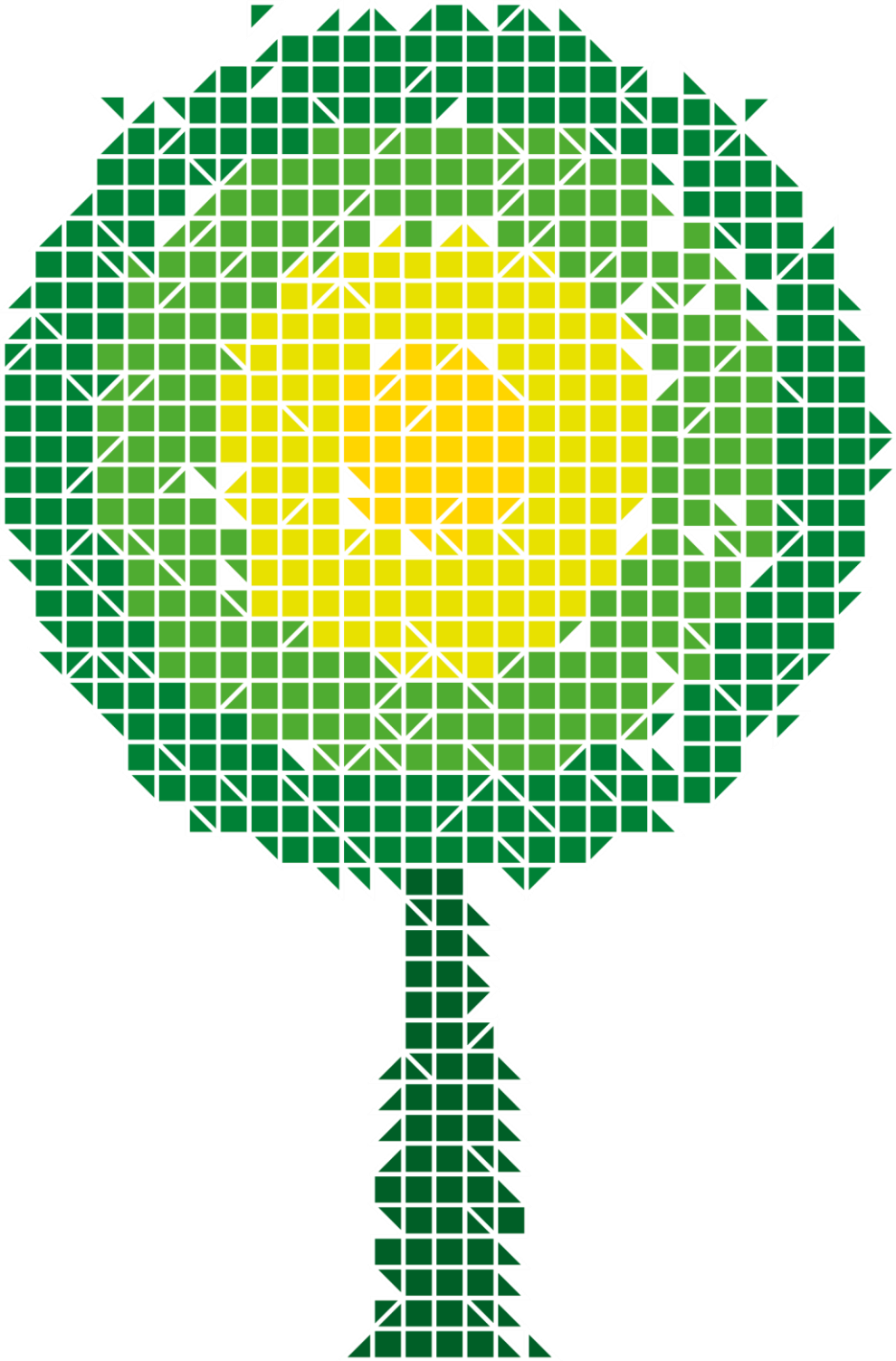
RP6 Gemserv review of NIE Networks' IT proposals – report for Final Determination (redacted version)

27/06/2017

Version 1.0
FINAL



Gemserv

Contents

CHANGE HISTORY

VERSION	STATUS	ISSUE DATE	AUTHOR	COMMENTS
0.1	Draft	11th May 2017	Conall Bolger	Initial draft
0.2	Draft	1st June 2017	Conall Bolger	Draft for review
0.3	Draft	9th June 2017	Conall Bolger	Updated version for review
0.4	Draft	14th June 2017	Conall Bolger	Updated version for review
0.5	Draft	17th June 2017	Conall Bolger	Updated version for review
0.6	Draft	27th June 2017	Conall Bolger	Finalised text
1.0	Final	27th June 2017	Conall Bolger	Version for publication

DOCUMENT CONTROLS

REVIEWER	ROLE	RESPONSIBILITY	DATE
Malcolm Rowley	Principal Consultant, Gemserv	Technical & quality Review	6th June 2017
Caspar Swales	Head of Economics and Efficiencies, Utility Regulator	Owner client requirements and document approval.	2nd June 2017
Brian McHugh	Director Finance and Network Assets, Utility Regulator	Document review	5th June 2017
Caspar Swales	Head of Economics and Efficiencies, Utility Regulator	Owner client requirements and document review.	13th June 2017
Brian McHugh	Director Finance and Network Assets, Utility Regulator	Document review	13th June 2017
Caspar Swales	Head of Economics and Efficiencies, Utility Regulator	Owner client requirements and document review.	16th June 2017
Brian McHugh	Director Finance and Network Assets, Utility Regulator	Document review	16th June 2017
John Mills	Network Asset Manager, Utility Regulator	Document review	26th June 2017
Caspar Swales	Head of Economics and Efficiencies, Utility Regulator	Document approval	26th June 2017

1. INTRODUCTION & BACKGROUND

Gemserv was appointed in September 2016 to provide support to the Utility Regulator (UR) in assessing costs associated with "IT, Market Operations & Enduring Solution" as part of "Northern Ireland Electricity Networks Price Control for the period 1 October 2017 until 31 March 2024" (RP6). To support the UR in making its RP6 Draft Determination (DD), we were initially instructed to review the Market Operations Non Network IT aspects of Northern Ireland Electricity Networks (NIE Networks) RP6 submission. The UR subsequently instructed Gemserv to broaden the scope to include all Non Network IT expenditure. Both reports were appended to the DD.[1]

Since publication of the DD, the UR has requested that Gemserv review new information and, where necessary, provide any updates in this paper. The data sources reviewed include the following:

- Materials provided by NIE Networks following IT Workshops[2] at the UR Offices;
- Responses to the DD from NIE Networks and other respondents[3]; and
- Information presented by NIE Networks at site visits to two NIE Networks facilities[4] on 18th May 2017.

This report takes into account this additional information, reviews our previous findings in relation to Non Network IT and consolidates our analysis. This document is intended to inform the UR in preparing its Final Determination (FD) for RP6. It is a deliverable produced under work order CON/23/16, dated the 15th September 2016. Table 1 sets out how our three reports relate to the overall price control.

STAGE	DELIVERABLE PHASE
Draft Determination	**(i) Market Operations:** consideration and analysis of the Market Operations proposals including the Market Operations allocated portion of NIE Networks' Non Network IT investment propositions for RP6[5]. **(ii) Non Network IT:** an assessment of the wider Non Network IT proposals for RP6 investment including follow-on review of the Market Operations proposals[6].
Final Determination	**(iii) Consolidated analysis:** a final report that reviews and consolidates the assessment of the above spending areas into a set of recommendations intended to support the FD.

TABLE 1: PHASING OF GEMSERV DELIVERABLES

This report is structured as follows:

[1] Annex D to Draft Determination – Gemserv Market Ops Non-Network IT Assessment v1.3 and Annex E to Draft Determination – Gemserv Non Network IT Assessment v1.2
[2] IT Workshop III (14th February 2017) & IT Workshop IV (11th April)
[3] SONI & Prospect
[4] Dargan Office and Fortwilliam House

- Section 2, Approach – outlines our approach to this analysis including methodology, phasing, scope and assumptions;
- Section 3, Price control period comparison – provides a high-level comparison of Non Network IT expenditure across the RP5 and RP6 price control periods;
- Section 4, IT strategy – discusses the NIE Networks IT Strategy for RP6;
- Section 5, Managed Service Provider Agreement – examines NIE Networks proposals in relation to the Managed Service Provider;
- Section 6, Market Operations analysis – reviews our previous findings with regards to the proposed Market Operations spend;
- Section 7, Efficiency investments – considers the proposed efficiency oriented IT investments;
- Section 8, Optionality analysis – sets out our optionality analysis of NIE Networks proposed investments;
- Section 9, Capex – analyses other areas of Non Network IT capex;
- Section 10, Opex – considers Non Network IT opex; and
- Section 11, Conclusion – summarises the conclusions of this report and quantifies their impact upon NIE Networks spending proposals.

Please note that unless stated otherwise, all quoted capex and opex numbers are in 2015/16 prices, the RP6 base year. Where references are made to costs from RP5, they relate to a number comprised of actual and forecast figures[7]. Revised recommendations are included in this report where Gemserv considers additional evidence justifies a review of the original conclusion.

[7] Unless explicitly stated, the actuals refer to actual spend up to the end of September 2016.

2. APPROACH

This section outlines Gemserv's approach to assessment of NIE Networks' submission. It is structured as follows:

- Section 2.1, UR approach to RP6 – outlines relevant factors from UR's published approach to RP6 that were considered in Gemserv's analysis of RP6;
- Section 2.2, Methodology – clarifies the bottom-up methodology utilised in this report;
- Section 2.3, Analytic framework– sets out the components of the analytic framework utilised by Gemserv to review NIE Networks' submission;
- Section 2.4, Scope – details the scope of this assessment that was agreed with the UR; and
- Section 2.5, Assumptions– lists a number of key assumptions made in developing this report and the supporting analysis.

2.1. UR APPROACH TO RP6

A consideration for Gemserv in the analysis of NIE Networks' submission has been the UR's published approach to RP6[8] ("RP6 Approach"). Some key principles from that document that informed our approach include *inter alia*:

1. Providing an efficient revenue cap to enable NIE Networks to deliver the required outputs;
2. Justification of additional opex on the basis of two tests:
    a. Newness – expenditure is related to a new obligation or specified service level improvement; or
    b. Exogeneity – is there an exogenous factor driving cost increases in relation to current business activities.
3. Delivery of the price control should maximise the ability of NIE Networks to determine the optimum way to deliver the level of service required by consumers at an efficient cost; and
4. Where proposing service improvements, NIE Networks should be able to quantify those improvements in terms of tangible outcomes and which consumers can understand and could support.

2.2. METHODOLOGY

The overall goal of the RP6 price control was summarised by the UR in its DD as:

> *"The RP6 price control aims to set an efficient revenue cap to enable NIE Networks to deliver quality outputs that customers need. NIE Networks' costs are a material and controllable element of electricity tariffs and RP6 investment decisions are expected to underpin improvements in service delivery for consumers."*

In reviewing the submissions from NIE Networks, the UR has opted for a combination of "top down" econometric/benchmarking analysis and more "bottom up" technical analysis where appropriate. The intent is to use those methodologies to achieve an efficient revenue and capital allowance. The UR will determine how to reconcile between those two approaches where it may be required. Being of the opinion that the Non Network IT investment was relatively "lumpy"[9], the UR opted to scope that investment into a "bottom up" assessment.

[8] Northern Ireland Electricity Networks Ltd, Transmission & Distribution 6th Price Control (RP6), Final Overall Approach, December 2015.
[9] In this context a "lumpy" investment means one that is for an item in its entirety. One is obligated to either invest in an item or not. An example would be a server or a laptop.

The basis of the “bottom-up” analysis is reviewing the individual projects and associated expenditure proposed by NIE Networks, to assess an efficient level of allowance. In the previous reports Gemserv reviewed the proposed instances of project spend, interrogating and challenging them with NIE Networks and built that into a set of recommendations for the UR. The revised recommendations are intended to facilitate the UR determining an appropriate allowance for the FD.

As the assessments are project based, the figures throughout this report include the Connections business allocation of costs. However, the final consolidated figures for the UR’s financial model exclude this apportionment. The table in Section 11.2 shows the effect of our recommendations on NIE Networks’ total proposed expenditure and the final output recommendation for the UR’s financial model.

As noted by NIE Networks in their response to the DD, there has been a high level of engagement throughout the RP6 review process. Through the formal query process Gemserv raised 114 queries for NIE Networks, to which they responded. The UR facilitated four IT Workshops at their offices with staff from Gemserv, NIE Networks and the UR in attendance. Gemserv and the UR also performed site visits at two NIE Networks facilities to assess their working practices. In addition, NIE Networks raised a number of queries in relation to the DD document.

2.3. ANALYTIC FRAMEWORK

FIGURE 1: INPUTS TO ANALYTIC FRAMEWORK

The process followed to assess NIE Networks’ proposed Non Network IT spend involved the following activities which are summarised above in Figure 1:

a. Preparation of a report document setting out Gemserv’s analysis of the items within the above scope.
b. Agreement of scope with UR.

c. Benchmarking of relevant costs against RP5.
d. Participating in UR-managed workshops with NIE Networks at which their submissions, approach and responses to the formal queries were subject to detailed challenge.
e. Detailed review of NIE Networks' submission, query responses and other necessary documents.
f. Submitting questions to NIE Networks via UR's formal query process and analysing their responses. Gemserv also developed responses for the UR to a number of formal queries from NIE Networks.
g. Application of previous RP5 experience and other relevant subject matter expertise.
h. Site visits to relevant NIE Networks facilities in order to validate Gemserv's understanding of NIE Networks' operational practices.
i. Development of financial model to assess and quantify the impacts of Gemserv's recommendations in relation to NIE Networks' RP6 spending proposals.

2.4. SCOPE

The term "Non Network IT" in this report relates to IT expenditure on non system assets that either: supports work being physically carried out on network assets without direct interaction with the network; or is related to Market Operations activities[10]. Below we list a number of items that were explicitly within the scope of this analysis (Section 2.4.1) and outside of that scope (Section 2.4.2).

2.4.1. In scope

The following areas were agreed with the UR as being in scope of Gemserv's RP6 analysis.

i. Assessing the following aspects of the Non-Network IT Business Plan:
    a. All project proposals across the three categories of project: Infrastructure; Telecoms; and Applications.
    b. Assessing the proposed capex and opex for those projects to determine whether they are fair and reasonable.
    c. Analysing the level of optionality associated with those projects.
    d. Assessing NIEN's proposed "efficiency projects".
    e. Assessing NIEN programme management and backfill costs.
    f. Review of project refresh timelines.
    g. NIE Networks' proposed IT Strategy.
ii. Proposed Market Operations expenditure including the Market Operations allocation within the Non Network IT proposals, the planned Enduring Solution spend, proposed Tibco capex and opex, and the Other Operating Costs category.
iii. The impact of the Managed Service Provider Agreement upon Non Network IT expenditure.
iv. Comparisons of RP5 actual and projected spend alongside both the RP6 proposed spend and the Competition Commission determined RP5 allowance.

2.4.2. Out of scope

The UR approved the following areas as being outside the scope of Gemserv's analysis under this assignment:

[10] Largely excluding metering related expenditure as this area is addressed within the benchmarking exercise.

a) Costs in relation to contestability of connections.
b) IT costs in relation to D602 (“Investing for the Future”) of the Networks Investment Plan.
c) Costs in relation to Metering under the Market Operations Business Plan.
d) Ensuring the proposed allocation of costs within the Connections category of the Non-Network IT Business Plan are accurate and reasonable.
e) Reconciliation of Market Operations, Non Network IT figures and Connection allocation across other elements of NIE Networks’ proposal.
f) Analysis of non-capex costs related to meter installations changes and meter recertification.
g) Assessment of costs in relation to meter reading during the price control.

2.5. ASSUMPTIONS

Set out below are a number of assumptions that have informed Gemserv’s preparation of this document.

a. **I-SEM –** any significant I-SEM related spending will be undertaken during RP5 and is excluded from this analysis.
b. **Smart metering –** there will not be a significant smart metering roll out in Northern Ireland (NI) during RP6.
c. **Retail harmonisation –** the retail markets in NI and Ireland will remain harmonised during RP6.
d. **NIE Networks’ role –** there will be no significant changes to NIE Networks’ licence obligations during the price control period.
e. **Opex** – our analysis focuses upon the proposed new opex within NIE Networks’ submission (Enduring Solution and “opex impact” within the Non Network Business Plan), not the “base” ongoing IT opex, assuming that the actual RP5 levels are appropriate for the organisation.
f. **Quality of information supplied** – Gemserv was not in a position to validate all the supplied information and we have assumed that NIE Networks have used reasonable endeavours to ensure that the data provided to the UR and to Gemserv is complete and accurate.
g. **NIE Networks responsibility** – while Gemserv may challenge individual projects or proposed instances of expenditure, it is for NIE Networks to choose how to discharge its licensed obligations within the framework of the UR-determined price control.

3. PRICE CONTROL PERIOD COMPARISON

The UR requested a comparison of Non Network IT expenditure between price control periods across a number of categories. This information is provided below for context to our analysis of NIE Networks' proposals. It draws out trends in IT expenditure between the price control periods.

The following sections compare the price control periods in the following areas:

- Non Network IT capex (Section 3.1);
- Non Network IT opex (Section 3.2);
- Enduring Solution Opex (Section 3.3); and
- The challenge in drawing these comparisons is further set out in Section 3.4.

3.1. NON NETWORK IT CAPEX

This capex is reviewed below in Figure 2 which compares a number of capex figures across the RP5 and RP6 price control periods. The intent of the diagram is to review historical spend during RP5, extrapolate that level of expenditure forward and compare it to the proposed RP6 spend.

