

Developing measures for assessing system operator performance

An overview of the new SOSPA and what it
means for the future development of
performance measures

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Note: This paper has been prepared for the purpose of discussion.
Content should not be interpreted as representing the views or policy
of the Electricity Authority.

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Executive summary

The function of the Security and Reliability Council (SRC) is to provide advice to the Electricity Authority (Authority) on the performance of the electricity system and the system operator, and on reliability of supply issues.

This paper responds to, but does not resolve, a long-standing action from the 13 December 2011 SRC meeting:

“[The] secretariat to work with the system operator to develop a set of integrated and prioritised performance measures.”

This paper describes:

- the steps that the Authority and Transpower New Zealand Ltd (Transpower) have taken to create a solid foundation from which to define and measure the performance of the system operator
- the roadmap the parties are following, with an emphasis on the first five years, to establish an integrated and prioritised set of dynamic performance measures.

1 Introduction

1.1 The purpose of this paper is to respond to a long-standing action

1.1.1 The SRC has been appointed, in accordance with the Electricity Industry Act 2010, to provide independent advice to the Authority on:

- a) the performance of the electricity system and the system operator; and
- b) reliability of supply issues.

1.1.2 This paper responds to a long-standing action from the 13 December 2011 SRC meeting:

“[The] secretariat to work with the system operator to develop a set of integrated and prioritised performance measures.”

1.1.3 The steps that the Authority and Transpower have taken to create a foundation for defining and measuring the performance of the system operator are as follows:

- a) the parties established a Relationship Charter¹ between the Authority and the system operator
- b) the parties launched and concluded renegotiations for contract that governs the provision of system operator services. The new system operator service provider agreement (SOSPA) took effect on 1 July 2016
- c) the Authority consulted on and approved amendments to the Code that were complementary to the renegotiated SOSPA, with effect from 19 May 2016.

1.1.4 The above steps re-align the relationship between the parties and update the provision of system operator services so that they are delivered in a manner that is consistent with the Authority’s statutory objective. These steps were required before the parties could effectively respond to the SRC’s action.

2 The system operator’s performance will be aligned to support the Authority to give effect to its statutory objective

2.1.1 Collectively, the following documents should enable the Authority and the system operator to develop a set of performance measures that can be broadened over an increasing range of the system operator’s functions, and adjusted to respond to market developments:

- a) the Relationship Charter
- b) the SOSPA
- c) Code requirements relating to system operator functions..

2.2 Relationship Charter

2.2.1 The Relationship Charter agreed between Transpower and the Authority establishes a refreshed joint relationship. The relationship is underpinned by rules of engagement that provide a consistent foundation and focus for all future engagement between the parties.

2.2.2 The agreed joint objective states:

¹ Electricity Authority and Transpower (16 June 2014); *Relationship Charter – Electricity Authority and Transpower as provider of the System Operator service*. <https://www.ea.govt.nz/dmsdocument/18258>.

“We will deliver long term benefits to New Zealand consumers in the course of operating and developing the broader electricity market by:

- Promoting competition, for example by removing technical barriers to entry and participation in the wholesale market
- Ensuring reliable supply, for example by efficiently balancing risk and the costs of risk reduction and by taking advantage of new technologies as they become commercial
- Promoting efficient operation of the NZ electricity industry, for example by delivering an efficient and effective system operator service and by developing and implementing improvements in the market.”

2.2.3 The Relationship Charter provides a clear basis for service provider negotiations and all subsequent joint engagement, including development and application of performance measures.

2.3 System operator service provider agreement (SOSPA)

2.3.1 The SOSPA establishes the terms and conditions for the purchase and supply of system operator services. The new SOSPA was approved by the parties in mid-February 2016 and became fully effective on 1 July 2016. The components of the SOSPA with relevance for performance measurement and monitoring are outlined at section 3 of this paper.

