



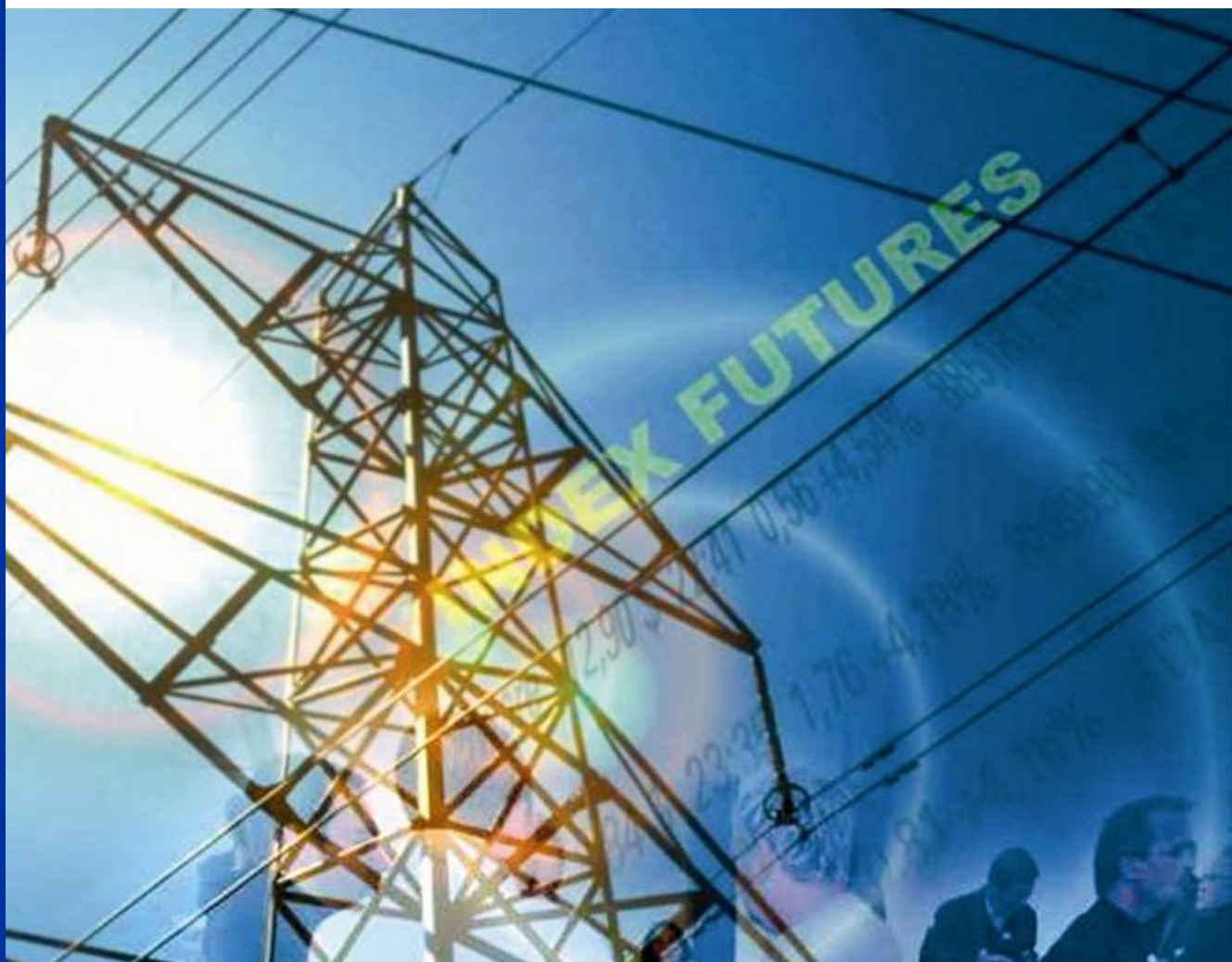
RIIO-T1 STAGE 4

NGET FINAL ASSESSMENT

A report to Ofgem

June 2012

RIIO-T1 STAGE 4: NGET FINAL ASSESSMENT



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1. INTRODUCTION

1.1 Context

RIIO-T1 is the first undertaking of the Transmission Price Control review under the new approach developed during the RPI-X@20 project. It takes place at time of unprecedented scale of required investment in the GB energy sector driven by the delivery of 2020 renewables targets and long term carbon reduction targets for 2030 and 2050. Ofgem’s own estimates under Project Discovery were that £32bn of network investments will be required by 2020, within an overall £200bn investment requirement for the GB energy sector.

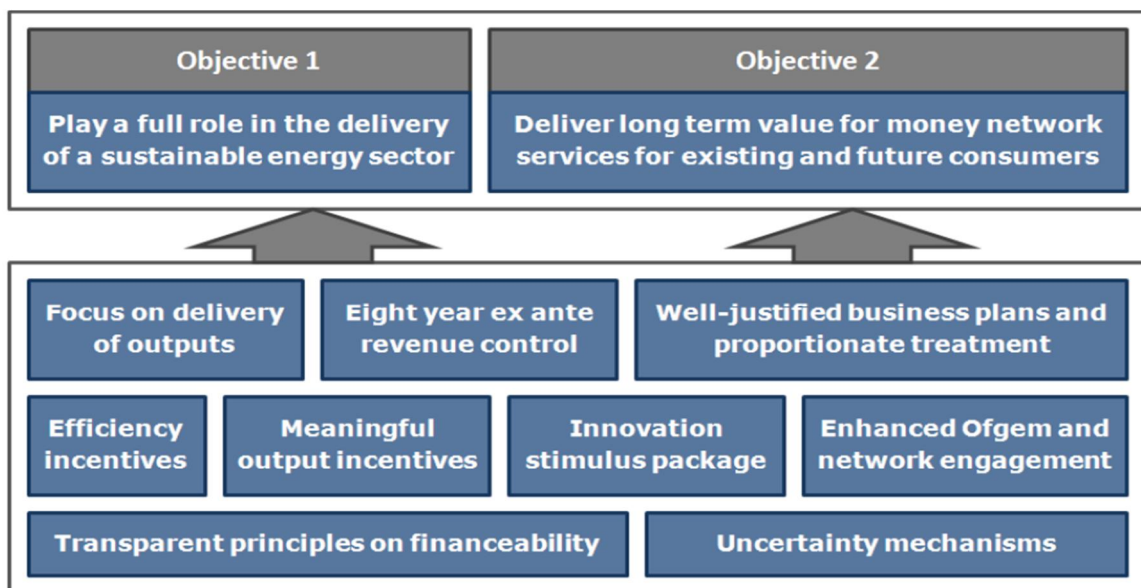
The 8 year period which RIIO-T1 encompasses will see dramatic changes to GB fuel sources, the GB generation mix, energy demand behaviour and technologies/services available for network investment and operations. Furthermore there are a number of major on-going policy initiatives within the GB energy sector, e.g. DECC’s Energy Market Reform process. This has two major implications for RIIO-T1:

