



Stage 04: Final Modification Report for Authority Decision

P276 'Introduce an additional trigger/threshold for suspending the market in the event of a Partial Shutdown'

The BSC currently suspends normal market operations following any Partial Shutdown of the Transmission System under the Grid Code. The Proposer believes that this is disproportionate for small, localised shutdowns.

Under P276, the BSC will only suspend normal operations following a Partial Shutdown if a specified Market Suspension Threshold is 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.



The BSC Panel unanimously recommends **approval** of P276.
All consultation respondents support this recommendation.

High Impact:



- BSC Trading Parties
- National Grid and ELEXON
- BSC Section G and BSC Procedure 201
- Grid Code



Medium Impact:

- Connection and Use of System Code



Low Impact:

- BSC Panel
- BSC Agent working practices and ECVA Service Description
- Notification Agents (ECVNAs and MVRNAs)

What stage is this document in the process?

01**Initial Written Assessment****02****Definition Procedure****03****Assessment Procedure****04****Report Phase**

Contents

1	Summary	3
2	Why Change?	6
3	Solution – Market Suspension Threshold	10
4	Solution – Compensation Arrangements	28
5	Impacts & Costs	33
6	Implementation	37
7	The Case for Change	39
8	Panel’s Initial Discussions	43
9	Report Phase Consultation Responses	44
10	Panel’s Final Discussions	47
11	Recommendations	48
12	Further Information	48



Any questions?

Contact:
Kathryn Coffin



kathryn.coffin@elexon.co.uk



020 7380 4030

About This Document:

This is the P276 Final Modification Report, which ELEXON has submitted to Ofgem for decision on the BSC Panel’s behalf. Ofgem will consider this report before making the final decision on whether P276 should be approved.

There are six parts to this document as follows:

- This is the main report, which explains the solution, impacts, costs, benefits, and implementation approach. It also contains the views of the Workgroup, Assessment Consultation respondents, Report Phase Consultation respondents and the Panel;
- Attachment A contains further details of the Workgroup’s assessment, including its analysis of the appropriate P276 Market Suspension Threshold, its worked examples of the P276 solution, its membership and its full Terms of Reference;
- Attachment B contains the Panel’s approved redlined changes to the BSC for P276;
- Attachment C contains the full responses which the Workgroup received to its Assessment Consultation;
- Attachment D contains National Grid’s Transmission Company impact assessment; and
- Attachment E contains the full responses which the Panel received to its Report Phase Consultation.

P276 Final Modification
Report

15 June 2012

Version 1.0

Page 2 of 49

© ELEXON Limited 2012



Why Change?

The BSC currently suspends normal market operations following any Partial Shutdown of the Transmission System (a type of Black Start) under the Grid Code. This involves the suspension of the Balancing Mechanism (BM) and contract/credit positions, central dispatch of all generators by National Grid, and the application of a single imbalance price to all Parties' Metered Volumes.

The Proposer believes that this is disproportionate for small/localised Partial Shutdowns, during which most Parties should be able to continue trading. You can find further details of the issue and background in Section 2.

Solution

Under P276, the BSC will only suspend normal operations following a Partial Shutdown if a Market Suspension Threshold is met. This threshold will be met (or deemed to be met) if, at any point during the Partial Shutdown:

- National Grid determines that the cumulative impact of the Partial Shutdown is equal to or greater than a set amount stated in the BSC;
- National Grid becomes unable to determine accurately the cumulative impact of the Partial Shutdown; or
- 72 hours have elapsed since the beginning of the Partial Shutdown,

whichever occurs first.

If the Market Suspension Threshold is met and the market is suspended, the processes for handling and ending this suspension will be the same as currently. If the threshold is not met, then the market (including normal dual imbalance pricing) will continue and the BSC's contingency provisions will end when National Grid determines that the Total System has returned to normal.

P276 does not change the existing rules for Total Shutdowns of the Transmission System, during which the BSC will still suspend the market automatically.

P276 threshold level and monitoring process

The Market Suspension Threshold will be met if, at any time during the Partial Shutdown, National Grid determines that the cumulative amount of National Demand lost from the Transmission System is 5% or more. The Workgroup's analysis suggests that continuing the market beyond this point could cause greater disruption to BSC Parties' imbalance charges than suspending it.

The Market Suspension Threshold will also be deemed to be met at the point where National Grid no longer has pre-shutdown forecast data to determine accurately what cumulative percentage of demand has been lost. This will occur 1-2 days into the Partial Shutdown (depending on exactly when the shutdown begins).

Following the Assessment Consultation, the Workgroup has additionally agreed that the BSC should give Parties absolute certainty of the maximum period in which the market can continue during a Partial Shutdown. The Group agrees that this should be 72 hours because:

Recommendation

Both the BSC Panel and the Workgroup unanimously recommend that P276 is approved.

All Assessment Consultation respondents and Report Phase Consultation respondents support P276.

The Workgroup has not identified any potential Alternative which it believes by majority would be better than the proposed solution.

- This is the point from which the central BSC Systems may no longer be available if they are in the shutdown area; and
- The majority of Workgroup members and Assessment Consultation respondents have concerns over Parties' ability to keep trading indefinitely during a prolonged Partial Shutdown.

The Market Suspension Threshold will therefore be deemed to be met after 72 hours, even if National Grid has accurate forecast data remaining (for example, due to any future improvements in the forecasting process) and determines that less than 5% of National Demand has been lost.

You can find more information in Section 3.

P276 compensation arrangements

Any BM Unit which is given a specific black start instruction by National Grid during a Partial Shutdown will (as now) be eligible to submit a BSC claim for black start compensation. The intention of the compensation remains unchanged by P276; however, the exact definition of a black start instruction and the detail of the compensation calculation will be different where the market is not suspended.

The Workgroup recommends that separate consideration is given to extending the CUSC's compensation provisions for loss of transmission access, to cover other Suppliers and/or generators who lose access to the Transmission System during a Partial Shutdown in which the market is not suspended.

See Section 4 for further details.

Impacts & Costs

The main impacts of P276 are on:

- BSC Trading Parties;
- National Grid and ELEXON; and
- BSC Section G 'Contingencies' and BSC Procedure (BSCP) 201 'Black Start and Fuel Security Contingency Provisions and Claims Processes'.

The only impacts on BSC Agents are updates to local working instructions and a minor change to the Energy Contract Volume Aggregation Agent (ECVAA) Service Description. Notification agents and the BSC Panel may need to update any local working instructions relating to contingency provisions.

Consequential changes will be needed to the Grid Code. No CUSC changes are required to reflect the revised BSC rules, but the Group recommends that separate consideration is given to extending the CUSC's compensation arrangements if P276 is approved.

The implementation costs of P276 are approximately £300k in National Grid costs to develop the threshold-monitoring solution within its Control Room systems, and £7k in ELEXON costs to make the necessary BSC documentation changes. No other Parties have indicated that they will incur any costs, and there is no cost to BSC Agents.

Section 5 contains the full impacts and costs. Attachment B contains the BSC legal text.

Implementation

Both the Workgroup and the Panel recommend an Implementation Date of 31 March 2014 with a 12-month implementation lead time.

This lead time allows National Grid to develop a robust threshold-monitoring solution and to progress the required changes to the Grid Code such that these can be implemented in parallel with P276. It also allows time for Parties to consider any potential changes to the CUSC's compensation arrangements, although the P276 solution is not contingent on these changes being made.

The main implementation activity for P276 is the required changes to National Grid's Control Room systems. As the BSC impacts are document-only, there is no material saving in ELEXON costs from including P276 in a standard BSC Release. The proposed Implementation Date therefore aligns with National Grid's own IT systems release date.

Section 6 explains further.

The Case for Change

All Workgroup members, Assessment Consultation respondents, Report Phase Consultation respondents and Panel Members agree with the Proposer that P276 will better facilitate the achievement of the Applicable BSC Objectives by allowing Parties to keep trading during Partial Shutdowns where they are able to do so.

All Panel Members and Report Phase Consultation Respondents, and the majority of Workgroup members and Assessment Consultation respondents, identify benefits under Objectives (b), (c) and (d). You can find:

- The Workgroup's full views, and a summary of Assessment Consultation respondents' views, on the Applicable BSC Objectives in Section 7;
- The full Assessment Consultation responses in Attachment C;
- The Panel's initial views in Section 8;
- A summary of the Report Phase Consultation responses in Section 9;
- The full Report Phase Consultation responses in Attachment E; and
- The Panel's final views in Section 10.

As noted above, the benefit of P276 is limited to Partial Shutdowns of short duration in which less than 5% of National Demand is lost. The Workgroup has considered a variety of other possible approaches. However, it has not identified any that either a majority of members or a majority of Assessment Consultation respondents believe are better than the proposed solution. Sections 3 and 4 provide a detailed explanation of the solution and the other approaches considered but not progressed by the Group.



What is a Black Start?

A **Black Start**, as defined in the Grid Code, is a recovery process for restoring electricity on the Transmission System and thereby on Distribution Systems.

The majority of Power Stations need electricity to start up and operate their generators. If the Transmission System shuts down, these Power Stations will be unable to keep their generators running and will stop producing electricity – resulting in blackouts as Distribution Systems lose power and Suppliers become unable to supply their customers. Certain Power Stations (defined in the Grid Code as 'Black Start Stations') are registered under their bilateral agreement with National Grid as having a **Black Start Capability**, meaning that they do not require an external source of electricity in order to generate. National Grid can therefore call on these Black Start Stations to initiate or assist a Black Start restoration if the Transmission System collapses. It can do this by invoking the Black Start Station's 'Local Joint Restoration Plan' to energise part of the Total System, meet complementary local Demand and thereby form a 'Power Island'. Each of the separate ('De-synchronised') Power Islands are gradually expanded and connected to each other ('Re-synchronised') until the Total System is fully energised and operating normally. As well as instructing Black Start Stations, National Grid may also issue Emergency Instructions to other generators and participants. Operating Code (OC) 9 of the Grid Code sets out this process, and explains each of the different terms, in more detail.

What is a Partial Shutdown?

Grid Code OC9 defines two types of Black Start situation:

- A **Total Shutdown** (where all generation has ceased across the **Total System**); or
- A **Partial Shutdown** (where generation has ceased in part of the Total System, and this shutdown part is islanded from the rest of the energised or 'healthy' system).

Not all shutdowns or 'islanding' of part of the Transmission System necessarily meet the definition of a Partial Shutdown and thereby of a Black Start. This is because the Grid Code's definition of a Partial Shutdown contains the additional criterion that it is not possible for the affected part of the system to be re-energised without National Grid issuing Black Start directions under the Grid Code.² The London blackout in 2003 represents one example of a shutdown where the affected part of the system was re-energised without National Grid issuing Black Start directions (there were no Black Start Stations in the shutdown area), and which therefore did not constitute a Partial Shutdown/Black Start under the Grid Code.

Since the BSC arrangements were introduced in 2001, there has never been a Partial Shutdown or Total Shutdown under the Grid Code. The Black Start provisions in the BSC, including those relating to market suspension, have therefore never been used in practice.

What is...?

A Black Start?

'The procedure necessary for a recovery from a Total Shutdown or Partial Shutdown.' (Grid Code Glossary & Definitions).

A Total Shutdown?

'The situation existing when all generation has ceased and there is no electricity supply from External Interconnections. Therefore, the Total System has shutdown with the result that it is not possible for the Total System to being to function again without NGET's¹ directions relating to a Black Start.' (Grid Code OC9.4.1).

A Partial Shutdown?

'The same as a Total Shutdown except that all generation has ceased in a separate part of the Total System and there is no electricity supply from External Interconnections or other parts of the Total System to that part of the Total System. Therefore, that part of the Total System is shutdown with the result that it is not possible for that part of the Total System to begin to function again without NGET's directions relating to a Black Start.' (Grid Code OC9.4.2).

A Black Start Capability?

'An ability in respect of a Black Start Station, for at least one of its Gensets to Start-Up from Shutdown and to energise a part of the System and be Synchronised to the System upon instruction from NGET, within two hours, without an external electrical power supply.' (Grid Code Glossary & Definitions).

¹ National Grid Electricity Transmission plc., who is the Transmission Company under the BSC and is referred to in this report as 'National Grid'.

² The BSC's Issue 42 Group discussed how to interpret this criterion. It noted National Grid's view that, where part of the system is shut down, it is always possible to re-energise it using the remaining 'healthy' system – it is just that this might take a long time. National Grid therefore interprets this criterion as meaning not possible *within a reasonable time*, noting that one of the overall objectives of OC9 is "To achieve, as far as possible, restoration of the Total System and associated Demand in the shortest possible time" (OC9.2.1). You can find further information about Issue 42 in the rest of this Section 2.

What happens under the BSC if there is a Black Start?

The BSC's Black Start provisions in Section G3 suspend normal BSC market operations automatically in the event of a Black Start situation. This includes:

- Suspending the operation of the Balancing Mechanism (including the submission and acceptance of Bids and Offers);
- Suspending the notification of contract volumes (Energy Contract Volume Notifications and Metered Volume Reallocation Notifications);
- Suspending the calculation of energy indebtedness, and thereby Parties' credit positions; and
- Applying a single imbalance cash-out price (i.e. a System Buy Price and System Sell Price which have identical values), calculated in accordance with a methodology determined by the BSC Panel under BSC Section T1.7. This is normally the average of SBP and SSP over the 30 days prior to the shutdown.

The BSC's current trigger for suspending the market is the notification by National Grid to Grid Code Users and ELEXON under OC9 that either a Total Shutdown or a Partial Shutdown, as defined in the Grid Code, exists. National Grid determines the time and date from which the Total Shutdown or Partial Shutdown began, and informs ELEXON. ELEXON then determines the corresponding Settlement Period and informs BSC Parties. This Settlement Period represents the beginning of the BSC's Black Start Period and market suspension. Once National Grid has informed Grid Code Users and ELEXON of the time that the Total System could return to normal operation, the BSC Panel determines the Settlement Period from which normal market operations shall resume (which is likely to be some time after the re-energisation of the Total System). ELEXON then informs BSC Parties, and National Grid informs Grid Code Users under OC9, of this Settlement Period. The Settlement Period immediately before that determined by the Panel marks the end of the BSC's Black Start Period and the Grid Code's Black Start provisions.

The Lead Parties of any BM Units, whether or not relating to Black Start Stations, to which National Grid has given '**black start instructions**' (as defined in BSC G3.3) during the Black Start Period are entitled to claim a '**black start compensation amount**' under the BSC. Note that the BSC's definition of 'black start instruction' is different from the Grid Code's concept of a 'Black Start direction'. Parties submit these claims to ELEXON for determination by the BSC Panel, who in practice delegates this responsibility to a Claims Committee under BSCP201.

