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*Promoting choice and
value for all customers*

Direction issued pursuant to Schedule A, Part B, B2.(d) of Special Condition AA5A of National Grid Electricity Transmission's electricity transmission licence - Balancing Services Incentive Scheme 2011-13 Modelling Methodology Amendments

This Direction is issued to National Grid Electricity Transmission ("NGET" or "licensee") by the Gas and Electricity Markets Authority (the "Authority") pursuant to Part B, B2.(d) of Schedule A to Special Condition AA5A, of NGET's electricity transmission licence granted under section 6(1)(b) of the Electricity Act 1989 to NGET. The direction is issued in response to NGET's consultation on changes to the BSIS modelling methodology statements ('the methodologies').

Background

In 2010, we conducted a comprehensive review of the System Operation (SO) Incentive Scheme which led to the introduction of a new two year scheme from 1 April 2011 to 31 March 2013. This new scheme includes a single financial incentive scheme target (the Balancing Services Incentive Scheme - BSIS) combining costs associated with the balancing and procurement of ancillary services. The scheme covers three main areas: the services the electricity SO provides in terms of balancing the system to ensure that demand and supply match (STOR, energy imbalance, black start, transmission losses, etc); the costs the SO incurs in managing constraints on the system and transmission losses.

As part of the scheme, NGET developed a suite of models to set the cost target. Underpinning these models are detailed methodology statements setting out relevant inputs, outputs, processes and calculations. The statements also designate inputs as ex-ante and ex-post according to the level of predictability and controllability of costs for National Grid.

On 12 July 2012, NGET published a consultation document¹ proposing amendments to the Statement of the Constraint Cost Target Modelling Methodology in response to a number of failings with the current methodology. The proposed amendments are aimed at increasing the accuracy of the constraint cost target model and are intended to:

- Correct errors in modelling inputs, mis-specified boundary flows or plant characteristics, erroneous BM data submissions and changing model optimiser settings.
- Correct modelling weaknesses on how generator data are treated which has led to inaccuracies. This includes replacing ex-ante inputs with either ex-post inputs or

¹ BSIS 2011-13 Methodology Amendments Consultation: http://www.nationalgrid.com/NR/rdonlyres/37E1065A-227B-4613-B673-76ED6AF41D0F/54943/2011_13BSISmethodologyconsultation_July2012Final_Industry.pdf

closer to real time alternatives to reflect the SO's limited ability to control or predict related costs. This amendment would change the treatment of new commissioning generators and, in particular, would remove the £9.3b cost associated with one such plant reported by NGET.

- Correct unforeseen and uncontrollable events. This amendment would correct for the 8 month failure of Moyle.
- Clarify the definition of methodologies that are currently correctly specified to future proof them e.g. enabling up to date modelling of embedded wind generation.
- Develop a new set of rules to enable the model to approximate costs that are currently not captured by the model (voltage constraints).

The proposed amendments are described in detailed in NGET's consultation documents.²³

NGET in its submission proposes that these changes be applied retrospectively from scheme commencement on 1 April 2011. As a result, the constraint cost target would decline from £10,514m to an estimated £201m as of 31 July 2012 against an outturn cost of £371m for the same period. These changes would have the impact of changing the current £50m gain due to modelling errors to a reported loss to National Grid of around £34m.⁴ These proposals have no direct or immediate impact on consumers at this stage. However, the full impact will be determined at the end of the two year scheme.

Most stakeholders in their response to the consultation⁵ were sympathetic to applying these changes going forward. However, most stakeholders were generally uncomfortable with retrospective changes and have expressed concerns over the robustness of National Grid's approach and whether these changes are driven by learning and experience, or a fundamental flaw in the model or methodology.

The Authority's Decision

Following the closure of the consultation, NGET in accordance with the procedure set out in Part B, B2 of Schedule A to Special Condition AA5A, wrote to the Authority on 17 August 2012 to report the outcome of the consultation process and affirm its request for the amendments.

We have reviewed the analysis and documentation provided by the licensee in support of its proposed amendments. We have also reviewed stakeholder responses to the licensee's consultation.

Having analysed and considered the evidence, the following amendments proposed by the licensee (and detailed in Annex 1 of this letter) shall make the revisions with immediate effect from the date of this direction and the amendments shall be applied to the beginning of the scheme on 1 April 2011.