- how exactly these uncertain events materialise will directly impact on TO activities;
- the different outcomes will have widely varying differences on the necessary activities and associated costs, and thus revenue requirements of the TOs.

This reinforces the emphasis on the three key elements of RIIO regulatory approach under RIIO-T1, namely incentives, outputs and innovation; but also raises the importance of the capability to understand and assess the impact of future uncertainty within RIIO-T1 in determining the appropriate regulatory settlements for the gas and electricity TOs.

The RIIO (Revenue = Incentives + Innovation + Outputs) model was designed with the objective that electricity and gas networks are developed efficiently in the context of the move towards sustainable energy markets. Figure 1 gives an overview of the RIIO model.

Figure 1 – Overview of the key elements of the RIIO model



Source: Ofgem

To provide comprehensive engineering support throughout the RIIO-T1 assessment process for the three GB electricity TOs (and the GB gas TO), Ofgem appointed a consultancy team led by Pöyry Management Consulting (UK) Ltd. (Pöyry). The electricity consultancy team consists of Pöyry, PPA Energy and TNEI Services.

All members of the Pöyry consultancy team have conducted significant consultancy support for Government, Ofgem and GB electricity network utilities on a range of projects including previous Price Controls and have strong credentials in relation to assessment of uncertainty, incentives, outputs, and innovation; which form the core of the RIIO-T1 review and assessment philosophy.

1.2 Scope and objectives of this report

In Stage 1 of RIIO-T1, Ofgem's initial assessment of the business plans and accompanying narratives submitted by the 3 GB electricity TOs led to SHETL and SPTL being selected to go through the fast-tracking process. This meant that National Grid Electricity Transmission (NGET) was the only GB electricity TO required to go through the Stage 4 process.

Therefore, under Stage 4, Ofgem asked Pöyry to support its detailed assessment of the RIIO-T1 plan submitted by National Grid Electricity Transmission (NGET). Specifically, we were asked to look at:

- load related ('LR') capex including identification, impact and treatment of future uncertainty;
- non-load related ('NLR') capex, and associated with this unit costs and the performance of the TO asset management function; and
- opex directly related or closely associated with capex activities ('direct opex' and 'closely associated indirect opex' respectively).

This report highlights the results of our final Stage 4 assessment for NGET in relation to its resubmitted capex business plan and supporting narrative provided by NGET on March 2012.

1.3 Overview of our assessment

This report examines National Grid Electricity Transmission (NGET) business plans as provided to Ofgem in March 2012 for the eight year RIIO-T1 period from 2013/14 to 2020/21; covering:

- Load Related ("LR") capex
- Non Load Related ("NLR") capex
- Controllable opex, excluding business support costs.

We provide recommendations regarding the range of costs within which the allowances for these three categories of costs should be set, on the basis of currently available information, and taking into account interactions between the three categories. Additional information could affect these ranges and some specific topics where this may occur are referred to within the report. This Initial Assessment provides our current views on NGET's proposed allowances for RIIO-T1 based on:

- our review of NGET's resubmitted BPQ received March 2012, (and reference to their original July 2011 BPQ);

- our detailed review of all relevant documentation for a representative sample of Load Related (“LR”) capex and Non Load Related (“NLR”) capex schemes;
- our 3 day Cost Visit at NGET that we conducted with Ofgem in late April 2012;
- extensive further information and data received from NGET via Ofgem’s Supplementary Questions process;
- relevant consideration of comparative data and information within the BPQs of the other two TOs;
- our own independent analysis; and
- addressing feedback from NGET on our Initial Report issued in May 2012, including any subsequent further assessment this triggered

1.4 Structure of this report

The content of this report reflects the objectives and scope of our Stage 4 assessment as specified by Ofgem and discussed above. In particular, the assessment provided in this Report (a) addresses those key aspects of the NGET March 2012 RIIO-T1 submission we were tasked to review and (b) reflects the proportionate business plan review based nature of Stage 4 in the RIIO-T1 assessment process. As such, it thus does not cover all aspects of NGET’s resubmitted RIIO-T1 plans and their assessment as conducted overall by Ofgem.

This Stage 4 report for NGET’s March 2012 RIIO-T1 business plan submission is structured as follows:

- Section 2 presents our final assessment of LR capex.
- Section 3 presents our final assessment of NLR capex.
- Section 4 - presents our final assessment of controllable opex.
- Section 5 – presents our final thoughts.

1.5 Conventions

- All monetary values quoted in this report are in GB Pounds Sterling in real 2009/10 prices, unless otherwise stated.
- Annual data relates to financial years running from 1 April to 31 March unless otherwise identified.

1.5.1 Sources

Unless otherwise attributed the source for all tables, figures and charts is Pöyry Management Consulting.