2.4 Code amendments ensure alignment with the Act and new SOSPA

2.4.1 The Authority has completed Code amendments that altered the system operator’s performance obligations that came into effect from 19 May 2016.² The purpose of these amendments was to ensure that the Code provisions:

- a) met the requirements of section 8(3) of the Act³
- b) were complementary to, and consistent with, the new SOSPA.

2.4.2 The key Code amendments were to:

- a) extend provisions in Part 3 of the Code to the system operator that previously only applied to other market operation service providers (MOSPs)
- b) require all MOSPs, including the system operator, to perform their Code obligations in a way that assists the Authority to give effect to the Authority’s statutory objective (clause 3.2A)
- c) clarify that a reasonable and prudent system operator standard applies to all system operator Code obligations (clause 7.1A)
- d) improve the detail of the system operator principal performance obligations relating to common quality and dispatch (clause 7.2 and clauses 7.2A-to-7.2D)
- e) clarify the system operator’s security of supply and emergency management requirements (clause 7.3(1)).

² Full details of the Code amendments are available from <http://www.ea.govt.nz/development/work-programme/operational-efficiencies/system-operator-and-market-services-review/>

³ The Act requires that the Code must specify: the functions of the system operator; how the functions are to be performed; requirements relating to transparency and performance.

3 The new SOSPA enables comprehensive, integrated and prioritised performance over time

3.1 SOSPA provisions support performance setting and monitoring

- 3.1.1 As noted in paragraph 2.3.1, the SOSPA sets out the agreed provisions for the supply and purchase of all system operator services, whether provided as functions under the Code or as SOSPA-related services.
- 3.1.2 A number of planning documents are required to be developed and agreed with the Authority before the beginning of each financial year. The system operator is then held accountable for the delivery of, and performance against, the plans across that year.

Strategic planning

- 3.1.3 The system operator is required to produce a system operator strategic plan and a draft ICT strategic roadmap every year. Before finalising the strategic plan and roadmap, the system operator consults with the Authority and considers its feedback.

Capital planning

- 3.1.4 The system operator annually develops a capital expenditure (capex) plan and capex roadmap:
- a) The capex plan covers the two immediate financial years after the current financial year and details:
 - i) the capex projects for the next two financial years
 - ii) the forecast capital cost of each project
 - iii) the forecast commencement and commissioning dates for each project.
 - b) The capex roadmap is a higher-level descriptive document that forecasts the major capex programmes and projects for the two financial years following on from those covered by the capex plan.
- 3.1.5 Before finalising the capex plan and roadmap, the system operator considers the feedback that arose from the draft versions that were used as part of the Authority's annual levy consultations.

Statutory objective work plan

- 3.1.6 The system operator annually prepares a work plan that outlines its planned programme of work for statutory objective alignment for the coming financial year. This will typically include its proposed policy and procedures review for the year. Prior to finalising the statutory objective work plan, the Authority and system operator jointly consider whether it meets the Authority's priorities and expectations.

Engagement and education plan

- 3.1.7 The parties jointly agree to an annual high-level plan to coordinate education and engagement with participants and customers. The aim is to ensure joint market engagement and educational activities. This plan is finalised before the new financial year begins.

Business assurance audits

- 3.1.8 A plan is prepared annually by the system operator for business assurance audits of aspects of the system operator service. The system operator finalises the plan following engagement with the Authority and provides a final plan to the Authority by the end of each financial year. The Authority receives the final report for each business assurance audit completed.

Performance metrics and performance incentives

- 3.1.9 Annually, before the each financial year, the Authority and system operator will agree a set of objective measures that will apply for the new financial year. Further, the parties will agree to any financial performance incentives considered appropriate to encourage agreed levels of quality.
- 3.1.10 The quality of the system operator's service performance will then be assessed against the nominated measures and any agreed incentive payments made.

System operator annual service business plan

- 3.1.11 Each year the system operator will produce a business plan that outlines how the strategic plan, ICT roadmap and the other above plans will be delivered in the new financial year. Prior to finalising the business plan, the system operator gives the Authority an opportunity to provide feedback on the plan.

