wider range of models and drivers.

UR also ignores the disaggregated benchmarking evidence submitted alongside NIE's business plan by NERA, which finds NIE to be above the efficiency frontier. The arguments for ignoring the disaggregated modelling are incorrect and contradictory. Finally, UR's decision to ignore the MEAV-based models recommended by CEPA is similarly unjustified.

In essence, UR seems to have cherry-picked those models that show NIE in a less favourable light, ignoring those models that show NIE to be efficient.

6.1.2. UR's approach does not control for important differences between NIE and the British DNOs related to connections and wayleaves

Historically, NIE has been the only party carrying out connections work in Northern Ireland, whereas connections work is a contestable activity for British DNOs. At RP5 the CC accounted for the different scope of connection activities between NIE and its comparators by excluding indirect costs related to connections activities. However, UR proposes to place a 50% weight on "pre-allocation" models which include indirect costs allocated to connections.

Additionally, UR's approach fails to address differences between NIE's connections workload compared to the British DNOs, a problem which the CC identified at RP5. This flaw in UR's approach will cause its benchmarking to understate NIE's relative efficiency and cause its allowances to understate NIE's efficient costs.

UR's models also fail to account for NIE's higher wayleaves costs due to the higher proportion of overhead lines in its network. UR includes wayleaves payments in its benchmarking, in contrast with Ofgem's approach at RIIO-ED1. UR's failure to control for

NIE's relatively high wayleaves costs will cause its benchmarking to understate NIE's relative efficiency and cause its allowances to understate NIE's efficient costs.

6.1.3. UR exaggerates the benefit NIE gains from being in a relatively low wage region

Like Ofgem at RIIO-ED1/GD1, UR adjusts NIE and British DNOs' labour costs using a Regional Wage Adjustment to control for different wages around the country. However, UR argues that because it cannot find the source of Ofgem's assumptions on the proportion of labour which must be located locally, that it is appropriate to reduce by 50% the proportion of labour that it assumes must be located in the same region as the DNO.

As CEPA itself acknowledges, models that fail to make this adjustment exaggerate the adjustment for regional labour costs in the benchmarking.¹²³ Therefore, UR's approach exaggerates the modelled inefficiency of companies (like NIE) in relatively low wage regions.

6.1.4. We recommend UR reconsiders its benchmarking approach in the FD

The problems identified above have material consequence for NIE's modelled efficiency gap. Correcting these problems, we estimate NIE's efficiency gap would fall to between *minus* 7.45% and *minus* 8.02%, from UR's current estimate of 1.96%. Hence, consistent with the finding from earlier benchmarking work conducted by NERA, we conclude UR's analysis suggests no evidence of technical inefficiency embedded within NIE's current level of Indirect and IMFT costs.

6.2. Special Factor Adjustments

UR acknowledges that its chosen econometric benchmarking models do not necessarily control for all differences between NIE and the British DNOs.¹²⁴ As a result, UR invites respondents to the DD to demonstrate and quantify any special factors which should be applied to NIE's benchmarked costs.

6.2.1. We have identified potential special factors in our previous work

In the context of preparing its RP6 business plan, NIE commissioned NERA in 2016 to investigate the differences between NIE and the British DNOs that were likely to materially affect the results of comparative benchmarking.¹²⁵ Building on this earlier work, we have identified a number of differences that are sufficiently material to justify special factor adjustments in UR's benchmarking.

¹²³ CEPA (March 2017), "*Regional Wage Adjustment, The Northern Ireland Utility Regulator (UR): Final Report*", p. 18.

¹²⁴ Utility Regulator (24 March 2017), "*Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination*", p. 81.

¹²⁵ NERA (28 June 2016), "*Special Factors Affecting NIE's Costs Relative to the British DNOs, Prepared for NIE Networks*".

6.2.2. Applying the special factors for which UR's chosen models do not control shows NIE is more efficient than the upper quartile

All three of UR's chosen models use general "scale" variables to account for differences in a DNO's total costs. As such, they do not take account for factors which cause NIE to carry out more work relative to the size of network or number of customers. From the potential special factors which we have previously identified, we have found that there are three principal special factors of which UR's models do not take account:

- High IMFT costs related to the rurality of NIE's service region and the design of its network;
- High wayleaves costs due to NIE's high proportion of overhead network; and
- High indirect costs associated with connections due to less contestability and faster customer growth.

We have quantified each of these special factors using disaggregated benchmarking models which explicitly account for the cost drivers most relevant to these cost items.

We have also estimated the impact on NIE's costs of offsetting factors which reduce NIE's costs relative to British DNOs. Offsetting factors apply due to a more demanding GSS in Great Britain and differences in the timing of NIE's ESQCR compliance programme.

The combined effect of these special factors on NIE is shown in Table 6.1. The special factor claim is higher in pre-allocation models which do not control for NIE's additional connections work, and is also largest in the M4 model, which is least capable of capturing the effect of NIE's long overhead network on its costs, as it imposes a relatively high weight on customer numbers and units distributed.

Table 6.1
Annual Average Special Factor Claim
Reported in Million Pounds (Oct-2015 Prices)

Model	Pre-Allocation		Post-Allocation	
	No LLA	Full LLA	No LLA	Full LLA
1. CEPA	4.99	7.27	1.74	2.06
2. M4	8.76	10.44	5.48	5.47
3. M6	5.52	7.81	1.81	2.14

Source: NERA analysis of Ofgem and NIE data.

Applying the special factor adjustments shown in Table 6.1, we estimate that NIE's efficiency gap falls to *minus* 0.67%, since NIE becomes more efficient than the upper quartile company.¹²⁶

¹²⁶ Note, we calculate this adjusted efficiency gap before applying our recommended changes to the benchmarking to broaden the range of models used for UR's "triangulation" and apply the local labour adjustment in full.

6.3. UR's Approach to Setting Allowances in RP6

UR's approach to setting allowances for RP6 is to take modelled efficient costs for the base year (2015/16) and roll forward based on its assumed frontier shift target, which reflects assumed productivity improvement, offset by forecast growth in input prices. There are two problems with this approach:

- UR's approach does not control for the fact that expenditure in 2015/16 may not reflect expenditure in a "typical" year, which could cause allowances set for RP6 to be higher or lower than the efficient costs NIE expects to incur in the coming years; and
- UR's approach does not account for any change in efficient Indirect and IMFT costs due to changes in the volume of required work, for reasons such as growth in the company's allowed capital programme, new regulations or the cost of meeting higher standards.

We have identified number of factors that will cause NIE to incur additional Indirect and IMFT costs during RP6 due to increases in workload:

- ESQCR and Tree Cutting (Safety Clearance) costs: Growth in NIE's tree cutting programme, partly due to ESQCR, will increase tree cutting costs during RP6.
- ESQCR and I&M costs: Meeting the new ESQCR requirements will increase NIE's I&M costs, as it needs to inspect its network to assess the extent to which it complies with the new regulations, and in some cases conduct maintenance work to ensure compliance.
- Capex programme and CAI costs: Growth in NIE's capex programme will also cause some increase in indirect costs to plan and manage the additional direct expenditure.
- Wayleaves requirements and costs: Growth in NIE's network length will increase NIE's wayleaves requirements and therefore wayleaves costs.

We have estimated that NIE's efficient costs during RP6 will be approximately £4.2 million per year higher during RP6 than in UR's base year due to these changes in workload (see Table 6.2).

Table 6.2
Summary of Efficient Additional Revenue Requests (£m per year)
Reported in Million Pounds (Oct-2015 Prices)

	£m
Tree Cutting (Safety Clearance)	0.8
I&M	0.3
CAI - ESQCR	1.4
CAI - Change in Capex	0.9
CAI - 33kV Congestion	0.3
CAI - Investing for Future	0.3
Wayleaves	0.1
Total	4.2

Source: NERA analysis of Ofgem and NIE data.

Appendix A. Differences in NIE's IMFT Costs Relative to the British DNOs

A.1. NIE's Costs Relative to British DNOs

NIE Networks serves an area which is more rural and sparsely populated than Great Britain. In addition, the historic design of NIE's network imposes additional costs relative to GB comparators. These factors affect various categories of NIE's IMFT costs. As noted in Section 4.1, we discussed in depth the rationale for a special factor to take account of this sparsity, rurality and network design in our 2016 Special Factors Report:¹²⁷

- **Inspections and Maintenance:** In our previous report, we demonstrated that a higher proportion of NIE's network consists of overhead lines than other DNOs. As a result, it incurs higher I&M costs than other companies (per customer and per km of network);¹²⁸
- **Faults:** In our previous report, we demonstrated that NIE's network suffers higher fault rates than the British DNOs, due to the larger proportion of overhead lines and the historic design of the network.¹²⁹ This increases NIE's fault volumes (and hence costs) compared to other companies.
- **Tree Cutting:** In our previous report, we demonstrated that NIE incurs higher tree cutting costs compared to other companies, due to the larger overhead network and the topography of Northern Ireland.¹³⁰ These factors require NIE to inspect and cut more spans per customer than the British DNOs.¹³¹

We have also identified the following offsetting factors which may reduce NIE's IMFT costs relative to the British DNOs:

- **GSS:** NIE operates at a less demanding Guaranteed Service Standard (GSS) than British DNOs, with respect to the duration in which it should restore customers' supply after a fault. This reduces NIE's faults costs relative to British DNOs.
- **ESQCR Costs:** ESQCR requirements impose additional tree cutting and I&M costs. The ESQCR regulations were in force in GB during UR's historical benchmarking period, but will only be implemented in Northern Ireland during RP6. We discussed and quantified this special factor in our 2016 report, and demonstrated that the same approach to

¹²⁷ See NERA (28 June 2016), "Special Factors Affecting NIE's Costs Relative to the British DNOs, Prepared for NIE Networks", pp.14-22.

¹²⁸ NERA (28 June 2016), "Special Factors Affecting NIE's Costs Relative to the British DNOs, Prepared for NIE Networks", p. 20.

¹²⁹ NERA (28 June 2016), "Special Factors Affecting NIE's Costs Relative to the British DNOs, Prepared for NIE Networks", pp. 17-18.

¹³⁰ NERA (28 June 2016), "Special Factors Affecting NIE's Costs Relative to the British DNOs, Prepared for NIE Networks", p. 22.

¹³¹ NERA (28 June 2016), "Special Factors Affecting NIE's Costs Relative to the British DNOs, Prepared for NIE Networks", Figure 3.3, p. 22.

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quantifying the special factor during the benchmarking period could be applied to estimate the additional revenue required for NIE during RP6.¹³²

We discuss and quantify a separate special factor claim for wayleaves, which arises in part due to SR&ND, in Appendix B as this cost category is a component of indirect costs, not IMFT on which this appendix focuses.

A.2. Treatment of these Factors in UR's Models

Table A.1 discusses the extent to which each of UR's selected models account for the characteristics of NIE's network/region discussed above. In summary, none of UR's chosen models control for the different ratio of overhead lines to underground networks for NIE relative to British DNOs or NIE's different network design. As demonstrated in our previous report, both of these factors cause NIE to have relatively high costs compared to the British DNOs and they are not captured by UR's models.

Table A.1
Differences Between NIE and the British DNOs Affecting their IMFT Costs

Model	Cost Drivers	Differences Between NIE and the British DNOs		
		<i>Dispersed Customer Base Requires Longer Network</i>	<i>Long OHL Network and Extreme Weather Causes Higher Fault Rates</i>	<i>Longer OHL Network Causes High Inspections, Maintenance and Tree Cutting Costs</i>
1 IMFT & Indirects	<i>Length, density</i>	This model includes a network length variable, so accounts for this factor.	- However, this model does not differentiate between overhead and underground networks. - Overhead networks are more susceptible to bad weather and have higher fault rates, which are not reflected in this model.	- Similarly, overhead networks require tree cutting work, a factor for which this model does not control. - Inspections and maintenance costs will also be higher due to higher failure rates and greater weather exposure.
2 IMFT & Indirects (=M4)	<i>CSV, time dummies</i>	Network length is one component of the CSV (with 50% weight), so this model <i>partially</i> accounts for this factor	Like model (1), this model does not distinguish between overhead / underground network.	Like model (1), this model does not distinguish between overhead / underground network.
3 IMFT & Indirects/ customer (=M6)	<i>Length/ customer, time dummies</i>	This model does account for differences in the length of DNOs' networks per customer.	Like model (1), this model does not distinguish between overhead / underground network.	Like model (1), this model does not distinguish between overhead / underground network.

UR's models also fail to take account of different GSS and ESQCR regulations between NIE and British DNOs, since they do not contain drivers which relate to the volumes of work

¹³² NERA (28 June 2016), "Special Factors Affecting NIE's Costs Relative to the British DNOs". p. 28-29.

carried out in these areas. These factors will have caused NIE to have incurred relatively low costs compared to the British DNOs during UR's benchmarking period (2012/13-2015/16).

A.3. Quantifying the Special Factor Claim

A.3.1. Alternative methods for quantifying a special factor claim

As discussed above, UR's benchmarking models do not account for the difference in NIE's IMFT costs which arise due to differences in its sparsity, rurality and network design relative to the British DNOs. We have identified a range of possible methods for controlling for these effects on NIE's costs, and thus computing a special factor claim:

1. **Engineering assessment:** One option would be to conduct a detailed engineering assessment of the additional costs that NIE incurs relative to other companies due to the factors associated with its sparsity, rurality and network design;
2. **Adding explanatory variables:** Another option would be to add new drivers to UR's benchmarking models to capture the impact of sparsity, rurality and network design on modelled costs, then to compute a special factor claim based on the resulting change in modelled costs; and
3. **Using disaggregated models:** An alternative option would be to take the affected categories of cost out of UR's top-down benchmarking models, and compute a special factor claim using more disaggregated models that are better able to explain the elements of NIE's costs affected by its sparsity, rurality and network design. We have computed a special factor claim using this approach, set out in Section A.3.2 below.

We do not consider a detailed engineering assessment to be viable in this case, because it would require detailed cost and technical information from other DNOs to make a comparative assessment. In essence, the choice of method for computing special factor claims is constrained by the availability of the same data for all UK DNOs in the RIGs dataset, which lends itself more to a statistical analysis.

We considered a variety of approaches to applying method two (ie. adding explanatory variables to UR's models). As set out in Table A.1 above, UR's relatively high-level benchmarking models seek to explain variation in the DNOs' costs as a function of their scale using a range of drivers which primarily concern network length and the number of customers. Table A.1 explains that these models ignore the distinction between overhead and underground networks, and therefore their different fault rates, as well as different I&M and tree cutting requirements as a result of the design of the network.

We therefore considered adding a range of different cost drivers to UR's models to address this limitation, and compute a special factor claim. However, due to the small sample size (15 DNOs across four years), we considered that re-running CEPA's econometric benchmarking with a large number of extra variables would compromise the statistical robustness of the models. For instance, ideally we might add factors such as fault or tree cutting volumes, or the share of underground network to the model.

We therefore considered constructing a new CSV comprised of variables capturing aspects of NIE's sparsity, rurality and network design.¹³³ The following components are cost drivers employed by Ofgem at RIIO-ED1 in its benchmarking of IMFT costs (see Section A.3.2). CEPA also recognises in its work for UR that fault volumes and spans cut are appropriate drivers for faults and tree cutting costs respectively:¹³⁴

- **Spans cut:** This component takes account of the volume of tree cutting work each DNO carries out as a result of the size of their overhead network and the geography of its region.
- **Faults:** The number of faults on the low voltage and high voltage network.¹³⁵ This component takes account of the extent to which I&M costs are influenced by the propensity for faults to occur on each DNO's network for reasons such as historical network design and weather conditions.
- **OHL and Plant MEAV:** OHL and Plant MEAV is a measure of the scale of the overhead lines, switchgear and transformers.¹³⁶ This variable better measures the scale of the part of the network associated with highest I&M costs than more general scale variables such as total network length.

However, we found that a CSV variable combining the above components could not be added to UR's existing models without compromising the statistical robustness of the model. For instance, the models tended to fail the Ramsey RESET test for mis-specification. This is likely to reflect the challenges of constructing a CSV with assigned weights rather than allowing the econometric model to assign weights (ie. implied by the estimated coefficients).

Therefore, we compute a special factor claim using the third method, using disaggregated models of each component of IMFT affected by NIE's sparsity, rurality and network design, as presented in Section A.3.2 below.

A.3.2. Computing the special factor claim

In our 2016 Special Factors report, we concluded that Ofgem's disaggregated models used at RIIO-ED1 account for the effect of NIE's sparsity, rurality and network design on its IMFT costs.¹³⁷ This particularly granular approach takes account of the factors which drive the

¹³³ We also considered various approaches to robustly setting weights for each component of the CSV. We considered assigning weights to spans cut, fault volumes and OHL/plant MEAV in proportion to the total expenditure by all DNOs on Tree Cutting, Faults and I&M over the four-year historical benchmarking period. We also considered computing weights by running regressions of each component (IM, Faults and Tree Cutting) against its respective cost driver, similar to the approach used by Ofgem in the "macro" CSV for Totex, a cost driver which CEPA also employs for benchmarking NIE's totex costs.

¹³⁴ CEPA (March 2017), "RP6 Efficiency advice, The Northern Ireland Utility Regulator (UR): Final Report", p. 11 and Table 6.1, p. 37.

¹³⁵ Excluding "switching" events

¹³⁶ A 75% weight is applied to Plant MEAV and a 25% weight is applied to OHL MEAV. For LPN, which operates only an underground network, a 100% weight is applied to Plant MEAV.

¹³⁷ NERA (28 June 2016), "Special Factors Affecting NIE's Costs Relative to the British DNOs". p. 21-22.

specific components of this broad category of expenditure, such as the number of faults DNOs experience and the volume of tree cutting work they conduct.

CEPA's report recommends the same model as Ofgem for faults, and a very similar model for tree cutting.¹³⁸ Neither CEPA nor UR recommends a disaggregated model for I&M, though Ofgem recommended a unit-cost model for I&M at RIIO-ED1.

We have therefore used the Ofgem disaggregated models for I&M and the CEPA disaggregated models for Faults and Tree Cutting, using the most up-to-date data. For the I&M model, we have adjusted Ofgem's approach to harmonise more closely with CEPA and UR's approach in the DD. For example, we have run all models over the same 2012/13-2015/16 time-horizon as CEPA's benchmarking models instead of the 13 years of historical and forecast data used by Ofgem. The disaggregated models of IMFT that we use to compute a special factor claim are therefore as follows:

- **Inspections and Maintenance:** Unit cost analysis of I&M costs, using *OHL and Plant MEAV* as the cost driver.
- **Faults:** Regression-based modelling of OHL faults expenditure: *Low Voltage and High Voltage OHL Faults* costs are regressed against the volume of *Low Voltage and High Voltage OHL Line Faults (Excluding Switching)*, in a model which excludes LPN, since LPN has a negligible overhead line network. This is the same as CEPA's recommended faults model.¹³⁹
- **Tree Cutting:** Regression-based modelling of tree cutting expenditure, in which tree cutting expenditure is regressed on the number of *Spans Cut*.¹⁴⁰ As for the faults regression, LPN is excluded from the modelling due to its negligible overhead line network. This is the same as CEPA's recommended tree cutting model.

We carry out the following steps to compute the special factor claim relative to each of UR's models:

- A. We estimate NIE's modelled Indirect and IMFT costs using UR's regressions described in Chapter 2.
- B. We re-estimate these models excluding the costs categories impacted by the sparsity, rurality and network design, namely I&M, faults costs and tree-cutting costs. Hence, we re-estimate UR's models three times to exclude each of these three categories of expenditure individually.
- C. Then, we compute the amount of I&M, Faults and Tree-cutting costs that are implicitly allowed by UR's models, across all four years. We do this by taking the difference between the predicted values from model (A) and each version of model (B), ie. each of

¹³⁸ CEPA (March 2016), "*RP6 Efficiency Advice – Final Report*", Table 6.1 "Recommended models", p. 37.

¹³⁹ CEPA presents the results of its faults and tree cutting models in Table 3.1 and Table 3.2 of its efficiency analysis:

CEPA (March 2017), "*RP6 Efficiency advice, The Northern Ireland Utility Regulator (UR): Final Report*", pp. 15-16.

¹⁴⁰ Ofgem also included "spans inspected" as a cost driver, but CEPA chooses to drop this variable in its benchmarking of NIE.

the models that exclude I&M, faults and tree cutting costs. We then sum these differences to obtain the amount of IMFT costs implicitly allowed by each UR regression model.

- D. We then compute NIE's modelled IMFT costs using the disaggregated models for each category of expenditure, as we describe above.
- E. Then, the difference between calculations (C) and (D) defines the special factor claim that reflects the SR&ND of NIE's network.

We repeat this approach for each of UR's 12 proposed models, and found that each special factor exceeds UR's materiality threshold. Table A.2 shows the resulting special factor claim summed across the four-year modelling horizon.

Table A.2
Special Factor Claim Using Disaggregated Models
Reported in Million Pounds, 2013 – 2016 Total (Oct-2015 Prices)

Model	Pre-Allocation		Post-Allocation	
	No LLA	Full LLA	No LLA	Full LLA
1. CEPA	10.36	11.11	10.17	10.83
2. M4	19.82	19.58	19.92	19.68
3. M6	10.52	11.35	10.22	10.95

Source: NERA analysis of Ofgem and NIE data.

As the table shows, the special factor claim is largest (approximately £20 million across the four years) relative to UR's M4 model, in which total Indirect and IMFT costs are explained by the CSV. Intuitively, this model is unlikely to control for NIE's relatively long network that is required to serve its relatively rural service area. While the CSV includes network length, the model is constrained to only place a 50% weight on this factor. In UR's other models, network length and length/customer are included as explanatory variables outside of a CSV, which allows the model to select what weight to put on this factor. This also reflects CEPA's conclusion that its CSV is an inappropriate driver for any "middle up" assessment of IMFT costs. Instead, CEPA recommends network length and density or total MEAV as appropriate drivers for IMFT costs.¹⁴¹

The special factor claims relative to the two other models are around £11 million across the four years. While these models capture differences in DNOs' network length better than model M4, the special factor claim shown in Table A.2 reflects the fact that none of these models accounts for the different impacts of overhead and underground networks on IMFT costs, as discussed above.

¹⁴¹ CEPA (March 2016), "RP6 Efficiency Advice – Final Report", Table 6.1 and Table 6.2, pp. 37-38.

A.4. Offsetting Factors

A.4.1. Adjusting for differences in the Guaranteed Standard of Service

As discussed above, part of the rationale for the special factor claim set out in this section is that NIE has a higher share of overhead lines which increases the volume of faults it must rectify, and increases fault costs.

However, in its DD UR notes a factor that might reduce its fault costs relative to the British DNOs. Specifically, NIE operates to a lower GSS that defines the maximum restoration time before DNOs must compensate consumers. NIE is obliged to operate to a 24 hours standard, compared to an 18 hour standard in force in Great Britain during DPCR5, and 12 hours from 2015/16. The DD suggests that this difference might justify a negative special factor to control for the savings that come from the longer time available to repair faults before offering compensation.

We understand from NIE that it currently repairs most faults within an 18 hour timeframe, equivalent to the standard imposed on British DNO's until 2015/16. As such, the only additional costs that NIE would incur if it had faced an 18 hour restoration standard, would be compensation payments for the small number of customers affected by faults which are not repaired during this timeframe. NIE estimates this cost to be approximately £25,000 per year between 2012/13 and 2014/15. Similarly, NIE estimates an approximate cost of £185,000 per year if it were to comply with the 12 hour standard, as applied to British DNOs in 2015/16.¹⁴² Therefore, NIE estimates that it avoided £265,000 in compensation costs in total over the four years of UR's historical benchmarking.

A.4.2. Adjusting for differences in the timing of the ESQCR programme

NIE did not undertake a large-scale ESQCR-compliance programme between 2012/13 and 2015/16, in contrast to the British DNOs.

We understand that complying with new ESQCR obligations caused British DNOs to incur additional expenditure in both the tree cutting and I&M components of IMFT. These additional costs incurred by the British DNOs are not accounted for by the more general scale variables used in UR's benchmarking models, which suggests a negative special factor claim for NIE is justified.

However, an adjustment for the effect on IMFT costs of the ESQCR programme is only necessary for I&M, since the special factor claim set out above for tree cutting (discussed in Section A.3.2) explicitly controls for the volume of tree cutting work, taking account of additional ESQCR safety clearance tree cutting by British DNOs.¹⁴³ We would also not expect fault volumes to be materially affected by the ESQCR programme.

¹⁴² NIE calculated this annual figure from the necessary compensation payments per year based on NIE's performance over a five-year average (2011/12 to 2015/16).

¹⁴³ I.e. Despite GB DNO's carrying out additional Safety Clearance Tree Cutting work to comply with ESQCR, NIE's SR&ND leads to a positive and material special factor claim for Tree cutting.

By contrast, I&M costs may have been higher for the British DNOs than NIE in the historical benchmarking period. Also, this effect is not captured by the drivers used to compute the special factor claim above since the driver we use (OHL and Plant MEAV) does not control for differences in workload across companies. It only controls for differences in the volume of I&M workload that would be typically required for a network with a particular size of overhead lines.

In our previous Special Factors Report we estimated NIE's saving in I&M costs between 2012/13 and 2015/16 due to the difference in the timing of the ESQCR programme.¹⁴⁴ The British DNOs' I&M costs related to ESQCR are not reported separately from other I&M costs in the RIGs, so we modelled a relationship between total I&M costs and total direct ESQCR expenditure, controlling for a principal driver of I&M costs (OHL and Plant MEAV), in the following linear model:¹⁴⁵

$$I\&M = \alpha + \beta * ESQCR + \gamma * OHL \text{ and Plant MEAV}$$

We found a coefficient of 0.048 on ESQCR (β), suggesting that every additional £1 of ESQCR capital expenditure can be associated with an additional £0.05 in I&M costs. The ESQCR coefficient, however, was not statistically significant, possibly reflecting the significant noise in the dataset and the small sample size. We therefore recognised that this was likely to be an upper-bound estimate of the effect of ESQCR on I&M.¹⁴⁶

NIE conducted only a small amount of ESQCR work during RP5, with expenditure restricted to trials, at an estimated cost of £1.6 between 2012/13 and 2015/16. During RP6, however, NIE is forecast to spend £8.3 million on ESQCR capex. Therefore, assuming NIE would have spent an additional £6.7 million per annum on ESQCR capex, we proposed a negative special factor of £0.3 million per year (£1.3 million over the four year benchmarking period).