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2. INITIAL ASSESSMENT OF LOAD RELATED CAPEX

2.1 Scope of LR capex review

Ofgem provided us with an extensive and detailed list of questions to consider. These tasks can be collected together in three groups:

- overall plan – looking at LR capex funding request (;
- details of the plan – deliverability, regional strategies, assessment of investment to facilitate specific generation projects and scheme level assessment; and
- dealing with uncertainty – all LR capex uncertainty mechanisms, including the SWW mechanisms.

We have also been asked to provide ad hoc support to Ofgem on the interaction between the LR capex plan and three policy areas – offshore, TII and interconnectors. This support is outside of the scope of this particular report.

2.2 Strengths and weaknesses

NGET's Best View of LR capex in their March 2012 plan was £7.5bn, only 3% lower than their July 2011 submission. The spending is dominated by wider works (entry) projects according for around £5bn (two-thirds) of spending. Of this, £1.3bn would be subject to the Strategic Wider Works (SWW) mechanism and not form part of the baseline.

This meant that NGET had still proposed a relatively high ex-ante funding level which raised a number of policy issues for Ofgem as well as questions about the appropriate allocation of risk between NGET and customers.

The two key planks of NGET's deliverability plan is the Alliance model and the regional strategies, which are both comprehensively discussed in the narrative. However, NGET's Business Plan narrative does not provide an overall sense of how the Alliances fit together with the regional strategies to make a coherent overall delivery plan. Our view remains that it would have been helpful for the reader to understand the coherence of the overall delivery plan if NGET's Business Plan had more explicitly discussed how the regional strategies ('what NGET might need to do') fit together with the regional strategies ('how NGET plan to do what they need to do').

NGET uses a range of scenarios to analyse the need for system investment. For generation, this is around the ENSG scenarios (May 2011), with NGET developing its own scenarios for demand and interconnection flows. System planning is based on a continuation of the N-2 standard, which is described as being widely supported by stakeholders.

The boundary analysis demonstrates the range of different situations for investment decisions at the various system boundaries – such as the current position, drivers of reinforcement and sensitivity to scenarios – and the interaction between developments at different boundaries. Although the investment context was set out for most boundaries, in some cases, there could have been more detail on the background assumptions and reinforcement options.

We have also considered the deliverability of the regional strategies. In general, the plans are deliverable if challenging. It is our view that the greatest risks relate to the East Coast and East Anglia region (and the London region to a lesser extent). This region has the

greatest spend and is characterised by a large number of medium sized projects which to a large extent are interdependent. We believe the number and range of project types has the potential to cause a large level of uncertainty in terms of delivery.

There are smaller localised developments focused on delivering capacity to specific generation projects. NGET has identified four such areas namely: North East, North West, Yorkshire and (Greater Manchester and) Midlands. Our view of the investment schemes relating to specific generation projects is generally positive.

Ofgem selected a number of representative NGET load related schemes contained in the RIIO-T1 funding submission for a detailed scheme assessment. Schemes were selected on the basis of high overall cost and/or high cost for specific asset classes. A number of high cost “generic” works schemes were also included. Our assessment is generally positive but we would highlight several issues relating to costs, such as:

- plant unit cost in Table 4.27.3;
- NGET overheads;
- sole-use connection costs; and
- scheme unit costs.

NGET propose the use of uncertainty mechanisms in four areas of LR capex spending – wider works, local generation connections, planning requirements (undergrounding and DNO mitigation) and demand-related infrastructure.

The first two areas were specifically listed as options in Ofgem’s March 2011 document on uncertainty mechanisms. Our view is that the use of these two additional uncertainty mechanisms seems appropriate both individually and as a package, with some suggested amendments to address the perceived drawbacks.

One of the major challenges for the uncertainty mechanisms is that a number of the volume drivers are effectively linked to inputs rather than outputs - these includes overhead lines and cables (for local generation connections, and for demand related infrastructure), SGTs (demand related infrastructure), and cables (undergrounding).

The proposed SWW funding arrangements provide an appropriate use of a within-period determination for schemes that are high cost and hence high impact; not certain to progress during RIIO-T1, and complex.

2.3 Recommendations for LR capex funding arrangements

In their March 2012 business plan, NGET split their LR capex into two funding pots for Best View:

- an overall funding baseline for LR capex; and
- uncertainty mechanisms, which refers to the two schemes proposed to be covered by the SWW mechanism.

Given the possible different interpretations of ‘baseline’ with respect to RIIO-T, it is helpful to clarify the terminology used throughout this report:

- **‘baseline outputs’** refers to the benchmark output levels used to measure NGET performance against the various uncertainty mechanisms; i.e. if they deliver outputs in excess of the benchmark, then extra funding will be released. Alternatively, if they deliver outputs below the benchmark, then funding will be clawed back;

- **'baseline funding'** refers to the expenditure required to deliver the baseline outputs; i.e. the funding that is exposed to the operation of the uncertainty mechanism; and
- **'ex-ante funding'** refers to the overall funding 'baseline' requested by NGET in their business plans, which includes but is not limited to the baseline funding under the various uncertainty mechanisms.

Our recommendations with respect to funding arrangements are as follows.

We have identified some 'volume-driven'¹ changes to volumes that could lead to reductions of over £200m in ex-ante funding in each of four load related categories – wider works (entry), undergrounding, demand-related spending and local generation connections. If all these changes were made, it would bring the total amount of ex-ante funding down by around £1.5bn to around £4.7bn, with a compensating increase in the size of the funding that would be triggered (under Best View) by uncertainty mechanisms.

Since the March 2012 submission, NGET have proposed reducing their wider works baseline to be in line with Slow Progression (rather than Gone Green), which would reduce the ex-ante funding request for wider works (entry) by £389m.

NGET propose to set the baseline output level for the undergrounding mechanism at 10% of the baseline OHL mix. This does not deliver any quantifiable outputs, which means that the amount of funding is the only associated quantifiable metric, with NGET themselves admitting that it is not a Best View position. Therefore, we suggest that the baseline output be set to 0 and hence the associated baseline funding be reduced to 0 rather than £455m.

