

Grid Code Review Panel
Consequential Changes to the Grid Code resulting from BSC Modification P276

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Summary

Ofgem has approved modification P276 'Introduce a trigger/threshold for suspending the market in the event of a Partial Shutdown'. Under this modification, the BSC will only suspend normal operations following a Partial Shutdown if one of a number of criteria are met. The intention of this threshold is to represent the point at which continuing the market may cause greater disruption to BSC parties' imbalance charges than suspending it.

As a result of P276, consequential changes will need to be made to the Grid Code definitions and OC9.

Users Impacted

High

Transmission Owners, Small Generators, Medium Generators, Large Generators, System Operator.

Medium

None identified

Low

None identified

Description & Background

The current situation is that the Balancing Mechanism is suspended when the System Operator declares a Partial or Total Shutdown. This was considered unnecessary for a small loss of demand resulting from a Partial Shutdown, where continuation of the market would be less disruptive, up to a certain level of loss, than the disruption caused by automatic market suspension. P276, which is due for implementation by 31 March 2014, has introduced a demand loss threshold down to which the market will continue to operate, as well as additional criteria to ensure that should the demand loss not breach the threshold, a Partial Shutdown without market suspension cannot continue past the point at which the System Operator runs out of defined forecast data, or the point at which 72 hours has elapsed since the Partial Shutdown commenced.

¹ The Code Administrator will provide the paper reference following submission to National Grid.

Proposed Solution

The text in OC9.4.6 will need to reflect that a Partial Shutdown will only result in Market Suspension:

- once the Market Suspension Threshold has been met; or
- there is no Baseline Forecast data available to the System Operator from which to accurately determine the loss in demand; or
- 72 hours have elapsed since the commencement of the Partial Shutdown.

Draft legal text is attached as part of this Paper.

Assessment against Grid Code Objectives

The proposed changes to the Grid Code better facilitate the Grid Code Objectives as detailed below:

(i) to permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity;

Yes - enables the System Operator to operate the Transmission System in the most efficient manner without being constrained by concerns about triggering market suspension.

Being aware of the consequences of triggering market suspension following a Partial Shutdown, the System Operator could be reluctant to issue Black Start instructions under the Grid Code following small/localised shutdowns, even if this is the quickest way of restoring supply.

(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);

Yes – by ensuring that BSC Parties not directly involved in the Partial Shutdown are not exposed to uneconomic market disruption.

(iii) subject to sub-paragraphs (i) and (ii), 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; and

Yes – by ensuring that avoiding market suspension allows those generators not directly affected by the loss of system to continue to operate and compete with each other.

(iv) to efficiently discharge the obligations imposed upon the licensee by this licence and to comply with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency.

No impact.

Impact & Assessment***Impact on the Grid Code***

The Grid Code Section OC9.

Impact on the National Electricity Transmission System (NETS)

No impact identified.

Impact on Greenhouse Gas Emissions

No impact identified.

Impact on core industry documents

No CUSC changes are required to reflect the revised BSC rules, but the P276 Workgroup recommends that separate consideration is given to extending the CUSC's compensation arrangements following approval of P276.

Impact on other industry documents

The System Management Action Flagging Methodology Statement should be reviewed to ensure that the rules for flagging system-balancing actions are clear in relation to Partial Shutdowns in which the market is not suspended.

The System Management Action Flagging Methodology Statement can be found here:

[SMAF Statement 2012](#)

Supporting Documentation

Have you attached any supporting documentation Yes

If Yes, please provide the title of the attachment: P276 Decision

P276 Draft Grid Code Text

Recommendation

The Grid Code Review Panel is invited to progress this issue to Industry Consultation.

Modification proposal:	Balancing and Settlement Code (BSC) P276: Introduce an additional trigger/threshold for suspending the market in the event of a Partial Shutdown		
Decision:	The Authority ¹ directs that this proposal be made ²		
Target audience:	National Grid Electricity Transmission Plc (NGET), Parties to the BSC and other interested parties		
Date of publication:	20 July 2012	Implementation Date:	31 March 2014

Background to the modification proposal

Under the current Balancing and Settlement Code (BSC)³ the electricity market is suspended following a Partial or Total Shutdown of the Transmission system. The Grid Code⁴ defines the circumstances under which a Partial or Total Shutdown can be declared. These are either a partial or total loss of electricity supply which requires National Grid Electricity Transmission (NGET) to use the Black Start recovery procedure (see further below). There is currently no materiality threshold within the definition of a Partial Shutdown; as such, under the current arrangements the use of Black Start will always suspend the electricity market, irrespective of its scale.

