Annex D

Special Factors and ‘new’ IMF&T and Indirects Assessment

Final Determination

30 June 2017



About the Utility Regulator

The Utility Regulator is the independent non-ministerial government department responsible for regulating Northern Ireland's electricity, gas, water and sewerage industries, to promote the short and long-term interests of consumers.

We are not a policy-making department of government, but we make sure that the energy and water utility industries in Northern Ireland are regulated and developed within ministerial policy as set out in our statutory duties.

We are governed by a Board of Directors and are accountable to the Northern Ireland Assembly through financial and annual reporting obligations.

We are based at Queens House in the centre of Belfast. The Chief Executive leads a management team of directors representing each of the key functional areas in the organisation: Corporate Affairs; Electricity; Gas; Retail and Social; and Water. The staff team includes economists, engineers, accountants, utility specialists, legal advisors and administration professionals.

Our Mission	Value and sustainability in energy and water.
Our Vision	We will make a difference for consumers by listening, innovating and leading.

Our Values

Be a best practice regulator: transparent, consistent, proportional, accountable, and targeted

Be a united team

Be collaborative and co-operative

Be professional

Listen and explain

Make a difference

Act with integrity

Contents

1 Introduction

1.1 In reaching the modelling results for IMF&T and Indirects, presented in Chapter 5 of the draft determination, the UR did not apply any special factor adjustments to NIE Networks' costs. Respondents to the draft determination were asked however, to consider whether there were special factors that they believed needed to be applied with regards to the IMF&T and Indirect benchmarking models in the final determination.

1.2 Special factors may be considered as company-specific circumstances, not taken into account in the data adjustments and model specifications, which arguably cause costs to be materially different for that particular company relative to the comparator companies. For NIE Networks, the comparator companies are DNOs which operate in Great Britain (GB), and which are included in the benchmarking dataset.

1.3 The UR stipulated in their Benchmarking & Efficiency Data Submission Guidance Notes (January 2016) and in Chapter 5 of the draft determination (March 2017) that the UR would use the following criteria to assess whether special factors apply:

- *"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?"*

1.4 The UR noted that some special factors may only apply to certain models so respondents were asked to set special factors which are appropriate to each particular model and the cost categories being captured in the dependent variable. [1]

1.5 It is also the case that a special factor may not apply (or only partially apply) if the model takes already into account the company specific factor(s) in question – i.e. within its model specification/ functional form.

1.6 Special factors could potentially be positive or negative from the viewpoint of NIE Networks. By positive special factors we refer to company specific circumstances that result in NIE Networks' costs being relatively high compared to GB DNOs. Conversely,

[1] In response to a query from NIE Networks on how the 1% materiality threshold would apply, the UR indicated that in the final determination it would take a pragmatic approach to the materiality threshold.

by negative special factors we refer to company-specific circumstances that result in NIE Networks' costs being relatively low compared to GB DNOs.

1.7 In our draft determination the UR identified four significant differences in standards and policies between GB DNOs and NIE Networks that could arguably warrant a negative special factor adjustment(s) within CEPA's comparative benchmarking, i.e. increase NIE Networks' modelled costs within the benchmarking exercise. These include:

i) **Guaranteed standards –** NIE Networks currently operate at a 24 hour standard during RP5 whereas GB DNOs operated to a 18 hour standard during DPCR5 and now to a 12 hour standard during RIIO-ED1.

ii) **Consumer engagement –** higher levels of consumer engagement are conducted by GB DNOs on average than by NIE Networks.

iii) **Innovation –** higher innovation expenditure by GB DNOs than NIE Networks as the result of innovation incentive schemes being in place in GB which are not currently in place in Northern Ireland.

iv) **ESQCR –** GB DNOs currently operate to higher ESQCR standards than NIE Networks.

1.8 For the draft determination the UR did not make such adjustment in deriving our efficiency gap estimates as we recognised that there may potentially be additional positive special factors that were also not taken into account within the benchmarking.

1.9 However, since we published the draft determination, NIE Networks have commissioned NERA to provide expert advice on potential special factors affecting NIE Networks' costs relative to the GB DNOs. NERA identified the following potential company-specific circumstances for NIE Networks:

i) **Higher connection numbers compared to GB -** NERA argued that NIE Networks have undertaken more connection work in the past than the average GB DNO due to historical differences in the competitive environment.

ii) **Higher wayleave costs –** NERA argued that because NIE Networks has a higher share of overhead lines (OHLs) compared to other DNOs they will also have a higher volume of wayleaves. They argue that this effect is exacerbated due to the fact that plots of land are relatively smaller in NI than GB, which increases the volume of wayleaves per km of network.

iii) **Local labour adjustment –** NERA considers that models that do not apply a local labour adjustment are incorrect.

iv) **IMF&T –** NERA stated that NIE Networks have a higher share of OHLs than other DNOs, which need to be inspected more than underground (UG) cables, therefore have higher fault rates, and require tree cutting. As a result, NIE Networks' IMF&T costs will be higher, the company contended.

v) **Guaranteed standards of performance –** GB DNOs faced an 18 hour standard during DPCR5 and face a 12 hour standard during RIIO-ED1. In

contrast, NIE Networks only face a 24 hour standard during RP5. Hence, NIE Networks may face lower costs due to higher required supply restoration times.

vi) **ESQCR –** NIE Networks has not yet been subject to the ESQCR[2] requirements that the GB DNOs face. Therefore, NIE Networks are likely to have saved inspection and maintenance and closely associated indirect costs during RP5 that GB DNOs will have incurred during the same period as the result of ESQCR requirements.

1.10 Furthermore, as part of the Consumer Council for Northern Ireland's (CCNI) response to the UR's RP6 Draft Determination, CCNI suggest that the UR should consider whether the potential negative special factors mentioned in the draft determination are material, as making such an adjustment would reduce costs for consumers.

1.11 Taking NIE Networks' special factor submission and CCNI's DD response into account, for the final determination, we consider it appropriate and necessary to consider and assess potential special factors affecting NIE Networks' IMF&T and Indirect costs relative to the GB DNOs in-depth.

1.12 In addition, the UR has also identified and assessed the impact of lower day-to-day costs in Northern Ireland compared to GB DNOs on NIE Networks' IMF&T and Indirect costs for final determination. The most significant example of this is lower property costs in Northern Ireland compared with GB, which will likely result in NIE Networks facing lower costs related to office and site rental compared to GB DNOs.

[2] ESQCR refers to Electricity Safety, Quality and Continuity Regulations.

2 Submissions on Special Factors

2.1 The UR received a limited number of responses to the draft determination which examined the detail of special factors for the IMF&T and Indirects econometric benchmarking models.

2.2 Overall, the most substantive comments on special factors were from the Consumer Council for Northern Ireland and from NIE Networks.

CCNI Response

2.3 In their response to the UR's draft determination, the Consumer Council for Northern Ireland, utilised expert advice from Economic Consulting Associates (ECA) who were asked to analyse the draft determination from a consumer perspective.

2.4 CCNI and ECA made a number of comments on the UR's approach to special factors at the draft determination. Primarily, the Consumer Council were concerned that the UR had failed to apply a negative special factor adjustment for the areas identified by the UR where NIE Networks have lower service standards than GB DNOs:

> *".....the RP6 DD identified four areas where NIEN's policy and standards are lower than those applicable in GB. From a cost perspective this would mean that NIEN's Inspection, Maintenance, Faults and Tree cutting (IMF&T) and indirect costs should be lower than GB DNOs.*
>
> *Therefore we are surprised with UR's decision in the RP6 DD against applying a negative special factor adjustment to the comparative benchmarking of NIEN's IMF&T and indirect costs. Furthermore, the UR has not given any explanation to support the provisional decision.*
>
> *Given that making a negative special adjustment would reduce costs for consumers, we ask the UR to apply this in the FD. We expect the UR to provide robust evidence or to support any decision to the contrary in the FD."* [3]

NIE Networks Response

2.5 In their response to the UR's draft determination, NIE Networks commissioned NERA to develop special factor adjustments. As a result, NERA have computed special factor claims with respect to NIE Networks' IMFT and Indirect costs while taking into account certain offsetting factors.

2.6 NERA's response builds on the paper they prepared for NIE Networks, and was submitted as part of NIE Networks' business plan submission, in June 2016.[4] However,

[3] Paragraphs 6.6 to 6.8 of the Consumer Council Response to the RP6 Draft Determination
[4] NERA, 2016. Special factors affecting NIE's costs relative to the British DNOs.

NERA's latest submission specifically takes into account the modelling approach taken by the UR within the draft determination.

2.7 Within NERA's special factor submission, they assess the impact of each special factor on NIE Networks' costs relative to GB DNO costs. Taking this into account, we describe special factors that may potentially result in higher NIE Networks' costs relative to GB DNOs as "positive" special factors; and we label special factors that may result in lower NIE Networks' costs relative to GB DNOs as "negative" special factors. NERA refer to the latter as "offsetting factors".

2.8 The special factors NERA have considered in relation to NIE Networks' IMF&T costs are summarised in the table below.

Positive special factors	Negative special factors
• **I&M:** NIE Networks has higher I&M costs per customer and per km of network due to its high proportion of OHL.	• **Guaranteed Service Standard (GSS):** NIE Networks operates at a lower GSS than GB DNOs, which reduces NIE Networks' fault costs relative to GB DNOs.
• **Faults:** NIE suffers more faults due to its relatively high number of faults and its historic network design.	• **ESQCR:** NIE Networks did not undertake the large-scale ESQCR programme that GB DNOs undertook between 2013 and 2016.
• **Tree Cutting:** NIE Networks carries out more tree cutting work due to the larger overhead network, and the topology of Northern Ireland.	

Table 1: Potential special factors affecting NIE Networks' IMF&T costs relative to the GB DNOs

2.9 The special factors NERA have considered in relation to NIE Networks' indirect costs are summarised in the table below.

Positive special factors	Negative special factors
• **Wayleaves:** NIE Networks incur higher wayleaves costs per customer and per km of network than GB DNOs due to the higher proportion of OHL.	• **ESQCR:** NIE Networks did not undertake the large scale ESQCR programme that GB DNOs undertook between 2013 and 2016, therefore saving closely associated indirect costs.
• **Connections:** NIE Networks incurs higher levels of indirect costs allocated to connections because it carries out more connections per customer than GB DNOs.	

Table 2: Potential special factors affecting NIE Networks' Indirect costs relative to the GB DNOs

2.10 NERA have assessed each of these potential special factors in turn. For each special factor, they have considered three different approaches to quantifying the special factor claim:

- Engineering assessment,
- Adding explanatory variables, and
- Using disaggregated models.

2.11 In the subsections below we discuss each of the special factors NERA have assessed below and provide a detailed response.

Treatment of "Sparsity, Rurality and Network Design"

2.12 NERA have argued that the sparse and rural nature of Northern Ireland and its legacy network design results in NIE Networks having relatively higher IMF&T costs relative to GB DNOs.

2.13 Furthermore, NERA argue by using generic scale variables, none of UR's models controls for NIE's relatively high proportion of overhead network, or the additional volumes of work NIE Networks must undertake in inspections & maintenance, faults or tree cutting as a result.

2.14 NERA ruled out the engineering assessment and adding explanatory variables and instead relied on using disaggregated models to quantify the special factor claim. They argue that the use of disaggregated models of IMF&T takes into account the effect of NIE Networks' sparsity, rurality and network design (SR&ND) on its IMF&T costs.

2.15 The approach NERA have taken to quantifying the special factor for each of the UR's proposed models are is shown in the diagram below.

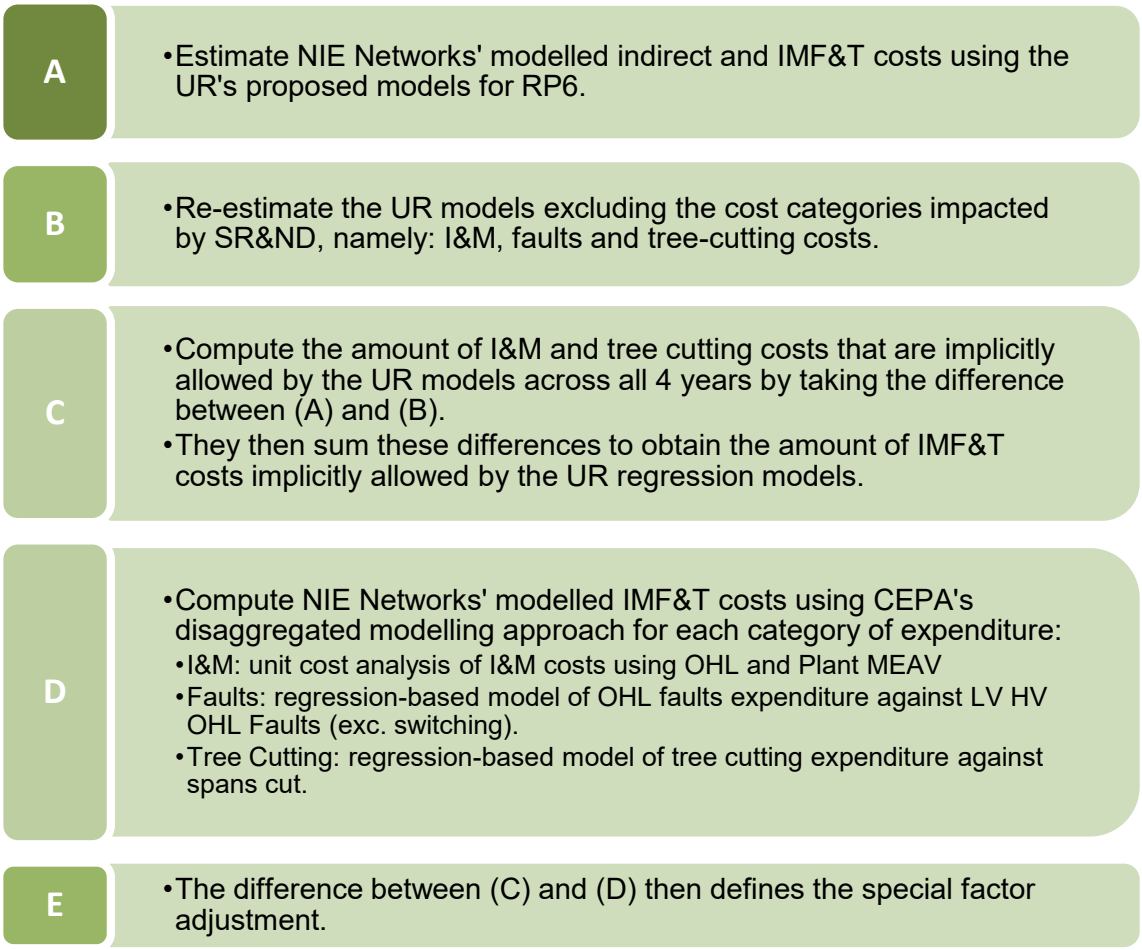

Figure 1: NIE Networks / NERA's approach to quantifying the SR&ND special factor claim

2.16 By following the above approach, NERA arrive at SR&ND special factor claims for each of the 12 models used by the UR within the DD. These are presented in the table below on a total basis across the 4 years of historical data used within the modelling.