We propose to set the baseline funding for DNO mitigation measures to £8.7m, in line with the funding produced by applying the UCAs to the baseline outputs. Setting the funding at £26.1m as requested by NGET suggests that the uncertainty mechanism would significantly under-recover the ex-ante allowance if the relevant outputs were not delivered.

We note that the OHL measure is an input measure rather than an output measure (as it quantifies the assets below rather than a direct output to customers). Therefore, we suggest that the baseline volume (and associated funding) for OHL is set to 0 in the local generation connections uncertainty mechanism.

We propose that reducing the baseline output level for the demand-related infrastructure uncertainty mechanism by 5 SGTs (at £4.6m each) would reduce the funding to deliver baseline outputs by £23m. Setting the OHL baseline to zero would reduce baseline funding by £20m.

In addition, we have discussed removing the following items from the ex-ante allowances for local exit works for demand-related infrastructure:

- HS2 projects – £99m because of timing and status; and
- Post 2020 exit related infrastructure – £176m because of timing and lack of outputs.

In addition for the SGTs, we suggest that a customer-driven output is found to provide an equivalent trigger to a generation connection, such as a formal request for demand-related infrastructure.

¹ This includes changes to the 'baseline volumes' for the uncertainty mechanisms, as well to funding not associated with uncertainty mechanism baselines.

During our detailed cost assessment, we identified a number of areas where further cost efficiencies might be possible. summarises the result of our top down assessment for two scenarios of possible cost reductions from the overall funding baseline requested for Best View set out in the March 2012 Business Plan submitted by NGET. This could reduce the total funding request by between £344m and £445m.

Table 1 summarises the result of our top down assessment for two scenarios of possible cost-driven reductions in asset expenditure. Most of the savings come on switchgear, because it is a large area of spending, and our scenarios have relatively large percentage cost reductions for switchgear compared to transformers and cables.

Table 1 – Scenarios for cost-driven reductions in LR capex asset expenditure
(£m, real 2009/10 money)

| | Cost reduction scenario (1) – Low Reduction | Cost reduction scenario (2) – High Reduction |
|--------------|---|--|
| Transformers | £14m | £33m |
| Switchgear | £327m | £410m |
| Cables | £2m | £2m |
| Total | £344m | £445m |

We note that the format of Table 4.19.1 in the NGET Business Plan (in line with the RIGS) means that we have incomplete information on expenditure by asset class and on the amount of expenditure on assets within RIIO-T1 period (as the asset costs are provided for the whole scheme).

The figures for the Initial Proposals will need to take account of the impact of our percentage cost reductions applied to the ‘ex-ante’ funding resulting from the proposed volumes.

Similarly, the scheme costs used to calculate the Unit Cost Allowances (UCAs) for volume driver based uncertainty mechanisms will also need to be reduced, particularly in the area of transformer, switchgear and substations. Another issue for UCAs is the treatment of overlays. We note that the UCAs could be around 2% too high if Construction Efficiencies (and the offsetting impact of System Access) are both ignored (as proposed in NGET’s March 2012 submission).

As NGET have noted, the aim is to calculate a UCA that best captures the expected cost of deviation from the baseline level of output. Therefore, we think that as a principle, the UCAs should be weighted averages and take account of the full scheme costs not just the costs falling within the RIIO-T1 period.

For the non-undergrounding uncertainty mechanisms, a key question is the asymmetry of the UCAs. In general, if schemes are likely to be developed in a clear order, then it is more likely to be appropriate to have a UCA that reflects that ordering. That is much more likely to be the case for specific boundary works and also within-zone works in some cases, than it will be for SGTs (demand-related infrastructure), OHL and cables, and local generation connections (where there is a much more diversified mix. However, we note

that in practice, the calculation of the local generation UCA is not obvious given the lack of relationship between volume of connections and expenditure across the three scenarios.

Our view is that pre-construction costs should not be included in the UCA calculation. This is because the spending is not linked to the ultimate output, and therefore, if pre-construction costs are incurred, they should not be clawed back by the volume driver if the final output is not required.

2.4 Impact of recommendations on overall LR capex funding

It is important to note that NGET use Best View to estimate uncertainty pot, which therefore does not for example cover all the additional funding from uncertainty mechanisms that would be triggered by Accelerated Progression. We will similarly discuss the uncertainty point with reference to Best View.

The table below summarises the possible changes in the allocation of funding between the three pots. The cost and volume changes are not cumulative – i.e. the cost reduction is calculated on the ex-ante funding request set out in the March 2012 Business Plan and does not take into account any of the volume changes.

Table 2 – Summary of funding allocation under Best View (£m, real 2009/10 prices)

| | Ex-ante | Uncertainty | Not funded |
|---|----------------------|--------------|----------------|
| Best View funding requested in March 2012 submission | 6,241 | 1,258 | 0 |
| Changes to ex-ante volumes | | | |
| Wider Works entry reduction to Slow Progression scenario | -389 | +389 | 0 |
| Setting baseline outputs and funding for undergrounding to 0 | -455 | +455 | 0 |
| Setting baseline funding for DNO mitigation measures based on application of UCAs to baseline outputs | -17 | | 17 |
| Reduction in demand-related spending | -318 | +318 | |
| Removal of OHL from local generation baseline outputs and funding | -258 | +258 | |
| Changes in ex-ante costs | | | |
| Low reduction in costs | -344 | 0 | +344 |
| High reduction in costs | -445 | 0 | +445 |
| Potential revised funding arrangements | c.4,359-4,460 | 2,678 | 361-462 |

In practice, combining volume and cost adjustments leads to slightly less reduction in ex-ante funding than shown, as the percentage cost reductions would be applied to a smaller asset total.

We have been asked to highlight the Best View expenditure that has a high probability of slipping into RIIO-T2. If we define this as spending in the last 2 years of RIIO-T1, then the figures for the March 2012 business plan are £516m for ex-ante funding and £242m for the Strategic Wider Works.

