



To NGET, SPTL and SHETL

*Promoting choice and value for  
all gas and electricity customers*

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## **Decision under Electricity Transmission Standard Licence Condition B17 Network Output Measures, Part B**

This letter sets out the decision by the Authority<sup>1</sup> to approve the Network Output Measures Methodology (NOM Methodology) submitted jointly by the three electricity transmission owner (TO) licensees – National Grid Electricity Transmission plc (NGET), Scottish Power Transmission Ltd (SPTL) and Scottish Hydro Electricity Transmission Ltd (SHETL). The proposed NOM Methodology includes the joint submission made by the TOs on 19 March 2010, the appendices specific to each TO and the further clarification contained in the associated letters from SPT and SHETL. These are all published alongside this decision letter.

This letter also explains how the work on Network Output Measures is likely to be taken forward following the completion of the RPI-X@20 project, our fundamental review of the way in which we regulate the energy network companies.

### **Background**

Under Electricity Transmission Standard Licence Condition B17<sup>2</sup> (SLC B17) the three TOs are required to develop a joint methodology designed to produce measures pursuant to SLC B17 (2) that evaluate:

- network asset condition;
- network risk;
- network performance; and
- network capability and utilisation.

The output measures proposed must facilitate the objectives specified within SLC B17 (4) of the licence, namely:

- the monitoring of the licensees' performance in relation to the development, maintenance and operation of an efficient, co-ordinated and economical system of electricity transmission;
- the assessment of historical and forecast network expenditure on the licensee's transmission system;
- the comparative analysis over time between GB transmission and distribution and with international networks;

<sup>1</sup> The terms 'the Authority', 'Ofgem' and 'we' are used interchangeably in this document. Ofgem is the Office of the Gas and Electricity Markets Authority.

<sup>2</sup> [http://epr.ofgem.gov.uk/document\\_fetch.php?documentid=14331](http://epr.ofgem.gov.uk/document_fetch.php?documentid=14331)

- to provide relevant information on the transmission system to the Authority and the wider industry in a transparent manner; and
- the assessment of consumer satisfaction from the services provided by the licensee as part of its transmission business.

Meeting the requirements of SLC B17 (2), the licensees first submitted their NOM Methodology to the Authority for approval on 31 May 2008. Ofgem assessed the NOM Methodology with consultancy support from PB Power who produced their final report "Review of Electricity Transmission Output Measures" in October 2008. Ofgem published this report and an open letter on 17 October 2008<sup>3</sup> seeking views on the proposed methodologies. As a result of that assessment, including the consideration of the responses to the consultation, Ofgem published its decision on 18 December 2008<sup>4</sup> to grant a "conditional approval" of the NOM Methodology, subject to the resolution by 1 December 2009 of six amendments which are set out in our assessment section below.

On 16 November 2009, the licensees jointly submitted an amended NOM Methodology to Ofgem for approval. On 30 November 2009 Ofgem extended its conditional approval until 31 March 2010<sup>5</sup>. On 19 March 2010 the TOs submitted an updated NOM Methodology to take account of further discussions with Ofgem.

As required under SLC B17 the Authority must review the submitted network output measures methodology and either approve the methodology, approve the methodology with amendments or disapprove the methodology.

### **Ofgem's assessment**

The work of the licensees in the development of network output measures to their current state represents significant progress in the drive towards producing measures to capture the condition of, and level of risk associated with, the electricity transmission networks. This work, which was initiated at the time of the last price control review, had the aim of providing information to improve quantification of the need for key areas of network investment.

The licensees have addressed each of the specified amendments within their NOM Methodology document. The methodology document makes reference to further supporting information provided within appendices that are specific to individual TOs. Currently some of the sections in the SPTL and SHETL appendices are not complete. SPTL and SHETL have explained that further work is required to document their internal processes fully and they have provided Ofgem with written confirmation that this information will be provided. They have set out the nature of the additional information and the timeframe for its provision.

Along with this decision letter, we are publishing the TOs' NOM Methodology document including all the TO specific appendices, as well as the written commitment from SPTL and SHETL to complete the relevant appendices.

Ofgem has carried out a review of the amendments to the NOM Methodology proposed by the licensees in response to each of the six specified amendments. This review is summarised below.