2.17 The SR&ND special factor claim is greatest for the M4 model, which NERA argue is due to the large share of customer numbers and units distributed in the CSV, which do not account for network density.

	Pre-Allocation		Post-Allocation	
Model	No Local Labour Adj.	Full Local Labour Adj.	No Local Labour Adj.	Full Local Labour Adj.
CEPA	10.36	11.11	10.17	10.83
M4	19.82	19.58	19.92	19.68
M6	10.52	11.35	10.22	10.95

Table 3: NIE Networks' SR&ND special factor claim (£m)

2.18 Across all 12 models, the average annual special factor claim across the RP5 period is £3.43m.

Adjusting for differences in the Guaranteed Standard of Service

2.19 NERA acknowledged that NIE Networks operate to a 24 hour standard, compared to an 18 hour standard in force in Great Britain during DPCR5 and 12 hours in RIIO-ED1 (from 2015/16).

2.20 NERA stated that NIE Networks currently repair most faults within an 18 hour timeframe, which is equivalent to the GB standard up until 2015/16. As a result, NERA argue that the only additional costs NIE Networks would have incurred are the additional compensation payments for the customers affected by faults that have not been repaired within this timeframe. NIE Networks have estimated that the increase in compensation payments associated with operating to an 18 hour standard would have been approximately £25,000 per year (2012/13 to 2014/15).

2.21 Using the same approach, NIE Networks have estimated that operating to a 12 hour standard would result in an increase in annual compensation payments of approximately £185,000 per year. While not mentioned in the consultation response, it is important to mention that in a previous workshop with NIE Networks on 9 May 2017, NIE Networks stated that the costs required to move to a 12 hour standard would be very large in magnitude. As a result, they claimed that they may choose to incur the additional compensation payments rather than attempt to meet the 12 hour standard.

Adjusting for differences in the timing of the ESQCR programme

2.22 NERA acknowledge that NIE Networks did not undertake a large-scale ESQCR-compliance programme between 2012/13 and 2015/16, in contrast to GB DNOs. As a result, GB DNOs are likely to have incurred higher tree cutting and inspection and maintenance costs associated with complying with new ESQCR obligations. This suggests that a negative special factor claim for NIE Networks is justified.

2.23 NERA argue that ESQCR requirements are likely to have a positive impact on IMF&T costs and CAI costs, and given their preferred disaggregated approach to benchmarking deemed it appropriate to develop two different approaches:

i) The first approach estimating the impact of direct ESQCR expenditure on I&M costs.

ii) The second approach estimating the impact of ESQCR expenditure on CAI costs.

NERA's approach to estimating the effect of the ESQCR programme on IMF&T costs

2.24 NERA contend that the impact of the ESQCR programme is only necessary for inspection and maintenance (I&M) costs, and not tree cutting, as they argue that this is already taken account within their previous special factor claim for "Sparsity, rurality and network design".

2.25 Thus, they estimate the impact of ESQCR expenditure on total I&M costs by regressing I&M on total direct ESQCR expenditure and the OHL and Plant MEAV:

i) $$I\&M = \alpha + \beta * ESQCR + \gamma * OHL\ and\ Plant\ MEAV$$

2.26 NERA excluded LPN from the data set given that they operate an underground network and therefore will not incur additional I&M costs to comply with new ESQCR regulation.

2.27 NERA found a coefficient of 0.048 on ESQCR (β), which implies that for every additional £1 spent on direct ESQCR expenditure, I&M costs increase by £0.05.

2.28 However, it is important to note that this estimated coefficient was not statistically significant from zero. One could interpret this as NERA have, which is to say that this probably reflects the significant noise in the dataset and the small sample size. However, one could also interpret this result to suggest that increases in direct ESQCR expenditure does not have a significant impact on I&M costs. We explore this possibility further in the sections below.

2.29 Nevertheless, by using this estimated relationship between direct ESQCR expenditure and I&M, NERA estimated the negative special factor to be approximately £0.3m per year, or approximately £1.3m over the four year benchmarking period.

2.30 It is important to note that NERA chose not to use the latest RIG's data to re-run their model, and instead relied on the analysis they conducted in their previous special factors paper, which used GB data from 2010/11. NERA made this decision as they deemed it important to observe the relationship over a longer time period in which the GB DNO's ESQCR programme is ramped down.

2.31 NERA adopted a linear functional form instead of the logarithmic functional form often used within benchmarking analysis. The reason for this is that most DNO's report zero ESQCR expenditure after a certain point. As the natural logarithm of zero is -∞, observations that report zero ESQCR expenditure would be dropped from the estimation if the logarithmic functional form was used. However, NERA note that the presence of zero data points may be useful in this analysis as we attempt to capture the increase in IMF&T costs as a result of increases in direct ESQCR expenditure and the subsequent fall in IMF&T costs as direct ESQCR expenditure falls back to zero.

NERA's approach to estimating the effect of the ESQCR programme on CAI costs

2.32 NERA estimated the saving in CAI that NIE Networks incurred during the 2012/13 to 2015/16 period due to the difference in the timing of the ESQCR programme by using the estimated coefficient on the 'Asset Additions' variable in the Ofgem disaggregated CAI model.

2.33 NERA suggested that if the UR benchmarked using high-level scale variables as cost drivers, then the estimated coefficient on 'Asset Additions' could be used to control for differences in the scale of the ESQCR programme (i.e. a negative special factor).

2.34 NERA derived an estimated coefficient on asset additions of approximately 0.34, which indicates that a 1% increase in asset additions results in a 0.34% increase in CAI costs.

2.35 Between 2012/13 and 2015/16, NIE Networks' ESQCR capex was restricted to trials costing approximately £1.6m per year. Whereas, during RP6, NIE Networks will spend approximately £8.3m per year. Therefore, NIE Networks would incur an additional cost of around £6.7m per year if it had been carrying out its full ESQCR programme at the same time as GB DNOs.

2.36 This equates to approximately 12% of NIE Networks' total forecast capex expenditure, which NERA says leads to an increase in asset additions by 12% due to the ESQCR programme. Hence, a 12% increase in asset additions increases CAI costs by approximately 4%.[5]

2.37 NERA state that NIE Networks spends approximately £29m per annum on CAI, which implies adjusting NIE Networks' CAI costs by approximately £1.2m per annum to ensure an accurate comparison with GB DNOs.

2.38 It is important to note that the inclusion of MEAV on its own is unlikely to capture the impact of direct ESQCR expenditure on CAI costs given that the majority of ESQCR is replacement investment. Hence, an alternative approach to measuring the impact of ESQCR on CAI costs is necessary, if we assume and/or consider that the ESQCR programme experienced by GB DNOs during DPCR5/ RIIO-ED1 and due to be experienced by NIE Networks in RP6 has a significant impact on CAI costs.

Wayleave costs

NIE Networks' costs relative to GB DNOs

2.39 NIE Networks / NERA argue that NIE Networks incur particularly high wayleaves costs, which is driven largely by the extent to which NIE Networks' has a high proportion of overhead lines, which they argue is a consequence of the sparsity and rurality of NIE Networks' region.

2.40 Within the draft determination, the UR rejected the possibility of passing wayleave costs through outside of the benchmarking models as we deemed, and still do deem, that wayleave costs are somewhat controllable. However, NERA argue that it is still necessary to apply a special factor to properly take account of the factors which determine the volume of NIE Networks' wayleaves within the benchmarking, which is largely driven by the proportion of overhead lines.

Quantifying the wayleaves special factor

[5] 12% multiplied by the estimated coefficient on asset additions (0.338).

2.41 NERA state that they considered two approaches to quantifying the wayleaves special factor:

i) Adding explanatory variables.

ii) Using disaggregated models.

2.42 NERA state that they tested the first approach my including the number of OHL supports as an additional cost driver to each of the UR's models, but found that the variable was not always statistically significant and that the new models did not always pass UR's model diagnostic tests for misspecification. It is important to note that no evidence of this analysis was presented in NIE Networks' consultation response.

2.43 As NERA did not consider the first approach to be appropriate, they opted to rely on an off-model adjustment to control for the impact of NIE Networks' relatively high wayleaves costs on NIE Networks' operating costs, using a more disaggregated approach than UR's models to benchmark this element of cost. This is outlined in the diagram below:

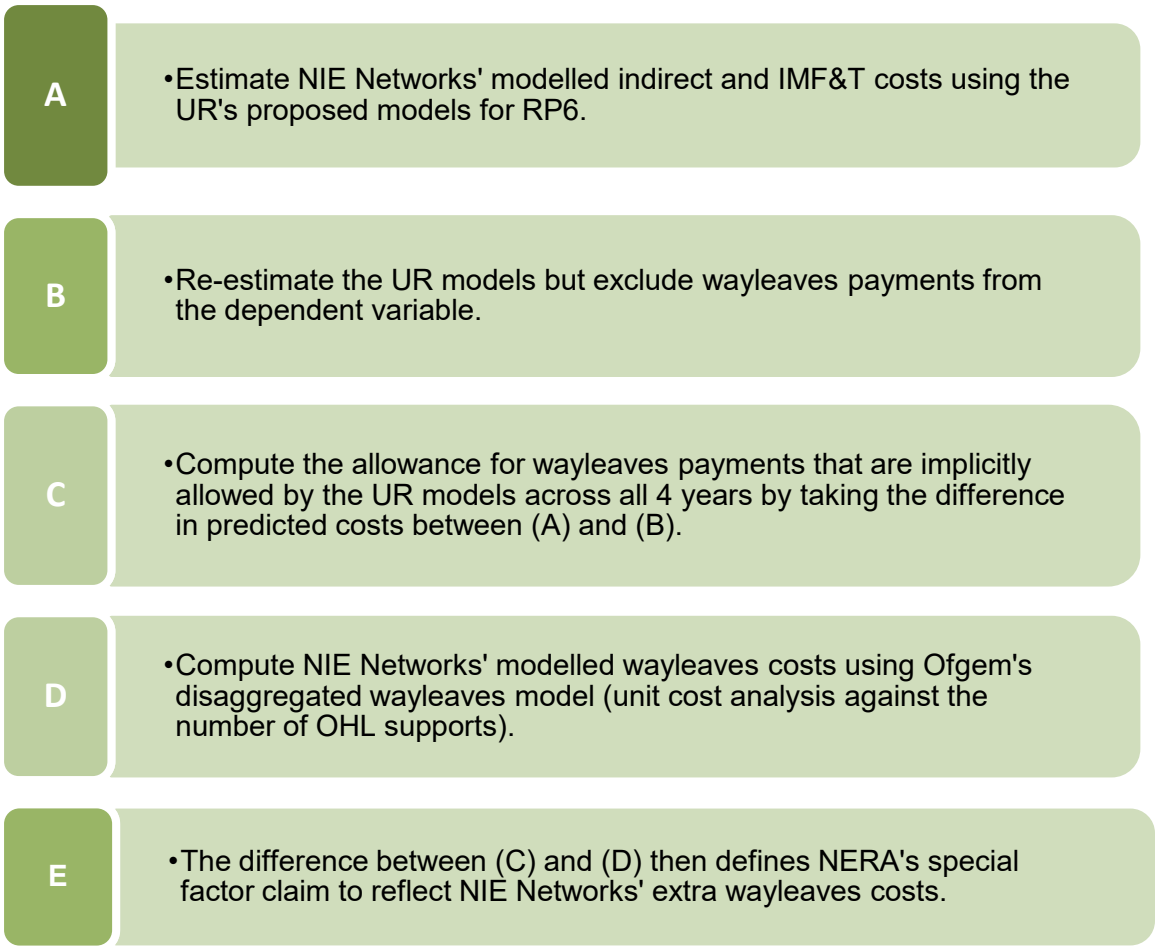

Figure 2: NERA's approach to quantifying the wayleaves special factor

2.44 As a result of this analysis, NIE Networks' wayleaves special factor claim is shown below for the 12 different models selected by the UR at the draft determination:

	Pre-Allocation		Post-Allocation	
Model	No Local Labour Adj.	Full Local Labour Adj.	No Local Labour Adj.	Full Local Labour Adj.
CEPA	4.22	4.81	3.78	4.38
M4	9.20	9.40	8.98	9.20
M6	4.47	5.04	3.99	4.58

Table 4: NIE Networks' Wayleaves Special Factor Claim (£m)

Indirect costs associated with connection activities

NIE Networks' costs relative to GB DNOs

2.45 During the benchmarking period 2012/13 to 2015/16, connections were not contestable in Northern Ireland, with NIE Networks carrying out all work in relation to connections to the electricity distribution system. Whereas, during the same period, the connections market was contestable in GB. As a result, NIE Networks carries out more connections activities relative to DNOs in other parts of the UK.

2.46 NERA also argue that NIE Networks has a faster growing customer base than the GB DNOs, experiencing customer growth of 2.3% between 2012/13 and 2015/16 compared to a GB average of 0.9%.

2.47 NERA argue that for these reasons, NIE Networks have a higher proportion of indirect costs to connection activities than other UK DNOs.

2.48 NERA argue that by placing a 50% weight on the pre-allocation models the UR have failed to take into account this issue. Thus, NERA recommend that the UR either place a 100% weight on the post-allocation models or apply a special factor adjustment accordingly.