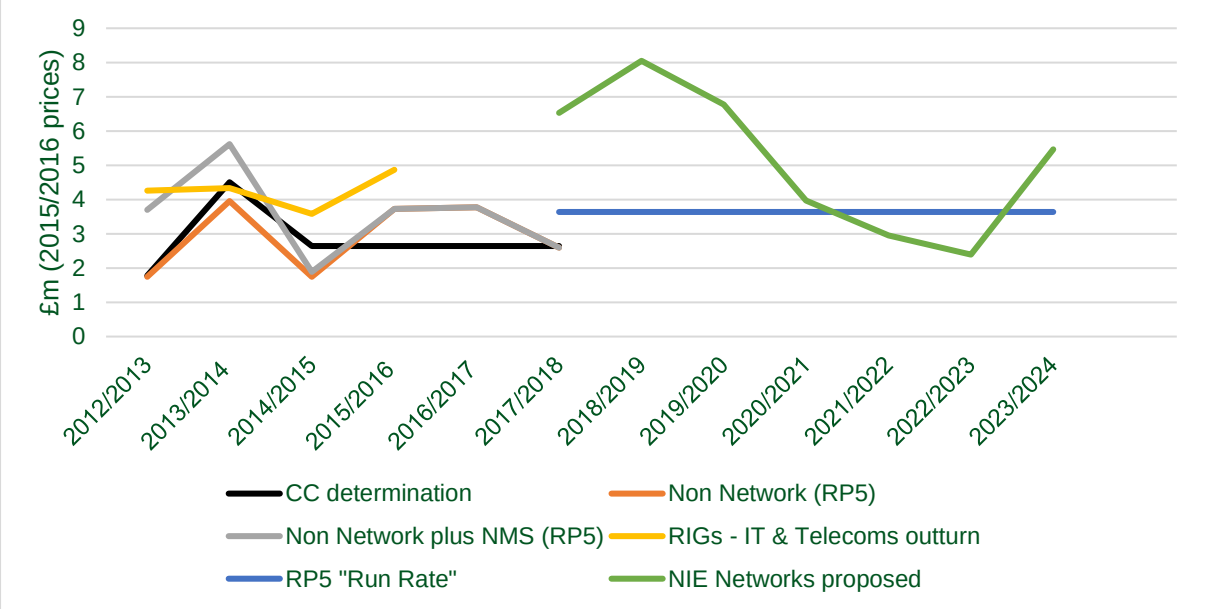


FIGURE 2: CAPEX COMPARISON BETWEEN RP5 AND RP6

The lines[11] in the above chart represent the following:

a) CC allowance – the RP5 Non Network IT allowance as determined by the Competition Commission[12];

[11] The final six months of RP5 and the first six months of RP6 occur in 2017/2018. For ease of comparison we have converted the 2017/2018 values across these series into full year equivalent. The exception to this conversion is the "NIE Networks proposed" series which is based on the figures within NIE Networks' submission.
[12] Northern Ireland Electricity Limited price determination, A reference under Article 15 of the Electricity (Northern Ireland) Order 1992, Final determination. 26 March 2014.

b) Non Network (RP5) – RP5 Non Network IT capex as reported by NIE Networks[13];

c) Non Network plus NMS (RP5) – RP5 Non Network IT capex plus additional allowance under a D_t term for Network Management System (NMS) during RP5. NMS is included here as NMS architecture investment is built into the RP6 spending proposals. Figures as reported by NIE Networks[14];

d) RIGs – IT & Telecoms outturn – actuals reported to the UR against the "IT & Telecoms" category within the Regulatory Instructions and Guidance (RIGs) reporting framework minus the Connections and other indirect allocations. As a result of engagement[15] and NIE Networks provided information (see Section 3.4), Gemserv understands these figures to contain the Non Network IT capex proposals.

e) RP5 "Run Rate" – this figure assumes an annual rate of investment in RP6 consistent with the annual average of the "Non Network plus NMS (RP5)"

f) NIE Networks proposed – these figures represent NIE Networks' proposed Non Network IT investments over RP6, minus the Connections allocation, to allow for comparison.

In comparing these numbers Gemserv would make two observations:

a) The level of capex expenditure, as noted by NIE Networks within their Non Network IT Business Plan, represents a significant increase between the price control periods; and

b) The level of Non Network IT capex for RP5 is forecast to exceed the CC determined allowance by £1.7m[16].

3.2. NON NETWORK IT OPEX

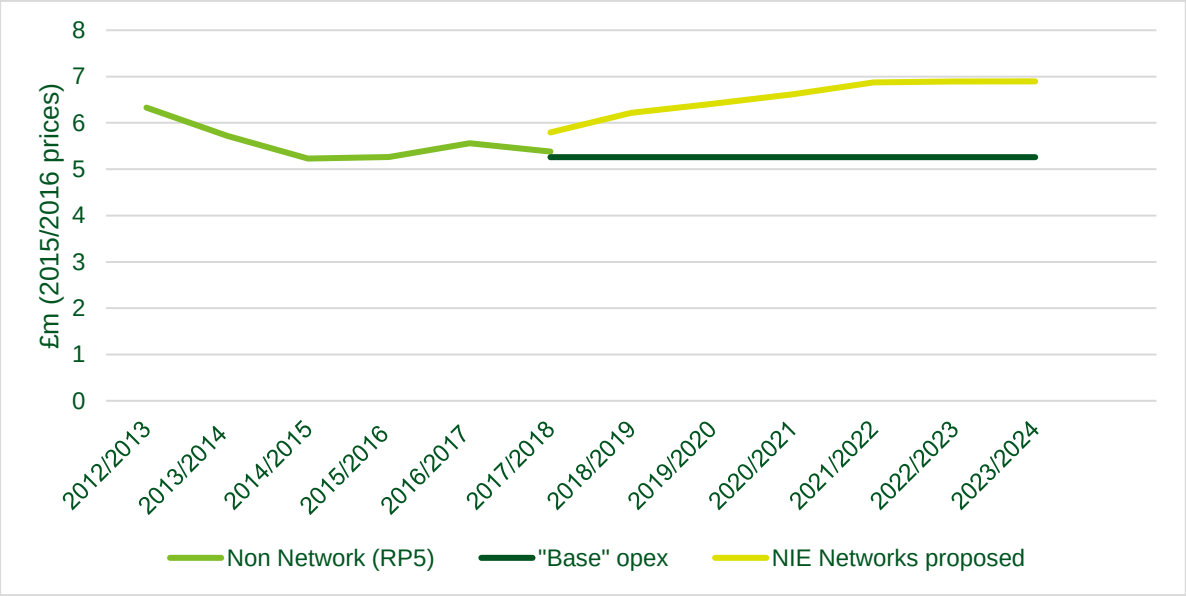


FIGURE 3: OPEX COMPARISONS BETWEEN RP5 AND RP6

[13] In response to query URQ065.
[14] Ibid.
[15] IT workshop with NIE Networks 11th April 2017 and conference call with CEPA 10th May 2017.
[16] Response to query URQ065.

Figure 3 compares Non Network IT opex figures across the RP5 and RP6 price control periods. In its RP5 determination, the Competition Commission decided upon a capitalisation of Non Network IT expenditure that had previously been treated as opex. It does not seem to have set an explicit Non Network IT opex allowance.[17] Therefore, the below figure does not contain an RP5 CC determination figure.

The lines[18] in the above chart represent the following:

a) Non Network (RP5) – the Non Network IT opex over RP5 calculated on the basis of figures provided by NIE Networks[19]. CEPA and Gemserv concurred[20] that it is not possible to directly extract Non Network IT opex solely from the RIGs figures.
b) "Base" opex – the ongoing level of IT oriented opex consistent with rolling forward the 2015/2016 levels[21]. This figure is broadly consistent with the average value for the RP5 price control period.
c) NIE Networks proposed – the "base" opex plus the additional Non Network IT opex proposed by NIE Networks over the period of RP6.

It can be observed that the RP6 opex impact proposals represent an increase of £8.9m over the lifetime of RP6 in comparison to the "base" opex level.

3.3. ENDURING SOLUTION OPEX

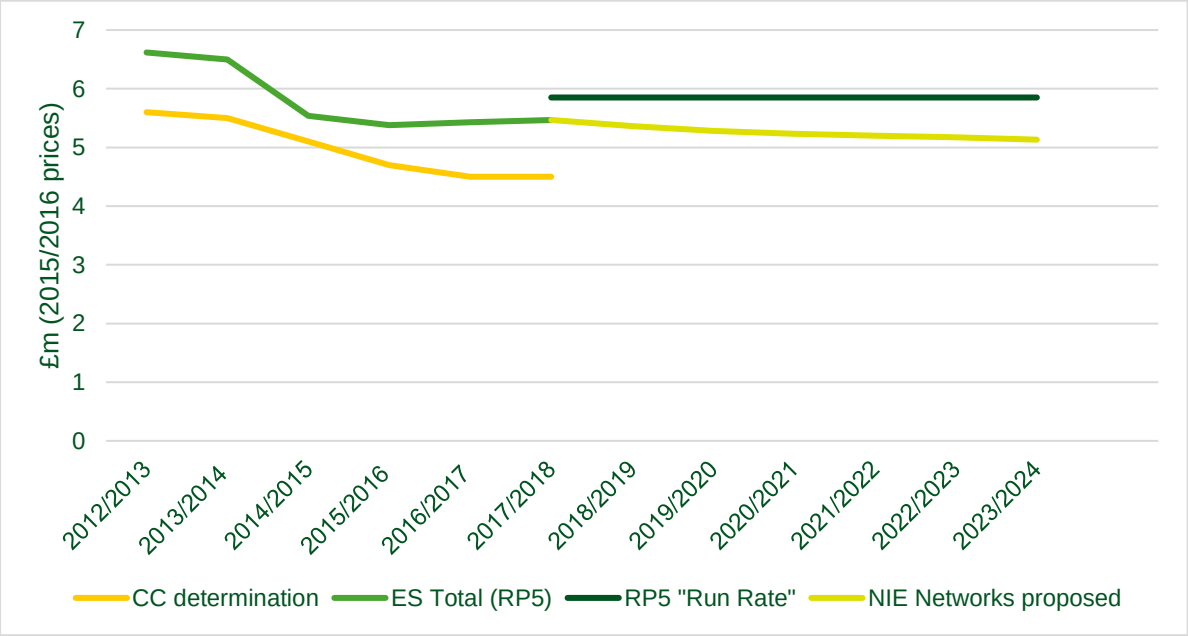


FIGURE 4: ENDURING SOLUTION OPEX COMPARISON BETWEEN RP5 AND RP6

[17] Northern Ireland Electricity Limited price determination, A reference under Article 15 of the Electricity (Northern Ireland) Order 1992, Final determination. 26 March 2014.
[18] The final six months of RP5 and the first six months of RP6 occur in 2017/2018. For ease of comparison we have converted the 2017/2018 values across these series into full year equivalent. The exception to this conversion is the "NIE Networks proposed" series as it is based purely on the figures within NIE Networks' submission.
[19] Response to query URQ249 and statements in the Non Network IT Business Plan.
[20] Conference call with CEPA 10th May 2017
[21] Ibid.

Figure 4 compares Enduring Solution Operating Costs across RP5 and RP6. The lines[22] in the above chart represent the following:

a) CC determination – the Enduring Solution opex RP5 allowance as determined by the Competition Commission[23];
b) ES Total (RP5) – the Enduring Solution opex spent over the period of RP5 as reported by NIE Networks[24];
c) RP5 "Run Rate" – assumes the annual average of "ES Total (RP5)" and spreads it over RP6.
d) NIE Networks proposed – the total Enduring Solution opex proposed by NIE Networks over RP6.

There are two clear observations arising from the above data:

a) The Enduring Solution Opex expenditure of £32.18m over the RP5 period exceeds the CC determination of £27.7m by £4.53m. Gemserv suspects that hyper-care and extended care costs may have had an influence upon the actual spend.
b) The proposed Enduring Solution operating expenditure for RP6 appears to be lower than the RP5 "run rate" though with the organisation having greater familiarity with the system and hyper-care costs no longer required, such a decrease would be expected.

3.4. COMPARISON CHALLENGE

Developing the above comparisons raised a methodological challenge for Gemserv in assessing the Non Network IT figures across price control periods. The IT figures under review in this price control have been subdivided in a number of ways:

a) specific categories of Non Network IT capex and opex allocated by business unit and broken down so as to be consistent with the UR's model for calculating the price control;
b) NIE Networks capex and opex proposals allocated by project and business unit; and
c) The out-turn expenditure from RP5 which is reported against the RIGs reporting framework.

A significant amount of time has been devoted to mapping the chart comparison categories against each other, and some discrepancies persist, particularly in comparing categories a) and c). Individual line items within the RIGs framework do not always map neatly onto capex and opex as conventionally understood, largely due to differences in accounting treatment. This misalignment introduces scope for confusion, and complicates drawing comparisons across types of expenditure.

To implement RIGs, the company have had to develop apportionment rules over RP5. At the Fortwilliam House site visit, NIE Networks noted situations in which they are having to decide on cost allocations on a case by case

[22] The final six months of RP5 and the first six months of RP6 occur in 2017/2018. For ease of comparison we have converted the 2017/2018 values across these series into full year equivalent. The exception to this conversion is the "NIE Networks proposed".
[23] Northern Ireland Electricity Limited price determination, A reference under Article 15 of the Electricity (Northern Ireland) Order 1992, Final determination. 26 March 2014.
[24] Query response URQ142.

basis. This experience suggests there is a risk of inconsistent apportionment between different years' financial data.

Gemserv has used reasonable endeavours to ensure accuracy in the comparison tables above. NIE Networks provided information[25] showing a reconciliation of how the RIGs IT & Telecoms costs from their RIGs reporting[26] mapped to individual line item costs within the relevant Non Network IT Plan for a single year (2015/2016). This comparison provided some comfort that the different datasets are interrelated.

Having a single basis on which the figures in the UR financial model were allocated, against which NIE Networks reported over the price control period would assist understanding and reduce ambiguity. The individual projects could be more easily related to the financial model and RIGs reporting, improving the efficiency of the process to review proposed costs during assessment of a price control. This change would minimise the scope for potential error in the allocation of expenditure to different areas and reduce the possibility of confusion by ensuring a shared understanding.

We would support the categories within the UR's financial model further aligning with those in the in the RIGs reporting framework. NIE Networks already report using the RIGs cost categories. In addition, there is a body of practice and precedent around interpretation of the RIGs categories for other UK DNOs.

RECOMMENDATION

The UR should work to more align the Non Network IT components of its financial model and the guidance within its Business Plan Templates with the RIGs categories prior to commencing its analysis for RP7.

[25] Spreadsheet "IT Costs 1516 – Issued to UR" submitted to the UR on 18th May 2017.
[26] As per the C1 Matrix

4. IT STRATEGY

Part of the context to much of NIE Networks' proposed expenditure over RP6 is their IT Strategy[27], which signals significant change to their IT architecture and means of working. The overall philosophy of the document could be summarised as reflecting a desire by NIE Networks to becoming a more data-driven distribution company with fewer manual paper-oriented processes.

Gemserv previously assessed[28] this strategy from three perspectives:

- Appropriateness - alignment of the IT Strategy with NIE Networks' licensed obligations;
- Cost – attempting to assess the costs associated with implementation of that IT Strategy; and
- Consistency – whether the projects proposed within the RP6 Non Network IT Business Plan fully aligned with that strategy.

Gemserv did not see any evidence of the proposed IT Strategy clashing with NIE Networks' obligations as a licensed distribution company. The emphasis within the documentation was more on how they planned to deliver their obligations, rather than the requirements themselves. Our analysis of Eurelectic proposals[29], European Distribution System Operators' Association for Smart Grids (EDSO) vision documents[30] and ESB Networks plans[31] suggested a consistent industry vision of distribution companies being more data driven in future.

The individual projects were framed by NIE Networks in the Non Network IT Business Plan as providing benefits across the following areas:

- Customer service
- Efficiency;
- Obsolescence; and
- Risk.

Reviewing the NIE Networks submitted projects indicated that they had a direct relation to the IT Strategy or had an obsolescence driver. The strategy thus underpins NIE Networks' proposals in the Non Network IT Business Plan. As stated in their response to the DD, it appears to have influenced their selection of projects for RP6.

There are benefits for NIE Networks in having a defined strategy around IT provision for the price control period. Such clarity enables them to prioritise any investment not driven by system refresh requirements. NIE Networks seems to place significant on this document emphasis within their submission.

While it contained order of magnitude estimates, the strategy did not include specific costs. NIE Networks provided estimates of the costs of the projects emanating from that strategy. As the intent of the IT Strategy is expressed in the projects proposed by NIE Networks, Gemserv considered it to be more appropriate to evaluate

[27] "NIE Networks IT Strategy" and supporting documentation as provided in response to query URQ064.
[28] Gemserv Market Ops Non-Network IT Assessment v1.3
[29] Eurelectrics's vision about the role of Distribution System Operators (DSOs). February 2016
[30] 'Digital DSO' – a vision and the regulatory environment needed to enable it. January 2016
[31] ESB Networks 2027

the projects on their own merits. In addition, this approach is consistent with the overall methodology adopted in this paper.

Gemserv was appointed to assess the individual projects proposed by NIE Networks using a “bottom up” approach (as discussed in Section 2.2). From this perspective, each project needs to be justified on its own merits along with the proposed expenditure being used efficiently. Alignment with NIE Networks IT Strategy is not germane for our purposes and not a material consideration in whether to recommend inclusion of expenditure within the price control.

RECOMMENDATION

The IT Strategy does not appear to conflict with NIE Networks’ licensed obligations. In assessing the cost implications of individual project briefs, Gemserv does not consider it to be a material consideration for the UR in reaching its Final Determination.

5. MANAGED SERVICE PROVIDER AGREEMENT

NIE Networks operate a largely outsourced model of IT service provision. A third party contracted under a Managed Service Provider Agreement (MSP) delivers much of the service, overseen by an internal IT team of approximately 14 FTEs. The responsibilities of the MSP under the new agreement are significant and wide ranging.[32] The outsourced IT delivery model significantly influences the costs associated with Non Network IT.

More directly (as shown in Figure 5 and based on figures provided by NIE Networks[33]), the MSP day rate drives significant expenditure within NIE Networks' RP6 proposals: £8.96m out of the proposed £41.78m Non Network IT capex and £1.8m out of the £8.89m estimated Non Network IT opex impact.

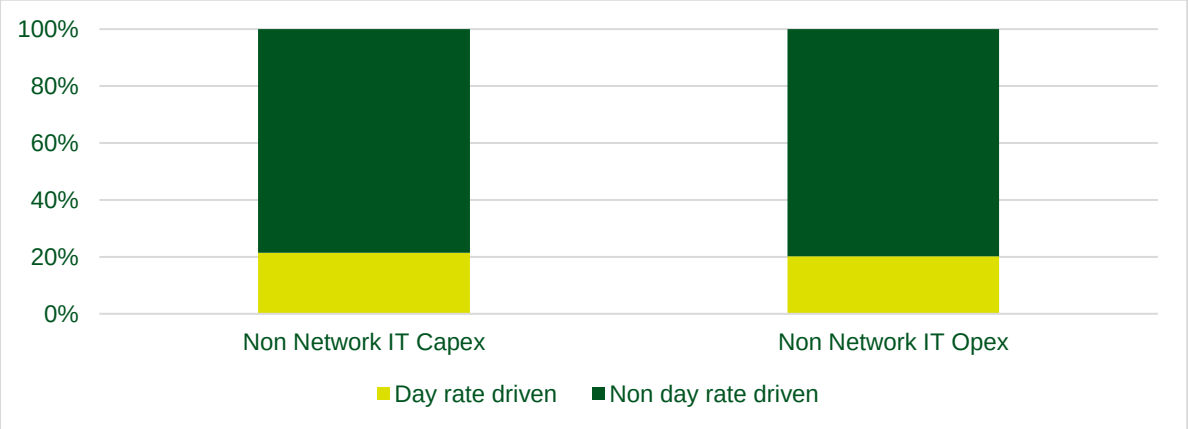


FIGURE 5: PROPORTION OF MANAGED SERVICE PROVIDER AGREEMENT COSTS DRIVEN BY DAY RATE

Gemserv benchmarked a number of the resource rates within NIE Networks' submissions against our experience of procuring similar roles (analysis reproduced below in Table 2). Our view was that the blended day rate of £550 per day seemed reflective of likely GB market rates.