There are two main methods of recovering the system following the loss of electricity supply in a particular part of the network. The first, referred to above, is called a *Black Start*. This involves NGET issuing *Black Start Instructions*⁵ to one or more power plants that are capable of operating without an external electricity supply, requiring them to re-energise their local network and eventually power up other neighbouring plants. This process has not been required since the current BSC market arrangements were introduced in 2001. The second method, which is more common, is the use of other operational parts of the system to re-energise the affected part of the network. The electricity market is not automatically suspended if the latter mechanism is used.

The suspension of the electricity market involves the suspension of the Balancing Mechanism (BM) and all contractual and credit positions; the application of a Single Imbalance Price and NGET centrally dispatching all generators. This would represent a significant level of disruption. Previous industry discussions (Standing Modification Group Issue 32⁶ and Modification Proposals P231⁷ and P232⁸) noted that this level of disruption could be a disproportionate response if a Black Start was only required for a small, localised blackout.

The matter was re-visited during Standing Modification Group Issue 42 – which agreed that the suspension of the market in response to a Black Start Instruction is potentially disproportionate and would cause unnecessary disruption⁹. The group considered that this represented a defect in the BSC. It was also noted that the current rules, with

¹ The terms ‘the Authority’, ‘Ofgem’ and ‘we’ are used interchangeably in this document. Ofgem is the Office of the Gas and Electricity Markets Authority.

² This document is notice of the reasons for this decision as required by section 49A of the Electricity Act 1989.

³ The Balancing and Settlement Code (BSC) contains the governance arrangements for electricity balancing and settlement in Great Britain.

⁴ The Grid Code represents the technical specifications and operational procedures required to efficiently and economically develop, maintain and run the transmission system.

⁵ Issued pursuant to the Grid Code

⁶ See: www.elexon.co.uk/smg-issue/issue-32-black-start/

⁷ See: www.elexon.co.uk/mod-proposal/p231-black-start-and-fuel-security-code-procedures-under-the-balancing-and-settlement-code-bsc/

⁸ See: www.elexon.co.uk/mod-proposal/p232-black-start-and-fuel-security-compensation-and-single-imbalance-price-derivation/

⁹ See Issue 42 Panel Report: www.elexon.co.uk/smg-issue/issue-42-black-start-generator-defining-a-local-shutdown/

inherent disruptive consequences, could lead NGET to be reluctant to undertake a Black Start – even if it was the most efficient method of re-starting the system following a small shutdown. The group made a number of recommendations which are outlined below.

The modification proposal

BSC modification P276 was raised by NGET on 30 September 2011, in order to progress the recommendations proposed under Issue 42. The Issue 42 recommendations were as follows:

- An additional threshold should be introduced into the BSC which would have to be met before the market will be suspended following a partial shutdown.
- This threshold should be based on real time information available to NGET.
- The threshold should be 'hardwired' into the BSC.

Therefore, the option of issuing Black Start Instructions will be available to NGET in order to address small scale local shutdowns, without having to suspend the electricity market.

The P276 workgroup agreed that the “simplest and most appropriate way” for NGET to determine the level of disruption following an event would be to compare, over time, the Initial National Demand Out-Turn (INDO)¹⁰ with the pre-shutdown National Demand Forecast¹¹. It was felt that this would provide the strongest indicator of how much of the market remained in operation, and whether the situation was worsening. Other factors on which to base the threshold were considered and rejected by the workgroup.

Using the above metric, the workgroup have proposed the following market suspension threshold in the event of a Partial Shutdown:

- The shutdown has caused a drop in demand of more than 5% of the National Demand Forecast; or
- NGET is unable to accurately determine the decline in demand; or
- 72 hours have passed since the start of the Partial Shutdown

If any of these are met or deemed to be met during a Partial Shutdown then the market will be suspended, and the processes for managing and ending the market suspension are unchanged. It will be the responsibility of NGET to monitor (and inform Elexon) if and when the threshold is met or deemed to be met.