#### **Specified amendment 1: consistency between remaining useful life scales**

In their original May 2008 submission, the TOs proposed to capture the health of their network assets by using a scale of remaining useful life. Remaining useful life is the number of years beyond which an asset would not be expected to perform its function adequately and would require replacement. In our December 2008 decision we noted that the TOs did

<sup>3</sup> <http://www.ofgem.gov.uk/Networks/Trans/RegReporting/Documents1/Tx%20Ntwk%20Output%20Measures.pdf>

<sup>4</sup> <http://www.ofgem.gov.uk/Networks/Trans/RegReporting/Documents1/20081218B17.pdf>

<sup>5</sup> [http://www.ofgem.gov.uk/Networks/Trans/RegReporting/Documents1/Extension%20regarding%20Electricity%20Transmission%20Standard%20Licence%20Condition%20B17\\_final\[1\].pdf](http://www.ofgem.gov.uk/Networks/Trans/RegReporting/Documents1/Extension%20regarding%20Electricity%20Transmission%20Standard%20Licence%20Condition%20B17_final[1].pdf)

not adequately set out the process for ensuring that the raw asset condition information collected by the TOs is translated to the measure of remaining useful life in a consistent manner across all TOs. Also, the TOs proposed a remaining useful life scale consisting of four categories: 0 to 2 years; 2 to 5 years; 5 to 10 years; and greater than 10 years. However, NGET proposed to combine two of these categories in their reporting. We therefore specified that the TOs should amend their NOM Methodology to ensure consistency between their remaining useful life scales.

Since the May 2008 submission the TOs have shared further information on the mechanisms by which assets deteriorate and on the assignment of asset health indices. Appendices have been added to the NOM Methodology listing agreed factors affecting asset health indices and agreed deterioration mechanisms. The TOs confirm that their overall processes for assigning assets to remaining useful life categories according to asset condition information are consistent. For example, assets of identical condition with identical asset family history will be assigned the same remaining useful life across all three TOs. Furthermore, NGET is now proposing to report remaining useful life against the four categories, consistent with SPTL and SHETL.

NGET has provided full details of their process for assigning remaining useful life including their policy statements and technical guidance notes. SPTL and SHETL have given a written commitment to provide this information within the TO-specific appendices to the methodology and have specified the timeframes for the provision of this information.

#### Specified amendment 2: detail of rate of deterioration assumptions to verify remaining useful life categorisation

In order to assess the current and forecast remaining useful life of their assets, the TOs must make assumptions about the rate at which assets deteriorate and the consequent timescales for assets to move from one remaining useful life categorisation to the next.

In their May 2008 NOM Methodology submission the TOs did not provide sufficient detail of their assumptions for asset health deterioration or the process for applying these assumptions to forecast asset health indices. Therefore we imposed the second amendment condition for the TOs to provide such information to demonstrate the validity of the remaining useful life categorisation. We required the TOs to provide worked examples that illustrate how, for a given asset group, the rate of deterioration policy for that asset group has been applied to derive the categorisation of the asset population by remaining useful life.

The TOs have addressed this by including measures of the average ages of transition between categories of remaining useful life for all asset types in all relevant categories.

NGET currently provide details of their asset health deterioration assumptions. SHETL and SPTL have provided written clarification of the additional information that they will be providing in their TO specific appendices and the timeframe for the provision of that information including asset degradation with age assumptions/information for all main asset categories.

#### Specified amendment 3: network risk and criticality grading

In their original May 2008 submission, the TOs proposed to report on network risks by using remaining useful life and asset criticality to calculate a measure of asset replacement priority. They explained that asset criticality is derived by assessing the severity of the safety, environmental and system impact of asset condition. The TOs proposed to report replacement priority, but did not propose to report the full details of the asset criticality assessment.

In our December 2008 decision, we specified that the TOs amend their proposal such that the measures of network risk are reported against their constituent criticalities: safety,

environmental and system. We also required the TOs to clarify how the criticality grading is derived and applied.

The TOs have addressed this amendment within the NOM Methodology by proposing to report a table of criticalities. They have provided further details in the joint Appendix B of the NOM Methodology. The TOs will report criticalities for each of the system, safety and environmental drivers. The assets are assigned an overall criticality equal to the highest criticality of the underlying drivers. The overall criticality is combined with the remaining useful life categorisation to give a replacement priority according to defined rules set out in the NOM Methodology.

#### Specified amendment 4: longer term network-wide risk

In the May 2008 NOM Methodology submission the TOs focused on the reporting of current risk carried by the network. Our December 2008 decision made an explicit requirement for the TOs to develop a measure for longer term network-wide risk.

The TOs now propose a measure of longer term network-wide risk based on a forecast of asset health and criticality. The companies propose that this is reported at the price control review and on an ongoing yearly basis during a price control.

At a price control review, the TOs propose to provide forecasts together with sensitivities to investment, i.e. both with and without a certain level of network investment, to facilitate the assessment of TOs' network investment and its outputs.

During a price control on an ongoing yearly basis, the TOs have agreed to report an annually updated forecast of the output of their investment programme by reporting the asset health and criticality for the final year of the current price control period against their current investment plans. This will allow comparison with outputs committed to as part of the price control package in future price control reviews.