Attachment A provides more information about the BSCP201 processes and the working practices which support the BSC's Black Start provisions.



What is...?

The Total System?

The Grid Code and BSC Black Start provisions use the Grid Code's definition, which is '*The National Electricity Transmission System and all User Systems in the National Electricity Transmission System Operator Area*'.

A black start instruction?

Any instruction given by the Transmission Company under OC9.4.7.4, BC2.7 or BC2.9 of the Grid Code. (BSC G3.3.1).

The black start compensation amount?

For each eligible BM Unit/Settlement Period, this is determined as **A-B**, where:

A is the Lead Party's Avoidable Costs; and

B is the imbalance charges received (or reduction in imbalance charges paid) by the Lead Party for its 'black start compensation volume'.

(BSC G3.3.2).

The black start compensation volume?

The net change in the BM Unit's Exports or Imports which the BSC Panel determines resulted from the Lead Party's compliance with the black start instruction.

(BSC G3.3.2).

Avoidable Costs?

The amount of net costs of operating the BM Unit which the Panel determines would not have been incurred but for the black start instruction.

(BSC G3.2.2).

BSC G2.1.4 sets out what is included in, and excluded from, Avoidable Costs.

What is the issue?



Background – P231 discussions

In 2008, the BSC's Black Start provisions were reviewed under Modification Proposals [P231](#)³ and [P232](#)⁴ in order to improve their clarity and transparency. The P231 and P232 revisions were subsequently implemented in 2009.

The P231 Workgroup noted that the Grid Code's definition of a Partial Shutdown could include small/localised shutdowns for which suspending the market could be a disproportionate response. This issue fell outside the scope of P231, but was noted by the BSC Panel and Grid Code Review Panel. The Workgroup and Panels agreed that it should be considered separately at an opportune time.

Background – Issue 42 discussions

In 2011, National Grid raised BSC [Standing Issue 42](#)⁵ to enable further industry discussion of this issue. The Issue 42 Group agreed that there is a defect in the BSC's Black Start provisions, in that they suspend the market automatically following a Partial Shutdown regardless of the shutdown's size/impact.

The Issue 42 Group believed that this is an issue for two reasons:

- It could lead to the market being suspended for small/localised Partial Shutdowns, even if the disruption of this to Parties is greater than that of allowing the market to continue; and
- It could lead to National Grid being reluctant to issue Black Start directions under the Grid Code following small/localised shutdowns, even if this is the quickest way of restoring supply, because National Grid would know that by doing so it would trigger suspension of the market.

The Issue 42 Group concluded that an additional threshold should be introduced to the BSC, so that the market will only be suspended following a Partial Shutdown where this threshold is also met. It discussed various potential thresholds, but did not have a strong preference between them and recommended raising a BSC Modification Proposal to consider these further.

The Issue 42 Group also agreed that:

- The appropriate threshold should be determined under BSC governance, as it is BSC Parties who will be directly affected by any decision whether or not to suspend the market;
- Any threshold must be based on information which is available to National Grid's Control Room in real time (as only National Grid is guaranteed to be operational during a Partial Shutdown⁶);
- The threshold should be 'hard-wired' in the BSC so that Parties have certainty of the rules in advance (noting that ELEXON's ability to communicate may be limited if it is in the shutdown area);⁷

Further background

You can find the P231 Workgroup's Assessment Report [here](#), the P232 Workgroup's Assessment Report [here](#) and the Issue 42 Group's report [here](#).

The P231 Group's discussion of the P276 issue is on pages 33 and 36 of its report.

³ 'Black Start and Fuel Security Code Procedures under the Balancing and Settlement Code'.

⁴ 'Black Start and Fuel Security Compensation and Single Imbalance Price Derivation'.

⁵ 'Black Start Generator – Defining a "Local Shutdown"'.

⁶ ELEXON's office does not have back-up generation, and so its operations will be restricted if a Partial Shutdown affects London. BSC Agents do have back-up generation for a limited time (see Section 3 for more details).

⁷ The Group agreed that a solution whereby the BSC Panel meets immediately following a Partial Shutdown to decide whether to suspend the market would not give certainty (and may not be practical if Panel Members are in an area of the country without power).



Modification Proposal

You can find a copy of the P276 Modification Proposal, as submitted by the Proposer, on ELEXON's [website](#).

- Once the threshold has been met, and market suspension triggered, the market should (as now) remain suspended until the BSC Panel decides to resume it using the existing BSC/BSCP201 process;
- Any decision to suspend or continue the market must apply to the whole of GB (i.e. it is not possible practically to suspend the market in the shutdown area but continue it outside that area);
- The key area for further assessment is deciding how to determine the point at which a Partial Shutdown is significant enough to require market suspension (the Group suggested that this could include analysing the cash-flow disruption of suspending, versus continuing, the market);
- Parties given black start instructions during a Partial Shutdown should (as now) be able to claim black start compensation under the BSC, regardless of whether the market is suspended; and
- Consideration should be given to what, if any, compensation arrangements should apply to Suppliers and/or generators who lose access to the Transmission System during a Partial Shutdown in which the market is not suspended.

Modification Proposal P276

National Grid has raised P276 to progress the Issue 42 Group's recommendations.

P276 only applies where National Grid notifies Grid Code Users/ELEXON that a Partial Shutdown, as defined in the Grid Code, exists. The BSC does not currently contain provisions for any shutdowns of part of the Transmission System which do not meet the Grid Code's definition of a Partial Shutdown. It is outside the scope of P276 to consider whether the market should be suspended in such situations.



Why base the threshold on the % of National Demand lost?

The Workgroup notes that the aim of the P276 Market Suspension Threshold is to suspend the market at the point at which continuing it could cause greater disruption to Parties' imbalance charges.

The majority of Group members agree that the most relevant basis for the Market Suspension Threshold is therefore how much of the market has been lost (i.e. the extent to which Parties are able to keep trading under dual imbalance prices during the Partial Shutdown) and not the exact physical events occurring on the Transmission System.

These members agree that the simplest and most appropriate way for National Grid to establish this in real time is to compare the Initial National Demand Out-Turn (INDO) during the Partial Shutdown with its original pre-shutdown National Demand forecast, in order to establish how much National Demand has been lost.⁸ For the reasons explained below, this will also represent how much national BM generation has been lost.

The initial cause of the Partial Shutdown may be asymmetrical, depending on its geographic location. For example, the shutdown area may primarily contain demand (e.g. London) or generation (e.g. North Scotland). However, the overall near-instantaneous effect on the total level of national generation and demand will be symmetrical. This is because it is not physically possible for demand to draw more energy from the Transmission System than is delivered onto it by generation, i.e. the system must balance. A sudden generation loss due to a system fault that cannot be balanced immediately will therefore lead to a loss of demand. Similarly, if a geographic area of demand is suddenly lost and cannot be restored immediately, an equivalent amount of generation will need to be constrained off to balance the Transmission System and ensure its stability. Some of the mechanisms for handling such situations under the Grid Code may be automatic, such as the activation of circuit breakers. Others may require National Grid to issue Emergency Instructions to participants. Use of these mechanisms may also result in the loss of additional energy from the system (for example, automatic tripping of some generators could mean that extra demand is lost). However, the level of total national demand will match the level of total national BM generation, such that the forecasted and out-turn National Demand can be used as a proxy for the forecasted and out-turn national BM generation.

The majority of Group members agree that, when establishing how much of the market remains functional, the important measure is the proportion (percentage) of national demand/generation which has been lost from the pre-shutdown 'business as usual' forecast across the entire Transmission System for the relevant time and date. These members agree that suspending or continuing normal BSC operations following a Partial Shutdown is a market decision which will not affect what physical actions are taken separately by the Transmission Company under the Grid Code to restore the system. The geographic location of the loss, its absolute MW level and what element relates to the initial event/shutdown area (rather than consequential losses) are relevant considerations

Purpose of this section

This section explains the Proposer's solution for the P276 Market Suspension Threshold.

Under this solution, the Market Suspension Threshold will be met (or deemed to be met) if, at any point during a Partial Shutdown:

- National Grid determines that 5% or more of National Demand has been lost (i.e. the Initial National Demand Out-Turn has become equal to or lower than 95% of National Grid's original pre-shutdown National Demand forecast);
- National Grid no longer has sufficient pre-shutdown forecast data to accurately determine what cumulative percentage of National Demand has been lost; or
- 72 hours have elapsed since the beginning of the Partial Shutdown, whichever occurs first.

The Workgroup has considered a variety of other possible approaches. However, it has not identified any that either a majority of members or a majority of Assessment Consultation respondents believe are better than the Proposer's solution. This section therefore also explains the other approaches which the Group has considered and discounted.

⁸ National Demand and INDO are already defined in BSC Annex X-2 (in the case of National Demand, by reference to the relevant Grid Code definition). The existing National Demand forecast and INDO data which National Grid provides under BSC Q6, and which is published on the Balancing Mechanism Reporting Service (BMRS) under BSC Section V-1 Table 1, are average Settlement Period values. The National Demand forecast and INDO data which National Grid will use in the P276 threshold monitoring will be more frequent spot values. The BSC legal text in Attachment B therefore refers to 'spot time National Demand forecast' and 'spot time Initial National Demand Out-Turn', and amends the existing definition of INDO, to reflect this.

for the Transmission Company in applying the Grid Code's OC9 provisions, but not in considering the disruption to Parties' BSC imbalance charges.

By majority, the Workgroup has therefore considered and ruled out basing the Market Suspension Threshold on the other factors shown in the following table.

Suggested basis for threshold	Majority reasons for not progressing further
Loss of a defined MW amount of generation and/or demand	Requires a baseline 'business as usual' level of generation and demand in order to determine what has been lost – this baseline may vary from day to day. Potentially requires a dual threshold with different demand and generation figures, as impact of losing 400MW of generation may be different to losing 400MW of demand. Better to measure % of national demand/generation lost from the pre-shutdown National Demand forecast.
Loss of a certain % or number of Grid Supply Point (GSP) Groups	The amount of generation and demand in one GSP Group (and therefore the impact of losing it on Parties' imbalance charges) will be different to that in another.
Loss of a certain % or number of customers	May not be apparent to National Grid in real time. Number of customers lost through blackouts is not necessarily a reason for market suspension. The decision to suspend or continue the market does not affect the speed with which customers' supply is restored, only the disruption to Parties' imbalance charges under the BSC. Difficult to establish a direct relationship between number/% of customers lost and disruption to Parties' imbalance charges, unless converted to a demand figure. Any conversion will be heavily based on assumptions about whether lost customers are domestic or non-domestic, and their average level of consumption. Better just to measure demand overall.
Loss of a certain % or number of Grid Supply Points (GSPs)	Link between this and disruption to Parties' imbalance charges not obvious, unless using as a proxy for lost generation/demand (in which case why not just measure that?)
Loss of a certain % or number of circuits from the Transmission System	

The minority view of some Group members is that a physical threshold definition, corresponding to actual events on the Transmission System (such as number/percentage of GSPs or circuits lost) could be more appropriate because a Partial Shutdown is a physical system event.

These members believe that the specific physical characteristics of any shutdown, which depend in part on geographic location, will affect Parties' ability to keep trading. These members believe that it could be better to create a new technical category of 'Local Shutdown' within the Grid Code, to which the BSC's Black Start provisions would not apply. However, following the Assessment Consultation, these members do agree that P276 is a pragmatic solution which is preferable to the existing rules. You can find further details of these members' views throughout the rest of this section.

No Assessment Consultation respondents have suggested a different basis for the Market Suspension Threshold.

Why monitor lost demand on a cumulative, not snapshot, basis?

The majority of Workgroup members agree that the Market Suspension Threshold should measure the cumulative loss over time, and not just the initial loss at the moment the Partial Shutdown first occurred. This is because it is possible that, even if the initial loss does not meet the threshold, the situation could subsequently worsen (for example, if another generator trips off during the process of re-energising the system).

Although a minority of members disagreed initially, these members have now changed their views following the Assessment Consultation. You can find their reasons in the discussion of potential Alternatives later in this section.

Why set the threshold level at 5%?

Relative additional imbalance exposure of suspending v. continuing the market

The following table shows the relative additional imbalance exposures for Parties resulting from the decision whether to suspend or continue the market during a Partial Shutdown.

	Additional exposure within shutdown area	Additional exposure outside shutdown area
Partial Shutdown where market continues	SBP/SSP	Zero
Partial Shutdown where market suspended	Zero	Single imbalance price

In a Partial Shutdown where the market continues:

- Generators in the shutdown area will be 'short'; i.e. they will be unable to generate to meet their contracts and will be exposed to System Buy Price (SBP) for this imbalance until they can trade out their position.⁹
- Suppliers in the shutdown area will be 'long'; i.e. they will be unable to meet their contracts to supply their customers in the affected area and will be exposed to System Sell Price (SSP) for this imbalance until they can trade out their position.⁹
- Parties outside the shutdown area will face zero additional imbalance exposure, providing that they can continue to trade out their position in the normal way.

In a Partial Shutdown where the market is suspended:

- Generators and Suppliers in the shutdown area will face zero additional imbalance exposure, as contract positions and Bid-Offer Acceptances are suspended and their entire generation or supply volume will be settled at the single imbalance price until the market resumes. If their Metered Volumes are zero due to the shutdown, they will therefore have no BSC imbalance costs.

⁹ Note that even a Party who loses equal amounts of demand and generation in the Partial Shutdown may still be exposed to imbalance charges, as the BSC has dual imbalance prices (and requires separate Energy Accounts for licensed supply and licensed generation). Potentially the Party could resolve this by notifying an Energy Contract Volume Notification between their two Accounts (subject to Gate Closure, and the Party having enough information to estimate what volume to notify, and having an authorised Energy Contract Volume Notification Agent who is able to make the notification).

- Parties outside the shutdown area will be unable to submit contracts or Bids and Offers, and their entire Metered Volumes will be settled at the single imbalance price even though they may have been able to continue trading had the market not been suspended.¹⁰

The Workgroup notes that, of the Parties in the shutdown area, those who operate purely in that area will have a lesser ability to trade out their position than those who also operate outside it. However, it considers that this is an argument for having appropriate compensation arrangements in place (see Section 4) and that the decision to suspend the market should be based on the total disruption to the market rather than any Party's individual position.

The Workgroup notes that suspending the market is not a panacea, will itself cause individual Parties significant difficulties, and should be a last resort. All Assessment Consultation respondents support this view.

The two key questions which the Group has considered are therefore:

- At what point does the additional exposure to SBP/SSP caused by continuing the market become greater than the additional exposure to a single imbalance price which is caused by suspending it?
- If the Partial Shutdown means that National Grid has to accept more expensive **Bids and Offers** than it would otherwise, how does this affect SBP/SSP and thereby the relative additional imbalance exposure of continuing the market?