If the market remains open, parties in the affected area will be exposed to cash-out prices, although the cost of issuing Black Start Instructions will not be fed into the cash-out price. We note that the definition of a Black Start will be amended to ensure that parties do not receive multiple payments for services provided. We also note that there will be consequential changes to other industry documents; for instance the P276 Final Modification Report (FMR) notes that change to section OC9 of the Grid Code will be required. A Connection and Use of System Code¹² (CUSC) Modification Proposal

¹⁰ INDO is the average half-hour megawatt demand taking into account transmission losses. This doesn't include station transformer load or demand from pumped storage or interconnectors.

¹¹ The National Demand Forecast is calculated by the System Operator. The forecast is based on historical data of metered generation output. As with the INDO, this includes transmission losses, and excludes station transformer load and demand from pumped storage and interconnectors.

¹² The Connection and Use of System Code (CUSC) is the contractual framework which governs connection to and use of the transmission system.

CMP211¹³ has been raised to assess the compensation arrangements for various interruption types; if P276 is accepted we will consider whether it is appropriate to extend compensation payments to this type of interruption, as also acknowledged in the FMR.

Implementation of the modification will not take place before March 2014. This is because NGET is currently undertaking a major project to update its BM computer systems (scheduled for completion in early 2014). NGET's preference is for the introduction of an automated monitoring system and it would be more cost effective to incorporate this change as part of the larger project. The possibility of a manual monitoring system was also explored but felt to be neither a simple or low cost solution, and would in any event be redundant in a relatively short period after IT system changes introduce an enduring solution. Also, a manual monitoring regime was felt to pose an additional resource burden on control room staff whose priority would be system restoration.

BSC Panel¹⁴ recommendation

On 14 June 2012, the BSC Panel held its final discussions on the modification proposal. In these discussions one Panel member was of the opinion that the threshold could be too low. However, all parties agreed that the proposal represents an improvement on current arrangements and that there was no consensus on a better solution.

BSC Panel members agreed with the workgroup that this modification better facilitates BSC objectives b), c) and d).

As such, the BSC Panel unanimously recommended to the Authority that P276 should be approved with an implementation date of 31 March 2014¹⁵

The Authority's decision

The Authority has considered the issues raised by the modification proposal and the Final Modification Report (FMR) dated 15 June 2012. The Authority has considered and taken into account the responses to Elexon's¹⁶ consultation which are attached to the FMR¹⁷. The Authority has concluded that:

1. Implementation of the modification proposal will better facilitate the achievement of the relevant objectives of the BSC¹⁸; and
2. Directing that the modification be made is consistent with the Authority's principal objective and statutory duties¹⁹.

¹³ See: <https://www.nationalgrid.com/NR/rdonlyres/1C08E481-6A40-478E-A24B-DOF222E91B6A/54358/CMP211AlignmentofCUSCcompensationarrangementsforacrossdifferentinterruptiontypes.pdf>

¹⁴ The BSC Panel is established and constituted pursuant to and in accordance with Section B of the BSC.

¹⁵ This assumes an Authority decision to approve by 28 March 2013 - which has been met by this decision letter.

¹⁶ The role and powers, functions and responsibilities of Elexon are set out in Section C of the BSC.

¹⁷ BSC modification proposals, modification reports and representations can be viewed on the Elexon website at www.elexon.com

¹⁸ As set out in Standard Condition C3(3) of NGET's Transmission Licence, see:

<http://epr.ofgem.gov.uk/Pages/EPRInformation.aspx?doc=http://epr.ofgem.gov.uk/EPRFiles/Electricity+transmission+full+set+of+consolidated+standard+licence+conditions+-+Current+Version.pdf>

¹⁹ The Authority's Principal Objective and general duties are contained in section 3A of the Electricity Act 1989 and section 4AA of the Gas Act 1986; these are wider than the matters which the Panel must take into consideration.

Reasons for our decision

We agree with the views of the Panel and the workgroup that the modification *better facilitates* applicable BSC objectives b), c) and d). The main benefits of this modification lie primarily in better facilitation of objective b).