Gemserv also ran some simple statistical tests (mean, standard deviation, median) on consulting resource cost figures provided by NIE Networks[34]. Inflating those numbers forward and comparing them to the proposed £550 suggested that this blended day rate would be within the expected range of prices.

That said, there were two caveats to this claim:

1. NI has historically been the lowest cost region within the UK[35]. In a number of previous water and energy price controls, the UR has included determinations incorporating regional cost relativities such as Regional Prices Adjustment, power cost differentials and regional wage adjustments. The above suggests there may be scope for a lower day rate within the MSP Agreement.

[32] **[redacted]**
[33] In response to queries URQ141, URQ141a, URQ141b, URQ141c, and URQ141d.
[34] Figures from recruitment consultants Alexander Mann provided by NIE Networks in response to query URQ117. Gemserv inflated those figures into 2015/16 pricing.
[35] ONS, 2010

2. The MSP role for the RP6 period was under procurement at the time of drafting Gemserv's previous reports and we noted that the final contracted rate would be a product of that tender process.

RESOURCE TYPE	NIE NETWORKS PROPOSED DAY RATE	COMMENTS
Telecoms Engineer	£650	Dependent on location and contract length, it appears to be a fairly competitive rate. A rate of £700-£800 would not be uncommon for this type of infrastructure resource.
Managed Service Rate	£550	This rate was viewed as competitive. A smaller company would expect to pay in the range of £650-£700. This £650-700 rate could be expected for contractor consultants. The challenge would be ensuring that lower grade work is performed by suitably junior resources.
Mobile Working Resource	£850	The costs can range from £600 for junior developers to £900 for fully experienced resources. For some of the projects, there may be an argument for agreeing a fixed rate with the day rate only kicking in in the event of change, though a fixed price could price in risk.
Systems Integration Resource	£850	SAP resources are currently at a premium in the market. It is not uncommon to pay from £775 to £830 for this kind of resource, though often there is a payment for a Project Manager at a premium rate. With that consideration, this rate is probably reasonable.
Vendor Resource	£850	Developer rates are very hard to benchmark as it is dependent on the solutions underlying the software. For an international company delivering a significant project it is probably reflective of market rates.

TABLE 2: BENCHMARKING NIE NETWORKS PROPOSED DAY RATES AGAINST GB EXPERIENCE

We noted three factors that we would have expected to apply downward pressure on the expenditure proposed in NIE Networks' submission:

1. NIE Networks licence obligations remaining broadly consistent across price control periods. If their obligations are consistent, over time it would be reasonable to expect improvements in how those obligations are delivered;

2. Best current technological practice such as server virtualisation and cloud computing helping reduce some requirement for physical hardware. In discussions[36] NIE Networks did note that the bidders may have some scope for cloud computing during RP6; and
3. A likely shift to offshoring elements of the support provided by the MSP.

Gemserv stated that we would expect the impact of the above developments to be reasonably significant as our previous experience suggests considerable savings are attainable through use of the above methods. We would view a 10% reduction on the direct costs driven by the MSP Agreement as quite a conservative target. The impact of the UR accepting this recommendation would be the following reductions in the overall allowance: Non Network IT: capex - £896.3k; opex - £179.9k.

Subsequently, NIE Networks apprised the UR[37] of the outcome of their procurement, identifying the appointed MSP as Atos. NIE Networks also provided high level costing information for the new MSP: a blended day rate of **[redacted]**; and a total cost of **[redacted]** over RP6 to deliver the core IT managed services. In a public statement[38] on the MSP Agreement, Atos value the contract at £60 million. NIE Networks provided Gemserv and the UR with contractual information[39] related to the appointed MSP.

Reviewing the information within the executed agreement does not suggest a technical limitation in delivering the proposed reduction on NIE Networks' proposals. Nor does it necessarily suggest a commercial one. The total expected value of the contract over the initial **[redacted]** term is **[redacted]**.[40] **[redacted]**

Based on reviewing figures in the MSP Agreement, it would seem the vast majority of cost (**[redacted]**) associated with the Managed Service Provider cost relate to Time and Materials. As stated by NIE Networks the actual final day rates associated with individual assignments will depend on the mix of resources used to deliver a piece of work. This point would suggest some flexibility in delivery of the work and of the associated costs.

The evidence provided by NIE Networks does not support their being unable to deliver the proposed reduction through a different use of resources or through the current technological practices discussed above.

Beyond the day rate, is the question of the quantity of work performed by the MSP. The resourcing plans for the various projects that PA Consulting seem well provided for in terms of the estimated number of days. Gemserv considers there to be scope for reducing the proposed volume of days across these projects.

Considering the above points, our recommendation of a 10% reduction in the spend allocated to the MSP Agreement has not changed. It is Gemserv's opinion that the new MSP Agreement has the capability to provide substantive savings on the estimated figures within NIE Networks' submission.

It is further worth noting that NIE Networks have questioned whether counting this efficiency and applying a top down productivity challenge is double counting a benefit. The UR has stated that they do not view this approach

[36] At IT Workshop 28th January 2017
[37] Correspondence to the UR "RP6 Draft Determination – Managed Service Procurement Update" dated 14th April 2017.
[38] Atos secures IT services contract to power NIE Networks, 10th May 2017.
[39] Gemserv received a copy of the executed agreement and thirty related schedules to that main agreement.
[40] **[redacted]**

as double counting. The proposed reduction is intended to set a reasonable base allowance in relation to the MSP. **[redacted]**. The text of the agreement points to a number of mechanisms for innovation over the contract term; Gemserv would expect these to be the source of efficiencies over the price control period.

RECOMMENDATION

Gemserv are recommending the following allowance reduction in relation to the MSP Agreement: capex - £896.3k; opex - £179.9k.

6. MARKET OPERATIONS ANALYSIS

This chapter focuses upon the purely Market Operations focused elements of NIE Networks proposals across the Non Network IT Business Plan and their Market Operations Business Plan. It is structured as follows:

- Section 6.1, Tibco upgrades – considers the Tibco proposals in relation to the frequency of upgrades during RP6;
- Section 6.2, Market Operations opex allocation – reviews Gemserv's finding in relation to the allocation of Market Operations opex;
- Section 6.3, Licence depreciation periods – discusses licence depreciation periods that were reviewed in our previous reports;
- Section 6.4, Enduring Solution operating costs – reviews our findings in relation to Enduring Solution Operating Costs in light of updated information from NIE Networks; and
- Section 6.5, Market Operations – Other Operating Costs – revisits the original recommendation in relation to Market Operations – Other Operating Costs.

6.1. TIBCO UPGRADES

In our first report, Gemserv challenged[41] the requirement for three Tibco upgrades during RP6 and recommended the exclusion of one of those upgrades[42]. Our initial opinion was that likely market conditions[43] and low historical frequency of upgrades during RP5 did not seem to support those proposed numbers.

In response, NIE Networks provided evidence[44] to substantiate this number of upgrades. This document included support dates and extended support dates (where available) for a range of Tibco system components[45] plus a proposed programme for batching those upgrades into three instances. The upgrade windows seemed to align with the end of support dates, suggesting the refresh requirements are an important driver of the investment.

The additional NIE Networks' information resulted in Gemserv recommending the inclusion of the previously excluded £250.3k capex within the price control allowance. We have since further reviewed the above information from NIE Networks and are still of the opinion that the proposed upgrades appear to align with the end of support dates. We are proposing no changes to our previous finding.

6.2. MARKET OPERATIONS OPEX ALLOCATION

Gemserv previously estimated the Market Operations portion of NIE Networks' proposed Non Network IT between RP5 to RP6 increases in opex as £661.2k. As noted in previous reports, we found no evidence of NIE Networks incorrectly allocating expenditure to Market Operations. However, we cannot definitively rule out a risk of incorrect allocation in the absence of an external audit of cost apportionments to the RIGs guidance.

[41] Query URQ161
[42] Gemserv Market Ops Non-Network IT Assessment Report v1.3
[43] Given that NIE Networks assumed the following investments were not required: I-SEM, smart metering and retail deharmonisation
[44] Query responses URQ170 and URQ170a
[45] Tibco BW, Tibco BC, Tibco BC Services Plug in, Redhat OS, JVM – PI, Oracle Standard Edition, Oracle Standard Edition 1, Oracle Enterprise Edition, Windows.

At a high level, Gemserv does not see any evidence for NIE Networks' Market Operations functions differing significantly between RP5 and RP6, or requiring additional expenditure. We had an expectation they could substantially reduce their ongoing opex costs for many reasons such as:

- The functionality of the Enduring Solution systems is now stable, mature and well understood (RP5 costs included substantial costs for hyper-care);
- During RP6 there are many opportunities to:
    - Reduce ongoing costs through additional virtualisation[46],
    - Introduce more near and off shore 3rd line support,
    - Procure more near and off shore hosting, and
    - Implement some cloud based solutions[47]; and
- A new MSP contract will be in place for the duration of RP6 that should drive down unit costs and allow innovation in the way applications are developed, maintained and hosted.

The aforementioned points would suggest that no increase in annual Market Operations Non Network IT opex is required and in real terms substantive savings are achievable over the new price control. On that basis, we recommended that £661.2k opex be excluded from the NIE Networks proposed allowances.

In its response to the DD, NIE Networks opposed this finding on the following grounds that: the Enduring Solution costs have no bearing on the specific Market Operations opex proposals under consideration which are *"driven by the introduction of new functionality to deliver business requirements"*[48]; the costs of the MSP are understood and they take account of all potential savings; and Gemserv is being inconsistent in its treatment of Market Operations opex as we had deemed Project Specific opex costs to be reasonable.

Gemserv is unconvinced that there is no interaction between the Enduring Solution operating costs and the Market Operations operating costs. Gemserv understands there to be an overlap in resourcing between the two areas. It is reasonable to expect benefits to accrue from a mature system.

Having reviewed the executed MSP contract, Gemserv has not seen evidence that all potential savings have been accounted for, in contradiction to NIE Networks' assertion that they have been. As set out in Section 5, we have recommended a 10% reduction in those costs.

The perceived inconsistency may arise from a misinterpretation. The project specific opex costs were provisionally deemed to be reasonable based upon a set of assumptions, subject to our further reviewing input from NIE Networks (as noted in the previous report). In Section 10, we now challenge the assumptions around hardware maintenance costs. In addition, our recommendations around efficiency investment, optionality analysis and ongoing enhancements suggest that we challenged these costs in a number of areas. The reallocation of costs from capex to opex had netted off the impact of our other proposed opex disallowances.

[46] The creation of a virtual version of an element of the IT system, for example an operating system, a server or a storage device, rather than an actual version.
[47] Gemserv considers cloud based solutions to be maturing and expect them to be applicable to a wider range of client needs during the next PC period. NIE Networks seems to expect increased use of the cloud in their future business activities.
[48] NIE Networks Response to the Draft Determination, pp123

We continue to recommend reducing the allowance for Market Operations Non Network IT opex, though we are amending our proposed reduction to £656k. This change results from the impact of our Qlik software recommendation (set out in Section 10).

6.3. LICENCE DEPRECIATION PERIODS

Gemserv queried[49] the licence depreciation period being assumed by NIE Networks in their Non Network IT submission. They provided a response stating that all software licences and Non Network IT capital purchases are included within a five (5) year Regulated Asset Base (RAB) and hence depreciated over a five year period.[50] This statement and the available evidence suggests that they are depreciating the licence related capex in a manner consistent with a five year RAB for capitalised Non Network IT spend, and hence in line with requirements.

6.4. ENDURING SOLUTION OPERATING COSTS

This section considers the proposed Enduring Solution Operating Costs as follows: reviewing our previous recommendation in relation to IT Support Costs (Section 6.4.1); discussing Hardware, software and market entry costs (Section 6.4.2); and examining the area of Market Services staff costs (Section 6.4.3).

6.4.1. IT Support Costs

This category of costs relates to support from the MSP on the Enduring Solution. We have recommended a 10% reduction on these costs over the RP6 period. This recommendation was grounded in an expectation that:

- The relevant licence obligations would remain largely consistent across RP5 and RP6;
- Technological developments such as server virtualisation, potentially cloud computing, support offshoring should impact on costs; and
- Consistency with MSP recommendations in relation to the Non Network IT expenditure.

We had suggested reviewing this finding in light of the outputs from the MSP reprocurement exercise. In response to the DD, NIE Networks stated that this finding should be reappraised. In correspondence NIE Networks challenged[51] these findings on the following basis:

> *"In its reports, Gemserv recommends that the UR replaces the ES IT costs included within the NIE Networks plan with those emerging from the reprocurement. However, it has made the assumption that a 10% reduction in costs would be delivered through the procurement and has reduced the Enduring Solution IT allowance within the Draft Determination on that basis."*

There appears to be a misunderstanding in relation to the basis for our recommendation in the above. We did not recommend replacing those costs with those emerging from the reprocurement, more that the outputs should be considered following the DD. We have not made an assumption that a 10% reduction would be delivered via the

[49] Query URQ248
[50] As per query response URQ248
[51] Correspondence marked L170414 dated 14 April 2017

procurement but noted that we would have expected a number of technical and operational improvements that should substantially reduce costs manifesting in the bids for the MSP.

NIE Networks have not provided evidence that such a reduction on their proposals is unattainable over the price control period, but provided a blended day rate for resources. As discussed in Section 5, the accuracy of that rate will depend on the actual blend of resources deployed by NIE Networks in delivering these projects. Without further evidence we see no reason to change the recommended £1.71m disallowance.

6.4.2. Hardware, software and market entry costs

This section examines and finalises the Gemserv findings in relation to the IT Enduring Solution under the following categories:

- Capita – other costs: network circuits and hosting charges associated with Enduring Solution infrastructure (Subsection 6.4.2.1);
- 3rd Party costs: hardware maintenance charges associated with ES hardware as well as telecoms costs associated with interval meter reading (Subsection 6.4.2.2);
- Software licence costs: included third party licence costs for market systems e.g. SAP licences (Subsection 6.4.2.3);
- Load profile costs: work to procure annual customer load profiles for market settlement in adherence with the Trading and Settlement Code and Market Registration Code (Subsection 6.4.2.4);
- Market Entry costs: cost associated with new entrant certification and accreditation of suppliers for particular market segments (Subsection 6.4.2.5).

Table 3 below sets out the percentage change across these five categories between the price control periods and whether the level of change is proportional to the increased duration of RP6 relative to RP5. An overall increase of approximately 18% would be consistent with this extra year. This work aims to highlight areas where overall expenditure increase may be explained by extension of the price control period.

HW, SW & Market Entry Costs	% Difference	Proportional?
Capita - other Costs	11.09%	< Proportional
3rd Party Costs	34.15%	> Proportional
Software Licence Costs	2.48%	< Proportional
Load profile costs	N/A	N/A
Market entry costs	16.05%	≈ Proportional

TABLE 3: PERCENTAGE CHANGE ACROSS HARDWARE, SOFTWARE & MARKET ENTRY COSTS BETWEEN RP5 AND RP6

6.4.2.1. Capita – other Costs

These proposed ongoing costs relate to network circuit and hosting charges. As these planned costs are lower per annum during RP6 than the comparable RP5 figures, we are not minded to challenge the proposed figures for this price control.

6.4.2.2. Third Party Costs

Initially, Gemserv was not convinced of the merit of the increase in these costs based on the original NIE Networks submission and the understanding that *status quo* levels of activity were expected to persist into RP6. We recommended holding the per annum Third Party Cost level consistent between the price control periods. Gemserv also flagged for the UR's attention metering operational costs and the volume of half hourly meters requiring daily communication under the "top down" benchmarking exercise.

NIE Networks provided evidence[52] in support of the following points:

- The first year of RP5 had only six months' worth of Enduring Solution expenditure which skewed the average figure for the price control period i.e. it was five years' cost, not five and a half;
- NIE Networks were obliged to pay an extended warranty charge related to supporting certain components[53] of the Enduring Solution during the first two years of RP6 which inflated those numbers, meaning the average was less accurate for drawing comparison; and
- The growth of half hourly meters interacting with the Enduring Solution during RP5 will increase during RP6 meaning that "it is not possible to compare average costs during RP5 and RP6"[54].

Stripping out the extended warranty costs and amending the RP5 average in line with the decreased Enduring Solution operating duration results in a consistent per annum opex across RP5 and RP6: £736.8k for RP5 versus £742.6k for RP6. This outcome suggests equivalence between the price control periods, leading Gemserv to conclude that the costs appear reasonably incurred.

6.4.2.3. Software Licences

The planned per annum expenditure on Enduring Solution Software Licences shows a 13.3% decrease between RP5 and RP6. As discussed later in this report, the evidence does not support there being a cost allocation risk associated with software licences. As a result of this comparison, Gemserv would not challenge the proposed Software Licence Enduring Solution spend.

6.4.2.4. Load Profile Costs

Gemserv initially challenged the inclusion of Load Profile costs within NIE Networks submission, as it seemed to be a new inclusion i.e. a request for new budget for the procurement of customer load profiles, an obligation which had been ongoing for years. Our understanding was that these figures were already captured within the opex figures.

NIE Networks provided figures and narrative[55] to show that those numbers had in the previous price control period been contained within the Market Entry Costs category and had been simply separated out for RP6. NIE Networks noted an assumption of Elexon Load Profile costs holding stable across both price control periods. These amounts had increased by £3k in 2013/14; highlighting a potential risk of further cost increases over RP6.

[52] Query response URQ273 and URQ274
[53] AIX and PowerHA elements of the infrastructure
[54] Query response URQ273
[55] In response to query URQ271

Considering that risk and the pricing consistency, it appears that NIE Networks are not seeking to over recover against this category.

6.4.2.5. Market Entry Costs

As discussed in our first report. Gemserv was initially unconvinced that the projected cost increase from RP5 to RP6 reflected NIE Networks' assumptions in relation to the level of activity in that space. In our previous report, we undertook a simple modelling exercise, assuming the following:

- NIE Networks costs of £18k- £45k per new entrant processed;
- NIE Networks costs of £7.7k - £19.3k per recertification performed;
- Balanced Scorecard activities having a relatively nominal impact on resourcing requirements;
- 1-5 new entrants per annum over the price control period; and
- 1-5 certifications per annum over the price control period.