All Assessment Consultation respondents agree that the Market Suspension Threshold should be based on analysis of the point at which continuing the market is likely to cause greater disruption to BSC Parties' imbalance charges than suspending it.¹¹

Effect on imbalance prices if the market continues

Under the existing BSC Section G provisions, if a Partial Shutdown occurs then the market is suspended automatically, there are no **Bid-Offer Acceptances** (BOAs) and a single imbalance price applies. Using the methodology set out in BSC Section T1.7, the single imbalance price will be calculated as the average of SBP and SSP over the 30 days preceding the Partial Shutdown. This will continue to be the case under P276 for any Partial Shutdowns in which the market is suspended.

However, under P276 the normal dual imbalance pricing calculation will apply during any Partial Shutdown in which the market continues. The Workgroup has examined how this will be affected by National Grid's balancing actions within and outside the shutdown area.

Within the shutdown area:

- All instructions issued by National Grid will be Emergency Instructions under Grid Code BC2.9.1.2(e)(i), which refers to invoking the Black Start process or Re-Synchronisation of De-Synchronised Island process under Grid Code OC9; and
- In accordance with BSC Q5.1.3, these instructions will not be treated as BOAs and will therefore not feed into the calculation of SBP/SSP.

¹⁰ This explanation assumes that none of the Parties have been given any black start instructions. The additional imbalance exposure caused by complying with a black start instruction will be the single imbalance price where the market is suspended, and SBP and/or SSP as appropriate where the market continues. This is factored into the calculation of black start compensation claims (see Section 4 and Attachment A for more details). Black start instructions may be given to Parties inside or outside the shutdown area.

¹¹ Whether this SBP/SSP exposure is borne by the individual Parties concerned, or is shared out between Parties through an extension to the CUSC's existing compensation arrangements (as recommended by the Workgroup), makes no difference to this analysis as the total relative exposure will be the same.



What is...?

A Bid-Offer Acceptance (BOA)?

National Grid's Acceptance under the Grid Code of a Lead Party's **Bid** (the price that the Lead Party is prepared to pay to decrease its Export or increase its Import) or **Offer** (the price that the Lead Party is prepared to be paid to increase its Export or decrease its Import) for a BM Unit.

Bids and Offers are submitted in pairs (Bid-Offer Pairs). It is possible to have negatively-priced Bids.

See BSC Section Q.

A Balancing Services Adjustment Action?

A Balancing Action taken by National Grid outside the Balancing Mechanism.

The System Management Action Flagging Methodology Statement?

This methodology sets out how National Grid flags balancing actions which are taken for system-management reasons.

You can find a copy [here](#).

The normal imbalance pricing calculation?

You can find a plain English description of imbalance pricing, including the interaction with National Grid's flagging methodology, [here](#).

Outside the shutdown area, National Grid will still be issuing actions as follows:

- National Grid will flag any 'system-balancing' actions (BOAs and Balancing Services Adjustment Actions) in accordance with its existing **System Management Action Flagging Methodology Statement**, such that these will become unpriced volumes in the calculation of SBP/SSP if their price is higher than the most expensive unflagged (energy-balancing) action in the relevant price stack; and
- The prices of any remaining energy-balancing actions (BOAs and Balancing Services Adjustment Actions) will feed into the calculation of SBP/SSP in the normal way.

National Grid has advised the Group that any actions which it issues to Parties in the 'healthy' part of the system to help re-energise the shutdown part will be flagged as system-balancing actions. The Workgroup notes that it is unclear, on the basis of the existing System Management Flagging Methodology Statement, what remaining proportion of actions in the 'healthy' area will continue to be energy-balancing actions and will therefore feed into imbalance prices. The Group recommends that, if P276 is approved, National Grid reviews its flagging methodology (which sits outside BSC governance) to clarify this where possible. However, it notes that it may be difficult to give such clarity in advance of actually experiencing a Partial Shutdown in which the market continues. In practice, under the existing methodology, National Grid will flag each action as 'system' or 'energy' balancing on a case-by-case basis.

Analysis of appropriate % threshold level

At the Workgroup's request, ELEXON has analysed how the Bids and Offers taken by National Grid outside the shutdown area could affect imbalance prices and thereby the relative additional imbalance exposure for Parties of continuing rather than suspending the market during a Partial Shutdown.

To do this, ELEXON has used historic Offer stacks and a hypothetical 'worst case' Partial Shutdown scenario to examine the impact of removing proportionally more and more generation from the system. As the proportion of generation affected by this hypothetical Partial Shutdown increases, National Grid has to take increasingly higher-priced Offers. For the purposes of this 'worst case' analysis, ELEXON has assumed that none of these Offer acceptances are flagged as system-balancing actions such that they all act to increase SBP values.¹² Attachment A contains a detailed explanation of the analysis aims, approach and results.

The analysis suggests that the maximum percentage of national BM generation (and therefore National Demand) which can be lost during a Partial Shutdown before the market should be suspended is 5%. The analysis indicates that, beyond this level, the disruption to Parties' imbalance charges caused by continuing the market could become significantly greater than that caused by suspending the market and applying a single imbalance price.



Threshold analysis

ELEXON's analysis suggests that the maximum percentage of National Demand which can be lost during a Partial Shutdown before the market should be suspended is 5%.

National Grid's analysis of its forecasting accuracy suggests that the threshold should not be set lower than 5%, otherwise this risks the market being suspended inappropriately due to a forecasting error.

You can find both sets of analysis in Attachment A.

¹² The majority of Workgroup members agree that this is a pragmatic approach, given the uncertainty as to what proportion of BOAs will in reality be flagged as 'system-balancing' actions. See also the Group's discussion of the Assessment Consultation responses later in this section.



Historic system events

The Workgroup has considered whether any of the following events are relevant to its determination of the appropriate P276 Market Suspension Threshold:

- 1987 Great Storm;
- 2003 London blackout;
- 2003 Birmingham blackout; and
- 2008 exceptional generation loss.

It has concluded that no meaningful precedent can be drawn from these events.

Attachment A contains further information and the Group's comments on each event.

The baseline for monitoring the Market Suspension Threshold is National Grid's pre-shutdown spot time National Demand forecast, made day-ahead for the day concerned. National Grid will compare the spot time Initial National Demand Out-Turn measured during the Partial Shutdown with this pre-shutdown forecast, to determine what percentage of National Demand has been lost. The Workgroup has considered National Grid's analysis of the accuracy of its day-ahead National Demand forecasts, which you can find in Attachment A. The analysis shows that the frequency of 'big' errors is low, and the Group agrees that the risk of a Partial Shutdown coinciding with one of these is very small.

All Workgroup members agree with the Proposer that setting the Market Suspension Threshold level lower than 5% is inappropriate, since National Grid's analysis shows that this could result in the market being suspended simply due to a forecasting error. No Assessment Consultation respondents have suggested a lower threshold.

The Proposer, the majority of other Workgroup members and the majority of Assessment Consultation respondents also agree that, based on ELEXON's analysis, the threshold level should not be higher than 5%. These Workgroup members note that ELEXON's analysis represents a 'worst case' scenario. However, because National Grid's forecasting errors can be in either direction and there is uncertainty over the proportion of BOAs which will be flagged as system-balancing actions, they believe it is appropriate to base the proposed threshold level on this possible worst case. These members agree that it is better to initially set a Market Suspension Threshold that is too low than too high (noting that, if a Partial Shutdown ever occurs, the continued appropriateness of this threshold for future events can be reviewed in light of experience¹³).

A minority of members and Assessment Consultation respondents believe that, while a 5% threshold is better than what is effectively a zero threshold under the existing rules, it may be too low to deliver the intended benefits. For further information on their views, see the Group's discussion of the consultation responses later in this section.

A minority of Workgroup members initially believed that it is also unproven whether Parties can continue trading during a Partial Shutdown, whatever the chosen threshold level, due to the uncertainty involved. However, these members have changed their views following the Assessment Consultation and now believe that the proposed 5% level is sufficiently low to safeguard against this risk. You can find further details of these members' views throughout the rest of this section.

Are any historic system events relevant to P276?

A Partial Shutdown has never occurred since the BSC was introduced in 2001. However, the Workgroup notes that there have been other system events which did not meet the Grid Code's definition of a Partial Shutdown. The Group has therefore considered whether these can be used to indicate the level of disruption with which the market can cope during a Partial Shutdown. At the Group's request, ELEXON has researched the particular circumstances of various historic events (see Attachment A).

¹³ The Group has ruled out allowing the Panel to amend the threshold percentage level in the future without needing a Modification Proposal, because this could result in a disjoint between the level shown in the BSC and the actual level agreed by the Panel. The Group agrees that, given the confusion that may exist during a Black Start event, it is important that the threshold is clear to Parties. It notes that the same analysis of, and consultation on, any potential change to the threshold level would need to be undertaken regardless of whether a Modification Proposal is required to implement that change. It also notes that such a Modification Proposal could potentially be progressed under the Self-Governance arrangements. A minority of Assessment Consultation respondents disagree; however no respondents have raised any new arguments in this area.

The Workgroup has concluded that these events do not offer any meaningful indication of the impact that a Partial Shutdown could have on Parties' imbalance charges. It therefore agrees that ELEXON's BOA/SBP analysis described above is the most meaningful way to analyse the relative imbalance exposures of continuing or suspending the market.

Should there also be a time threshold?

Under the Proposer's P276 solution, the Market Suspension Threshold will be met if the National Demand drops below the pre-shutdown forecast by 5% or more at any single point, regardless of the duration of this drop in demand.

The Workgroup has considered whether to additionally apply a time element to the Market Suspension Threshold in one of the following two ways:

Should the Market Suspension Threshold only be met if the drop in demand lasts for more than a certain length of time?

The Group has discussed whether this ensures that the market is only suspended following a sustained loss of demand. It has considered whether suspending the market following an immediate loss ignores potential scenarios where demand is restored quickly.

However, it has decided against applying such a time threshold because:

- The declaration of a Partial Shutdown by National Grid already implies a sustained loss, as this means that part of the system is completely de-energised and islanded from the remaining 'healthy' system;
- The cumulative effect on Parties of a series of short-duration drops and rises in demand needs to be considered, and it could be difficult to define a threshold which takes account of this;
- It requires more effort to monitor at a time when National Grid's operational priority is restoring the system; and
- It adds complexity to the threshold rules, increasing any uncertainty faced by Parties during a Partial Shutdown.

Even if demand remains above 95%, should the Market Suspension Threshold be met if the Partial Shutdown lasts longer than a certain length of time?

Workgroup members initially had different views on this question:

- Some members believed that the market should continue as long as possible;
- Other members believed that the rules for suspending the market should take account of not just what proportion of the market is affected, but the duration of this effect. For example, if the Market Suspension Threshold is not met unless 5% or more of National Demand is lost but there is a 4% loss for a prolonged period, this does not necessarily mean that it is appropriate or feasible to continue the market indefinitely at that level. Some of these members therefore suggested that the market should be suspended automatically if the Partial Shutdown lasts longer than 24 hours.

The Workgroup notes that, in reality, the Proposer's solution will suspend the market when National Grid runs out of accurate pre-shutdown forecast data. Under its existing forecasting process, this will occur after 1-2 days. See below for more details. The Group has consulted on the appropriateness of this, and you can find its conclusions in its discussion of the Assessment Consultation responses at the end of this section.

Why suspend the market when no more forecast data is available?



Duration of baseline forecast data

The exact length of time before National Grid's pre-shutdown National Demand forecast data runs out will depend on the time that the Partial Shutdown occurs.

Attachment A provides a diagram which illustrates this in more detail.

The baseline for monitoring the Market Suspension Threshold is National Grid's day-ahead, pre-shutdown, spot time National Demand forecast for the day concerned. In practice, National Grid will use its spot time National Demand forecast made at 08:45 on the previous day (D-1).¹⁴ This forecast represents an accurate 'business as usual' baseline for determining how much National Demand has been lost during the Partial Shutdown (see above analysis and Attachment A for details of the percentage accuracy of this forecast). Accurate forecasting is not currently possible earlier than D-1, because it relies on the short-term weather forecast.

An unavoidable consequence of using the D-1 pre-shutdown forecast as the baseline for the P276 threshold monitoring is that National Grid will run out of accurate baseline data after 1-2 days. National Grid's view is that, from this point, it will no longer be able to accurately determine how much National Demand has been lost.

National Grid as Proposer recommends that the market should be suspended once the pre-shutdown day-ahead forecast runs out. The majority of Workgroup and Assessment Consultation respondents support this approach. The Group has considered other potential Alternative solutions, but by majority has discounted each of these (see below).

What potential Alternatives has the Workgroup considered?

The table on the following page shows the different options for deciding whether to continue or suspend the market once National Grid no longer has accurate pre-shutdown forecast data to use as the baseline for the P276 threshold monitoring.

The table on the following page shows the Group's initial views on each option before the Assessment Consultation.

¹⁴ This is because, although National Grid updates this with subsequent day-ahead forecasts, the accuracy of these updated forecasts does not significantly improve.

