
Meeting name	BSC Panel
Date of meeting	10 July 2008
Paper title	Issue 32 Black Start Report
Purpose of paper	For Information
Synopsis	Issue 32 'Black Start' was raised to consider and develop detailed requirements to enable the Panel, BSC Parties, BSCCo and BSC Agents to fulfil their BSC Black Start obligations in a timely manner. This paper sets out the recommendations of the Issue 32 Group and the Group has concluded that further detail should be provided within the BSC in relation to a Black Start event. The Issue Group recommend that a single Modification should be raised to progress the recommendations of both Issue 32 and Issue 33 (Fuel Security Code).

1 Introduction

- 1.1 Section G of the BSC deals with the Panel's obligations relating to a Black Start. A Black Start can be defined as either a Total or Partial Shutdown of the Transmission System (see full description in Grid Code section OC9.1.1). If this situation occurs, the Transmission Company will inform Users pursuant to OC9.4 of the Grid Code of the Total or Partial Shutdown and that the Transmission Company intends to implement a Black Start. It should be noted that whilst the risk of a Total Shutdown remains remote, there is an increased risk (but still low probability) of a Partial Shutdown occurring if a severe weather event were to temporarily disable a part of the Transmission System. Under the current Grid Code definition, in this situation, it appears that this would lead to the suspension of the Balancing Mechanism (BM) as would occur in a Total Shutdown situation.
- 1.2 In July 2007, National Grid participated in a Black Start simulation exercise (Exercise 'Long Shadow'). Several key issues emerged as a result of this exercise which relate to the BSC. For example, should a Black Start situation arise, the BSC details a number of actions and decisions that the Panel, ELEXON and BSC Agents should undertake. There is an agreement in place with BSCCo's existing Service Provider to provide support to ELEXON. However, there are no detailed methodologies in place to enable the Panel, ELEXON or its Agents to fulfil their Black Start BSC obligations; and to provide clear detail to BSC Parties of what they can expect in advance of a scenario where communication, in the initial few days, is likely to be limited.
- 1.3 A paper (133/10) was taken to the BSC Panel in November 2007 summarising the BSC Black Start obligations, actions and the key issues surrounding these obligations that arose from Exercise 'Long Shadow'. The Panel noted the proposed way forward with the associated Black Start issues detailed in the paper and thereafter National Grid raised an issue (Issue 32) in connection with the BSC issues. As a result, the Issue 32 Group (the 'Group') was formed to consider this issue. The Group has met on five occasions since January 2008 and considered solutions to the key issues surrounding Black Start obligations as outlined in Issue 32.
- 1.4 The objectives of Issue 32, as defined by National Grid, are attached in Appendix 1. This paper presents the conclusions of the Issue 32 Group with regards to each of these objectives, the supporting rationale and other options considered. The Group has reviewed the areas as set out in Issue 32 and developed solutions for each of these. Therefore, the Group recommends that a Modification to the Code be raised to implement the suggested changes to Black Start processes.