BSC Objective b) - the efficient, economic and co-ordinated operation of the National Electricity Transmission System

We agree that NGET may be reluctant to undertake a Black Start for small system shutdowns, even if this is the fastest and/or technically the best method of restoring the system, due to concerns over triggering market suspension. In addition, market suspension would require NGET to undertake central despatch of all generators on the system – which would be costly, time consuming and potentially delay restoration in the affected area of the system. As such, we agree with the Panel that the threshold for market suspension implemented by the proposal *better facilitates* objective b) of the BSC as it is a more efficient and economic approach compared to the status quo.

BSC Objective c) - promoting effective competition in the generation and supply of electricity

We consider that keeping the market open for longer than is currently the case is a preferable step and will be likely to promote competition in line with BSC objective c) as participants will be able to compete over the price of electricity for longer, rather than have to accept the Single Imbalance Price paid out during a shutdown.

BSC Objective d) - promoting efficiency in the implementation of the balancing and settlement arrangements

This objective is better fulfilled to the extent that the new arrangements will facilitate local system restoration without the disruption associated with suspension of the market unless certain thresholds are met.

We would note the concerns of one member of the Panel and a minority of consultation respondents over whether this threshold is high enough, and as a result, could still mean market suspension following smaller events – such as the loss of 5% of demand during a low demand period²⁰. However, we agree with the Panel that no suitable alternative has been discussed and agreed by a majority of stakeholders. We also appreciate that due to system changes (such as changes to the generation mix, demand levels and volumes of demand side response) the appropriateness of this threshold may change over time.

In light of the above, we support the modification as a positive way to address the problem identified, although we accept that modification P276 may not be the definite answer to the current flaw in the BSC. As such, it may be appropriate for the BSC Panel to consider periodic reviews of the threshold in order to judge whether it remains appropriate. It would be a matter for the BSC Panel and industry stakeholders to decide the frequency that this issue should be re-visited; this may be following a future partial shutdown (as suggested by the workgroup²¹), which we appreciate does not occur frequently.

²⁰ See page 47, P276 Final Modification Report: “One Panel Member comments that they agree with the minority view of some Workgroup members and consultation respondents that the proposed 5% Market Suspension Threshold could be too low. This Member suggests that the proposed threshold could be met by the loss of a single generator, although they note that P276 only applies in situations where there is a Partial Shutdown as defined in the Grid Code.”

²¹ See page 41, P276 Final Modification Report: “The threshold can be reviewed again in light of experience if a Partial Shutdown ever occurs”.

We note that although the approval of this modification provides NGET with greater freedom when seeking to re-energise following small shutdowns, a Black Start may not always be the quickest or most cost effective way of re-energising the system. We would expect NGET, as System Operator, to continue to use its discretion on the most efficient and economic method of restoring the system.

Although we don't believe that this amendment would act to disproportionately incentivise the use of Black Start over other methods of system restoration, we would expect the BSC Panel to re-visit this modification if stakeholders feel that Black Start instructions are being issued either inappropriately or excessively.

Decision notice

In accordance with Standard Condition C3 of NGET's Transmission Licence, the Authority, hereby directs that the Balancing and Settlement Code modification proposal P276 '*Introduce an additional trigger/threshold for suspending the market in the event of a Partial Shutdown*' be made.

Rachel Fletcher
Partner, GB Markets

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

GRID CODE AMENDMENT – LEGAL TEXT

Pursuant to Grid Code Amendment **, the following amendments shall be made to Grid Code Sections GD and OC.

The following definitions shall be added GD.1 in alphabetic order:

“ Baseline Forecast ”	Has the meaning given to that term in Section OC9.4.6
“ Market Suspension Threshold ”	Has the meaning given to that term in Section OC9.4.6

Section OC shall be amended as follows. The changes are shown in red and strike-out to reflect the changes to Section OC.

OC9.4.6 Black Start Situation

In the event of a **Total Shutdown** or **Partial Shutdown**, NGET will, as soon as reasonably practical, inform **Users** (or, in the case of a **Partial Shutdown**, **Users** which in NGET's opinion need to be informed) and the **BSCCo** that a **Total Shutdown**, or, as the case may be, a **Partial Shutdown**, exists and that NGET intends to implement a **Black Start**. NGET shall (as soon as is practicable) determine, in its reasonable opinion, the time and date with effect from which the **Total Shutdown** or **Partial Shutdown** commenced and inform **BSCCo** of that time and date.