Quantifying the special factor claim

2.49 NERA's approach to quantifying this special factor claim is outlined below.

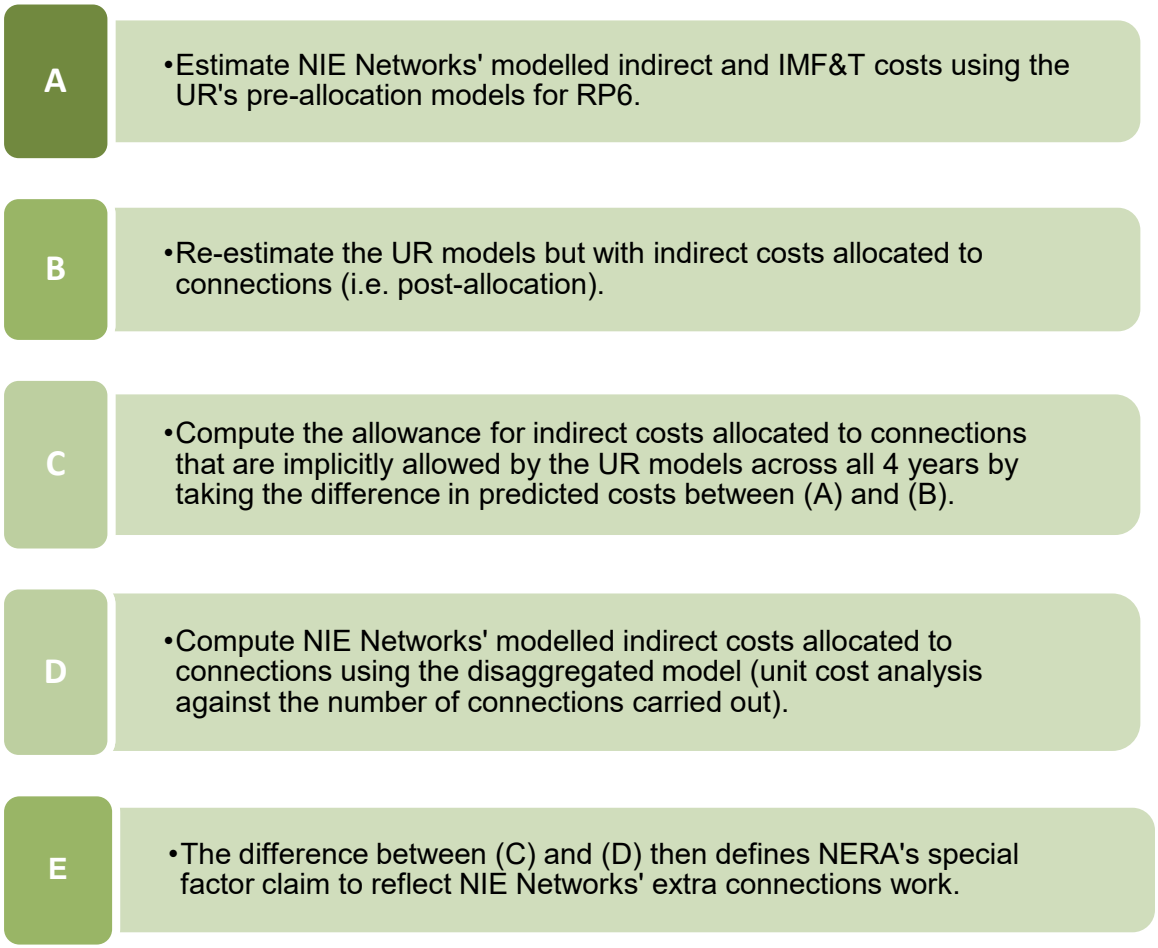

Figure 3: NERA's approach to quantifying NIE Networks' connection special factor claim

2.50 By using the above approach, NERA arrived at NIE Networks' connections special factor claim:

	Pre-Allocation		Post-Allocation	
Model	No Local Labour Adj.	Full Local Labour Adj.	No Local Labour Adj.	Full Local Labour Adj.
CEPA	12.35	20.16	0.00	0.00
M4	13.02	19.75	0.00	0.00
M6	14.07	21.84	0.00	0.00

Table 5: NIE Networks' connections special factor claim (£m)

Other special factors considered by NERA

2.51 NERA also considered a number of other special factors that may potentially result in exogenous differences in costs between NIE Networks and GB DNOs:

Small company effect

2.52 NERA stated that the UR's use of a log-log functional form (i.e. Cobb-Douglas cost function) within its benchmarking analysis sufficiently captures economies of scale. Therefore, a "small company effect" special factor is not required.

Innovation

2.53 NERA argue that while NIE Networks may have spent less on innovation in absolute terms, UR's models control for the fact that NIE Networks would tend to have lower Indirect and IMF&T costs, including innovation expenditure, due to its small size.

2.54 NERA also argue that innovation allowances in GB are intended to increase efficiency, and thus decrease Indirect and IMF&T costs. In turn, higher innovation expenditure by GB DNOs may have reduced Indirect and IMF&T expenditure over time for GB DNOs. Furthermore, the absence of such innovation allowances in Northern Ireland could have restricted the ability of NIE Networks to reduce Indirect and IMF&T costs to the same extent as GB DNOs. As a result, NERA argue that this could potentially justify a positive special factor adjustment for innovation instead of a negative special factor adjustment.

2.55 On the whole, NERA come to the decision that a negative special factor for innovation is not warranted.

Customer engagement

2.56 NERA acknowledge that NIE Networks are likely to have incurred lower consumer engagement costs than GB DNOs over the benchmarking period.

2.57 However, they argue that consumer engagement costs are unlikely to be substantial enough to reach the UR's materiality threshold. Unfortunately this claim cannot be confirmed due to the fact that consumer engagement expenditure is not directly reported in the RIGs for NIE Networks or GB DNOs.

2.58 As a result, NERA concluded that any marginal differences between engagement activities by NIE Networks and GB DNOs does not warrant a special factor claim.

NERA's conclusions on special factors

2.59 NERA concluded that NIE Networks incur different IMF&T costs relative to GB DNOs in three main areas:

i) Northern Ireland's sparsity and rurality and NIE Networks' historic network design lead NIE Networks to incur higher IMF&T costs.

ii) NIE Networks has a lower GSS standard in relation to customer restoration times, leading NIE Networks to save on fault costs.

iii) NIE Networks have not carried out the additional tree cutting and inspection and maintenance work related to the ESQCR regulations that GB DNOs have carried out between 2012/13 to 2015/16.

2.60 NERA concluded that NIE Networks incur additional indirect costs relative to GB DNOs in two main areas:

i) NIE Networks incurs additional wayleaves costs due to the large size of the network and the relatively low proportion of its network that is underground.

ii) NIE Networks incurs additional indirect costs as a result of its extra connections activities.

2.61 Taking all of the special factors they considered into account NERA arrived at the following special factor claims for NIE Networks, separated into special factors that could potentially have a material impact on IMF&T costs, and special factors that could potentially have a material impact on indirect costs.

	Pre-Allocation		Post-Allocation	
Model	No Local Labour Adj.	Full Local Labour Adj.	No Local Labour Adj.	Full Local Labour Adj.
CEPA	8.82	9.56	8.63	9.28
M4	18.27	18.03	18.37	18.14
M6	8.98	9.81	8.67	9.40

Table 6: NIE Networks' IMF&T special factor claims (£m)

	Pre-Allocation		Post-Allocation	
Model	No Local Labour Adj.	Full Local Labour Adj.	No Local Labour Adj.	Full Local Labour Adj.
CEPA	11.14	19.53	-1.65	-1.05
M4	16.78	23.71	3.55	3.76
M6	13.11	21.45	-1.45	-0.86

Table 7: NIE Networks' Indirects special factor claims (£m)

2.62 Thus, NIE Networks' total special factor claim between 2012/13 and 2015/16 is the sum of the above two tables.

	Pre-Allocation		Post-Allocation	
Model	No Local Labour Adj.	Full Local Labour Adj.	No Local Labour Adj.	Full Local Labour Adj.
CEPA	19.95	29.09	6.98	8.23
M4	35.05	41.74	21.92	21.90
M6	22.08	31.25	7.22	8.54

Table 8: NIE Networks' total IMF&T and Indirects special factor claim (£m)

2.63 In section 3 below, we evaluate NIE Networks' approach to special factors, and outline the UR's approach to assessing special factors that may result in exogenous differences in NIE Networks' IMF&T and Indirect costs compared to GB DNOs.

3 UR's Special Factor Decision

3.1 In making its final determination for RP6 the UR considered all potential special factors raised by CCNI and NIE Networks. The analytical approach which the UR applied to this assessment is shown below.

UR's assessment of SR&ND and wayleaves special factors

3.2 We have decided to consider NIE Networks' special factor claims with regards to 'sparsity, rurality and network design' (SR&ND) and 'wayleaves' together given the similar justification for applying a special factor in both cases – i.e. the large proportion of overhead lines within NIE Networks' network design.

3.3 Firstly, it is important to note that we consider that the CEPA length and density model and CC M6 model are specified in such a way that they accurately and sufficiently capture any effect sparsity/ rurality has on IMF&T and Indirect costs.

3.4 Furthermore, CEPA tested the inclusion of a density variable in the CC M4 model but found it to be statistically insignificant. As a result, the model specification did not pass CEPA's model selection criteria. This result implies that there is likely to be a high degree of collinearity between the CSV and density explanatory variables. The reason for this could potentially be because the CSV contains network length and customer numbers, and therefore implicitly takes into account the impact of sparsity / rurality on IMF&T and Indirect costs. Therefore, the addition of the network density variable does not add any additional value to explaining variation in IMF&T and Indirect costs. We therefore consider that the CC M4 model also sufficiently captures any effect sparsity/ rurality has on IMF&T and Indirect costs.

3.5 It is also important to note that it is not necessarily the case that operating in a sparse/ rural region leads to higher IMF&T and Indirect costs (i.e. the net impact on costs is somewhat ambiguous). There is the distinct possibility that an urbanity effect may also be present, i.e. IMF&T and Indirect costs are higher for DNOs operating in highly dense, urban regions. For example, working in highly populated regions is more complex and is likely to require a more detailed consideration of the deployment of other utilities and local authorities before undertaking the work. As a result, the impact of sparsity on IMF&T and Indirect costs is uncertain.

3.6 Nevertheless, we recognise that a high proportion of overhead lines may result in an increase in IMF&T and Indirect costs for reasons that are to some degree outside the control of NIE Networks, such as:

i) overhead lines require relatively higher amounts of inspections and maintenance;

ii) overhead lines have relatively higher fault rates;

iii) overhead lines require relatively higher levels of tree spans inspected and cut; and

iv) a high proportion of overhead lines will result in an increase in the volume of wayleaves.

3.7 These factors suggest that a special factor may be warranted to capture the impact of NIE Networks' network design on IMF&T and Indirect costs relative to GB DNOs.

3.8 However, we have critically evaluated NIE Networks' approach to quantifying the special factor claims associated with having a high proportion of overhead lines, and we do not consider that NERA's approach to quantifying the special factor claims for SR&ND and wayleaves are appropriate for two main reasons.

3.9 Firstly, we do not consider that NERA or NIE Networks have sufficiently tested the addition of explanatory variables to the UR's models that would capture the impact of a having a high proportion of overhead lines on NIE Networks' IMF&T and Indirect costs. While we acknowledge that NIE Networks tested the inclusion of the number of OHL supports as an additional cost driver in the case of quantifying the wayleaves special factor adjustment (which proved to be statistically insignificant), which consider that other potentially suitable cost drivers could have tested, such as the proportion of overhead lines.

3.10 Providing that suitable and appropriate explanatory variables can be identified, we deem that this approach would more accurately and appropriately deal with the issue of network design on IMF&T and Indirect costs, given our approach to benchmarking at the DD (i.e. the use of top-down and middle-up IMF&T and Indirect models only), and the fact that differences in network design is likely to have an impact on other GB DNOs IMF&T and Indirect costs as well as NIE Networks.

3.11 The latter is particularly important given the overall objective of our benchmarking analysis is to arrive at a catch-up efficiency factor that we can apply to NIE Networks' 2015/16 baseline IMF&T and Indirect costs. Therefore, if we were to apply a special factor adjustment with regards to SR&ND and wayleaves to NIE Networks only, then this implies that these factors do not affect other DNOs. In reality, however, factors such as SR&ND and wayleaves are also likely to affect other DNOs in the benchmarking sample, especially those who also have a high proportion of overhead lines, such as SSE Hydro. Therefore, applying a special factor claim for SR&ND and wayleaves to NIE Networks alone would disproportionately benefit NIE Networks in terms of their relative performance to the other GB DNOs in the benchmarking sample.

3.12 We consider that an explanatory variable such as the proportion of overhead lines would capture the differences in the operating environments between companies that result in increases in costs that are outside of company control. This is similar to the approach taken by the Australian Energy Regulator (AER) when assessing the relative efficiency of the distribution network service providers (DNSPs), who included the proportion of each DNSP's network that is underground within their econometric

benchmarking models to control for differences in operating environments.[6] They found the estimated coefficient to be negative and statistically significant, which implies that DNSPs with a high proportion of their network underground have lower costs. Conversely, in our case, by including the proportion of each DNO's network that is overground, we would expect the estimated coefficient to be positive, implying that DNO's with a high proportion of their network overground incur higher costs for reasons outside company control.

3.13 Secondly, one of the major reasons for choosing to use top-down and middle-up models to benchmark NIE Networks with GB DNOs was that the cost drivers frequently used by regulators in these models; such as customer numbers, network length, units distributed and network density; are exogenous, i.e. cannot be influenced by inefficient decisions by companies and/or by decisions made by companies that are not in customers' best interests.

3.14 In contrast, the cost drivers used within disaggregated models, like those employed by NERA, are more susceptible to influence by the companies themselves. In other words, the cost drivers used in the disaggregated models are more likely to be influenced by inefficient decisions by companies and/or by decisions made by companies that are not in customers' best interests. For example, NERA's disaggregated faults model, while it may capture the higher level of faults associated with a high proportion of overhead lines, may at the same time inadvertently reward companies with a high number of overhead line faults and/or give companies an excuse for providing a poor quality of service to its customers.

3.15 For these reasons we do consider NERA's approach to quantifying NIE Networks' SR&ND and wayleaves special factors approach. We go into further reasoning for why we consider the exact approach taken by NERA to quantify NIE Networks' SR&ND and wayleaves special factors to be inappropriate below.

NIE Networks' SR&ND special factor claim

3.16 NERA calculate the implicit allowance for IMF&T costs given by each of the UR's models. They then compute NIE Networks' modelled IMF&T costs using the disaggregated models for I&M, tree cutting and faults, and compare. We have significant concerns with each of these models employed by NERA, which are discussed below in turn.

Inspections and Maintenance (I&M) disaggregated model

3.17 NERA's I&M model utilises unit costs analysis of I&M costs using OHL and Plant MEAV as the cost driver.

3.18 We acknowledge that the OHL and Plant MEAV should in theory and in a perfect world be exogenous. However, NIE Networks have found errors within their data submissions to the UR on a number of occasions, including the asset register which is

[6] Australian Energy Regulator, 2015. Annual Benchmarking Report. Electricity distribution network service providers.

used to calculate MEAV. This resulted in a resubmission of their asset register to the UR on 6th October 2016, which included new 2015/16 data as well as an updated asset register in previous years so that the "V1 – Total Asset Movement" and the "V5 – Asset Register – Age Profile" worksheets reconcile, which was not the case in NIE Networks' previous submission to the UR.[7]

3.19 The differences in NIE Networks' MEAV depending on the source used are displayed in the table below. The UR have received three different versions of the "V1 – Total Asset Movement" worksheet from NIE Networks, all of which result in a significantly different MEAV for NIE Networks:

i) **Source 1:** 2016_06_29 RP6 BPT Distribution Cost and Volumes V2.20.xlsx and 2016_06_29 RP6 BPT Transmission Cost and Volumes V2.20.xlsx.

ii) **Source 2:** NIEN data reporting template.xlsx prepared by NERA and included as part of NIE Networks' June 2016 benchmarking submission.

iii) **Source 3:** 2016_10_14 Electricity Distribution Cost and Volume RIGs Reporting Workbook.xlsm and 2016_10_14 Electricity Transmission Costs and Volume RIGs Reporting Workbook.xlsx.