2 Current BSC Obligations

- 2.1 The main BSC obligations regarding a Black Start are set out in BSC Section G 3 (see Appendix 2 for the full legal text), and are as follows:
- 2.2 (a) The Panel shall (as soon as is practicable following the Transmission Company's notification under OC9.4 of the Grid Code) determine, in consultation with the Transmission Company, the Settlement Period with effect from which the Total Shutdown or Partial Shutdown commenced;
- (b) BSCCo shall, as soon and so far as is practicable, notify all Parties of the Panel's determination under paragraph (a);
- (c) Following the Transmission Company's determination (under OC9.4.7.9) of the time of return to normal operation, the Panel shall determine, after consultation with the Transmission Company, the Settlement Period with effect from which Black Start conditions are to cease to apply; and
- (d) BSCCo shall promptly notify all Parties of the Panel's determination under paragraph (c).
- 2.3 Furthermore, in relation to all Settlement Periods which fall within a Black Start Period:
- (a) Operation of the balancing mechanism shall be suspended;
- (b) A single imbalance cash-out price shall apply; and
- (c) The Lead Parties of BM Units which are given instructions under the Grid Code shall be entitled to be compensated subject to and in accordance with paragraph 3.3 (Section G of BSC).
- 2.4 The following sections describe the key issues and areas of work as set out in Issue 32 (see Appendix 1) and the Group's consideration of each area. The Group's recommended solutions for each issue are also detailed below. The Group have developed a transition diagram detailing the main information and decision points with a Black Start Period and this is included as Attachment A. The diagram depicts a number of key points which are referred to within the following sections, these points are as follows:
- A. The commencement of a Black Start Period under the BSC;
 - B. The return of the GB Transmission System (as notified by National Grid and defined in the Grid Code, OC9.4.7.9);
 - C. The restoration by National Grid of the Balancing Mechanism (BM) system;
 - D. The restoration by ELEXON of the BSC Systems;
 - E. National Grid informs BSC Panel and ELEXON:
 - a Restoration of the Total System (as defined in the Grid Code), that it is able to despatch normally, there are no rolling black-outs and that parties are able to generate;
 - b Whether there are any exceptional circumstances which will impact on the Panel's determination of the single imbalance price;
 - F. Commencement of the BSC Panel process on the determination of the single imbalance price and the settlement Period which will be the commencement of normal BSC operation (end of Black Start Period);
 - G. Point where BSC Parties will begin to negotiate bi-lateral contracts;
 - H. BSC Parties will begin to submit BSC data such as Contract Notifications, Physical Notifications, Bids and Offers, etc;
 - I. BSC Gate Closure for start of normal BSC operation, 'K-[10]' hours;
 - J. National Grid final decision point for start of normal BSC operation 'K-[1]' hour; and
 - K. Commencement of normal BSC operation (end of a Black Start Period).

3 Key Issues and proposed solutions

3.1 Communication:

3.2 *When does the confirmation of the Settlement Period that forms the commencement of the Black Start Period need to be declared?*

How will its declaration be communicated?

3.2.1 As stated above, Section G3 of the BSC currently states that:

a) 'The Panel shall determine, in consultation with the Transmission Company, the Settlement Period with effect from which the Total Shutdown or Partial Shutdown commenced.'

b) 'The BSCCo shall, as soon and so far as is practicable, notify all Parties of the Panel's determination under paragraph a)'.
'

3.2.2 The Group considered that, in the event of a Black Start event, National Grid will declare the commencement (and the Settlement Period in which this occurred) of a Black Start to Grid Code Users (including the BSCCo and BSC Panel) as soon as possible, and by any means possible. **The Group agreed that National Grid's declaration should be taken as the start of a Black Start from both a National Grid perspective and used for the start of the Black Start Period under the BSC arrangements.**

3.2.3 As soon as possible after the initial declaration, the BSC Panel, through ELEXON, will notify all BSC Parties of the Settlement Day and Settlement Period of the commencement of a Black Start Period under the BSC. It should be noted that once a Black Start Period has commenced, National Grid will have communication tools such as Electronic Data Transfer (EDT) to notify Grid Code Users of the commencement of a Black Start Period, even though there may be little or no power available. National Grid will use these systems to communicate with its users.

3.2.4 In the event of a Total Shutdown giving rise to the Black Start, it is likely that normal communication between ELEXON and the industry will be difficult at the start of a Black Start Period (between points A – B (the start of the Black Start Period to the return of the GB Transmission System)) (For more information on these processes see section 3.5). This is because:

- a) there may be limited or no power available, as the GB Transmission System is being re-energised during this period;
- b) what communication channels are operating become overloaded/congested; and
- c) buildings without power are expected to be evacuated for health and safety requirements.

3.2.5 After point B, power should be coming back on-line and therefore the normal communication routes should start to become available. During the time between points A – B, it is unlikely that ELEXON will be able to contact Parties as power may not be available to ELEXON, its BSC Agents or BSC Parties, which is expected to prevent most day-to-day functions operating normally. In addition, even if power is restored, during the time between points A – B there may be periods of time when available supplies of electricity, at individual locations, are interrupted for part of the day using, for example, the Grid Code Demand Control or the Electricity Supply Emergency Code Rota Disconnection arrangements.