2.5 Areas for further consideration by Ofgem

Although the total spending for local generation connections is similar across all scenarios, the level of connections is quite different, especially for Accelerated Growth versus the other two ENSG scenarios. Therefore, further analysis is needed to understand the balance of risk for NGET and consumers e.g. the extent to which it would be resolved by zonal volume drivers.

The inclusion of NLR capex work in LR capex schemes will push up the UCAs, but this must be traded off against the synergies of bundling the work. NGET have not quantified these synergies but our unit cost-based estimate suggests that the NLR capex work would cost around £150m to complete on its own, which gives an order of magnitude.

NGET were asked to review around £800m of expenditure associated with non-boundary outputs. They have allocated most of it to other uncertainty mechanisms, but there is still a hard core of over £350m with no linked output.

We have not seen any proposals for re-opener provisions for SWW schemes in the NGET submission. Re-opener provisions for SWW arrangements have been included in the Final Proposals for SHETL and SPTL, reflecting the complexity and high cost of these schemes. These reopener provisions may need to be set out in the Network Development Policy if they are to apply to schemes between £150m and £500m that are subject to within-period determination.

3. INITIAL ASSESSMENT OF NON LOAD RELATED CAPEX

3.1 Scope of NLR capex review

Ofgem asked us to place the main focus of their efforts on understanding the cost drivers behind the NLR capex plan. This entailed:

- a bottom up assessment of a number of scheme papers covering both prime and non-prime assets;
- a top-down assessment of numbers in the BPQ, with particular focus on data tables 4.20.1, 40.22.1 and 2 (NLR capex scheme lists), and 4.27.3 (unit costs);
- comparison of proposed costs in RIIO-T1 with historic costs; and
- review of any interactions with OPEX.

The above activities led to development by us of a range of suggested adjustments to NLR capex allowances, which are presented in Chapter 7 of this report. In addition to these activities we also undertook an analysis of:

- the NLR capex asset volumes embedded in LR schemes, and the possible financial impact of moving these onto the NLR capex baseline; and
- the apparent under-delivery in TPCR4, and how the volumes calculated by Ofgem might relate to the total calculated.

Ofgem have undertaken their own modelling of asset volumes which drive NLR capex using a model developed internally within Ofgem and refined via discussions with all three TOs. Thus to support Ofgem's own internal assessment of NLR capex asset volumes we were asked to undertake some analysis of specific issues relating to volumes, but no specific modelling of volume adjustments to the baseline is presented in this report. Some independent comment is made on asset health and criticality and the relationship of network risk to the volumes modelled.

The major issue relating to volumes modelled by us was exactly how the re-phasing had been achieved between the July 11 and March 12 submissions and what this might indicate about NGET's potential options, where the LR project pipeline to progress more slowly in reality.

3.2 Review of asset volumes

The key issue in relation to asset volumes proposed under RIIO-T1 we have assessed in detail was the re-phasing of NLR capex schemes between NGET's July 2011 and March 2012 business plan questionnaire submissions since in July 2011, NGET had been unable to reflect the top line re-phasing of NLR capex within their relevant detailed data tables. It should be noted that NGET corrected some known errors in August 2011; these have not been factored into the analysis below as this analysis has been used purely to inform the qualitative issues around re-phasing and has not been used as a direct input to any allowance calculations.

Table 3 summarises how each of the prime asset areas in table 4.20.1 has been re-phased.

Table 3 – Prime assets re-phasing

| | Movement in costs under RIIO-T1 | | | | | | | | | | Change in T1 spend since Aug | Total Net Change |
|------------------------|---------------------------------|--------|--------|--------|--------|--------|-------|--------|--------|-------|------------------------------|------------------|
| | <2014 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | >2022 | | |
| | £m | £m | £m | £m | £m | £m | £m | £m | £m | £m | | |
| Transformers | 18.17 | -38.44 | -41.03 | -20.78 | -4.39 | 21.58 | 32.31 | -45.81 | 13.34 | -4.74 | 8.4 | 21.83 |
| Switchgear | 20.3 | 1.4 | -6.77 | 10.31 | 23.14 | 23.17 | 44.11 | 39.59 | 9.71 | 84.25 | 144.66 | 249.21 |
| OHL | -2.21 | -27.36 | -45.11 | -43.75 | -49.69 | -36.88 | 7.47 | 88.24 | 104.96 | 0 | -2.11 | -4.32 |
| Cables | -20.3 | -2.57 | 4.88 | -7.36 | 11.34 | 24.24 | 22.91 | 6.38 | -8.6 | 0.02 | 51.2 | 30.92 |
| Cable Tunnels | 22.97 | -41.95 | -56.42 | -31.05 | 14.08 | 35.2 | 33.52 | 4.28 | -5.26 | 0.01 | -47.61 | -24.63 |
| Protection and Control | -28.86 | -4.49 | 13.52 | 17.71 | 2.17 | 2.57 | 2.36 | 1.08 | 0.48 | 0 | 35.4 | 6.54 |
| Substation Other | -1.26 | -5.52 | -3.67 | -1.63 | -1.84 | -1.76 | -0.45 | 3.43 | 1.71 | -4.56 | -9.73 | -15.55 |
| Reactor | -8.67 | 4.82 | 5.26 | 0.17 | -0.08 | -0.27 | -0.27 | 0.01 | 0.05 | 0 | 9.69 | 1.02 |

The ‘total net change’ column sums the change in spend over the whole time period covered by the data tables, and therefore includes the rollover period. The ‘change in T1 spend’ column sums purely those numbers in the RIIO-T1 ‘window.’

There were also some changes to table 4.22.1, overall leading to a net reduction in ‘other’ spend.

In the re-phased plan, two asset areas show an overall increase of network risk over the RIIO-T1 period, the greatest increase is in OHL but there is also some effect in the cables area.

It became apparent from this analysis that if the LR plan slowed down and NLR capex work was NOT brought forward, this would risk a deliverability problem occurring towards the end of the RIIO-T1 period rather than the beginning. Therefore, it is important within the NLR capex settlement that, if the overall volumes are believed by Ofgem, a mechanism is in place to allow NGET to bring spend forward to fund increased NLR capex.