3.2 SOSPA reporting

- 3.2.1 Reporting requirements in the SOSPA cover reporting of performance against each of the plans described. The system operator provides monthly, quarterly and annual reporting, as described in Appendix A.

3.3 Additional performance measures and reporting in the SOSPA

- 3.3.1 The following SOSPA provisions are also relevant to performance of the system operator:

- a) measures to improve financial performance
- b) provision for performance audits (on exception)
- c) cost-of-service reporting
- d) provision for performance incentives on high-value capital projects
- e) five-year SOSPA reviews and resets.

- 3.3.2 A detailed explanation of these is set out in Appendix B.

4 The system operator and the Authority are using annual and five-yearly processes within an overarching performance roadmap

- 4.1.1 This section describes the roadmap the parties are following, with an emphasis on the first five years, to establish an integrated and prioritised set of dynamic performance measures. In particular:
- a) sub-sections 4.2-4.6 describe the framework for measuring performance and the key steps and challenges involved
 - b) sub-section 4.7 summarises the overall roadmap the parties are following

- c) sub-section 4.8 uses information and communications technology (ICT) as an example area for future development of performance measures.

4.2 The State sector's performance improvement framework is the basis for assessing the system operator's performance

- 4.2.1 The Authority, as part of its negotiation strategy in 2013, decided that it would adopt the New Zealand government's performance improvement framework (PIF) as an objective framework to form a basis from which it could consider development of system operator performance measures.⁴
- 4.2.2 The performance framework covers six critical areas of organisational performance that have been adapted to form a relevant starting point for strategically considering system operator performance across a broad range of functions.
- 4.2.3 The performance framework is set out in Figure 1 below and has been used by the Authority as a basis for considering performance measurement.

⁴ The PIF is administered and developed by the State Services Commission in NZ. PIF was adopted from the UK Government's capability review model which has been applied in the British public sector since 2005.

Figure 1: Key high-level improvement framework for developing performance measures



4.3 Key steps to establishing the performance roadmap for the first five years

- 4.3.1 The performance measures are set prior to and for each financial year. The system operator reports against these measures and the outcomes are then further analysed and publicly reported by the Authority. Adjustments to the measures could subsequently be agreed, as required.
- 4.3.2 The intention is to establish a set of objective and quantifiable measures for year-on-year assessment. It is recognised that performance measures need to be:
- meaningful
 - measurable
 - reflect a broad range of the system operator's functions and services.
- 4.3.3 Because the annual value of the energy and ancillary services markets are at least 100 times greater than the system operator's annual fees, the Authority places a higher priority on system

operator activities that create market value. This prioritisation will be reflected in the development, setting and incentivisation of performance measures.

- 4.3.4 The measures need to be dynamic enough to allow for adjustments to reflect changing market priorities and emerging good practice. The Authority anticipates that indicators will be adjusted, by agreement, to encourage performance improvement relative to good industry practice and comparable standards.
- 4.3.5 It is expected that the measures will be broadened, recalibrated and increasingly reflective of good practice over time.

4.4 Challenges to implementing the performance roadmap

- 4.4.1 Very few formal performance measures exist that can reasonably and objectively be immediately applied to assess system operator performance. Apart from the principal performance obligations, few Code obligations currently include performance measures.
- 4.4.2 Good international system operator practice is still formative and in all cases New Zealand circumstances will need to be considered before developing and applying comparative performance measures.
- 4.4.3 Where Code obligations are agreed to be subject to performance measures, it is likely that Code amendments will be required. Such measures may then require a reasonable development lead-time before completion.
- 4.4.4 Measures and incentives will require development, engagement and subsequent negotiation, at least annually. Agreeing to a complete suite of performance measures will take time, persistence and high-quality supporting information.
- 4.4.5 It is anticipated that the roadmap and approach adopted by the parties will allow for these issues to be taken into account, over time, whilst also ensuring that the system operator effectively performs its critical roles as required.