- 3.2.6 It is most important that ELEXON has the necessary communications links from point C (return of National Grid Balancing Mechanism (BM) system). From point B, ELEXON will use the normal BSC communication methods such as; ELEXON Circulars, the ELEXON website, and the ELEXON Helpdesk, to communicate with industry. Additionally, as necessary, ELEXON will use any other means possible to communicate with industry, e.g. fax and telephone.
- 3.2.7 ELEXON will use reasonable endeavours to communicate the progress of the key activities under the Black Start Period to BSC Parties. However this may not always be possible due to power/communication issues.

3.3 The single imbalance cash-out price:

Consider what guidance can be given as to how a single imbalance cash-out price should be set to support the Panel process during a Black Start?

- 3.3.1 It is likely that there would be a period of some days (in an extreme scenario it could be weeks) between Grid Code 'normal operation' being resumed and BSC 'normal operation' being possible where all BSC Parties are able to meet their contractual requirements. During this time the BM would remain suspended, a single imbalance price would continue to apply, and National Grid would continue to despatch generation (using Emergency Instructions).
- 3.3.2 Section T1.6 of the BSC provides high-level provisions as to how the single imbalance cash-out price should be determined by the Panel, but does not specify a methodology for deriving the exact value of the price (see Appendix 3 for extract of Section T1.6). In practice it would be very difficult for the BSC Panel to convene during the initial period (points A – B and possibly beyond) of a Black Start event and therefore determine the price. It should be noted that the single imbalance price would only be required post-event and would be subject to approval by the Authority.
- 3.3.3 The Group noted that the single imbalance price could be set once the Black Start provisions cease to apply. However, the Group believed it would be more transparent and helpful to prepare a methodology for the single price calculation in advance, to be used if and when a Black Start event occurred. BSC Agents could be provided with this methodology for determining the price which would help reduce any delays in implementation in the event of a Black Start. The methodology could be available to use if appropriate upon notification of a Black Start and the industry would have an expectation of what would occur following such a notification.
- 3.3.4 This issue has been discussed in depth by the Group. The initial discussions of the Group lead to a majority view that the single imbalance cash-out price should be derived by taking the mean of the System Sell Price (SSP) and System Buy Price (SBP) by Settlement Period over the 30 days preceding the commencement of the Black Start. That is to say the single imbalance price for Settlement Period 10 (05:00) during the time that the BM is suspended would equal the average of all the Settlement Period 10s for the previous 30 days.
- 3.3.5 Therefore, the single imbalance cash-out price will have a different value for each Settlement Period in a Settlement Day. However, any Settlement Periods within the 30 days calculation that were subject to a Black Start or Fuel Security Code (FSC) period or where National Grid had issued an Emergency Instruction would not be included and would be replaced with further Settlement Periods from previous Settlement Days to obtain the 30 day average. Thus, in our example, if over the previous 30 days two of the Settlement Period 10s were subject to an FSC period then the Settlement Period 10s for the previous 31st and 32nd days would be included in the calculation to come up with the average for the previous 30 days.