What should the BSC do when baseline forecast data runs out?	Potential pros	Potential cons
<p>Option 1:</p> <p>Suspend the market automatically.</p>	<p>Keeps the determination as purely mechanistic.</p> <p>May not be appropriate to allow market to continue beyond 1-2 days anyway.</p> <p>For example, if there is a 4% loss for a prolonged period, does this mean that it is appropriate or feasible to continue the market indefinitely at this level?</p>	<p>Means not possible to continue market under a Partial Shutdown for longer than a period of around 1-2 days, even if most Parties could keep trading.</p> <p>Market should be allowed to continue as long as possible.</p>
<p>Option 2:</p> <p>Require National Grid to make a more subjective judgement as to whether 5% or more of National Demand has been lost.</p>	<p>Gives potential for market to continue during a prolonged Partial Shutdown.</p> <p>5% threshold level would still be 'hard-wired' in BSC for transparency/certainty; just makes National Grid's determination less mechanistic.</p> <p>Need not be totally subjective – could try to refine a less accurate pre-shutdown forecast (e.g. made week-ahead) during the shutdown.</p> <p>Could also apply this throughout entire threshold-monitoring process (e.g. if National Grid identifies that its original pre-shutdown forecast was inaccurate) and not just when the pre-shutdown forecast data runs out.</p>	<p>Would put National Grid in a difficult position – would naturally err against market suspension.</p> <p>May increase Parties' uncertainty as to whether market will be suspended.</p> <p>Determination would be less accurate, increasing possibility of an inappropriate suspension or continuation of the market.</p> <p>Doesn't resolve the question of whether it's appropriate for the market to continue indefinitely under a prolonged Partial Shutdown.</p>
<p>Option 3:</p> <p>Require Ofgem and/or DECC to decide whether the market should be suspended.</p>	<p>Gives potential for market to continue during a prolonged Partial Shutdown.</p>	<p>What would be the basis for this decision? Potential lack of certainty/transparency.</p> <p>How would Ofgem/DECC know whether Parties can keep trading?</p> <p>Would Ofgem be operational if the London area is without power?</p> <p>Difficult for BSC to put obligations on the regulator/Government.</p> <p>Doesn't resolve the question of whether it's appropriate for the market to continue indefinitely under a prolonged Partial Shutdown.</p>
<p>Option 4:</p> <p>Use an alternative incident-based (rather than a cumulative-effect) approach to the entire threshold monitoring process.</p> <p>National Grid will still measure the initial impact of the Partial Shutdown as a snapshot in time (by comparing the actual National Demand to its original pre-shutdown forecast). The market will still be suspended if that initial demand loss =>5%.</p> <p>But National Grid will then not monitor the threshold again, unless a second separate system event occurs (in which case the market will be suspended automatically regardless of the cumulative impact).</p>	<p>Gives potential for market to continue during a prolonged Partial Shutdown.</p> <p>Works where the initial impact of a Partial Shutdown is stable.</p>	<p>Ignores possible scenarios where scope of original incident (and therefore cumulative effect on Parties) grows.</p> <p>Still gives uncertainty as to whether a second separate system event will occur, and therefore market will be suspended.</p> <p>What is included in the concept of 'second separate system event'?</p> <ul style="list-style-type: none"> A second Partial Shutdown (as defined in Grid Code)? Would require a second part of the system to become totally de-energised/islanded, ignoring other possible events which could cumulatively worsen Parties' imbalance exposure; or Some other type(s) of event (e.g. another generator tripping) which could be difficult to define in BSC?

Option 1 is the solution which National Grid has chosen as Proposer, and which a majority of Workgroup members and Assessment Consultation respondents support as the best solution. By majority, the Group has initially ruled out Options 2 and 3 (agreeing with the majority of Assessment Consultation respondents who favour a mechanistic threshold-monitoring approach to any element of subjective judgement). Option 4 was initially suggested by one Workgroup member, who has since changed their view following the concerns raised by a majority of Assessment Consultation respondents.

The Workgroup member who suggested Option 4 initially believed that it could be an accurate and appropriate approach because:

- The initial Partial Shutdown event will result in part of the system becoming totally de-energised and 'islanded' from the remaining healthy system. This may make it unlikely that the size/impact of the shutdown area subsequently grows (i.e. if the initial percentage of National Demand lost is 3%, then the loss is unlikely to increase beyond 3%) unless there is a second, separate system 'event'; and
- They believe that basing the threshold monitoring on identifiable system events could give Parties greater certainty of the situation.

The other Workgroup members initially disagreed because:

- National Grid's advice is that the size/impact of the event could gradually creep;
- National Grid is therefore concerned that Option 4 is less accurate;
- Option 4 may not necessarily give Parties any greater certainty than Option 1;
- It may be inappropriate to continue the market indefinitely during a Partial Shutdown; and
- It may be difficult to robustly define a second system 'event'.

Having asked a specific Assessment Consultation question on whether to develop Option 4 as a potential Alternative, and having noted the majority view of respondents against this, the Workgroup has agreed not to progress Option 4 further. You can find the Group's discussion of the Assessment Consultation responses, and its conclusions, at the end of this section.

What threshold communications will be issued under P276, and is it feasible for Parties to keep trading if the threshold isn't met?

Under the existing BSC and Grid Code provisions, the general principles regarding industry communications during a Black Start event are that:

- National Grid is responsible for updating Grid Code Users and ELEXON on the status of the Total System (and, to the extent that it is kept informed by National Grid, ELEXON is responsible for passing this information on to BSC Parties); and
- ELEXON is responsible for updating BSC Parties on the status of the market and BSC Systems (the only exception being that, in addition to ELEXON's notification to BSC Parties, National Grid must also notify Grid Code Users of the point from which the BSC Panel has determined that the market will resume).¹⁵

¹⁵ Grid Code Users need to know this in order that they can start submitting physical notifications in preparation for resuming normal operations (as up to this point National Grid will still be dispatching all generators centrally). This information is also relevant to Grid Code Users because, currently, the Grid Code's Black Start provisions end at the point that normal BSC operations resume (i.e. this is the point from which the Grid Code currently deems the Total System to have returned to normal).



BSC's Black Start Period and Market Suspension Period

These will still be one and the same for Total Shutdowns.

However, for Partial Shutdowns under P276, there may be a Market Suspension Period for all, some or none of the Black Start Period – depending on when/if the Market Suspension Threshold is met.

Attachment A provides a comparison of the key events for BSC market operations during a Partial Shutdown under the existing and P276 rules. It includes worked examples of the interaction between the Black Start Period and Market Suspension Period. It also describes the existing BSC Agent Black Start processes, which will continue to apply to any Market Suspension Period under P276.

Attachment B contains the P276 BSC legal text.

The existing BSC Section G and BSCP201 provisions recognise that ELEXON may have difficulty communicating with BSC Parties during a Black Start event. In a Partial Shutdown, even if ELEXON is not in the shutdown area, some Parties will be without power and may be unable to receive communications through normal channels such as email. The existing provisions also recognise that BSC Systems (including the Balancing Mechanism Reporting Service) may be unavailable for a time.

The BSC and BSCP201 provisions therefore require ELEXON to communicate the suspension of the market “as soon as practicable/possible”, and recognise that this may be post-event once the Total System is re-energised.

Similarly, BSCP201 notes that BSC Agents will implement the BSC's Black Start procedures (including those relating to market suspension) as soon as possible/practicable and that this may be post-event. Some Parties outside the shutdown area may be unaware initially that the BSC's market suspension provisions have been triggered, and may therefore continue to submit contracts and Bids/Offers. This does not matter because the rules are clear that these will be ignored or nullified, and that this will be carried out post-event if necessary. Parties therefore have certainty of, and confidence in, the existing rules. You can find further details of the existing BSC Agent processes in Attachment A.

By introducing a Market Suspension Threshold, P276 decouples the concepts of a **Black Start Period** and **Market Suspension Period** for Partial Shutdowns:

- The BSC's Black Start Period will, as now, begin from the start of the Settlement Period corresponding with the time and date from which National Grid determines that the Partial Shutdown began. As now, ELEXON will notify BSC Parties of this Settlement Period as soon as practicable.
- If the Market Suspension Threshold is met, then:
 - The Market Suspension Period will begin from the start of the Settlement Period corresponding with the time and date that the threshold was met, and ELEXON will notify BSC Parties of this Settlement Period as soon as practicable; and
 - Both the Black Start Period and Market Suspension Period will finish at the end of the Settlement Period immediately before that from which the Panel determines (using the existing BSC/BSCP201 process) that normal BSC market operations shall resume. As now, this will be sometime after the re-energisation of the Total System and ELEXON will notify BSC Parties promptly of this Settlement Period following the Panel's determination.
- If the Market Suspension Threshold is not met, then:
 - There is no Market Suspension Period; and
 - The Black Start Period will finish at the end of the Settlement Period which corresponds with the time at which National Grid determines that the Total System returned to normal operation. ELEXON will notify BSC Parties promptly of this Settlement Period.¹⁶

¹⁶ The P276 legal text uses the Settlement Period during which the Total System returned to normal operation, and not the Settlement Period immediately before this, because Emergency Instructions can relate to part of a Settlement Period. This therefore ensures that, if the Total System returns to normal part-way through a Settlement Period, any BM Unit which receive black start instructions for the preceding part of that Settlement Period remain eligible to claim black start compensation under the BSC.

As a result, P276 creates an element of uncertainty for Parties as to whether or not the market will be suspended during a Partial Shutdown. Some Workgroup members initially suggested that P276 therefore requires additional regular communications to Parties on the status of the market, for example how close the lost National Demand is to meeting the threshold. These members were initially concerned that Parties might be unable to keep trading during a Partial Shutdown if there is uncertainty over when or if the market will be suspended.

The Group notes that there are practical difficulties in providing such communications, if ELEXON is in the shutdown area. Although National Grid has methods for communicating with Grid Code Users which are resilient to blackouts (such as Control Telephony), the Grid Code only currently requires National Grid to notify the existence of a Partial Shutdown to those Users who in its opinion need to be informed (e.g. those in the shutdown area). A requirement to regularly contact all Users with updates on the market would therefore be an additional administrative burden on National Grid's Control Room during a period when its operational priority is re-energising the system. In addition, National Grid's resilient communication methods under the Grid Code are designed to communicate with Users' technical engineers/operators, who are not necessarily the relevant people to inform about the status of BSC market operations.

Notwithstanding these practical concerns, the majority of Workgroup members also agree with the Proposer that providing such regular communications would be inappropriate. These members believe that the only additional industry communications which are needed under P276 are those described above and which relate to the start of any Market Suspension Period and the end of the Black Start Period where there has been no Market Suspension Period.

The table below shows the Workgroup's initial majority and minority views before the Assessment Consultation.

Is it appropriate/necessary to provide regular updates on how close the market is to being suspended?

Yes (minority)	No (majority – including Proposer)
<ul style="list-style-type: none"> Without these, Parties may not know how to trade. Will be worried about making things worse, or being accused of exploiting the situation and facing an inquiry. They may therefore not be able to keep trading. If have more information, Parties will be better able to help National Grid balance the system. 	<ul style="list-style-type: none"> Parties operating purely in the shutdown area may not be able to receive updates through email etc. (creating an information asymmetry, as other Parties can). Even if they can receive this information, they are unlikely to be able to use it to trade out their position until the area is re-energised. What would Parties outside the shutdown area do with the information? Changing behaviour could make the situation worse. National Grid will issue a Party with an Emergency Instruction or BOA if it needs it to take a specific action. Parties can't be accused of exploiting the situation if they don't have any information. Situation no different from now – under the current rules, Parties don't know in advance that the market will be suspended. If the market continues and Parties are unaware of the Partial Shutdown then this doesn't matter, because the intention of P276 is that they keep trading. If the market is suspended and Parties don't realise initially then, as now, this doesn't matter either as any contracts submitted will simply be nullified. Parties should have confidence in the rules – if they will simply stop trading before the Market Suspension Threshold is met, this means either the threshold level is too high or that P276 isn't workable. There's a difference between Parties making a commercial decision to stop trading and not being able to trade. It is always preferable to allow Parties to trade where they can.



Consultation responses

Attachment C contains the full Assessment Consultation responses.

No Assessment Consultation respondents have identified that any extra communications are required or believe that Parties would be unable to keep trading up to the proposed 5% threshold. Following the consultation, those Workgroup members who were initially concerned that Parties might be unable to keep trading are now comfortable that the proposed 5% threshold is sufficiently low so as to avoid this risk. All members therefore agree that any additional industry communications are unnecessary.

Is a new Grid Code definition of 'Local Shutdown' needed?

The majority of Workgroup members agree with the Proposer that a new Grid Code definition of 'Local Shutdown' is not needed to support the P276 solution. These members note National Grid's advice that it would be extremely difficult to identify a definition of 'Local Shutdown' which is technically/physically different from the Grid Code's existing definition of Partial Shutdown because, in National Grid's view, the only difference is one of size/impact. The majority of members agree with the Proposer that whether to suspend or continue normal BSC operations is a market, not a technical, decision which relates to the effect of the shutdown on BSC Parties' imbalance charges. The Proposer believes that whether the Market Suspension Threshold sits in the BSC or the Grid Code, the basis of that threshold will be the same.

The minority view of some Group members is that it could be better to create a new technical category of 'Local Shutdown' within the Grid Code, to which the BSC's Black Start provisions would not apply. They believe that it would then be clear from the moment that National Grid declares the existence of a Local Shutdown or Partial Shutdown whether or not the market is suspended (although this still leaves the question of what a technical definition of a 'Local Shutdown' would be).

This minority view also relates to these members' initial concerns that BSC Parties might be unable to continue trading under P276, due to the uncertainty as to whether or not the market would be suspended (see above discussion). These members' preference is still for a physical/technical definition. However, following the Assessment Consultation they now agree that P276 is a pragmatic solution which is preferable to the existing rules.

No Assessment Consultation respondents have suggested that a Grid Code definition of 'Local Shutdown' is required to support P276.

Views of Assessment Consultation respondents

The table on the following page summarises the views of Assessment Consultation respondents on each question relating to the Market Suspension Threshold.

Assessment Consultation Question	Yes	No	Neutral / Other
Do you agree that, in principle, it is better to allow Parties to keep trading where they can during a Partial Shutdown?	6	0	0
<p>The proposed Market Suspension Threshold is based on analysis of the point at which continuing the market is likely to cause greater disruption to BSC Parties' imbalance charges than suspending it.</p> <p>Do you agree that this is the best way to decide when to suspend the market?</p>	5	0	1
<p>Under the proposed solution, National Grid will mechanistically monitor the ongoing cumulative impact of the Partial Shutdown until either:</p> <ul style="list-style-type: none"> This impact reaches a defined level (in which case the market is suspended); National Grid no longer has accurate baseline data to monitor the impact mechanistically (in which case the market is suspended); or The Total System returns to normal. <p>Under this solution, due to the limits of National Grid's baseline data, it will not be possible to continue the market under a Partial Shutdown for longer than 1-2 days.</p> <p>A suggested Alternative approach would assume that the initial snapshot impact of the Partial Shutdown (as determined mechanistically by National Grid) remains unchanged until either:</p> <ul style="list-style-type: none"> A second, separate system event occurs (in which case the market is suspended automatically regardless of the cumulative impact); or The Total System returns to normal. <p>Under this suggested Alternative, the market could potentially continue under a Partial Shutdown indefinitely.</p> <p>Do you agree that the proposed solution is better than the suggested Alternative?</p>	4	0	2
Do you agree that the determination of whether the Market Suspension Threshold has been met should be purely mechanistic, rather than a subjective judgement?	5	1	0
Do you agree that, overall, the practical implications for Parties of continuing the market during Partial Shutdowns in which the proposed Market Suspension Threshold is not met are preferable to those of suspending the market in these situations?	6	0	0



Workgroup's conclusions following the Assessment Consultation

The Workgroup notes that the Assessment Consultation responses are broadly in line with its own discussions, in that:

- All respondents agree with the principle of P276 that market suspension should be a last resort.
- All respondents agree that the Market Suspension Threshold should be based on the relative imbalance exposure of continuing, versus suspending, the market.
- All respondents believe that the proposed P276 solution (including the proposed 5% threshold level) is better than the current arrangements.
- The key areas of disagreement among respondents are in line with those in the Group's own discussions, specifically:
 - Whether 5% is the best percentage level for the Market Suspension Threshold or can be improved upon (and, if so, how);
 - Whether the market should continue indefinitely if the chosen percentage threshold level is not met, or if it should be suspended after a certain period of time (and, if so, what that period of time should be); and
 - Whether an element of subjective judgement should be exercised in deciding whether or not to suspend the market once National Grid no longer has accurate forecast data (and, if so, whom that decision should be made by and the appropriate criteria for that decision).
- The majority view of respondents in these areas aligns with the Workgroup's own majority view, with the only new arguments raised by respondents being some specific comments on the threshold analysis (see below).