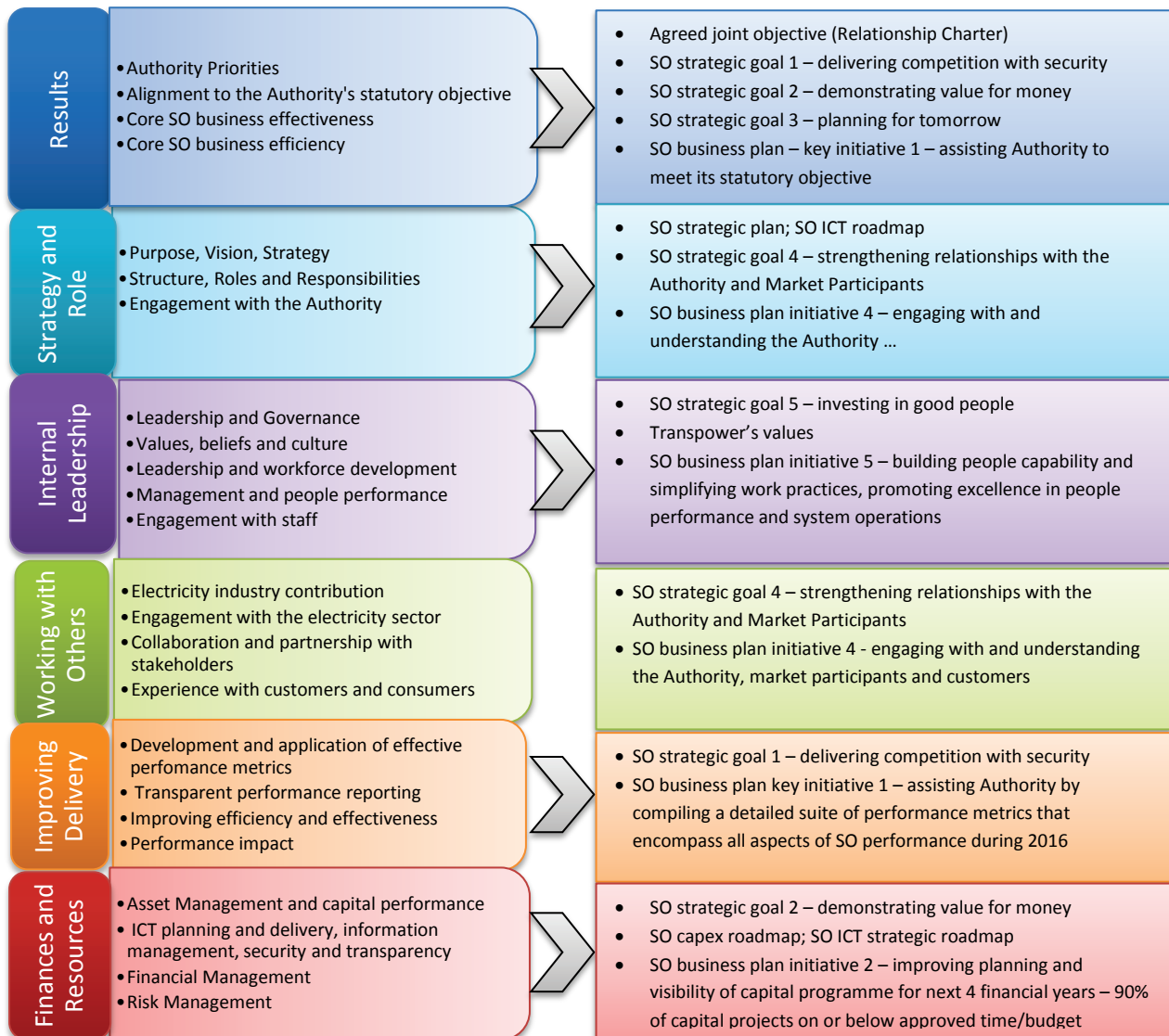
4.5 The deliverables for the first year of the performance roadmap have been agreed and system operator planning appears well-aligned to the deliverables