NIE Networks MEAV	2011/12	2012/13	2013/14	2014/15	2015/16
Source 1	4,925,554	4,913,648	4,901,742	4,889,837	
Source 2	5,387,215	5,428,979	5,466,603	5,514,343	
Source 3	5,269,343	5,317,012	5,359,317	5,416,391	5,475,725

Table 9: Differences in NIE Networks MEAV depending on source

3.20 The percentage differences in NIE Networks' MEAV between sources are shown in the table below. On average, Source 2 MEAV was approximately 11% higher than Source 1 MEAV, and Source 3 MEAV was approximately 2% lower than Source 2 MEAV. These differences exacerbate our concerns with regards to the accuracy of the asset register data provided to the UR by NIE Networks, and in turn significantly reduce our confidence in the accuracy of NIE Networks' MEAV. This is one of the key reasons why we decided not to use MEAV as a cost driver within our benchmarking models, and also why we do not consider it appropriate to use MEAV when quantifying special factor claims.

NIE Networks' MEAV (% changes between sources)	2011/12	2012/13	2013/14	2014/15
Source 1 to Source 2	+ 9.37%	+ 10.49%	+ 11.52%	+ 12.77%
Source 2 to Source 3	- 2.19%	- 2.06%	- 1.96%	- 1.78%

Table 10: NIE Networks' MEAV - % changes between sources

[7] UR Query URQ056 to URQ061, 6 October 2016.

3.21 These changes resulted in significant changes to NIE Networks' asset register. While we understand and appreciate the manual nature of RIGs and the significant volume of data being managed, for the reasons mentioned above, the UR does not have complete confidence that the asset register data provided to the UR by NIE Networks is 100% accurate. The manual nature of the RIGs process magnifies our concerns regarding data quality further.

3.22 Following on from the previous point, given the significant RIGs expenditure allowance provided to NIE Networks during RP5, we question whether the manual nature of the RIGs is an exogenous decision by NIE Networks or an inefficient decision. We consider it reasonable to expect that with the RIGs allowance given to NIE Networks by the CC to spend during RP5, that this allowance could have been more effectively spent, for example, by automating the RIGs process rather than employ individuals to manually manage and reconcile RIGs data. The former is likely to have required a higher initial investment but would result in lower labour costs and significant improvements in data quality.

3.23 Given the importance of the accuracy of this data in determining MEAV, along with additional reasons presented in the draft determination,[8] we made the informed decision not to rely on MEAV within our benchmarking analysis and to instead rely on alternative cost drivers that are both exogenous and more reliable in terms of accuracy. For the same reasons, we do not deem it appropriate to use the I&M disaggregated model, which uses the overhead line and plant MEAV as the main cost driver, when calculating NIE Networks' special factor claim for sparsity, rurality and network design.

Faults

3.24 NERA's faults model is a regression-based modelling of overhead line (OHL) faults expenditure. Specifically, low voltage and high voltage OHL faults costs are regressed against the volume of low voltage and high voltage OHL line faults (excluding switching).

3.25 CEPA tested this faults model within the benchmarking analysis they conducted for the UR and found the model only performed averagely due to the fact that the model marginally fails the pooling test.[9] This suggests that the pooling of data may not be advised in this case as we cannot be confident that the effect of the volume of faults on faults costs are constant over the benchmarking period. As a result, the UR does not consider that this is an appropriate model to use within this benchmarking process, including the quantification of special factors.

3.26 Furthermore, while we acknowledge that the proportion of overhead lines in NIE Networks' network may result in relatively higher fault costs, we are significantly concerned that the direct use of the number of faults as the main cost driver of fault

[8] MEAV is calculated based on expert views of unit costs from Ofgem's RIIO-ED1 price control, and thus has some degree of discretion in how it is calculated. In contrast, while the weights of the CSV require discretion, their components have regulatory precedent and are individually reliable. The CC at RP5 opted to use a CSV instead of MEAV as a main cost driver in their preferred benchmarking models.
[9] CEPA, 2017. RP6 Efficiency Advice. Pages ii and 35.

costs may also potentially reflect bad quality of service being delivered by NIE Networks (and other DNOs with a high proportion of overhead lines). As a result, the fault model specification used by NERA may inadvertently reward DNOs, including NIE Networks, for poor quality of service, rather than reflect differences in fault costs caused exogenously by differences in network design.

3.27 For the reasons stated above, we do not deem it appropriate to use NERA's disaggregated faults model within our benchmarking process, including the quantification of special factors.

Tree Cutting

3.28 NERA's tree cutting model regresses tree cutting expenditure on the number of spans cut. The number of spans inspected was not statistically significant and was therefore not included in the model specification.

3.29 While we acknowledge that CEPA recommended the same tree cutting model specification as NERA, we decided not to use disaggregated models when benchmarking NIE Networks with GB DNOs at the draft determination and instead used CEPA's independent model development to arrive at a preferred set of top-down and middle-up IMF&T and Indirect models.

3.30 We consider that the inclusion of CEPA's middle-up models within the set of models used to assess NIE Networks' relative efficiency compared to GB DNOs sufficiently manages the trade-offs between aggregated and more disaggregated benchmarking analyses sufficiently. The same reasons also apply for why we do not consider it appropriate to use NERA's tree cutting model to quantify NIE Networks' SR&ND special factor claim.

3.31 We also reject the use of NERA's tree cutting model to quantify this special factor claim for two other reasons:

i) Firstly, we are concerned that the use of spans cuts as the cost driver in NERA's tree cutting model may inadvertently reward NIE Networks and other GB DNOs for potential unnecessary and inefficient tree cutting activity (volumes of work). The use of more exogenous cost drivers, as we use in our top-down and middle-up benchmarking models, protect NIE Networks' consumers from this risk.

   Our concerns around inefficient and unnecessary tree cutting activity are exacerbated by NIE Networks' forecasted tree cutting activity during RP6. NIE Networks have forecasted significant increases in the number of spans cut over RP6 due to ESQCR regulations. In particular, they claim that ESQCR regulation ENA TS 43-8 will require significant increases in tree cutting activity in RP6 compared to RP5. However, this is not a new ESQCR standard, and NIE Networks have been operating to this standard during RP5. Hence, there does not appear to be any reasonable justification for why spans cut are forecasted to increase significantly during RP6.

ii) Secondly, the explanatory power of the tree cutting model is not very large in magnitude, with a R^2 of only 0.243 reported by CEPA within their RP6 efficiency advice paper.[10] This suggests that only approximately 24.3% of the variation in tree cutting costs is explained by the amount of spans cut.

In contrast, when we turn to CEPA's recommended middle-up NOCs model, which includes tree cutting, the explanatory power of the model is significantly higher at approximately 73.7%. This implies that network length and density may be more suitable for explaining the variation in tree cutting costs than the volume of spans cut.

3.32 For all of the above reasons, we do not consider it appropriate to use NERA's disaggregated tree cutting model to quantify NIE Networks' SR&ND special factor claim.

NIE Networks' Wayleaves special factor claim

3.33 NERA calculate the implicit allowance for wayleaves payments given by each of the UR's models. They then compute NIE Networks' modelled wayleaves costs using the disaggregated model and compare the allowances to calculate the wayleaves special factor adjustment.

3.34 In addition to the arguments outlined above, we also have identified additional concerns regarding the exact approach NERA have taken to quantify NIE Networks' wayleaves special factor claim.

3.35 We acknowledge that the proportion/number of overhead lines in a company's network is somewhat exogenous, which could be argued is a significant driver of wayleave payments, i.e. a higher proportion of overhead lines leads to a relatively larger volume of wayleaves. However, while we agree that the proportion/ volume of overhead lines are arguably exogenous, we consider that the wayleave compensation rates set by NIE Networks are controllable by the company (i.e. endogenous).

3.36 We acknowledge that NIE Networks currently set their wayleaves rates according to the rates used by Scottish Power, which are in turn recommended by the ENA. While NIE Networks has chosen to use this approach to set their wayleaves rates, there is no evidence to suggest that this is the most efficient approach to take when setting wayleaves rates. It may have been more efficient for NIE Networks to derive their own wayleaves rates rather than rely on the rates used by Scottish Power.

3.37 For example, by deriving their own wayleaves rates, NIE Networks may have been more able to take into account the preferences of Northern Ireland land owners. Through this analysis, NIE Networks may have found that Northern Ireland landowners, for whatever reason, may be willing to accept lower wayleave rates than Scottish landowners. As a result, total wayleave costs incurred by NIE Networks during RP5 would have been lower through efficiency savings.

[10] CEPA, 2017 RP6 Efficiency Advice. Pages 15 and 16.

3.38 We appreciate that the use of number of overhead line supports in the disaggregated models should in theory highlight any inefficiencies in the setting of wayleaves rates. However, we consider that including the proportion of overhead lines as a driver in UR's models sufficiently and appropriately takes into account differences in the operating environments across DNOs that cause increases in the volume of wayleaves. As a result, we do not consider it necessary to assess wayleaves payment costs separately, and maintain our view that it is appropriate and sufficient to include wayleaves payments costs within our benchmarking models.

UR's approach to capturing the impact of SR&ND on IMF&T and Indirects

3.39 Based on the information and arguments put forward in the previous subsections, we consider that the most appropriate approach to taking into account the impact of SR&ND on IMF&T and Indirect costs is to test the inclusion of additional cost drivers in our models that would accurately capture the impact on costs of having a high proportion of overhead lines. Specifically, the inclusion of a "proportion of overhead lines" explanatory variable in our models.

3.40 We define our proportion of overhead lines (OHL) variable as:

i) OHL Length % = Total OHL Length / Total Network Length

3.41 As mentioned previously, having a high proportion of overhead lines in your network may increase IMF&T and Indirect costs for reasons that are, to some degree, outside the control of the company. For example:

i) overhead lines require relatively higher amounts of I&M;

ii) overhead lines have relatively higher fault rates;

iii) overhead lines require relatively higher levels of tree spans inspected and cut; and

iv) a high proportion of overhead lines will result in an increase in the volume of wayleaves.

3.42 For these reasons, we expect in our *a priori* assumptions that the proportion of overhead lines variable to be a significant driver of costs in the top-down IMF&T and Indirect models and the middle-up NOCs and CAI models. There does not appear to be a clear rationale for why SR&ND may increase business support costs, therefore we expect the proportion of overhead line variable to be insignificant in our middle-up business support model.

3.43 While the proportion of overhead lines in the network is likely to drive tree cutting and fault costs, we expect the variable to be statistically significant in the disaggregated tree cutting and faults models as the cost drivers used in those models, spans cuts and number of LV and HV overhead line faults, are likely to already pick up the impact of SR&ND on tree cutting and fault costs.

3.44 On the following pages we present model estimation results for our preferred models outlined in the draft determination, with and without the addition of the proportion of overhead line variable.[11]

3.45 For brevity, we do not present the disaggregated tree cutting or fault model estimation results, with or without the inclusion of the proportion of overhead line variable. However, we note here that the proportion of overhead line variable was statistically insignificant in all cases. This result confirms our ex-ante and *a priori* assumption that the other cost drivers included in these models (spans cut and number of LV and HV overhead line faults) already capture the impact of SR&ND on tree cutting and fault costs sufficiently.

[11] Using Pooled Ordinary Least Squares (POLS) estimation.

Table 11: Pre-allocation POLS IMF&T and Indirect model estimation results, excluding proportion of OHL variable [12]

	No local labour adjustment			Ofgem Local Labour Adjustment (GB DNOs and NIE Networks)			Ofgem Local Labour Adjustment (GB DNOs only)		
Model Number	**Model 1a**	**Model 2a**	**Model 3a**	**Model 1b**	**Model 2b**	**Model 3b**	**Model 1c**	**Model 2c**	**Model 3c**
Length	0.847***			0.843***			0.838***		
Density	0.451***			0.497***			0.472***		
CSV		0.860***			0.887***			0.860***	
Length per Customer			0.557***			0.512***			0.537***
Time dummy (2014)		0.053***	0.048**		0.053***	0.048**		0.053***	0.048**
Time dummy (2015)		0.034**	0.024*		0.034**	0.024*		0.034**	0.024*
Time dummy (2016)		**0.029**	**0.015**		**0.029**	**0.015**		**0.029**	**0.015**
Constant	-5.931***	-5.034***	-7.594***	-6.056***	-5.352***	-7.761***	-5.910***	-5.042***	-7.668***
RESET	0.122	0.267	0.159	0.079	0.075	0.350	0.076	0.275	0.227
Normality Test	0.374	0.199	0.748	0.411	0.265	0.951	0.483	0.165	0.998
Pooling Test	0.937	1.000	1.000	0.867	1.000	1.000	0.858	1.000	1.000
N	60	60	60	60	60	60	60	60	60
R^2	0.846	0.835	0.689	0.882	0.873	0.699	0.88	0.842	0.720

[12] * indicates statistical significance at a 10% level; ** indicates statistical significance at a 5% level; *** indicates statistical significance at a 1% level. Estimated parameters in bold are not statistically significant. Statistical diagnostic test results in bold indicate that we reject the null hypothesis at a 5% significance level (i.e. the test fails). All explanatory and dependent variables are in natural logarithm.

Table 12: Pre-allocation POLS IMF&T and Indirect model estimation results, including proportion of OHL variable[13]

	No local labour adjustment			Ofgem Local Labour Adjustment (GB DNOs and NIE Networks)			Ofgem Local Labour Adjustment (GB DNOs only)		
Model Number	**Model 1d**	**Model 2d**	**Model 3d**	**Model 1e**	**Model 2e**	**Model 3e**	**Model 1f**	**Model 2f**	**Model 3f**
Length	0.746***			0.777***			0.778***		
Density	0.600***			0.595***			0.561***		
CSV		0.874***			0.894***			0.876***	
Length per Customer			0.487***			0.482***			0.515***
OHL length %	0.046***	0.026***	0.022*	0.030**	0.013**	**0.009**	0.027**	0.014**	**0.007**
Time dummy (2014)		0.053***	0.048**		0.054***	0.048**		0.053***	0.048**
Time dummy (2015)		0.035**	0.024*		0.035**	0.024*		0.035**	0.024*
Time dummy (2016)		**0.03**	**0.016**		**0.030**	**0.016**		**0.030**	**0.016**
Constant	-5.298***	-5.162***	-7.811***	-5.642***	-5.415***	-7.852***	-5.534***	-5.200***	-7.734***
RESET	0.291	**0.027**	0.149	0.283	**0.013**	0.344	0.211	**0.026**	0.174
Normality Test	0.644	0.474	0.765	0.563	0.439	0.989	0.535	0.621	0.966
Pooling Test	0.972	1.000	1.000	0.949	1.000	1.000	0.948	1.000	1.000
N	60	60	60	60	60	60	60	60	60
R^2	0.877	0.855	0.705	0.895	0.878	0.702	0.891	0.877	0.722

[13] * indicates statistical significance at a 10% level; ** indicates statistical significance at a 5% level; *** indicates statistical significance at a 1% level. Estimated parameters in bold are not statistically significant. Statistical diagnostic test results in bold indicate that we reject the null hypothesis at a 5% significance level (i.e. the test fails). All explanatory and dependent variables are in natural logarithm.

