

Change proposal:	<b>Grid Code C/11: BM Unit Data From Intermittent Generation</b>		
Decision:	The Authority <sup>1</sup> directs that the proposed change to the Grid Code <sup>2</sup> be made		
Target audience:	National Grid Electricity Transmission plc (NGET), Grid Code users and other interested parties		
Date of publication:	13 March 2013	Implementation Date:	2 April 2013

## Background to the change proposal

National Grid Electricity Transmission plc (NGET) has an obligation in the Electricity Transmission Licence, in its role as the National Electricity Transmission System Operator (NETSO), to operate and take appropriate actions to balance the national electricity transmission system (NETS) in an efficient and economic manner. In order to meet this obligation, NGET relies on data provided by Balancing Mechanism<sup>3</sup> (BM) participants, in particular, data provided by Generators and Suppliers under Operating Code 2 (OC2) and Balancing Codes 1 and 2 (BC1 and BC2). These data include:

- the expected output of the Balancing Mechanism Unit (BMU);
- the upper and lower limits of this output; and
- the parameters, including cost, which describe the ability of the BMU to move from one output level to another.

The requirements on BMUs to provide the data were established when most Generating Units were powered using controllable energy sources such as coal or gas. However, in recent years, the capacity of Generating Units powered using uncontrollable energy sources (also known as "intermittent sources"), principally wind, has increased significantly and is forecast to continue to grow. It is generally accepted that it is more difficult for Generating Units powered by uncontrollable energy sources (referred to here as "intermittent generators") to meet the existing data requirements and therefore play a full role in the BM.

Acknowledging this situation, the Grid Code Review Panel (GCRP) set up the BM Unit Data from Intermittent Generation Workgroup (the Workgroup) in November 2008. The Workgroup was asked to consider the fitness for purpose of the existing Grid Code requirements and whether these should change. In particular, the Workgroup considered:

- amending the existing data requirements in OC2 and BC1 to remove ambiguities as they apply to intermittent generators;
- defining the accuracy of the data;
- reducing the Gate Closure<sup>4</sup> period so that more accurate data can be provided; and
- how the data are used in the BM and whether additional data are needed.

This Grid Code change proposal is the result of the work undertaken by this Workgroup.<sup>5</sup>

<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> This document is notice of the reasons for this decision as required by section 49A of the Electricity Act 1989.

<sup>3</sup> NGET uses the Balancing Mechanism to balance the system for each half hour of wholesale electricity traded (the settlement period) for one hour after the point that market trading of electricity ends (Gate Closure).

<sup>4</sup> See footnote 3 above. Gate Closure occurs one hour before the start of the settlement period.

## The change proposal

The change proposal has two parts. Firstly, it aims to improve the clarity of the data provided by intermittent generators. Secondly, it proposes to allow intermittent generators to deviate from the Physical Notification<sup>6</sup> (PN) under a defined set of circumstances.

### *Clarity of data provided by intermittent generators*

The Workgroup identified that the Grid Code definition of Output Usable<sup>7</sup> (OU) could be interpreted in different ways by intermittent generators. In particular, the definition does not prevent the provider of OU data for an intermittent generator from taking account of the level of the Intermittent Power Source<sup>8</sup> in its data submission. The OU data submitted could therefore be less than the intermittent generator's Registered Capacity<sup>9</sup>. As a result, it is possible that NGET could underestimate the power flows across critical system boundaries.

It is therefore proposed to modify the definition of OU to make it clear that the forecast value of OU for a Genset<sup>10</sup> powered by an Intermittent Power Source is based on the assumption that the Intermittent Power Source is at a level that would enable the Genset to generate at its Registered Capacity.

The Workgroup also noted that although BC2.5.1 of the Grid Code states that the PN submitted by a BM participant must be its best estimate of expected output and prepared in accordance with Good Industry Practice<sup>11</sup>, there is no reference to Good Industry Practice in the Grid Code definition of PN. It is therefore proposed to modify the definition of PN to include a reference to the application of Good Industry Practice.

### *Deviation from Physical Notification*

BC2.5.1 addresses the accuracy of PNs. It is proposed to modify BC2.5.1 to allow intermittent generators to deviate from the PN under a defined set of circumstances. In summary, it is proposed that all BM Units will follow their PNs subject to variations arising from:

- BC2.5.1 (a) – the issue of Bid-Offer Acceptances which have been confirmed by the BM Participant; or
- BC2.5.1 (b) – instructions by NGET which result in a variation from the PN; or
- BC2.5.1 (c) – compliance with BC1, BC2 or BC3 which provide to the contrary.

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<sup>5</sup> The Workgroup papers are available on the NGET website:

<http://www.nationalgrid.com/uk/Electricity/Codes/gridcode/workinggroups/BMUnitDataIntermittentGeneration/>

<sup>6</sup> By 11.00 hours each day, generators are required to provide their best estimate of the output from their Gensets for each half hour of the following Operational Day. These estimates are known as Physical Notifications and can be revised up to Gate Closure when they become Final PNs (FPNs) and cannot be changed.

<sup>7</sup> Output Usable is defined in the Grid Code as the maximum level of export to the Grid Entry Point taking into account the availability of the Gensets and the source of power.

<sup>8</sup> As defined in the Grid Code.

<sup>9</sup> As defined in the Grid Code.

<sup>10</sup> As defined in the Grid Code.