- 4.5.1 Engagement on performance measure development began early in 2016, as soon as the SOSPA was signed. The Authority and system operator constructively engaged on all the plans and roadmaps agreed under the SOSPA. The system operator delivered all plans and roadmaps in accordance with the SOSPA transitional arrangements so that the SOSPA could be fully effective on 1 July 2016.
- 4.5.2 Initial performance measures and incentives were discussed and two new objective market-focused measures were agreed to apply for the 2016 financial year:
 - a) measure 1: Release at least \$1 million of market benefits through the application of the the Authority's statutory objective and/or implementing new capital investments
 - b) measure 2: 77.5% of the participants responding to the annual participant survey rate the system operator's performance as good or better.
- 4.5.3 The first measure will be demonstrated through preparation of a report and an independent peer review of initiatives identified by the system operator as qualifying to support the measure.

- 4.5.4 The second measure provides a measure that, if achieved, will be an improvement on the 2014 and 2015 survey results. In order to establish an appropriate comparison, the same questions used in 2015 will also be used for the 2016 survey.
- 4.5.5 The system operator has further agreed that over the course of the first financial year (2016-17), it will compile a detailed suite of performance metrics that seeks to encompass all aspects of system operator performance.⁵
- 4.5.6 The Authority and system operator intend to engage on the suite of performance metrics once compiled and will consider the extent to which each metric can be applied as an objective measure of system operator service performance for the 2017-18 year onwards. The parties are keen to involve the SRC in this process as:
- a) industry and consumers are customers to the system operator's service
 - b) the skills and experience of the SRC should be useful to help the parties define performance in measurable and meaningful ways.
- 4.5.7 An assessment of the system operator's plans and delivery intentions indicates that the system operator is approaching the development of performance measures in a positive manner consistent with the Authority's adopted performance framework.⁶ This is demonstrated in Figure 2 below.

⁵ System operator service business plan 2016-17, Initiative 1, page four.

⁶ The system operator's planning is especially reflected in the system operator's: strategic service plan 2016-2021; the system operator ICT strategic roadmap as at June 2016, covering the ten-year period to 2026; the business plan for 2016-17; the capex plan for 2016-17 and 2017-18; and the capex roadmap for 2018-19 and 2019-20.

Figure 2: Performance framework mapped to the 2016 system operator planning

4.6 Performance measures will be subject to five-yearly reviews

4.6.1 As explained in paragraphs B.1.9-B.1.10, five-yearly reviews of the system operator performance will consider whether the measures and incentives being applied are optimal.

4.6.2 The outcome of a five-yearly review can alter the system operator's funding during the next five-year period.

4.7 The performance roadmap is dynamic even though the joint objective is unchanging

4.7.1 The performance roadmap will follow a dynamic approach with the following features:

- a) performance measures will be applied across the range of system operator services, including its Code obligations

- b) reporting, audits and other relevant external information will inform
 - i) system operator performance relevant to the measures
 - ii) good practice and applicable objective standards
 - iii) performance areas for priority focus
- c) the system operator will develop an initial suite of performance measures
- d) each year's performance against the agreed measures will be reviewed and reported against
- e) cost-of-service reporting from 1 July 2018 will likely provide further understanding of system operator performance
- f) measures will be annually reviewed, broadened and recalibrated to ensure that system operator performance is appropriately measured and assessed. When setting performance measures
 - i) the parties will likely identify performance areas for priority focus and these will change over time
 - ii) symmetrical financial incentives may be used to dynamically encourage priority performance improvement such as on-time delivery of projects with high value to the market
- g) as good industry practice for a system operator emerges and evolves, the standards expected of the system operator will change.