Table 13: Post-allocation POLS IMF&T and Indirect model estimation results[14]

	No local labour adjustment			Ofgem Local Labour Adjustment (GB DNOs and NIE Networks)			Ofgem Local Labour Adjustment (GB DNOs only)		
Model Number	**Model 1a**	**Model 2a**	**Model 3a**	**Model 1b**	**Model 2b**	**Model 3b**	**Model 1c**	**Model 2c**	**Model 3c**
Length	0.888***			0.885***			0.880***		
Density	0.478***			0.521***			0.497***		
CSV		0.903***			0.929***			0.911***	
Length per Customer			0.529***			0.486***			0.509***
Time dummy (2014)		0.070***	0.065***		0.071***	0.065***		0.071***	0.065***
Time dummy (2015)		0.041**	**0.030**		0.042**	0.031*		0.042**	0.031*
Time dummy (2016)		**0.020**	**0.006**		**0.020**	**0.006**		**0.020**	**0.006**
Constant	-6.593***	-5.657***	-7.815***	-6.712***	-5.957***	-7.971***	-6.574***	-5.750***	-7.884***
RESET	0.222	0.270	0.398	0.125	0.141	0.143	0.143	0.175	0.240
Normality Test	0.706	0.487	0.482	0.793	0.346	0.699	0.848	0.491	0.803
Pooling Test	0.932	1.000	1.000	0.877	1.000	1.000	0.859	1.000	1.000
N	60	60	60	60	60	60	60	60	60
R^2	0.799	0.790	0.589	0.836	0.828	0.594	0.837	0.830	0.626

[14] * indicates statistical significance at a 10% level; ** indicates statistical significance at a 5% level; *** indicates statistical significance at a 1% level. Estimated parameters in bold are not statistically significant. Statistical diagnostic test results in bold indicate that we reject the null hypothesis at a 5% significance level (i.e. the test fails). All explanatory and dependent variables are in natural logarithm.

Table 14: Post-allocation POLS IMF&T and Indirect model estimation results, including proportion of OHL variable[15]

	No local labour adjustment			Ofgem Local Labour Adjustment (GB DNOs and NIE Networks)			Ofgem Local Labour Adjustment (GB DNOs only)		
Model Number	**Model 1d**	**Model 2d**	**Model 3d**	**Model 1e**	**Model 2e**	**Model 3e**	**Model 1f**	**Model 2f**	**Model 3f**
Length	0.735***			0.764***			0.765***		
Density	0.705***			0.699***			0.668***		
CSV		0.924***			0.943***			0.926***	
Length per Customer			0.386***			0.382***			0.413***
OHL length %	0.070***	0.037***	0.045***	0.055***	0.025***	0.033**	0.052***	0.026***	0.031**
Time dummy (2014)		0.071***	0.065***		0.071***	0.065***		0.071***	0.065***
Time dummy (2015)		0.042**	0.031*		0.042**	0.031*		0.042**	0.031*
Time dummy (2016)		**0.021**	**0.007**		**0.021**	**0.007**		**0.021**	**0.007**
Constant	-5.628***	-5.841***	-8.255***	-5.955***	-6.080***	-8.292***	-5.853***	-5.878***	-8.180***
RESET	0.381	**0.022**	0.217	0.375	**0.017**	0.278	0.337	**0.020**	0.22
Normality Test	0.877	0.406	0.823	0.648	0.474	0.979	0.771	0.597	0.935
Pooling Test	0.929	1.000	1.000	0.898	1.000	1.000	0.885	1.000	1.000
N	60	60	60	60	60	60	60	60	60
R^2	0.860	0.826	0.654	0.873	0.844	0.636	0.872	0.848	0.660

[15] * indicates statistical significance at a 10% level; ** indicates statistical significance at a 5% level; *** indicates statistical significance at a 1% level. Estimated parameters in bold are not statistically significant. Statistical diagnostic test results in bold indicate that we reject the null hypothesis at a 5% significance level (i.e. the test fails). All explanatory and dependent variables are in natural logarithm.

Table 15: Pre-allocation POLS NOCs, CAI and Business Support model estimation results[16]

	No local labour adjustment			Ofgem Local Labour Adjustment (GB DNOs and NIE Networks)			Ofgem Local Labour Adjustment (GB DNOs only)		
Cost category	**NOCs**	**CAI**	**Business Support**	**NOCs**	**CAI**	**Business Support**	**NOCs**	**CAI**	**Business Support**
Model number	**Model 4a**	**Model 5a**	**Model 6a**	**Model 4b**	**Model 5b**	**Model 6b**	**Model 4c**	**Model 5c**	**Model 6c**
Length	1.067***			1.067***			1.066***		
Density	0.738***			0.748***			0.743***		
CSV		0.747***	0.586***		0.777***	0.634***		0.757***	0.603***
Constant	-10.407***	-4.561***	-3.390***	-10.440***	-4.921***	-3.952***	-10.407***	-4.687***	-3.583***
RESET	0.395	0.856	0.077	0.403	0.676	**0.043**	0.406	0.769	0.083
Normality Test	0.133	0.295	0.059	0.138	0.509	0.119	0.147	0.316	0.212
Pooling Test	0.981	0.690	0.994	0.979	0.595	0.993	0.978	0.624	0.993
N	60	60	60	60	60	60	60	60	60
R^2	0.737	0.759	0.622	0.746	0.8	0.667	0.745	0.784	0.651

[16] * indicates statistical significance at a 10% level; ** indicates statistical significance at a 5% level; *** indicates statistical significance at a 1% level. Estimated parameters in bold are not statistically significant. Statistical diagnostic test results in bold indicate that we reject the null hypothesis at a 5% significance level (i.e. the test fails). All explanatory and dependent variables are in natural logarithm.

Table 16: Pre-allocation POLS NOCs, CAI and Business Support model estimation results, including proportion of OHL variable[17]

	No local labour adjustment			Ofgem Local Labour Adjustment (GB DNOs and NIE Networks)			Ofgem Local Labour Adjustment (GB DNOs only)		
Cost category	**NOCs**	**CAI**	**Business Support**	**NOCs**	**CAI**	**Business Support**	**NOCs**	**CAI**	**Business Support**
Model number	**Model 4d**	**Model 5d**	**Model 6d**	**Model 4e**	**Model 5e**	**Model 6e**	**Model 4f**	**Model 5f**	**Model 6f**
Length	0.808***			0.816***			0.816***		
Density	1.122***			1.120***			1.113***		
CSV		0.762***	0.583***		0.784***	0.619***		0.765***	0.589***
OHL length %	0.118***	0.027***	**-0.005**	0.114***	0.012*	-0.027***	0.113***	0.014**	-0.025***
Constant	-8.779***	-4.694***	-3.365***	-8.865***	-4.981***	-3.818***	-8.840***	-4.753***	-3.459***
RESET	0.758	0.520	0.099	0.750	0.502	0.149	0.762	0.629	0.248
Normality Test	**0.013**	0.401	**0.049**	**0.014**	0.590	**0.049**	**0.013**	0.369	0.096
Pooling Test	0.987	0.788	0.998	0.986	0.748	0.996	0.986	0.773	0.996
N	60	60	60	60	60	60	60	60	60
R^2	0.829	0.786	0.624	0.832	0.805	0.699	0.831	0.791	0.681

[17] * indicates statistical significance at a 10% level; ** indicates statistical significance at a 5% level; *** indicates statistical significance at a 1% level. Estimated parameters in bold are not statistically significant. Statistical diagnostic test results in bold indicate that we reject the null hypothesis at a 5% significance level (i.e. the test fails). All explanatory and dependent variables are in natural logarithm.

Table 17: Post-allocation POLS NOCs, CAI and Business Support model estimation results[18]

	No local labour adjustment			Ofgem Local Labour Adjustment (GB DNOs and NIE Networks)			Ofgem Local Labour Adjustment (GB DNOs only)		
Cost category	**NOCs**	**CAI**	**Business Support**	**NOCs**	**CAI**	**Business Support**	**NOCs**	**CAI**	**Business Support**
Model number	**Model 4a**	**Model 5a**	**Model 6a**	**Model 4b**	**Model 5b**	**Model 6b**	**Model 4c**	**Model 5c**	**Model 6c**
Length	1.067***			1.067***			1.066***		
Density	0.738***			0.748***			0.743***		
CSV		0.796***	0.604***		0.827***	0.652***		0.807***	0.620***
Constant	-10.407***	-5.339***	-3.734***	-10.440***	-5.698***	-4.296***	-10.407***	-5.465***	-3.928***
RESET	0.395	0.745	0.225	0.403	0.612	0.191	0.406	0.725	0.221
Normality Test	0.133	0.997	0.135	0.138	0.935	0.293	0.147	0.976	0.250
Pooling Test	0.981	0.733	0.993	0.979	0.659	0.991	0.978	0.662	0.989
N	60	60	60	60	60	60	60	60	60
R^2	0.737	0.654	0.554	0.746	0.700	0.606	0.745	0.689	0.603

[18] * indicates statistical significance at a 10% level; ** indicates statistical significance at a 5% level; *** indicates statistical significance at a 1% level. Estimated parameters in bold are not statistically significant. Statistical diagnostic test results in bold indicate that we reject the null hypothesis at a 5% significance level (i.e. the test fails). All explanatory and dependent variables are in natural logarithm.

Table 18: Post-allocation POLS NOCs, CAI and Business Support model estimation results, including proportion of OHL variable[19]

	No local labour adjustment			Ofgem Local Labour Adjustment (GB DNOs and NIE Networks)			Ofgem Local Labour Adjustment (GB DNOs only)		
Cost category	**NOCs**	**CAI**	**Business Support**	**NOCs**	**CAI**	**Business Support**	**NOCs**	**CAI**	**Business Support**
Model number	**Model 4d**	**Model 5d**	**Model 6d**	**Model 4e**	**Model 5e**	**Model 6e**	**Model 4f**	**Model 5f**	**Model 6f**
Length	0.808***			0.816***			0.816***		
Density	1.122***			1.120***			1.113***		
CSV		0.821***	0.609***		0.844***	0.644***		0.824***	0.614***
OHL length %	0.118***	0.045***	**0.009**	0.114***	0.031***	**-0.013***	0.113***	0.032***	**-0.011***
Constant	-8.779***	-5.562***	-3.778***	-8.865***	-5.849***	-4.231***	-8.840***	-5.621***	-3.872***
RESET	0.758	0.269	0.180	0.750	0.270	0.269	0.762	0.359	0.313
Normality Test	**0.013**	0.961	0.154	**0.014**	0.952	0.245	**0.013**	0.999	0.204
Pooling Test	0.987	0.721	0.997	0.986	0.687	0.996	0.986	0.684	0.994
N	60	60	60	60	60	60	60	60	60
R^2	0.829	0.710	0.557	0.832	0.725	0.613	0.831	0.717	0.608

[19] * indicates statistical significance at a 10% level; ** indicates statistical significance at a 5% level; *** indicates statistical significance at a 1% level. Estimated parameters in bold are not statistically significant. Statistical diagnostic test results in bold indicate that we reject the null hypothesis at a 5% significance level (i.e. the test fails). All explanatory and dependent variables are in natural logarithm.

Performance of UR Models

3.46 There are a number of key points that can be highlighted from the model estimation results above:

i) As expected, the proportion of overhead lines appears to be a statistically significant driver of IMF&T and Indirect costs, particularly with regards to network operating costs (NOCs) and closely associated indirects (CAI). This is not surprising given NOCs contains IMF&T and CAI contains wayleaves. Both of which are likely to be positively related to the proportion of overhead lines in a network (as discussed above).

ii) The magnitude of the estimated coefficient on 'OHL length %' in all top-down IMF&T and Indirect models and middle-up NOCs and CAI models appears sensible. The proportion of overhead lines in the network appears to have the greatest impact on NOCs, with the estimated coefficient on 'OHL length %' in the NOCs models ranging from 0.113 to 0.118. In contrast, the estimated coefficient on 'OHL length %' in the CAI models range from 0.012 to 0.045. Overall, in the top-down IMF&T and indirect models, the estimated coefficient on 'OHL length %' range from 0.013 to 0.070.[20]

iii) The explanatory power of the top-down IMF&T and Indirect models and the middle-up NOCs and CAI models increase significantly with the inclusion of the proportion of overhead line variable.

iv) In the middle-up business support models, in the majority of cases it appears that the proportion of overhead lines is not a significant driver of business support costs (the estimated coefficient is not statistically significant from zero at a 5% significance level in 4 out of 6 models). In the remaining two models when the estimated coefficient is statistically significant, the estimated coefficient is negative which is difficult to explain. For these reasons, we consider it inappropriate to include the 'OHL length %' variable in the middle-up business support models.

v) In models 3e and 3f, the 'OHL length %' variable is not statistically significant. However, given that the variable is statistically significant in all other IMF&T and Indirect, NOCs and CAI models, and the economic rationale for the inclusion of the variable is clear, we have decided that the 'OHL length %' variable will remain in these models.

vi) In the case of the CC M4 model, the RESET test appears to fail when the 'OHL length %' variable is included. This result is surprising given the fact that the RESET test does not fail in the case of the CEPA length and density model and the CC M6 model. However, the explanatory power of the CC M4 model increases significantly with the inclusion of the 'OHL length %' variable; the estimated coefficient on the 'OHL length %' variable is statistically significant and of a sensible magnitude; the normality and pooling tests pass; and the

[20] Excluding the two statistically insignificant cases in models 3e and 3f.

economic rationale for the inclusion of the 'OHL length %' is clear. For these reasons we deem that this model performs well and is an appropriate model to use to benchmark NIE Networks with GB DNOs. Nevertheless, for thoroughness, we have tested the inclusion of an 'OHL length %' quadratic variable and an 'OHL length %' and CSV interaction variable in the model to allow for varying returns to scale. We found that when we include a quadratic explanatory variable in the model the RESET test still failed and the resulting estimated coefficient on the CSV variable was above one. The latter implies that there are no economies of scale present, which we did not consider to be sensible given other model estimation results. Following on, when we included the interaction term in the model, the Ramsay RESET test passed but the resulting estimated coefficient on the CSV was above consistently 1.7 or higher, which we also did not consider to be sensible. Therefore, taking everything into account, the Utility Regulator made the informed decision to include no non-linear terms in the model. It is important to note that the Utility Regulator's decision not to include either a quadratic or interaction term in the model is to the advantage of NIE Networks, and reiterates that we have been fair throughout our decision making process and not cherry picked models to the disadvantage of NIE Networks.

3.47 In the following tables we summarise the performance of the models presented, according to CEPA's model selection criteria.[21]

Model Number	Model Performance	
	Pre-allocation	Post-allocation
1a	Performs well	Performs well
1b	Performs well	Performs well
1c	Performs well	Performs well
1d	Performs very well	Performs very well
1e	Performs very well	Performs very well
1f	Performs very well	Performs very well

Table 19: Model 1 performance (CEPA length and density model)

[21] See Annex B of UR's draft and final determination. Titled: CEPA Efficiency Modelling.