<sup>11</sup> Defined in the Grid Code as; "The exercise of that degree of skill, diligence, prudence and foresight which would reasonably and ordinarily be expected from a skilled and experienced operator engaged in the same type of undertaking under the same or similar circumstances.

However, it is also proposed that BC2.5.1 should include a further exception to the above provisions so that, for BM Units or Generating Units powered by an Intermittent Power Source, if the level of the Intermittent Power Source changes from that forecast at Gate Closure, then variations in the PN prevailing at Gate Closure may occur. This is subject to the application of Good Industry Practice in the submission of PNs.

### **NGET's recommendation**

NGET submitted its final report for the change proposal to us<sup>12</sup> on 6 February 2013. NGET's report supports the implementation of the change proposal on the basis that it better facilitates objectives (i), (ii) and (iii) of the Grid Code<sup>13</sup>. NGET considers that this is achieved by enhancing the process by which Generators provide NGET with predictions of generator output whilst facilitating participation in the BM by intermittent generators.

### **Our decision**

We have considered the issues raised by the change proposal and in the final Report dated 6 February 2013. We have considered and taken into account the responses to NGET's consultation on the change proposal which are included in the final Report. We have concluded that:

1. implementation of the change proposal will better facilitate the achievement of the objectives of the Grid Code; and
2. approving the change is consistent with our principal objective and statutory duties<sup>14</sup>.

### **Reasons for our decision**

We recognise the fundamental issue that this change proposal seeks to address, namely, that the requirements for the provision of BMU data were established when most Generating Units were powered by controllable energy sources. As the number of intermittent generators increases, it is more difficult for them to meet these data requirements and therefore play a full role in the BM.

We have considered the change proposal against the Grid Code objectives together with the views of respondents to the consultation. All respondents supported the change proposal, although one respondent suggested that the proposal does not go far enough in addressing the challenges faced by intermittent generation, though it is a useful first step. None of the respondents expressed disagreement with NGET's view that the change proposal better facilitates the objectives of the Grid Code. We set out our views below against those objectives relevant to our decision. In our view, there is a neutral impact in relation to Grid Code objective (iv).

*Objective (i) 'To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity'*

We agree that the proposed changes to the Grid Code are likely to enhance the processes by which Generators provide NGET with forecasts of their expected output. We also agree that this information is essential for NGET to operate a secure, economic and

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<sup>12</sup> On NGET's website at the following link: [C/11 Report to the Authority](#).

<sup>13</sup> The objectives of the Grid Code are set out in Standard Condition C14(1)(b) of NGET's Transmission Licence.

<sup>14</sup> The Authority's statutory duties are wider than matters which NGET must take into consideration and are detailed mainly in the Electricity Act 1989 as amended.

efficient transmission system. For these reasons, we consider that the proposal better facilitates this objective.

*Objective (ii) 'To facilitate competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the national electricity transmission system being made available to persons authorised to supply or generate electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity)'*

We agree that the proposed modification could increase the participation by intermittent generators in the BM. The clarification of the data these generators are to provide should allow them to take a more active role in short term balancing with the potential to allow improved management of flows by NGET across constrained boundaries. For these reasons, we consider that the proposal better facilitates this objective.

*Objective (iii) 'Subject to the objectives above, to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole'*

We note that there is continued growth of generation powered by intermittent sources. The increased participation of intermittent generation in the electricity market poses a number of new challenges for many parties in the electricity supply chain, including the NETSO. This change proposal represents a necessary change to address, in part at least, one of these challenges, namely the ability of the NETSO to undertake efficient balancing to operate a secure transmission system. It is expected that further changes will be required to operational processes to mitigate the impact resulting from the increasing uncertainty in predicting the expected output of intermittent generators. However, this proposal addresses one aspect of this issue. For these reasons, we consider that the proposal better facilitates this objective.

## **Related issues**

We note that there is further work being undertaken by the industry to improve the understanding of the data that intermittent generators are expected to submit to the NETSO.<sup>15</sup> We support this further work and encourage the industry to improve the quality of the data reported to the BM Reporting System (BMRS) so that NGET can better manage the efficient and economic operation of the transmission system.

We recognise the importance of accurate data submissions from intermittent generators which help promote efficient and economic system operation. However, we also recognise that the proportion of intermittent generation is increasing, notably in the GB electricity market, and that this trend is expected to accelerate during this decade. We therefore consider that the NETSO and intermittent generators should have incentives on them to improve the accuracy of output forecasting which will enable efficient and economic operation of the system. We are considering how best to achieve this through the development of incentives on the NETSO which will take effect later this year. For example, we are proposing the inclusion of an output incentive on the accuracy of the forecasting of wind generation that NGET produces as System Operator.

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<sup>15</sup> The Power Available and High Wind Speed Shutdown Workgroups are already established to undertake this work. The papers from these Workgroup meetings are available on NGET's website here: <http://www.nationalgrid.com/uk/Electricity/Codes/gridcode/workinggroups/Power+Available/> and <http://www.nationalgrid.com/uk/Electricity/Codes/gridcode/workinggroups/High+Wind+Speed+Shutdown/>

## **Decision notice**

In accordance with Standard Condition C14 of the Electricity Transmission Licence, the Authority hereby directs that change proposal Grid Code C/11: "*BM Unit Data From Intermittent Generation*", be made.

**Andrew Burgess**

**Associate Partner, Transmission and Distribution Policy**

Signed on behalf of the Authority and authorised for that purpose