We have considered whether it is appropriate to re-run this model with the latest RIG's data (ie. to recalculate the coefficient of ESQCR expenditure) and over UR's preferred four-year data window which only uses historic data. However, we find this produces a less robust estimate of the relationship, in part because British DNOs incur ESQCR expenditure in every year of the four-year period. The relationship may instead be better observed over a longer data series, reflecting the period in which the DNOs' ESQCR programme is ramped-down. We also decided not to add the RIIO-ED1 cost forecast data to the current RIGs database, due to the potential for errors that comes from combining different data series.

A.5. Conclusions

NIE incurs different levels of IMFT costs across three main areas:

¹⁴⁴ NERA (28 June 2016), "*Special Factors Affecting NIE's Costs Relative to the British DNOs, Prepared for NIE Networks*", p. 28-29.

¹⁴⁵ We excluded LPN, since LPN operates an underground network, and will therefore not incur additional I&M costs in order to comply with ESQCR regulation.

¹⁴⁶ NERA (28 June 2016), "*Special Factors Affecting NIE's Costs Relative to the British DNOs, Prepared for NIE Networks*", p. 29.

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- Northern Ireland's sparsity and rurality and NIE's historic network design lead NIE to incur higher I&M, faults and tree cutting costs;
- NIE has a lower GSS in relation to customer restoration times, leading NIE to save on fault costs; and
- NIE has not carried out the additional tree cutting and I&M work related to the ESQCR regulations that GB DNO's have carried out during 2012/13-2015/16.

As described in this chapter, UR's selected benchmarking models do not control for these factors. We have therefore computed a special factor claim that addresses these limitations using more disaggregated models to improve the modelling of IMFT costs. We have then subtracted our estimated effect of the two offsetting factors that reduce NIE's IMFT costs relative to British DNOs (ie. GSS and ESQCR).

Table A.3
Special Factor Claim Related to Differences in NIE's IMFT Costs Compared to the British DNOs

Reported in Million Pounds, 2013 – 2016 Total (Oct-2015 Prices)

Model	Pre-Allocation		Post-Allocation	
	No LLA	Full LLA	No LLA	Full LLA
1. CEPA	8.82	9.56	8.63	9.28
2. M4	18.27	18.03	18.37	18.14
3. M6	8.98	9.81	8.67	9.40

Source: NERA analysis of Ofgem and NIE data.

Appendix B. Differences in NIE's Indirect Costs Relative to the British DNOs

The previous section discusses various features of NIE's network and service region that cause its IMFT to differ from DNOs in Great Britain. This section discusses the range of differences that may cause NIE to have incurred relatively high indirect costs relative to the British DNOs during 2012/13-2015/16 (differences in wayleave costs, different connections arrangements and NIE's small size), and a range of offsetting factors that may have caused NIE to have lower indirect costs (scale of the capex programme, innovation expenditure and customer engagement expenditure).

B.1. Wayleaves Costs

B.1.1. NIE's costs relative to British DNOs

Electricity network operators make wayleave payments to property owners and occupiers in order to obtain permission to install and maintain apparatus on their property. Wayleaves payments can be required for both the overhead and underground parts of the network; however wayleaves costs are much higher for overhead lines and OHL supports than for underground cables.¹⁴⁷

NIE incurs particularly high wayleaves costs (see Figure B.1), driven in large part by the extent to which NIE's network consists of overhead lines. This is, in itself, a consequence of the sparsity and rurality of the region which NIE serves (see Section A.1).

The level of wayleaves payments paid by NIE is not determined on a case by case basis, but according to a standardised tariff, based on the rates used by Scottish Power, which in turn are recommended by the ENA.¹⁴⁸ In its DD, UR does not challenge this approach to setting wayleaves payments.¹⁴⁹ UR also rejects the possibility of passing wayleaves costs through outside of the benchmarking models on the basis that it asserts they are somewhat controllable (see Section 3.3). Given this, a special factor is required to properly take account of the factors which determine the volume of NIE's wayleaves within the benchmarking.

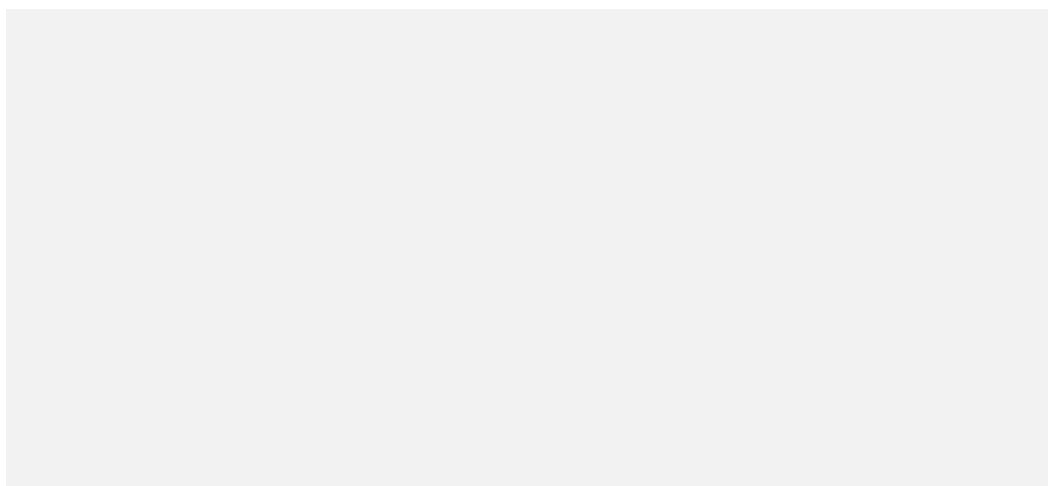
¹⁴⁷ See, for example, NIE's current wayleaves rates: http://www.nienetworks.co.uk/documents/Wayleave/NIE_wayleave-agreement_informationpack.aspx

¹⁴⁸ NIE Networks (8 August 2016), "RP6 business plan 2017-2024", pp. 99-100.

¹⁴⁹ NIE Networks (8 August 2016), "RP6 business plan 2017-2024", p. 58.

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Figure B.1
NIE has Higher Wayleaves Costs than the GB Average Despite a Smaller Network
(2013-16 Average Wayleave Costs, Reported in Million Pounds, Dotted Line Shows GB Average) ✂



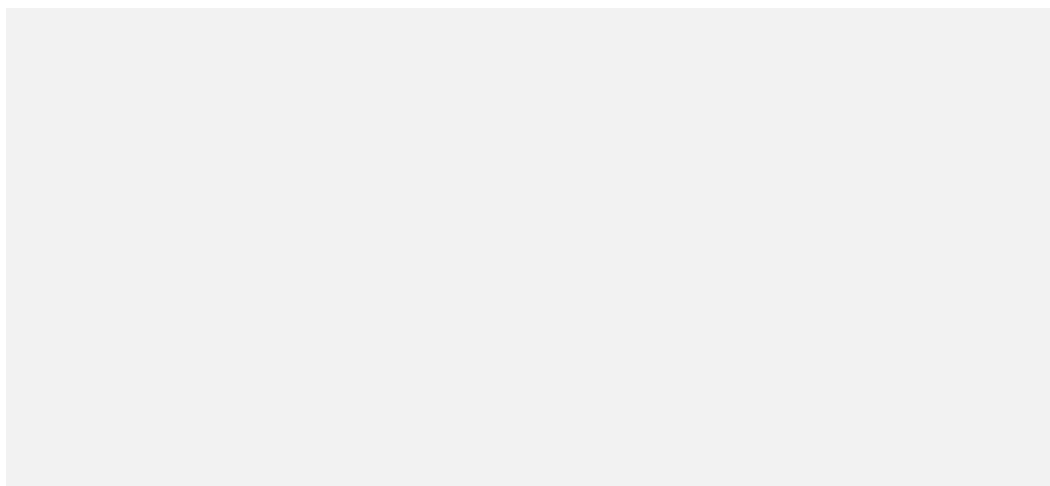
Source: NERA analysis of Ofgem and NIE data.

B.1.2. Treatment of this factor in UR's models

UR's proposed models do not account for the fact that NIE's network is predominantly an overhead network, as discussed in respect of IMFT costs in Section A.2. None of the chosen models include drivers which account for the different wayleaves costs associated with overhead lines and underground cables. The more general "scale variables" chosen by UR do not take account of this factor:

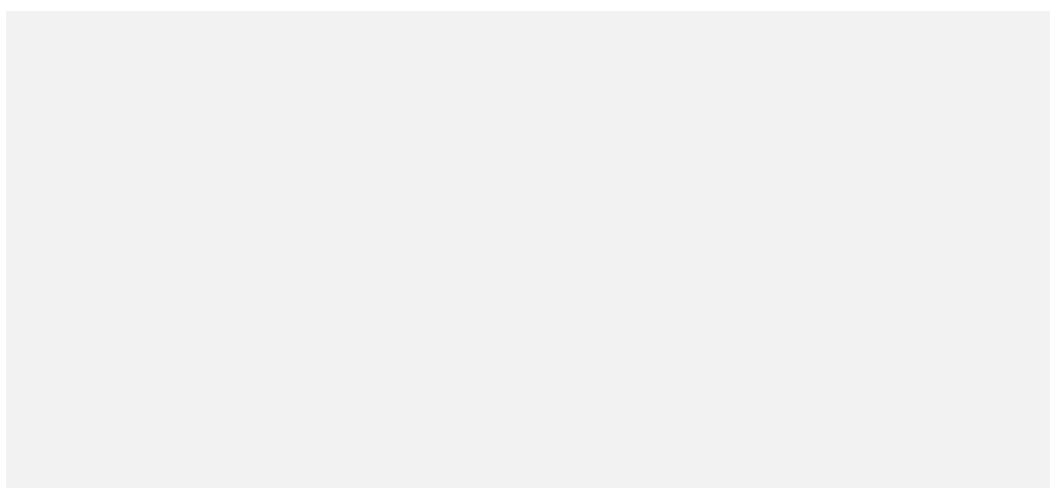
- The CEPA preferred model controls for "network length" and "network density", but the "network length" variable does not distinguish between overhead and underground parts of the network. Additionally, "network length" does not distinguish between different voltages of network, meaning it fails to control for the different wayleaves costs associated with low voltage and high voltage overhead lines. For instance, Figure B.2 demonstrates that network length is a poor proxy for wayleaves costs, since there is a large range in the number of OHL supports relative to network length between DNOs, and NIE has the second highest number of OHL supports.
- The M4 model uses a CSV of network length, customer numbers and units distributed. Only a 50% weight applies to network length, and none of these components take account of the volume of overhead line supports in a DNO's network, nor do they take account of the ratio of overhead network to underground network.
- The M6 model is also driven by "network length", but both the dependent variable and independent variable are divided by the number of customers served. NIE has more than three times as many OHL supports per customer as the GB average (see Figure B.3).

Figure B.2
NIE Also Has a High Ratio of OHL Supports to km of Network Length
(2013 – 2016 average) ✂



Source: NERA analysis of Ofgem and NIE data.

Figure B.3
NIE Has the Second Highest Number of OHL Supports per 1000 Customers
(2013 – 2016 average) ✂



Source: NERA analysis of Ofgem and NIE data.

B.1.3. Quantifying the special factor claim

We consider two possible approaches to calculating a special factor adjustment for NIE's relatively high wayleaves costs:

1. **Adding explanatory variables:** Adding extra drivers to UR's chosen models which control for NIE's wayleaves costs, and computing a special factor as the difference between NIE's modelled costs in UR's models and the models in which additional cost drivers are added; and
2. **Using disaggregated models:** Taking wayleaves costs from UR's top-down benchmarking models, and computing a claim based on "disaggregated" activity-level analysis of NIE's wayleaves costs (an "off-model" adjustment). For instance, Ofgem used unit cost benchmarking of wayleaves costs per OHL Support (ie. "towers and poles at high voltage level and above") in its disaggregated models, at RIIO-ED1. This approach explicitly recognised that OHL supports are the primary driver of wayleaves costs.

We tested the first approach, adding OHL supports as an additional cost driver to each of UR's models. However, this approach did not produce consistently robust econometric models. The number of OHL supports was not always a statistically significant driver of Indirect and IMFT models, while the new models did not always pass UR's model diagnostic tests for misspecification.

Therefore we used an off-model adjustment to control for the impact of NIE's relatively high wayleaves costs on NIE's operating costs, using a more disaggregated approach than UR's models to benchmark this element of cost. Specifically, we have used a version of Ofgem's RIIO-ED1 model for wayleaves to estimate efficient wayleaves costs, updated to use a four year horizon from 2013-2016, consistent with the other benchmarking models in UR's DD. We then used the results to compute an "off-model" adjustment that controls for the inability of UR's models to account for variation in wayleaves costs due to differences in network design and topography as follows:

- A. We estimate NIE's modelled Indirect and IMFT costs using UR's regressions described in Section B.1.2.
- B. We re-estimate these models but excluding wayleaves payments from the dependent variable (Indirect and IMFT).
- C. Then, we compute the allowance for wayleaves payments that is implicitly allowed by UR's models, across all four years. We do this by taking the difference between the predicted values from model (A) and model (B).
- D. We then compute NIE's modelled wayleaves costs using the disaggregated model (unit cost analysis against the number of OHL supports).
- E. Then, the difference between calculations (C) and (D) defines the special factor claim that reflects NIE's extra wayleaves costs.

The resulting special factor adjustments (see Table B.1) exceeds UR's materiality threshold for each of UR's models. As for the special factor claim related to IMFT costs set out in Section A.5, the M4 model requires the largest adjustment as two of the components of the CSV (units distributed and customer numbers) are particularly poor measures of the efficient wayleave costs DNOs need to incur.

Table B.1
NIE's Wayleaves Special Factor Claim
Reported in Million Pounds, 2013 – 2016 Total (Oct-2015 Prices)

Model	Pre-Allocation		Post-Allocation	
	Full LLA	Full LLA	Full LLA	Full LLA
1. CEPA	4.22	4.81	3.78	4.38
2. M4	9.20	9.40	8.98	9.20
3. M6	4.47	5.04	3.99	4.58

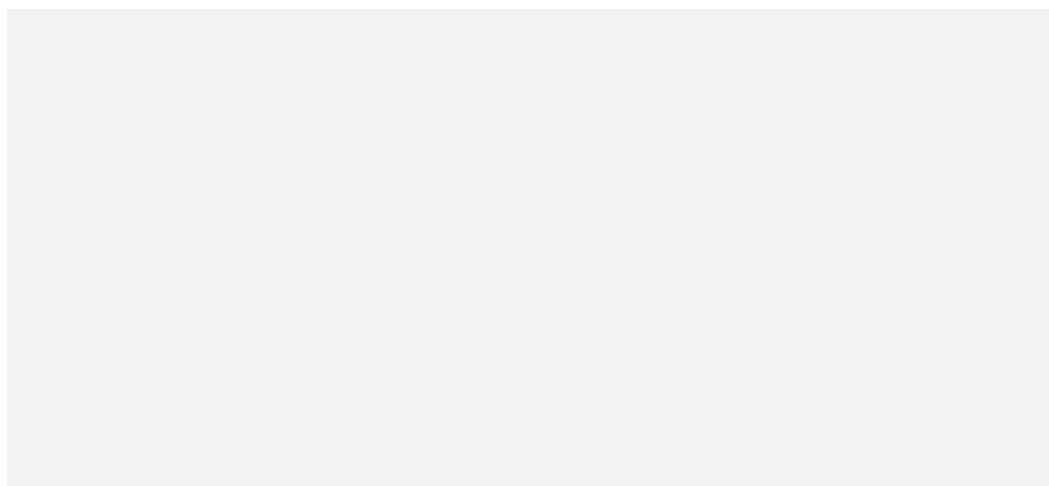
Source: NERA analysis of Ofgem and NIE data.

B.2. Indirect Costs Associated with Connections Activities

B.2.1. NIE's costs relative to British DNOs

Connections activities are not contestable in Northern Ireland, with NIE carrying out all work in relation to connections to the electricity distribution system. By contrast, in Great Britain the connections market is contestable, and has been throughout the four year benchmarking period used by UR. As such, NIE carries out more connections activities relative to DNOs in other parts of Great Britain. Hence, NIE delivers a relatively high number of connections per customer, as Figure B.4 shows.

Figure B.4
NIE Carries Out More Connections per Customer than every British DNO
(Reported in Connections per 1000 Customers per Year, 2013 – 2016 Average) ✕

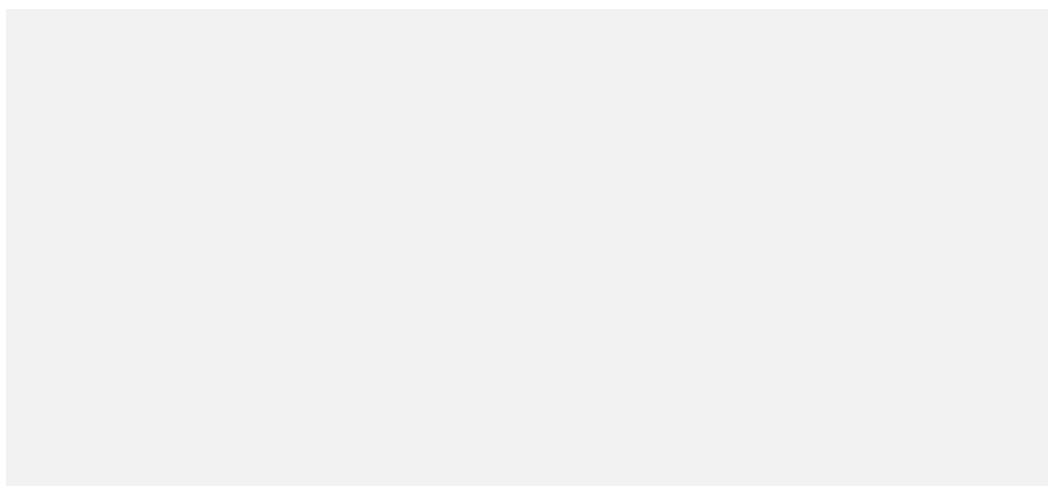


Source: NERA analysis of Ofgem and NIE data.

In addition, NIE has a faster growing customer base than any British DNO (see Figure B.5). NIE experienced customer growth of 2.3% between 2013 and 2016, compared to a GB average of 0.9%.

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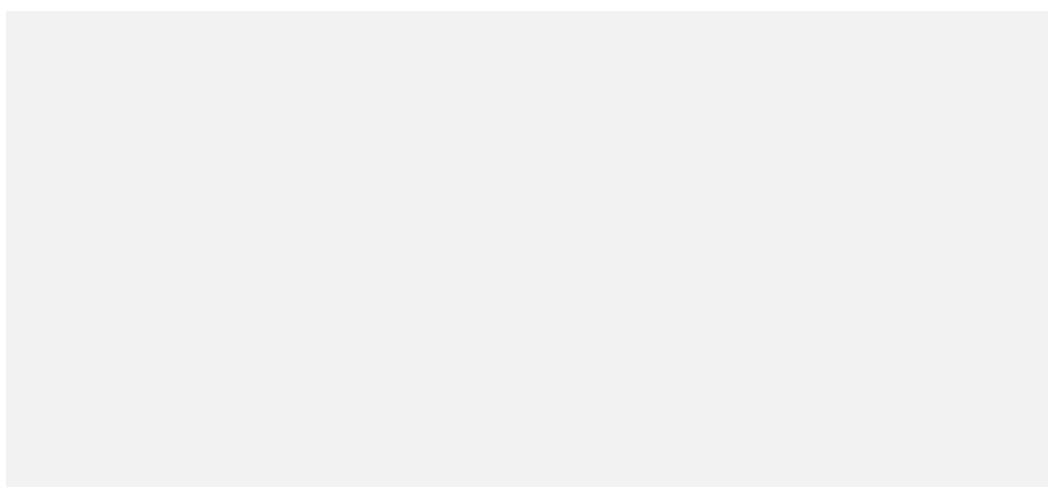
Figure B.5
NIE has the Fastest Growing Customer Base in Great Britain
(2013 – 2016 percentage change, GB Average shown by dashed line) ✕



Source: NERA analysis of Ofgem and NIE data.

For these reasons, NIE's indirect costs required to support this larger volume of connections work will also tend to be higher than for other DNOs. This is shown in Figure B.6, which shows that NIE's RIGs allocate a higher proportion of indirect costs to connections activities than other companies.

Figure B.6
NIE has the Highest Percentage of Indirect and IMFT Costs Allocated to Connections
(2013 – 2016 Average) ✕



Source: NERA analysis of Ofgem and NIE data.

As discussed in Section 3.2, at RP5 the CC recognised this difference and stated that it excluded indirects allocated to connections from all models, ie. only using benchmarking models on a post-allocation basis.¹⁵⁰ By contrast, UR's DD fails to address this problem by placing a 50% weight on the pre-allocation models, as discussed in Section 3.2:

- UR's post-allocation benchmarking models recognise this factor, as discussed in Section 3.2.2, as all indirect costs allocated to the connections activity are removed before running benchmarking models.¹⁵¹
- However, UR's pre-allocation models fail to account for the effect of NIE's relatively high connections workload on indirect costs, so a special factor adjustment would be required if UR continues to place weight on the pre-allocation models in its FD.
- Moreover, the fact that UR's models control to some extent for network length, units distributed, density and customer numbers does not control for the effect of NIE's additional connections workload. For instance, Figure B.4 demonstrates that there is little correlation between connections volumes and customer numbers, as NIE carries out a disproportionately high amount of connections activities per customer relative to the British DNOs.

B.2.2. Quantifying the special factor claim

We have considered a range of potential approaches to quantifying a special factor claim for connections activities. However, an expert assessment is not possible, due to data constraints, particularly in the competitive part of the British connections market; and we found that adding drivers to UR's current models to account for differences in DNOs' indirect costs related to connections (eg. the volume of connections undertaken) does not produce models that pass UR's diagnostic tests.

We have therefore used the "off-model" approach to estimate a special factor related to connections activity. We have conducted unit cost benchmarking to quantify the impact on indirect costs from different connections volumes over the four-year modelling horizon used in UR's determination, constructing modelled cost based on the median cost per connection. We took data on the volume of connections for the British DNO's from sheet CV17 of the DPCR5 RIGs, since the DNOs are not required to report connection volumes in the more

¹⁵⁰ However, as discussed in Appendix B of our 2016 Benchmarking Report, in practice our review of this previous benchmarking work suggests that the CC did include some indirect costs allocated to connections in its data, which we presume was an error.

NERA (28 June 2016), "Comparative Benchmarking to Support Preparation of NIE Networks' RP6 Business Plan, Prepared for NIE Networks", p. 64.

¹⁵¹ Specifically, excluded costs for British DNOs consist of "Income relating to closely associated indirects, Business support costs and Non-op capex", "Total Indirect activity allocations to Connections outside of price control" and "Total Indirect activity allocations to Connections within the price control". For NIE, excluded cost of "Income relating to non-op capex and Business support costs", "Income relating to closely associated indirects", "Indirect Activity Allocations to Connections (RAB Related)", and "Indirect Activity Allocation to Part Funded Connections (RAB Related)".

recent RIIO-ED1 RIGs.¹⁵² NIE provided us with the volume of connections work it undertook each year from 2012/13 to 2015/16.

It is important to note that since NIE carries out a higher proportion of high-cost connections activities than DNO's undertake in the contestable market in Great Britain, reported connection volumes are a conservative estimate of the total volume of NIE's connections work.

We then estimated the extent to which each of UR's pre-allocation models fail to take account of NIE's connections activities, as described below:

- A. We estimate NIE's modelled Indirect and IMFT costs using UR's pre-allocation regressions described in Section B.2.1.
- B. We re-estimate each model excluding indirect costs allocated to connections (ie. in a post-allocation context).
- C. Then, we compute the allowance for indirect costs allocated to connections that is implicitly allowed by UR's models, across all four years. We do this by taking the difference between the predicted values from model (A) and model (B).
- D. We then compute NIE's modelled indirect costs allocated to connections using the disaggregated model (unit cost analysis against the number of connections carried out).
- E. Then, the difference between calculations (C) and (D) defines the special factor claim that reflects NIE's extra connections work.

Table B.2 presents the results, and shows that this special factor claim passes UR's materiality threshold for all six pre-allocation models. However, as we describe above in Section 3.2.2, a simpler alternative approach would be to place a 100% weight on the post-allocation models, and only benchmarking against the comparable components of indirect costs, and avoiding the need for this special factor adjustment.

Table B.2
NIE's Connections Special Factor Claim
Reported in Million Pounds, 2013 – 2016 Total (Oct-2015 Prices)

Model	Pre-Allocation		Post-Allocation	
	No LLA	Full LLA	No LLA	Full LLA
1. CEPA	12.35	20.16	0.00	0.00
2. M4	13.02	19.75	0.00	0.00
3. M6	14.07	21.84	0.00	0.00

Source: NERA analysis of Ofgem and NIE data.

¹⁵² Specifically, we used "Connections projects that have no element subject to the apportionment rules", "Connections projects that have an element subject to the apportionment rules" and "Unmetered connection work provided by the DNO".

B.3. Small Company Effect

In our 2016 Special Factors Report, we discussed and quantified a special factor to account for NIE's additional costs due to its small customer base compared to British DNOs.¹⁵³ NIE operates a smaller network than most DNOs, with the second lowest number of customers and the third smallest MEAV.¹⁵⁴ This effect is compounded by NIE's "singleton status", that is, unlike 13 of the 14 DNOs in Great Britain, NIE is not part of an ownership group which comprises at least two licence areas.¹⁵⁵

However, in our previous work, this adjustment only applied to the Ofgem RIIO-ED1 business support model, which failed to account for economies of scale. By contrast, UR's models do capture the effect of NIE's small size through the use of log-log regression equations including "scale" variables used in each of the models. Hence, we have not computed a special factor claim for this particular factor.

B.4. Offsetting Factors

B.4.1. Differences in the scale of the capex programme

In our previous report on special factors we estimated the saving in CAI that NIE incurred during the 2012/13-2014/15 period due to the difference in the timing of the ESQCR programme, using the coefficient on the *Asset Additions* variable in the Ofgem disaggregated benchmarking regression.¹⁵⁶ We suggested that this calculation could be used to adjust NIE's costs in the benchmarking using a special factor if UR benchmarked NIE in models using high-level scale variables as cost drivers, since they do not control for differences in the scale of the ESQCR capex programme.¹⁵⁷

The Ofgem CAI regression implies that a 1% increase in asset additions results in a 0.34% increase in CAI costs.¹⁵⁸ During RP5, NIE's ESQCR capex was restricted to trials costing approximately £1.6 million per year between 2012/13 and 2015/16. During RP6, NIE will spend approximately £8.3 million per year. Therefore, NIE would incur an additional cost of around £6.7 million per year if it had been carrying out its full ESQCR programme at the same time as British DNOs. NIE's additional ESQCR costs represents about 12% of NIE's total forecast capex expenditure, meaning that asset additions increase by 12% due to the ESQCR programme, increasing modelled CAI by around 4.1%.