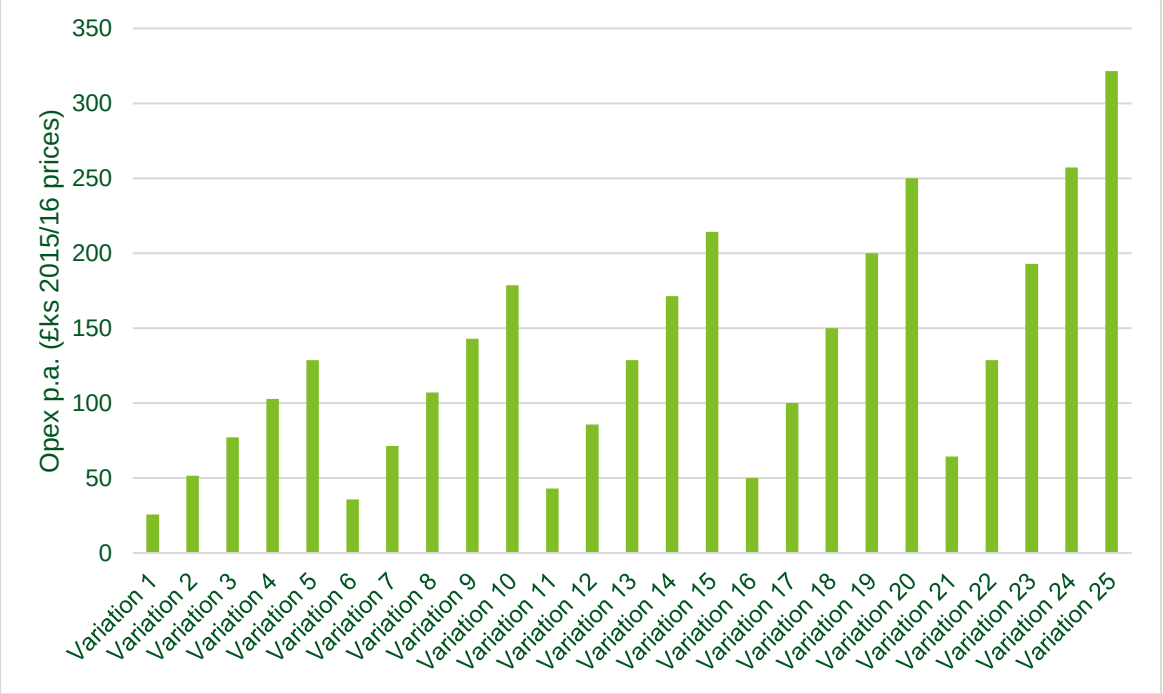


FIGURE 6: RANGE OF MODELLED OUTCOMES OF PER ANNUM MARKET ENTRY COSTS

Figure 6 reproduces the modelled ranges of results. Assessing the standard deviation within this series suggests a wide variety of outcomes driven by the wide ranges of input values, which were driven by analysis of the figures provided to date by NIE Networks. Assessing the mean and median values suggested £844.1k as an outcome budget for Market Entry Costs, entailing a total reduction of £59.9k upon NIE Networks' submission over the price control period. We recommended this figure though subject to our reviewing input from NIE Networks on their

forecast and historical levels of activity across Market Entry, for example new entrants, recertification of existing participants, and Balanced Scorecard activities.

The additional information since provided by NIE Networks[56] has not caused us to amend our recommendation.

6.4.3. Market Services staff costs

Over RP5, the Market Services staff resource moved from a complement of 43 to 26 FTE. The original resource pool was split between 24 NIE Networks internal staff and 19 outsourced business process (BPO) resources. According to NIE Networks[57], following a resourcing review, all these functions were moved in house in October 2014 resulting in a resource pool of 26 FTE, which NIE Networks propose to retain over the RP6 period. Figure 7 maps the resource movements against the associated costs[58] over the RP5 price control.

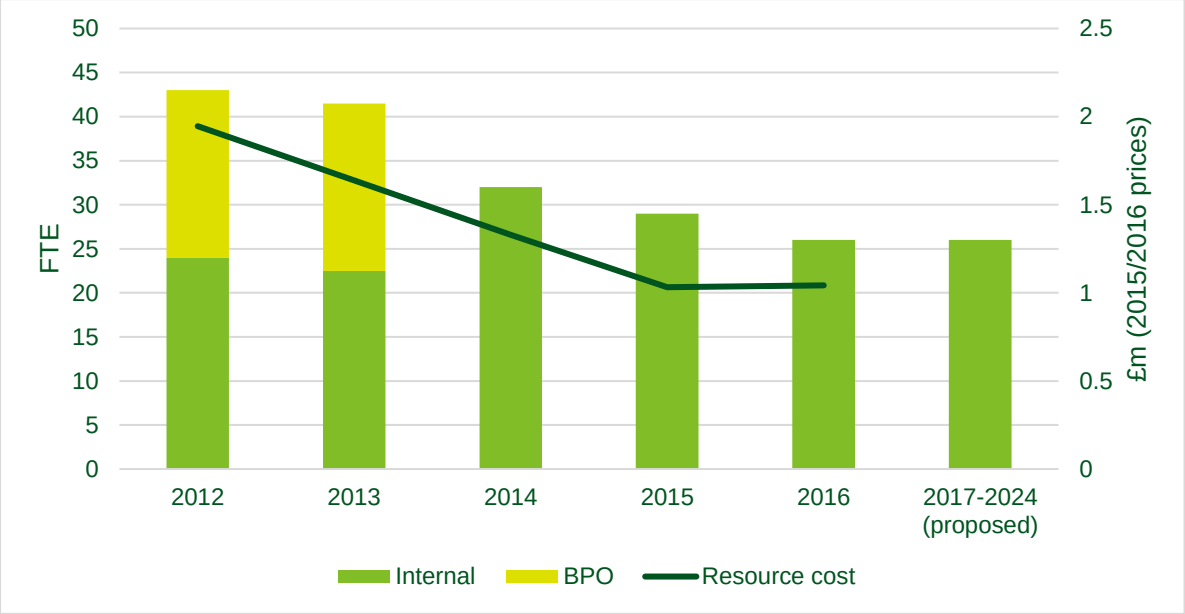


FIGURE 7: MARKET SERVICES RESOURCES & ASSOCIATED COSTS

While there was downward movement in the costs over the price control period, NIE Networks appear to have breached the allowance determined by the Competition Commission over RP5. NIE Networks have noted that the increase is partly due to the insourcing of the BPO function over RP5.

	CC Determination	Outturn	Variance
BPO staff	2.7	1.714	0.986
Internal costs	3.4	5.783	-2.383

TABLE 4: RP5 ENDURING SOLUTION RESOURCE COSTS AND ALLOWANCES

[56] Response to query URQ292
[57] Response to query URQ270
[58] Cost information from query response URQ142

In our initial report, Gemserv referred to an analysis of the resources necessary to support the Enduring Solution that we had undertaken in RP5 which stated that in our opinion 17.9 resources were required for this function. We noted that we had not been privy to information sufficient to cause us to move from that position.

Following further engagement[59] with NIE Networks and receipt of a written submission[60], Gemserv further analysed NIE Networks' proposed resourcing breakdown for RP6 against the functions set out looking to substantiate the increases. Our recommendation at that point was a team complement of 19.5 subject to further validation of the Market Services Manager role.

Table 5 reproduces the analysis from the previous report.

Role	RP5 Gemserv	NIE Networks Proposed	RP6 Gemserv at DD	Rationale
Market Registration	**2.5**	**3**	**3**	With evolving requirements, and given evidence of increases in market registration activities, wholesale market and volume of queries, the additional 0.5 FTE appears reasonable.
Data Aggregation	**3**	**3**	**3**	Number has remained constant
Central Design Authority	**1.9**	**1.5**	**1.5**	Critical market role with a degree of constancy in numbers between periods
Market Systems	**1**	**2.5**	**2**	
Systems Management	*1*	*1.5*	*1*	*The requirement for 0.5 additional FTE requires objective substantiation.*
SAP Analyst		*1*	*1*	*With volume of SAP upgrades, it appears reasonable to maintain a SAP resource.*
Metering - ES processes	**2**	**2**	**2**	*While the structure of this component of team has altered, overall resource requirement in line with expectations.*
Fieldwork co-ordinator/staff	*2*	*1*	*1*	
Keypad registration team		*1*	*1*	
DUOS Billing	**3**	**3.5**	**3.5**	Increase in DUOS billing from 100,000 to 860,000 sites appears to support an additional 0.5 FTE.
Market Services Manager		**1**	**1**	Require objective evidence for management resource.
Meter Data Processing	**3.5 (incl. 1 general)**	**9.5**	**3.5**	
Meter reading exceptions	*1*	*4.5*		
MV90	*1.5*	*3*		Have not seen objective evidence for requirement for additional 6 FTE.
CX111 processing		*2*		
General admin role	**1**	**0**	**0**	NIE Networks have not appeared to require this resource over price control periods.
Total	**17.9**	**26**	**19.5**	

TABLE 5: MARKET SERVICES INITIAL RESOURCING ANALYSIS

[59] IT Workshops 20th December 2016 and 25th January 2017
[60] Response to query URQ270

NIE Networks in discussion[61] and correspondence[62] referred us to their Statement of Case to the Competition Commission[63] in relation to their staffing breakdown and stated that the allowance from the UR provided separately for BPO and internal staff, with the internal provision relating to 18 internal staff which seems to align with the 17.9 from our original report. The implication of this argument is that the structure of the FD would suggest there should be a resource complement in addition to the 17.9.

Gemserv understands that the RP5 BPO allowance was for temporary resources with the intent that their function should cease when the Enduring Solution entered business as usual operation. They were to be used for hyper and extended care. NIE Networks appears to have made some of those roles and responsibilities permanent resources. While NIE Networks may have insourced for internal financial reasons, it does not automatically follow that there should be an allowance for these staff.

That said, as the resources migrated from the BPO over the period into the team, it makes sense to look at the combination of functions in their entirety as they now reside in Market Services as opposed to the former BPO/internal resource split.

NIE Networks have provided further information[64] to substantiate the Market Services Manager and their proposed (and currently in place) staffing level of 26 FTE. In light of the above information, Gemserv has reviewed our findings and further assessed the proposed team on a line by line basis. This work was undertaken with a view of providing a fair and reasonably efficient team recognising the difficulties in objectively quantifying the most efficient resource mix. It has also been undertaken in the absence of detailed workload data from NIE Networks, resulting in Gemserv having to make an estimate of the appropriateness or otherwise of proposed resources on the available information.

Market Registration (NIE Networks proposal – 3 FTE)

The primary focus of this area appears to relate to facilitation of customer switching. NIE Networks stated there had been an increase in activities supporting the need for the current resourcing levels including: 8,000 exceptions needing manual intervention, an increase in non-participating generation connections, an increase in supplier queries, and a sample of key exceptions within market registrations increasing from 10,873 in 2014 to 12,966 in 2016.

This information does not present the whole picture. It is difficult to assess the impact of this workload changes without a better understanding of the earlier workload within RP5 as managed by a lower number of resources. Assuming consistency in the workload over RP6, Gemserv would suggest the current resource of 3 FTE is probably appropriate.

Recommendation: 3 FTE

[61] IT Workshop 14th February 2017
[62] E-mail from Gerard Magee to Caspar Swales 15th February 2017
[63] As part of the Competition Commission's consideration of RP5.
[64] Response to query URQ270a

Data Aggregation (NIE Networks proposal – 3 FTE)

The focus of this function is the provision of consumption and generation data to the wholesale market for settlement. It also transfers information to Suppliers to facilitate billing and sales forecasting. They also address market queries from Single Electricity Market Operator (SEMO) and Suppliers.

NIE Networks forecast an increase in the number of exceptions during RP6 due to an increase in generator connections affecting the number of exceptions and checks that are required prior to the submission of settlement data.

Gemserv has not seen objective evidence for a requirement for 3 personnel for this role. We would expect much of the market interaction role described above to be automated with the volume of queries driving much of the workload. In a mature wholesale market, efficiencies should be possible. However, the advent of I-SEM during the price control period may have an impact on the operating efficiency especially as it beds in. Reflecting those concerns we are minded to recommend 2.5 FTE.

Recommendation: 2.5 FTE

Central Design Authority (NIE Networks proposal – 1.5 FTE)

This function administers the governance arrangements around the NI retail market procedures and the Market Registration Code, engages with NI electricity suppliers and ensures that the harmonisation arrangements between NI and ROI are coordinated

We recognise the criticality of ensuring the correct and reliable operation of the retail market. Given the organisation's extreme familiarity with the retail procedures, we would expect some evidence of efficiency over the price control period. In addition, we have not seen an objective rationale for the recommended 1.5 FTES being required. We do recognise that the likely volume of work probably justifies a CDA resource.

Recommendation: 1.0 FTE

Market Systems (NIE Networks proposal – 2.5 FTE)

The SAP analyst provides technical assurance to the market systems and coordinates operational and development activities between NIE Networks and with the IT service provider. Given the proposals for further development of the SAP system during RP6 and the primacy of SAP to the system architecture of NIE Networks, it is sensible to retain a technical analyst resource on staff.

NIE Networks are also proposing to retain 1.5 FTE of Systems Management resource to co-ordinate update to the market systems and managing the reservices provided by third party service providers to support the Enduring Solution systems and keypad prepayment meter infrastructure. In addition, there is a schema release planned for 2018 and a significant programme of works planned for RP6 in which these resources are likely to be involved. Given the scope of these activities, it would be prudent to retain the current level of internal technical resource.

Recommendation: 2.5 FTE

Metering – ES processes (NIE Networks proposal – 2 FTE)

This function contains two resources: one focused upon managing metering appointments and other supplier interactions; and one focused upon managing queries and complaints in relation to the keypad registration process. Both areas seem to have sufficient workload to justify a single resource per function.

Recommendation: 2 FTE

DUOS Billing (NIE Networks proposal – 3.5 FTE)

This function acts to progress exceptions and validations relating to DUOS bills. NIE Networks note[65] that incorrect supplier invoicing may ultimately impact on the customer through incorrect retail billing. They stated that with the introduction of the Enduring Solution in 2012, the DUOS billing process expanded significantly to involved all 860,000 customers' sites compared to 100,000 sites prior to 2012[66].

As the resourcing increased from 3.0 FTE to 3.5 FTE between 2012 and 2014, it is unclear as to whether the impact of the Enduring Solution on pure workload was as significant as suggested. It is also unclear as to whether there will be pressures that would potentially expand this workload over the period of RP6. Given improvements and greater system familiarity, we would expect that there would be a reduction in resourcing requirement over the price control period. As such we are proposing a 0.5 FTE reduction over the price control period.

Recommendation: 3 FTE

Market Services Manager (NIE Networks proposal – 1 FTE)

This role manages across five organisational areas (Meter Reading Admin, Market Registration, Data Aggregation, Market Systems, CDA). In addition to overall responsibility for Market Services, there is an obligation to manage the market systems. It is not unreasonable for there to be a senior level resource to oversee this work. NIE Networks have stated the role was discharged by two personnel prior to 2014.

Recommendation: 1 FTE

Meter Data Processing (NIE Networks proposal – 9.5 FTE)

This area of responsibility is spread across three functions:

- Meter Reading Admin – management of daily meter reading and billing exceptions arising from non-interval customers;
- CX111 Processing – management of daily fieldwork exceptions; and

[65] Response to query URQ270
[66] Market Operations Business Plan

- MV90 – processing of exceptions arising from the IT system used to collect interval meter readings.

Across the latter two areas above, NIE Networks provide statistics on usage but not necessarily the context in which to understand whether those resourcing levels are appropriate. For Meter Reading Admin, there is more clarity on volumes and expected workload. However, NIE Networks have not provided objective evidence for the absolute requirement for these resources. Gemserv is proposing a reduction of 0.5 FTE per area on the basis of insufficient substantiation of the requirement.

Recommendation: 8 FTE

Consolidated impact of recommendations

This restructuring of the resources results in the resourcing structure set out in Table 6.

Role	NIE Networks Proposed	RP6 Gemserv (updated)
Market Registration	**3**	**3**
Data Aggregation	**3**	**2.5**
Central Design Authority	**1.5**	**1**
Market Systems	**2.5**	**2.5**
Systems Management	*1.5*	*1.5*
SAP Analyst	*1*	*1*
Metering - ES processes	**2**	**2**
Fieldwork co-ordinator/staff	*1*	*1*
Keypad registration team	*1*	*1*
DUOS Billing	**3.5**	**3**
Market Services Manager	**1**	**1**
Meter Data Processing	**9.5**	**8**
Meter reading exceptions	*4.5*	*4*
MV90	*3*	*2.5*
CX111 processing	*2*	*1.5*
Total	**26**	**23**

TABLE 6: REVISED MARKET SERVICES STAFF RECOMMENDATION

This revised Gemserv analysis results in a £772.5k reduction in Market Services staff costs over the price control period compared with the NIE Networks' proposals.

6.5. MARKET OPERATIONS – OTHER OPERATING COSTS

We previously recommended that the proposed expenditure in this category be permitted having assessed the spending levels as seemingly reasonable, based on the information in the NIE Networks submission. Between the most up to date RP5 figures available and the RP6 proposals, there is some movement within categories:

- The average per annum spend on Fault & Emergency and IT, Stores & Safety has increased by approximately £60k and £150k respectively; and

- The average per annum spend on Finance & HR and the Other categories has decreased between the by approximately £40k and £27k respectively.

Overall the average proposed annual spend for RP6 (£3.6m) is broadly consistent with that of RP5 (£3.64m) as per Figure 8[67]. NIE Networks provided information[68] to support allocation of these costs to Market Operations.

We have previously raised one area worth further consideration by the UR: the area of Meter Inspections, a per annum increase of approximately £120k that appears to be driven by an increase in meter readers. Meter reading costs were scoped out of Gemserv's work and we understand metering costs to be addressed via the UR's benchmarking exercise.