- 3.3.6 However, there is the opportunity for National Grid to notify the Panel of exceptional circumstances, and if it did so, the Panel would have the option of setting the single imbalance price using a different time period (but using, in all circumstances, at least a minimum of 7 consecutive Settlement Days). If a different time period is used, the Panel would still use the same criteria (as outlined in Section T1.6.2) that the resultant price must be representative of the bulk price of electricity at that time. The Group agreed that National Grid would have knowledge of any Market fluctuations (e.g. prices of Bids and Offers, constraints, emergency instructions, etc.) in the period preceding the Black Start Period. Therefore, National Grid would be best placed to advise the Panel of any 'exceptional circumstances' that should be considered when deciding which period to use to calculate the single price. National Grid noted that at this stage, it was difficult to envisage the exceptional circumstances that might require a different time period to be applied. However, National Grid believed that, should any unforeseen circumstances arise during Black Start, the Panel should have more flexibility regarding the determination of the most appropriate pricing methodology.
- 3.3.7 The Group noted that the rationale for using the 30 day average price is that it is consistent with the approach used for Bid/Offer prices (see Section Q5.5 Historic Balancing Mechanism prices). Furthermore, this approach was consistent with the gas emergency price which used to be based on a 30-day historic average approach. Following implementation of gas Modification UNCO044 "Revised Emergency Cash-out & Curtailment Arrangements" on 1 October 2005, the single 30-day average price for gas emergency arrangements was replaced by a dual price regime which only used price data close to the start of an emergency (i.e. the price data corresponds to the day on which the Network Code Gas Supply Emergency Gas Deficit Emergency started). Given the need for real-time balancing in electricity, the Group agreed that dual prices would not be suitable for use in an electricity emergency situation. The Group also noted Ofgem previously expressed concerns with regards to gas prices in emergency situations.
- 3.3.8 However, the Group noted that National Grid expressed a different view at the Group's meetings such that they believed that the Panel needed further flexibility when setting the single imbalance cash-out price during a Black Start Period. National Grid believed that, if these exceptional circumstances occurred, the Panel should be able to use a different methodology for setting the single imbalance price (for example, using a forward price). This view prompted further Group discussions on setting the price, and the Group also considered the approach of using forward-looking electricity prices as follows.
- 3.3.9 Forward looking electricity prices that currently exist include ones published by APX, Heren and the BSC Credit Assessment (CAP) price. The Group agreed that if a forward price is used to set the single imbalance cash-out price, the CAP price (at the time a Black Start Period occurs) would be the most suitable. The CAP price is currently used in the calculation of Credit Cover under the BSC; it is a forward looking price which reflects the price of wholesale energy (see Appendix 4 on how it is calculated and used under the BSC). However, it is a single value and therefore does not vary by Settlement Period, but it is not a volatile price and gives a fairly robust index.
- 3.3.10 A disadvantage of the CAP price is that participants could anticipate the value during a Black Start Period. Therefore, there was a suggestion that this could cause a situation where Parties go into imbalance on purpose (if this is advantageous to them), and therefore may be able to force a Black Start to occur. However, it was noted, based on previous events, that after a Black Start event a full investigation of the causes of the Black Start will be undertaken by National Grid, Ofgem, BERR and others. The reputation and legal impact, if a BSC Party were found to have taken this course of action would, the Group felt, act as sufficient deterrent to this occurring in practice.

3.3.11 As forward prices are taken from Heren, the forward price would be unlikely to continue to be calculated during a Black Start Period. This means that the CAP price would not be reviewed, and would remain the same value during the entire Black Start Period. Furthermore, the CAP price is the same value for every Settlement Period and has no daily shape, and would not be subject to revision when the Market is suspended. **In conclusion, the majority of the group agreed that using the 30 day price (as described above in paragraphs 3.3.4-3.3.6) should be the method for calculating the single imbalance cash-out price for a Black Start Period.**

3.3.12 The Market will not be certain which thirty day period (or seven day if exceptional circumstances notified) will be used to calculate the single price, therefore this mitigates the issue of Parties potentially trying to force a Black Start event. The methodology to be used to calculate the single imbalance cash-out price needs to be agreed during the Black Start Period (during process F on the transition diagram) in the transition to normal BSC operation. This process is discussed further in paragraph 3.5.10.

3.4 Compensation Arrangements:

Consider whether further guidance and clarity as to Black Start compensation arrangements can be given in the BSC and associated documentation, including recommendation for change to BSC in this area by Grid Code Black Start Working Group?

3.4.1 The BSC allows BSC Parties to submit claims to the BSC Panel for costs incurred as a result of complying with a Black Start Instruction. Sections G2 and G3 (see Appendix 2) of the BSC set out matters which the Panel will have regard to in considering what level of compensation is to be awarded, the calculations to be utilised in the Panel's considerations and a number of obligations regarding the compensation claims process. Section G3 also includes detailed algebra in respect of how the costs associated with the upheld claims would be recovered from the industry through Ad-Hoc Trading Charges. However, the Group suggested that some guidance on how the claims process would work in practice would be helpful.

3.4.2 Clarification of certain key points surrounding the compensation arrangements (such as what elements of costs can and cannot be included in Avoidable Costs) and the types of claims that could be made were considered by the Issue 32 Group. The Group noted that the compensation claims process itself would be very similar to that of the Fuel Security Code (FSC) claims process and that the Issue 33 (FSC) Group were considering this process. Therefore, the Group agreed that further discussion of the claims process should be undertaken by the Issue 33 (FSC) Group (see separate report Panel paper 142/05). Note that there was nearly identical membership for both Issues 32 and 33 Groups).