- New paragraph 2.19: Introducing new rules to enable modelling of voltage constraints;

² BSIS 2011-13 Methodology Amendments Consultation: http://www.nationalgrid.com/NR/rdonlyres/37E1065A-227B-4613-B673-76ED6AF41D0F/54943/2011_13BSISmethodologyconsultation_July2012Final_Industry.pdf

³ Statement of the Constraint Cost Target Modelling Methodology – contains proposed amendments in change marked format: http://www.nationalgrid.com/NR/rdonlyres/1AB604C9-BCDD-4C8B-81DB-354EC4BB4EC7/55708/AppendixAConstraints_Modelling_Methodology_Issue1_Revision1_July2012_ChangeMarkedFinal.pdf

⁴ The financial impact of the proposed amendments as highlighted in this letter are estimates, the materiality of each adjustment is uncertain and depends on the order in which the amendments are considered.

⁵ See responses at <http://www.nationalgrid.com/uk/Electricity/soincentives/docs/>

- New paragraph 3.14: Modelling generator availability – replacing generator OC2 data with Ex-post Maximum Export Limit (MEL) data;
- New paragraph 2.22: Correcting for a boundary flow error in the model;
- Amended paragraph 5.5: Clarifying the methodology for embedded wind generation;
- New paragraph 3.13: Generator modelling – to correct for errors;
- New paragraph 3.15: Treatment of new, commissioning generators;
- New paragraph 2.24: Proposal to allow updating of model optimiser settings;
- New paragraph 2.25: Corrections to erroneous balancing mechanism data submissions;

This direction is intended to correct for errors in modelling, to more closely reflect the efficient level of costs to the licensee of procuring and using balancing services and will enable us to limit windfall gains and losses for the remainder of the scheme.

The Authority further directs that the proposed new paragraph 3.13: Generator modelling (to correct for errors) shall be applied to correct for errors identified in two CHP generators. For the avoidance of doubt, this amendment does not apply on a retrospective or prospective basis to a large CCGT in an exporting constraint zone identified by NGET on the grounds that, in the view of the Authority, this specific application is intended to re-engineer the model to make it more consistent with the outturn costs.

We acknowledge that stakeholders have expressed reservations about retrospective application of the amendments, except to remove the £9.3b error. Ofgem shares stakeholders' concerns about accepting such material and substantive changes to the modelling retrospectively. However, given that not accepting any retrospective changes would lead to significant windfall gains for NG to the detriment of consumers (due to the £9.3b error), we consider it appropriate to accept this change and will accept changes of a similar nature, which seek to correct similar errors.

The Authority also directs that the proposed new paragraphs 3.16 and 5.17 on the modelling of interconnector availability will only be applied on a prospective basis going forward from 14 September 2012. The purpose of approving this amendment going forward is to treat interconnectors as akin to generation for the purpose of modelling constraints. However, these amendments will not be applied to the Moyle interconnector on a retrospective basis on the grounds that it would operate to compensate NGET for an unforeseen outage across 2011/12. A mechanism already exists under Special Condition AA5A to allow the licensee to provide notice to the Authority for such unforeseen circumstances to be considered under the income adjustment event arrangements.

NOW THEREFORE

The Authority hereby directs that the Statement of the Constraint Cost Target Modelling Methodology, published in accordance with Special Condition AA5A of NGET's Transmission Licence, effective from 1 April 2011 is amended as directed. The approved text is annexed to this direction letter. However, the full updated methodology statement shall be published on the licensee's website as soon as is practical.

This direction letter shall not preclude the Authority from issuing further directions under paragraph B2 of Part B of Schedule A to the Condition for the relevant year.

Please contact David Omom (david.omom@ofgem.gov.uk) if you have any further questions relating to this direction.

Dated: 14 September 2012

Pamela Taylor

Associate Partner, Europe & Wholesale Markets

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

Direction issued pursuant to Schedule A, Part B, B2.(d) of Special Condition AA5A of National Grid Electricity Transmission's electricity transmission licence - Balancing Services Incentive Scheme 2011-13 Modelling Methodology Amendments

Annex 1: Approved methodology amendments – as proposed by NGET

Introducing new rules to enable modelling of voltage constraints

New paragraph 2.19: *In addition, NGET will apply logical rules to generators to model constraints which are not able to be modelled via inter-zonal boundaries. For example, if a specific number of generators are required for voltage support, then the model will ensure that they are running. If there is an outage at a substation that is local to that substation, then this can be modelled by a logical rule which restricts the output of the generator accordingly.*

For the avoidance of doubt, the logical rules approved in this paragraph are those delivered to Ofgem as part of NGET's consultation submission dated 12 July 2012. No additional changes to these rules shall be implemented without written approval from Ofgem.