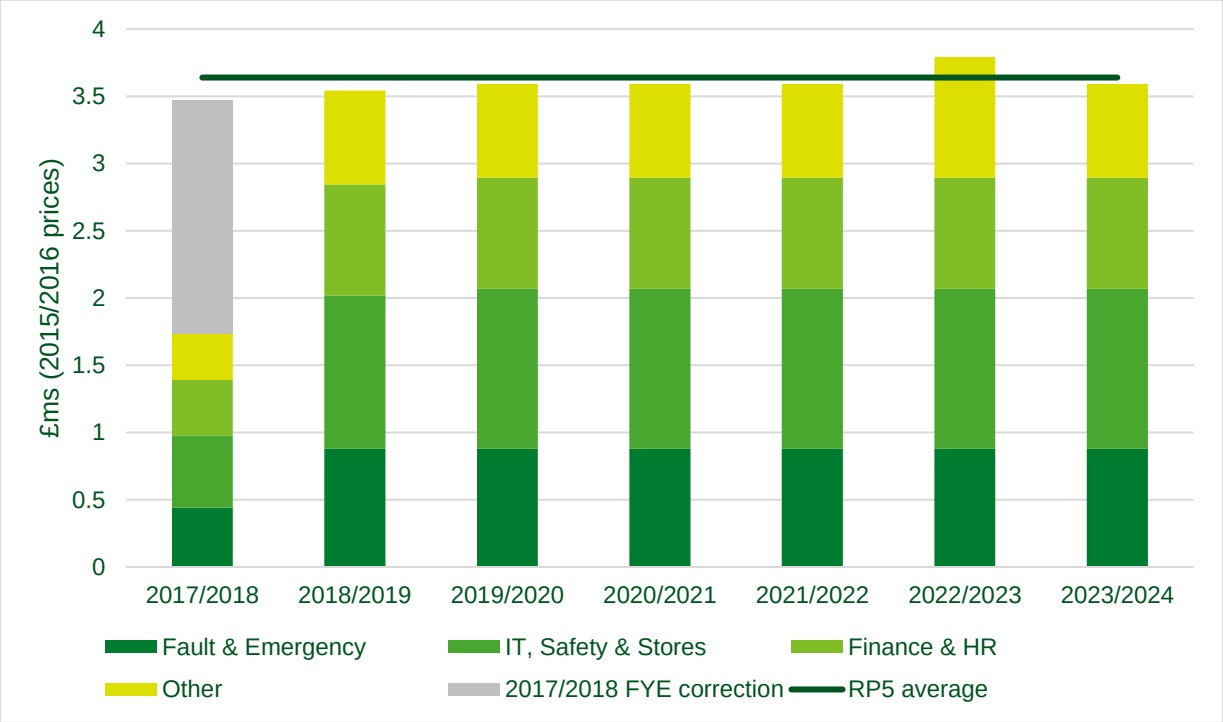


FIGURE 8: OTHER OPERATING COSTS FOR MARKET OPERATIONS

Since our previous report Gemserv has not seen any further information that would make us reconsider our earlier recommendation.

RECOMMENDATION

Gemserv are recommending that the following reductions in allowances for the price control:

- £656k of Market Operations allocated opex;

[67] 2017/2018 is 6 months in duration. In order to facilitate easier visual comparison with the average annual RP5 spend, we have included a 2017/2018 full year correction (the grey bar in the figure above)
[68] In response to query URQ250

- £1.71m in relation to Enduring Solution – IT Support Costs;
- £59.9k of Enduring Solution – Market Entry Costs; and
- £772.5k of Enduring Solution – Market Services Staff Costs.

The UR should review the £120k per annum increase in Meter Inspection costs in their “top down” benchmarking exercise.

7. EFFICIENCY INVESTMENTS

NIE Networks framed an approximate £6m efficiency investment in a number of projects as being required to achieve a *per annum* efficiency gain of 0.7% over RP6 (an estimated £34.8m saving).[69] This capex was partly justified by NIE Networks on that basis. This chapter addresses this proposal as follows:

- Section 7.1, Analysis to date – describes our analysis of this proposed expenditure which shaped our recommendations for the DD; and
- Section 7.2, Updated efficiency analysis – further assesses this category of project considering evidence reviewed since publication of the DD.

7.1. ANALYSIS TO DATE

In discussing the proposed efficiency capex[70], NIE Networks noted that some of the efficiency gain was through those projects and some was due to productivity improvements. They stated that they were unable to quantify how much of the estimated efficiency gain was due to investment and how much was a result of productivity gains. NIE Networks also noted that efficiency projects may confer other benefits and useful functionality, so it may be inappropriate to designate that spend as not justified purely on efficiency grounds.

Recognising that concept, Gemserv assessed the efficiency investment projects in detail and reviewed whether the projects proffered an additional benefit or functionality. Where it was deemed to be largely an efficiency gain, the project was deemed to not require funding via the price control.

An important principle underpinning this analysis is maximising value to consumers. If the savings from an efficiency investment more than outweighs the costs of implementing that initiative, then it would seem that investment is self-funding. If self-funding and it augments the efficient operation of a regulated utility, then arguably it does not require funding from consumers and should not be included within the price control allowance.

Ref	Efficiency project capex							
	Oct-17 Mar-18	Apr-18 Mar-19	Apr-19 Mar-20	Apr-20 Mar-21	Apr-21 Mar-22	Apr-22 Mar-23	Apr-23 Mar-24	Total
RP6-025	£ -	£ -	£ 165,000	£ 444,800	£ -	£ -	£ -	£ 609,800
RP6-028	£ 1,218,650	£ -	£ -	£ -	£ -	£ -	£ -	£ 1,218,650
RP6-029	£ -	£ -	£ 608,925	£ 660,000	£ -	£ -	£ -	£ 1,268,925
RP6-030	£ -	£ -	£ 507,000	£ 524,000	£ -	£ -	£ -	£ 1,031,000
RP6-031	£ 217,000	£ 366,960	£ -	£ -	£ -	£ -	£ -	£ 583,960
RP6-032	£ -	£ 410,000	£ -	£ -	£ -	£ -	£ -	£ 410,000
RP6-033	£ -	£ -	£ -	£ -	£ 385,200	£ -	£ -	£ 385,200
RP6-034	£ -	£ -	£ -	£ -	£ -	£ 474,200	£ -	£ 474,200
	£ 1,435,650	**£ 776,960**	**£ 1,280,925**	**£ 1,628,800**	**£ 385,200**	**£ 474,200**	**£ -**	**£ 5,981,735**

FIGURE 9: EFFICIENCY ORIENTED CAPEX PROFILED OVER RP6

[69] In discussion at workshop on 28th October 2016
[70] IT Workshop on 20th December 2016

Ref	Efficiency project opex							
	Oct-17 Mar-18	Apr-18 Mar-19	Apr-19 Mar-20	Apr-20 Mar-21	Apr-21 Mar-22	Apr-22 Mar-23	Apr-23 Mar-24	Total
RP6-025	£ -	£ -	£ -	£ -	£ 18,000	£ 18,000	£ 18,000	£ 54,000
RP6-028	£ -	£ 30,000	£ 30,000	£ 30,000	£ 30,000	£ 30,000	£ 30,000	£ 180,000
RP6-029	£ -	£ -	£ -	£ -	£ 69,000	£ 69,000	£ 69,000	£ 207,000
RP6-030	£ -	£ -	£ -	£ -	£ 87,000	£ 87,000	£ 87,000	£ 261,000
RP6-031	£ -	£ -	£ 74,000	£ 74,000	£ 74,000	£ 74,000	£ 74,000	£ 370,000
RP6-032	£ -	£ -	£ 26,000	£ 26,000	£ 26,000	£ 26,000	£ 26,000	£ 130,000
RP6-033	£ -	£ -	£ -	£ -	£ -	£ 4,000	£ 4,000	£ 8,000
RP6-034	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
	£ -	**£ 30,000**	**£ 130,000**	**£ 130,000**	**£ 304,000**	**£ 308,000**	**£ 308,000**	**£ 1,210,000**

FIGURE 10: EFFICIENCY ORIENTED OPEX PROFILED OVER RP6

Figure 9 profiles the proposed efficiency oriented capex across RP6; and Figure 10 profiles the proposed efficiency oriented opex across the price control period.

In further assessing these projects, Gemserv identified additional considerations that should be factored into this review:

a. Foundational Investment – the project technically enables other projects whose necessity is more clearly demonstrated;
b. Licence Obligations – project investment that, in the view of Gemserv, may be required to facilitate NIE Networks discharging their licence obligations for example where it provides a necessary functionality; and/or
c. Customer Benefit – there is tangible benefit for the customers of NIE Networks from a particular investment.

We fed the above factors into a further assessment of the individual projects categorised as possessing a strong efficiency rationale which fed into our recommendation supporting the DD: £2.13m capex and £215k opex not being permitted. Table 7 provides a reminder of the outcomes of this review of the efficiency projects identified above.

Ref	Project Name	Included	Justification
RP6-025	JMS-Maximo PM Integration	Y	Required to enable the Enterprise Service Bus which forms the spine of the IT Architecture.
RP6-028	Single Maximo Instance	Y	Required to avoid two (2) obsolescence projects entailing additional expenditure. Work should enable future systems integration projects.
RP6-029	Condition Based Risk Management (CBRM)	N	The primary benefit and justification for the project appears to relate to efficiency gain and reporting benefits.

Ref	Project Name	Included	Justification
RP6-030	Extend Mobile Working	Y	While there is a clear efficiency gain from the removal of the dependency on paper-based processes, it facilitates delivery of NIE Networks' licence obligations and management of system in situations of faults and emergencies.
RP6-031	Mobile Mapping	Y	In addition to the efficiency gain, the proposed project should have safety and asset management benefits.
RP6-032	Enhance Mobile quotations	Y	There should be customer service improvements and maximise NIE Networks meeting the regulatory SLA for production of quotations.
RP6-033	Time Reporting automation 1	N	The primary benefit and justification for the project appears to relate to efficiency gain.
RP6-034	Time Reporting automation 2	N	The primary benefit and justification for the project appears to relate to efficiency gain.

TABLE 7: MORE GRANULAR ANALYSIS OF EFFICIENCY INVESTMENTS FROM DD

In response to the DD, NIE Networks noted the intention to review the above in light of a site visit to NIE Networks facilities to consider our understanding of their working practices. They challenged the Gemserv recommendation on the following grounds:

- They argued that it undermined their ability to make the required efficiencies as it would not fund the activities required to achieve those efficiencies;
- They opined that it was not consistent with regulatory precedent, notably the allowance permitted to Western Power Distribution and SP Energy Networks in the RIIO-ED1 price control; and
- The three projects are justified on their own basis and they have provided information to substantiate that claim.

The first two bullets above find themselves in contradiction with the principle that where efficiency investment is self-funding, it should not be recovered from consumers. Given our scope and that self-funding principle, we cannot comment further on these points. Gemserv has considered the point outlined in the third bullet, discussed it with the UR, reviewed the evidence from our site visits and are revising our recommendation used in the DD.

7.2. UPDATED EFFICIENCY ANALYSIS

There have been two evolutions in our thinking since our recommendations in the Annexes to the DD:

- A reconsideration of the approach to setting an appropriate allowance for efficiency oriented investments; and
- Evidence from the site visit substantiating the value of the CBRM project.

The intent of the project by project assessment in our previous report was to ensure that the overall allowance was efficient i.e. disallowing spend in order to set a budget for the price control. As discussed in the previous

section, projects with a substantial efficiency benefit may also have other functional benefits to the organisation. In debating whether a project is purely efficiency expenditure or not, there is a risk of subjectivity colouring the assessment.

NIE Networks' response focused on the character and merit of individual projects, suggesting that the risk could be manifesting. Gemserv decided that an amended approach was required, one that:

a. Focused upon setting an appropriate overall allowance for the efficiency project cluster;
b. Recognised the "self funding" principle; and
c. Allowed for projects with numerous benefits, for example efficiency gains plus risk management).

Gemserv reviewed the efficiency projects and rated them (as per Table 8) in the following manner:

- High (H) – projects that have significant useful business benefits in addition to efficiency;
- Medium (M) – projects with business benefits in addition that are less distinct from the efficiency oriented gains than in the High scenario; and
- Low (L) – projects that have primarily efficiency oriented benefits.

Ref	Title	Rating
RP6-025	JMS-Maximo PM Integration	H
RP6-028	Single Maximo Instance	H
RP6-029	Condition Based Risk Management (CBRM)	H
RP6-030	Extend Mobile Working	M
RP6-031	Mobile Mapping	M
RP6-032	Enhance Mobile quotations	M
RP6-033	Time Reporting automation 1	L
RP6-034	Time Reporting automation 2	L

TABLE 8: EFFICIENCY PROJECT RATING

Gemserv applied a weighting across four scenarios (A-D) for those projects (set out in Table 9). In each scenario, a different weight was applied to each category of project. The weightings were intended to provide a reasonable range of outcomes,

Weighting by scenario				
Rating	A	B	C	D
H	1	0.95	1	0.9
M	0.5	0.6	0.75	0.8
L	0	0.25	0.5	0.6

TABLE 9: WEIGHTING BY SCENARIO AND RATING CATEGORY

The product of this weighting and the proposed expenditures per project was then summed. The output totals per weighting scenario are set out in Figure 11.

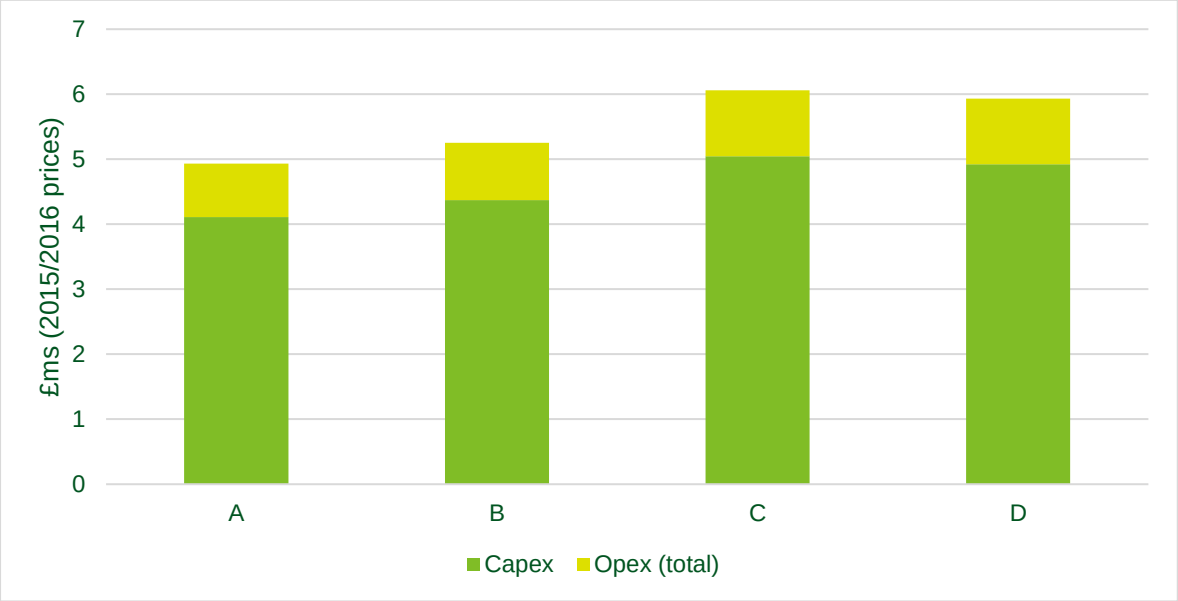


FIGURE 11: OUTPUT EFFICIENCY FIGURES BY SCENARIO

The average outcome of those scenarios was £4.61m capex and £931.3k opex. The differences between the NIE Networks' proposals and these outcome figures were £1.37m capex and £278.7k opex. Gemserv considers this average result to be an appropriate allowance for the proposed efficiency investments.

In addition, we have amended our thinking in relation to the CBRM project. NIE Networks emphasised numerous times (and in other submissions) their inability to deliver Asset Health and Criticality Indices should they become a regulatory requirement. We must take these claims at face value. NIE Networks emphasised that the GB DNOs have access to this methodology in relation to asset investment decisions. As the underpinning Common Network Asset Indices Methodology (CNAIM) is relatively standardised and mature, it would enable better comparisons to be made across NIE Networks and the GB DNOs.

Fundamentally, it should allow quantification of the risks of making or not making a particular intervention, and the timing of such investment. For example, whether a particular upgrade should be deferred. NIE Networks staff agreed that the CBRM would allow for a better quantified rationale for network investment in future. It should allow for a more differentiated, granular and optimised approach to management of network assets.

That is not to say that either Gemserv or the UR are endorsing any particular process or product. The UR's expectations in respect of asset management systems are set out in their 'Approach to Asset Maintenance' document which points out some of the strengths and weaknesses of processes such as CBRM. It is for the company to address these issues as it plans its CBRM project to ensure that it delivers robust information for the RP7 business planning process. In particular, it is for the company to show that its data is adequate to both support the processes it plans to implement and to test the outcomes against current practice and historical performance.

RECOMMENDATION

Gemserv is recommending the pooling of the proposed efficiency projects within an allowance. £1.37m capex and £278.7k total opex should not be permitted within the RP6 allowance for the proposed efficiency investments.

We are recommending that the CBRM is treated as having significant useful business benefits in addition to efficiency. The UR should consider how to ensure that NIE Networks deliver CBRM derived information to the UR before the end of RP6.

8. OPTIONALITY ANALYSIS

For the Non Network IT projects, Gemserv performed an optionality analysis. Essentially this work entailed reviewing the proposed projects and attempting to assess whether they were required during the RP6 price control period. This chapter considers this assessment as follows:

- Section 8.1, Optionality analysis – stage 1 – describes how we undertook the optionality analysis that informed our recommendations for the DD; and
- Section 8.2, Updated optionality analysis – updates that analysis in light of the evidence reviewed following publication of the DD.

8.1. OPTIONALITY ANALYSIS – STAGE 1

Initially, Gemserv grouped NIE Networks project proposals into categories (set out in Table 10). Each category had an associated optionality level- High, Medium, Low, N/A- which is intended to serve as a proxy for the degree of necessity for that project; if a project had a high level of optionality, it would suggest that project was not strictly necessary within the price control period.

Category	Explanation	Optionality Level
IH-OBS	Infrastructure & Hardware investment to avoid obsolescence	Low
SYS-OBS	Systems investment to avoid obsolescence	Low
SYS-REF	Systems investment to refresh existing investments	Medium
SYS-OPT	Optional systems investment	High
BI-EFF	Business improvement projects - efficiency gain	High
BI-OPT	Business improvement projects - optional	High
OTH	Other opex projects	Low
SMA	Small Projects	N/A

TABLE 10: OPTIONALITY CATEGORIES IN THIS ANALYSIS

The projects with an efficiency rationale are addressed in Section 7. The projects that were grouped into the high optionality category were then assessed on a project-by-project basis. The Gemserv analysis used the following principles:

a. Foundational Investment – the project technically enables other projects whose necessity is more clearly demonstrated;
b. Licence Obligations – project investment that, in the view of Gemserv, may be required to facilitate NIE Networks discharging their licence obligations, for example where it provides a necessary functionality; and/or
c. Customer Benefit – there is tangible benefit for the customers of NIE Networks from a particular investment.

Our previous review on a project-by-project is summarised below in Table 11.