Change to solution following consultation

After considering the Assessment Consultation responses, the Proposer has made one amendment to the solution. This is to add the 72-hour backstop on the period of time that the market can continue during a Partial Shutdown. The Workgroup supports this change.

No changes have been made to the proposed threshold percentage level or to the rest of the threshold solution.

Respondents' views and Group's conclusions on appropriate threshold level

A minority of Assessment Consultation respondents believe that the amount of National Demand which can be lost before the market is suspended should be higher than 5%. A minority of Workgroup members agree with this view. These respondents/members are concerned that 5% may be too low to realise the intended benefits of P276.

The Group notes that 5% of National Demand ranges from approximately 1000MW (at Summer minimum) to 3000MW (at Winter peak). There are 29.5 million electricity customers, of which 27 million are domestic electricity customers who collectively use about 36% of National Demand. 5% of National Demand therefore equates to approximately 3.75 million domestic customers.

Some Workgroup members believe that a 5% threshold risks the market being suspended following a very small demand loss such as 1000MW, for example if a Partial Shutdown occurs overnight when overall demand is low. These members suggest that either the threshold should be higher (say 10%) or that it should be a combination of a percentage and a MW figure (e.g. the threshold would only be met if the lost demand was greater than 5% of National Demand and greater than 1000MW).

One Assessment Consultation respondent and one Workgroup member also query the assumption behind ELEXON's threshold analysis that, where the market continues, the balancing actions taken in the 'healthy' part of the system will feed into the calculation of imbalance prices. The expectation of this respondent and Workgroup member is that all actions (including all BOAs) made outside the shutdown area will be flagged as system-balancing actions and therefore will not affect prices. However, the other Group members note that it is not clear that this will be the case under National Grid's existing System Management Action Flagging Methodology Statement (see the Group's discussion earlier in this section). National Grid's view is that, while some actions will be system-flagged, there will still be energy-balancing actions in the remaining stable market. Due to the uncertainty over what proportion of actions will be flagged in practice, the majority of Workgroup members agree it is sensible for ELEXON's analysis to be a 'worst-case scenario' in which all actions outside the shutdown area affect imbalance prices.¹⁷

The same respondent and Workgroup member queries whether more reserve would actually be available to National Grid than appears in ELEXON's analysis. National Grid has confirmed that there would in reality be up to 1GW of non-BM Short Term Operating Reserve (STOR)¹⁸, and possibly the potential for some System Operator-to-System Operator (SO-SO) trades over Interconnectors¹⁹ which is not present in the analysis. Conversely, National Grid's view is that ELEXON's analysis contains some Offers which would not in reality have been available as the generators concerned were providing Frequency Response. The Workgroup has therefore considered whether there is merit in repeating the analysis to reflect this. However, by majority it has decided against this on the grounds that the analysis is intended to be a 'worst-case' scenario which already carries some uncertainty. Seeking to fine-tune the analysis may therefore have limited benefit, and risks spurious accuracy. The Proposer supports this view.

The Workgroup has also considered whether to amend the 5% threshold – either to a higher number, or to incorporate a second MW figure. A majority of members (including the Proposer) do not support this because:

- Simply picking a higher percentage threshold is arbitrary compared with the proposed 5% which is based on actual rationale and analysis;
- The analysis shows that setting a higher percentage threshold could risk exposing Parties to high imbalance charges;
- Although the analysis represents a 'worst-case scenario', it is sensible to base the threshold on this potential worst case given the uncertainty over what could happen in practice;
- Picking a second MW figure is also arbitrary unless the analysis is repeated to identify both an appropriate % and MW threshold. A further extension to the Assessment Procedure timetable would be needed to undertake this. Given that

¹⁷ Early on in the Workgroup's assessment, ELEXON produced some simple analysis (not included in this report) which compared actual SBP/SSP figures for certain historic months with the single imbalance price that would have applied in these months had this been calculated as the 30-day average of these SBP/SSP figures. This analysis gave a suggested threshold level which varied from 17.5%-30% across the months modelled, and averaged out at 20% overall. However, the Group believed that this analysis was overly-simplistic, because it used 'normal' historic SBP/SSP figures and did not take account of the effect balancing actions could have on these prices during a Partial Shutdown in which the market continues. The Group also believed strongly that, in reality, Parties would not be able to keep trading up to such a high threshold level. It therefore asked ELEXON to produce a revised version of the analysis which reflected the effect of the Partial Shutdown on the balancing actions available to National Grid, and thereby on dual imbalance prices. This resulted in the 'worst-case scenario' analysis contained in this report, which concluded that the threshold should not be higher than 5%.

¹⁸ A balancing service procured by National Grid as defined in its [Procurement Guidelines](#).

¹⁹ As defined in BSC Section R7.5.

the analysis already contains some uncertainty it is not obvious that the results would be worth the delay.

By majority, the Workgroup does not believe that there is merit in extending the Assessment Procedure to consider any potential Alternative solutions further. In support of this view, these members note that:

- The Workgroup has already undertaken a 7-month assessment phase (including two extensions to undertake further analysis), in which it has considered a wide variety of potential alternative approaches;
- While all Workgroup members and Assessment Consultation respondents support the Proposer's solution as being better than the current arrangements and a pragmatic solution, only a minority of members have ever supported any of the potential alternatives approaches over this solution;
- Although the move to a 5% Market Suspension Threshold (from what is effectively a zero threshold under the current rules) can be considered a small step, it is a step into the unknown and one that Parties are comfortable with;
- If the threshold proves to be too low in practice, then the outcome is no worse than now (where the market will always be suspended); however, if the threshold is too high this could have significant adverse impacts on Parties; and
- If a Partial Shutdown ever occurs, the solution can be revisited in light of experience.²⁰

Group's conclusions on appropriate 'back-stop' point for market continuation

The Workgroup notes that the majority of Assessment Consultation respondents do not support continuing the market indefinitely during a Partial Shutdown, due to concerns over both the imbalance exposure for Parties in the shutdown area and the ability of Parties in the healthy system to continue trading during a prolonged demand loss.

The Group also notes ELEXON's advice that it cannot guarantee the availability of BSC Systems beyond 72 hours if these systems are in the shutdown area, as this is the maximum amount of fuel held by BSC Agents for their backup generators. While ELEXON could investigate solutions to extend this, their cost is unlikely to be worthwhile given that in reality the proposed solution suspends the market within 1-2 days when National Grid runs out of accurate forecasting data.

The Group also notes that, as well as having physical generation assets and/or customers in the shutdown area, some Parties may have trading points in that area. While these Parties may have their own contingency arrangements such as office backup generators, there may also be a limit on how long they can continue to operate using these arrangements.

Finally, the Group notes that, if the BSC simply states that the market is suspended when National Grid no longer has accurate forecasting data, it will not be clear to Parties when this could occur. Members suggest that it would add beneficial clarity and certainty if the BSC contained an absolute maximum 'backstop' for market continuation. The Group agrees that 72 hours seems like a sensible figure for this backstop, given that the availability of BSC Systems cannot be guaranteed beyond this point. The Proposer has

²⁰ A minority of Assessment Consultation respondents suggest that the Panel should be able to amend the threshold level in the future without requiring a Modification Proposal. The Workgroup notes that these respondents' views contain no new arguments; the majority view of members (including the Proposer) therefore continues to be that a 'hard-wired' threshold is more appropriate. See footnote 13 on page 15.

therefore amended their solution to include this third criterion for suspending the market under P276.

Under the Proposer's Market Suspension Threshold solution, the threshold will therefore be met if (or deemed to be met) if at any time during a Partial Shutdown:

- National Grid determines that 5% or more of National Demand has been lost;
- National Grid no longer has sufficient pre-shutdown forecast data to accurately determine what cumulative percentage of National Demand has been lost; or
- 72 hours have elapsed since the beginning of the Partial Shutdown,

whichever occurs first.

The Market Suspension Threshold will therefore be deemed to be met after 72 hours, even if National Grid has accurate forecast data remaining (for example, if future improvements in weather forecasting enable it to make accurate National Demand forecasts further than day-ahead) and determines that less than 5% of National Demand has been lost.

If, in future, improvements in the accuracy of longer-term weather (and therefore demand) forecasting mean that National Grid is able to continue monitoring the threshold beyond 72 hours, then the Group notes that the P276 solution can always be revisited. Given the potential concerns over continuing the market indefinitely during a Partial Shutdown, any revised backstop would require appropriate consideration at that time. As there is no indication that the accuracy of longer-term forecasting will improve in the near-future, and given the potential cost of making the BSC Systems resilient beyond 72 hours, the Group agrees that there is no benefit in considering a longer backstop under P276.



Why allow black start compensation claims if the market isn't suspended?

The BSC's existing black start compensation applies to Total and Partial Shutdowns in which the market is suspended automatically. It compensates for the costs which the Lead Party of a BM Unit incurs in complying with a black start instruction and which:

- Would not otherwise have been incurred;
- Fall within the definition of Avoidable Costs in BSC Section G; and
- Are not covered by the imbalance charges received, or any reduction in the imbalance charges paid, by the Lead Party as a result of complying with the black start instruction.²¹

The BSC's existing definition of 'black start instruction' includes not just Emergency Instructions issued under OC9.4.7.4/BC2.9 of the Grid Code but also normal BOAs made under BC2.7. This is because the market will be suspended, meaning that in reality there will be no BOAs or contract positions, all generators will be dispatched centrally by National Grid and all generation volumes will be settled at the single imbalance price. The intention of the BSC's definition is therefore that all generator BM Units which are dispatched by National Grid during a Black Start are eligible to claim black start compensation under the BSC. Under P276, this definition of 'black start instruction' will remain unchanged for any Settlement Periods which fall within both a Black Start Period and a Market Suspension Period.

However, if the market continues during a Partial Shutdown under P276, then National Grid will be using a combination of Emergency Instructions and normal BOAs to balance the system. For both, Parties will pay their Bid price or receive their Offer price as appropriate. The only Emergency Instructions which will not be treated as BOAs under BSC Q5.1.3 are those issued under BC2.9.1.2(e) of the Grid Code, which includes:

- The need to invoke the Black Start process or the Re-Synchronisation of De-Synchronised Island process in accordance with Grid Code OC9 (BC2.9.1.2(e)(i));
- The need to request provision of a Maximum Generation Service (BC2.9.1.2(e)(ii)); or
- The need to issue an Emergency Deenergisation Instruction (BC2.9.1.2(e)(iii)).

The Lead Party of any BM Unit which receives a **Maximum Generation Instruction** is paid the Maximum Generation Energy Fee set out in its Maximum Generation Service Agreement with National Grid, and these Maximum Generation Energy Payments are governed by Section 4.2 of the CUSC. **Emergency Deenergisation Instructions** are normally eligible for Interruption Payments (as 'Relevant Interruptions') under Sections 5.2 and 5.10 of the CUSC. However, the CUSC's definition of the 'Allowed Interruptions' which are currently excluded from eligibility for Interruption Payments includes any Interruptions resulting from Total or Partial Shutdowns; presumably on the assumption that these are covered by the BSC's existing black start compensation. The Workgroup recommends that, if P276 is approved, the CUSC's definition of 'Allowed Interruption' is amended to allow Parties to claim Interruption Payments for any Interruptions resulting from a Partial Shutdown in which the market continues (see below for the Group's full reasons).

Purpose of this section

This section explains the compensation arrangements which apply under the Proposer's P276 solution, and which are supported by the majority of Workgroup members and all Assessment Consultation respondents.

The Workgroup has ruled out any potential Alternative solutions in this area.



What is...?

A Maximum Generation Instruction?

An instruction by National Grid to a BM Unit to provide Maximum Generation.

Maximum Generation?

A Balancing Service provided by certain BM Units by generating at a level above the Maximum Export Limit (MEL).

See full definition in CUSC Section 11.

An Emergency Deenergisation Instruction?

An instruction by National Grid to a User to de-energise, to a Distributor to de-energise a User's equipment, or to a User to redeclare its MEL as zero.

See CUSC Section 11.

An Interruption?

An Interruption to a User's access to the Transmission System.

See definitions of 'Interruption', 'Allowed Interruption', 'Relevant Interruption' and 'Interruption Payment' in CUSC Section 11.

P276 Final Modification Report

15 June 2012

Version 1.0

Page 28 of 49

© ELEXON Limited 2012

²¹ Depending on whether the black start instruction increases or decreases the BM Unit's Metered Volume.

P276 amends the BSC's definition of a 'black start instruction' for any Settlement Periods which fall within a Black Start Period but not within a Market Suspension Period, so that it refers only to instructions issued under BC2.9.1.2(e)(i). This therefore ensures that the only balancing actions which are eligible for black start compensation during a Partial Shutdown in which the market continues are:

- Those which are not treated as BOAs; and
- Those which are not eligible for other existing forms of compensation/payment.

The intention of the compensation which is applicable to these black start instructions remains unchanged by P276, and will still cover the costs which:

- Would not otherwise have been incurred;
- Fall within the definition of Avoidable Costs in BSC Section G; and
- Are not covered by the imbalance charges received, or any reduction in the imbalance charges paid, by the Lead Party as a result of complying with the black start instruction.

However, the calculation for determining the amount of imbalance charges to deduct from the Party's Avoidable Costs will be different depending on whether or not the market is suspended. As now, this will be based on the single imbalance price for a Settlement Period in which the market is suspended. For a Settlement Period in which the market and dual imbalance prices continue, the proposed calculation algebra takes into account the net effect on the Lead Party's overall Energy Account position resulting from all the black start instructions given to its different BM Units in that Settlement Period. Because compensation claims are submitted on a BM Unit/Settlement Period basis, and so that a delay in one compensation claim from a Party does not delay the processing of its other claims for the same Settlement Period, the proposed algebra works by taking into account the payments made under any previous claims for that Energy Account and Settlement Period.