¹⁵³ NERA (28 June 2016), "*Special Factors Affecting NIE's Costs Relative to the British DNOs*", pp. 37 – 41.

¹⁵⁴ NERA (28 June 2016), "*Special Factors Affecting NIE's Costs Relative to the British DNOs*", p. 37.

¹⁵⁵ NERA (28 June 2016), "*Special Factors Affecting NIE's Costs Relative to the British DNOs*", p. 38.

¹⁵⁶ NERA (28 June 2016), "*Special Factors Affecting NIE's Costs Relative to the British DNOs*", pp. 29 - 30.

¹⁵⁷ NERA (28 June 2016), "*Special Factors Affecting NIE's Costs Relative to the British DNOs*", p. 29.

¹⁵⁸ NERA (28 June 2016), "*Special Factors Affecting NIE's Costs Relative to the British DNOs*", p. 30.

We therefore found that NIE's CAI costs, of approximately £33 million per year (across the categories of CAI included in Ofgem's regression¹⁵⁹) would increase by £1.4 million per annum if NIE had carried out the ESQCR programme, or £5.4 million over the four years. This defines the quantum of our suggested negative special factor claim to be applied to NIE's CAI during the 2012/13-2015/16 period.

We considered whether it is appropriate to re-run the Ofgem model (ie. to recalculate the coefficient on *Asset Additions*) using the latest RIGs data, and possibly using UR's preferred data window that omits the forecast data in the British DNOs' ED1 business plans. However, we consider this would not produce a robust estimate of the link between CAI and capex volumes. Specifically, the relationship between CAI and capex may only be observable using relatively long data series, as support functions may only need to adjust slowly as the scale of capex programmes ramps up or down. We also decided not to add the RIIO-ED1 cost forecast data to the RIGs dataset, given the risk of inconsistencies in reporting that could skew our results.

B.4.2. Innovation

UR proposes a negative special factor to take account of lower expenditure on innovation by NIE than British DNOs.

While noting that NIE has received lower innovation funding at RP5 and previous price controls than the British DNOs, UR does not present data to substantiate its assertion that NIE spends less on innovation than the British DNOs. Moreover, even if NIE did spend less in absolute terms, UR's models control for the fact that NIE would tend to have lower Indirect and IMFT costs, including innovation expenditure, due to its small size.

Also, allowances for innovation in Great Britain are explicitly intended to increase efficiency, and thus bring about lower costs.¹⁶⁰ As such, higher expenditure on innovation by British DNOs may have reduced expenditure across various costs categories of Indirect and IMFT, and the absence of such allowances for NIE may have impaired NIE's ability to reduce costs to the same extent as British DNOs. Hence, there is arguably a case for computing a positive special factor, offsetting any lower special factor due to lower innovation spending.

Therefore, we conclude that a negative special factor is not warranted for due to differences in innovation expenditure. Any claim to the contrary by UR is not supported by any of the evidence presented in the RP6 DD.

B.4.3. Customer engagement

UR suggests a negative special factor to account for lower levels of customer engagement by NIE compared to British DNOs. Customer engagement expenditure is not directly reported in the RIGs for NIE or British DNOs. However, customer engagement costs are unlikely to

¹⁵⁹ This "regressed CAI" variable includes eight activities, namely: network design and engineering, project management, system mapping, EMCS, stores, network policy, control centre, and call centre. There are the categories of CAI we would expect to be affected by changes in the scale of a DNO's capex programme.

¹⁶⁰ Ofgem (2014), "*RIIO-ED1 Final Determinations – Expenditure Assessment*", 28 November 2014, p. 136, para 11.1-2.

be substantial enough to reach UR's specified materiality threshold and so any marginal differences between engagement activities by NIE and British DNOs does not warrant a special factor.

B.5. Conclusions

NIE incurs additional indirect costs relative to British DNOs in two main areas:

- NIE incurs additional wayleaves costs due to the large size of the network and the relatively low proportion of its network that is underground. As described in this section, UR's models do not control for NIE's additional wayleaves costs, since the chosen "scale" variables UR chooses do not relate to the size of NIE's overhead network; and
- NIE incurs additional indirect costs (across categories) as a result of its extra connections activities. UR's pre-allocation models (which include indirects allocated to connections) do not control for NIE's additional connections workload.

We have therefore computed special factor claims for wayleaves and connections activities, employing disaggregated models which better control for these drivers of indirect costs. We have then subtracted from these claims the effect of NIE's cost savings due to ESQCR regulations in GB on CAI costs. The combined result of these special factors is presented in Table B.3 below.

Table B.3
NIE's Indirects Special Factor Claims
Reported in Million Pounds, 2013 – 2016 Total (Oct-2015 Prices)

Model	Pre-Allocation		Post-Allocation	
	No LLA	Full LLA	No LLA	Full LLA
1. CEPA	11.14	19.53	-1.65	-1.05
2. M4	16.78	23.71	3.55	3.76
3. M6	13.11	21.45	-1.45	-0.86

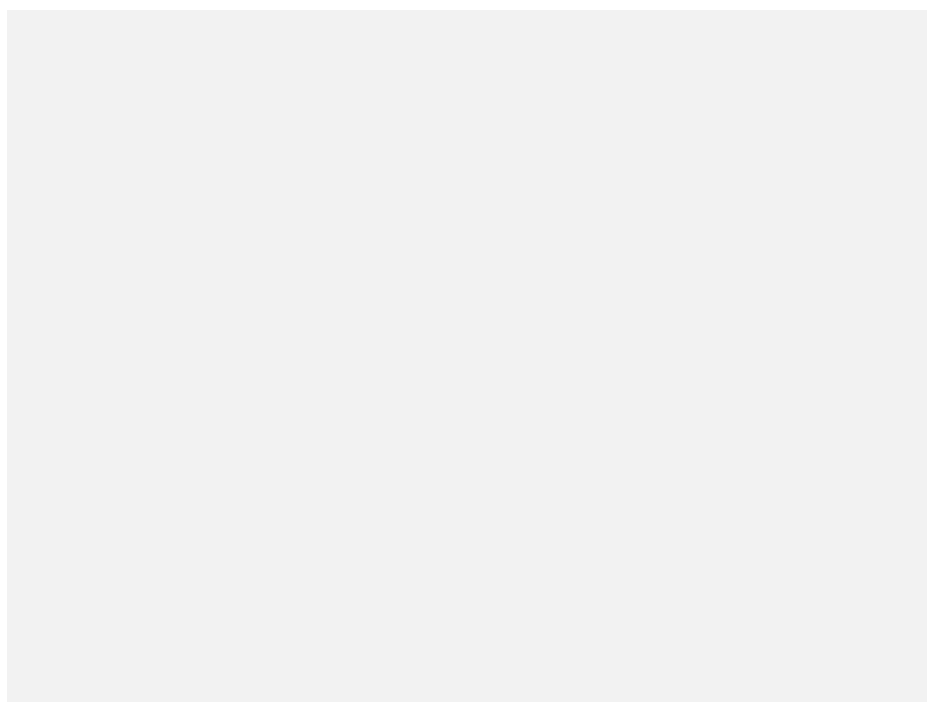
Source: NERA analysis of Ofgem and NIE data.

Appendix C. Updated Disaggregated Modelling Results

We have updated our disaggregated benchmarking of Indirect and IMFT costs in order to estimate a triangulated efficiency score alongside UR's aggregated models (see Section 3.5.2). Specifically, we have made the following updates relative to our 2016 benchmarking analysis:

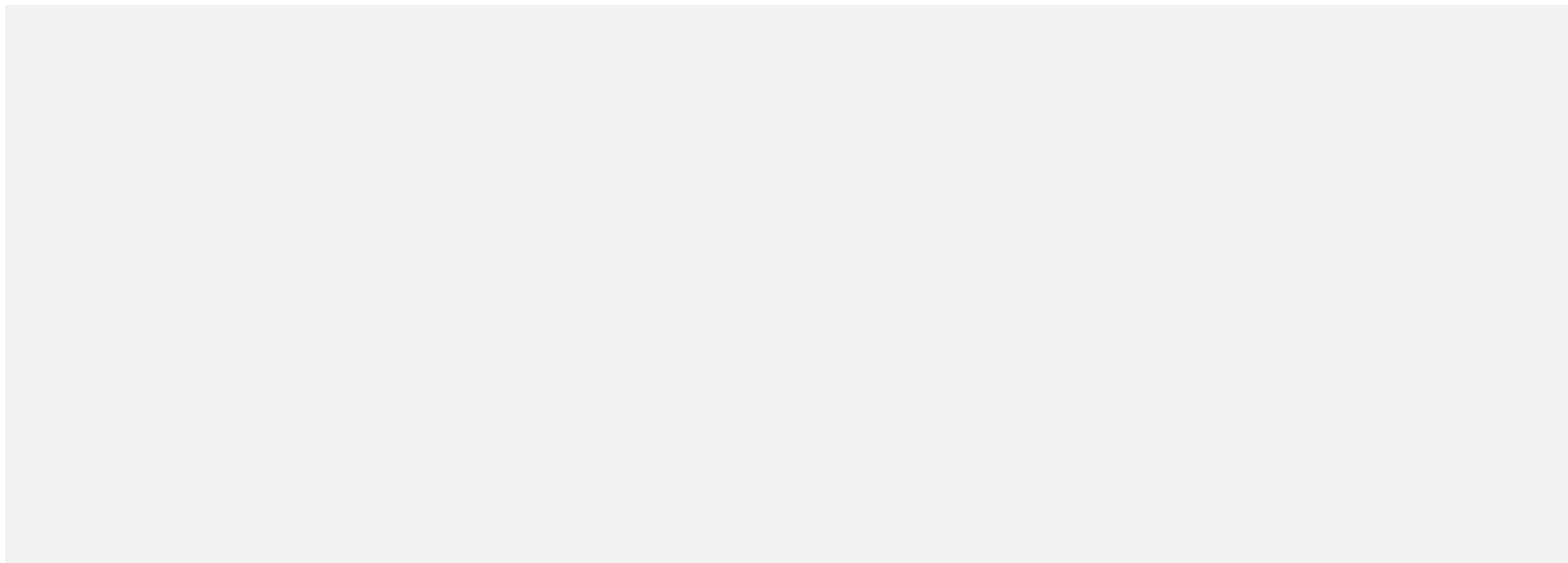
- **GB Data:** We have replaced the GB DNO's cost and volume data from the DNO's RIIO-ED1 business plan submission with 2016 RIGs data;
- **Four-year time horizon:** We have run all disaggregated models using a four-year time horizon, in common with UR's approach in the DD;
- **Tree Cutting Cost Drivers:** We have used CEPA's recommended tree cutting model which uses a single cost driver, "spans cut";
- **Regional Labour Adjustment:** We have used UR/CEPA's approach to Regional Labour Adjustments under a Local Labour Adjustment scenario; and
- **Post allocation:** We present our results in a post-allocation scenario, excluding indirect costs allocated to connection activities.

Table C.1
Updated Indirect and IMFT Benchmarking Results
Reported in Million Pounds (Oct-2015 Prices) ✕



Source: NERA analysis of NIE and Ofgem data.

Table C.2
Modelled Indirect and IMFT costs by DNO and Cost Category
2012/13 – 2015/16 Annual Average, Reported in Million Pounds (Oct-2015 Prices) ✂



Source: NERA analysis of NIE and Ofgem data.

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ANNEX A8.1

NERA MAY 2017 RPEs REPORT



Response to UR's Draft Determination on Real Price Effects for the RP6 Control Period

Prepared for NIE Networks

15 May 2017

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1. Introduction

On 24 March 2017, the Utility Regulator of Northern Ireland (UR) released its Draft Determination (DD) for the sixth electricity distribution and transmission networks' price control (RP6) that begins in 1 October 2017.¹ In setting proposed operating and capital expenditure allowances, UR has included a frontier shift element, which is the sum of input price growth (or Real Price Effects, RPEs) less the ongoing productivity improvement UR expects NIE Networks (NIE) to face during RP6.

In this context, NIE has commissioned NERA Economic Consulting (NERA) to review UR's DD forecast of RPEs over RP6,² which we provide in this report. We identify a series of problems with UR's methodology used to forecast RPEs, and propose a revised approach to estimating RPEs for NIE at RP6.

This report should be read alongside an accompanying NERA report which reviews UR's methodology for setting allowances for Indirect and IMFT costs.³

1.1. The RP6 Price Control Review Process

1.1.1. Overview of the process to date

In December 2015, following a consultation process, UR published its Final Overall Approach to NIE's 6th Transmission and Distribution Price Control (RP6). This Final Approach document sets out the approach UR intends to follow in setting NIE's revenue cap for RP6, as well as a detailed timetable of the price control review process. UR's principal aim in RP6 is to "set an efficient revenue cap to enable NIE Networks to deliver quality outputs that customers need".⁴

After receiving NIE's RP6 Business Plan in June 2016, UR issued its Draft Determination of NIE's revenue cap for RP6 in March 2017. Following a consultation period, UR expects to publish its Final Determination by 28 June 2017.

1.1.2. RPEs and productivity improvement forecasts submitted with NIE's RP6 business plan

NIE's Business Plan submission in June 2016 was accompanied by a NERA report entitled "Forecasting Real Price Effects and Productivity Growth for RP6".⁵ In this report we

¹ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination".

² Utility Regulator (24 March 2017), "Annex C Frontier Shift: Real Price Effects & Productivity RP6, Draft Determination".

³ NERA (15 May 2017), "Response to UR's Draft Determination on Benchmarking Indirect and IMFT for RP6, Prepared for NIE Networks".

⁴ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.12.

⁵ NERA (29 April 2016), "Forecasting Real Price Effects and Productivity Growth for RP6".

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produced a forecast of RPEs and ongoing productivity improvements for the period 2016/17 to 2023/24.

Our approach to estimating RPEs and ongoing productivity has been broadly consistent with the methods used by regulators in the UK, adjusted to reflect the expected economic conditions over the RP6 price control period.⁶

In October 2016 we supplemented our initial report with an updated report entitled “Updated Report on Real Price Effects for the RP6 Control Period” in which we reviewed the approach used to estimate RPEs by UR in the Final Determination (FD) for GD17.⁷ As part of this report we also proposed a revised approach to estimating RPEs for NIE at RP6 which took into account of some of the methodological choices made by UR in the GD17 FDs.⁸

In February 2016, following an initial analysis by UR to estimate RPEs for its RP6 Draft Determination, we prepared a presentation entitled “NERA’s Review of UR’s Proposed Approach to Real Price Effects at RP6” which was discussed at a meeting attended by NIE, NERA and UR.⁹ The presentation reiterated the main arguments set out in our October 2016 report and provided an updated forecast of RPEs following our revised approach:

Using the approach set out in our February 2016 presentation, we expected input prices to grow over the period 2016/17-2023/24 by 0.4% per annum for general labour, 1.2% per annum for specialist electrical engineering labour, 0.3% per annum for materials and *minus* 0.6% per annum for plant and equipment. Also, according to our June 2016 report, we forecast productivity improvement over the RP6 period of 0.6% per annum and 0.8% per annum for capital and operating expenditure categories, respectively.¹⁰

1.1.3. RPEs and productivity improvement forecasts in UR’s RP6 Draft Determination

Since the submission of NIE’s RP6 business plan, UR has developed its own approach to estimating RPEs and productivity improvements for NIE at RP6, drawing largely on the work done at GD17. As we explain in detail in the remainder of this report, whilst there is some overlap between our revised methods to forecasting RPEs for NIE at RP6 and UR’s approach at DD, we have also identified some key errors in UR’s methods that materially underestimate the extent of the real input price pressures NIE is likely to face over the course of the RP6 price control.

⁶ For instance, we used ARIMA methods to extrapolate long-term trends in input prices in a way that models their cyclicity, and thus accounts for the possible return of the UK economy to trend economic growth over RP6.

⁷ NERA (17 October 2016), “*Updated Report on Real Price Effects for the RP6 Control Period*”.

⁸ In particular, while the ARIMA approach we used previously has significant advantages as a means of extrapolating historic price/cost indices into the future, we acknowledged there is some subjectivity in the choice of method for forecasting long-term trends. We therefore adopted an objective alternative of setting RPEs based on long-term average growth rates, estimated using an OLS regression procedure. This approach is similar to that adopted by Ofgem at the RII0-ED1 price control review, for instance.

⁹ NERA (6 February 2017), “*NERA’s Review of UR’s Proposed Approach to Real Price Effects at RP6*”.

¹⁰ NERA (29 April 2016), “*Forecasting Real Price Effects and Productivity Growth for RP6*”, p.vii.

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Overall, UR expects input prices to grow over the period 2016/17-2023/24 by 0.2% per annum for general labour (and specialist electrical engineering labour), 0.2% per annum for materials and *minus* 1.0% per annum for plant and equipment. Also, in line with its Final Determination for GD17, UR assumes a productivity shift of 1% per annum for both opex and capex.¹¹

1.1.4. Structure of this Report

The remainder of the report is structured as follows:

- Chapter 2 reviews UR's methodology for forecasting RPEs for general and specialist electrical engineering labour (Section 2.1 and Section 2.2), materials (Section 2.3), plant and equipment (Section 2.4) and transport and other costs (Section 2.5);
- Chapter 3 illustrates our recommended RPE estimates and compares them to UR's DD RP6 forecasts;
- Chapter 4 concludes.

¹¹ Utility Regulator (24 March 2017), "Northern Ireland Electricity Network Ltd, Transmission & Distribution 6th Price Control (RP6): Draft Determination", p.140.

2. Methodological Choices on RPEs

2.1. Forecasting Inflation in General Labour

As we describe below, there are some similarities between the methods we used to forecast general labour RPEs for NIE and the methods used by UR in the RP6 DD. However, we have also identified some key methodological differences where UR's approach contains errors, which cause it to materially understate the likely inflation in NIE's input prices over the price RP6 period.

2.1.1. UR's forecast RPE for general labour ignores OBR's forecast of relatively high inflation in private sector wages

To estimate NIE's general labour costs in the period up to 2021, we forecast future *private sector* earnings growth by taking the difference between Office for Budget Responsibility's (OBR) economy-wide earnings forecast, and its forecast of public-sector earnings.

By contrast, in the RP6 DD UR relied on actual *private sector* wage growth in its calculation of the labour RPE in 2015/16, but *economy-wide* OBR earnings forecast to estimate labour RPEs from 2016/17 onwards.¹² UR, in effect, introduces an inconsistency in the way it extrapolates data into the future.¹³

In reaching this decision, UR appeared to rely on (i) regulatory precedent, particularly its own methodology used at GD17, and (ii) analysis of ONS data on private/whole economy wage growth. With regards to (ii), UR analysed historical differentials between Average Weekly Earnings (AWE) data published by the Office for National Statistics (ONS) for the whole economy and the private sector. It concluded that the differentials average only *minus* 0.04% across these observations over the period 2001/02 to 2016/17.¹⁴

However, UR's analysis fails to address the problem that using two different approaches to estimating actual labour RPEs (in 2015/16) and future RPEs (2016/17 onwards) is inconsistent, and does not capture the OBR's projection that private sector wages will grow faster than public sector wages in the period to 2020/21. By ignoring this evidence, UR's forecast understates the inflation that the OBR forecasts for private sector wages.

We therefore recommended that UR changes its approach to estimating the general labour RPE at RP6 to draw on the OBR's projection of *private sector* earnings growth over the period to 2020/21.

¹² Whilst UR states that it uses ONS AWE private sector data "to the point it is available" it has not provided the details of the underlying data it uses. Therefore we have been unable to replicate UR's 2015/2016 general labour RPE of 2.6% (in nominal terms). According to our calculations, this figure should be equal to 2.8% (in nominal terms).

¹³ Utility Regulator (24 March 2017), "Annex C Frontier Shift: Real Price Effects & Productivity RP6, Draft Determination", p.12.

¹⁴ Utility Regulator (24 March 2017), "Annex C Frontier Shift: Real Price Effects & Productivity RP6, Draft Determination", p.11.

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As shown in Table 2.1 below, using OBR's March 2017 forecast of private sector earnings for the period to 2021 would increase NIE's labour RPE to 0.18% per annum on average between 2016/17 and 2020/21, ie. by around 0.24% per annum compared to the general labour RPE allowed in UR's DD for RP6 (equal to *minus* 0.06%).

Table 2.1
Short-term RPE Forecast for General Labour (Real)

	2016/17	2017/18	2018/19	2019/20	2020/21	Avg
UR RP6 DD	0.4%	-1.2%	-0.3%	0.2%	0.6%	-0.1%
NERA Recommended	0.2%	-0.6%	0.0%	0.6%	0.8%	0.2%

Source: NERA analysis on UR and OBR data

2.1.2. A more objective approach would be to set the 2022-24 forecast based on the long-run growth rate, rather than rolling forward OBR's forecast

For the period beyond 2020/21, our own forecasts extrapolated inflation in general labour costs using the long-term average growth rates in private sector earning, computed using an Ordinary Least Squares (OLS) regression approach.¹⁵

By contrast, in its RP6 DD UR assumed that general labour input prices will grow at a constant rate between 2022/23 and 2023/24, based on the OBR forecast of earnings inflation for 2021/22. UR justified this as a "suitable estimate" of general labour inflation beyond 2021 on account of the "uncertainty at that point".¹⁶ In practice, however, this forecasting approach is subjective and not supported by regulatory precedents (eg. Ofgem's RIIO-ED1determination).

In light of the problems with UR's proposed approach, we therefore recommend that inflation in general labour costs between 2022/23 and 2023/24 be extrapolated based on the observed long-term average growth rate (estimated, for example, using an OLS regression).

2.1.3. Recommended approach for RP6

Based on the above, for RP6 we recommend that UR forecasts inflation in general labour costs by relying on the OBR forecasts of *private sector* earnings growth until 2021. Thereafter, we recommend forecasting inflation in general labour costs using the long-term average growth rates in private sector average earnings (computed using the OLS approach).¹⁷ Table 2.2 below shows the resulting RPE forecast for general labour.

¹⁵ We estimated long-term trend growth rates using an OLS regression of the natural logarithm of the index on a time trend.

¹⁶ Utility Regulator (24 March 2017), "Annex C Frontier Shift: Real Price Effects & Productivity RP6, Draft Determination", p.12.

¹⁷ We recommend making an adjustment of 15 basis points for the so-called "RPI effect" when setting allowed RPEs based on long-term forecasts of real input price indices that have been derived by deflating nominal input prices for changes in RPI.

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Table 2.2
RPE Forecast for General Labour (Real)

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Avg
UR RP6 DD	0.4%	-1.2%	-0.3%	0.2%	0.6%	0.7%	0.7%	0.7%	0.2%
NERA Recommended	0.2%	-0.6%	0.0%	0.6%	0.8%	0.7%	0.6%	0.6%	0.4%

Source: NERA analysis on UR and OBR data

Based on currently available data, we estimate that general labour input prices will grow by 0.4% per annum on average in real terms over the period 2016/17-2023/24. This figure is slightly higher compared with UR's forecast in RP6 DD of 0.2% per annum on average over the same period.

2.2. Forecasting Inflation in Specialist Electrical Engineering Labour

2.2.1. The rationale for differentiating between general and “specialised” labour

As discussed above, and as reflected in our own forecasts of RPEs, the forecast of “general labour” cost inflation reflects the wage pressures that apply on average across the whole economy. While this represents a reasonable starting point for forecasting the likely wage pressures that employers will face in the coming years, it is also important to consider whether the specific types of labour that NIE employs will be subject to different wage pressures than those affecting the UK labour market as a whole.

In the specific case of NIE, a large proportion of its workforce is electrical engineers, as we discuss below. In preparing our own forecast of RPEs, we therefore reviewed published indices that track how the wages of specialised electrical engineers change over time. This demonstrated that specialised electrical engineers have seen faster rates of wage inflation, indicating tightness in this particular segment of the labour market, the effect of which would not be captured in an index of average earnings across all workers.

In fact, tightness in this segment of the labour market has been highlighted in a recent study by the Department for Employment and Learning of Northern Ireland (DELNI), which analyses the types of skills that are currently under or oversupplied in the labour market in Northern Ireland. According to the study, “Civil Engineering” and “Electronic and Electrical Engineering” are among the five skills in highest undersupply in Northern Ireland.¹⁸

This evidence of faster wage growth for specialised electrical engineers justifies a premium above the allowance for inflation in wages in the economy as a whole to reflect the impact on NIE's costs from wage inflation for this type of labour.

¹⁸ Ulster University (November 2015), “NI Skills Barometer Findings Report: ‘Skills in demand’”, Prepared for the Department for Employment and Learning of Northern Ireland.

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2.2.2. UR fails to make an allowance of inflation in specialised electrical engineering labour

In the RP6 DD, UR did not make an allowance for inflation in specialised labour. In claiming that no special treatment is required for specialised labour at RP6, UR appears to have relied on regulatory precedent and some evidence regarding industry level earnings growth rates. In particular, UR noted that (i) no adjustment was made at GD17, and (ii) the CC did not make a distinction between general and specialist labour at RP5. We have identified a number of problems with UR's failure to include a separate RPE forecast for specialist labour, which we discuss in detail below.

2.2.2.1. Specialist labour indices have been growing faster than average earnings in the private sector

In proposing not to make an allowance for inflation in the wages of specialist electrical engineers, UR has failed to account for the fact that wages for electrical engineers have a long track record of rising at a rate faster than average wages in the private sector as a whole:

- **The BCIS Labour and Supervision in Civil Engineering index** has grown at a rate of 1.28% per annum on average between 1992 and 2016 compared to the ONS AWE private sector average growth rate of 0.72% per annum over the same period, ie. a difference of 0.56% per annum;
- **The BCIS Electrical Installations Cost of Labour index** has grown at a rate of 1.50% per annum between 1991 and 2016, compared to the ONS AWE private sector series which has increased by 0.75% per annum, a difference of 0.75% per annum; and
- **The BEAMA Electrical Labour index** has grown by 1.55% per annum between 1991 and 2016, a difference of 0.80% per annum compared to growth in the ONS AWE private sector wage index over the same period.