Ref	Project	Rationale (public)	Included
RP6-015	Network Management System LV Modelling (Upgrade)	Two projects, an improvement one and an upgrade. Due to categorising system initially included as BI-OPT. Upgrade seems reasonable and LV Modelling improvement should improve customer service and manage safety risks.	Y
RP6-022	Maximo - SAP Integration	Project seems to facilitate numerous other projects and is an important one within NIE Networks' proposed architecture	Y
RP6-023	Regulatory Reporting Automation	NIE Networks established a team during RP5 to manage RIGs reporting. NIE Networks do point to difficulties due to separation between numerous internal systems. With the greater integration of internal systems planned over the RP6 period, the role of the team should be eased. The requirement for this project has not been objectively substantiated.	N
RP6-024	Operational Datastore	In our opinion, this project is primarily focused upon efficiency and data quality improvement. The necessity for such a project requires further substantiation	N
RP6-026	NMS-Maximo Integration	Project has potential value from asset management perspective.	Y
RP6-027	Asset Data Consolidation	Project has potential value from asset management perspective.	Y
RP6-035	Forecasting, modelling & scenarios	The necessity of a forecasting project requires further substantiation.	N
RP6-036	Document Management	The requirement for wider integration of the Sharepoint project requires further objective evidence.	N
RP6-037	Inventory automation	The current paper-based processes appear to entail risks in relation to cost and customer service. Basis for this project appears suitably evidenced.	Y

TABLE 11: ASSESSMENT OF HIGH OPTIONALITY PROJECTS FROM THE DD

The outcome of this analysis was that £1.9m of capex and £843k of opex had been insufficiently substantiated. We recommended that this allowance should not be included in the price control, subject to a site visit.

In their response to the DD NIE Networks challenged both the basis for and the outcomes of the optionality analysis. They argued that due to the iterative and robust internal process they had undergone in developing the IT Business Plan, no project could be described as optional. They emphasised that from their perspective each of the projects are necessary and that they viewed the supplied evidence as having supported this view. They reiterated arguments in favour of the four excluded projects: Regulatory Reporting Automation; Operational Datastore; Forecasting, modelling & scenarios; and Document Management.

Gemserv and the UR undertook a site visit on the 18th May. One of the key drivers for that visit was to validate our understanding of the organisation which underpinned this optionality analysis. The evidence presented before us that day as well as the response to the DD has led to us revising our finding from the previous report.

8.2. UPDATED OPTIONALITY ANALYSIS

Gemserv is updating its optionality analysis by grouping the optionality projects within a single allowance and estimating a collective allowance for them. In our previous assessment, we isolated a set of projects as optional. We then grouped projects (see Table 12) by our assessment of their degree of optionality under the following headings: high, medium, and low. High projects were deemed to possess a higher degree of necessity. Medium rated projects were deemed less necessary for the RP6 period. Low projects were considered to have a high degree of optionality.

Ref	Title	Grading
RP6-015	Network Management System LV Modelling (Upgrade)	H
RP6-022	Maximo - SAP Integration	H
RP6-023	Regulatory Reporting Automation	M
RP6-024	Operational Datastore	H
RP6-026	NMS-Maximo Integration	H
RP6-027	Asset Data Consolidation	M
RP6-035	Forecasting, modelling & scenarios	L
RP6-036	Document Management	L
RP6-037	Inventory automation	M

TABLE 12: UPDATED RATING OF OPTIONAL PROJECTS

This three-way gradation resulted in a binary outcome: projects were included or they weren't. As the intention is to set an allowance for the optionality projects, it seemed more consistent with the overall price control to use that three-way gradation as the basis for modelling a number of scenarios, which could then be used to define an overall allowance for the batch of projects.

Weighting by scenario				
Rating	A	B	C	D
H	1	0.95	1	0.9
M	0.5	0.6	0.75	0.8
L	0	0.25	0.5	0.6

TABLE 13: SCENARIO WEIGHTINGS APPLIED IN THE OPTIONALITY ANALYSIS

Gemserv applied a weighting to each grade that varied across four scenarios (see Table 13). The product of this weighting and the proposed budget was then summed for each scenario, arriving at a total figure for each respective scenarios (set out in Figure 12). Averaging these totals resulting in £7.66m capex and £1.07m opex. These figures netted against NIE Networks' proposals resulted in a difference of £1.37m capex and £448.8k opex. Gemserv is recommending those latter figures as disallowances for the optionality projects.

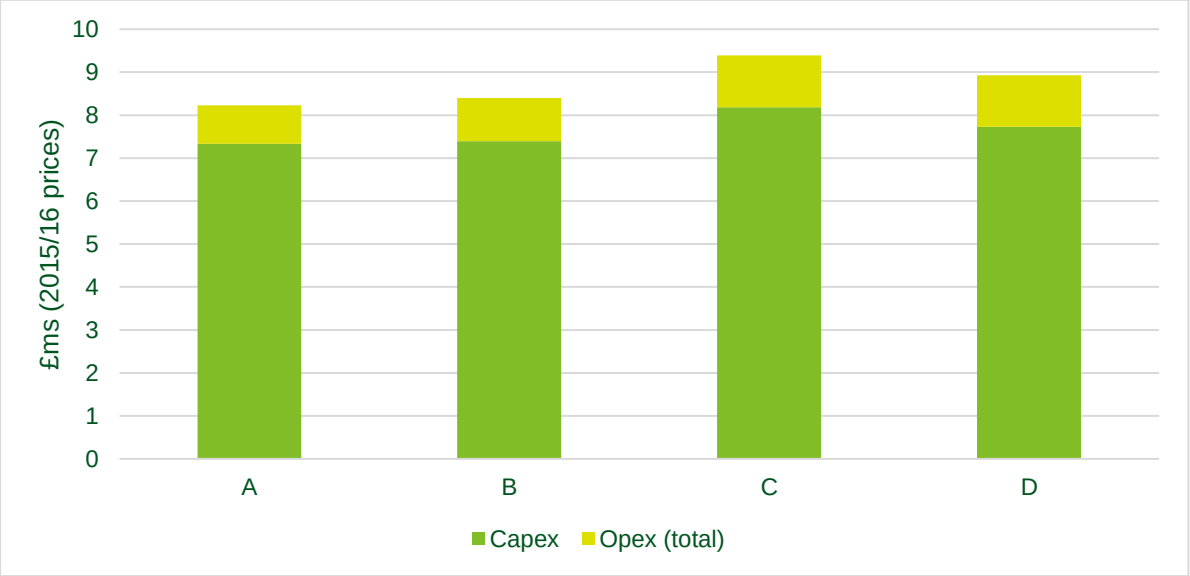


FIGURE 12: OPTIONALITY ANALYSIS OUTPUT TOTAL BY SCENARIO

A point of repeated discussion throughout the review of the RP6 submission was NIE Networks' proposal for RIGs automation. The evidence from the site visit suggested that NIE Networks' current regulatory reporting model is unsustainable.

The NIE Networks system to collect and report RIGs data is a largely Excel-based solution with some Qlik input. It involves significant manual intervention. Due to the size of the datasets captured in those spreadsheets, the solution had breached the operating limits of the Excel program. There was a large amount of manual rework, and recreation of formulas in worksheets that were deteriorating under the strain of the data being inputted. The volume of manual cross checking seemed quite inefficient and created a high risk of data quality risk. In addition, the solution was very inflexible; NIE Networks ability to respond to a changing reporting requirement or to use the data operationally was characterised as limited.

The existing solution does not appear to be robust and would not seem to provide a suitable basis on which to continue over the next price control period. A solution that holds live operational data, that is more readily interrogated, and the reporting outputs of which can be more readily defined and updated in response to regulatory requirements seems more appropriate for RP6. As such, we would be minded to recommend inclusion of the automation of the regulatory reporting project[71] and the underpinning database project[72].

Such a recommendation would support a rating of "H" for those projects above in Table 12. However, it is ranked as an "M". This lower ranking reflects uncertainties in relation to how NIE Networks spent its previous allowance

[71] RP6-023 Regulatory Reporting Automation
[72] RP6-024 Operational Datastore

in relation to automation of RIGs reporting. The CC determined an allowance of £1m for RIGs investment over RP5.

NIE Networks provided the UR with a summary[73] of how that funding was discharged and included a proposal from April 2015 requesting additional funding in relation to RIGs automation. This proposal envisaged manual delivery of RIGs before procuring and progressing to an automated solution. According to NIE Networks, when the UR did not approve this proposal, they ceased the work on manual timesheets and treated RIGs as an indirect cost. Their figures appear to sum those development costs (over 2014/15 and 2015/16) with the RIGs team staff costs resulting in a cumulative cost of £1.3m. It is portrayed as leaving them with a £247.3k shortfall.

For Gemserv, this high level information raises questions about the manner in which NIE Networks made use of the allowance. NIE Networks appear to have plunged into development of a RIGs solution and spent three quarters of the budget, presumably on the assumption they would be permitted to further recover by the UR. On this interpretation, it would seem that the project scope did not factor in the available budget, which would not be good project management practice. The current solution, according to NIE Networks, seems to have been attained at a cost of £1.3m. The more transformational RP6 proposal (including the operational datastore project) is budgeted at £1.33m. NIE Networks should be able to credibly deliver this solution within the allowance.

RECOMMENDATION

Gemserv is proposing the following allowance for the optionality projects: £7.66m capex and £1.07m opex. The RIGs Reporting and Operational Datastore projects should be undertaken under that allowance.

[73] Document *UR Query on RIGs Expenditure*, dated 5th June 2017.

9. CAPEX

NIE Networks proposed a total of £41.8m of Non Network IT capex in their submission. This chapter considers some elements of that planned expenditure and is structured as follows:

- Section 9.1, Draft Determination Responses – reviews a number of responses to the DD from organisations other than NIE Networks;
- Section 9.2, Non Network IT capex allocation – discusses the Non Network IT capex allocation and potential allocation risks;
- Section 9.3, SAP HANA investment – reviews the timing of proposed SAP HANA migration investment;
- Section 9.4, Project refresh investment – discusses the requirement for IT refresh investment across RP6; and
- Section 9.5, Programme management & backfill costs – examines NIE Networks' planned Programme Management and Backfill costs within the proposals

9.1. DRAFT DETERMINATION RESPONSES

Gemserv was provided with two consultation responses (in addition to the NIE Networks document that is discussed elsewhere) in relation to the DD that discussed IT and telecommunications investment. These other responses originated from two organisations: SONI and Prospect.

The SONI response highlighted the importance in their view of ensuring some degree of coordination across the telecoms elements of the NIE Networks price control and their own. They also stated that: *"We have some concerns that the funding allocated is not sufficient to allow NIE Networks to provide a standard of telecoms service to SONI that are suitable for the needs of the network out to 2024".* SONI formally requested a meeting with the UR to discuss. SONI's response appeared to focus upon the network related telecoms expenditure, which was deemed outside of our scope by the UR, and hence we cannot comment upon the point above.

Prospect queried the restrictions within the DD upon what they characterised as *"major IT investment by NIE"*. They also noted that*: "The recent global cyber attack underlines the importance of these systems to utilities like NIE and the vulnerability of old IT systems"*. They were concerned that limiting investment would make it difficult for NIE Networks to deliver appropriate systems in a timely fashion.

Part of the goal of the price control is to set an appropriate level of investment while enabling NIE Networks to discharge their duties and responsibilities adequately. These factors have shaped our analysis of the investment proposals. The appropriateness of these systems has been a consideration in Gemserv's analysis. We recognise the importance of IT security which is the reason that we supported NIE Networks proposal for £927k allowance for same.

9.2. NON NETWORK IT CAPEX ALLOCATION

Due to rounding differences and summing error, there were some differences between the figures within NIE Networks documentation and those in Gemserv's bottom-up model of the Project Briefs within their submission. Table 14 shows these variances across the different business unit allocations. At a global level, this discrepancy

came to £98k, which is a 0.23% proportion of the overall Non Network IT capex. The above suggests a high degree of consistency between the two sets of figures.

Business Area	Submission (£ms)	Gemserv (£ms)	Variance
Transmission	2.66	2.60	-£ 59,220
Distribution	21.67	21.82	£ 146,292
Connections	5.77	5.75	-£ 15,930
Market Operations	11.67	11.71	£ 40,904

TABLE 14: COMPARISON OF CAPEX ALLOCATIONS ACROSS BUSINESS AREAS

Gemserv reviewed these allocations from the perspective of managing the risks of expenditure being incorrectly allocated. Broadly speaking, we found no evidence[74] of costs being incorrectly apportioned to the different business areas. The Connections allocation was deemed out of Gemserv's scope and thus we did not examine it.

The remainder of this section discusses the following potential capex/opex allocation risks:

- Subsection 9.2.1, Software licence costs – considers matters related to licence costs;
- Subsection 9.2.2, Ongoing enhancements – reflects upon the treatment of ongoing enhancements; and
- Subsection 9.2.3, Treatment of "Small Projects" – reviews how Small Projects are addressed within the capex numbers.

9.2.1. Software licence costs

An area of potential allocation risk relates to the treatment of licences. The NIE Networks accounting convention is that the first year's licence costs are included as a project cost while thereon annual licence costs are treated as opex. NIE Networks appear to have acted in accordance with this practice in relation to Non Network IT capex and as such we found no evidence of software licence costs being incorrectly capitalised.

9.2.2. Ongoing enhancements

There are several projects[75] that NIE Networks propose are subject to ongoing enhancements during RP6. Having requested further information on these enhancements from NIE Networks, they were largely of the following nature:

- amendment of documentation;
- validation;
- generation of alerts;
- adding data;
- management of workarounds; and
- operational updates.

[74] In relation to managing the quality of information in assessing NIE Networks' RP6 submission, please see the data assurance section within the main FD document.
[75] RP6-001, RP6-015, RP6-018 and RP6-046

Gemserv opined these costs are more accurately considered opex and should be treated as such. In that case NIE Networks should not be permitted to capitalise and add them to the Regulatory Asset Base (RAB). On that basis we recommended the reallocation of £690k from capex to opex for the DD. Table 15 shows the projects for which we reallocated that expenditure.

Ref	Non Network IT - Ongoing Enhancements							
	Oct-17 Mar-18	Apr-18 Mar-19	Apr-19 Mar-20	Apr-20 Mar-21	Apr-21 Mar-22	Apr-22 Mar-23	Apr-23 Mar-24	Totals
RP6-001	£ -	£ -	£ -	£ -	£ 20,000	£ 20,000	£ 20,000	£ 60,000
RP6-015	£ -	£ -	£ -	£ 75,000	£ -	£ 75,000	£ -	£ 150,000
RP6-018	£ -	£ 75,000	£ 75,000	£ 75,000	£ -	£ 75,000	£ -	£ 300,000
RP6-046	£ 30,000	£ 30,000	£ -	£ 30,000	£ 30,000	£ 30,000	£ 30,000	£ 180,000
TOTALS	**£ 30,000**	**£ 105,000**	**£ 75,000**	**£ 180,000**	**£ 50,000**	**£ 200,000**	**£ 50,000**	**£ 690,000**

TABLE 15: ONGOING ENHANCEMENT REALLOCATION FROM THE DD

In their response to the DD, NIE Networks argued that Gemserv had *"mischaracterised the enhancements as opex when the focus of this expenditure is enhancing the asset to deliver required business functionality"*. There appears to be a persistent difference of interpretation between Gemserv and NIE Networks in relation to this proposed investment.

However, it is important that price control permits a reasonable and sufficient level of expenditure, NIE Networks raise the point that the proposed reallocations for the two SAP projects (RP6-018 and RP6-046) would result in only £250k being available for SAP IS-U and SAP ECC6 respectively over the 6.5 years of RP6. These systems required £2.37m for SAP ECC6 and £0.35m for SAP IS-U in RP5. Not allowing further capital expenditure raises a risk of interruption to this system during RP6. As such we are now minded to recommend the inclusion of this proposed expenditure as capex.

The impact of this recommendation is a reallocation of £210k as set out in Table 16.

Project Name	Ongoing enhancements capex							
	Oct-17 Mar-18	Apr-18 Mar-19	Apr-19 Mar-20	Apr-20 Mar-21	Apr-21 Mar-22	Apr-22 Mar-23	Apr-23 Mar-24	Totals
HP Enterprise Architecture Replacement	£ -	£ -	£ -	£ -	£ 20,000	£ 20,000	£ 20,000	£ 60,000
Network Management System LV Modelling (Upgrade)	£ -	£ -	£ -	£ 75,000	£ -	£ 75,000	£ -	£ 150,000
	£ -	**£ -**	**£ -**	**£ 75,000**	**£ 20,000**	**£ 95,000**	**£ 20,000**	**£ 210,000**

TABLE 16: RECOMMENDED ONGOING ENHANCEMENT REALLOCATION

9.2.3. Treatment of "Small Projects"

Gemserv previously stated that the kinds of projects required under the Small Projects category are not necessarily predictable but the expenditure is. There does not seem to be any objective rationale for why the ongoing annual expenditure associated with these projects should be significantly higher in RP6 than in RP5. In

our previous analysis this lack of objective rationale implied a level of £300k per annum as being appropriate for Small Project capex. Applying this approach to the Non Network IT capex supported a recommendation of £275k being excluded.

In response to the DD, NIE Networks challenged this reduction. They provided a breakdown of the Small Project investment into the following categories: baseline - £1,635k; Qlik, new business report development - £150k; Mobilise Applications - £350k; and JMS Development - £100k. This detail seemed to be new information. That said, it was not of such a level of detail as to substantiate, in our opinion, the requirement for a higher level of expenditure over the price control period. In addition, the Mobilise Applications, Qlik development and JMS Development appear to be small capital projects and should be accounted for separately. In the absence of detailed proposals we could not support these proposed lesser capital projects.

In their response, NIE Networks divide up the proposed Small Project expenditure into separate categories in an effort to challenge our representation of the spend being higher in RP6 than RP5. The role of the Small Projects budget is to enable required expenditure that may arise over the price control period. Accepting NIE Networks' characterisation of RP5 annual average spend as £284k and applying it to the RP6 period would result in an overall reduction of £381.4k.

In their response to the DD and a query response[76], NIE Networks stated that the detail of the historical projects under this category would support a conclusion that *"None of this spend could be considered to be operational/maintenance spend"*. They note that this spend was capitalised in line with NIE Networks' capitalisation policies.

The Small Projects category appears to cover unplanned minor expenditure not project expenditure. The character of the activities undertaken in the Small Projects historically and as described in engagement with NIE Networks, suggested they are driven by operational requirements and should more properly be designated as opex. On that basis we continue to recommend that the allowed capex budget of for Small Projects is reallocated to opex.