Detailed analysis of the re-phasing in each asset area showed that:

- in the transformers area the re-phasing had been applied through the whole plan, but with some emphasis on moving big, discrete, high cost items (i.e. quad boosters). These could be moved back relatively easily if the load related baseline were slowed down;
- in the OHL area a large part of the re-phasing was tower steelwork, on which there is almost no spend in the first 4 years of the period. If this work really needs to be done it is questionable whether it can all effectively be ‘parked’ for four years, and this raised questions about the credibility of this part of the OHL programme, especially considering the large sum of money involved with no prime asset volume output. This work could relatively easily be brought forward if necessary. OHL network risk is rising anyway so this area would warrant further scrutiny to fully understand whether re-phasing this mix of work would really address the network risk issue;
- in the cables and tunnels area re-phasing involved two large cable schemes and one associated tunnel scheme. Given the lead time on such projects there must be some constraints on bringing these forward – the delay to these projects appears to account for the increase in network risk in this area; and

- switchgear spend was actually brought forward from the original submission, and 132 kV volumes increased. The latter point was justified by NGET on the grounds that these volumes are associated with interface sites with DNOs, where 132 kV infrastructure is shared, and therefore volumes are driven by DNO co-ordination. 31 of the 132 kV breakers brought into the new plan are at Wimbledon, this scheme has apparently been moved from the LR baseline into the NLR capex baseline.

In addition to reviewing the re-phasing, we also reviewed the impact on the NLR capex asset volumes embedded within LR schemes, should the LR baseline move, and concluded that a move from Gone Green to Slow Progression had relatively little impact on these volumes. Moving these schemes into the NLR capex baseline would, on the basis of NGET's unit cost calculations, move around £150m.

3.3 Review of costs and allowances

Based on our assessment so far, four major over-arching issues have emerged in the analysis of NGET's NLR capex programme:

- 88% of the total programme is (based on the March 2012 submission), at IP1 level, and has therefore been costed purely on a desktop analysis. In some asset areas this figure is well over 90%. There was evidence that the approach to estimating scheme overheads and complexity was not entirely consistent across all asset classes, leading to some very large assumptions having been made at a scheme level, without an apparent counterbalancing view at programme level to assess whether the sum of the individual schemes was reasonable;
- unit costs in substation plant areas were higher than our industry benchmarks and some comparable numbers from other TOs. This could be partly explained by the above issue, but not entirely;
- whilst NGET had filled in the unit cost tables in accordance with the definitions, the way they structure their programme is different to other TOs, rendering direct comparisons quite challenging, for example, they appear to do a lot more tower steelwork replacement as separate projects as opposed to bundling it into main refurbishment schemes. The cables area was particularly problematic in this regard; and
- the amount of activity not amenable to unit cost treatment is significant, and meant that in all asset categories we had to take a holistic view based on the full range of evidence presented when assessing allowances.

To analyse each activity area in a meaningful way required a bottom-up calculation of what had gone into making up unit costs and what had gone into other activities, this is our calculation based on understanding of NGET's numbers, and there must therefore be a degree of uncertainty about interpretation of what they have done. In view of this uncertainty two scenarios were developed for treatment of allowances, reflecting our lower and upper views from our initial assessment of asset and scheme costs within the different NLR capex asset categories.

- Scenario 1 in Figure 2 represents a cut in allowances of 8.2% in 2014, rising to 8.8% at the end of the RIIO-T1 period; and
- Scenario 2 in Figure 3 represents an initial cut of 11.8% rising to 12.5%.

Figure 2 – RIIO-T1 Scenario 1

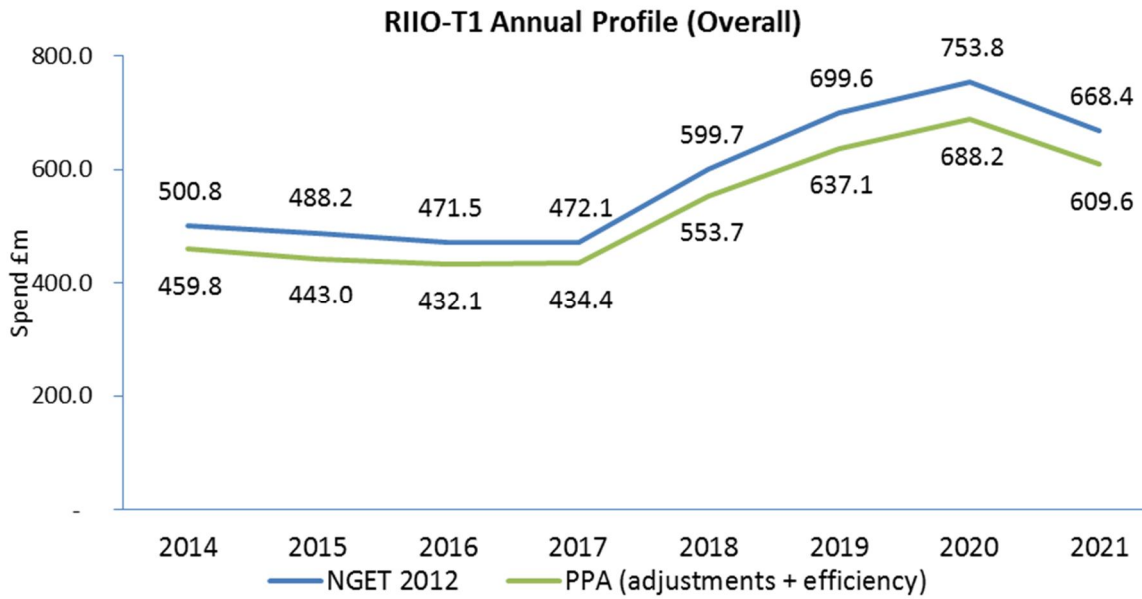
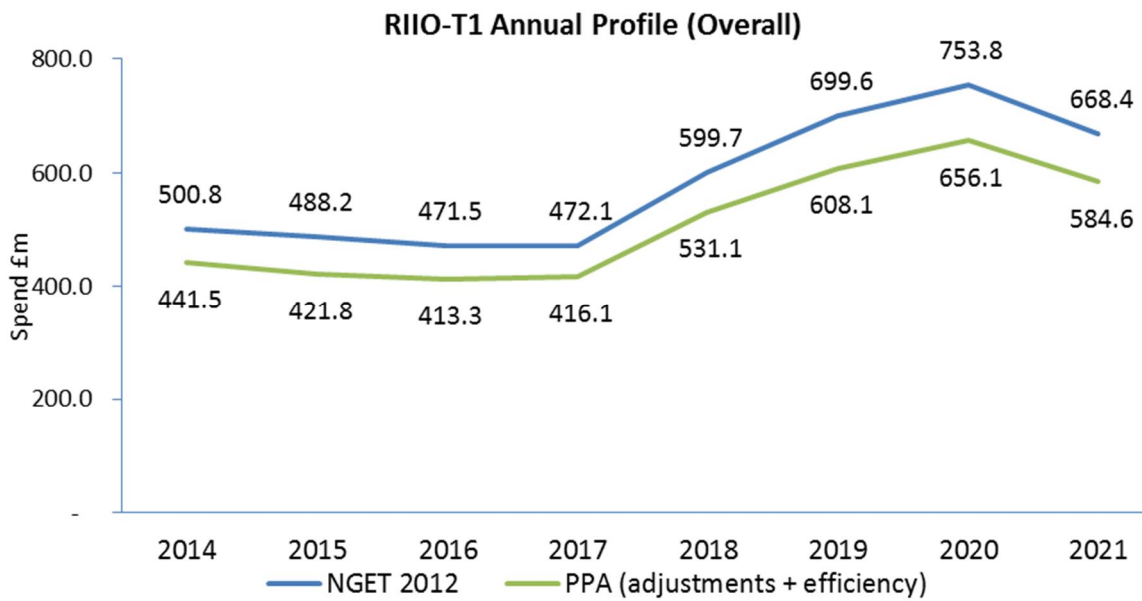