In the context of RP6 it is therefore important that UR takes into account the higher trend growth rates for specialised electrical engineering professions as compared to average earnings in the private sector as a whole, to ensure that the wage pressures affecting NIE's costs are reflected in its allowances. This approach is also consistent with Ofgem's approach at RIIO-ED1 which used both general and specialist labour indices to set labour RPEs for electricity DNOs in Great Britain.¹⁹

2.2.2.2. Specialist labour indices provide a better reflection of the wage pressures experienced by NIE staff

In not making an allowance for specialised labour inflation, UR also failed to acknowledge that the above specialist labour indices provide a better reflection of the wage pressures experienced by a major element of NIE's workforce than average earnings in the private sector, as evident from the description of the above indices:

¹⁹ Ofgem (28 November 2014), "RIIO-ED1 Final Determinations: Expenditure Assessment", para. 12.7.

- **The BCIS Labour and Supervision in Civil Engineering index** is related to the Working Rule Agreement for the Construction Industry, and based on a General Operative professional grade (General Operative class 1);
- **The BCIS Electrical Installations Cost of Labour index** is based on a weighted average of the professional grades for installation/maintenance electricians defined in the Joint Industry Board for the Electrical Contracting Industry's (JIB) Handbook (Electrician, Approved Electrician, Approved Electrician – with responsibility money); and
- **The BEAMA Electrical Labour index** is based on the national average earnings index figures for the engineering industry produced by the Government Department of Employment. At RIIO-T1 and then at RIIO-ED1, Ofgem relied on this BEAMA labour index, recognising it a relevant indicator of the sector-specific wage pressures the energy industry is subject to.²⁰

Based on the above, NIE has also undertaken a detailed review of its workforce, assessing which of its staff are covered by the definitions of the indices of specialised electrical engineering wages described above. Based on this detailed assessment, we understand NIE found that 77% of NIE's workforce can be classified as specialist electrical engineers.²¹

2.2.2.3. At RIIO-ED1, Ofgem recognised the importance of the general/specialist labour split

At RIIO-ED1, Ofgem recognised the importance of the general/specialist labour split:

- When estimating DNOs' RPE allowance Ofgem relied on both BCIS and BEAMA specialist labour indices acknowledging that specialist staff wages have the potential to grow faster than general staff.²²
- When estimating Regional Labour Adjustment (RLA) factors, Ofgem assumed that electricity and highly skilled engineering labour account for approximately 30% of a notional DNO's workforce.²³

Ofgem's notional weights have also been used by CEPA to calculate the RLA factor for NIE at RP6, suggesting this could be an appropriate weighting to apply in the context of the RPE analysis, particularly because it is consistent with NIE's evidence that 77% of its workforce can be classified as "specialist".²⁴

²⁰ (1) Ofgem (28 November 2014), "*RIIO-ED1 Final Determinations: Expenditure Assessment*", para. 12.7; (2) Ofgem (17 December 2012) "*RIIO-T1/GD1: Real price effects and ongoing efficiency appendix – Final Decision*", para. 2.12.

²¹ NIE Networks (10 March 2017), "*RPEs: Specialist-Generalist Labour Split in NIE Networks*".

²² Ofgem (28 November 2014), "*RIIO-ED1 Final Determinations: Expenditure Assessment*", para. 12.7.

²³ Ofgem's notional weighting was based on DNO average labour to gross expenditure ratio for each activity. Based on the RIIO-ED1 modelling files, we infer the 30% estimate by considering the following SOC codes as "specialist": 30% for SOC 21 "Science, research, engineering and technology professionals"; 30% for SOC 31 "Science, engineering and technology associate professionals"; 30% for SOC 52 "Skilled metal, electrical and electronic trades"; and 30% for SOC 53 "Skilled construction and building trades".

²⁴ CEPA (March 2017), "*Regional Wage Adjustment, The Northern Ireland Utility Regulator (UR): Final Report*", p.16-17.

2.2.2.4. UR's references to regulatory precedent in the gas industry fail to account of the different types of labour employed in by electricity DNOs

In deciding not to make an allowance for inflation in specialised electrical engineering labour, UR appears to rely on two regulatory precedents, ie. GD17 and RP5.

GD17 should not be considered a relevant precedent for RP6, because the GD17 price control is for gas rather than electricity. Thus, whilst specialised wages in the gas sector rise almost at the same rate as average earnings, electricity networks experience different labour cost pressures:

- The long-term growth rates for specialist labour indices relevant to the gas distribution industry are not markedly different from the rates of earnings growth observed in the private sector of the economy as a whole.
- For instance, the ONS labour index for the construction sector that Ofgem used at RIIO-GD1 as a measure of specialist wages has only grown 0.02% per annum (in real terms) faster on average between 2001 and 2015 than average earnings in the private sector of the economy as a whole.^{25,26}

This evidence suggests there is limited need for a separate RPE for specialised labour in the gas distribution industry. By contrast, we showed in Section 2.2.2.1 that indices tracking wages for electrical engineers have much higher historical growth rates than average wages in the private sector as a whole, with the premium ranging 0.56-0.80% across the indices.

UR examined this point further in the RP6 DD, comparing ASHE earnings growth between 2009 and 2016 for gas and electricity distribution against the historic series of inflation in average earnings from the OBR on which UR based its general labour RPE. On the basis of this analysis, UR concluded that “the data for electricity and gas broadly appear to oscillate about the OBR line”,²⁷ and hence “OBR labour inflation data appears to present as a somewhat central position relative to the separate industry data plots”.²⁸ In other words, UR appears to suggest that the OBR inflation for general labour is representative of labour earnings growth in both the gas and electricity distribution industries.

We reproduce UR's analysis in Figure 2.1 below.²⁹ Whilst it is true that earnings growth for gas and electricity distribution oscillate over time, the conclusions that UR draws from this analysis are wrong.

²⁵ Ofgem (17 December 2012), “*RIIO-T1/GD1: Real price effects and ongoing efficiency appendix*”, p.7.

²⁶ The ONS series on Average Weekly Earnings in the private sector has grown at a rate of 0.15% per annum (in real terms) between 2001 and 2015. By contrast, the ONS labour index for the construction sector has grown at a rate of 0.17% per annum (in real terms) over the same period.

²⁷ Utility Regulator (24 March 2017), “*Annex C Frontier Shift: Real Price Effects & Productivity RP6, Draft Determination*”, p.8-9.

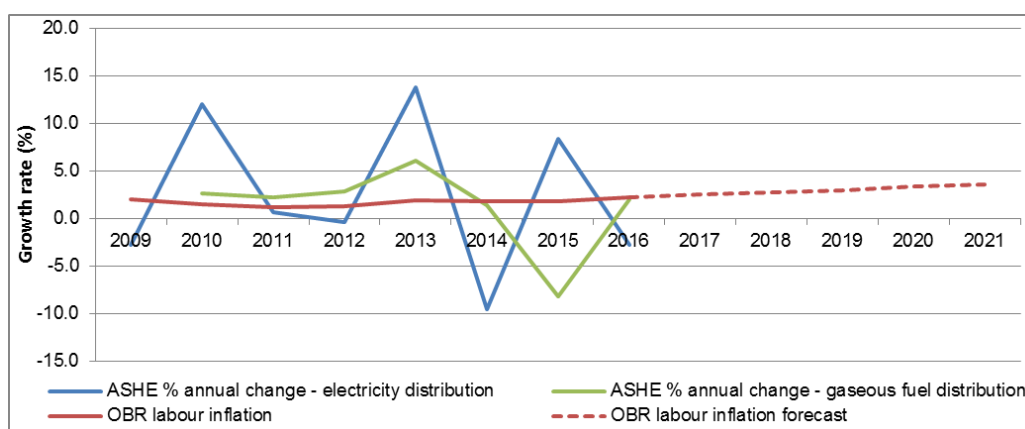
²⁸ Utility Regulator (24 March 2017), “*Annex C Frontier Shift: Real Price Effects & Productivity RP6, Draft Determination*”, p.9.

²⁹ We note that UR did not disclose the particular sub-table from Table 16 of ONS ASHE that it used in its analysis. From our own research, it appears that it used “Table 16.5a Hourly pay - Gross (£) - For all employee jobs: United Kingdom”

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Specifically, as we show in Table 2.3, average earnings growth in the gas industry was only 1.3% over the period 2010-2016 compared to 3.2% in the electricity industry. Comparing these industry-specific growth rates to the average OBR labour inflation over the same period (of 1.7%), UR's own comparison demonstrates clear evidence that average earnings in the electricity industry have risen faster than in the gas industry, and faster than in the economy as a whole. Hence, UR's analysis supports the need for an RPE allowance that reflects that tendency for the wages earned by electrical engineers to rise faster than wages in the economy as a whole.

Figure 2.1
Annual Change in Labour Cost % (Reproduction of UR RP6 DD, Figure 1)



Source: ONS ASHE, 2009-2016, Table 16.5a; OBR Economic and Fiscal Outlook, March 2017

Table 2.3
Average historical growth rates of labour costs, 2010-2016

	OBR labour inflation	ASHE % annual change - electricity distribution	ASHE % annual change - gaseous fuel distribution
Avg (2010-16)	1.7%	3.2%	1.3%
Difference (ASHE - OBR)	N/A	1.5%	-0.4%

Source: NERA analysis of ONS ASHE and OBR data

2.2.2.5. UR's reliance on the CC's RP5 decision also fail to recognise the new evidence made available more recently

At RP5, the CC's decision not to distinguish between specialist and general labour followed its concerns regarding the accuracy of the distinction between the two categories, ie. whether the "specialist" category suggested by NIE indeed related to a type of workers with a particular set of skills that is subject to different market pressures.³⁰ The CC never questioned

to obtain the annual earnings growth rates for each year between 2009 and 2016. We therefore rely on this table in our own reproduction of UR's figure and subsequent analysis.

³⁰ Competition Commission (26 March 2014), "Northern Ireland Electricity Limited price determination, A reference under Article 15 of the Electricity (Northern Ireland) Order 1992: Final Determination", p.11-7 and 11-8.

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evidence submitted both by NIE, and from UR, that certain specialist labour indices for the electrical engineering sector grow faster than average wages in the private sector as a whole.

As we discussed in Section 2.2.2.2, since CC's RP5 final determination, NIE has undertaken a detailed review of its workforce, assessing person by person and role by role whether they meet the criteria necessary to belong to the specialised indices relevant to the electrical engineering segment of the labour market. In performing this review, NIE improved on its previous analyses by better aligning staff features with the indices for specialist electrical engineering used to forecast RPEs, by defining a 'specialist' purely as someone with an electrical skill, qualification or job at NIE (therefore not considering "skilled" labour in other fields as "specialist", such as qualified accountants).

Added to NIE's own work, since the RP5 determination, Ofgem has completed its own RIIO-ED1 review, and concluded it is appropriate to place a 3% weight on these specialised electrical engineering wage indices when setting labour RPEs.

Based on the above, UR should review the economic case for a premium when setting an allowed RPE for electrical engineering labour at RP6, in light of new evidence that has come to light since the conclusion of the RP5 process.

2.2.3. Controlling for the relatively high wage inflation in specialised electrical engineering labour categories in the short-term

For RP6, we therefore recommend that UR uses the OBR forecasts of general labour costs (for as long as they are available) as a starting point, but adjusts them to reflect the historic difference between rates of inflation in electrical engineering professions compared to average wages in the private sector. We recommend computing this adjustment based on the following indices:

- **The BCIS Labour and Supervision in Civil Engineering index**, which has risen by 0.56% per annum faster than inflation in private sector average earnings over the long-term;
- **The BCIS Electrical Installations Cost of Labour index**, which has risen by 0.75% per annum faster than inflation in private sector average earnings over the long-term; and
- **The BEAMA Electrical Labour index**, which has risen by 0.80% per annum faster than inflation in private sector average earnings over the long-term.

The average of these premia for specialist labour above the long-term average growth rate in private sector average earnings is 0.70%, which we recommend adding to the forecast of general labour cost inflation based on the OBR projections of inflation in private sector average earnings.

2.2.4. Setting a longer-term RPE for specialised electrical engineering labour

Beyond the point of available OBR forecasts, we recommend UR sets its forecast of long-term inflation in specialist labour costs by extrapolating long-term trends in the relevant series. Consistent with our approach of extrapolating inflation in general labour costs, we recommend using a long-term average growth rate of specialist labour costs estimated from an OLS regression of the natural logarithm of relevant indices on a time trend.

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Table 2.4 below shows the long-term average growth rates of the specialist labour indices we identified in our report as being relevant to NIE, calculated using the OLS approach.³¹ On average, these specialised labour indices have grown at 1.7% per annum in real terms.

Table 2.4
OLS Long-term Real Growth Rates for Specialist Electrical Engineering Labour Indices

Index	Growth Rate
BCIS - Labour and Supervision in Civil Engineering	1.5%
BCIS - Electrical Installations Cost of Labour	1.4%
BEAMA - Electrical Labour	2.2%
Average	1.7%

Source: NERA analysis on ONS, BCIS and BEAMA data

2.2.5. Recommended approach for RP6

Similar to Ofgem’s approach at RIIO-ED1, we recommend that UR sets RPEs for labour at RP6 that account for the difference between long-term inflation rates for specialist electrical engineering and general labour. As set out in our report, we recommend including a premium over the OBR private sector earnings growth forecast to set specialist electrical engineering labour RPEs in the short-term. Thereafter, we recommend that UR relies on long-term average growth rates in relevant specialist electrical engineering labour indices to estimate RPEs for years when OBR forecasts are not available.

Table 2.5 below shows that this approach indicates specialist electrical engineering labour costs will grow at 1.2% per annum (in real terms) on average over the period 2016/17-2023/24. This figure is materially higher than UR’s forecast of general labour cost inflation in its RP6 DD.

Table 2.5
RPE Forecast for Specialist Electrical Engineering Labour (Real)

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Avg
UR RP6 DD	0.4%	-1.2%	-0.3%	0.2%	0.6%	0.7%	0.7%	0.7%	0.2%
NERA Recommended	1.0%	0.1%	0.7%	1.3%	1.5%	1.5%	1.7%	1.7%	1.2%

Source: NERA analysis on UR, ONS, BCIS and BEAMA data

³¹ We recommend making an adjustment of 15 basis points for the so-called “RPI effect” when setting allowed RPEs based on long-term forecasts of real input price indices that have been derived by deflating nominal input prices for changes in RPI.

2.3. Forecasting Inflation in Materials

2.3.1. NERA's forecasting methodology

To forecast materials RPEs for RP6, we selected a set of indices that capture the materials inputs that are typically purchased by network operators in the electricity sector, including both general and specialist material indices:

- The BCIS Resource Cost Index: Infrastructure Materials (FOCOS) index and Resource Cost Index: Building Non-Housing Materials (NOCOS) index;
- The BEAMA CPA Basic Electrical Equipment index; and
- The ONS Producer Price Indices (PPIs) for:
 - Manufacture of Electricity Distribution and Control Apparatus;
 - Manufacture of Electric Motors, Generators and Transformers;
 - Manufacture of Other Electronics and Electric Wires and Cables; and
 - Manufacture of Cold Drawn Wire.

Then, we estimated materials RPEs by extrapolating long-term historic trends using the OLS approach for each index. In particular, we estimate long-term trend growth rates using an OLS regression of the natural logarithm of the index on a time trend.

2.3.2. UR's forecasting methodology in RP6 DD

In its RP6 DD, UR drew on general indices of material price inflation to estimate material RPEs for NIE, including the NOCOS and FOCOS indices from BIS and the interim construction Output Price Indices (OPIs) from ONS. The exact methodology used by UR to estimate materials price growth over the forecasting period is not described clearly in the DD, but we can infer that it took the following broad approach:

1. First, UR relied on FOCOS and NOCOS indices as far as 2014, ie. to the extent that outturn data are available. Thereafter, it used outturn data on OPIs to the extent available;
2. Then, it concluded that material “price growth will continue at its present level...with an increase in upward pressure” and a “return to long term average of the data set [3.9%].” UR based its decision on “upward movement indicated by the data” and consideration of “market information”, though it is not clear what (if any) analytical basis UR had for the particular upward trajectory in growth rates it assumed when making its forecast;³² and
3. Lastly, UR applied a “simple glide path (by year) for reaching the long term average”,³³ though details of how this was done is not disclosed in the DD. However, from

³² Utility Regulator (24 March 2017), “Annex C Frontier Shift: Real Price Effects & Productivity RP6, Draft Determination”, p.14.

³³ Utility Regulator (24 March 2017), “Annex C Frontier Shift: Real Price Effects & Productivity RP6, Draft Determination”, p.14.

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examining UR's RPE projections, it appears to have used a linear interpolation in annual growth rates between 2016/17 and 2020/21.

Based on the above, we have identified a number of problems with UR's approach to forecasting materials price growth at RP6.

2.3.3. The basis for UR's materials RPE forecast is not transparent, with no apparent link to any economic analysis

The methodology UR followed to forecast materials RPE in its DD is opaque, which prevents proper scrutiny of its methods by regulated companies and other interested parties. UR's lack of transparency about its approach to forecasting undermines the credibility of the regulatory framework as a mechanism for remunerating the efficiently incurred costs of regulated utilities.

First, it is not clear from the RP6 DD how UR arrived at its nominal long term average growth rate of 3.9% from the dataset. For example, UR did not specify the historical period over which it had calculated the long term average. As such, we were unable to replicate UR's long run materials growth rate.

Second, UR's extrapolation of current data to the long-term trend growth rate does not appear to be supported by any form of quantitative analysis. UR appears to have based its forecast on qualitative market evidence from "the OBR forecasts" and "the stated underlying assumptions used by BoE [Bank of England]", from which UR concludes that "inflation prospects generally are expecting an initially bigger increase for years 1-2 of RP6 then some levelling off in growth".³⁴ However, it is not clear how UR has then used this qualitative evidence to arrive at the particular upward trajectory in growth rates between 2016/17 and 2020/21 (ie. the long-term average). Rather, the forecast itself seems to be based on an arbitrary linear interpolation of annual growth rates which is not supported by any form of economic analysis of the underlying behaviour of the time series.

Third, UR's approach to setting the plant and equipment RPE illustrates the subjectivity associated with its approach to setting the materials RPE. Specifically, as we explain in Section 2.4, UR seems to assume reversion to trend growth in the plant and equipment RPE series after one year (ie. from 2017/18). By contrast, UR assumes a more gradual reversion to trend growth in its materials RPE (ie. over the period to 2020/21). In fact, UR has no analytical basis for either projection. A simple, objective remedy to this problem would be to base forecasts on long-term average growth rates throughout the whole forecasting period.

2.3.4. UR's materials RPE forecast ignores the link between nominal materials price inflation and RPI inflation

In the years for which UR has set allowed RPEs based on a long-term average growth rate in materials price indices, its approach appears to have been to compute *nominal* long-term

³⁴ Utility Regulator (24 March 2017), "Annex C Frontier Shift: Real Price Effects & Productivity RP6, Draft Determination", p.14.

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average growth rates in its selected indices, then to subtract the OBR forecast of RPI inflation over the RP6 control period to set the RPE allowance.

UR's approach is different from our approach to forecasting RPEs for NIE, which involves deflating each index using RPI to compute a long-run historic growth rate for the relevant indices in real terms, while controlling for the 2010 step-change in RPI.³⁵ This is essentially the same approach as Ofgem followed when setting allowed RPEs based on long-term trend growth rates during the RIIO price control reviews.³⁶

The advantage of our approach is that it captures the propensity for relevant price/cost indices to rise at a rate faster or slower than general inflation, whilst controlling for variation over time in the underlying level of general inflation. To demonstrate this, we deflated UR's materials price index (an average of the FOCOS and NOCOS indices) for changes in RPI, and regressed the natural logarithm of this series on a time trend. Essentially, this is the same approach as that we follow to compute our long-run growth rates using the OLS approach.

However, for this analysis, we also added the natural logarithm of the RPI index into the equation to assess whether there is a link between the level of real inflation in materials indices and the underlying level of inflation in the economy as a whole. Hence, we estimated the following equation (1) over the period 1990-2016:³⁷

$$(1) \quad \ln(\text{Deflated Materials Index}) = \alpha + \beta \text{ time} + \gamma \ln(\text{RPI}) + \text{error}$$

We found that the coefficient on RPI (ie. γ) was statistically insignificant. This suggests that the long-term average growth rate emerging from equation (2) below, which reflects the approach we follow when forecasting long-term growth rates, is sufficient to capture the propensity for materials prices to rise faster than general inflation in RPI. In essence, there is a premium in the expected growth rate of materials prices above RPI that does not depend on the current rate of change in the RPI index itself. As such, there is no need for us to account for the OBR (or some other) forecast of RPI when forecasting materials RPEs for the RP6 control period.

$$(2) \quad \ln(\text{Deflated Materials Index}) = \alpha + \beta \text{ time} + \text{error}$$

We performed a similar test to evaluate UR's approach to forecasting RPEs based on long-term average growth rates. Here, we regressed the nominal materials index (an average of the FOCOS and NOCOS indices) on a time trend and the RPI, as follows:

$$(3) \quad \ln(\text{Nominal Materials Index}) = \alpha + \beta \text{ time} + \gamma \ln(\text{RPI}) + \text{error}$$

³⁵ We recommend making an adjustment of 15 basis points for the so-called "RPI effect" when setting allowed RPEs based on long-term forecasts of real input price indices that have been derived by deflating nominal input prices for changes in RPI.

³⁶ See, for instance: Ofgem (28 November 2014), "RIIO-ED1 Final Determinations – Expenditure Assessment", para. 12.6.

³⁷ We report the findings from this regression analysis in Appendix A.

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In this equation, we found that the coefficient on RPI (ie. γ) was statistically significant and positive. Therefore, inflation in materials prices has a positive relationship with economy-wide inflation in RPI. This means that, when setting RPEs using UR's method of extrapolating nominal indices and subtracting a forecast of RPI, it is necessary to account for the link between the level of the RPI forecast and the expected inflation in the nominal materials price index. UR's failure to model the link between nominal price inflation and RPI could distort its RPE forecast based on long-term average growth rates.

The simplest remedy to this problem with UR's RPE methodology would be to adopt the same approach as we follow (similar to that which Ofgem followed at RIIO-ED1 and GD1), which is to estimate a long-run real growth rate in relevant indices by deflating them for historical changes in RPI.

2.3.5. UR's long-run average growth rates are inaccurate because it uses arithmetic means of historical annual growth rates

UR calculates its long-term average growth rates by taking an arithmetic average of annual growth rates for the relevant indices. However, this approach ignores compounding effects and so may give unreliable estimates of the underlying growth rate. For example, consider two different indices: the first grows by 5% in two consecutive years, whilst the second grows by 0% in the first year and 10% in the second year. UR's arithmetic mean approach would find an average growth rate of 5% for both series, ignoring that the first index actually grows by 10.25% over two years, whilst the second grows by 10.0% in two years.

To correct for this, we use an OLS regression procedure to compute long-term growth rates, regressing the natural logarithm of the materials index against a time trend, as shown in equation (4) below, in which the coefficient β identifies the underlying time.

$$(4) \quad \ln(\text{Materials Index}) = \alpha + \beta \text{ time} + \text{error}$$

An alternative would be to use geometric growth rates, which also corrects for the problem we identify, but effectively relies only on the start and end points in the data series, so is sensitive to data error in these two observations.

2.3.6. UR's forecast is probably biased downwards, due to its partial (and arbitrary) treatment of cyclicity

Finally, UR's materials RPE forecast is probably biased downwards, as it ignores the cyclicity that materials price indices tend to exhibit. For instance, the NOCOS and FOCOS indices have typically moved cyclically around their long-term trend. Currently, both indices are below trend, so an extrapolation of their long-term trend ought to feature some reversion to trend during the RP6 control period.

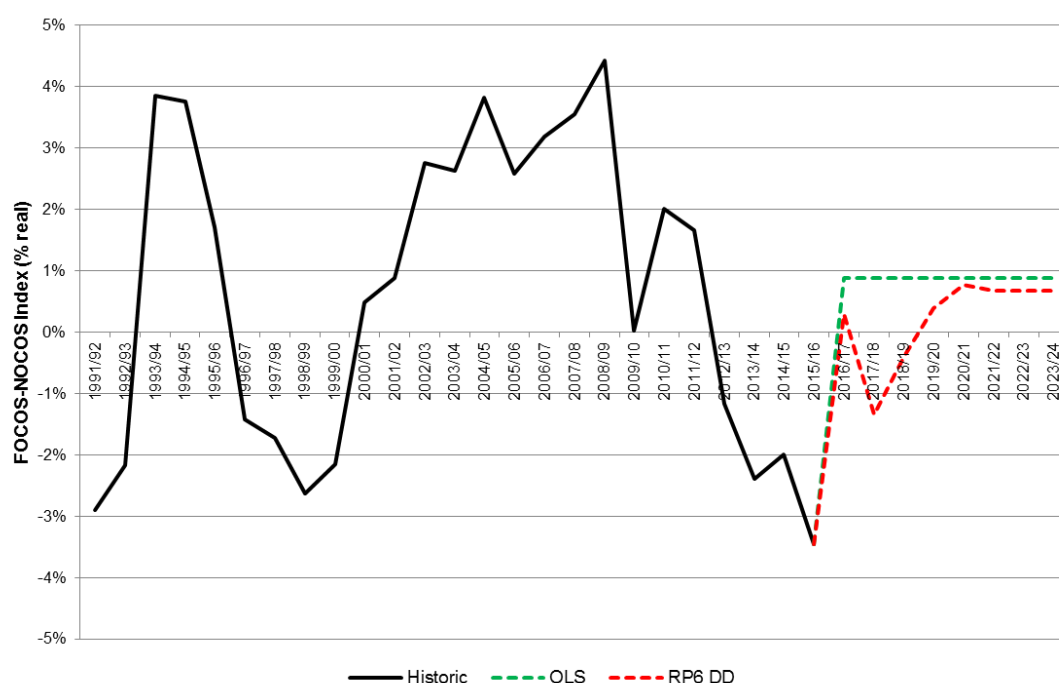
Notwithstanding the arbitrariness and opaqueness of UR's materials price forecast (discussed in Section 2.3.3), we assume UR has sought to reflect the typical behaviour of cyclical materials price series in the short-term, by assuming a gradual reversion to a long-run average

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growth rate (see Figure 2.2 below). However, UR fails to account for the fact that, for cyclical materials price series, periods of relatively slow growth (as in the early years of the control period) tend to be followed by periods of relatively fast growth.³⁸

This cyclical tendency is better captured in the NERA OLS modelling, but not in UR's forecast, which captures the period of relatively slow growth in the near-term, but not the faster growth that would be expected to follow towards the end of the control period. Instead, UR assumes the materials price series will not rise above their long-term growth rate after the current period of low inflation. Taken over the RP6 control period as a whole, UR's materials price forecast is therefore biased downwards. In fact, UR effectively assumes that recent downward shocks to materials price indices will persist permanently in the future, and ignores the marked tendency of these price series to revert to trend.