Under the existing BSC rules, the market is suspended automatically and there are no Metered Volume Reallocation Notifications (MVRNs). However, during a Partial Shutdown in which the market continues under P276, normal MVRNs will continue to apply. Where an MVRN is in place for a BM Unit which is given a black start instruction, complying with that black start instruction will therefore affect the Subsidiary Party's imbalance position.²² The proposed compensation algebra takes this into account when calculating the Lead Party's compensation (i.e. it adjusts the Lead Party's compensation up or down accordingly), but leaves it to the contractual, bilateral MVRN arrangements to specify whether funds should be redistributed between the Lead and Subsidiary Parties.

You can find worked examples of the P276 compensation calculation in Attachment A, and the full calculation algebra in Attachment B.

²² Where the Lead Party has an MVRN to transfer 100% of a BM Unit's output, then only the Subsidiary Party will incur imbalance charges. If the MVRN is for a different percentage or a fixed volume of output, then both the Lead Party and Subsidiary Party will have an imbalance exposure as a result of the black start instruction.

Why not compensate other Suppliers or generators under the BSC?

Under the existing rules, generators and Suppliers in the shutdown area have no imbalance exposure for the period in which they lose access to the Transmission System and are unable to generate/supply (see Section 3 for a more detailed explanation).²³ Once the area is re-energised then, like Parties outside the shutdown area, their entire Metered Volume will be settled at the single imbalance price until normal market operations resume. Like Parties outside the shutdown area, they are also eligible to claim black start compensation under the BSC for any instructions they receive from National Grid. This will still be the case under P276 for Total Shutdowns and for any period during a Partial Shutdown in which the market is suspended.

For any period during a Partial Shutdown in which the market continues under P276, then dual imbalance prices will continue to apply. Generators and Suppliers in the shutdown area will therefore be exposed to SBP or SSP respectively for the length of time that they are unable to generate/supply and cannot trade out their position. The Workgroup has considered whether Parties in this situation should be able to claim compensation under the BSC.

Note that, once the shutdown area begins to be re-energised, then these Parties will receive their Bid/Offer price (for BOAs, including non-black start Emergency Instructions), be paid their Maximum Generation Energy Payments (for any Maximum Generation Instructions) or be eligible for black start compensation (for any black start instructions) in the same way as Parties outside the affected area.

Generators

The Workgroup notes that generators who lose access to the Transmission System as a result of a system event can normally claim Interruption Payments under the CUSC, but that this CUSC compensation currently excludes any interruptions resulting from a Total or Partial Shutdown.

The majority of Workgroup members (including the Proposer) consider that it would be inconsistent for some Interruption compensation arrangements to sit in the BSC and others in the CUSC, and that it would be inappropriate for the calculation of this compensation to differ when the physical/imbalance effects on Parties of the Interruption are equivalent. They note that, while energy actions (such as BOAs and Emergency Instructions) are dealt with in the BSC, the rules and compensation regarding loss of transmission access fall under CUSC governance. These members therefore recommend that, rather than introducing alternative compensation arrangements into the BSC, the CUSC's existing Interruption compensation arrangements should be extended to cover any Settlement Periods during Partial Shutdowns in which the market continues. If the CUSC's compensation arrangements are extended in this way, then any generators given Emergency Deenergisation Instructions (whether inside or outside the shutdown area) will also be eligible for Interruption Payments. By majority, the Workgroup recommends that this area is given further consideration under CUSC governance if P276 is approved.

²³ Generators in this context means those who are not capable of a black start, or who are capable but are not instructed by National Grid.



What is...?

Demand Control?

This term encompasses a variety of methods for achieving Demand reduction – some automatic and some manual.

See full definition in the Grid Code's Glossary & Definitions.

Some members believe that the existing level of CUSC compensation is insufficient to cover the costs incurred by Parties. However, the Group agrees that this is an argument for reviewing the CUSC arrangements and not for placing alternative compensation arrangements in the BSC. It notes that the CUSC's [Balancing Services Standing Group](#) (BSSG) is already considering potential changes to the CUSC's calculation of Interruption Payments.

Some members do not support the majority Group recommendation. This is because they do not support the original reasons for including Interruption Payments in the CUSC rather than in the BSC. However, they note that it is consistent to keep all equivalent arrangements together.

Attachment A contains further information on the P276 compensation arrangements for generators.

Suppliers

The Workgroup notes that the CUSC's existing provisions for Interruption Payments only cover generators, and not any Suppliers who lose access to the Transmission System as a result of a system event.

The Group has therefore considered whether P276 should include any compensation arrangements for Suppliers who lose access as a result of a Partial Shutdown in which the market continues. It notes that previous attempts to introduce Supplier compensation into the BSC (for example, under previous Modification Proposals relating to **Demand Control**) have been rejected by Ofgem, due in part to:

- The practical difficulties in determining the volume of load lost by each Supplier (Attachment A provides more details of these difficulties); and
- Ofgem's view that compensation for interrupted transmission access should sit in the CUSC rather than in the BSC.²⁴

The Proposer's view is that the issue of Supplier compensation is broader than just Partial Shutdowns, as it includes consideration of whether Suppliers should also be compensated in other situations which are outside the scope of P276 – such as the application of Demand Control. The Proposer considers that it would be inconsistent to introduce compensation for Suppliers for one cause of lost access (Partial Shutdowns) but not others. They have therefore decided not to include any Supplier compensation in their P276 solution.

The Workgroup has therefore considered whether to develop an Alternative P276 solution in this area. However, by majority it has concluded against this. A majority of members believe that, regardless of whether the practical difficulties of calculating Supplier compensation can be overcome, this compensation should sit in the CUSC as an extension to the existing Interruption Payments and not in the BSC. This is because these members believe that all compensation arrangements for loss of transmission access should sit

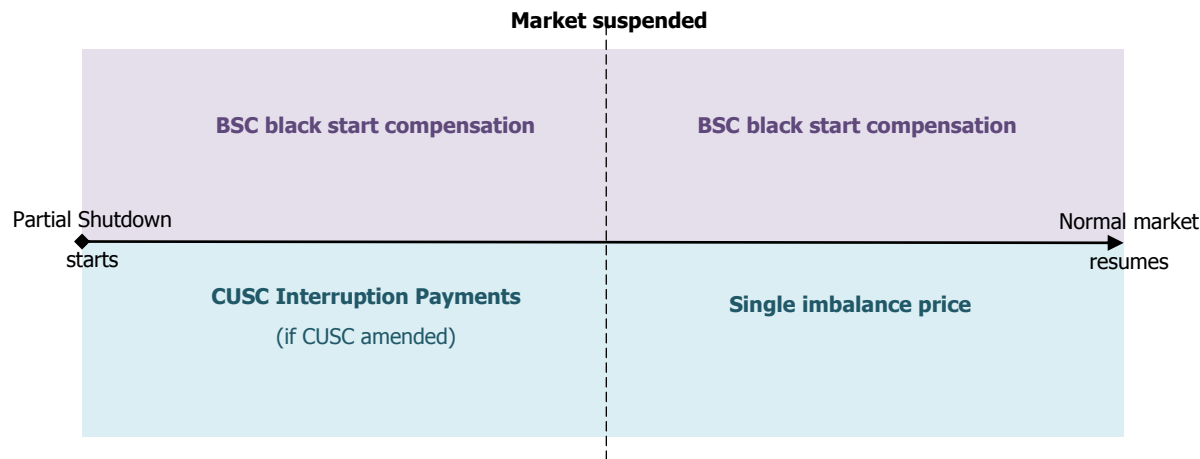
²⁴ In its decision letter for [P199](#) 'Quantification of Demand Control in the BSC as instructed under OC6 (c), (d) and (e) of the Grid Code', Ofgem states that "as outlined in previous decision letters, Ofgem has concerns with the concept of the BSC Panel determining compensation claims". One of the previous decision letters referred to by Ofgem is for [P80](#) 'Deemed Bid/Offer Acceptance for Transmission System Faults'. In its P80 decision letter, Ofgem states that "In general, Ofgem considers that transmission related issues, such as access arrangements to the Transmission System and compensation following faults on the Transmission System, naturally belong within the governance structure of the CUSC and/or the transmission Charging Methodologies... It is Ofgem's view that compensation following disconnection from the Transmission System relates to NGC's transmission use of system arrangements and hence should be set out in the CUSC or NGC's Charging Methodologies and Statements rather than under the BSC".

together in the same industry code. By majority, the Group therefore recommends that the area of Supplier compensation is given broader consideration under CUSC governance.

Some members do not support the majority Group recommendation. As above, some do not support the original reasons for including Interruption Payments in the CUSC (but note that it is consistent to keep all equivalent arrangements together). Others believe that it is not inconsistent to include Supplier compensation in the BSC for Partial Shutdowns while leaving other types of Supplier compensation to be considered elsewhere. However, these members have not suggested how the practical difficulties of calculating Supplier compensation can be overcome.

Summary of P276 compensation arrangements

The diagram below summarises the P276 compensation arrangements. The purple areas show the compensation for BM Units given black start instructions, while the blue areas show the proposed compensation for other generators and Suppliers.



Views of Assessment Consultation respondents

The following table summarises the views of Assessment Consultation respondents on the P276 compensation arrangements.

All respondents agree with the proposed BSC arrangements. Respondents also agree that any further discussion of compensation for Suppliers and/or generators who lose transmission access in the affected area should be progressed under CUSC governance. One respondent notes that, while changes to the CUSC are not necessary to deliver P276, it would be helpful from a certainty perspective if the P276 implementation lead time allowed for this CUSC discussion to take place. The Workgroup has taken this into account in its recommended Implementation Date for P276 (see Section 6).

Assessment Consultation Question	Yes	No	Neutral / Other
Do you agree with the proposed BSC compensation arrangements for Partial Shutdowns in which the market is not suspended?	6	0	0

Workgroup’s conclusions following Assessment Consultation

Given the above support from respondents, the P276 compensation arrangements remain unchanged following the Assessment Consultation.



Further information

Attachment A contains further information about the P276 compensation arrangements, including some worked examples.



Consultation responses

Attachment C contains the full Assessment Consultation responses.

Impacts

Impact on BSC Agents	
Balancing Mechanism Report Agent	BSC Agents will need to update their local working instructions to reflect that the market will not be suspended automatically following a Partial Shutdown. As existing practice is that BSC Agents will not invoke any of the BSC's market suspension provisions unless instructed by ELEXON (see Attachment A), this does not involve significant process changes.
Energy Contract Volume Aggregation Agent	
Settlement Administration Agent	
Funds Administration Agent	

Impact on BSC Parties and Party Agents
<p>BSC Trading Parties will be directly affected by any decision to continue or suspend normal BSC market operations. The intention of P276 is that Parties continue trading unless/until the Market Suspension Threshold is met. Regardless of whether the market is suspended, any BM Unit which is given a black start instruction by National Grid will (as now) be eligible to claim compensation under the BSC. The Workgroup recommends that separate consideration is given to expanding the CUSC's Interruption Payments for loss of transmission access, to cover Suppliers and/or generators who lose access to the Transmission System during a Partial Shutdown in which the market is not suspended.</p> <p>There is no direct impact on notification agents (ECVNAs and MVRNAs) because, as now, the Energy Contract Volume Aggregation Agent (ECVAA) will manually nullify any contract notifications (ECVNs and MVRNs) submitted during a Market Suspension Period (see Attachment A for more details). However, notification agents may wish to update their local working instructions to reflect that contract notifications will no longer be suspended automatically during a Partial Shutdown, but only where the Market Suspension Threshold is met.</p>

Impact on Transmission Company
<p>P276 will introduce two main additional BSC requirements on National Grid to:</p> <ul style="list-style-type: none"> Monitor the spot time Initial National Demand Out-Turn against the (pre-shutdown) spot time National Demand forecast and if either: <ul style="list-style-type: none"> The out-turn demand becomes equal to or lower than 95% of the forecast; or National Grid no longer has pre-shutdown forecast data to accurately determine the demand lost, notify ELEXON of the time and date that this occurred; and Where there has been no market suspension, notify ELEXON of the time that the Total System returned to normal operation.

Impact on ELEXON	
Manage P276 implementation	If Ofgem approves P276, ELEXON will update the BSC and impacted Code Subsidiary Documents.

Impact on ELEXON	
Black Start contingency procedures	<p>P276 will introduce two main additional BSC requirements on ELEXON to:</p> <ul style="list-style-type: none"> • Notify BSC Parties of the Settlement Period from which any Market Suspension Period began; and • Where there has been no market suspension, notify BSC Parties of the Settlement Period from which the Total System returned to normal operation and which represents the end of the Black Start Period.

Impact on BSC Panel	
Determination of Black Start claims	<p>P276 will amend the calculation (but not the intention) of the BSC's black start compensation, to reflect the continuation of dual imbalance prices and contract positions during any Settlement Periods in which there is a Black Start Period but not a Market Suspension Period.</p> <p>P276 will also amend the definition of what is an eligible 'black start instruction' for compensation claims relating to these Settlement Periods.</p> <p>The Panel may wish to update any local working instructions or guidance relating to the determination of black start compensation claims.</p>

Impact on Code	
Section G 'Contingencies'	Changes will be required to reflect the P276 solution and, specifically, to separate the concepts of Black Start Period and Market Suspension Period through the use of the Market Suspension Threshold. You can find the BSC legal text in Attachment B.
Section T 'Settlement and Trading Charges'	A minor cross-referencing change will be needed. See Attachment B.
Annex X-1 'General Glossary'	New definitions of Market Suspension Threshold and Market Suspension Period will be required. ELEXON has also taken the opportunity to define Black Start Period in Annex X-1, and to correct a housekeeping error in the BSC's definition of 'System Warning' where the corresponding Grid Code defined term has recently changed. See Attachment B.
Annex X-2 'Technical Glossary'	A change to the existing definition of Initial National Demand Out-Turn will be required. ELEXON has also taken the opportunity to address housekeeping errors in some other existing definitions, to correct typographical errors or reflect recent changes in the corresponding Grid Code defined terms. See Attachment B.

Impact on Code Subsidiary Documents	
BSCP201 'Black Start and Fuel Security Contingency Provisions and Claims Processes'	Changes will be required to reflect the P276 solution and, specifically, to separate the concepts of Black Start Period and Market Suspension Period through the use of the Market Suspension Threshold. If P276 is approved, ELEXON will draft these changes and issue them for consultation during the implementation phase.
BSCP18 'Corrections to Bid-Offer Acceptance Related Data'	Very minor changes may be needed to Sections 3.3 and 3.4 relating to Emergency Instructions, to reference the amended BSC definition of black start instruction. If P276 is approved, ELEXON will draft these changes and issue them for consultation during the implementation phase.
ECVAA Service Description	<p>Minor changes will be needed to Section 20 'Contingency Provisions', to reflect that the market will only be suspended (and contract and credit positions set to zero) if there is either:</p> <ul style="list-style-type: none"> • A Total Shutdown or; • A Partial Shutdown in which the Market Suspension Threshold is met. <p>If P276 is approved, ELEXON will draft these changes and issue them for consultation during the implementation phase.</p>
SAA Service Description	No changes are required to Section 7.1 'Single Imbalance Price'.