4.7.2 In summary, the roadmap consists of yearly and five-yearly recalibrations of performance measures against dynamic standards to achieve the joint objective. The joint objective—promoting competition, reliability and efficiency for the long-term benefit of consumers—is expected to remain unchanged. The roadmap, as the assessment of *how* the system operator pursues the objective, will change as needed.

4.8 Information and communications technology (ICT) is an example area for future development of performance measures

4.8.1 It is anticipated that a critical area for development will be establishing objective measures for assessing performance of the critical ICT tools the system operator uses to carry out its role. The ICT roadmap and performance reporting regime is intended to contribute to providing more objective information with which the Authority and system operator can understand ICT performance.

4.8.2 The system operator uses ICT extensively to deliver many of its complex functions:

- a) short- and long-term demand forecasting
- b) modelling the power system and transmission network
- c) forecasting and maintaining real-time security of supply
- d) planning, scheduling and dispatching supply, including outage planning and pricing support
- e) planning, procuring and dispatching ancillary services
- f) investigating irregular or unusual market events
- g) management of supply emergencies

- h) the provision of considerable amounts of regular information to participants, the Authority, and wider stakeholders.

4.8.3 ICT performance measures could, subject to agreement with the system operator, be focused on core outward-facing delivery of ICT services, such as:

- a) system performance
 - i) core outcomes met, such as schedules being published
 - ii) market system solve times meets required standards
- b) system availability
 - i) maximum tolerable outages
 - ii) recovery time objectives
 - iii) mean time between failures.

4.8.4 Further measures could be created to assess performance of ICT governance, such as:

- a) compliance with applicable government ICT performance standards
- b) adherence to government ICT development standards and guidelines, such as improving system flexibility, well-supported technologies and modular design
- c) that all relevant supporting documentation for priority ICT services is up to date and shared with the Authority.

5 Questions for the SRC to consider

5.1.1 The SRC is asked to consider and provide advice on the following questions:

- | | |
|------------|--|
| Q1. | Does the SRC agree that the parties have created a solid foundation from which to define and measure the performance of the system operator? |
| Q2. | Does the SRC agree that it should be involved with assisting the parties to establish an integrated and prioritised set of dynamic performance measures? |
| Q3. | What further information, if any, does the SRC wish to have provided to it by the secretariat? |
| Q4. | What advice, if any, does the SRC wish to provide to the Authority? |

Appendix A SOSPA reporting

- A.1.1 Reporting requirements in the SOSPA cover reporting of performance against each of the plans described. The system operator provides monthly, quarterly and annual reporting, as described below.

Monthly reporting

- A.1.2 The system operator will report against delivery of the capex plan every month throughout the financial year and will specifically provide a progress report for any Authority-initiated market design capex projects and any service enhancement capital projects⁷ that the Authority has approved. The monthly report must include any actual or expected variances from the capex plan and the reasons for the variances.

Quarterly reporting

- A.1.3 Each quarterly report will include:
- a) performance against the agreed performance metrics
 - b) performance against the actions in the business plan
 - c) the actions to comply with the statutory objective work plan
 - d) any actions in response to participant feedback as a result of a participant survey
 - e) a summary of the technical advisory services provided to the Authority.

Annual reporting

- A.1.4 Annual reporting from the system operator will include:
- a) a report assessing performance against agreed metrics for the past financial year
 - b) the outcomes of any business continuity testing conducted during the financial year
 - c) a copy of the verified disclosure information required for that financial year by the Commerce Commission, which covers reporting on the system operator's return on investment, regulatory profit, expenditure and fixed asset adjustments
 - d) a self-review of its performance under the Code and the SOSPA (though this is required by clause 7.11 of the Code, rather than being a SOSPA requirement).

⁷ Service enhancement capital projects are explained in detail in paragraph B.1.2a).

Appendix B Additional performance measures and reporting in the SOSPA

B.1.1 Some additional SOSPA provisions relevant to performance are set out below.