Model Number	Model Performance	
	Pre-allocation	Post-allocation
2a	Performs well	Performs well
2b	Performs well	Performs well
2c	Performs well	Performs well
2d	Performs well. Marginally fails RESET test but inclusion of OHL variable increases explanatory power of model significantly.	Performs well. Marginally fails RESET test but inclusion of OHL variable increases explanatory power of model significantly.
2e	Performs well. Marginally fails RESET test but inclusion of OHL variable increases explanatory power of model significantly.	Performs well. Marginally fails RESET test but inclusion of OHL variable increases explanatory power of model significantly.
2f	Performs well. Marginally fails RESET test but inclusion of OHL variable increases explanatory power of model significantly.	Performs well. Marginally fails RESET test but inclusion of OHL variable increases explanatory power of model significantly.

Table 20: Model 2 performance (CC M4 model)

Model Number	Model Performance	
	Pre-allocation	Post-allocation
3a	Performs well	Performs well
3b	Performs well	Performs well
3c	Performs well	Performs well
3d	Performs very well	Performs very well
3e	Performs well. OHL variable is statistically insignificant but we propose to keep the variable in the model given it is statistically significant in most other cases and the economic rationale is clear.	Performs very well
3f	Performs well. OHL variable is statistically insignificant but we propose to keep the variable in the model given it is statistically significant in most other cases and the economic rationale is clear.	Performs very well

Table 21: Model 3 performance (CC M6 model)

Model Number	Model Performance	
	Pre-allocation	Post-allocation
4a	Performs well	Performs well
4b	Performs well	Performs well
4c	Performs well	Performs well
4d	Performs very well	Performs very well
4e	Performs very well	Performs very well
4f	Performs very well	Performs very well

Table 22: Model 4 performance (NOCs length and density model)

Model Number	Model Performance	
	Pre-allocation	Post-allocation
5a	Performs well	Performs well
5b	Performs well	Performs well
5c	Performs well	Performs well
5d	Performs very well	Performs very well
5e	Performs very well	Performs very well
5f	Performs very well	Performs very well

Table 23: Model 5 performance (CAI CSV model)

Model Number	Model Performance	
	Pre-allocation	Post-allocation
6a	Performs well	Performs well
6b	Performs correctly. Marginally fails the RESET test.	Performs well
6c	Performs well	Performs well
6d	OHL variable is statistically insignificant from zero. Recommend exclusion from model.	OHL variable is statistically insignificant from zero. Recommend exclusion from model.
6e	OHL variable is statistically significant but has the wrong sign (-ve). Recommend exclusion from model.	OHL variable is statistically insignificant from zero. Recommend exclusion from model.
6f	OHL variable is statistically significant but has the wrong sign (-ve). Recommend exclusion from model.	OHL variable is statistically insignificant from zero. Recommend exclusion from model.

Table 24: Model 6 performance (Business Support CSV model)

3.48 Through our critical assessment of different models shown above, we have arrived at our preferred selection of models for the final determination, all of which either perform 'well' or 'very well' according to CEPA's model selection criteria. The UR's set of chosen models are listed below.

3.49 As discussed in the DD, when calculating the triangulated efficiency gap to be applied to NIE Networks we have decided to apply no weight to the models that only apply the local labour adjustment to GB DNOs. For this reason, these models are omitted from our final list of chosen models in this final determination.

3.50 UR's Final Determination chosen benchmarking models are listed in the table below. 12 models are listed in the table. However, each model is run on a pre-allocation and post-allocation basis. Therefore, there are 24 models included within our final model selection.

Model name	Cost Drivers	Chosen models
CEPA	Length, Density, OHL Length %	1d, 1e
CC M4	CSV, OHL Length %, time dummies	2d, 2e
CC M6	Length per customer, OHL length %, time dummies	3d, 3e
NOCs	Length, Density, OHL Length %	4d, 4e
CAI	CSV, OHL Length %	5d, 5e
Business Support	CSV	6a, 6b

Table 25: UR Final Determination Chosen Benchmarking Models

3.51 We consider that the models we have selected sufficiently take into account the impact of SR&ND on IMF&T and Indirects. As a result, we consider that no SR&ND or wayleaves special factor adjustment is required.

3.52 We do not explore the impact of the change in our model specifications on NIE Networks' calculated relative efficiency here. This is discussed in more detail in Chapter 5 of the final determination main document.

UR's assessment of NIE Networks' connections special factor claim

3.53 NIE Networks undertake all work in relation to connections to the electricity distribution system. In contrast, the connections market in GB is contestable. NIE Networks argue that this means they carry out more connection activities relative to DNOs in other parts of GB.

3.54 In order to quantify NIE Networks' connections special factor claim, NERA calculate the implicit allowance for indirect costs allocated to connections given by each of the UR's models. They then compute NIE Networks' modelled indirect costs allocated to connections using the disaggregated model and compare the allowances to calculate the connections special factor adjustment.

3.55 We consider that that NIE Networks and NERA have passed by our reasoning for why we decided to run models on a pre- and post-allocation basis, and in turn place 50% weight on the pre-allocation models and 50% weight on the post-allocation models:

> *There are advantages and disadvantages of both approaches, as was highlighted by CC at RP5. The pre-allocation approach does not create any adverse incentive to inefficiently allocate indirect costs to connections. On the other hand, it requires the modelling of both regulated and unregulated costs, which in turn requires the Utility Regulator to make a gross to net adjustment when applying the catch-up efficiency factor to baseline costs. Conversely, the post-allocation approach focuses on regulated costs and does not require us to determine the share of opex to be allocated to connections. However, this approach could create distortions in the relationship between costs and costs drivers, and has the potential to adversely incentivise NIE Networks to allocate a large proportion of indirect costs to connections. By running models on a pre- and post-allocation basis we have effectively managed the trade-off between using both approaches.*[22]

3.56 Following on, it is important to reiterate the main issues outlined by the CC at RP5 with regards to the decision on what weights they placed on pre- and post-allocation models:

> *"We produced results for models that include indirect costs attributed to connections activities and models that exclude direct costs attributed to connections activities.*

[22] UR RP6 Draft Determination, March 2017, page 59, paragraph 5.71.

We considered on which to place most weight for our cost assessment. We gave attention to three main issues:

(a) 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.

(b) Excluding connection costs helps to address a possible vulnerability of the econometric benchmarking analysis. The econometric models we used 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. The explanatory variables in these models capture differences in the scale of companies' networks but not differences in the amount of new network connection activity. This point is particularly important because 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. It is also important in view of the scale of connection activity—NIE estimated that it was about 20 per cent of indirect costs. The differences in NIE's performance in the benchmarking models including and excluding connections could be explained by the differences in the amount of connection work.

(c) If connection costs are excluded, the benchmarking results may be adversely influenced by differences between companies, or over time, in the methods used to allocate indirect costs between connection activities and other activities. Carrying out benchmarking analysis without an adjustment to exclude connection costs tackles this concern.

8.173 In view of a combination of (a) and (b), we decided to focus on the benchmarking analysis that compared indirect costs and IMF&T costs excluding costs attributable to connections.

8.174 On its own, we would not necessarily consider point (b) decisive. As we have discussed elsewhere in relation to wayleave costs (see paragraphs 8.105 to 8.107) and IMF&T costs (see paragraphs 8.156 to 8.170), we are reluctant to shrink the scope of benchmarking analysis to address claims about the limitations in the econometric models."

3.57 Importantly, the CC stated that point B alone is not sufficient to justify placing 100% weight on post allocation models. The CC were extremely certain in their view that they did not consider it appropriate to exclude automatically a category of costs from their benchmarking analysis on the basis that NIE Networks has relatively high costs in that category due to factors that are not fully taken into account in the econometric models. The CC reinforced this view by arguing that their approach to benchmarking analysis is based on relatively aggregated econometric models and it is inevitable that they will not take full account of all such effects. Furthermore, the CC argued that while their benchmarking analysis may be unfavourable to NIE Networks in relation to one

category of costs, it is likely that other aspects of their analysis will be favourable for NIE Networks. Examples of these may include the fact that GB DNOs have conducted a greater amount of consumer engagement during the benchmarking period than NIE Networks; GB DNOs have had greater ESQCR requirements than NIE Networks during the benchmarking period, leading to greater IMF&T and CAI costs; and GB DNOs have had stricter GSS requirements during the benchmarking period.

3.58 Taking paragraph 3.57 into account, the decision that made the CC put 100% weight on post allocation models was its assessment of points A and C. It is obvious by the CC's conclusion that they placed more weight on point A than on point C. However, that decision was based on the information at hand at that particular point in time. As a result, the decision made by the CC at RP5 is not automatically valid for the RP6 price control as well.

3.59 Firstly, with regards to Point A, we no longer consider that this point has any significant importance or relevance for this price control review (RP6). The UR has developed an approach to triangulating efficiency across models which manages the risk of misalignment between the costs used for benchmarking analysis and the costs for which we want to make an allowance as part of our cost assessment. NIE Networks has not expressed any concerns with our approach to triangulation, and we therefore consider that Point A is no longer relevant and should not be used in the assessment of what weights to put on the pre- and post-allocation modelling results.

3.60 Taking into account paragraph 3.59, we consider that Points B and C are only the relevant issues/ criteria for deciding what weights should be placed on pre- and post-allocation modelling results. We appreciate the relevance of Point B, and have outlined the benefits of conducting cost assessment on a post-allocation basis accordingly in the draft determination. In particular, modelling on a post-allocation basis focuses on regulated costs and takes into account the different levels of connection work undertaken by DNOs. Nevertheless, we consider that Point C is particularly relevant and important given the information we have available at this price control period.

3.61 Firstly, we are not confident in the allocation methods used to allocate indirect costs between connection activities and other activities by NIE Networks. These concerns have been borne from a number of reasons.

i) Firstly, since the publication of our draft determination, NIE Networks have conducted quality assurance of their 2015/16 data and found a number of errors that resulted in significant revisions to NIE Networks' financial RIGs and C1 matrix data in 2015/16. This had two impacts. Firstly, the financial RIGs data, which is used to set the baseline, was increased significantly due to an error in the allocation of costs between direct and IMF&T costs. Secondly, NIE Networks found that some costs had been incorrectly labelled, and as a result had been wrongly allocated to IMF&T and Indirects instead of direct costs. While we recognise it is important that NIE Networks have noticed these errors prior to the final determination, these changes have only reduced our confidence further in NIE Networks' allocation of indirect costs between connection activities and other activities.

ii) Furthermore, when we questioned NIE Networks on whether they have also quality assured the other years of data using within the benchmarking analysis (2012/13, 2013/14 and 2014/15) they told us that this was not feasible given the resources available. Consequently, we have great concerns regarding the data quality of years 2012/13, 2013/14 and 2014/15, and in turn even greater concerns on the allocation of indirect costs between connections and other activities.

iii) During visits to NIE Networks we have found that the RIGs process undertaken by NIE Network is of a very manual nature and extremely susceptible to human error. This gave us even less confidence in the allocation methods used to allocate indirect costs between connection activities and other activities by NIE Networks. These concerns are exacerbated given the perverse incentive NIE Networks have to allocate indirect costs to connections if we were to assess IMF&T and Indirect costs on a post allocation basis only. Costs attributable to connections are not included within regulated costs and are therefore passed straight through to consumers via connection charges. Hence, if the amount of indirect costs attributable to connections are not assessed as part of this benchmarking process, NIE Networks have a perverse incentive to allocate a large proportion of indirect costs to connections, which would be to the detriment of consumers.

3.62 For the reasons outlined above, we decided to place 50% weight on pre-allocation models and a 50% weight on post-allocation models, which we consider is the correct approach to take given the information we have available at this time.

3.63 Following on, we do not consider that a special factor claim for NIE Networks' connections activities is warranted. To support this view point we would first like to reiterate the views of the CC at RP5 who did not consider it appropriate to exclude automatically a category of costs from their benchmarking analysis on the basis that NIE Networks has relatively high costs in that category due to factors that are not fully taken into account in the econometric models. The CC argued that while benchmarking analysis may be unfavourable to NIE Networks in relation to one category of costs, it is likely that other aspects of their analysis will be favourable for NIE Networks. This supports our view that a connections special factor claim on our pre-allocation models is unwarranted.

3.64 This argument is supported when we examine the proportion of asset additions that are attributable to connections, and total asset additions as a proportion of MEAV (see charts below). While we do not support the use of MEAV and Asset Additions in our benchmarking analysis, both variables have been heavily supported by NERA and NIE Networks, and are useful in illustrating the argument that while benchmarking analysis may be unfavourable to NIE Networks in relation to one category of costs, it is likely that other aspects of their analysis will be favourable for NIE Networks.

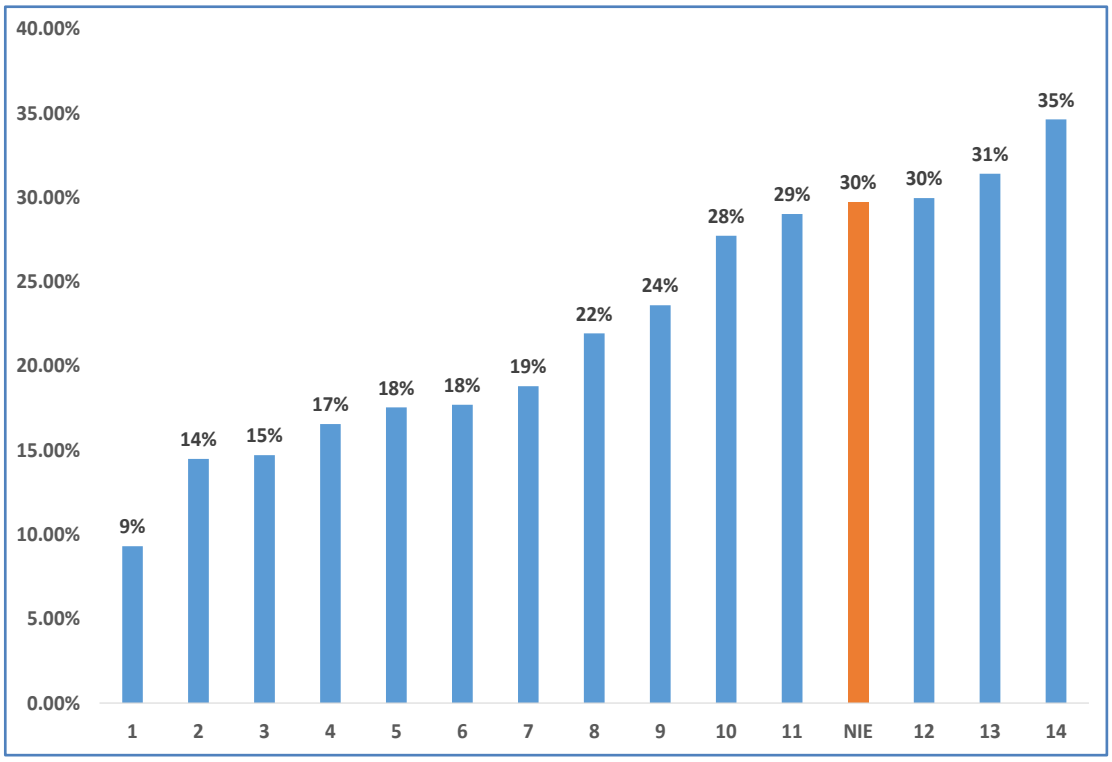

Figure 4: Proportion of asset additions that are allocated to connections

3.65 The figure above illustrates that connections are a significant proportion of NIE Networks' asset additions over the benchmarking period (2012/13 to 2015/16), averaging approximately 30% of asset additions over the benchmarking period.