Figure 2.2
Evidence of Cyclicity around Trend of Materials Real Price Inflation



Source: NERA analysis on UR and BCIS data

One way of addressing this problem would be for UR to adopt the NERA approach, ie. use the observed long-term average growth rate to set allowed materials RPEs throughout the control period. Although this approach does not explicitly model the cyclicity of materials prices, it would produce a forecast that is consistent with the likely outlook for materials prices over a number of years, some of which are likely to be below trend and others above

³⁸ Figure 2.2 also shows that there is a difference between UR's assumed growth rate for the materials indices in the long-run (the broken red line from 2020-23) and our higher forecast of the long-run growth rate (the broken green line from 2016-23). There are two reasons for this effect: (1) the error associated with extrapolating nominal indices described in Section 2.3.4 above, and (2) UR's method of computing long-run average growth rates using an arithmetic mean of annual growth rates compared to our approach of using an OLS regression described in Section 2.3.5 above.

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trend. Ofgem followed this approach at RIIO-ED1, assuming that material indices would grow at the rates observed historically, even in cases where current outturn data was below the long-term trend line.³⁹

2.3.7. A wider range of materials price indices may be relevant at RP6 compared to UR's DD

In its RP6 DD, UR did not use specialist materials indices to forecast materials price inflation, in contrast with the approach used by Ofgem at RIIO-GD1 which relied also on specialist material indices that reflect inflation in prices for materials used in the gas distribution industry.⁴⁰

The CMA in its final decision for RP5 also drew on a more extensive set of indices including specialist material indices that better reflect price inflation for material inputs typically employed by electricity network operators (eg. transformers, switchgears).⁴¹ In line with this precedent, widening the set of material indices might improve the accuracy of UR's materials RPE forecast at RP6.

2.3.8. Recommended approach for RP6

For the FD, we recommend that UR improves the transparency of its materials RPE forecast by setting out the analytical basis that underpins its forecasts. It should also correct the downward bias embedded in its materials RPE estimates at RP6, due to its failure to robustly account for the cyclical nature of materials prices, its use of arithmetic mean growth rates, and its extrapolation of nominal rather than real/deflated price indices.

The simplest and most practical approach would be to set materials RPEs based on observed long-term average growth rates in relevant indices, as Ofgem did at RIIO-ED1. We also recommend that UR widens the set of material indices used to forecast material RPEs.

Table 2.6 below shows the long-term average growth rate of the material indices we used to forecast RPEs for NIE (using the OLS approach). Taking a straight average of these long-term growth rates suggests that material input prices in the electricity sector tend to grow at 0.3% per annum.

³⁹ Ofgem (28 November 2014), "*RIIO-ED1 Final determinations for the slow-track electricity distribution companies*", p.150, para.12.6.

⁴⁰ Ofgem (17 December 2012), "*RIIO-T1/GD1: Real price effects and ongoing efficiency appendix*", p.12.

⁴¹ Competition Commission (26 March 2014), "*Northern Ireland Electricity Limited price determination, A reference under Article 15 of the Electricity (Northern Ireland) Order 1992: Final Determination*", Appendix 11.1, p.4-5.

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Table 2.6
OLS Long-term Growth Rates for Material Indices (Real)

Index	Growth Rate
BCIS – FOCOS	1.6%
BCIS – NOCOS	0.2%
BEAMA - Basic Electrical Equipment	-0.7%
ONS - Electricity Distribution and Control Apparatus	-1.1%
ONS - Electric Motors, Generators and Transformers	-2.4%
ONS - Other Electronic & Electric Wires & Cables	2.5%
ONS - Cold Drawn Wire	2.1%
Average	0.3%

Source: NERA analysis on ONS, BCIS and BEAMA data

Table 2.7 below shows the RPE forecast resulting from this approach, with growth of 0.3% per annum over the period 2016/17-2023/24 in real terms. This figure is slightly higher than UR's materials RPE forecast in RP6 DD of 0.2% per annum on average over the same period.

Table 2.7
RPE Forecast for Materials (Real)

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Avg
UR RP6 DD	0.3%	-1.3%	-0.4%	0.4%	0.8%	0.7%	0.7%	0.7%	0.2%
NERA Recommended	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%

Source: NERA analysis on UR, ONS, BCIS and BEAMA data

2.4. Forecasting Inflation in Plant and Equipment

2.4.1. The basis for UR's plant and equipment RPE forecast is not transparent

To forecast plant and equipment RPEs for RP6, we extrapolate long-term trends in the ONS Machinery and Equipment PPI Index and the BCIS Plant and Road Vehicle index using an OLS approach.

In the RP6 DD, UR also used both these indices to forecast plant and equipment RPEs. Specifically, it relied on the unweighted average of both indices' actual growth rates in 2016 to estimate outturn plant and equipment RPEs (in 2016), and the unweighted average of the long-term average growth rate of both indices to forecast RPEs from 2017 onwards.

However, it is not clear from the RP6 DD how UR arrived at the "current inflation for the unweighted average of the indices" of 2.0% for 2016/2017.⁴² We have therefore been unable to exactly replicate this figure. As we mentioned earlier, UR's lack of transparency in its forecasting methodology prevents proper scrutiny of its methods by regulated companies and

⁴² Utility Regulator (24 March 2017), "Annex C Frontier Shift: Real Price Effects & Productivity RP6, Draft Determination", p.16.

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other interested parties and undermines the credibility of the regulatory framework as a mechanism for remunerating the efficiently incurred costs of regulated utilities.

2.4.2. UR's RPE forecast is inaccurate because it ignores the link between nominal price inflation and RPI, and uses arithmetic means

UR's approach to forecasting plant and equipment RPE is exposed to similar problems as those we identified for materials inflation. Firstly, UR estimated long-term average growth rates in *nominal* price indices, as opposed to extrapolating real growth rates, thereby ignoring the relationship between nominal price inflation and RPI. Secondly, UR calculated its long-term average growth rates by taking an *arithmetic average* of historical annual growth rates for the relevant indices, rather than using more robust alternative approaches. For the same reasons as described above in sections 2.3.4 and 2.3.5 (in relation to the materials RPE forecast), therefore, we conclude that these methods are likely to produce an inaccurate estimate of the long-term average growth rate in the relevant indices.

2.4.3. Recommended approach for RP6

Based on the above, for RP6 we recommend using the OLS approach to estimate the long-term average trend growth rates in relevant plant and equipment indices, and to set an allowed RPE based on these long-term trend growth rates (for years when outturn data is not available).

Table 2.8 below shows the long-term average growth rate of the selected plant and equipment indices, using the OLS approach.⁴³ Our analysis shows that plant and equipment input prices have grown on average at *minus* 0.6% per annum.

Table 2.8
OLS Long-term Growth Rates for Plant & Equipment Indices (Real)

Index	Growth Rate
BCIS - Plant and Road Vehicles	-0.1%
ONS - Machinery and Equipment Output	-1.2%
Average	-0.6%

Source: NERA analysis on ONS and BCIS data

Table 2.9 below shows the projected RPEs resulting from our recommended approach. Specifically, our forecast plant and equipment RPE grows at *minus* 0.6% per annum on average over the period 2016/17-2023/24 in real terms. This figure is materially higher than UR's plant and equipment RPE forecast in RP6 DD of *minus* 1.0% per annum on average over the same period.

⁴³ We recommend making an adjustment of 15 basis points for the so-called "RPI effect" when setting allowed RPEs based on long-term forecasts of real input price indices that have been derived by deflating nominal input prices for changes in RPI.

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Table 2.9
RPE Forecast for Plant & Equipment (Real)

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Avg
UR RP6 DD	-0.2%	-1.6%	-1.2%	-0.9%	-0.9%	-1.0%	-1.0%	-1.0%	-1.0%
NERA Recommended	-0.6%	-0.6%	-0.6%	-0.6%	-0.6%	-0.6%	-0.6%	-0.6%	-0.6%

Source: NERA analysis on UR, ONS and BCIS data

2.5. Forecasting Inflation in Transport and Other Costs

We agree with UR's approach at RP6 of assuming that transport and other costs will move in line with RPI through the control period.

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3. Reviewed Forecast RPEs for RP6

We present in Table 3.1 to Table 3.4 below our recommended RPEs for general and specialised electrical engineering labour, materials and plant and equipment, and show how these compare to UR's RP6 DD.

Table 3.1
RPE Forecast for General Labour (Real)

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Avg
UR RP6 DD	0.4%	-1.2%	-0.3%	0.2%	0.6%	0.7%	0.7%	0.7%	0.2%
NERA Recommended	0.2%	-0.6%	0.0%	0.6%	0.8%	0.7%	0.6%	0.6%	0.4%

Source: NERA analysis on UR, OBR and ONS data

Table 3.2
RPE Forecast for Specialist Electrical Engineering Labour (Real)

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Avg
UR RP6 DD	0.4%	-1.2%	-0.3%	0.2%	0.6%	0.7%	0.7%	0.7%	0.2%
NERA Recommended	1.0%	0.1%	0.7%	1.3%	1.5%	1.5%	1.7%	1.7%	1.2%

Source: NERA analysis on UR, ONS, BCIS and BEAMA data

Table 3.3
RPE Forecast for Materials (Real)

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Avg
UR RP6 DD	0.3%	-1.3%	-0.4%	0.4%	0.8%	0.7%	0.7%	0.7%	0.2%
NERA Recommended	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%

Source: NERA analysis on UR, ONS, BCIS and BEAMA data

Table 3.4
RPE Forecast for Plant & Equipment (Real)

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Avg
UR RP6 DD	-0.2%	-1.6%	-1.2%	-0.9%	-0.9%	-1.0%	-1.0%	-1.0%	-1.0%
NERA Recommended	-0.6%	-0.6%	-0.6%	-0.6%	-0.6%	-0.6%	-0.6%	-0.6%	-0.6%

Source: NERA analysis on UR, ONS and BCIS data

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4. Conclusion

In this report we review UR's approach to estimating RPEs in the RP6 DD and, reflecting the limitations of UR's methodology to forecast RPEs, propose a revised approach to estimating RPEs for NIE at RP6.

There are some similarities between the methods we used to forecast RPEs for NIE and the methods used by UR in the RP6 DD. However, we have also identified some key methodological differences where UR's approach contains errors, which cause it to materially understate the likely inflation in NIE's input prices over the price RP6 control period. We suggest ways to avoid these errors in UR's Final Determination on RPEs for RP6:

- **General Labour RPEs:**

- UR has ignored information contained in the OBR's economic forecasts suggesting that private sector earnings growth will be relatively high compared to earnings growth in the economy as a whole. Incorporating this information into UR's determination will ensure it accurately reflect the wage pressures faced by private sector employers like NIE, which UR itself recognises by using private sector earnings data to estimate outturn RPEs.
- Also, for the years after the OBR forecast is not available, we recommend relying on the long-term average growth rate in private sector earnings to set the general labour RPE, rather than relying on the latest available year of OBR's forecast. This represents a more objective approach to extrapolating long-term RPEs that UR's current arbitrary assumption that RPEs prevailing in 2021/22.

- **Specialist Electrical Engineering Labour RPEs:**

- While the OBR's forecast of average earnings in the private sector of the economy as a whole represents a reasonable starting point for setting RPE allowances, UR has ignored evidence of the propensity for wages earned by specialist electrical engineers to rise more quickly than average earnings. This evidence, which Ofgem recognised at RIIO-ED1, requires a separate RPE for specialist electrical engineering labour at RP6, to ensure NIE's allowances keep track with the wage growth seen for the types of labour it requires to operate its network and deliver its investment programme.
- We suggest allowing a premium over the OBR forecast (for as long as it is available) that reflects the higher long-term trend growth rates for relevant categories of specialist labour, and relying on the long-term average growth rates for the later years when the OBR forecasts are not available.

- **Material RPEs:**

- UR's forecast lacks transparency, and seems to be based on an arbitrary assumption about how quickly materials inflation will revert to trend. The lack of any analytical basis for this projection represents a serious flaw in UR's methodology.
- UR's forecast is also biased downwards, in the sense that its materials RPEs estimate fails to account for the cyclicity of materials prices. Specifically, UR accounts for the fact that inflation rates are currently below trend, but ignores the likelihood that a period of inflation rates above trend will follow.

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- The simplest and most practical way to address these problems would be to set a materials RPE that reverts immediately to the long-term average growth rate.
 - Other errors in its materials RPE forecast include its use of arithmetic mean growth rates, its extrapolation of nominal rather than real/deflated price indices, and its decision to use only a subset of the general and specialist material indices relevant to DNOs' costs (eg. those used by the CC at RP5).
- **Plant and Equipment RPEs:**
- As for UR's materials RPE forecast, its forecast of plant and equipment RPEs in the short-term is not transparent. We recommend that UR relies on the long-term average growth rate of both indices it identified as relevant over the whole forecasting period.
 - However, UR's approach to setting the plant and equipment RPE illustrates the subjectivity associated with its approach to setting the materials RPE. Specifically, UR seems to assume reversion to trend growth in the plant and equipment RPE series after one year (ie. from 2017/18). By contrast, UR assumes a more gradual reversion to trend growth in its materials RPE (ie. over the period to 2020/21). UR has no analytical basis for either projection. A simple, objective remedy to this problem (and the problem that its materials forecasts are biased downward by accounting only partially for cyclicalities – see above) is to base forecasts on long-term average growth rates throughout the whole forecasting period.

Overall, based on our recommended approach, we expect input prices to grow over the period 2016/17-2023/24 by 0.4% per annum for general labour, 1.2% per annum for specialist electrical engineering labour, 0.3% per annum for materials and *minus* 0.6% per annum for plant and equipment.

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Appendix A. Detailed Regression Results

A.1. Deflated Materials Index as a Function of RPI

As discussed in Section 2.3.4, we estimated the deflated materials index as a function of a time trend and inflation as measured by RPI (adjusted by 15 bps from 2010 onward), using the following equation:

$$\ln(\text{Deflated Materials}) = \alpha + \beta \text{year} + \gamma \ln(\text{RPI}) + \varepsilon$$

As Table A.1 shows, we do not find a statistically significant coefficient for γ , suggesting that our proposed approach of estimating long-term real growth trends in the materials index does not omit a key variable.

Table A.1
RPI is not a Significant Driver of Real Index Growth

Standard Regression Output		
	Coefficients	T-stat
Ln(RPI)	1.36	1.80
Year	-0.03	-1.29
Constant	51.41	1.35
F-statistic	35	
Adjusted R2	0.724	
Observations	27	

A.2. Nominal Materials Index as a Function of RPI

However, Table A.2 shows that the *nominal* level of the materials index does exhibit a statistically significant relationship with RPI. UR's approach of estimating long-term nominal growth trends therefore fails to control for the effects of underlying inflation on the estimated propensity for the materials index to rise in real terms.

Table A.2
RPI is a Significant Driver of Nominal Index Growth

Standard Regression Output		
	Coefficients	T-stat
Ln(RPI)	2.36	3.13
Year	-0.03	-1.29
Constant	46.58	1.22
F-statistic	435	
Adjusted R2	0.971	
Observations	27	

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When estimating the significance of these regression coefficients, we considered the likelihood of autocorrelation in the error terms, which could cause standard errors that are biased downwards (ie. too small). A common adjustment for this is to use Newey-West standard errors, which allow for serial correlation in the error term. As we show in Table A.3, by allowing serial correlation in the errors of up to four years, the t-statistic on γ remains significant and similar for all lag structures we tested.

Table A.3
Newey-West results confirm our findings

Newey-West Results					
Maximum lag:		1	2	3	4
t-stats	Year	-1.23	-1.27	-1.33	-1.36
	Ln(RPI)	2.99	3.06	3.21	3.27
	Constant	1.17	1.21	1.27	1.29
	F-statistic	291.97	262.78	251.29	248.47
	Adjusted R2	0.971	0.971	0.971	0.971
	Observations	27	27	27	27

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ANNEX A12.1

FRONTIER ECONOMICS TMR REPORT

TOTAL MARKET RETURN FOR RP6

A report prepared on behalf of NIEN

11 May 2017



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EXECUTIVE SUMMARY

Context

The Utility Regulator published its draft determination for RP6 on 24 March 2017. In the section on the allowed rate of return it stated that:

“Most UK regulators, with the exception of Ofwat, have factored the CC/CMA’s guidance on the upper limit into the recent price control decisions. Given the clear steer from the CMA/CC on this matter, we are proposing a value of 6.5% in this draft determination. However, this is also an area in which we consider that further analysis may be helpful, in light of the low return external environment in which regulated utilities are operating, and we intend to discuss this matter further with our counterparts in the UK Regulators Network prior to making our final determination.”¹

In this context, NIEN has commissioned Frontier to:

- carry out a review of recent regulatory precedent on the TMR;
- update the evidence that has been identified as most relevant according to that precedent; and
- based on the latest evidence comment on whether the evidence supports a lower TMR.

Precedent

We have reviewed recent regulatory precedent on the estimation of TMR, presenting the evidence relied on in each case and the conclusions reached by each regulator. We found that:

- The CMA determination for NIE for RP5 was the last time that the appeal body provided guidance to infrastructure regulators in respect of TMR.
- Even though the estimate of TMR was significantly reduced at RP5 compared to previous determinations, the CMA noted that its methodological approach involved a high level of reliance on historical evidence.
- This long-term historic approach was supported by Ofgem, its academic advisors and the majority of respondents to an Ofgem consultation on the cost of equity during 2014 in support of RIIO-ED1.
- The CMA relied on its 2014 estimate for NIE when it conducted its review of Bristol Water in 2015. Similarly, all other infrastructure regulators in the UK have subsequently adhered to the CMA’s method and estimation.

¹ Utility Regulator (March 2017), NIEN Networks RP6 Draft Determination, paragraph 12.21

Updated empirical evidence

We have also updated the evidence that has been relied on hitherto by the CMA (and hence infrastructure regulators more widely) in its recent determinations. We found no material change on the estimate of TMR since 2013/14, when the CMA conducted its last full-scale review, with the exception of evidence from long run historic averages of outturn returns, where we observe small increases.

Conclusions

Given the consensus around the pre-eminence of long run data in estimating TMR, and the results of our data updates, we conclude that there is no support for a lowering of TMR relative to the CMA's findings for RP5.

1 INTRODUCTION

The Utility Regulator published its draft determination for RP6 on 24 March 2017. In its section on the allowed rate of return it stated that:

“Most UK regulators, with the exception of Ofwat, have factored the CC/CMA’s guidance on the upper limit into the recent price control decisions. Given the clear steer from the CMA/CC on this matter, we are proposing a value of 6.5% in this draft determination. However, this is also an area in which we consider that further analysis may be helpful, in light of the low return external environment in which regulated utilities are operating, and we intend to discuss this matter further with our counterparts in the UK Regulators Network prior to making our final determination.”²

In this context, NIEN has commissioned Frontier to:

- carry out a review of recent regulatory precedent on the TMR;
- update the evidence that has been identified as most relevant according to that precedent; and
- based on the latest evidence comment on whether the evidence supports a lower TMR.

The remainder of the report is structured as follows:

- In section 2, we review recent regulatory precedent on the estimation of TMR, presenting the evidence relied on in each case and the conclusions reached by each regulator.
- In section 3, we update the evidence that has been relied on by the CMA (and hence infrastructure regulators more widely) in its recent determinations.
- In section 4, we present our summary conclusions.

² Utility Regulator (March 2017), NIEN Networks RP6 Draft Determination, paragraph 12.21

2 REGULATORY PRECEDENT ON TMR

In this section we present an overview of recent regulatory precedent in respect of TMR.

We focus on the analysis undertaken by the CMA for its RP5 Determination for NIEN, setting out the evidence that led the CMA to reach its final decision (i.e. that TMR should be set at 6.5%). This is the key precedent for consideration, as it was at this review that the CMA established the approach that has subsequently been adopted by infrastructure regulators in the UK more generally.

For completeness we note that the CMA has subsequently undertaken a further review, of Bristol Water in 2015, for which an estimate of TMR was required. However, we note that no new work was undertaken at that review, as the NIEN estimate was judged to be sufficiently recent to be used again.

2.1 The CMA's RP5 determination for NIEN, 2013-14

In April 2013, the Utility Regulator referred the RP5 price control determination for NIEN to the CMA. The CMA published its provisional determination in November 2013³, and its final determination in March 2014⁴. In both documents it presented substantial evidence and discussion to support its determination in respect of TMR.

The CMA's evidence base was comprised of data on historical estimates of outturn returns, together with methods that produce forward looking estimates. We discuss each in turn.

2.1.1 Historical approaches

DMS and Barclays historical returns data

The CMA presented data on outturn returns from two sources, as it did as part of its 2010 review of Bristol Water. These average returns were updated to cover three extra years of historical data (the period 1900 – 2012). The CMA stated that the results suggested the same TMR as in 2010: 6% - 7% (final determination, paragraph 13.141).

³ Competition Commission (November 2013) Northern Ireland Electricity Limited Provisional Determination, https://assets.publishing.service.gov.uk/media/5329de0440f0b60a7600023a/131112_main_report.pdf

⁴ Competition Commission (March 2014) Northern Ireland Electricity Limited Final Determination, https://assets.publishing.service.gov.uk/media/535a5768ed915d0fdb000003/NIE_Final_determination.pdf

Figure 1 Average real historical returns on equity, 1900 – 2012

	Return on equity				ERP‡				per cent
	Simple*	Overlapping†	Blume§	JKM§	Simple*	Overlapping†	Blume§	JKM§	
UK market, DMS data									
1-year holding period	7.1	7.1	7.1	7.0	6.0	6.0	6.0	5.9	
2-year holding period	7.5	7.0	7.1	7.0	6.2	5.8	6.0	5.9	
5-year holding period	6.7	6.8	7.0	6.8	5.2	5.3	5.9	5.7	
10-year holding period¶	6.4	6.8	6.9	6.6	5.1	5.3	5.8	5.5	
20-year holding period	6.7	6.9	6.8	6.1	5.7	5.6	5.7	5.1	
UK market, Barclays data									
1-year holding period	6.9	6.9	6.9	6.8	5.8	5.8	5.8	5.8	
2-year holding period	7.2	6.7	6.8	6.8	6.0	5.5	5.8	5.7	
5-year holding period	6.2	6.4	6.8	6.6	4.8	5.0	5.7	5.6	
10-year holding period¶	6.0	6.4	6.7	6.3	4.7	4.9	5.7	5.3	
20-year holding period	5.9	6.4	6.5	5.8	5.1	5.1	5.5	4.9	

Source: CC calculations based on *Credit Suisse Global Investment Sourcebook 2010*, written by Dimson, Marsh and Staunton (DMS) and Barclays Equity Gilt Study.

*The mean is calculated from the formula $(\sum (R_{t+h}/R_t)/(110-h))^{1/h}$ where h is holding period, R_t is value of returns index at the end of year t and the expression is summed for $(110/h)$ values of t for which non-overlapping data is available. Years are dropped at the beginning of the data period if the holding period is not a multiple of the total data period.

†The mean is calculated from the formula $(\sum (R_{t+h}/R_t)/(110-h))^{1/h}$ where h is holding period, R_t is value of returns index at the end of year t and the expression is summed for $(110-h+1)$ values of t for which overlapping data is available.

‡ERP is calculated relative to UK Treasury bills.

§The Blume unbiased estimator is a weighted average of arithmetic and geometric mean and the JKM (Jacquier, Kane and Marcus) small sample efficient estimator is calculated from the estimated mean and variance of lognormal returns..

¶Average of 10- and 11-year holding periods.

Note: Returns for holding periods greater than one year are expressed as annual equivalent returns.

Source: Competition Commission (November 2013) *Northern Ireland Electricity Limited Provisional Determination*, p.13.39

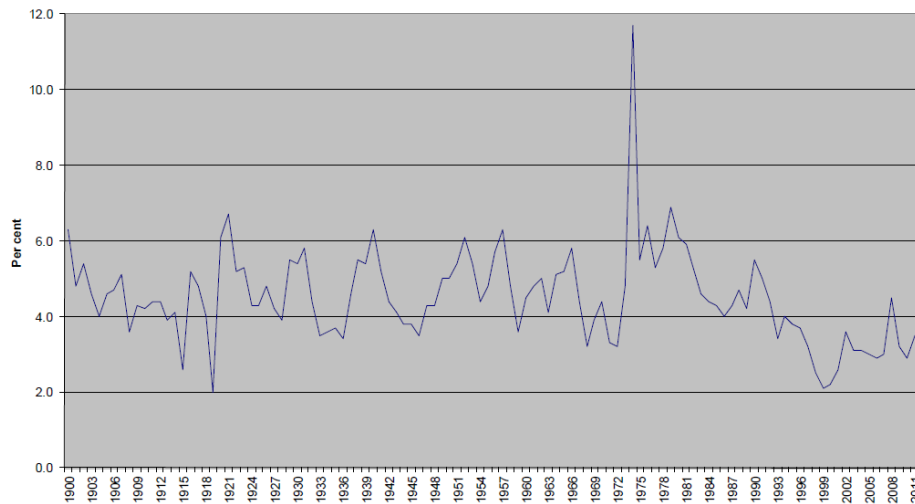
Fama and French approach

Fama and French proposed an alternative approach to estimating ERP in 2002.⁵ This approach also uses historical data on returns on equity, but estimates the underlying return by summing the average dividend yield over the period of analysis and the average rate of dividend growth.

The CMA applied this methodology to historical data for the UK, from the Barclays Equity Gilt Study. They calculated an average dividend yield of 4.5%, and dividend growth of 1% a year, to estimate an underlying equity return of 5.5% (and ERP over Treasury Bills of 4.4%, based on Barclays data).

The CMA noted that Fama and French's analysis of data from the US suggested a fall in expected returns over time, while recognising that "the issue remains controversial". The CMA used Figure 2 below (updated from their Bristol Water 2010 report with additional Barclays data) to illustrate that current dividend yields are below their historical average, suggesting expected returns about 1% lower than in the past, at around 4.5%.

⁵ Fama and French (2002) *The Equity Premium*

Figure 2 Dividend yield for the UK

Source: Barclays Equity Gilt Study 2013.

Source: Competition Commission (November 2013) *Northern Ireland Electricity Limited Provisional Determination*, p.13.41

2.1.2 Forward-looking approaches

DMS ERP decomposition and projection

DMS⁶ also take a forward-looking approach, where they decompose ERP into the following four elements:

- dividend income (mean dividend yield, net of the risk-free rate);
- real dividend growth;
- expansion of the price/dividend ratio; and
- the change in the exchange rate.