In the event of a **Total Shutdown** and ~~Following~~ following such notification, in accordance with the provisions of the **BSC**, the **BSCCo** will determine the **Settlement Period** with effect from which the **Balancing Mechanism** is suspended.

In the event of a **Partial Shutdown** and following such notification, NGET shall, at least once every 15 minutes from the time that the **Partial Shutdown** commenced, monitor the spot time Initial National Demand Out-Turn against its spot time National Demand forecast made day ahead and prior to the commencement of the **Partial Shutdown** (the “**Baseline Forecast**”) until such time as which either:

- NGET determines, in its reasonable opinion, that the spot time Initial National Demand Out-Turn is equal to or lower than 95% of the **Baseline Forecast** (the **Market Suspension Threshold**); or
- NGET determines that the Total System has returned to normal operation

Where at any time during the **Partial Shutdown**:

- NGET determines, in its reasonable opinion, that the **Market Suspension Threshold** has been met;
- No more **Baseline Forecast** data is available to NGET; or
- 72 hours have elapsed since the time and date that the **Partial Shutdown** commenced (as determined by NGET in paragraph xxx above).

Then the **Market Suspension Threshold** shall be met, or deemed to have been met, with effect from that time and date.

In respect of **Scottish Transmission Systems**, in exceptional circumstances, as specified in the **Local Joint Restoration Plan**, **SPT** or **SHETL**, may invoke such **Local Joint Restoration Plan** for its own **Transmission System** and **Scottish Offshore Transmission Systems** connected to it and operate within its provisions.

GRID CODE AMENDMENT – ALTERNATE LEGAL TEXT

Pursuant to Grid Code Amendment **, the following amendments shall be made to Grid Code Sections GD and OC.

The following definitions shall be added GD.1 in alphabetic order:

“ Baseline Forecast ”	The spot time National Demand forecast made day ahead and prior to the commencement of the Partial Shutdown
“ Market Suspension Threshold ”	95% of the Baseline Forecast

Section OC shall be amended as follows. The changes are shown in red and strike-out to reflect the changes to Section OC.

OC9.4.6 Black Start Situation

In the event of a **Total Shutdown** or **Partial Shutdown**, NGET will, as soon as reasonably practical, inform **Users** (or, in the case of a **Partial Shutdown**, **Users** which in **NGET's** opinion need to be informed) and the **BSCCo** that a **Total Shutdown**, or, as the case may be, a **Partial Shutdown**, exists and that **NGET** intends to implement a **Black Start**. **NGET** shall (as soon as is practicable) determine, in its reasonable opinion, the time and date with effect from which the **Total Shutdown** or **Partial Shutdown** commenced and inform **BSCCo** of that time and date.

In the event of a **Total Shutdown** and ~~Following~~ following such notification, in accordance with the provisions of the **BSC**, the **BSCCo** will determine the **Settlement Period** with effect from which the **Balancing Mechanism** is suspended.

In the event of a **Partial Shutdown** and following such notification, **NGET** shall, at least once every 15 minutes from the time that the **Partial Shutdown** commenced, monitor the spot time Initial National Demand Out-Turn against its corresponding **Baseline Forecast** until such time as which either:

- **NGET** determines, in its reasonable opinion, that the spot time Initial National Demand Out-Turn is equal to or lower than the **Market Suspension Threshold**; or
- **NGET** determines that the Total System has returned to normal operation

Where at any time during the **Partial Shutdown**:

- **NGET** determines, in its reasonable opinion, that the **Market Suspension Threshold** has been met;
- No more **Baseline Forecast** data is available to **NGET**; or
- 72 hours have elapsed since the time and date that the **Partial Shutdown** commenced (as determined by **NGET** in paragraph xxx above).

Then the **Market Suspension Threshold** shall be met, or deemed to have been met, with effect from that time and date.

In respect of **Scottish Transmission Systems**, in exceptional circumstances, as specified in the **Local Joint Restoration Plan**, **SPT** or **SHETL**, may invoke such **Local Joint Restoration Plan** for its own **Transmission System** and **Scottish Offshore Transmission Systems** connected to it and operate within its provisions.