9.3. SAP HANA INVESTMENT

NIE Networks have proposed projects to commence migration of SAP ECC6 and SAP IS-U to SAP HANA in the final year of RP6. Gemserv were not convinced of the requirement for these two projects to commence in RP6. We noted that if the projects were run in parallel, the overall duration would be 9-15 months. On that basis, the period of April 2024 to December 2025 should be sufficient to allow for these SAP HANA migrations to be performed at the beginning of RP7 prior to the support of SAP ECC6 and SAP IS-U finishing[77].

NIE Networks previously noted[78] that they viewed it as prudent for the upgrade projects to be completed by the summer of 2025. They characterised the projects as complex and argued that if the projects were to encounter

[76] URQ153
[77] Discussed at IT Workshop 25th January 2017
[78] IT Workshop 20th December 2017

issues or run over they might run a risk of overlapping with a time when the product was out of support. NIE Networks provided further information[79] with the aim of supporting a requirement for this investment during RP6.

In the response to the DD, the company emphasised that they could not be run in parallel as: *"due to the significant internal and managed service resource implications and the risks associated with undertaking such a major change to both systems at the same time"*. They stated that the delivery timeline for the two migrations would be 18 to 30 months, entailing the projects commencing in mid-2023 at the latest. They point to an overlap of internal resources preventing their undertaking projects in parallel.

While providing high level arguments, NIE Networks have not demonstrated to our satisfaction the absolute need for this investment during RP6. The company has provided high level timelines, and suggested a provisional £500k budget for two preparatory projects. This information does not substantiate this requirement nor their inability to run the projects in parallel.

The impact of this recommendation on the Non Networks IT capex is that NIE Networks' £1m capex proposal that should be excluded from the price control allowances.

9.4. PROJECT REFRESH INVESTMENT

Gemserv has previously analysed the projects for which NIE Networks have indicated a need for refresh investment during RP6. This expenditure relates to capex necessary to upgrade an existing system. In preparing this report we reconsidered the analysis set out in our previous reports. Table 17 lists the projects where NIE Networks claimed a need for refresh investment during RP6 and Gemserv reviewed the NIE Networks submission intended to substantiate their timelines.

We assessed those proposed refresh timelines against the following set of assumptions:

- A five-year cycle across most IT hardware and software;
- A regular three-year replacement across most IT security vendors, plus ongoing patches and work against potential threats (as seen during RP5);
- Software upgrades occurring before a product comes out of extended support; and
- Laptops being replaced as they cease functioning during RP6.

Project Ref	Project Title	Reasonable Refresh Period?
RP6-001	HP Enterprise Architecture Replacement	Yes
RP6-002	NMS Architecture Refresh	Yes
RP6-003	Enduring Solution Architecture Replacement	Yes
RP6-004	TIBCO Architecture Refresh	Yes
RP6-005	IT Security Architecture	Yes
RP6-006	End User Devices (EUD) [inc. Desktop] Replacement	Yes
RP6-007	Dell Infrastructure Replacement	Yes
RP6-008	Corporate IT Network Upgrade	Yes

[79] In response to query URQ165a

Project Ref	Project Title	Reasonable Refresh Period?
RP6-009	Corporate Telephony Services	Yes
RP6-010	Contact Centre Voice Services	Yes
RP6-011	Maximo Upgrade	Yes
RP6-012	Maintenance Mobile Refresh	Yes
RP6-013	Customer Notification System (CNS) Replacement	Yes
RP6-014	Job Management System Upgrade	Yes
RP6-015	Network Management System LV Modelling (Upgrade)	Yes
RP6-016	Wayleaves Payment & Invoicing	Yes
RP6-017	SAP Business Objects Upgrade	Yes
RP6-018	SAP ECC 6 Upgrade	Under review
RP6-019	SAP Supplier Relationship Management (SRM) System Upgrade	Yes
RP6-021	GIS Replacement	Yes
RP6-038	HHU Archive Upgrade	Yes
RP6-039	Routestar (application replacement)	Yes
RP6-040	Routestar Handhelds	Yes
RP6-041	ServiceNet Upgrades	Yes
RP6-042	ServicePower Upgrade	Yes
RP6-043	Market Website Upgrade	Yes
RP6-044	SAP BI	Yes
RP6-046	SAP IS-U / HANA	Under review
RP6-048	TIBCO / SAP PI	Yes

TABLE 17: ASSESSMENT OF PROJECT REFRESH PERIODS

The foregoing suggests that the majority of proposed refresh periods underpinning obsolescence spending seem reasonable. Those items marked as being “Under review” are addressed under other sections of this report.

9.5. PROGRAMME MANAGEMENT & BACKFILL COSTS

NIE Networks have proposed £3.9m Programme Management and Backfill capex over the period of RP6. This spend is broken into the following four categories[80]:

a. Backfill – defined as costs driven by projects requiring more significant NIE Networks resource than can be accommodated through BAU. The costs are those of backfilling those roles into the business.
b. Project Management – these are the costs where NIE Networks views a standalone project as requiring an external project management resource that is proposed to be charged into the project at internal rates.
c. Change Management – these figures are intended to act as an allowance for where projects in the transformation programme result in significant changes to business operations.

[80] As described in query response URQ201

d. Programme Management – these are costs associated with establishing a programme framework, as NIE Networks do not consider it to be feasible to deliver the individual projects as a result of the volume of change.

Figure 13 shows the breakdown of this capex by the above categories.

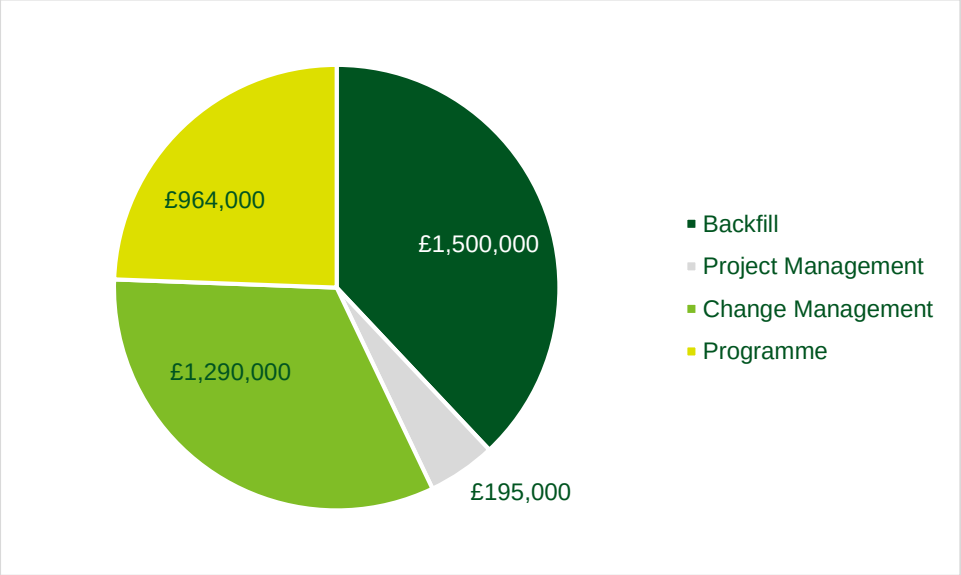


FIGURE 13: BREAKDOWN OF PROPOSED PROJECT MANAGEMENT AND BACKFILL COSTS

In our previous reports Gemserv has questioned these costs. In the previous Non Network IT report we recommended the disallowance of £2.45m of this capex. We recommended that the level of organisational change and volume of projects expected during RP6 suggested that it would be prudent for NIE Networks to have an allowance for internal resourcing challenges at the internal rate. This budget corresponded to the £1.5m Backfill. The remaining categories we proposed for exclusion on the following basis:

- Project Management – the £196k described in the NIE Networks submission appeared to be another category of backfill and so did not seem necessary;
- Change Management – we had not been privy to objective evidence of a requirement for a £1.29m Non Network IT change management budget; and
- Programme Management – the assertion that the scale of the projects entailed a 15% uplift on a number of projects totalling £964k had not been adequately substantiated by the evidence.

Figure 14 (reproduced from the Annex to the DD) shows how the proposed Programme Management and Backfill costs would be reprofiled across RP6 on the basis of these recommendations.

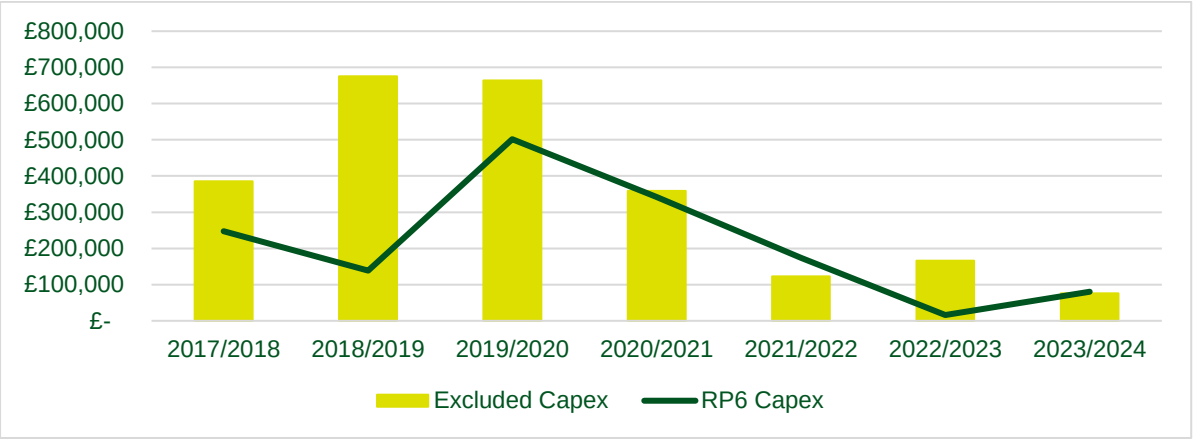


FIGURE 14: REPROFILED PROGRAMME MANAGEMENT AND BACKFILL COSTS

In response to the DD, NIE Networks challenged our recommendation on the basis that:

a. Gemserv statements about the UR not previously approving these types of project costs with the exception of one high resource demand project being incorrect; and
b. our view that the evidence had not substantiated the requirement for this investment was incorrect.

In support of statement a. NIE Networks pointed to precedent such as Further Electricity Market Opening (FEMO), Single Electricity Market (SEM) and the Enduring Solution. They noted comments from a Gemserv 2007 report on SEM investment on the value of good programme management practice by a contractor. Their response references projects that were undertaken under D_t terms, initiated by the UR. They were not discretionary projects chosen by the company within the context of the price control. This precedent is not relevant for RP6.

In addition, the NIE Networks submission does appear to misinterpret the basis on which we drew our conclusions. We did not agree with the required expenditure on the basis of the evidence available to us. Gemserv disagrees with NIE Networks' assertion that we have not considered evidence or disregarded submissions without justification. We reviewed all documentation provided to us by the UR and considered all information gleamed from engagement with NIE Networks. We did not agree with proposed expenditure as the evidence provided did not in our view objectively substantiate such a level of investment.

NIE Networks correctly note that in preparing our previous report we had not been privy to the information provided by NIE Networks to the UR on 17th February 2017[81] and the information contained within their response to the DD. This information has been factored into this analysis.

A repeated point made throughout NIE Networks' submission is the support for PA Consulting (the company who helped develop the IT Strategy) for the IT investment plan. As noted in Section 4, the planned investments seem consistent with the strategy, so such support is to be expected. However, as also noted in Section 4, from the

[81] This information (response to query URQ201a) was issued to Gemserv on 20th February 2017.

perspective of a regulator assessing a price control, congruence with a regulated company's IT Strategy should probably not be a material factor in assessing whether expenditure should be permitted through the price control.

Having reviewed all the documentation, Gemserv are still of the opinion that NIE Networks have not robustly and objectively evidenced the requirement for the £2.45m. There are references to precedent and the scale of change throughout the documents, and a possible quantification of their view of the required uplift across these projects.

Reconsidering the scope of the MSP procurement documents previously provided[82] raises a question for us in relation to potential overlap of scope. There is a programme management and change management component to the MSP service and while it is more focused on those outputs and the NIE Networks proposal focuses more on internal structures, there could be innovations in that delivery that obviated the need for some or all of the proposed expenditure.

The proposed programme and change management costs appear to build a management structure atop the proposed MSP arrangements. For RP5 NIE Networks operated an outsourced model of IT provision, whereby an internal team managed the MSP, suggesting that these activities were previously undertaken by Capita during that price control period. If this functionality is to be treated separate from the MSP in the next price control period, it would suggest some descoping of the MSP role in RP6. This descoping would support our recommendation to reduce the proposed MSP capex allowance as set out in Section 5.

RECOMMENDATION

Gemserv is making the following recommendations in relation to NIE Networks Non Network IT capex proposals:

a. £210k of proposed costs in relation to Ongoing Enhancements should be reallocated from capex to opex;
b. £381k of proposed capex in relation to Small Projects should not be permitted and the £1.84m remainder allocated to opex;
c. There should not be an allowance of £1m proposed capex in relation to the two late SAP HANA preparatory projects during the price control period; and
d. £2.45m of programme and change management costs should not be permitted into the RP6 Non Network IT capex allowance.

[82] In response to query URQ069.

10. OPEX

NIE Networks estimated that their outturn average annual IT & Telecoms operational expenditure for RP5 will be £5.66m.[83] They are proposing to add a further £1.37m per annum to that figure, resulting in an additional £8.9m of Non Network IT related opex over RP6.

NIE Networks have framed their opex impact proposals as being worth approximately a 13% per annum increase in IT and telecoms costs.[84] This figure is based on comparing the 2015/2016 IT opex against the £1.37m. However, Gemserv notes that the 2015/2016 figure includes RP5 Enduring Solution opex in addition to the RP5 IT and Telecoms opex. As the Enduring Solution is a distinct category of opex addressed elsewhere, it appears more appropriate to compare the RP5 IT & Telecoms figure with the average annual increase. Using this comparison suggests that the opex increase is closer in value to 24.4% per annum.

NIE Networks[85] stated they do not differentiate between opex costs created by Network IT and Non Network IT investment. For the purposes of our assessment, it means that there are a mix of opex costs that specifically relate to individual projects ("Project Specific Opex") and a number of opex line items that are spread across Network and Non Network IT (Gemserv terms it "Non Project Specific Opex" as it relates to Non Network IT).

Figure 15 below (reproduced from our previous report) shows that the bulk of the Applications expenditure proposals relates to Project Specific Opex and the majority of the proposed Telecoms expenditure relates to Non Project Specific Opex

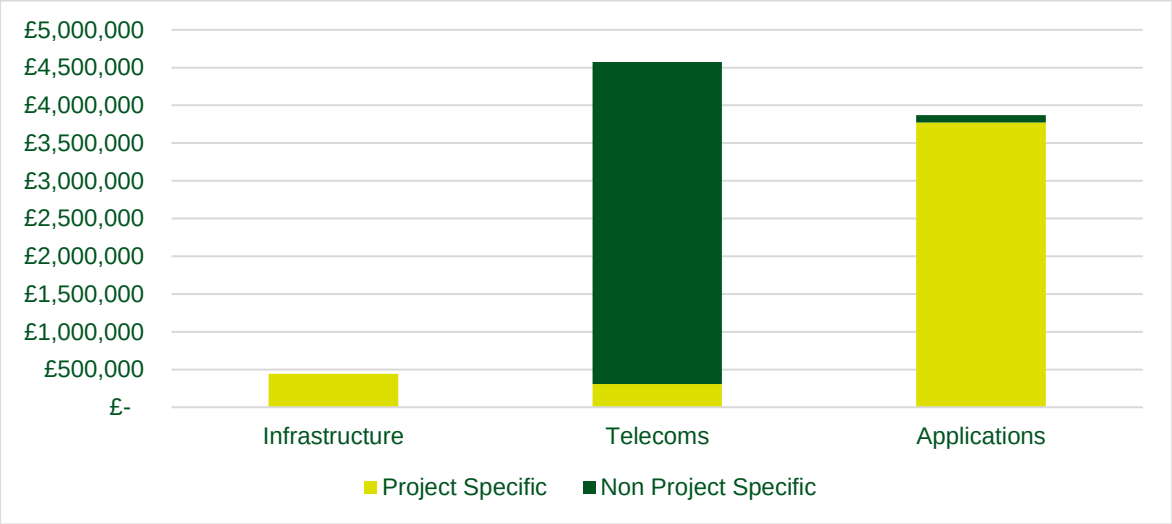


FIGURE 15: NON NETWORK IT OPEX IMPACT BY CATEGORY

The spreading of IT & Telecoms operational costs across the business, while it appears to align with the RIGs, complicates assessment of apportionment. It is difficult to definitively account for whether opex costs are correctly

[83] Non Network IT Business Plan
[84] Non Network IT Business Plan
[85] In response to query URQ073a

allocated to an individual business unit based on the submitted documentation. That said, Gemserv has seen no evidence of opex costs being incorrectly apportioned.[86] The evidence suggests consistency in cost allocation across the opex figures in the Non Network IT Business Plan, the Market Operations Business Plan and the overall Business Plan.

This remainder of this section considers this proposed opex impact as follows:

- Section 10.1, Project specific opex; and
- Section 10.2, Non project specific opex.

The other operational expenditure that was within the scope of our analysis is addressed above in Section 6 in our discussion of Enduring Solution and Market Operations Other Operating Costs opex categories.

10.1. PROJECT SPECIFIC OPEX

Gemserv assessed the assumptions underpinning the £4.5m of Project Specific opex impact proposals in our previous report. Below is an updated version of the assessment from our previous report. There were two broad categories of assumptions in relation to Project Specific opex that are dealt with separately.

10.1.1. General assumptions

The general sets of assumptions related to wider trends that fed into NIE Networks proposals, for example their expectation of the operational telecoms network expanding over RP6. Gemserv sought to consider these items by reviewing how they were given effect in NIE Networks' proposals, by reviewing the specific costs of general projects and using that framework to test those assumptions. In the example of the telecoms network expansion, that would involve reviewing the costs associated with the project to implement, in this case RP6-008. There did not seem to be evidence of unreasonable general assumptions informing these opex proposals.

10.1.2. Particular assumptions

The particular assumptions relate to specific suppositions with financial implications for specific projects. These claimes were subjected to a test of reasonableness, with NIE Networks being required to substantiate them. Table 18 summarises our understanding of NIE Networks' basis for those assumptions at the time of the previous report. Gemserv has since reviewed updated information provided by NIE Networks in response to formal queries.[87]

ASSUMPTION	BASIS
Additional hardware maintenance costs included as 20% of new incremental asset purchase prices.	Appears to be grounded in standard charges from hardware vendors.
Software maintenance costs are included as 20% of the new licence purchase price.	Based on an estimation of practice in the market.