Based on various assumptions about how each of these elements should be projected forward (adjusting for “non-repeatable factors”), DMS consider that investors expect a long-run ERP of 4.5% - 5%, implying a TMR of 5.5% - 6%.

Bank of England forward-looking DGM estimate

In its provisional determination, the CMA relied on the same 2010 Bank of England Quarterly Bulletin article that they cited in the Bristol Water 2010 determination, which showed ERP at around 4.5%. The CMA inferred an implied TMR of around 6.5%, but with a decline since the financial crisis.

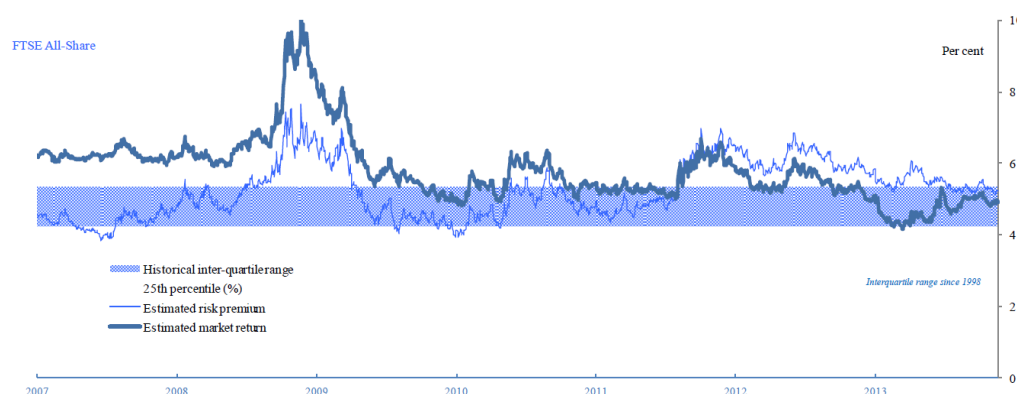
In its final determination, however, the CMA updated this analysis with updated forward-looking estimates of ERP, published by the Bank of England in November 2013⁷. The CMA calculated the expected market return by adding on the yield on zero-coupon ten-year gilts, as shown in Figure 3. It concluded from

⁶ Credit Suisse Global Investment Sourcebook (2010), by Dimson, Marsh and Staunton (DMS)

⁷ Bank of England (November 2013) Financial Stability Report, p.9

this that since the financial crisis the TMR has fluctuated around 6%, and declined further since 2009 to around 5%.

Figure 3 Estimated ERP and implied real market return



Source: Competition Commission (November 2013) Northern Ireland Electricity Limited Final Determination, p.13.31

Note: Based on Bank of England (November 2013) Financial Stability Report, p.9, and CMA calculations of TMR

2.1.3 Summary of CMA evidence

Figure 4 summarises the ranges implied by the evidence reviewed by the CMA. That evidence and its interpretations by the CMA are discussed in more detail below.

Figure 4 Summary of evidence reviewed by the CMA in its final determination on NIEN (2014)

Approach	CMA's TMR interpretation
Historical average returns	6% - 7%
Fama and French underlying return	4.5% - 5.5%
DMS ERP decomposition and projection	5.5% - 6%
Bank of England forward-looking DGM estimate	5% - 6%

Source: CMA (March 2014) NIEN Final Determination, Section 13

2.1.4 Balance between historic and forward looking evidence

Having reviewed a range of different sources of evidence, the CMA then needed to determine what weight to place on each in arriving at its final view. It is difficult to be precise over how the CMA synthesised this evidence as it did not provide total clarity in this regard. We can however review the CMA's commentary and draw inferences from it, albeit that the CMA's position on how to weight historic versus forward looking evidence appeared to change between its provisional and final determinations.

In November 2013, the CMA, in its provisional determination signalled its intention to lower its previously held view on TMR. In reaching this conclusion it noted:

"The interpretation of the evidence on market returns remains subject to considerable uncertainty. The CC has said in recent

*regulatory inquiries that 7 per cent is an upper limit for the expected market return, based on the approximate historical average realized return for short holding periods. We think that it may be appropriate to move away from this upper limit based on historical realized returns and **place greater reliance on forward-looking estimates** which tend to support an upper limit of 6.5 per cent.”⁸ [Emphasis added.]*

The suggestion that the CMA was moving away from its traditional adherence to long run methods, to an alternative where short run, forward looking evidence would play a greater role prompted considerable debate. Most notably, this prompted Ofgem to issue an unanticipated consultation on its approach to the cost of equity, and this consultation acted as something of a lightning rod for expert comment. The consensus view rapidly emerged that such a step would be wrong on its merits (see Section 2.2) for a range of reasons, and that the long standing consensus around the reliance on long run evidence remained sound and well justified.

The CMA reflected this in its final determination, although it did not explicitly recognise the debate that its provisional determination had triggered. In its final determination its range for TMR did not change from the provisional determination, but the CMA changed the way in which it described why it considered this range appropriate. Rather than highlighting reliance on forward-looking data, it described use of “*ex ante estimates derived from historical data*”, with forward-looking estimates used as a cross-check of the resulting range.

“We use historical approaches (both ex ante and ex post) as our primary sources for estimating the equity market return, with forward-looking approaches being used only as a cross-check on our resulting ERP estimates.”⁹

While the end result was the same, in respect of the range that resulted, we regard this change in commentary as critical, as it signals that the CMA, ultimately, depended little on forward looking estimates, and reaffirmed the continued reliance on historic evidence.

2.2 Ofgem’s RIIO-ED1 determination, 2014

Ofgem was in the process of consulting on RIIO-ED1 when the CMA’s provisional determination for RP5 was published¹⁰ and up until that point had signalled in every published document that it intended to stick with its long standing approach to setting the cost of equity, focused on use of long run averages.

Ofgem was sufficiently concerned over the apparent shift in the CMA’s reasoning in respect of TMR, i.e. to place more weight on short run evidence, that it issued a surprise consultation on the matter, seeking the views of stakeholders on this approach.

⁸ Competition Commission (November 2013) Northern Ireland Electricity Limited Final Determination, p.13.144

⁹ Competition Commission (November 2013) Northern Ireland Electricity Limited Final Determination, p.13.26

¹⁰ Note that RIIO-T1 and RIIO-GD1 were completed 2 years earlier.

In support of its consultation, Ofgem asked Smithers & Co to review the methodology for estimating the TMR.¹¹ The authors noted that the CMA's view that more weight should be given to contemporary market evidence was in opposition to the methodology set out in Smithers & Co's 2003 report and applied consistently by infrastructure regulators since then.

The authors of the Smithers 2014 paper strongly opposed the apparent shift to shorter-run data that the CMA proposed. The authors argued (just as they did in their initial foundational work from 2003) that realised returns are made up of expected returns and a "surprise" factor. Over a long enough sample, these "surprises" should cancel out, to give the average expected return, though there can be complications, such as the possibility that the "surprises" do not cancel out, potential valuation changes and the risk that the average return itself is not stable. Despite these complications, the authors concluded that:

"it is impossible to make any clear-cut inference about the cost of equity based on just a few years' returns".¹²

Hence a long-run approach remained the best available option. However, the report did recognise that updating the original Smithers & Co analysis, focused on long run evidence, did point to a downward adjustment in the 2003 estimates for TMR, of 0.5 to 0.75 percentage points, owing to the effect on long run averages of incorporating recent data on returns, and the need to account for certain changes to the ONS's approach to measuring inflation. The authors did not consider any further downward adjustment would be appropriate.

"We conclude that there is no plausible case for any further downward adjustment in the assumed market cost of equity based on recent movements in risk-free rates (or indeed any other "recent market evidence").¹³

This would bring the TMR estimate to 6.75%, or 6.5% at the lowest, in line with the CMA's final estimate, but for a markedly different reason.

In February 2014 Ofgem published a decision letter setting out its conclusions on the consultation.¹⁴ In light of the Smithers & Co. report, Ofgem stated:

"[Smithers & Co.'s] view is that the long-run history of achieved returns remains the best approach to assessing the equity market return. Their report updates the long-term analysis of equity market returns in the Smithers & Co report to include additional years of data. Based on this updated analysis, they suggest that a downward adjustment of 40 basis points in the long-term equity market return is the most that can be warranted in light of more recent data."¹⁵

Ofgem also considered a few other factors that could point to a lower cost of equity for DNOs (most notably issues around inflation), and ultimately concluded that the overall estimate of the cost of equity would reduce to 6% for ED1, 0.3%

¹¹ Wright and Smithers (2014) The cost of equity capital for regulated companies: a review for Ofgem

¹² Ibid p.12

¹³ Ibid para 8 p. 2

¹⁴ Ofgem (February 2014) Decision letter on equity market return methodology, <https://www.ofgem.gov.uk/ofgem-publications/86366/decisiononequitymarketreturnmethodology.pdf>

¹⁵ Ibid, p.3

lower than the central reference cost of equity Ofgem used in assessing business plans prior to the CMA's provisional determination on NIE. However, Ofgem pointed out that, although its final decision on the cost equity was influenced by the CMA's NIE provisional determination, Ofgem might have held a different view on the interpretation of the current market conditions:

“Our analysis and advice highlight alternative interpretations of current market conditions [compared to those of the CMA], although they point our assessment of the cost of equity in the same downwards direction.”¹⁶

In our view, the revised commentary that supported the CMA's final determination for the FD (which was of course unseen by Ofgem at the time they published their conclusion) brought the CMA's approach squarely in line with that adopted by Ofgem. Our interpretation of both the CMA and Ofgem precedent is that they each and both support the view that long run historic evidence should be the primary evidence relied upon when determining estimate of total market returns for regulatory purposes.

¹⁶ Ibid, p.3

3 UPDATING THE EMPIRICAL EVIDENCE

Having established above the evidence that supported the estimate of 6.5% in the CMA's determination on NIEN in 2013/14, in this section we assess whether, using that established approach, there is any evidence to suggest that TMR should be lowered from the prevailing consensus estimate of 6.5%. Below we update the relevant evidence, where possible, to take account of developments since 2013/14. We begin with a summary of our findings.

3.1 Summary

Based on up-to-date data, which is summarised in Figure 5 below, there appears to be no evidence to support any revision to the existing TMR estimate based on the approach hitherto adopted by the CMA. The ranges now supported by the various strands of evidence relied on by the CMA are almost entirely unchanged since the last time the CMA reviewed the evidence.

Figure 5 Summary of TMR implied by the evidence reviewed by the CMA for NIEN in 2013, and updated evidences

Approach	CMA (2013/14)	Frontier Update (2017)
Historical average returns	6% - 7%	6% - 7%
Fama and French underlying return	4.5% - 5.5%	4.6% - 5.6%
DMS ERP decomposition and projection	5.5% - 6%	5.5% - 6%
Bank of England forward-looking DGM estimate	5% - 6%	No update available

Source: Frontier Economics update to analysis in Competition Commission (November 2013) Northern Ireland Electricity Limited Provisional Determination, p.13.41

3.2 Updating the evidence reviewed by the CMA in 2013/14

3.2.1 Historical approaches

DMS and Barclays historical returns data

As discussed above, the CMA reviewed data on historical annual equity returns, which is available, with regular updates, from DMS¹⁷ and the Barclays Equity Gilt Study. In both 2010 and 2013, the CMA calculated the average historical returns on equity over the full series of data, both from DMS and Barclays, available at the time, using a number of different averaging techniques. It also calculated these averages assuming a number of different holding periods for equity: 1, 2, 5, average of 10 and 11 years, and 20 years.

These estimates can be updated with data from DMS (2017), which now provides annual returns on equity for the UK from 1900-2016. Figure 6 reports the average

¹⁷ Credit Suisse Global Investment Sourcebook, by Dimson, Marsh and Staunton (DMS)

historical returns calculated by the CMA for its determination on Bristol Water in 2010 and its determination on NIEN in 2013/14, as well as updated averages using the latest DMS figures up to 2016.

The CMA also examined evidence from the Barclays Equity Gilt study in its recent determinations. We have been unable to update this analysis as the relevant data table is not provided in recent Barclays publications. Given the authoritative nature of the DMS data, we do not regard this as a concern.

Figure 6 Real historical equity returns, UK market

	Simple average (%)	Overlapping average (%)	Blume unbiased (%)	JKM (%)
Bristol Water (2010)				
1 year holding period	7.2	7.2	7.2	7.2
2 year holding period	6.6	7.0	7.2	7.2
5 year holding period	7.0	7.0	7.1	7.0 [7.2**]
10/11 year holding period	6.8	7.0	7.0	6.7 [7.1**]
22 year holding period	5.9	6.8	6.8	6.1 [6.9**]
NIEN (2013/14)				
1 year holding period	7.1	7.1	7.1	7.0 [7.1**]
2 year holding period	7.5 [7.3*]	7.0	7.1	7.0 [7.1**]
5 year holding period	6.7 [6.4*]	6.8	7.0	6.8 [7.1**]
10/11 year holding period	6.4 [6.2*]	6.8	6.9	6.6 [7.0**]
20 year holding period	6.7 [6.0*]	6.9	6.8	6.1 [6.8**]
Updated data (2017)				
1 year holding period	7.3	7.3	7.3	7.4
2 year holding period	7.5	7.2	7.3	7.3
5 year holding period	7.1	7.0	7.2	7.3
10/11 year holding period	6.3	6.6	7.1	7.2
20 year holding period	7.1	7.0	7.0	7.0

Source: Competition Commission (August 2010) Appendix N22 to Bristol Water Final Determination, Competition Commission (March 2014) Northern Ireland Electricity Limited Final Determination, Credit Suisse Global Investment Sourcebook (2017), by Dimson, Marsh and Staunton (DMS)

Note: *We were unable to replicate the simple averages that the CMA calculated in the NIEN determination in 2013. We have reported the simple averages that we have calculated in square brackets.
 **We were unable to replicate the JKM estimates based on the methodology in Jacquier et al. (2003), https://www2.bc.edu/alan-marcus/papers/FAJ_2003.pdf. The estimates we have calculated are shown in square brackets.

Following the descriptions set out in the CMA's analysis, we have been able to replicate almost all of the figures published in the CMA's original reports both for the Bristol Water 2010 and NIE 2014 determinations, as shown in Figure 6. The only exceptions are the simple averages in the NIE determination and the JKM estimates. Since the CMA did not publish its underlying calculations, we are unable to investigate further this discrepancy (even though we have access to the same data and methodology used by the CMA). We are confident that our present results are correct.

Our assessment of the evidence above is that there has been, in most respects, little material change in the DMS evidence based on historic returns. However, where changes are apparent these are in an upward direction. Of the 20

numbers typically calculated by the CMA using DMS data, only two of them are now below 7%, and only one is below the CMA's prevailing TMR assumption of 6.5%. In our view the latest evidence provides no evidence at all to justify a downward movement in TMR. On the contrary, were the CMA to review this evidence now it may call into question whether the evidence any longer supports an estimate as low as 6.5%.

Fama and French approach

The CMA estimated underlying returns, applying the approach set out by Fama and French to historical data for the UK from the Barclays Equity Gilt Study. The sum of the average dividend yield and the average rate of dividend growth gave an underlying equity return of 5.5% in both 2010 and 2013/14.

The underlying returns calculated by the CMA are set out in Figure 7, along with an updated calculation using the full dataset available from the 2016 Barclays Equity Gilt study.

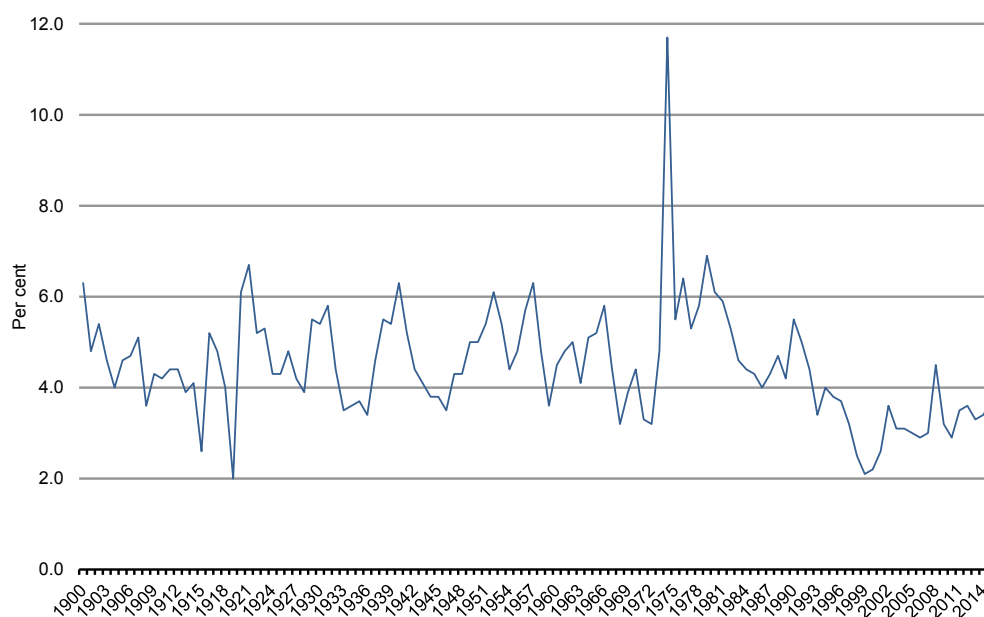
Figure 7 Underlying equity return, Fama & French approach

	Bristol Water (2010)	NIEN (2013/14)	Updated data (2017)
Average dividend yield	4.5%	4.5%	4.5%
Average rate of dividend growth	1.0%	1.0%	1.1%
Total: underlying return	5.5%	5.5%	5.6%

Source: Competition Commission (August 2010) Appendix N22 to Bristol Water Final Determination, Competition Commission (March 2014) Northern Ireland Electricity Limited Final Determination (footnote 38 to section 13-27), Barclays Equity Gilt Study

It can be seen from the table that the updated underlying returns calculated using the Fama and French approach provide no evidence for a reduction in TMR. In fact, the estimated underlying return has increased by 10 basis points since the last time the CMA examined this data. The Fama & French measure does however remain materially lower than the long run evidence on outturn returns.

In addition to the evidence presented in Figure 7, the CMA also highlighted that there may be evidence that dividend yields were about 1% lower than their long run historical average, which could justify lower expected returns, at around 4.5%. Figure 8 is an update of the chart relied upon by the CMA, with the additional three years of data now available from the Barclays Equity Gilt Study.

Figure 8 Dividend yield for the UK

Source: Frontier Economics, Barclays Equity Gilt Study (2016)

As can be seen, the dividend yield has remained at broadly the level last observed by the CMA over these additional years, and there are initial signs of an upward trend. The average dividend yield since the 2008 financial crisis remains at the level that it was at during the CMA's determination on NIEN.

DMS ERP decomposition and projection

The CMA cited forward-looking estimates of investors' expectations of returns based on the ERP decomposition approach used by DMS. In both 2010 and 2013, DMS settled on a forward-looking ERP of 4.5% - 5%, implying a TMR of 5.5% - 6%.

DMS updated their decomposition analysis in their 2017 publication.¹⁸ DMS make a range of projections (e.g. on real dividend growth):

"After adjusting for non-repeatable factors, we therefore infer that investors expect an annualized long-run equity premium (relative to bills) of around 3% - 3.5%. The corresponding arithmetic mean risk premium would be around 4.5% - 5%".

Ultimately then DMS come to the same conclusion on the forward-looking ERP as they did when the CMA considered this strand of evidence in 2010 and 2013/14.

Bank of England forward-looking DGM estimate

In 2010 the CMA relied on a 2010 Bank of England Quarterly Bulletin article, which showed ERP at around 4.5%. The CMA inferred that this strand of evidence supported an implied TMR of around 6.5% (although its final decision

¹⁸ Credit Suisse Global Investment Sourcebook (2017), by Dimson, Marsh and Staunton (DMS)

on the TMR was 7%). In its final determination on NIEN in 2014, the CMA updated this evidence to use estimates published by the Bank of England in November 2013,¹⁹ and concluded that this evidence supported an implied TMR range of 5% - 6% (with its final decision on the TMR being 6.5%). However, the CMA moved to using this evidence only as a cross-check on its estimated TMR range.

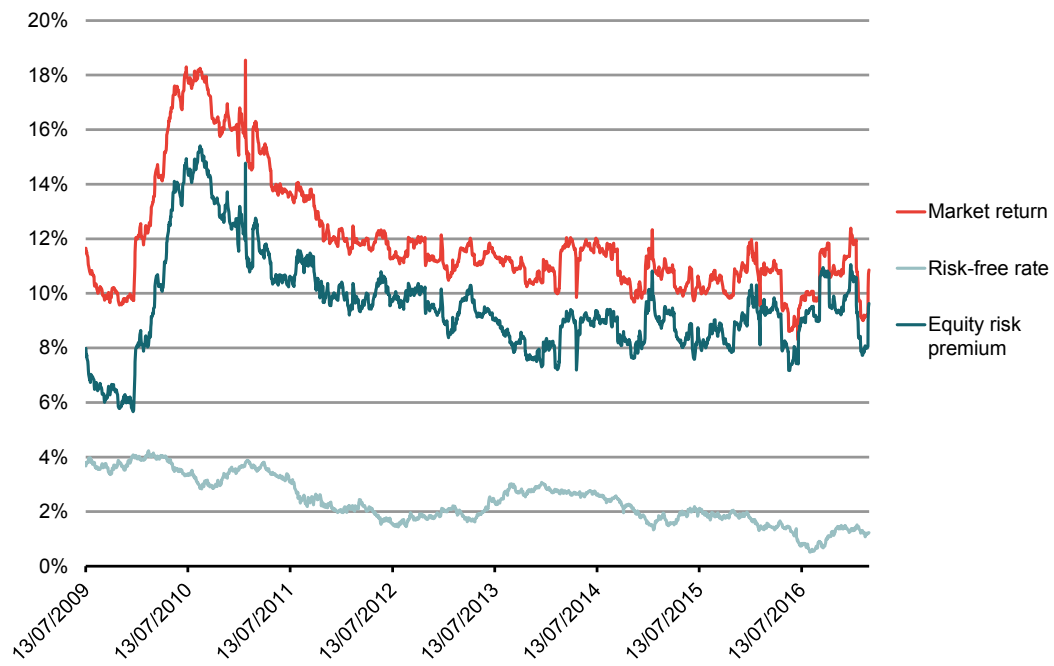
More up-to-date estimates do not appear to be available from the Bank of England (as the original paper was not a regular publication, but a one off), so it is not possible to update these figures. We can however, present up to date estimates from another source, i.e. Bloomberg, which provides its own estimates of ERP/TMR using DGM based techniques.

The absolute figures derived by Bloomberg are not directly comparable to those calculated by the Bank of England, as the Bloomberg figures are nominal whereas those calculated by the Bank of England are real, and the two are calculated using different risk-free rates (for the discounting of future dividends in the DGM). While the Bloomberg estimates use the yield on 10 year generic UK government bonds, the Bank of England uses “rates inferred from zero-coupon government bond yield curves at maturities up to ten years.”²⁰

However, the trends in the Bloomberg data are informative. As shown in Exhibit 1, there was a downward trend in these forward-looking estimates of market return between 2010 and 2014. However, the return has remained broadly stable since then. Consequently, we do not consider that this provides any evidence to support a lower TMR, in the sense that the levels of ERP it supports are similar to those it would have supported in 2014.

¹⁹ Bank of England (November 2013) Financial Stability Report, chart 1.6, <http://www.bankofengland.co.uk/publications/Documents/fsr/2013/fsrfull1311.pdf>

²⁰ Inkinen, Stringa, Voutsinou (2010 Q1), 'Interpreting equity price movements since the start of the financial crisis', Bank of England Quarterly Bulletin, p.1

Exhibit 1. Bloomberg DGM-based series of market return and ERP

Source: Bloomberg

Note: The risk-free rate used by Bloomberg in these calculations is based on UK government bonds: 10 year generic note

4 CONCLUSIONS

The conclusions of the analysis set out in this paper are as follows.