3.66 However, while NIE Networks' do sit within the upper quartile of DNOs in terms of the proportion of asset additions that are attributable to connections, three other DNOs do have a higher proportion over the same period.

3.67 This evidence significantly questions whether the amount of connection activity conducted by NIE Networks is a valid special factor given that a number of other DNOs in the sample also have a high proportion of asset additions attributable to connections.

3.68 Thus, if we were to apply special factor claim to NIE Networks alone for connections, this would disproportionately benefit NIE Networks relative to the other DNOs who also have a high proportion of asset additions attributable to connections.

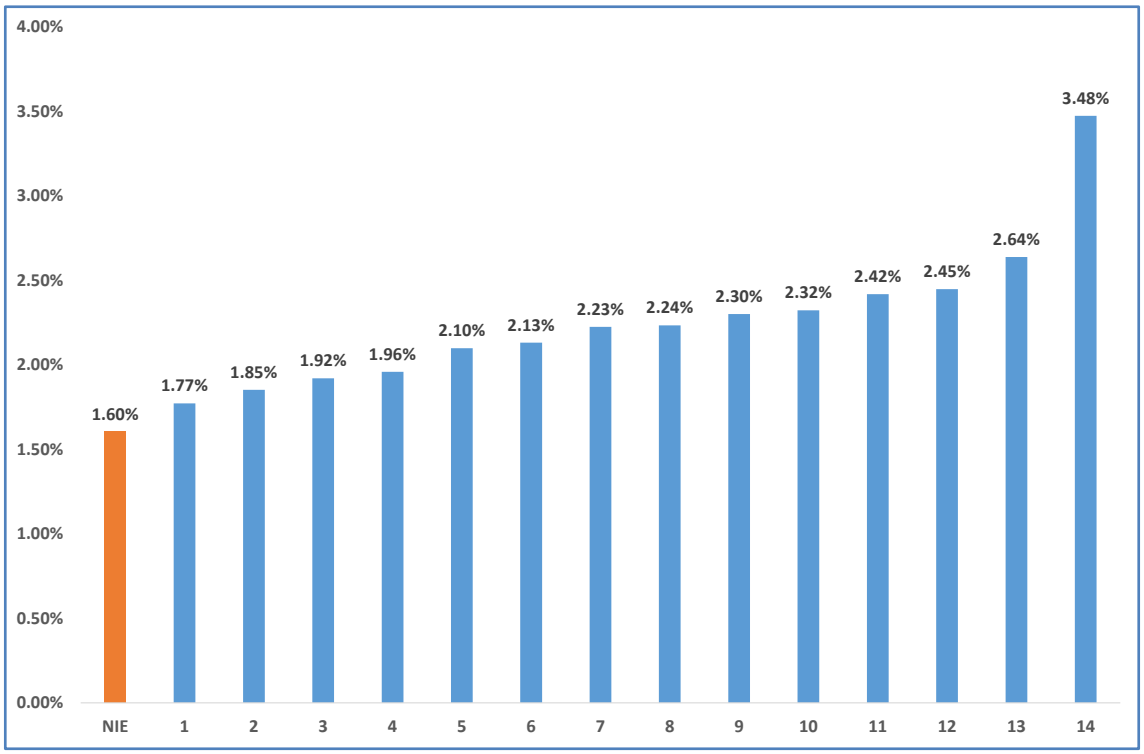

Figure 5: Asset Additions as a percentage of MEAV (2013 - 2016 average)

3.69 Following on, while NIE Networks may have a large proportion of asset additions attributable to connections compared to other GB DNOs, the figure above demonstrates that if you consider the total amount of asset additions by DNO relative to the size of their network (measured by MEAV), NIE Networks actually perform the lowest out of all DNOs in the sample.

3.70 In this respect, if we assume there is a significant relationship between capital expenditure and IMF&T and Indirect expenditure which is not captured by our models, one could justifiably argue for a negative special factor rather than a positive special factor adjustment over the historical benchmarking period for NIE Networks. This highlights the point made by the CC that while benchmarking analysis may be unfavourable to NIE Networks in one area, it is likely that other aspects of their analysis will be favourable for NIE Networks.

3.71 Overall, there is likely to be many factors that result in a higher level of activity for one DNO compared to the other. Similarly, there are also likely to be many factors that result in a lower level of activity for one DNO compared to the other. As a result, our benchmarking analysis may be unfavourable to NIE Networks in one area but favourable to NIE Networks in other areas. This is reflected in the analysis conducted by CEPA at the draft determination, who assessed the relationship between capex and IMF&T and Indirects with the inclusion of an “asset additions” variable in their models. This variable was derived in the same way as MEAV by using the gross number of asset additions reported in each year and Ofgem’s expert unit cost estimate for each type of asset. In turn, you arrive at a measure of monetary value of gross asset additions for each DNO in each year. This was the same approach as taken by Ofgem at RIIO-ED1.

3.72 CEPA tested the inclusion of this variable in their baseline benchmarking models and found the variable to be not statistically significant in all cases, and therefore decided to drop the asset additions variable from their models.[23]

3.73 There are two potential reasons for this result.

i) The magnitude of asset additions conducted by DNOs, and the impact of asset additions on IMF&T and Indirect costs, are already sufficiently captured by the other explanatory variables included in the models. As a result, the inclusion of the asset additions variable in the models is not required, and the remaining explanatory variables sufficiently capture the impact of asset additions on IMF&T and Indirect costs.

ii) Given that a large proportion of DNOs resources are likely to be fixed, DNOs are able to shift resources efficiently around the business in order to deliver new capex programmes without necessarily increasing the absolute level of indirect costs significantly.

3.74 Overall, this result implies that when you take into account all of the factors that may result in more/less activity for one DNO relative to other DNOs, the overall impact of asset additions on IMF&T and Indirects is statistically insignificant. This evidence further reinforces our standpoint that a special factor for connection activity is not warranted.

3.75 Taking into account all of the evidence above, we deem it:

i) Appropriate to apply a 50% weight to pre-allocation models and a 50% weight to post-allocation models in this final determination.

ii) Not appropriate to apply a special factor claim for connections in this final determination.

UR's assessment of NIE Networks' ESQCR special factor claim

3.76 NERA attempted to quantify the impact of ESQCR regulations on I&M and CAI using two separate approaches:

i) The first approach used a linear model of I&M costs on total direct ESQCR expenditure and OHL and Plant MEAV, and used the estimated coefficient on ESQCR to estimate the impact of ESQCR on I&M costs.[24]

ii) The second approach used Ofgem's log-log model of CAI on MEAV and asset additions, and used the estimated coefficient on asset additions to estimate the impact of differences in the scale of the ESQCR capex programme on CAI costs.[25]

[23] See Annex B of UR's draft and final determination.
[24] GB DNO data only.
[25] GB DNO data only.

3.77 While we appreciate NIE Networks' endeavour to estimate the potential negative special factor claim of ESQCR on IMF&T and Indirect costs, we cannot ignore the fact that all of the statistical evidence indicates that ESQCR and/or asset additions do not have a statistically significant impact on IMF&T and Indirect costs.

3.78 We have also conducted our own analysis of the impact of ESQCR/ asset additions on IMF&T and Indirect costs and also found the relationship to be consistently statistically insignificant when using a number of different approaches.

3.79 This result could reflect the fact that:

i) The magnitude of ESQCR/ asset additions conducted by DNOs, and in turn the impact of ESQCR/ asset additions on IMF&T and Indirect costs, are sufficiently captured by the other explanatory variables in our models.

ii) DNOs are able to shift resources efficiently around the business in order to deliver new capex programmes without necessarily increasing the absolute level of IMF&T and Indirect costs significantly.

3.80 Overall, the absence of a statistically significant relationship between ESQCR/ asset additions and IMF&T and Indirects indicates that increases in ESQCR capex requirements do not result in significant increases in IMF&T and Indirect costs. For this reason, we do not deem it necessary to apply an ESQCR negative special factor, and following on, we do not deem it appropriate or necessary to provide NIE Networks with an additional IMF&T and Indirect allowance as a result of increasing ESQCR requirements during RP6.

UR's assessment of NIE Networks' GSS special factor claim

3.81 NIE Networks' quantified the GSS special factor claim by assessing the additional level of compensation payments that would have been paid out to its customers if they had been operating to an 18 or 12 hour standard during RP5.

3.82 Given that NIE Networks were approximately operating to an 18 hour standard during RP5, we consider that NIE Networks' approach is appropriate with regards to the costs associated with moving to an 18 hour standard. This amounts to approximately £25,000 per annum between 2012/13 and 2014/15.

3.83 On the other hand, we do not deem that NIE Networks' approach to quantifying the impact of moving to a 12 hour standard appropriate as they have significantly undervalued the impact of company reputation on network investment decisions.

3.84 Ofgem define guaranteed standards of performance (GSoP) as a set of service levels that must be met by each distribution company. These standards have been set to guarantee a level of performance that is reasonable to expect companies to deliver.

3.85 If the distribution company fails to meet the level of performance required, it must make a payment to the customer subject to certain conditions.

3.86 Payments under the guaranteed standards are made to recognise the inconvenience caused. They are not designed to compensate customers for subsequent financial loss.

3.87 Ofgem moved from an 18 hour in DPCR5 to a 12 hour standard in RIIO-ED1. Through analysis of evidence provided by GB DNOs, Ofgem came to the conclusion that the movement from 18 to 12 hours is:

i) Achievable

ii) Not costly

iii) In customer interests

3.88 Hence, the 12 hour standard is what Ofgem expect companies to deliver. As a result, the failure to meet these standards could be extremely harmful to the reputation of the company, which could result in a loss of customers, and in turn a loss of revenue. This is in addition to the costs incurred through the compensation payments they are required to make to all affected customers.

3.89 Therefore, in an attempt to reach the 12 hour standard, it is not necessarily the case that companies will only invest in their network up to the expected value of the compensation payments they would have to pay out if they faced a 12 hour restoration standard. Instead, companies would also take into account the impact of not meeting the 12 hour standards on their reputation, and in turn on revenue, when making network investment decisions.

3.90 As a result, in an attempt to achieve the new 12 hour standard, it is likely that GB DNOs will have invested more than the value of the compensation payments it would expect to pay out if they faced a 12 hour restoration standard.

3.91 This is supported by Western Power Distribution's (WPD) RIIO-ED1 business plan submission to Ofgem in April 2014[26] where they write in relation to the proposed change in the standard for restoration of supplies being reduced from 18 to 12 hours:

> *"Whilst failures lead to a financial cost, there is also a strong reputational incentive to minimise the number of failures. WPD accepts Ofgem's proposed changes to this incentive scheme.*
>
> *We will voluntarily double the value of payments for failures against guaranteed standards. Whilst we do not anticipate that the provision of these enhanced compensation levels will have a significant financial impact on WPD, we feel there is a need to ensure customers feel adequately recompensed should our service standards fail to meet minimum expectations."*

3.92 For the above reasons we do not deem it appropriate to base the negative special factor claim of moving to a 12 hour standard on the expected value of compensation payments alone. Alternatively, we deem it more appropriate to base the special factor

[26] Western Power Distribution, 2014. RIIO-ED1 Business Plan. SA-02 Supplementary Annex – Incentives.

claim of moving to a 12 hour standard on the expected costs associated with moving to a 12 hour standard.

3.93 NIE Networks submitted a report to the UR on 27 January 2017 which estimated the cost of moving to a 12 hour GSS standard.[27] NIE Networks break down the costs into the following four items:

i) £465k per annum to comply with a 12 hour standard. NIE classify these as "the estimated annual additional cost of managing against a 12 hour standard".

ii) One-off costs of £200k for the purchase of additional mobile generators.

iii) Compensation payments averaging £400k per annum is respect of the severe weather standard.

iv) The introduction of 2 hour appointments would reduce the efficiency of NIE Networks' SOSA metering activities[28], which is the equivalent of an increase in costs of £120k per annum.

3.94 From our assessment of these costs, we have concluded that the first item (i) are the additional IMF&T and Indirect costs associated with moving to a 12 hour GSS standard. The other cost items do not appear relevant for the calculation of an IMF&T and Indirect special factor claim: the second item (ii) is in relation to capex; the third item (iii) is in relation to severe weather, which is excluded from our benchmarking; and the fourth item (iv) is in regards to metering, which is also excluded from our benchmarking.

3.95 For these reasons, we have calculated the following GSS special factor claims for the benchmarking period in real terms:

i) 2012/13: £25,000

ii) 2013/14: £25,000

iii) 2014/15: £25,000

iv) 2015/16: £465,000

3.96 Taking everything into account, however, we have decided not to apply this negative special factor. We have remained consistent in our view throughout this final determination that while benchmarking analysis may be unfavourable to NIE Networks in relation to one category of costs, it is likely that other aspects of their analysis will be favourable for NIE Networks. This is an area that works in the favour of NIE Networks, and our decision not to apply a negative special factor for GSS demonstrates that we are being consistent, fair and transparent throughout our final determination.

[27] NIE Networks – GSS Review, Submission to the UR – 27 January 2017.
[28] SOSA refers to Service Order Scheduling and Appointments.

Consumer Engagement

3.97 NIE Networks' stated that they did not consider that GB DNO consumer engagement costs would be substantial enough to reach UR's specified materiality threshold, and therefore do not warrant a negative special factor claim.

3.98 Given the information available, we do not consider that NIE Networks are confidently able to make this conclusion.

3.99 While we acknowledge that consumer engagement expenditure is not displayed in the C1 matrix data provided to the UR by Ofgem, this is not in itself sufficient evidence to conclude that the differences between consumer engagement expenditure in GB and Northern Ireland are not significant.

3.100 Following on, when you take into account the consumer engagement incentive payments received by GB DNOs in the first year of RIIO-ED1 (2015/16) based on their consumer engagement performance, this appears even less likely:

Company	Incentive (£m)
Western Power Distribution (WPD)	6.35
UK Power Networks (UKPN)	4.04
Electricity North West Limited (ENWL)	0.98
Scottish Power Energy Networks (SPEN)	1.94
Northern Powergrid (NPG)	1.43
Scottish and Southern Energy (SSE)	1.13

Table 26: GB DNO consumer engagement incentive payments 2015/16 (£m)

3.101 Even when you take into account these incentive amounts are at a company group level, the amounts remain significantly greater than the £0.2m spend per annum on consumer engagement expenditure during RP5 quoted by NIE Networks in their consumer engagement presentation to the UR on 10 February 2017.[29]

3.102 In an ideal world, the incentive rate should be set so that the marginal cost of consumer engagement to the firm is equal to the marginal benefit to consumers and society of consumer engagement. Thus, while it is not possible to identify the exact amounts GB DNOs spent on consumer engagement over the benchmarking period, if we take into account: the mechanism to setting the consumer engagement incentive rate; the incentive payments to GB companies in 2015/16; and NIE Networks' consumer engagement expenditure during RP5; it would seem more likely than not that GB DNOs have spent more on consumer engagement during the benchmarking period than NIE

[29] NIE Networks, 2017. RP6 – Ongoing Consumer Engagement.