Modelling generator availability – replacing OC2 data with Ex-post MEL

New paragraph 3.14: *Generation availability is treated as an ex post input to the unconstrained run of the model where actual outturn MEL data is employed as the source data. This will be taken for each BM Unit for each settlement period and input to the model on a monthly basis in line with other ex post inputs. The source of this data will be the National Grid Economic Data warehouse (NED), a system that stores and aggregates operational and half-hourly Settlement Data. On the rare occasions that a generator does not submit a MEL but is available, one of the following alternatives will be used (in order of preference):*

- i. The last submitted MEL value by that unit; or*
- ii. An average of submitted MEL from other units at the same power station.*

Correcting for a boundary flow error in the model

To allow for retrospective application, this direction allows NGET to correct the "flow coefficient" (direction of flow for the boundary) on the line between nodes 7 and 8 from 1 to -1 in order for the model to correctly calculate flows. Going forward the following amendment shall apply:

New paragraph 2.22: *When NGET become aware of errors in the Constraint model related to calculating boundary flows, NGET will report these to Ofgem and propose amendments to the model as appropriate. No changes will be undertaken without prior written approval from Ofgem.*

Clarifying the methodology for embedded wind generation

Amended Paragraph 5.5 (new text underlined): *It is important to ensure that as new wind farms are connected to the electricity network, the model is kept up to date to ensure that the metered output of the wind farms ex post can be input and their contribution to meeting demand properly modelled. Hence, a list of all wind farms along with the nodes at which they are connected and their connection dates will be maintained and checked against any metered data available from Elexon on a monthly basis in order to ensure that the models are updated in a timely manner. Updates to new generation connections for which Elexon data is unavailable, such as for embedded wind farms, will be made using an appropriate auditable source such as (Connect and Manage) or (Grid Code data submissions).*

Generator modelling – to correct for errors

New Paragraph 3.13: *NGET will analyse the unconstrained modelling of generation. Where there is a material change between the output of the generation to what is predicted by the model, NGET will propose changes to Ofgem to improve the modelling to better reflect actual running patterns. No changes in generation parameters in the model will be implemented without written approval from Ofgem.*

The retrospective application of this methodology statement shall apply to correct for input errors affecting two identified Combined Heat and Power (CHP) generators which supply process steam to industrial plants. This amendment is limited to the specific plants identified by NGET in their consultation submission dated 12 July 2012.

The amendment shall not apply to correct for the generation running pattern inaccuracies observed at a large CCGT in an exporting constraint zone. This is on the basis that this specific application is intended to re-engineer the model to make it more consistent with the outturn costs.

No further changes under this new paragraph will be implemented without the written approval from Ofgem.

Treatment of new commissioning generators

New Paragraph 3.15: *Commissioning generation will be treated as an ex-post input to the model for the first 6 months of operation. Its output will be modelled in the same way as all other generation thereafter.*

Amendments to allow updating of model optimiser settings

New paragraph 2.24: *NGET will analyse model optimisation to ensure the unconstrained / constrained model settings are appropriate. Where NGET find settings that it believes are not appropriate and are leading to optimiser inefficiency, it will investigate and propose changes to Ofgem. No changes to optimiser settings shall be implemented without written approval from Ofgem.*

Corrections to erroneous balancing mechanism data submissions

New paragraph 2.25: *If NGET detects data that it believes is erroneous (i.e. bad data), NGET will investigate the materiality on the model output. If the materiality is greater than £2m, NGET will propose specific changes to the data and agree those changes with Ofgem. No changes to the data will be approved without written Ofgem approval.*

Modelling interconnector availability

New paragraph 3.16: *Interconnectors flows (HVDC) will be modelled at the intraday gate closure position i.e. will be input to the model on an ex-post basis. This input data will be derived using Elexon settlement Final Physical Notification (FPN) for interconnector BMUs, excluding system/error admin accounts, minus trade volumes from NGET's Energy Trade Management System (ETMS).*

New paragraph 5.17: *In order to accurately reflect interconnector flows within the model, Interconnectors flows (HVDC) will be modelled at the intraday gate closure position i.e. will be input to the model on an ex-post basis. This input data will be derived using Elexon settlement Final Physical Notifications (FPNs) for interconnector BMUs, excluding system/error admin accounts, minus trade volumes from NGET's Energy Trade Management System (ETMS).*

The above amendments replace the original methodology for modelling interconnector flows which can now be removed from the methodology statement. This includes the application of wheeling charges and modelling of interconnected (non-GB) markets.

This amendment shall only be applied prospectively from the date of this direction to ensure consistency in the way we treat interconnector availability and generator availability. However, the amendments will not be applied to the Moyle interconnector on a retrospective basis on the grounds that it would operate to compensate NGET for an unforeseen outage across 2011/12. A mechanism already exists under Special Condition AA5A to allow the licensee to provide notice to the Authority for such unforeseen circumstances to be considered under the income adjustment event arrangements.