- The CMA determination for NIE for RP5 was the last time that the appeal body provided guidance to infrastructure regulators in respect of TMR.
- Even though the estimate of the TMR was significantly reduced at RP5 compared to previous determinations, the CMA noted that its methodological approach involved a high level of reliance on historical evidence.
- This long-term historic approach was supported by Ofgem, its academic advisors and the majority of respondents to an Ofgem consultation during 2014, in support of RIIO-ED1.
- The CMA relied on its 2014 estimate for NIE when it conducted its review of Bristol Water in 2015. Similarly, all other infrastructure regulators in the UK have subsequently adhered to the CMA's method and estimation.
- Our update of all of the empirical evidence that has hitherto informed the CMA's estimation of TMR reveals no material change since 2013/14, when the CMA conducted its last full-scale review, with the exception of evidence from long run historic averages of outturn returns, where we observe small increases.
- **Given the consensus around the pre-eminence of long run data in estimating TMR, and the results of our data updates, we conclude that there is no support for a lowering of TMR relative to the CMA's findings for RP5.**



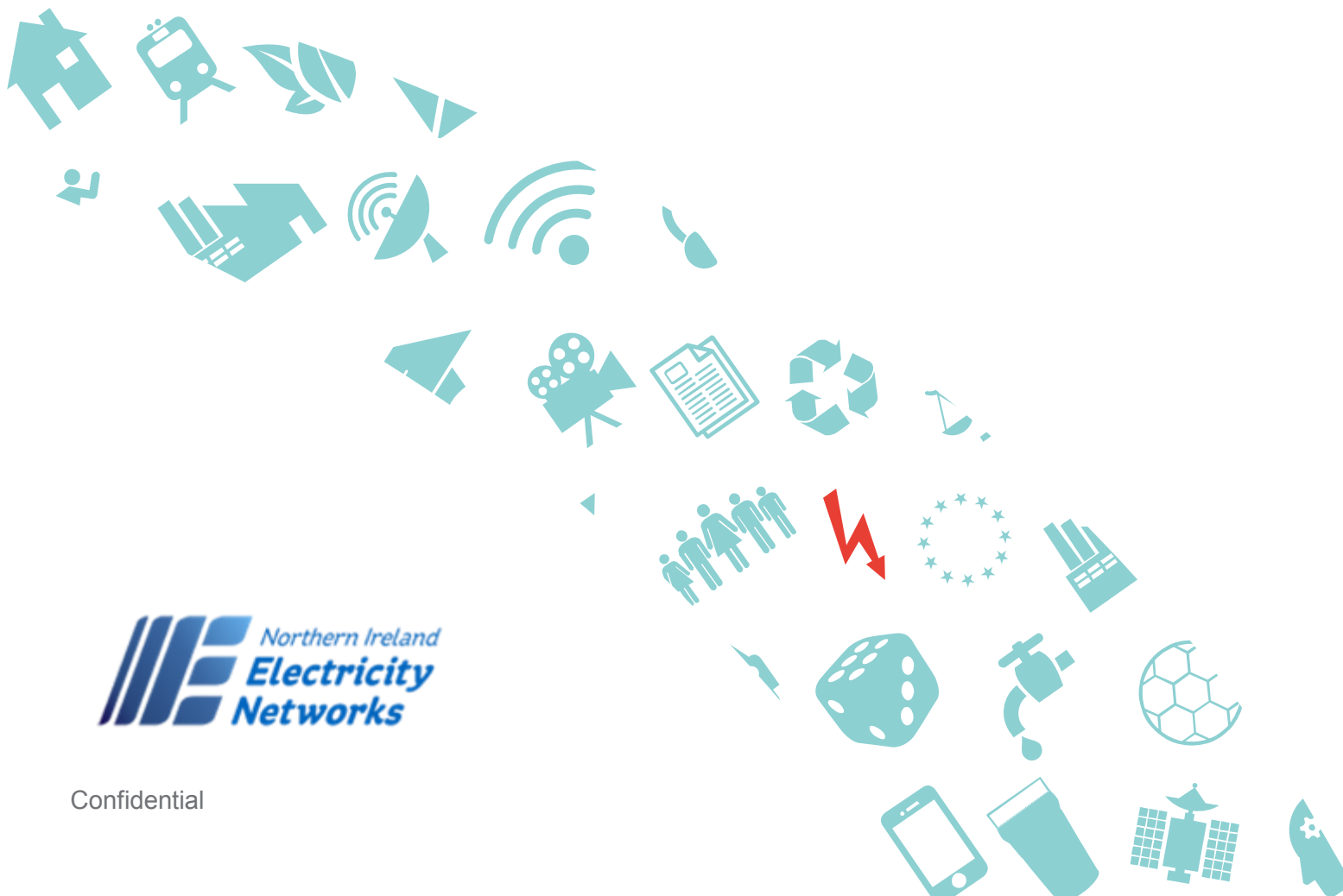
ANNEX A12.2

FRONTIER ECONOMICS RESPONSE TO RP6 DD REPORT

RESPONSE TO THE PROPOSED ALLOWED RATE OF RETURN FOR RP6

A report prepared for NIE Networks

12 May 2017



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1 INTRODUCTION

Frontier Economics has been asked to provide its expert opinion on the UR's Draft Determination (DD) for RP6 for Northern Ireland Electricity Networks (NIEN), in respect of the allowed Weighted Average Cost of Capital.

1.1 Background

In April 2016, as a part of NIEN's business plan submission, Frontier Economics carried out an independent study to estimate the WACC of NIEN for the regulatory period of RP6 (October 2017 to March 2024). In that study, using the then latest market evidence while maintaining consistency with regulatory best practice and recent regulatory precedent, we estimated a range for the WACC of 3.8% - 4.6%, in real vanilla terms. Further, we estimated a point estimate of 4.1%, in line with the Final Determination by the CMA for RP5.

In March 2017, the UR published its DD for RP6, in which a point estimate of the allowed return is proposed at 3.29%, approximately 0.5% lower than the lower bound estimated in our 2016 study.

1.2 This report

In this report we review in detail the methodology and argumentation employed by the UR in the DD. We identify a number of important deficiencies in the UR's approach, including among other things:

- factual errors;
- lack of robust analysis;
- lack of internal consistency;
- lack of consistency with relevant regulatory precedent, most notably that of the CMA RP5 determination; and
- selective use of evidence and the cherry-picking of NIEN's proposal.

The resulting estimate of WACC for RP6, at 3.29% is, in our view, a significant under-estimate of the underlying cost of capital. As a result, based on our review of the UR's modelling, NIEN fails the UR's financeability test for RP6.

However the UR's assessment of its financeability modelling in the DD in effect simply circumvents, rather than addresses, this finding and, as such, is wholly inadequate and pointless. Consequently, we consider that should the UR persist with this estimate in its Final Determination, it may fail to meet its obligations to ensure financeability under the relevant legislation.

The remainder of this report is structured as follows:

- section 2 summarises all the issues identified in the DD;
- section 3 discusses the financeability assessment;
- section 4 discusses the DD's error in determining the gearing level;
- section 5 addresses the cost of equity; and

- section 6 discusses the cost of debt.

2 SUMMARY OF ISSUES IDENTIFIED IN THE DD

We have reviewed the DD and identified a series of issues associated with its approach to the estimation of the parameters of the WACC and the way the financeability test is carried out. This section summarises these issues and discusses why they need to be addressed in the FD.

In summary, the issues identified can be categorised as follows:

- factual errors;
- lack of robust analysis;
- lack of internal consistency;
- lack of consistency with relevant regulatory precedent, most notably that of the CMA RP5 determination; and
- selective use of evidence and the cherry-picking of NIEN's proposal.

2.1 Factual errors

Asset beta and debt beta

The DD makes reference to asset beta decisions made in previous regulatory determinations. This includes the CMA's RP5 determinations, both the Provisional Determination in 2013 and the Final Determination in 2014. However, the DD has made factual errors in its reference to the level of asset beta in those determinations.

The asset beta is a theoretical construct. It is derived using a company's estimated equity beta from stock price data, and represents the systematic risk that exists in the company when it is entirely unlevered, i.e. when gearing is assumed to be zero. A variety of formulae have been developed in the academic literature, each making a slightly different set of underlying assumptions. When one observes an estimate of asset beta derived by another researcher it is essential to also take account of the approach used to derive that asset beta so that it can be properly interpreted. This is particularly critical when comparisons of several betas derived by others are presented to ensure compared estimates are appropriately like-for-like.

In recent UK regulatory precedent, it has become usual to rely on an approach to estimating asset beta that also takes account of systematic risk in debt issued by the company, by making an assumption on the appropriate level of the so called debt beta. Past regulatory decisions have taken a range from 0 – 0.1 for asset beta. The exact level of debt beta is the subject of a different discussion, but it is important to note that where comparing asset betas across different regulatory decisions the underlying assumption in debt beta must be taken into account. Otherwise an invalid comparison will be presented.

In our view, the DD contains precisely such an error, by failing to properly reflect the fact that the asset beta estimate of 0.40 in the CMA FD for RP5 was derived using an asset beta of 0.05, not 0.1. Consequently the UR has misrepresented recent and important regulatory precedent and its resulting view on the appropriate bounds for asset beta for RP6 are informed by flawed analysis.

This error of fact must be corrected in the UR's FD for RP6. This is discussed in more detail in section 5.2.2.

Credit metrics for the target rating

The DD suggests that its financeability test is targeting a BBB+/Baa1 credit rating. However, it has used credit metrics consistent with a lower rating, such as BBB/Baa2 or BBB-/Baa3, according to Moody's rating methodology on regulated electricity and gas networks¹. We discuss this in further detail in section 3.2.2.

2.2 Lack of robust analysis

No robust analysis on asset beta

The DD has not carried out robust asset beta estimation for the cost of equity, but relied primarily on a range of previous decisions made by other regulators. In our view the UR's approach is inconsistent with best regulatory practice owing to its failure to present up-to-date analysis.

The DD refers to beta estimates made in a study prepared by the UR's economic advisor (First Economics²) as a cross check to the range used in the DD. It is however entirely unclear whether the First Economics analysis has played any role in shaping the UR's decision. Even if it has played some role, the First Economics analysis has material weaknesses that makes it an invalid cross check.

More specifically, the sample used in the First Economics study fails to include SSE as a relevant comparator. The appropriateness of including SSE was debated extensively at RP5 and the UR argued vigorously for its exclusion. The CMA however chose to include SSE in its sample. Therefore, we conclude that the beta estimation by First Economics has not used the appropriate sample and therefore cannot be considered as robust.

No analysis of gearing level

The DD assumed a gearing level of 45% without proper justification. It has not considered the notional gearing used in the rest of the industry, nor NIEN's projected gearing level for RP6.

The choice of 45% in the DD is simply carried over from the CMA RP5 decision. However, we note that at RP5, the CMA came to the decision of 45% by taking into account NIEN's projected gearing for RP5, not on the basis of some

¹ Moody's investors service, Rating methodology – Regulated electricity and gas networks, November 25, 2014.

² First Economics, An Estimate of NIE's RP6 Cost of Capital – Prepared for the Utility Regulator, 1 February 2017.

normative judgement that 45% gearing was appropriate for some intrinsic reason. We discuss the gearing level in more detail in section 4.2.

We therefore consider that the DD has not carried out robust analysis on the appropriate gearing level for RP6.

No analysis on transaction premium on the cost of debt

The DD assumed a transaction cost premium of 20 basis points, without any analysis to justify this choice.

In contrast, NIEN submitted to the UR analysis conducted by Frontier Economics that demonstrated that existing evidence supports a transaction cost premium of 30 basis points. This analysis relied on quantitative analysis of the NIEN 2026 bond.³ The DD did not acknowledge this evidence and, without presenting any alternative analysis, the UR has simply chosen 20 basis points.

2.3 Lack of internal consistency

Gearing with ratio of new and existing debt

The DD adopted the ratio of new and existing debt from NIEN's business plan, but has not also adopted the estimate of gearing presented in NIEN's plan. Consequently, the UR's assumptions around the appropriate weighting on new and existing debt and in respect of gearing are inconsistent.

The DD disregarded the proposed 50% gearing, instead assuming 45%. It is clearly mathematically inconsistent to assume a lower gearing without reflecting that lower gearing could only be achieved by issuing less new debt than assumed by NIEN's business plan (as the amount of existing debt would be fixed). In other words, it would be impossible for NIEN to maintain a 45% gearing with the assumed ratio of new and existing debt.

The UR must correct this error in the FD to reflect the fact that the gearing level assumed (whatever it may be) must be mathematically consistent with the amount of new debt assumed in the calculations elsewhere.

Debt beta with gearing

The DD does not explicitly mention the assumption of debt beta, although one can deduce, from the asset beta, the gearing level, and the equity beta adopted in the DD, that a debt beta of 0.1 is assumed in the DD. However, it is entirely unclear why the DD relies on an estimate of 0.1 for debt beta.

On the basis of analysis presented and relied on by the CMA, the DD assumption of 0.1 is inconsistent with the DD assumption for gearing of 45%. The CMA adjusted its estimate of debt beta down from 0.1 in the PD to 0.05 in the FD, explicitly as a result of adjusting the assumed gearing level down from 50% in the PD to 45% in the FD. By failing to take account of this, the UR has departed

³ Frontier Economics, Additional evidence on NIEN's WACC and financeability – A report prepared for NIE Networks' RP6 price control, January 2017

from recent and relevant CMA precedent, and has presented no evidence to support this decision.

On the basis of the CMA's analysis of NIEN, the appropriate debt beta assumption for RP6 should be 0.05 if the 45% gearing level is assumed.

Asset beta with debt beta

As explained earlier, the DD is not internally consistent with the quoted asset beta and debt beta from the CMA RP5 decision. Given the weight that the DD puts on this precedent, we consider it crucial to quote it in an internally consistent manner.

2.4 Lack of consistency with relevant regulatory precedent

Point estimate of beta in the range

The DD presents a range for the asset beta based on previous regulatory decisions, and then sets a point estimate for NIEN at the very bottom of the range. This is at odds with the most relevant regulatory precedent from the CMA at RP5 where the CMA has explicitly chosen the top end of its range for asset beta, stating that the Northern Ireland regulatory environment may be considered less well understood and therefore deemed to be riskier than in GB. We note that during the CMA's redetermination of RP5 the UR argued vigorously against the CMA's position. Nevertheless, the CMA made the decision that it did for RP5, and provided the justification that it considered reasonable to support it.

Picking the bottom of the range for the asset beta can be therefore considered inconsistent with regulatory precedent. The UR has therefore reverted to an argument it made recently to the CMA, an argument that was effectively considered and rejected.

Approach to gearing

Regulatory precedent would suggest that assumed gearing levels are set on the basis of either a normative judgement around notional gearing or the actual gearing level of the regulated company where this is considered appropriate. The choice depends on the regulator and the regulated company in question.

However, the DD has chosen a gearing assumption that is neither of the above two things. It is simply a carry-over assumption used in RP5 by the CMA. However, the CMA's method would no longer support gearing at 45%.

Approach to financeability

Regulatory precedent would support a robust assessment of financeability using financial metrics generated by accurate financial models. Where the metrics becomes challenging, past regulators have not simply assumed a lower gearing assumption than that used in the WACC estimation in order for the test to pass. The CMA has stated at RP5 that even though assuming a lower gearing might be

appropriate for a company with higher actual gearing, it would be unreasonable to apply to NIEN as the starting gearing assumption of 45% was already very low. We discuss this point in more detail in section 3.2.1

The UR's assessment of its financeability modelling in the DD in effect simply circumvents, rather than addresses, the fact that the financeability test has failed and, as such, is inadequate and serves no meaningful regulatory purpose. Consequently, we consider that should the UR persist with this estimate in its Final Determination, it may fail to meet its obligations to ensure financeability under the relevant legislation.

2.5 Use of selective evidence and cherry-picking on NIEN's proposal

Picking between precedent and updated evidence

The DD seems to have taken an approach to whether or not to update a parameter in the WACC estimation based on whether the number has increased or decreased. Where the latest evidence suggests a higher number, the DD has chosen to rely on previous decisions. Conversely, where the latest evidence suggests a lower number the DD has made use of the latest evidence.

In particular, the DD has updated the following parameters of the WACC compared to the CMA's RP5 FD:

- inflation forecast for the cost of debt; and
- bond yield for the cost of new debt;

Both of these two parameters have gone in the direction that would support a lower overall WACC estimate, and the DD has taken full account of the updated data.

In contrast, the DD has not carried out updated analysis on the asset beta, where all recent evidence supports a higher estimate compared to RP5. Furthermore, it has failed to consider the updated projection of gearing level for RP6, but instead relied on outdated evidence from RP5.

Cherry picking on NIEN's proposal

The DD has cherry picked certain elements of NIEN's proposal on WACC, with the result of a low WACC estimate than otherwise would have been the case. For example, as explained above, the DD has opted to use the ratio of new and existing debt from NIEN's submissions, but has not also adopted the consistent assumption on gearing.

Another example of cherry picking on NIEN's proposal pertains to the proposed adaptations to the GD17 cost of debt true up mechanism. NIEN in good faith suggested three adaptations to the GD17 mechanism for the purpose of improving its effectiveness to the benefit of customers. However, the DD cherry picks the only adaptation out of the three that would result in a lower cost of debt allowance. It rejects the other two on the grounds of "*benefits in sticking with the*

GD17 design”, even though it is in other aspects not proposing to stick with the GD17 design. We discuss this in more detail in 6.3.

2.6 Conclusions

In conclusion, we consider that the approach taken in the DD on the estimation of the WACC is wholly inadequate, and falls well short of best practice. The UR’s flawed approach has resulted in a significant under-estimation of NIEN’s WACC for the RP6 period.

Based on our review of the UR’s modelling, NIEN fails the UR’s financeability test for RP6. The financeability assessment in the DD simply circumvents, rather than addresses, this finding and, as such, is inadequate and pointless.

The FD must address all of the issues identified in this report. Where factual errors are made, these need to be corrected. Where disagreements lie, the FD must provide robust analysis to justify why and how judgements taken by the UR differ from the proposal made by NIEN in its business plan and subsequent submissions. In doing so, the FD must pay regard to all relevant evidence and arguments made by NIEN and Frontier Economics.

3 FINANCEABILITY

3.1 UR's approach

In carrying out financeability testing, as is required under Article 14 of the Energy (Northern Ireland) Order 2003, the DD reports that a financial model has been developed to identify the projected level of four financial ratios, based on a wide range of assumptions, including:

- Gearing of 45%;
- The DD's proposed allowed rate of return; and
- A target credit rating of BBB+.

The DD reports that the modelling results show that NIEN would fail the financeability test on the basis of these assumptions. The UR therefore assumed a lower gearing of 40% and subsequently found that the resulting credit metrics were at acceptable levels. It therefore concluded that the price control as presently determined had passed its financeability test.

3.2 Assessment

We consider that the DD's approach to financeability is fundamentally flawed, for the following three reasons:

- The financeability test cannot be described in any meaningful sense as having been passed. A problem has arisen at an assumed gearing level of 45%, so a lower level of gearing has simply been assumed;
- It has quoted the wrong criteria for passing the test for the target credit rating that has been selected; and
- The target credit rating assumed is inconsistent with the benchmark bond indices proposed for the estimation of the cost of debt.

We expand on these points in detail below.

3.2.1 Inappropriate to assume lower gearing when test fails

The fundamental principle of financeability tests is to assess whether under the price control as framed a company has the ability to service its debt with sufficient comfort to achieve the target credit rating. Financeability tests, properly applied, provide comfort to the regulated company and investors that the price control is sensibly calibrated.

Where a financeability test is failed – and in this case even the DD recognises that there is *“some uncertainty about the rating that NIE will be able to achieve, in practice, on the back of RP6 cashflows if it selects a gearing of 45%”*⁴ – a recalibration of at least some elements of the price control would be required. Claiming that the test has been passed by simply assuming the company has

⁴ DD, para 12.58.

less debt – which is the UR’s proposed remedy – clearly defeats the whole purpose of such a test. If it is possible to simply assume away debt, until financeability problems are alleviated, then no price control determination for any company would ever fail such a test, and financeability assessments would be pointless exercises.

We recognise that there may be circumstances where a financeability test could be combined with remedies to mitigate short-term cash flow challenges, which regulators including the CMA have used in the past, including:

- assuming dividend holidays or equity injections at certain times within the price control period; and
- bringing future revenue forward in a NPV neutral way.

The CMA has made clear in the RP5 FD that although assuming lower gearing than the actual gearing of the company could be in principle used to mitigate short-term financeability test failures, this would not be appropriate for NIEN at RP5 because the gearing assumption is already low. The CMA has stated in the RP5 FD:

*“17.100 The CC has encountered weak financial ratios in projections starting with companies’ actual gearing, in previous CC inquiries. Financial structure, including gearing, is a matter for companies to determine and in those cases we found that weak financial ratios did not persist when financial modelling was carried out at lower, but still **reasonable**, levels of gearing.*

*17.101 These considerations remain relevant in the present case. The present case differs from Bristol Water (2010) and BAA (2007) in that the starting level of gearing is **lower, at 46 per cent** [emphasis added].*

Therefore, the CMA adopted a dividend holiday approach, and found that NIEN would be financeable if it pays a modest level of dividends (roughly £50 million across the RP5 period) compared with the level of dividend payments initially modelled of 5.0% per year.

The DD does not adopt a measured approach to redressing the failure of a financeability test. In effect, the price control is demonstrably inconsistent with the UR’s financeability duty and no remedy has been offered. Consequently, we consider that the UR may fail to meet its obligations under the relevant legislation should it persist with this approach in its FD.

3.2.2 Wrong criteria for the target rating

The DD suggests that its financeability test is targeting a BBB+/Baa1 credit rating. It states that the criteria it uses, consistent with this target rating, are:

- adjusted interest cover ratio of at least 1.4 or more,
- FFO interest cover of 3.5 or more, and
- FFO to net debt of 10% or more.

We note that Moody's rating methodology on regulated electricity and gas networks⁵ specifies that for the Baa rating (which encompasses Baa1 Baa2 and Baa3),

- the adjusted interest cover ratio to be 1.4-2x;
- the FFO interest cover ratio to be 2.8-4x; and
- the FFO/net debt ratio to be 11%-18%,

The DD has picked the bottom end for the first and third metrics and the midpoint for the second metric. This implies that the credit rating consistent with the credit metrics stated in the DD is at best Baa2/BBB, and more likely to be Baa3/BBB-, rather than Baa1/ BBB+ stated in the DD.

We conclude therefore that the DD has used the wrong credit metrics to conduct its financeability test, given its stated target credit rating. The UR must correct this factual error in one of the two following ways:

- recognise that its target credit rating is BBB-/Baa3 or at best BBB/Baa2, rather than misleadingly stating BBB+/Baa1 (with the consequential results for its appraisal of the cost of debt set out below); or
- use the correct credit metrics according to well-established credit rating methodology.

3.2.3 Target credit rating inconsistent with assumptions used for the cost of debt

In the estimation of the cost of new debt, the DD has suggested to use the average of two benchmark iBoxx corporate bond indices (A and BBB). However, it is clear from the previous section that the credit metrics used in the DD only assess NIEN's ability to achieve a BBB-/Baa3 credit rating, if the test is passed at the margin.

This implies that the DD is assuming that NIEN would be able to raise corporate bonds at a rating between A- and BBB+, while only achieving credit metrics consistent with a BBB- rating. The methodology adopted is clearly internally inconsistent.

Either the DD must be adapted in the FD such that NIEN is able to achieve credit metrics consistent with the average of A- and BBB+, or a higher cost of debt must be allowed cognisant of the forthcoming downgrade that NIEN will experience when its new credit metrics are observed by ratings agents.

For the avoidance of doubt, as we have stressed in our previous reports, we consider it important for the UR to set a target rating for NIEN at a strong investment grade (A-/BBB+) in order to ensure that NIEN has ongoing access to efficient financing in the capital markets. The DD does not appear to achieve this outcome.

⁵ Moody's investors service, Rating methodology – Regulated electricity and gas networks, November 25, 2014.

3.2.4 Conclusion

We have material concerns over the approach that has been adopted in respect of financeability in the DD. Material problems have arisen in the financeability modelling presented. No meaningful solution to these problems has been offered. Instead, a lower level of debt has simply been assumed, to wish the problem away.

There is also an error in interpreting Moody's guidance in respect of target levels for the relevant credit metrics. When corrected, this will make the financeability issues that have arisen in the DD worse. Lastly, the DD is internally inconsistent, as between the credit rating that it is assumed will be in place for NIEN when it raises debt during RP6, and the credit rating that is likely to arise in practice on the basis of the present set of proposals. In the FD the UR must ensure consistency between the assumed credit rating for the cost of debt and the target rating for the financeability test.

4 GEARING

4.1 UR's proposal

In the RP6 DD the UR has proposed a point estimate for gearing of 45%. The UR provides two reasons to support its decision.⁶

- That it is consistent with other regulatory determinations, which the UR asserts “have provided for gearing of between 45% and 65%”.
- “To be consistent with the ‘exit rate’ of gearing in the Competition Commission’s 2014 modelling”.

4.2 Assessment

We disagree with the DD’s assessment of notional gearing.

The lower end of the range 45% to 65% for gearing only arises as a result of the CMA’s determination for NIEN at RP5. The notional gearing level that Ofgem and Ofwat have chosen for the energy networks and water/wastewater companies in their most recent determinations is 65% (RIIO-ED1) and 62.5% (PR14), respectively, although the actual gearing levels of some of these companies are significantly higher. No other relevant regulatory determination supports gearing as low as 45%.

In order to claim that precedent supports 45%, one must examine closely the CMA’s decision.

Regulators often use a notional gearing level for regulated companies for the purpose of setting a price control, assuming that this would be the most efficient level of gearing although companies are understood to be free to choose other levels of gearing should they consider this preferable. However, in its determination for RP5 the CMA focused on NIEN’s **actual** gearing level for the estimations of the WACC (at 50% in the Provisional Determination and refining down to 45% in the FD). See for example:

“13.37 In our financial modelling (see Section 17), we started with NIE’s current approximate level of gearing (around 45 per cent), and based on our assumptions for projected net revenues and dividends over RP5, we forecast average gearing to be 45 per cent. This is thus the level that we have assumed for the purposes of calculating the WACC.”⁷

The DD evidently does not reflect precedent from Ofgem or Ofwat, and also does not accurately reflect CMA precedent. The CMA did not select an assumed gearing level of 45% as its preferred notional level on some normative basis, but because it was the actual gearing of the entity in question. Properly interpreted then, the CMA’s precedent supports a gearing level of 50% for RP6, based on the projected actual gearing level of NIEN for the period of RP6, using the

⁶ DD paragraph 12.14.

⁷ The CMA, Northern Ireland Electricity Limited price determination, Final Determination, 26 March 2014

financial model and relevant regulatory assumptions within NIEN's business plan. This is, we consider, the best projection of NIEN's gearing level and is in line with our expert report⁸, submitted to the UR at an earlier stage of the RP6 process.

4.3 Conclusion

We conclude therefore that the gearing level of 45% in the DD is based on flawed logic, a misunderstanding of regulatory precedent and fails to pay regard to the most relevant information. We consider that the appropriate gearing level for NIEN at RP6 should be 50%, based on detailed modelling undertaken by NIEN of its actual gearing on the basis of reasonable regulatory assumptions.

Owing to the proposal in respect of gearing, the DD also contains two resulting errors in respect of the proposed level of asset/debt beta, which we address in Section 5 and the assumed level of new debt, which we address in Section 6.

⁸ Frontier report 'Cost of capital and financeability for RP6 – a report prepared for NIE Networks', April 2016

5 COST OF EQUITY

The UR proposes to use the CAPM method to estimate the cost of equity. CAPM is a well-established method relied on by most regulatory offices and we support its use. In order to make use of this method, three parameters need to be estimated. They are the risk-free rate (RFR), the equity risk premium (ERP), although it is now common in UK regulatory practice to co-determine these by estimating directly their sum, total market return (TMR), and the beta (including both asset and debt beta). We assess the proposals set out in the DD in respect of each parameter in the remainder of this section.

5.1 TMR

5.1.1 UR's proposal

TMR is the sum of the RFR and the ERP, although the UR refers to this as expected market return in its DD. The UR proposes to set this parameter at 6.5% in real terms for RP6.

5.1.2 Assessment

We concur with the UR, that there is a consensus amongst infrastructure regulators that an appropriate level for TMR is 6.5% following the “*clear steer from the CMA/CC on this matter*”.⁹

However, the DD also states that the UR intends to discuss this matter further with the UK Regulators Network prior to making the final determination, “*in light of the low return external environment in which regulated utilities are operating*”.¹⁰

Given the importance of this parameter, NIEN commissioned Frontier Economics to prepare a separate expert report on TMR¹¹, which also forms a part of NIEN's response to the DD.

In summary, the conclusion of this study was that we did not identify any evidence that would support a lower TMR than 6.5%, based on the most recent market evidence as well as established regulatory methodology (in particular the approach to determining TMR that the CMA employed at RP5).

5.1.3 Conclusion

We therefore conclude that the UR's proposal for TMR of 6.5% is appropriate, in the light of regulatory precedent, and informed by analysis of the latest data hitherto relied on by the CMA when determining TMR for RP5.