We note that the proposed measure does give a better indication of longer term network-wide risk. The measure provides a basis for determining the relative replacement priority of different assets by combining data on asset health and criticality. Depending on the conclusions reached by the RPI-X@20 project, we may look to the TOs to further develop this measure, for example, by requiring the TOs to determine the appropriate level of overall asset replacement as well as prioritising replacement need against other areas of network costs.

#### Specified amendment 5: correlation between network reliability measures and asset condition and age

The TOs' May 2008 proposal was to report fault and failure rates in line with the data which is currently submitted in transmission yearly reporting. They also proposed to report network reliability measures including Average Circuit Unreliability (ACU) which is a measure of unavailability due to all unreliability-related outages, both planned and unplanned. However, it was not clear how the network reliability measures correlate with asset condition and age.

In our December 2008 decision we required the TOs to provide a full assessment of the correlation between network reliability measures and asset condition and age.

The TOs have examined whether fault and failure data can be correlated with asset age and condition. They conclude that it is not possible to correlate this data at this time because there have been an insufficient number of failures to allow statistically robust correlations to be derived and because asset management policies aim to replace many assets before failure.

The TOs propose to report ACU which can utilise a larger data set. The investigations carried out by each TO in order to identify correlations between ACU and asset age and condition are provided in the TO-specific appendices to the NOM Methodology. NGET have provided a high level of detail in their Technical Report, TR(E)459. SHETL and SPTL have not provided any analysis but have set out the information which will be included in their TO-specific appendices.

Within their proposed reporting tables the TOs will report ACU by main asset category. NGET will also provide ACU split by remaining useful life.

#### Specified amendment 6: capability and utilisation measures

In their original May 2008 submission, the TOs proposed to report on capability and utilisation measures in line with the data which is currently submitted in transmission yearly reporting (RRP tables 4.8 and 4.9). Noting that those measures were focusing on thermal capabilities, we stated in our December 2008 decision that the TOs should develop further measures of capability and utilisation that measure factors other than thermal capacity at boundaries, such as voltage and stability performance, which could be impacted by changes in generation connecting to the network.

In their updated proposal, the TOs propose to report boundary capabilities by the most onerous limitation, whether this is voltage, thermal or stability. They will report all boundary capabilities as limited by these factors where available.

#### **Further developments**

The TOs are required under SLC B17, Part D, to keep the NOM Methodology under review at all times to ensure that it facilitates the objectives and is modified as required to better facilitate the objectives. The proposed NOM Methodology is still work-in-progress and will require continued development to ensure that it better facilitates the relevant objectives. In particular, the proposed measures could be better calibrated as further data is collected and our understanding of the data and its responsiveness to differing levels of investment improves. Continued development is also required to improve the overall measurement of network risk, and more specifically to quantify network asset health and criticality risk. Within the NOM Methodology document the licensees have committed to a process of continued improvement.

The RPI-X@20 Emerging Thinking<sup>6</sup> consultation signalled that significant weight may be given to the development of appropriate network output measures including consideration of the high level outcomes to be delivered, the appropriate output categories, the framework for agreeing outputs linked to revenue allowances and the incentives to deliver certain outputs. The next and subsequent price controls will implement the recommendations of the RPI-X@20 review. As part of the outputs work strand of the RPI-X@20 review, we have been discussing with the TOs potential reporting requirements for setting future price controls. We expect that any reporting requirements arising out of the Authority's decision on RPI-X@20 will take into account the progress made within the NOM Methodology work.

#### **The Authority's decision**

Paragraphs 7 to 9 of SLC B17 set out the options for the Authority with regards to approval of the proposed NOM Methodology. In the open letter of 18 December 2008 the Authority granted a "conditional approval" subject to the six specified amendments. In light of the works carried out by the TOs to address the six specified amendments the Authority has decided to approve the proposed NOM Methodology.

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<sup>6</sup> Regulating energy networks for the future: RPI-X@20 Emerging Thinking  
<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=36&refer=Networks/rpix20/publications/CD>

## **Way forward**

As required under paragraph 9 of SLC B17, the TOs must implement the approved NOM Methodology by recording relevant data from 1 April 2009 and must submit relevant information by 31 July 2010. The Authority will propose the corresponding reporting arrangements which will form part of yearly reporting requirements in accordance with SLC B15.

We have already initiated discussion with the TOs on the reporting tables and rules to be included within the 2009-10 regulatory reporting arrangements. If the NOM Methodology would benefit from further clarification, the licensees will bring forward the necessary changes consistent with their obligations under SLC B17 to keep the NOM Methodology under review to ensure that it facilitates the objectives under SLC B17 (4).

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Stuart Cook', with a long horizontal line extending from the end of the signature.

**Stuart Cook**  
**Senior Partner – Transmission and Governance**

Signed on behalf of the Authority and authorised for that purpose by the Authority