[86] NIE Networks warranted that the allocations in their Non Network IT Business Plan are correct in their response to query URQ279. In the absence of an external audit of those apportionments, Gemserv is assuming the accuracy of that information.
[87] Query responses: URQ285, URQ286, and URQ287

ASSUMPTION	BASIS
Additional managed service support charges of new systems have been calculated as 0.2 or 0.4 of an FTE equivalent support resource	Grounded in the current support effort for existing applications at NIE Networks.

TABLE 18: BASIS FOR PARTICULAR OPEX ASSUMPTIONS

NIE Networks provided evidence to support these assumptions:

a. In relation to the hardware maintenance costs which are estimated at £299k, NIE Networks noted that the advice they had received from PA Consulting was that hardware maintenance costs could vary widely. The two examples provided by NIE Networks both featured maintenance costs of approximately 10% per annum. In addition, 20% seems a high figure if the long-term hardware maintenance contract is purchased with the relevant hardware, something that is normal practice. Considering this evidence, and our awareness of comparable costs in other projects, led Gemserv to conclude that a cost of 10% would be more appropriate. This recommendation would result in the exclusion of £149.5k from their Non Network IT opex allowance.
b. For the software maintenance cost, NIE Networks referred to guidance from PA Consulting and provided two examples of internal projects[88] with ongoing software licence costs of 22% and 25%. Based on this evidence and our experience of other projects[89], this assumption appeared reasonable.
c. For the managed service support charge ranging from 0.2-0.4 of an FTE, they relied on advice from PA Consulting and on an example of a Maximo Lines project with a support charge of about 0.3 FTE. Having considered this evidence and our understanding of what is involved in such support, it seems a not unreasonable range.

10.2. NON PROJECT SPECIFIC OPEX

This section considers the proposed £4.37m of proposed opex without a specific project allocation: Optel, Qlik, Mobilise apps, BT Vodafone. Table 19 reproduces our analysis of this opex category from our previous report and summarises the requirement for this expenditure. It is worth noting that the two Optel Renewables projects (value £2.6 million) are recovered via connections charging and thus not recovered via the price control.

PROJECT	COST	SUMMARY	REQUIREMENT
Optel – BT21CN	£530k	Migrating teleprotection and Scada services onto BT EAD circuits.	BT have announced withdrawing support for Teleprotection and Scada circuits.
Optel – RAD, others	£995k	Building new communications network onto which NIE Networks connect new substations and generation sites that can be	Current network equipment provider ceased production and withdrew support. New network required.

[88] SAP and Maximo
[89] Gemserv has encountered values in the range of 18% to 28% per annum of the purchase price adjusted for inflation.

PROJECT	COST	SUMMARY	REQUIREMENT
		monitored and controlled from NIE Networks and SONI control centres.	
Optel – Renewables (37 committed sites)	£1,950k	Installation of communications links and networking equipment onto renewables sites and new build substations. Licensing of additional RAD networking equipment and rental coats for leasing BT circuits.	NIE Networks obligation to energise 37 renewables sites before March 2017.
Optel – Renewables (10[90] non committed sites)	£650k		Estimated costs associated with non committed sites. NIE Networks note that 11 sites have been accepted meaning that more than the projected 10 have moved into the committed category and hence the opex is committed.
BT Vodafone	£140k	Managed services contract costs related to change control and supporting new network nodes, additional Scada locations and annual RPI increase for installed BT cicruits.	Under the scope of an existing managed service provider contract with BT and Vodafone.
Qlik	£40k	A reporting application that was initially deployed in order to allow NIE Networks to deliver RIGs.	They base ongoing requirement in relation to ad hoc ongoing development of reporting functionality as small projects.
Mobilise apps	£60k	Deployment of iPhone devices and development and deployment of small apps on the platform.	NIE Networks replacing existing mobile phones and will deploy apps.

TABLE 19: NON PROJECT SPECIFIC OPEX

NIE Networks describe the Qlik and Mobilise Apps projects as arising from Small Projects that are not explicitly described elsewhere in their submission.[91] In our previous report, we argued that as the Qlik budget arises out of the Small Projects budget, we deemed it appropriate to manage Qlik within the Small Projects opex pot and recommended that the £40k proposed by NIE Networks should not be permitted. With the regulatory reporting automation project recommended for inclusion in the RP6 allowance (see Section 8), the case for continued investment in the Qlik system further weakens. As noted by NIE Networks[92], the extent of any future investment in the application is uncertain. Gemserv sees no reason to change our original recommendation.

[90] Figure listed as 50 non committed sites in submission. NIE Networks corrected to 10 in query response URQ290a.
[91] As per query response URQ074.
[92] Response to query URQ074a

RECOMMENDATION

In addition to the reallocations from capex, the Market Operations exclusion, and the associated opex excluded based on the efficiency and optionality analysis recommended elsewhere in this report, we are proposing the following recommendations to the proposed opex allowance: £40k related to Qlik; and £149.5k associated with hardware maintenance costs.

11. CONCLUSION

This chapter consolidates the analysis of the preceding paper:

- Section 11.1, Summarised recommendations – summarises the analysis and recommendations of this paper to inform the UR's preparation of the FD; and
- Section 11.2, Impact of recommendations – quantifies the effect of those recommendations upon NIE Networks' submission, shows the level of change from the recommendations in our report to support the DD, and finally it strips out the Connections allocation to arrive at a final consolidated set of Non Network IT allowances.

11.1. SUMMARISED RECOMMENDATIONS

In total, including the proposed allocation to the Connections business, NIE Networks are proposing the following for RP6:

- £41.88m Non Network IT capex;
- £8.87m additional Non Network opex totalled over the price control period; and
- £34.13m Enduring Solution opex totalled over the price control.

Relative to the figures available for RP5 expenditure, these proposals would represent the following changes if permitted in their entirety:

- A £16m increase in Non Network IT capex levels, if assuming an RP5 average level of capital investment across RP6,
- An average per annum increase of £1.37m Non Network IT opex on the existing "base" Non Network IT opex; and
- An average decrease of approximately 10% in annual Enduring Solution Opex.

There are difficulties in relating the Non Network IT Project Proposals, the UR's price control financial model, and the outturn RIGs reporting. The UR should work to more align the Non Network IT components of its financial model and the guidance within its Business Plan Templates with the RIGs categories prior to commencing its analysis for RP7.

NIE Networks repeatedly emphasise the importance of their RP6 IT Strategy within their submission and its intent seems to be expressed in their choice of projects for RP6. Gemserv was contracted to review those projects from a "bottom up" perspective and each of those projects should be justified upon their own merits. While the IT Strategy does not seem to conflict with NIE Networks' licensed obligations, Gemserv does not consider it to be a material consideration for the UR in reaching its Final Determination.

Gemserv are recommending the following allowance reductions in relation to the Managed Service Provider Agreement: £896.3k capex and £179.9k total opex. This proposal reflects our estimation of the savings attainable on the estimated figures within NIE Networks' original submission. Significant savings should be attainable through current best technological practice. The project durations within their submission are well provided for, suggesting scope for reductions there also.

Gemserv previously questioned the requirement for three Tibco upgrades during RP6. NIE Networks provided data showing Tibco components reaching the end of support; those end of support windows appeared to align with the proposed upgrades. As the upgrades seem to be driven by refresh requirements, we have recommended the inclusion of the previously disallowed £250.3k within the RP6 allowance.

On the available evidence, it does not appear that NIE Networks Market Operations functions will differ significantly between RP5 and RP6. This consistency, the fact that the systems associated with Market Operations are now mature, and likely technological developments over RP6 have led Gemserv to conclude that no additional Market Operations Non Network IT opex should be permitted over RP6. We are recommending that £656k be excluded from the allowance.

Having reviewed NIE Networks' proposals for Enduring Solution Opex over RP6, Gemserv are making the following recommendations:

- As the IT Support Costs are driven by the Managed Service Provider costs, a 10% reduction should be applied to the NIE Networks' proposed figures in order to be consistent with the other MSP recommendation. This finding would result in £1.71m not being included in the price control;
- Having modelled a range of inputs, Gemserv are recommending that £59.9k of Market Entry Costs should be disallowed from RP6; and
- Gemserv developed a bottom-up assessment of the resource requirement for the Market Services staff function. We are recommending that 23 FTE would be appropriate, resulting in £772.5k being excluded from the Enduring Solution Opex allowance.

Within the category of Market Operations – Other Operating Costs, there has been a £120k per annum increase from RP5 to RP6 in Meter Inspection costs. As this item was out of Gemserv's scope, the UR should review in their "top down" benchmarking exercise.

By rating the proposed efficiency investment projects by efficiency category, weighting them across four scenarios, and modelling the outputs, Gemserv is making the following recommendation: pooling the efficiency investments within an allowance and disallowing £1.37m capex and £278.7k opex. NIE Networks should decide then as to how and which of the projects they implement. The CBRM project should be implemented, with the UR to consider how to ensure that NIE Networks deliver CBRM type information to UR before the end of RP6.

Modelling a range of weightings across the optional projects (having graded them by optionality level), Gemserv are recommending an allowance for these projects of £7.66m capex and £1.07m opex with corresponding disallowances of £1.37m capex and £448.8k opex. We would recommend the inclusion of the operational datastore and regulatory reporting automation projects.

Across two projects NIE Networks have proposed a set of ongoing enhancements, estimated at a potential £210k capex. Gemserv views these enhancements as being more accurately described as opex and recommends that they are reallocated to opex and not capitalised.

Similarly, there is a proposed Small Projects capex allowance. These projects appear to be driven more by operational requirements and would more appropriately be designated opex. In addition, there does not appear

to be an objective reason why the proposed annual allowance should be higher than during RP5. Gemserv are recommending the exclusion of £379k of the Small Projects proposed allowance.

Across two projects[93], there are proposals for projects towards the end of RP6 that are intended to prepare for a migration to SAP-HANA that would continue into RP7. NIE Networks have not sufficiently substantiated the requirement for the expenditure during RP6. Gemserv are recommending the exclusion of the proposed £1m from the RP6 allowance.

NIE Networks have proposed a set of programme and change management costs during RP6. The proposal appears to be inconsistent with UR price control precedent. Gemserv do not view this proposal as being sufficiently evidenced. The proposal seems to involve the creation of an additional management structure outside of the NIE Networks IT department/MSP relationship, which raises questions as to the scoping of the Managed Service Provider agreement. Gemserv is recommending that £2.45m of proposed programme and change management costs should not be permitted within the RP6 Non Network IT capex allowance.

In correcting the RP5 to RP6 Non Network IT comparison to account for the Enduring Solution, the proposed annual increase on the base opex becomes 24% rather than the 13% within NIE Networks' submission. The following recommendations impact on the proposed Non Network IT opex: reallocations from capex, the Market Operations exclusion, and the opex excluded based on the efficiency and optionality analysis. In addition Gemserv is recommending the following exclusions from the Non Network IT opex allowance: £40k related to Qlik; and £149.5k associated with hardware maintenance costs.

The following section further quantifies and consolidates the impact of these recommendations upon NIE Networks' proposals.

11.2. IMPACT OF RECOMMENDATIONS

This section takes the recommendations from the previous section and translates them into proposed allowances. Table 20 shows the changes in our capex recommendations between the DD and the FD. It is worth noting that the DD conclusions were not directly additive (i.e. they could not be simply summed), as the approach of screening out projects interacted with the other recommendations. Adding them would have double counted proposed reductions to NIE Networks' proposals.

Non Network IT	DD	FD	Variance
Managed Service Provider	-£ 896,290	-£ 896,290	£ -
Ongoing Enhancements	-£ 690,000	-£ 210,000	£ 480,000
Programme management	-£ 2,449,000	-£ 2,449,000	£ -
Optionality projects	-£ 1,897,863	-£ 1,365,830	£ 532,033
Efficiency projects	-£ 2,128,325	-£ 1,368,928	£ 759,397
SAP HANA	-£ 1,000,000	-£ 1,000,000	£ -
Small Projects	-£ 2,225,000	-£ 2,225,000	£ -

TABLE 20: CHANGE IN CAPEX RECOMMENDATIONS FROM DD TO FD

[93] RP6-018 – SAP ECC6 Upgrade and RP6-048 – SAP IS-U/HANA

Table 21 portrays the shifts in our recommendations between the DD and the FD in relation to the proposed opex. As we have not recommended any change to our previous position on the "Market Operations – Other Operating Costs" category (see Section 6.5), which accepted the NIE Networks submission, it is not included in the below table.

	DD	FD	Variance
Non Network IT			
Managed Service Provider	-£ 179,912	-£ 179,912	£ -
Market Operations	-£ 661,794	-£ 655,962	£ 5,832
Ongoing Enhancements	£ 690,000	£ 210,000	-£ 480,000
Optionality projects	-£ 215,000	-£ 448,763	-£ 233,763
Efficiency projects	-£ 843,000	-£ 278,675	£ 564,325
Qlik application	-£ 40,000	-£ 40,000	£ -
Hardware Maintenance	£ -	-£ 149,500	-£ 149,500
Small Projects	£ 1,950,000	£ 1,843,636	-£ 106,364
Enduring Solution			
IT Support Costs	-£ 1,707,000	-£ 1,707,000	£ -
Market Entry Costs	-£ 59,929	-£ 59,929	£ -
Market Services Staff	-£ 1,673,750	-£ 772,500	£ 901,250

TABLE 21: CHANGE IN OPEX RECOMMENDATIONS FROM DD TO FD

Table 22 consolidates and summarises the impact of these updates upon our recommendations in the DD. While reducing our proposed Non Network IT opex allowance, we have increased our proposed allowances for Non Network IT capex and Enduring Solution opex from the position in our previous report.

	DD	FD	Variance
Non Network IT			
Capex	-£ 9,949,553	-£ 9,515,048	£ 434,505
Opex	£ 837,440	£ 300,825	-£ 536,615
Enduring Solution			
Opex	-£ 3,453,179	-£ 2,539,429	£ 913,750

TABLE 22: CONSOLIDATED CHANGE IN RECOMMENDATIONS FROM DD TO FD

Table 23 shows the net impact of these recommendations upon NIE Networks proposals. It then strips out the Connections allocation (as required) to arrive at the overall recommended IT allowances for RP6.

Category	NIE Networks Proposed	Net Recommendation	Outturn	Connections Allocation	Proposed RP6 Allowance	Change from DD
Non Network IT						
Capex	£ 41,882,046	-£ 9,515,048	£ 32,366,998	-£ 3,992,866	£ 28,374,132	£ 736,612
Opex	£ 8,887,000	£ 300,825	£ 9,187,825	-£ 3,562,509	£ 5,625,316	-£ 440,832
Enduring Solution						
Opex	£ 34,133,500	-£ 2,539,429	£ 31,594,071	£ -	£ 31,594,071	£ 913,750

TABLE 23: GEMSERV RECOMMENDED IT ALLOWANCE FOR FINAL DETERMINATION

The outcomes of this calculation are the following proposed allowances: £28,374,132 for Non Network IT capex, £5,625,316 for Non Network IT opex, and £31,594,071 for Enduring Solution opex. Gemserv commends this report and its recommendations to the UR for their consideration.

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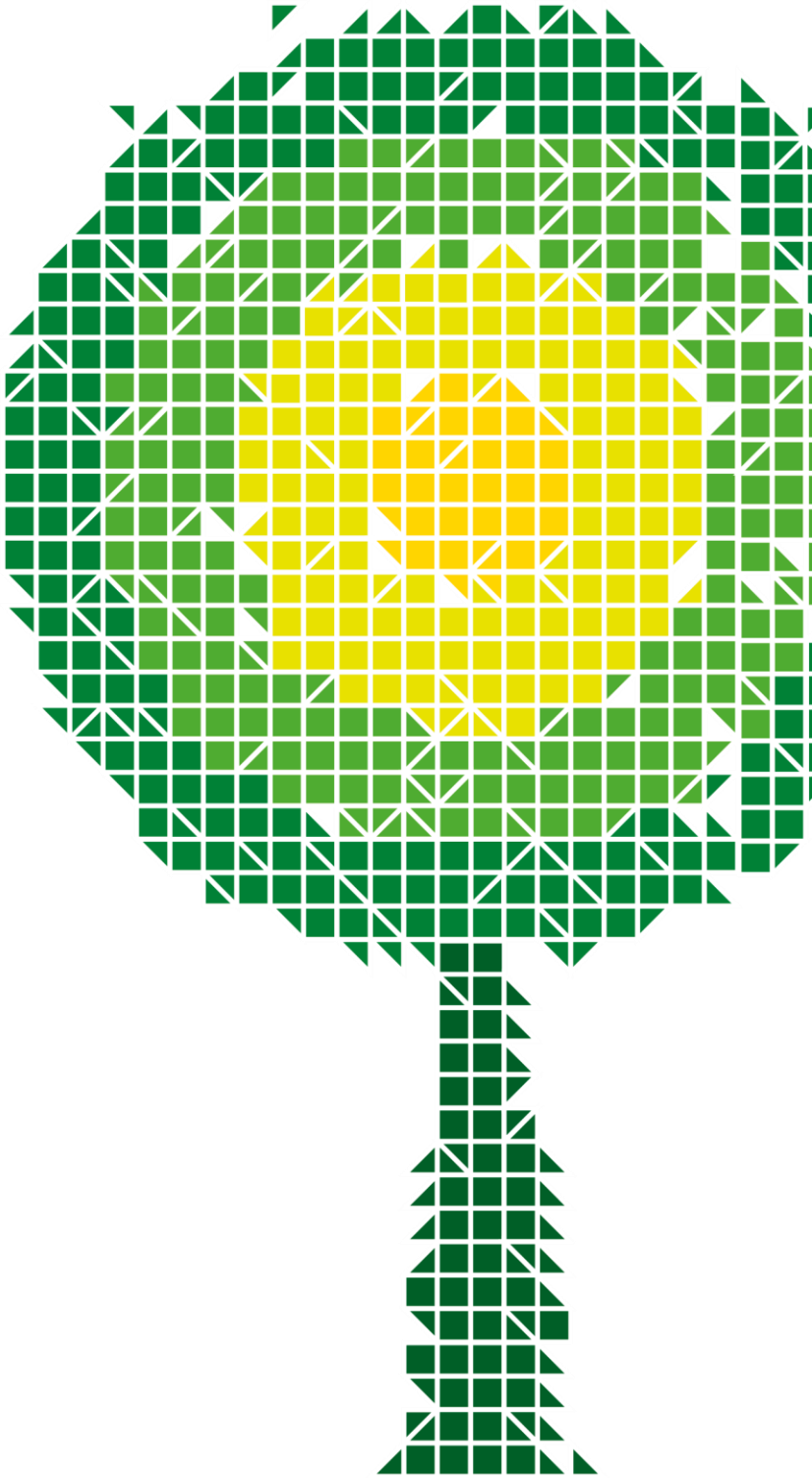

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