⁹ DD paragraph 12.21.

¹⁰ Ibid.

¹¹ Frontier Economics, Total Market Return For RP6 – A report prepared on behalf of NIEN, April 2017.

5.2 Beta

In this subsection we review the UR's approach to setting both asset beta and debt beta.

5.2.1 UR's proposal

The DD relies primarily on a number of previous regulatory decisions to construct a possible range for asset beta. The DD also has in its evidence base empirical estimates made by First Economics¹², which the UR describes as playing the role of a “cross-check on these numbers”. However, based on the commentary and discussion provided by the UR it is far from clear that its work has played any meaningful role in shaping its determination in respect of beta.

Having determined a range for asset beta, it then proposes to set NIEN's beta consistent with the bottom of this range.

The main document of the DD makes no mention of debt beta. It does not explicitly confirm what value the UR considers is appropriate or why. Debt beta is referred to in the First Economics paper¹³, but only to note that First Economics has simply assumed that debt beta should take a value of 0.1. Again, no evidence is presented to support why this is considered reasonable.

While UR does not mention debt beta once in its main document, it is possible to infer from the tables in the DD that it has assumed debt beta is equal to 0.1.

5.2.2 Assessment

The DD's approach to determining beta for RP6 is flawed for a wide variety of reasons. Contrary to the DD's presentation of its proposal:

- It contains factual errors in the interpretation of the previous regulatory decisions;
- It fails to take account of the latest empirical evidence on beta;
- It is not consistent with the approach adopted in the DD on the estimation of the cost of debt, resulting in a cherry-picking error;
- It lacks reasonable justification for why NIEN's beta should be at the bottom of the range; and
- It is silent on debt beta, and its implicit assumption is inconsistent with its assumption on gearing;

We look at these points separately below.

Errors in interpretation of precedent

In relying primarily on regulatory precedent to estimate the asset beta for NIEN, the DD refers to a range composed of the following regulatory decisions. We reproduced the past decisions relied on by the UR in Figure 1 below.

¹² First Economics, An Estimate of NIE's RP6 Cost of Capital – Prepared for the Utility Regulator, 1 February 2017

¹³ See page 3.

Figure 1 UR's table of asset beta precedent

Regulator / company	Asset beta
Ofgem, gas distribution networks	0.38
Ofgem, electricity distribution networks	0.38
CC, NIE	0.40
Utility Regulator, PNGL and FE GD17	0.40
SGN, Gas to the West years 6-10	0.43 to 0.45

Source: UR RP6 Draft Determination Table 56: Asset beta estimates

While the UR has chosen to rely directly on the estimates contained in this table, there are in fact material issues with it as follows:

- Ofgem never published an asset beta estimate in its RII0-ED1 determinations, and instead proceeded to the direct estimation of the cost of equity. The table is therefore factually incorrect in asserting that Ofgem relied on an asset beta of 0.38 (and a debt beta of 0.1) for electricity distribution networks. Ofgem did refer to an implied asset beta in its consultation on return on equity, where it re-gearred the CMA's estimate of the cost of equity for NIEN at RP5 into a like-for-like comparison for the DNOs at a gearing level of 65%. The document stated clearly that a DNO asset beta (0.38) has been inferred from the CMA's debt beta assumption "*for illustrative purposes only*".¹⁴ We do not consider it appropriate to rely on a precedent which the regulator in question did not clearly identify as an integral part of its decision, but instead simply included in its wider commentary during consultation. This is a point that has already been made to the UR in previous Frontier Economics reports.
- The UR's interpretation of the CC NIE precedent is wrong as it fails to reflect an important difference in the debt beta assumed by the CMA versus that presently assumed by the UR. Including the CMA precedent unadjusted therefore results in a comparison that is not like-for-like. All other decisions in the table above have an associated debt beta of 0.1, except for the CC RP5 decision, which has an associated debt beta of 0.05. The comparison of the CC NIE asset beta with the other asset betas in the table is therefore meaningless. The mathematically correct asset beta for the CC NIE decision (if one is now assuming a debt beta of 0.1, as we understand is the case in the RP6 DD) is 0.425. The CMA has further confirmed this relatively straightforward relationship between the asset beta and the debt beta in its recent Bristol Water 2015 determination by stating:

"146 In NIE, the CC estimated an asset beta range of 0.29 to 0.37 from the market data, assuming a debt beta of 0..."

*[Footnote 79: Stated as 0.35-0.4 based on a debt beta of 0.05.]"*¹⁵

To summarise, the CMA to date has itself mentioned three combinations of the asset beta determination for NIEN at RP5, shown in Figure 2 below, all three of them derived from the same analysis.

¹⁴ "Consultation on our methodology for assessing the equity market return for the purpose of setting RII0 price controls", Ofgem, December 2013. See note to Table 1.

¹⁵ The CMA, Bristol Water plc: A reference under section 12(3)(a) of the Water Industry Act 1991, Appendix 10, paragraph 146.

Figure 2 The CMA's own interpretation of asset beta for NIE

Determinations	Asset beta	Debt beta
NIE RP5 PD	0.4 - 0.45	0.1
NIE RP5 FD	0.35 - 0.40	0.05
Bristol Water 2010	0.29 - 0.37	0

Source: CMA determination documents

- Fourth, the UR quotes its own precedent from GD17. We observe that the GD17 decision was also informed by the same error in interpreting the CMA's decision. We further observe that the GD17 decision is currently subject to appeal at the CMA. Therefore it is questionable whether this can be regarded as 'precedent'.

In conclusion, the table of regulatory precedent that the DD relies on for the estimation of the asset beta contains several errors. The only valid and comparable asset beta determination in the table is that made by the CMA for RP5, which properly restated to reflect the UR's view of debt beta should be reported as 0.425.

Failure to consider properly the latest empirical evidence

Even if the DD had not made the errors identified above in its review of regulatory precedent, relying very heavily on previous regulatory decisions to inform a key parameter in the price control is at odds with regulatory best practice. It could also expose the determination to outdated information. Regulatory precedent is usually considered an important cross check for regulators' own updated estimates, but should not be relied on as the sole source of information.

The UR did have at its disposal some empirical work, that undertaken by First Economics, its expert advisor in respect of WACC.¹⁶ However, the DD makes sparing reference to this work, stating only that First Economics "*average asset betas over the last five years have typically been slightly below the figures*" the UR obtained from its flawed review of regulatory precedent.

Moreover, there are two important deficiencies in First Economics work.

- First Economics presents analysis up to July 2016, despite its paper being dated February 2017 and despite the DD being published in March 2017.
- First Economics presents analysis that is inconsistent with CMA precedent, since it excludes SSE from the peer group. The omission of SSE is not noted in either the First Economics paper or the DD.

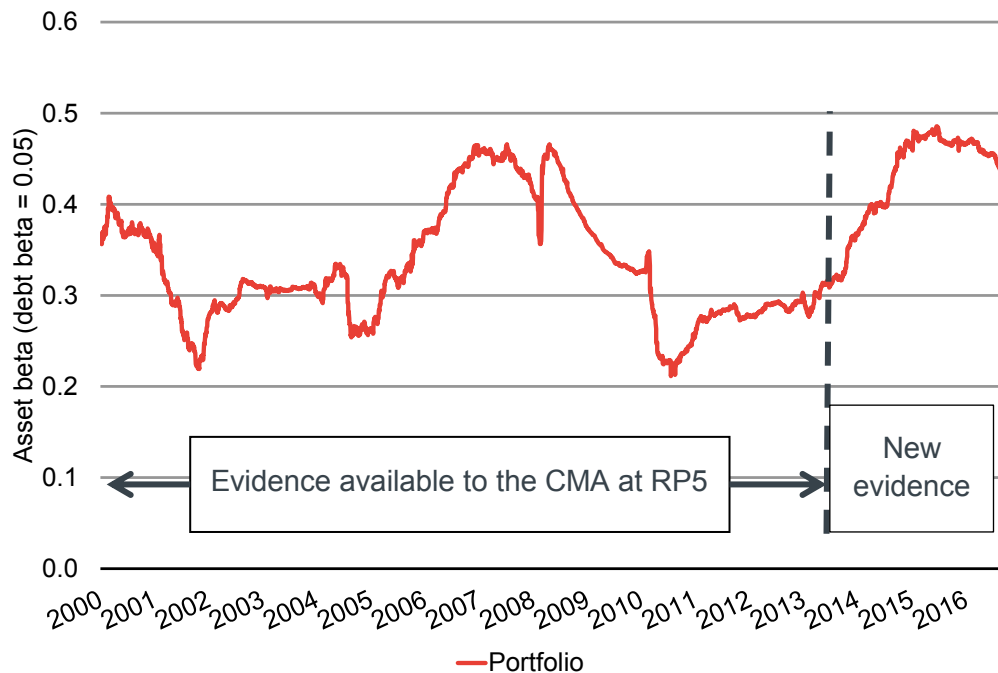
In our view the UR has erred by not making an up to date estimate of asset betas to support its DD. Importantly, this is not to signal that we advocate informing beta estimate with short run or spot data. We concur with the UR that a long run approach is valid. However, it is important to inform regulatory decisions with up-to-date long run estimates. This is particularly important when the past decisions taken by others are relied upon so heavily. When this is the case, it is important to understand whether the information available to those other regulators at the

¹⁶ First Economics, An Estimate of NIE's RP6 Cost of Capital – Prepared for the Utility Regulator, 1 February 2017. See Section 3.

time their past decision was taken remains consistent with information subsequently revealed.

As we have shown in our 2017 study for NIEN¹⁷, the beta estimates of regulated utilities have increased in recent years. In that study, submitted to the UR, we presented our own beta estimates, replicating exactly the CMA's RP5 methodology, populated with the latest market data. For convenience the results of this analysis are presented in Figure 3 below.

Figure 3 Latest evidence on the asset beta



Source: Bloomberg data, Frontier analysis

Note: Beta estimation based on the same methodology as per CMA RP5 NIE FD. It means the same comparators, two-year estimation window and an assumed debt beta of 0.05.

The evidence shows that prevailing estimates are far higher than those that resulted from the same analysis in April 2014. This evidence shows that even if the CMA were to conduct this exercise today, assuming that it does so using the same methodology as for RP5 in April 2014, there would be no plausible way in which the resulting estimates (or range) would be lower than those proposed by the CMA at RP5. In our view, this latest empirical evidence provides critical – essential in fact – context that is necessary for one to interpret properly the CMA's precedent on asset beta. This update also illustrates that estimates of beta have not changed markedly since we concluded our expert report on the WACC and financeability for NIEN in April 2016.¹⁸

However, the DD does not have regard to this evidence submitted to the UR, nor does it explain why this evidence is not taken into account.

¹⁷ Frontier Economics, Additional evidence on NIEN's WACC and financeability – A report prepared for NIE Networks' RP6 price control, January 2017

¹⁸ See Frontier report 'Cost of capital and financeability for RP6 – a report prepared for NIE Networks', April 2016, page 38.

Finally, as noted above, First Economics analysis of betas, and hence the UR's DD, failed to take full and proper account of CMA precedent as it excluded SSE from the peer group.

There is no need for us to speculate as to why First Economics will have been instructed to exclude SSE from the peer group. The UR argued vigorously for SSE to be excluded from the peer group during the CMA's review of RP5. In its response to the CMA's DD the UR noted:¹⁹

'First, the Commission has made reference to empirical betas for SSE, National Grid, Pennon, Severn Trent, and United Utilities. We would suggest that the inclusion of SSE in this list is odd. There is no such thing as a perfect comparator, but SSE derives less than half of its profits from its network assets, with the remainder coming from generation and energy retail activities.²⁰ In a relatively small dataset of five companies, the Commission is thus rewarding NIE T&D for the higher risks that can be found elsewhere in the electricity industry value chain.'

The CMA was therefore well aware of the UR's views as to the relevance of SSE during the RP5 review, and nevertheless chose to include SSE in the peer group that informed both its draft and final determinations. Our understanding is that the CMA choose to do this as it considered that, on balance, a peer group containing all 5 listed companies (SSE, National Grid, Pennon, Severn Trent and United Utilities) taken together provided an appropriate starting point for its consideration of beta.

The UR has therefore implicitly asserted that the CMA was wrong in its judgement, despite having presented no new information to support this view.

Cherry picked where to update for the latest evidence

As just noted above, the DD completely fails to reflect the latest information on asset beta. Instead the DD relies almost exclusively on previous regulatory decisions in respect of beta, the only company specific parameter that is used to determine the cost of equity. This is in direct contrast to the approach it adopts in respect of the cost of debt. For the cost of debt, everything is updated using the latest market data (i.e. yield on iBoxx indices and inflation forecasts).

In consequence, the DD is internally inconsistent and makes a cherry picking error. The latest market evidence is relied on to set a proposed cost of debt well below levels that prevailed in previous regulatory decisions. In contrast, asset beta is not updated at all – in fact it is lowered – despite all available empirical evidence pointing to a higher estimate being justified when the latest information is put through the method previously adopted by the CMA.

¹⁹ Northern Ireland Electricity Transmission and Distribution, Price Control Review (RP5), 2012-2017, Response to the Competition Commission's Provisional Determination, UR, November 2013. Paragraph 147.

Lack of justification for the bottom of the range

Even absent the set of errors identified above in respect of the DD's assessment of beta, the DD has not provided adequate and reasonable justification as to why the point estimate is at the very bottom of the range it has identified.

The rationale given for deciding to adopt the bottom of the range of asset beta estimates in the DD proposal is captured in paragraphs 12.27 and 12.28.

12.27 Ultimately, our analysis has not identified any intrinsic structural factor that distinguishes NIE in a material way from the GB electricity distribution networks. We also note that NIE has not suggested any such factor in its analysis.

12.28 NIE did, however, highlight that the Competition Commission in 2014 opted to position NIE's asset beta slightly above the Ofgem betas when the Commission selected a point estimate of 0.40 from a stated 0.35 to 0.40 range. Its rationale for this positioning was that the GB comparators are "not an exact match for NIE and its regulatory framework". Our assessment in 2017 is that such differences should not be overstated. Looking across this draft determination, and, indeed, back at the Competition Commission's 2014 decision, there is clear read-across to Ofgem in our approach to many of the price control building blocks (e.g. length of control period, the design of totex sharing rules, the treatment of pension costs, and the insertion of a cost of debt adjustment mechanism). More fundamentally, absent any intrinsic structure differences in risk profiles, it is unclear why a sophisticated investor should consider the risks around NIE's future equity returns to be materially different from the risks around GB DNO returns or why such an investor would require a higher return on equity.

Once again, the UR is repeating arguments that it made with vigour during the RP5 process. The CMA noted the following in its FD, in respect of the UR's position on asset beta (again, informed by its expert advisor First Economics):

*'Based on the comparative analysis, First Economics concluded that it was difficult to distinguish NIE from the conventional network businesses in GB and particularly from GB electricity distribution companies, pre-RIO. First Economics noted that Northern Ireland and GB electricity networks' operational gearing was comparable and that they faced similar demand risks through the operation of a revenue cap. First Economics concluded that NIE exhibited the same sort of risk profile as a conventional GB-regulated network operating under a five-year RPI-X price control, and that, all things being equal, they should therefore have the same beta.'*²⁰

This summary of the UR's argumentation at RP5 mirrors closely that presented during the RP5 proceedings. Accordingly, we conclude that there is nothing new in the UR's arguments, or indeed in First Economics arguments around asset beta.

²⁰ CMA FD, para 13.166.

Fully cognisant of the UR's clearly stated position in respect of asset beta and relative risk, the CMA choose to identify an asset beta range of 0.35 to 0.4 (and debt beta at 0.05) and then to decide to adopt the top of this range. The CMA made very clear that in reaching this determination it was fully cognisant of the UR's arguments, but considered that a full appraisal of all relevant factors supported the range identified above. This is explained in paragraph 13.181 in the CMA's Final Determination:

The comparators that we use to estimate beta include GB regulated energy and water utilities. These are regulated by Ofwat and Ofgem under regulatory frameworks that are well established and well understood by investors... However, we also note that Moody's scores the regulatory regime one notch lower than that of GB reflecting that regulation is less well established.[Footnote 68: See for example, Moody's Investor Service: 'New Competition Commission Referral Suggests Regulatory Uncertainty Remains in Northern Ireland', 9 May 2013.]

It is clear then that the CMA's view of how to interpret its empirical evidence was fully informed by both its assessment of NIEN's relative risk versus GB and also by its appraisal of the perceived maturity of regulation in NI versus Great Britain.

Again, the UR is and was fully aware of the rationale for the CMA's position, as it commented specifically on this aspect in its response to the DD. The UR said:

*'Finally, the Commission focuses on the top ends of the confidence interval ranges on the grounds that "the Northern Ireland regime may be less well understood by investors". This is an extraordinary statement to make in the middle of a Commission inquiry. We would respectfully suggest that NIE T&D's shareholder has, during the last 12 months, spent the most time of all owners of regulated companies looking at the fine detail of the regulatory framework for the company it owns. It cannot possibly be that NIE T&D's equity provider does not understand the regulatory regime.'*²¹

The CMA then was fully aware of the UR's views on its position, but reached the published determination regardless.

It is worth considering whether there is any reason to suppose that the outside view of regulation in NI is now improved, such that the regulatory environment should now be scored on the same basis as Ofgem. However, we are unaware of any public statement from rating agencies to support this view.

We note that UR continues to be subject to a relatively high level of regulatory appeals (such as PNGL, NIE, firmus, and SONI), with the proportion of appeals per licensee far above those observed for decisions taken by GB regulators such as Ofgem and Ofwat.

²¹ Northern Ireland Electricity Transmission and Distribution, Price Control Review (RP5), 2012-2017, Response to the Competition Commission's Provisional Determination, UR, November 2013. Paragraph 151.

We do not consider that there is substantial evidence that could point to any improvement in the quality of the regulatory environment in NI since the CMA determined at RP5 that the NI regulatory environment was riskier than that of GB.

5.2.3 Debt beta assumption inconsistent with the assumed gearing level

The DD does not explicitly mention the assumption of debt beta, although one can deduce, from the asset beta, the gearing level, and the equity beta adopted in the DD, that a debt beta of 0.1 is assumed in the DD.

The UR's economic advisor does mention in its report that a debt beta of 0.1 is assumed, without explaining the reason why this particular value is chosen. It states:

"We have assumed in our work that β_d is a constant of 0.1 (a value that economic regulators have commonly used in reviews of companies with approximately the same gearing as we identify in section 4)."

It is therefore entirely unclear why the DD relies on an estimate of 0.1 for debt beta.

What is clear, however, is that on the basis of analysis presented and relied on by the CMA, the DD assumption of 0.1 is inconsistent with the DD assumption for gearing of 45%. The CMA made clear in its RP5 FD that the appropriate debt beta assumption assumed for NIEN with a gearing level of 45% was 0.05. In fact, the CMA has specifically pointed out that a debt beta assumption of 0.1 would not be appropriate with a gearing level assumption of 45%.

"13.175 As already noted, equity beta depends on gearing, but even after adjusting to a similar gearing basis, a company's estimated beta can vary for a number of reasons, including:

...

(c) The assumption made about debt beta in adjusting for gearing. In this case we have assumed a debt beta of 0.05. This is lower than in recent CC cases such as Bristol Water (2010), reflecting the relatively low level of gearing. (The debt beta is assumed to increase with gearing. However, debt beta assumption makes little difference to estimated cost of capital as long as the gearing assumption in the WACC is not too different from the gearing of the companies for which the equity beta was estimated).'

The CMA therefore adjusted its estimate of debt beta down from 0.1 in the PD to 0.05 in the FD, as a result of adjusting the assumed gearing level down from 50% in the PD to 45% in the FD.

For completeness, we have collected the relevant CMA precedent on the debt beta and gearing level, which is summarised in Figure 4 below:

Figure 4 Relationship between assumed debt beta and gearing level by the CMA

Determinations	Debt beta	Gearing
Bristol Water 2010	0.1	60%
NIE RP5 Provisional Determination	0.1	50%
NIE RP5 Final Determination	0.05	45%

Source: CMA determinations

The table above demonstrates the relationship that the CMA considers to exist between the level of gearing and the debt beta. Together with paragraph 13.175 from the FD quoted above, it is clear that the appropriate debt beta assumption for RP6 should be 0.05 if a 45% gearing level is assumed.

5.2.4 Conclusions

The DD contains several errors in its proposal for both asset and debt beta for RP6.

- It has misinterpreted and misrepresented regulatory precedent for a variety of reasons.
- It has failed to undertake up-to-date empirical analysis.
- The out-of date analysis that is presented excludes one of the peers considered by the CMA necessary for a balanced assessment of beta.
- It has cherry picked when to update data and when not.
- It has failed to present any reasonable justification for why, in contrast to the CMA, the bottom of the range of asset betas is relied upon, and instead simply presents arguments that were already presented, considered and embodied in the CMA's RP5 decision.
- It contains no discussion whatsoever to support a flawed choice of debt beta that is inconsistent with its assumption on gearing.

The DD analysis presented does not provide a sound basis on which to determine beta and should be discarded. We continue to consider that the estimate presented by Frontier Economics (asset beta of 0.44 and a debt beta 0.05) in various submissions throughout the RP6 process is robust and anchored in reasonable and relevant precedent.

6 COST OF DEBT

The DD estimates the cost of embedded debt and new debt separately, and uses a weighting to determine an average cost of debt as a blend of the two, reflecting the likely contribution of each to NIEN's debt portfolio. The general approach is in line with the regulatory precedent, including that from the CMA at RP5, and we regard the high level methodology as reasonable. We do however consider that the UR has made a range of errors in implementing the methodology. In the interests of brevity, we limit our comment to the elements of the DD with which we disagree.

UR has also proposed to introduce a cost of debt true up mechanism, as it did in its GD17 decision. We also comment here on detailed aspects of the UR's proposed approach to implementing this.

6.1 Mix of embedded and new debt

6.1.1 UR's proposal

In determining the weighting between embedded debt and new debt, the DD relied on the figure proposed in NIEN's business plan. NIEN's business plan proposed an embedded-to-new ratio of 4:5.

6.1.2 Assessment

The basis of NIEN's forecast was as follows. NIEN forecasts, on the basis of a set of regulatory assumptions, that it will raise £500 million of new debt during RP6. In addition it has previously issued a £400 million bond, due to expire in 2026. As a result, NIEN found that the appropriate embedded-to-new ratio was 4:5. NIEN's financial model indicated that a ratio of this size was internally consistent with gearing of 50%.

The DD has erred by choosing to rely on NIEN's estimate of embedded-to-new, but arbitrarily selecting a different level of gearing (45%, as explained in section 4). As a result, the UR's assumptions are internally inconsistent.

6.1.3 Conclusion

The UR has made an error of internal inconsistency, as between its assumption on the embedded-to-new ratio and its assumed level of gearing. In order to correct for this error, the UR must either:

- change its gearing assumption to 50% and retain NIEN's embedded-to-new debt ratio of 4:5; or
- retain its gearing level of 45%, but calculate an updated ratio of embedded-to-new debt.

Relatively simple arithmetic would suggest that if £500 million of new debt is consistent with 50% gearing, then £400 million of new debt would be consistent

with 45% gearing. This implies that the correct embedded-to-new debt ratio to use with a gearing assumption of 45% is 1:1. We note that the UR's financial model in the DD Annex L financeability worksheet confirms this result.

6.2 Transaction costs

6.2.1 UR's approach

The DD has relied on a 20 basis point allowance for transaction costs on the cost of debt. There is no commentary or analysis to support why the DD relies on an estimate at this level.

6.2.2 Analysis

Frontier Economics, on behalf of NIEN, prepared a detailed analysis of transaction costs. This analysis was submitted to the UR in February 2017.²²

This analysis estimated the transaction costs for NIEN, comprised of direct issuance costs and cash carrying costs, on the basis of the costs borne by NIEN when it issued its existing 2026 bond. Each step of our analysis was presented for review, and this approach resulted in an estimate of 0.30%.

We also reviewed recent regulator precedent, in particular GD17, where the UR allowed transaction cost uplifts of between 0.30% and 0.60%, reflecting the same elements and logic as in the Frontier Economics analysis for NIEN.

Despite having received this detailed submission, the DD pays no regard to the evidence provided, nor even an acknowledgement that a submission in this respect had been made.

The DD fails to recognise valid and robust evidence that has been submitted by NIEN to support a transaction cost uplift of 30 bps. Instead it relies on an estimate of 20 bps. No reason is provided as to why the UR has failed to take account of NIEN's evidence, or why the lower estimate provided for in the DD should be preferred.

6.2.3 Conclusion

The DD has made an error, by failing to take proper account of all relevant evidence in respect of this element of the calculation of the cost of debt. This should be corrected in the FD.

6.3 Cost of new debt true up mechanism

NIEN proposed three potential adaptations to the GD17 cost of debt true up mechanism:

- Removal of 80:20 sharing mechanism, such that a full true up of new debt costs would be made;

²² See Frontier Economics, Additional evidence on NIEN's WACC and financeability – A report prepared for NIE Networks' RP6 price control, January 2017

- Selection of the benchmark indices for the true up consistent with the target credit rating adopted elsewhere in the price control (i.e. average of A- and BBB+); and
- An adjustment to the proposed averaging window for the index (to adopt a window around the issuance date, rather than rely on the average of the calendar month of issuance), to remove a potential incentive to time the issuance of debt to the potential detriment of customers.

These adaptations were explicitly not proposed to result in a higher expected allowed cost of debt for NIEN, but were intended to improve the mechanism generally in order to make it more effective in reducing risk and measurement error. For example, the second proposed adaptation would result in a lower cost of debt allowance than without the adaptations (note that the question of target credit rating is revisited in Section 3, where we discuss the Financeability assessment presented in the DD).

NIEN prepared this package of proposed adaptations in good faith, for the purpose of improving on the GD17 mechanism to better reflect market movements and minimise forecast error, in the interests of NIEN and its customers.

The DD however cherry-picks from the set of proposals put forward by NIEN and only allows the second adaptation, resulting in a lower allowed cost of debt for NIEN than would otherwise arise. It then rejects the other two proposed adaptations by stating the following:

“We consider that there are benefits in sticking with the GD17 design so that we are able to present a common cost of debt adjustment mechanism to the wider investor community.”

Since the GD17 approach is already subject to at least one adaptation in its application to NIEN, the reason provided for rejecting the others has little substance. The UR should reconsider its position on the planned adaptations and consider them properly on their merits. In our view, all three of NIEN’s suggested adaptations would make the mechanism more effective in meeting its stated objectives and should be adopted.