Impact on Core Industry Documents and other documents	
Grid Code	<p>OC9 currently:</p> <ul style="list-style-type: none"> • Assumes that the BM is always suspended following a Partial Shutdown; and • Uses the resumption of normal BSC market operations to deem the return to normal of the Total System and the end of the Grid Code's Black Start provisions. <p>It will therefore require consequential changes to:</p> <ul style="list-style-type: none"> • Reflect that the BM will not be suspended automatically following a Partial Shutdown; • Introduce provisions, where the market has not been suspended, for National Grid to determine and notify to Grid Code Users/ ELEXON the time that the Total System returned to normal operation; and • Reflect that, where the market has not been suspended, the Settlement Period determined by ELEXON as corresponding with the time that the Total System returned to normal represents the end of the Grid Code's Black Start provisions.

Impact on Core Industry Documents and other documents	
CUSC	No CUSC changes are required to reflect the revised BSC rules. However, the Group recommends that (if P276 is approved) separate consideration is given to extending the CUSC's Interruption Payments to cover Suppliers and/or generators who lose access to the Transmission System during a Partial Shutdown in which the market is not suspended.
System Management Action Flagging Methodology Statement	The Workgroup recommends that (if P276 is approved) National Grid reviews this document to ensure that the rules for flagging system-balancing actions are clear in relation to Partial Shutdowns in which the market is not suspended.



Legal text

Three sets of amendments have been made to the legal text following the Assessment Consultation: one to include the 72-hour 'backstop' after which the market will be suspended (see Section 3), and two to address minor drafting/ clarity points raised by National Grid.

The amended sections are G3.1.4 to G3.1.7.

No further changes have been made following the Report Phase Consultation (see Section 9).

Legal text

All Assessment Consultation respondents agree that the legal text delivers the intended solution. The Workgroup has made some amendments to this text following the consultation (see right), and you can find the updated version in Attachment B.

Assessment Consultation Question	Yes	No	Neutral / Other
Do you agree that the draft BSC legal text delivers the intention of the Proposer's P276 solution?	5	0	0



Implementation Costs

The ELEXON and National Grid implementation costs were not available for the Assessment Consultation, but were provided in the Report Phase Consultation.

Costs

With the exception of National Grid, no Assessment Consultation respondents have identified any implementation costs to their organisations.

Assessment Consultation Question	Yes	No	Neutral / Other
Would P276 give rise to any one-off implementation costs or ongoing operational costs for your organisation?	1 (National Grid)	5	0

ELEXON's estimated implementation costs are approximately £7k to make the necessary BSC documentation changes. There is no cost to any BSC Agents.

National Grid's estimated implementation costs are as follows:

- Developing and implementing a manual threshold-monitoring process for use by its Control Room staff will cost no more than £100k;
- Developing and implementing an automated threshold-monitoring process within its Control Room IT systems will cost up to £300k.

The Workgroup has asked National Grid to consider whether a manual solution could enable an earlier implementation of P276. Since the Group agrees with National Grid that this should only be a temporary solution until the automated solution is implemented, this approach would make National Grid's total implementation cost approximately £400k. National Grid's impact assessment in Attachment D explains both the manual and automated solutions in more detail. Following its consideration of this impact assessment and the Assessment Consultation responses, the Group has concluded that it is better to delay the implementation of P276 to deliver the automated IT solution. See Section 6.

P276 Final Modification Report

15 June 2012

Version 1.0

Page 36 of 49

© ELEXON Limited 2012



Implementation approach

The Workgroup recommends an Implementation Date of 31 March 2014 if Ofgem approves P276 on or before 28 March 2013. This section explains why.

Although the Group sought the views of Assessment Consultation respondents on the appropriate approach, it did not consult on this specific date. You can find the Panel's initial views in Section 8, the views of Report Phase Consultation respondents in Section 9, and the Panel's final views in Section 10.

The BSC impacts of P276 are document-only. The chosen Implementation Date therefore depends on the lead time required by National Grid to put in place the necessary systems and/or processes to monitor the demand-loss element of the Market Suspension Threshold.

Choice of manual or automated threshold-monitoring solution

The Workgroup agrees with National Grid's advice that, in the long-term, it is desirable to automate the threshold-monitoring process within its Control Room IT systems in order to reduce the administrative effort involved. However, because National Grid is currently undertaking a major [project](#) to replace its existing Balancing Mechanism systems in 2013, it cannot deliver this automated functionality until the first quarter of 2014.

At the Group's request, National Grid has therefore explored the possibility of using a manual monitoring solution in the interim.²⁵ The earliest feasible point at which Ofgem could approve P276 is mid-July 2012 (based on the Panel issuing its final Modification Report to Ofgem in mid-June). The 26-week lead time needed by National Grid to develop the manual solution means that P276 cannot be implemented until the first quarter of 2013 at the earliest.

The Workgroup notes National Grid's advice that a manual solution will require Control Room staff to interface with a variety of separate forecasting and operational data systems that are themselves due to be changed over the next 12-18 months, and as such is not simple or low-cost. The Group agrees that the additional cost in developing such a manual interim solution in addition to an enduring IT solution may be disproportionate if this manual solution is only used for a short time. See Section 5 for details of these costs.

The Group also notes National Grid's concerns over the robustness of, and effort involved in, a manual solution as follows:

- It requires an ad-hoc solution to access critical operational systems to which access is strictly controlled;
- It places an additional resource burden on Control Room staff at a time when National Grid's operational priority is restoring the Transmission System; and
- The time which National Grid takes to report that the Market Suspension Threshold has been met may therefore be considerably extended beyond that of an automated solution.

See National Grid's impact assessment in Attachment D for more information.

Interaction with Grid Code and CUSC

The Workgroup notes that consequential changes to Grid Code OC9 are needed to support the P276 solution (see Section 5 for a description of these changes). Progression of these Grid Code changes cannot begin until the P276 solution and legal text is finalised. However, the Group agrees that ideally they should be implemented in parallel with the BSC solution to avoid any disjoint between the BSC and Grid Code provisions for Partial Shutdowns.

²⁵ The BSC legal text in Attachment B leaves National Grid the flexibility to use either a manual or automated process by requiring it to monitor the spot time INDO against its pre-shutdown, day-ahead spot time National Demand forecast "at least once every 15 minutes".

For example, the Grid Code currently states that the Balancing Mechanism will be suspended during a Partial Shutdown and that all generators will be dispatched by National Grid. This will no longer be the case automatically under P276. Any time lag between implementing the BSC and Grid Code changes could therefore cause confusion for participants if a Partial Shutdown occurs during that time.

No CUSC changes are required to reflect the revised BSC rules. However, the Group recommends that, if P276 is approved, separate consideration is given to extending the CUSC's Interruption Payments to cover Suppliers and/or generators who lose access to the Transmission System during a Partial Shutdown in which the market is not suspended.

Views of Assessment Consultation respondents

The Workgroup has sought Assessment Consultation respondents' views on the best implementation approach for P276. Of the respondents who provided comments:

- Two support an early implementation for P276 (one of whom states that they support this being via a manual interim solution if need be);
- One (National Grid) refers to their impact assessment in which they state a strong preference for an automated solution and for aligning the implementation of the BSC and Grid Code changes; and
- One considers that, while it is not essential to amend the CUSC, it would be helpful to address any CUSC issues in a similar timeframe to the BSC and Grid Code changes – even if this means extending the P276 implementation timeline.

Assessment Consultation Question	Yes	No	Neutral / Other
Do you have any views on the appropriate implementation approach for P276?	3	2	1

Workgroup's conclusions following Assessment Consultation

While the implementation of P276 is not contingent on any improvements to the CUSC arrangements, the Workgroup notes the view of an Assessment Consultation respondent that it could give helpful certainty if the P276 implementation lead time allowed for this CUSC discussion to take place.

The Group also agrees that, to promote certainty of the rules, the BSC and Grid Code changes should be implemented in parallel.

The Workgroup notes the additional lead time which will be needed for the necessary Grid Code and CUSC discussions, the additional costs of using a manual solution for a relatively short period and National Grid's concerns over the manual solution. It therefore concludes that the most appropriate approach is to set an Implementation Date for P276 of the end of Quarter 1 2014, as this is the earliest point that National Grid can implement the automated solution. National Grid's lead time for developing this solution is approximately 6 months. However, since the proposed Implementation Date is a long time away the Group agrees that it is better to set a total implementation timeline of 12 months. This is because it considers that an earlier Ofgem decision on P276 may aid the Grid Code and CUSC discussions.



What are the Applicable BSC Objectives?

- The efficient discharge by the Transmission Company of the obligations imposed upon it by the Transmission Licence
- The efficient, economic and co-ordinated operation of the National Electricity Transmission System
- Promoting effective competition in the generation and supply of electricity and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity
- Promoting efficiency in the implementation of the balancing and settlement arrangements
- Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency²⁷

The Workgroup's recommended Implementation Date for P276 is therefore 31 March 2014 if Ofgem's decision is received on or by 28 March 2013.²⁶ As the BSC impacts are document-only, there is no material saving in ELEXON costs from including P276 in a standard BSC Release. The Workgroup's recommended Implementation Date therefore aligns with National Grid's own IT systems release date. The Group believes that Ofgem should have no difficulty making a decision by March 2013, and therefore has not put forward any fall-back Implementation Date.

The Group notes that, while it would ideally have liked a quicker implementation, it is important that any solution is robust and that Parties have certainty of the rules that will apply during a Partial Shutdown in which the market continues. Although the shortcomings of the existing rules have been acknowledged for a number of years, addressing them has not been an immediate priority for the industry and the Group considers that the likelihood of a Partial Shutdown occurring before 2014 is low.

7 The Case for Change

This section explains the views of the Workgroup and Assessment Consultation respondents. You can find the Panel's initial views in Section 8, Report Phase Consultation respondents' views in Section 9, and the Panel's final views in Section 10.

Workgroup's initial views

The following table shows the Group's initial views before the Assessment Consultation.

Does P276 better facilitate the Applicable BSC Objectives?		
Obj	Proposer's Views	Other Workgroup Members' Views
A	<ul style="list-style-type: none"> Neutral – no impact. 	<ul style="list-style-type: none"> Neutral (unanimous) – no impact.
B	<ul style="list-style-type: none"> Yes - enables the Transmission Company to operate the Transmission System in the most efficient manner without being constrained by concerns about triggering market suspension. <p>Efficient in this context means the quickest or best technical method – this, and not which method is most economic, is the key consideration for National Grid in restoring the system.</p>	<ul style="list-style-type: none"> Yes (majority) – for the reasons cited by the Proposer and because: <ul style="list-style-type: none"> The issue currently is that the Transmission Company may be reluctant to use Black Start directions under the Grid Code because this automatically meets the Grid Code's definition of a Partial Shutdown and therefore automatically triggers market suspension under the BSC. Re-energising the shutdown area using the 'healthy' system instead could take longer and cause further damage to more of the system; Once a Partial Shutdown exists, the decision whether or not to suspend the market under the BSC makes no difference to the speed in which the Total System is restored under the Grid Code; if the Transmission Company needs a Party to take a specific action it will issue an Emergency Instruction or BOA as appropriate. No (minority) – concerned about the unintended consequences of keeping the market open, and of Parties not having enough information to know what to do and therefore taking actions which may not help the Transmission Company.

P276 Final Modification Report

15 June 2012

Version 1.0

Page 39 of 49

© ELEXON Limited 2012

²⁶ The 28th is the last Working Day in March 2013.

²⁷ The Agency for the Co-operation of Energy Regulators.



Does P276 better facilitate the Applicable BSC Objectives?

Obj	Proposer's Views	Other Workgroup Members' Views
C	<ul style="list-style-type: none"> • Yes – ensures BSC Parties are not exposed to the disruption of market suspension in situations where this disruption would be greater than that caused by not suspending the market. 	<ul style="list-style-type: none"> • Yes (majority) – for the reasons cited by the Proposer, and because: <ul style="list-style-type: none"> ○ This issue has been known about, and has been a recognised matter of concern, for a number of years; ○ It is always preferable to allow the market to continue where it can; ○ The solution has to be based on assumptions and hypothetical analysis because there are no real-life examples of a Partial Shutdown; ○ The proposed threshold is sufficiently low that the risk of inappropriate market continuation is small; ○ The threshold can be reviewed again in light of experience if a Partial Shutdown ever occurs. • No (minority) – because: <ul style="list-style-type: none"> ○ Not sure keeping the market open is a good thing in these circumstances; ○ The proposed 5% threshold doesn't relate to a physical/technical system definition and is therefore slightly arbitrary; ○ P276 is based on the assumption that Parties can continue trading and it is not proven that this is the case.
D	<ul style="list-style-type: none"> • Yes – avoids suspending the normal balancing and Settlement operations (and the effort incurred in restoring these operations post-event) except where justified by the materiality of the shutdown. 	<ul style="list-style-type: none"> • Yes (majority) – for the reasons cited by the Proposer. • No (minority) – the current arrangements have managed to avoid the issue identified by P276; if National Grid has been exercising its discretion to avoid market suspension then this is a good thing.
E	<ul style="list-style-type: none"> • Neutral – no impact. 	<ul style="list-style-type: none"> • Neutral (unanimous) – no impact.

Consultation responses

Attachment C contains the full Assessment Consultation responses.

Views of Assessment Consultation respondents

The following table summarises the views of Assessment Consultation respondents on the Applicable BSC Objectives. One respondent cites Objective (d) only in support of their views; all other respondents identify benefits under Objectives (b), (c) and (d). All respondents are neutral on Objectives (a) and (e).

Respondents generally do not identify any new arguments. However, in its Transmission Company impact assessment (see Attachment D), National Grid believes that by avoiding the need to centrally dispatch all generators P276 will promote the efficient operation of the Transmission System and thereby has indirect benefits for the security of supply.

Assessment Consultation Question	Yes	No	Neutral / Other
Do you agree that the Proposer's P276 solution better facilitates Applicable BSC Objectives (b), (c) and (d) and has no impact on Applicable BSC Objectives (a) and (e)?	6	0	0

P276 Final Modification Report

15 June 2012

Version 1.0

Page 40 of 49

© ELEXON Limited 2012

Workgroup's final views

The following table shows the Group's final views after the Assessment Consultation.