Figure 3 – RIIO-T1 Scenario 2



4. INITIAL ASSESSMENT OF CONTROLLABLE OPEX

4.1 Scope of controllable opex review

TO controllable opex includes the costs of work on maintenance and faults on the network together with a number of indirect costs. In the RIIO-T1 business plan, these costs are categorised as ‘direct opex’, ‘closely associated indirects’ and ‘business support costs’. The material below is focused on the first two of these as the latter is out of scope for our assessment of controllable opex and is being directly addressed by Ofgem.

4.2 Review of performance and proposed allowances

NGET has spent substantially more on its overall controllable opex than the allowances for this under the TPCR4 settlement for 2007/08 to 2010/11 (where actual costs are now available). This is expected to continue.

The projected controllable opex overspend to allowances by 2011/12 is £44.9m with a cumulative gap of £157.7m over the entire TPCR4 period. NGET’s explanation for this over expenditure is that it reflects the opex impacts of:-

- asset management strategies during the period,
- risks which crystallised during the period; and
- workforce renewal and growth costs to recruit and train resources in advance of the RIIO-T1 workload.

The NGET business plan for the RIIO-T1 period shows that forecast average annual expenditure within it for both “direct opex” and “closely associated indirects” is higher than that for the preceding period (from 2007/08 to 2012/13). For direct opex the expected increase is from an average of £95m to that of £125m per year (or by about 31%) and for closely associated indirects (before capitalisation of a proportion of this expenditure) from £76m to £80m a year (or around 6%).

In the case of “direct opex” two important drivers of the large predicted increase are:

- “allowed innovation costs”; and
- “CNI” (critical national infrastructure) costs.

These costs are expected to have separate regulatory treatments and are therefore not reviewed in this report. When these items are extracted the forecast increase in average annual expenditure on “direct costs” reduces to about 13%.

Under the RIIO-T1 process, TO’s that were not fast tracked were asked to submit two business plans. An initial one in July 2011 followed by a revised and updated one in March 2012. This has occurred in respect of NGET. However the changes between the two plans are small.

- The total proposed expenditure in the RIIO-T1 period on the sum of direct costs (less innovation and CNI costs) and closely associated indirects in the July 2011 business plan in the RIIO-T1 period was forecast to be £1330.4m.
- In the March 2012 plan this increased to £1332.6m – some £2.2m or around 0.16%. This mainly resulted from a number of small changes although it was notable that forecast total “health, safety and environment” costs had increased by some £7m from the July 2011 plan.

- Generally, it has been concluded that no material overall changes have occurred between the July 2011 and March 2012 business plans.

The approach adopted in assessing the NGET proposed expenditure for direct costs (less innovation and CNI costs) and closely associated indirects has been to examine, in turn, the constituent parts that make up these categories – and the case, where relevant, that NGET puts forward for these costs to increase in the future. At a high level this case can be summarised as follows:

- There is expected to be a 15% growth in substation assets and 5% growth in both overhead line and cable routes.
- There will be higher levels of assets of poor condition (but lower criticality) on the network by 2021 compared to previously.
- Workload growth drives the need to grow and refresh the workforce.

Whilst it is recognised that these arguments have some force the scale of the cost increases that NGET has put forward is significant and could be regarded as disproportionate when they are examined in detail.

NGET indicate that they have embedded efficiency savings within their plan - for future productivity an average efficiency level of 1.6% per annum for TO costs has been utilised. For a number of reasons, they explain, a higher efficiency level in “direct opex” and “closely associated indirects” than in business support has been used – for “direct opex” between 2010/11 and 2020/21 savings an average of 2.2% per annum, and for “closely associated indirects” in the RIIO-T1 period efficiency savings an average of 2.5% per annum. However the method of application of these efficiency improvements to the forecasts is not clear.