Networks. As a result, a negative special factor claim for consumer engagement could arguably be justified.

3.103 We were unfortunately not able to obtain an exact estimate of a consumer engagement special factor claim using the data available. However, based on the consumer engagement incentive payments to GB DNOs in the first year of RIIO-ED1, listed in the table above, and the fact that NIE Networks only spent £0.2m per annum on consumer engagement expenditure during RP5, we deem that a negative special factor claim of £0.5m per annum is justifiable and extremely conservative given the evidence available.

3.104 Nevertheless, throughout this final determination we have reiterated that while benchmarking analysis may be unfavourable to NIE Networks in relation to one category of costs, it is likely that other aspects of their analysis will be favourable for NIE Networks. In turn, we have decided not to apply a negative special factor to NIE Networks' modelled costs with regards to consumer engagement.

3.105 In addition to GSS, consumer engagement is another area that works in the favour of NIE Networks, and our decision not to apply a negative special factor for consumer engagement demonstrates that we are being consistent, fair and transparent throughout our final determination.

UR's assessment of a property special factor claim

3.106 In making its final determination for RP6 the UR considered all potential special factors raised by CCNI and NIE Networks. A summary of the analytical approach which the UR applied to this assessment is shown below.

3.107 Each potential special factor has been examined and assessed. For further detail on the assessment please Although the UR have taken account of *wage* differentials between DNOs and the regions in which they operate (by undertaking a RWA), we consider that other potential regional *cost* differences should also be considered.

3.108 According to the Department for the Economy's "The Cost of Doing Business In Northern Ireland" Report, Northern Ireland businesses typically experience a cost advantage over the rest of the UK. This is in relation to a number of cost inputs such as labour costs, property costs and some transport costs, with the Department for the Economy assessing that overall costs for a NI firm are around 84% of the UK average (i.e. a -16% differential).

3.109 Specifically relating to property costs, The Cost of Doing Business in Northern Ireland Report states the following:

> *"Property costs are another area where NI can offer much lower prices than elsewhere. Rental prices for Grade A office space in Belfast are less than half the price found in other cities such as Manchester, Dublin, Birmingham and*

Edinburgh. Both industrial rental properties and land are also significantly cheaper in Belfast than elsewhere in the UK,....." [30]

3.110 It is interesting to note, that NIE Networks, within their original special factors paper undertaken by NERA for the Business Plan did explore whether a special factor may be merited for property costs.

> *"NIE faces lower costs related to office and site rental compared to GB DNOs. We have insufficient information to appraise whether this might constitute a special factor and to quantify the required adjustment."* [31]

3.111 We do not know however, if NERA was aware of the relative cost comparisons undertaken in The Cost of Doing Business Report. However, the UR considers that in addition to our pre-modelling RWA, a special factor for property costs for NIE Networks is potentially warranted, given that property costs in Northern Ireland can be less than half of UK levels as shown by the Table below.

		Compared with UK	
Area	**Measure**	**NI**	**Year**
Labour	Private sector wages	82%	2014
Labour	FDI role salaries	86%	2014
Energy	Electricity prices (v small users)	111%	2014
Energy	Electricity prices (large/v large users)	94%	2014
Property	Office rental values (grade a)	42%	2014
Property	Office rental values (grade b)	39%	2014
Property	Industrial rental values (prime big sheds)	89%	2015
Property	Industrial rental values (prime small sheds)	69%	2015
Property	Industrial land values (big sheds)	44%	2015
Property	Industrial land values (small sheds)	57%	2015
Transport	Petrol prices	100%	2015
Transport	Diesel prices	99%	2015
Transport	Air travel prices (within UK)	82%	2015
Transport	Air travel prices (outside UK)	103%	2015

Table 27: Relative NI Cost Benchmarking

3.112 Depending on the model assumptions used (pre-allocation, post-allocation, with local labour, no local labour etc), the UR calculates that a negative special factor for property costs for NIE Networks would pass the materiality threshold (1% of modelled costs) as outlined by the UR in previous documents.

[30] Page 81 of The Cost of Doing Business Report: https://www.economy-ni.gov.uk/sites/default/files/publications/deti/Cost%20of%20Doing%20Business%20report.pdf
[31] Page 12 of NERA Special Factors Paper (June 2016)

3.113 According to the Department for the Economy, Northern Ireland property costs are approximately 63% of UK levels. The UR has used this differential (-37%) to quantify how much NIE Networks' current property costs would be if the company paid UK level land and rent values. According to our final determination calculations we estimate a potential special factor in the region of £1.15m to £1.60m per annum, [32] depending on the model assumptions adopted in our triangulation.

3.114 In the table below we list NIE Networks' unadjusted real property management costs, reported between 2012/13 and 2015/16, that are included within the benchmarking. This includes property costs attributable to non-op capex, which we reallocated to indirect costs as part of the benchmarking process.[33]

3.115 For illustration, we use unadjusted costs in the calculations below because we do not want to 'double count' with the regional wage adjustment, which already makes a -12.3% adjustment for wage differentials between NI and UK.[34] In the local labour adjustment models the regional wage adjustment is not applied as property relates to business support, therefore a full -37% property adjustment may be warranted. However, a regional wage adjustment is applied to property costs for the no local labour adjustment models. Therefore, to make a full -37% adjustment in this case would involve an element of 'double counting'.

3.116 In the table below we also present the adjusted property management costs if we were to apply the regional property price adjustment factor identified by the Department for the Economy in Northern Ireland, and thus bring Northern Ireland property prices in line with the UK average.[35]

Property Management Costs	Pre-allocation		Post-allocation	
	Unadjusted cost	Cost if increased to UK average	Unadjusted cost	Cost if increased to UK average
2012/13	2.72	4.31	2.10	3.34
2013/14	2.60	4.13	2.05	3.25
2014/15	2.64	4.20	1.99	3.16
2015/16	2.66	4.22	1.96	3.11

Table 28: NIE Networks' property management costs within UR's benchmarking (£m)

[32] Where special factor is calculated on unadjusted modelled costs.
[33] See Chapter 5 and Annex B of the draft determination for more information.
[34] As we monitor the differences in property prices between GB and NI during RP6, we may focus on total rent expenditure in indirect and IMF&T expenditure incurred by NIE Networks rather than total property management costs to avoid the potential issue of double counting with the regional wage adjustment.
[35] The Department for the Economy in Northern Ireland found Northern Ireland property costs are approximately 63% of the UK average. Thus to apply the adjustment, we multiply NIE Networks' property management costs by the factor 100/63 ≈ 1.59 to bring their property costs in line with the UK average.

3.117 The negative special factor claim associated with property prices is equivalent to the difference between actual unadjusted property costs and adjusted property costs if we increased to UK average levels. These differences are presented in the table below.

3.118 It is important to note that the property special factor claims presented surpass the 1% materiality threshold. Therefore, we could justifiably apply this special factor claim by increasing NIE Networks' actual property costs that input into the efficiency gap calculations by the relevant amount presented. All else being equal, this would result in an increase in NIE Networks' triangulated efficiency gap, which we apply to baseline IMF&T and Indirect costs, and result in a decrease in NIE Networks' IMF&T and Indirect allowance during RP6.

Property Management Costs	Pre-allocation	Post-allocation
	Estimated special factor	Estimated special factor
2012/13	-1.60	-1.24
2013/14	-1.53	-1.20
2014/15	-1.55	-1.17
2015/16	-1.56	-1.15

Table 29: Estimated NIE Networks' property prices special factor (£m).

3.119 However, after careful consideration, we have decided not to apply this special factor.

3.120 Throughout this final determination we have reiterated that while benchmarking analysis may be unfavourable to NIE Networks in relation to one category of costs, it is likely that other aspects of their analysis will be favourable for NIE Networks. To ensure consistency with this view throughout the final determination, we have decided not to apply a negative special factor to NIE Networks' modelled costs with regards to differences in property prices between Northern Ireland and GB.

3.121 In addition to GSS and consumer engagement, differences in property prices between Northern Ireland and GB is another area that works in the favour of NIE Networks, and our decision not to apply a negative special factor for differences in property prices demonstrates that we are being consistent, fair and transparent throughout our final determination.

4 Summary

4.1 The UR has carefully considered the special factor claims presented by NIE Networks in their response to our draft determination. We summarise our response below with regards to the most significant special factor claims proposed by NIE Networks.

Sparsity, rurality and network design (SR&ND)

4.2 We recognise that a high proportion of overhead lines in NIE Networks' network may result in an increase in IMF&T and Indirect costs for reasons that are to some degree outside NIE Networks' control. However, we do not agree with the approach taken by NERA to quantify the impact of having a high proportion of overhead lines on IMF&T and Indirect costs. We also do not consider that NERA tested alternative approaches sufficiently.

4.3 After consideration, we arrived at the conclusion that the most appropriate approach to taking into account the impact of having a high proportion of overhead lines on IMF&T and Indirect costs is to test the inclusion of additional cost drivers in our models that would accurately capture the impact on costs of having a high proportion of overhead lines. Specifically, the inclusion of a "proportion of overhead lines" explanatory variable in our models, which passed CEPA's model selection criteria is appropriate in our view.

4.4 We consider that the models we have selected sufficiently take into account the impact of SR&ND on IMF&T and Indirects. As a result, we consider that no SR&ND or wayleaves special factor adjustment is required.

Connections (pre-allocation models only)

4.5 We consider that that NIE Networks and NERA have somewhat avoided and ignored our reasoning for why we decided to run models on a pre- and post-allocation basis, and in turn place 50% weight on the pre-allocation models and 50% weight on the post-allocation models. We have reiterated these reasons within this Annex.

4.6 In addition, we do not consider the reasoning for the CC placing a 100% weight on post-allocation models at RP5 is automatically valid for this price control.

4.7 As a result of the evidence presented in this Annex, we deem it:

i) Appropriate to apply a 50% weight to pre-allocation models and a 50% weight to post-allocation models in this final determination.

ii) Not appropriate to apply a special factor claim for connections in this final determination.

ESQCR

4.8 In summary, the absence of a statistically significant relationship between ESQCR/ asset additions and IMF&T and Indirects indicates that increases in ESQCR capex requirements do not result in significant increases in IMF&T and Indirect costs.

4.9 For this reason, we do not deem it necessary to apply an ESQCR negative special factor, and following on, we do not deem it appropriate or necessary to provide NIE Networks with an additional IMF&T and Indirect allowance as a result of increasing ESQCR requirements during RP6.

Guaranteed Standards of Service (GSS)

4.10 Given that NIE Networks were approximately operating to an 18 hour standard during RP5, we consider that NIE Networks' approach is appropriate with regards to the costs associated with moving to an 18 hour standard.

4.11 On the other hand, we do not deem that NIE Networks' approach to quantifying the impact of moving to a 12 hour standard appropriate.

4.12 Based on evidence provided by NIE Networks, we calculated the following GSS special factor claims for the benchmarking period in real terms:

i) 2012/13: £25,000

ii) 2013/14: £25,000

iii) 2014/15: £25,000

iv) 2015/16: £465,000

4.13 However, taking everything into account, we have made the decision not to apply this potential negative special factor. This decision works in the favour of NIE Networks, and demonstrates that we are being consistent, fair and transparent throughout our final determination.

Consumer Engagement

4.14 We were unfortunately not able to obtain an exact estimate of a consumer engagement special factor claim using the data provided to us by Ofgem.

4.15 However, based on the consumer engagement incentive payments to GB DNOs and the fact that NIE Networks only spent £0.2m per annum on consumer engagement expenditure during RP5, we consider that a negative special factor claim of £0.5m per annum is justifiable and extremely conservative given the evidence available.

4.16 Nevertheless, throughout this final determination we have reiterated that while benchmarking analysis may be unfavourable to NIE Networks in relation to one category of costs, it is likely that other aspects of their analysis will be favourable for NIE Networks. In turn, we have decided not to apply a negative special factor to NIE Networks' modelled costs with regards to consumer engagement.

Property prices

4.17 The Department for the Economy in Northern Ireland has found property prices in Northern Ireland to be approximately 37% lower than the UK average, which could arguably justify a negative special factor claim.

4.18 Throughout this final determination we have reiterated that while benchmarking analysis may be unfavourable to NIE Networks in relation to one category of costs, it is likely that other aspects of their analysis will be favourable for NIE Networks.

4.19 To ensure consistency with this view throughout the final determination, we have decided not to apply a negative special factor to NIE Networks' modelled costs with regards to differences in property prices between Northern Ireland and GB.

Overall Conclusion

4.20 We consider that the inclusion of "proportion of overhead lines" as an additional explanatory variable in our final determination models sufficiently takes into account the impact of SR&ND on IMF&T and Indirects. As a result, we consider that no SR&ND or wayleaves special factor adjustment is required.

4.21 After careful consideration, we have decided not to accept any additional special factor claims prepared by NIE Networks. In addition, we have not applied any of the potential counterbalancing special factors identified by the UR.

4.22 Throughout this final determination we have reiterated that while our benchmarking analysis may be unfavourable to NIE Networks in relation to one category of costs or area of analysis, it is likely that other aspects of their analysis will be favourable for NIE Networks. These dynamics are demonstrated throughout this paper. For example, while we have not allowed positive special factor claims for connections activity, we have also not allowed negative special factor claims for GSS, consumer engagement and property costs.

4.23 Nevertheless, for completeness, we present the special factor claims we could justifiably have applied based on the evidence presented in this Annex in the table below (within the Potential Total line). It should be noted that these are illustrative and have not been applied in our models. We make zero adjustment for special factors in our final determination modelling results.

4.24 As can be seen, if the UR was to apply special factors in our final determination modelling, it is likely that the net impact of special factors would be negative. This would effectively increase the efficiency gap for NIE Networks.

Potential Special Factor	2012/13	2013/14	2014/15	2015/16
SR&ND [36]	0	0	0	0
Wayleaves [37]	0	0	0	0
Connections	0	0	0	0
ESQCR	0	0	0	0
GSS	- 0.025	- 0.025	- 0.025	- 0.465
Consumer engagement	- 0.500	- 0.500	- 0.500	- 0.500
Property prices [38]	- 1.420	- 1.365	- 1.360	- 1.355
Potential Total	**- 1.945**	**- 1.890**	**- 1.885**	**- 2.320**

Table 30: Potential net position of UR special factor assessment (£m, 2015/16 prices)

Applied Special Factor	2012/13	2013/14	2014/15	2015/16
UR Applied Total Special Factor (in our econometric models)	**0.000**	**0.000**	**0.000**	**0.000**

Table 31: Special factors applied by UR at final determination (£m, 2015/16 prices)

[36] We consider that the model specifications (including the inclusion of an Overhead Line % variable for final determination) means that a special factor is not warranted for SR&ND.
[37] We consider that the model specifications (including the inclusion of an Overhead Line % variable for final determination) means that a special factor is not warranted for wayleaves.
[38] Calculations based on unadjusted modelled costs.