Does P276 better facilitate the Applicable BSC Objectives?		
Obj	Proposer's Views	Other Workgroup Members' Views
A	<ul style="list-style-type: none"> • Neutral – no impact. 	<ul style="list-style-type: none"> • Neutral (unanimous) – no impact.
B	<ul style="list-style-type: none"> • Yes - enables the Transmission Company to operate the Transmission System in the most efficient manner without being constrained by concerns about triggering market suspension. <p>Efficient in this context means the quickest or best technical method – this, and not which method is most economic, is the key consideration for National Grid in restoring the system.</p> <p>Continuing the market where possible also avoids National Grid having to centrally dispatch all generators. This would have efficiency benefits for the operation of the Transmission System.</p>	<ul style="list-style-type: none"> • Yes (majority) – for the reasons cited by the Proposer and because: <ul style="list-style-type: none"> ○ The issue currently is that the Transmission Company may be reluctant to use Black Start directions under the Grid Code because this automatically meets the Grid Code's definition of a Partial Shutdown and therefore automatically triggers market suspension under the BSC. Re-energising the shutdown area using the 'healthy' system instead could take longer and cause further damage to more of the system; ○ Once a Partial Shutdown exists, the decision whether or not to suspend the market under the BSC makes no difference to the speed in which the Total System is restored under the Grid Code; if the Transmission Company needs a Party to take a specific action it will issue an Emergency Instruction or BOA as appropriate. • Neutral (minority) – difficult to know how Parties would trade in practice, and therefore whether continuing the market would be more efficient for the Transmission System than central dispatch. However, P276 gives another tool to National Grid in managing the system.
C	<ul style="list-style-type: none"> • Yes – ensures BSC Parties are not exposed to the disruption of market suspension in situations where this disruption would be greater than that caused by not suspending the market. 	<ul style="list-style-type: none"> • Yes (majority) – for the reasons cited by the Proposer, and because: <ul style="list-style-type: none"> ○ This issue has been known about, and has been a recognised matter of concern, for a number of years; ○ It is always preferable to allow the market to continue where it can; ○ The solution has to be based on assumptions and hypothetical analysis because there are no real-life examples of a Partial Shutdown; ○ The proposed threshold is sufficiently low that the risk of inappropriate market continuation is small; ○ The threshold can be reviewed again in light of experience if a Partial Shutdown ever occurs. • Neutral (minority) – difficult to know what would happen in practice, and therefore how individual Parties will be affected. However, the proposed threshold is sufficiently low that the risk of severe adverse impacts is small.



Recommendation

The Workgroup unanimously recommends that P276 is approved.

All Assessment Consultation respondents support P276.

Does P276 better facilitate the Applicable BSC Objectives?

Obj	Proposer's Views	Other Workgroup Members' Views
D	<ul style="list-style-type: none"> • Yes – avoids the disruption of suspending the normal balancing and Settlement operations (and the effort incurred in restoring these operations post-event) except where justified by the materiality of the shutdown. 	<ul style="list-style-type: none"> • Yes (unanimous) – for the reasons cited by the Proposer, and because P276 is a pragmatic solution to a difficult problem which is an improvement over the current arrangements.
E	<ul style="list-style-type: none"> • Neutral – no impact. 	<ul style="list-style-type: none"> • Neutral (unanimous) – no impact.



What is the Panel's initial view?

Some Panel Members, like some Workgroup members and Assessment Consultation respondents, are unsure whether P276 is the best possible solution.

However, like all Workgroup members and Assessment Consultation respondents, all Panel Members believe that P276 is better than the existing arrangements.

This section summarises the Panel's initial views after considering the Workgroup's Assessment Report. The Panel has consulted on these views, and Section 9 summarises the responses received to its Report Phase Consultation. You can find the full Report Phase Consultation responses in Attachment E, and the Panel's final views in Section 10.

Panel's general views

The Panel has discussed the proposed P276 solution and, in particular, the following areas:

- Whether the decision to suspend the market should be mechanistic or subjective, and who should make this decision;
- Whether the proposed Market Suspension Threshold should be 'hard-wired' into the BSC or should be a Panel-set parameter, given the likelihood that the threshold will be revisited in light of experience if a Partial Shutdown ever occurs; and
- Whether or not the market should be suspended when National Grid runs out of pre-shutdown, short-term forecast data.

While Panel Members have different views in these areas, these mirror the Workgroup's own discussions as set out in Sections 3 and 4. All Panel Members agree with the principle behind P276 that the market should continue to operate during a Partial Shutdown up to the point that this would result in greater disruption and a disorderly market. As in the Workgroup's discussions, some Panel Members are unsure that the proposed P276 solution is the best possible approach to the problem. Some are uncomfortable with the uncertainty as to whether 5% is the best threshold level and/or whether the proposed 72-hour backstop is necessary, given that no Partial Shutdown has ever occurred under NETA. One Panel Member suggests that DECC would be best placed to decide whether or not to suspend the market, and that this decision should be made on a case-by-case basis although based on appropriate pre-determined criteria.

One Panel Member questions whether further analysis could have been done on the imbalance implications for affected Parties in the shutdown area, particularly those who operate purely in that geographic area and are likely to be most affected. However, this member notes that such analysis would be very difficult to undertake. They also note the Workgroup's view that the potential imbalance exposure for specific Parties is an argument for having appropriate CUSC compensation arrangements, and that the Market Suspension Threshold should be based on the relative overall imbalance exposure across all Parties. The Panel Member supports a long implementation lead time for P276 so that the appropriate CUSC arrangements can be developed.

While some Panel Members believe that there may be better solutions, all agree that the proposed P276 solution is preferable to the current arrangements. Some members note that, by avoiding automatic suspension of the market when Black Start directions are issued under the Grid Code, P276 will give National Grid an extra tool in managing the system. One member comments that P276 is a pragmatic solution given the uncertainty over what could happen in practice during a Partial Shutdown.

Applicable BSC Objectives

The Panel's initial unanimous view is that P276 will better facilitate the achievement of Applicable BSC Objectives (b), (c) and (d) for the reasons identified by the Workgroup and Assessment Consultation respondents in Section 7. The Panel agrees that P276 has no impact on Objectives (a) or (e).

Implementation Date

The Panel initially, and unanimously, supports the Workgroup's recommended Implementation Date for the reasons set out in Section 6.

Legal Text

The Panel's initial unanimous view is that the BSC legal text in Attachment B delivers the intention of the P276 solution.



What are Report Phase respondents' views?

All respondents support the Panel's initial recommendation to approve P276.

No respondents disagree with the proposed Implementation Date or legal text.

9 Report Phase Consultation Responses

This section summarises the responses to the Panel's Report Phase Consultation on its initial recommendations. You can find the full responses in Attachment E.

Two Parties who previously responded to the Workgroup's Assessment Consultation have not responded in the Report Phase. One Party who did not respond at the Assessment stage has provided a Report Phase Consultation response.

Report Phase Consultation Question	Yes	No	Neutral / Other
Do you agree with the BSC Panel's initial view that P276 better facilitates Applicable BSC Objectives (b), (c) and (d) and has no impact on Applicable BSC Objectives (a) and (e)?	5	0	0
Do you agree with the Panel's recommended Implementation Date?	4	0	1
Do you agree that the draft BSC legal text delivers the intention of the P276 solution?	3	0	2

Applicable BSC Objectives and P276 solution

All respondents agree with the Panel that P276 better facilitates the achievement of Applicable BSC Objectives (b), (c) and (d), and none identify any impact on Objectives (a) and (e).

No respondents raise any new arguments on the merits of P276, with some commenting that P276 is a pragmatic improvement on the current arrangements and a straightforward solution to a long-standing concern.

Some Report Phase respondents have reiterated the minority views of Assessment Consultation respondents and Workgroup members regarding the following areas of the P276 solution:

- Some Report Phase Consultation respondents suggest that the proposed Market Suspension Threshold percentage could or should be higher than 5%;

- One respondent suggests that the threshold analysis should be repeated based on different assumptions regarding the flagging of system-balancing actions; and
- One respondent suggests that an element of subjective judgement should be exercised when deciding whether to suspend the market once it is no longer possible to make an accurate, mechanistic determination of the lost demand.

There are no new arguments in addition to those already captured in pages 24-27 of this report.

Implementation Date

No respondents disagree with the Implementation Date recommended by the Workgroup and the Panel.

Some respondents comment that, while they would have preferred an earlier implementation, they recognise the reasons behind the proposed date (see Section 6).

Legal text

No respondents disagree with the proposed BSC legal text, which the Workgroup also previously consulted on in the Assessment phase (see Section 5). National Grid's response notes that its comments made in the previous consultation have been addressed.

One Report Phase Consultation respondent, who did not respond at the Assessment stage, has provided three comments on the legal text as outlined below. ELEXON has spoken to the respondent to clarify their understanding of the legal text in each area, and no changes have been made to the text.

Respondent's comment	Result of discussion between respondent and ELEXON
It would be more consistent with the other Market Suspension Threshold criteria if National Grid, not ELEXON as proposed, determined that 72 hours have elapsed since the Partial Shutdown began.	<p>The legal text reflects the Proposer's intended solution that ELEXON should be responsible for determining that 72 hours have elapsed.</p> <p>The respondent agrees that, because the legal text is clear on how the determination is made, it makes no practical difference whether it is undertaken by National Grid or ELEXON.</p>
The Panel, in making its determination on Avoidable Costs as part of the Black Start compensation process, should take account of any revenues or costs arising from bilateral contracts.	<p>The respondent has clarified that they are not requesting a change to the legal text, just flagging a level of detail which the Panel will need to consider when considering compensation claims.</p> <p>The respondent agrees that this also applies to the existing arrangements, and not just P276. They also agree that it is covered by the existing provisions of BSC Section G2.1.4 regarding the determination of Avoidable Costs (which can be positive or negative) and, in particular, that "costs include lost revenues, and costs saved include revenues earned" (G2.1.4(a)). P276 does not change the provisions for determining Avoidable Costs.</p>

Respondent's comment	Result of discussion between respondent and ELEXON
<p>The legal text implies that the determination of BSC Black Start compensation claims could depend on the order in which they are processed.</p>	<p>ELEXON has pointed the respondent to the worked examples of the Black Start compensation algebra in Section 9 of Attachment A.</p> <p>As outlined in these examples, the legal text is intended to allow claims to be processed in any order. The algebra for the imbalance charges element of the compensation (Amount B) takes account of any related, previously-processed claims for the same Settlement Period. This ensures that, while the apportionment of compensation between individual BM Units depends on the order in which claims are processed, the overall amount of compensation paid to the Lead Party is correct.</p> <p>The only exception is where two or more claims for the same Settlement Period have different Lead Parties but these Lead Parties have allocated their BM Unit Metered Volumes (through a Metered Volume Reallocation Notification, or MVRN) to the same Subsidiary Party. While the algebra takes account of the Subsidiary Party's imbalance position, the compensation is paid to the Lead Parties and the apportionment of compensation between them will be affected by the order in which the claims are processed. The Workgroup has been unable to identify a more appropriate means of addressing MVRNs in the compensation algebra; the P276 solution therefore leaves it to the Parties involved to make their own arrangements (e.g. in the contracts associated with the MVRN) to redistribute funds appropriately.</p> <p>The respondent notes that the legal text therefore delivers the intended solution.</p>



What is the Panel's final view?

Some Panel Members, like some Workgroup members and consultation respondents, remain unsure whether P276 is the best possible solution.

However, like all Workgroup members and consultation respondents, all Panel Members believe that P276 is better than the existing arrangements.

This section summarises the Panel's final views after considering the Report Phase Consultation responses.

Panel's general views

The Panel notes that the Report Phase Consultation responses contain no new arguments.

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. The Member supports the suggestion of some Workgroup members and one Report Phase respondent that the threshold could be a combination of a percentage and a MW figure (see pages 24-27 of this report for the reasons why the Workgroup has not progressed this suggestion).

The Panel notes that all Workgroup members and consultation respondents agree that the Proposer's P276 solution is better than the existing arrangements. The Panel unanimously agrees with this view. It notes that the Workgroup has undergone a seven-month Assessment Procedure and that, despite various suggestions from Workgroup members and respondents that the solution could be improved, there has been no majority consensus on what a better solution would be.

Applicable BSC Objectives

The Panel's final unanimous view is that P276 will better facilitate the achievement of Applicable BSC Objectives (b), (c) and (d) for the reasons identified by the Workgroup in Section 7. The Panel agrees that P276 has no impact on Objectives (a) or (e).

Implementation Date

The Panel continues to unanimously support the Workgroup's recommended Implementation Date for the reasons set out in Section 6.

Legal Text

The Panel's unanimous view is that the BSC legal text in Attachment B delivers the intention of the P276 solution.

11 Recommendations



Recommendation

The Panel unanimously recommends approval of P276.

The BSC Panel unanimously recommends to the Authority:²⁸

- That P276 should be approved;
- An Implementation Date of 31 March 2014 if an Authority decision is received on or before 28 March 2013; and
- The BSC legal text in Attachment B.

12 Further Information

You can find more information in:

Attachment A: Detailed Assessment

Attachment B: BSC Legal Text

Attachment C: Assessment Consultation Responses

Attachment D: Transmission Company Impact Assessment

Attachment E: Report Phase Consultation Responses

You can find further P276 documents on ELEXON's [website](#).

²⁸ The Authority is the body that governs Ofgem and to whom the Panel makes its recommendations under the BSC.

Appendix 1 – Estimated Industry Progression Costs

Initial estimate of industry progression costs from the IWA

Estimate of total industry assessment costs					
Workgroup support	Est #mtgs	Est # att	Est effort	Est rate	total
	4	5	1.5	605	£18,150
Consultation response support	Est #con	Est # resp	Est effort	Est rate	total
	2	6	2.5	605	£18,150
Total					£36,300

This was based on:

- The estimated number of Workgroup meetings and industry attendees per meeting, plus the estimated number of industry consultations and responses;
- The assumption that each industry attendee puts in 1.5 man days of effort per meeting, and that each respondent spends 2.5 man days in effort per consultation response; and
- A standard rate of £605 per man day of effort.

At the IWA stage, the resulting estimate was:

*4 Workgroup meetings x 5 attendees x 1.5 MDs effort x £605 = **£18,150***

*6 responses x 2.5 MDs effort x £605 x 2 consultations = **£18,150***

Total = £36,300

Updated estimate of industry progression costs

This updated estimate is based on the actual number of Workgroup meetings and industry meeting attendees, plus the actual number of consultations and responses.

Estimate of total industry assessment costs – Final Modification Report					
Workgroup support	Meeting #	Actual att	Est effort	Est rate	Total
	1	7	1.5	605	£6,352.50
	2	7	1.5	605	£6,352.50
	3	6	1.5	605	£6,352.50
	4	5	1.5	605	£6,352.50
Consultation response support	Consultation	Actual resp	Est effort	Est rate	Total
	Assessment	6	2.5	605	£9,075.00
	Report	5	2.5	605	£7,562.50
Total					£42,047.50