4.3 Assessment of controllable opex

In order to define ranges within which we believe it may be appropriate for the final regulatory settlement on controllable opex allowances (excluding business support) may fall, we specified two cases - case 1 and case 2 – with differing assumptions. These cases take account of a number of factors as follows:

- the actual costs that have been incurred in 2010/11 and preceding years;
- efficiency improvements;
- changes in the size of the network;
- changes in asset condition, complexity and diversity;
- a specific assessment of some cost components where significant changes are expected (e.g. plant and tower painting);
- the explanations for changes in cost levels and other factors in the NGET business plan;
- the presentations made and discussions held during the joint Ofgem and consultant cost visit to NGET in April 2012; and
- responses to written questions by NGET.

For case 1 it has been assumed that a level of efficiency improvement of a rate of 2.25% is achieved whilst for case 2 the rate is 1.5%.

For case 1 the allowance in respect of asset condition, complexity and diversity is less than for case 2.

Similarly the allowance for specific programmes is greater for case 2 than case 1. The overall results of this analysis are shown in Table 4.

Table 4 – Overall results for Case 1 and Case 2

| £ million | RIIO-T1 | |
|---|---------|---|
| Direct Opex (less IFI and CNI) | TOTAL | |
| NGET baseline plan | | |
| Total Cash Controllable Costs less IFI and CNI (£million) | 802.7 | |
| CASE 1 | | |
| Total Cash Controllable Costs less IFI and CNI (£million) | 644.1 | Difference from NGET baseline (£ million) |
| % Change on NGET baseline | -19.8% | -158.6 |
| CASE 2 | | |
| Total Cash Controllable Costs less IFI and CNI (£million) | 709.8 | Difference from NGET baseline (£million) |
| % Change on NGET baseline | -11.6% | -92.8 |
| Closely associated indirects | | |
| NGET baseline plan | | |
| CAI Total (£million) | 530.0 | |
| CASE 1 | | |
| CAI Total (£million) | 468.2 | Difference from NGET baseline (£ million) |
| % Change on NGET baseline | -11.6% | -61.7 |
| CASE 2 | | |
| CAI Total (£million) | 499.8 | Difference from NGET baseline (£million) |
| % Change on NGET baseline | -5.7% | -30.1 |
| Direct Opex (less IFI and CNI) plus closely associated indirects | | |
| NGET baseline plan | | |
| Direct Opex (less IFI and CNI) plus closely associated indirects (£million) | 1332.6 | |
| CASE 1 | | |
| Direct Opex (less IFI and CNI) plus closely associated indirects (£million) | 1112.3 | Difference from NGET baseline (£ million) |
| % Change on NGET baseline | -16.5% | -220.4 |
| CASE 2 | | |
| Direct Opex (less IFI and CNI) plus closely associated indirects (£million) | 1,209.7 | Difference from NGET baseline (£million) |
| % Change on NGET baseline | -9.2% | -123.0 |

Table 4 shows that, on the basis of the work so far undertaken that for case 1 the forecast sum of total direct opex (without CNI and allowed innovation costs) and total closely associated indirects in the RIIO-T1 period amounts to about £1112m which represents a reduction on NGET's baseline plan of some £220m or about 16% whilst for case 2 the equivalent figures are around £1210m, £123m and approximately 9% respectively.

It is noted that whilst the efficiency factors used in case 1 are similar to those used by NGET and are less onerous in case 2 the resulting forecast cost levels are somewhat less than those in the NGET business plan. It is not exactly clear why this has occurred, but it may relate to adjustments made to some specific items where much higher levels of spending have been proposed by NGET, or potentially to the method by which the rates have been applied to activity costs and levels.

However, subject to further analysis and provision of information we believe that the regulatory settlement for controllable opex under RIIO-T1 should fall within this range.

4.4 Assessment of two major IT projects

At the request of Ofgem two specific IT system developments proposed by NGET have also been examined; namely:

- The Transmission Front Office (TFO) suite of applications.
- A strategic asset management support system.

The conclusions are summarised below.

NGET intend during the RIIO-T1 period to make a substantial investment in the TFO suite of applications. It asserts that the primary driver for the replacement of front-office systems is asset refresh and maintenance of existing capabilities and claims that IT assets in this class generally require hardware and software refreshes on broadly a six year cycle. It is clear that TFO is an important suite of applications that provides vital day-to-day support to many of NGET's activities. However it is believed that there are opportunities to extend the life of some of the applications and to reduce costs as a result of higher efficiency. NGET propose that some £62.9m is invested in TFO in the RIIO-T1 period. By taking account of the factors previously mentioned costs could fall to within a range of between £43.8m (some £19.1m and 30.4% lower than the NGET plan) and £47.6m (about £15.3m and 24.3% below NGET's).

NGET have planned to invest in an IT system to support strategic asset management. This investment should be supported. However again, it is believed that some efficiency improvements are possible. The proposed expenditure on strategic asset management in the RIIO-T1 period is £29.3m, of which £10.8m - nearly 37% - which has already been sanctioned. In these circumstances it is concluded that those projects that have been sanctioned should be fully allowed with efficiency improvements sought from the remaining ones. This leads to a possible range of investment in SAM of between £26.5m and £27.5m.

5. FINAL THOUGHTS

As presented above, our views on the appropriate level of LR capex, NLR capex and opex allowances for NGET under RIIO-T1 are presented as a range. The levels and size of ranges of potential adjustment and size of the range at a subcomponent level reflects variation in our degree of comfort with (a) NGET proposals and supporting justification in their own right, and (b) review of all relevant information provided including via Q&A as we felt necessary to form a fully informed view.

Use of a range reflects that our views are based on our assessment of a very large amount of material and data; and inevitably there will be some degree of interpretation of some elements of the material and related data provided. Consequently, Ofgem will need to form its own view of the appropriate level of allowances, with reference to this report and our supporting detailed assessment and material provided to them over the course of RIIO-T1; as well as their own internal assessments and wider engagement with NGET.

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