Measures to improve financial performance

B.1.2 The SOSPA includes three measures to improve the financial performance of the system operator, as set out below.

- a) The system operator must consult with participants on any capital projects it initiates that will enhance or introduce new services, tools or interfaces that directly affect participants. Following consultation, the Authority will approve a project if it is reasonably satisfied that:
 - i) there is an industry need for the service enhancement project
 - ii) the project has a positive expected net benefit
 - iii) the project is consistent with the system operator's strategic plan and ICT strategic roadmap.
- b) SOSPA fees are no longer indexed to the full consumer price index (CPI). Instead, the SOSPA fees are indexed to CPI minus X, where X is 40%.⁸ This creates an environment where the system operator knows it will need to maintain its service levels within a budget that slowly shrinks in real terms.
- c) The system operator is now fiscally neutral about whether it gets revenue from capex or opex. This ensures there is no incentive for the system operator to prioritise options according to their proportions of capex:opex.

B.1.3 Collectively, these three measures encourage the system operator to:

- a) propose projects with demonstrably good business cases
- b) improve its operational efficiency, including spending capex when it is more than offset by savings in opex.

Performance audits

B.1.4 In addition to annual business assurance audits discussed in paragraph 3.1.8, the Authority can, by exception, require an independent auditor to conduct a system operator performance audit, where the Authority is concerned that the services:

- a) have been provided in a manner that has or does breach the Code or the SOSPA
- b) are being provided in a manner that will result in Code or SOSPA breaches.

B.1.5 The outcome of a performance audit may be a report that identifies recommendations for remediation. Should the report make such recommendations, the Authority and system operator must negotiate a remediation plan. Progress against that plan will be reported on a quarterly and annual basis.

⁸ So if CPI is 1%, system operator fees will increase by 0.6%. In addition to this, there is a floor that guarantees the system operator fees will not reduce if CPI becomes negative. There is also a ceiling that limits the maximum CPI discount to 1.2 percentage points (so, if CPI is 9%, fees would be indexed by 7.8%).

Cost-of-service reporting

- B.1.6 The SOSPA provides that the system operator must commence a feasibility study and a subsequent project to implement cost-of-service reporting of the direct and indirect operational costs incurred by the system operator when providing agreed services. The SOSPA provides for up to seven service categories to be reported against.
- B.1.7 The parties agreed in the SOSPA that the study would begin during the second financial year commencing 2017/18. The cost-of-services implementation project will be completed in time for reporting to begin on 1 July 2018, unless the study demonstrates significant feasibility issues that delay or prevent the project.

High value capital projects

- B.1.8 High value capital projects are market design capex projects approved and led by the Authority or other projects that the parties agree have an anticipated highly positive net benefit identified in the final business case. For high value capital projects, benefits realisation reviews will be conducted at an agreed point following commissioning. Delivery incentives may also be agreed before the project's commencement, which are designed to incentivise early/ontime delivery and to disincentivise late delivery.

Five-year SOSPA reviews and resets

- B.1.9 At the start of every fifth year, the parties will conduct a review of the SOSPA that will assess whether, during the prior four years, anticipated system operator service performance has been achieved, including whether the performance metrics and incentives have effectively and efficiently incentivised system operator performance.
- B.1.10 The purpose of the review and resets is:
- a) to review
 - i) performance of the capital programme against the forecasts
 - ii) operational changes as a result of efficiencies or capital expenditure
 - iii) the performance management regime principles
 - iv) the overall performance of the system operator against the system operator's own strategic and business plans, the requirements of the SOSPA, the results of the business assurance audits, the relationship charter, and the Code obligations
 - b) to agree for the next five-year period
 - i) the financial settings that encourage operational efficiency, such as the CPI minus X indexing
 - ii) the capital funding part of the base fee
 - iii) any changes required to the performance management principles
 - iv) any changes that are required to achieve the overall objectives of both organisations.
- B.1.11 Any changes would then take effect on 1 July of the following year (i.e. the next financial year).