3.4.3 In December 2007, National Grid issued a Grid Code Consultation Document (G/07) regarding a Grid Code Modification involving Black Start. The changes suggested in the G/07 document were previously developed through the Grid Code Black Start Working Group and endorsed by the Grid Code Review Panel (GCRP) in November 2007 (G/07 Report was submitted to the Authority for decision on 20 May 2008). Section 11.3 – 11.4 of the Consultation Document states:

3.4.4 *'The BSC currently stipulates that Users will receive a level of monetary compensation relating to 'black start instructions' received from National Grid during the 'black start period'. It is recommended that Section G, paragraph 3.3 of the BSC is amended such that 'black start instructions' received from a Network Operators and Relevant Transmission Licensees in accordance with a LJRP (Local Joint Restoration Plan), are captured by the BSC compensation*

mechanism. The provision will only be applicable to instructions received from the designated third parties during the LJRP phase of the Black Start process.

- 3.4.5 *National Grid therefore supports the (Black Start) Working Group's view that further clarification of how the provisions of Section G of the BSC would be implemented in the event of a Total or Partial Shutdown would be beneficial.'*
- 3.4.6 The BSC states that it is only Parties that receive instructions from National Grid pursuant to the relevant Operating or Balancing Code that can submit a claim for payment of compensation after a Black Start event.
- 3.4.7 BSC Section G, 3.3 states:
- 'Lead Party compensation*
- Subject to the provisions of the Code, each Party which:*
- (a) is the Lead Party of any BM Unit (whether or not comprising Plant or Apparatus which is comprised in a Black Start Station as defined in the Grid Code), and*
- (b) is given any instruction (a "black start instruction") by the Transmission Company pursuant to OC9.4.7.4, BC2.7 or BC2.9 of the Grid Code relating to any Settlement Period(s) during a Black Start Period*
- may, within the period of 20 Business Days (or such longer period as the Panel may approve in that case) after the end of the Black Start Period, submit to BSCCo a claim for payment of compensation to be determined in accordance with this paragraph 3.3.'*
- 3.4.8 The Group noted that the BSC 'Black Start Instruction' has the same meaning as an Emergency Instruction given by National Grid during a Black Start Period. Therefore, any Party that is given an Emergency Instruction from National Grid during a Black Start Period can claim for compensation as per BSC Section G 3.3.1.
- 3.4.9 The Group requested guidance from the ELEXON Legal department regarding clarification of parts of BSC Section G; this included a high level summary of the Black Start provisions found within the BSC and a more detailed 'plain English' summary of each relevant paragraph within the BSC (please see Appendix 5). As stated above, Lead Parties of BM Units can claim compensation for Settlement Periods that fall within a Black Start Period.
- 3.4.10 Appendix 5, Section 2, also notes that during a Black Start Period, a Party will be paid their metered volume multiplied by the single imbalance price. In the example of a Generator, if their true costs of generating (as was instructed to generate by National Grid) were greater than the amount received through the "single imbalance cash out price x metered volume calculation", the Generator could claim back the difference (Avoidable Costs – minus the amount the Generator received from the "single imbalance price x metered volume" calculation) through the compensation claims process. As per Appendix 5, paragraph 3.1, Avoidable Costs are (subject to Section G, 3.2) the amount, determined by the Panel as being (in its opinion), the net costs of operating a BMU which arise as a consequence of the relevant changes in Exports and/or Imports during a Settlement Period in a Black Start Period. Therefore if the Generators Avoidable Costs exceeded their income they can claim for compensation, but if their income exceeded their Avoidable Costs they cannot claim for compensation.
- 3.4.11 The Group noted that it is only Lead Parties of BM Units that can claim compensation for a Black Start Period. The Group discussed that there are currently no Lead Parties of BM Units that own a

business that is directly connected to the Transmission network. This should, therefore, make the claims process less complex when considering what can be considered as being an Avoidable Cost.

- 3.4.12 The Group discussed how National Grid Emergency Instructions are treated during a Black Start Period. National Grid also stated that in accordance with the Grid Code paragraph BC2.9, Emergency Instructions are not treated as Bid Offer Acceptances (BOAs). Paragraphs BC2.9.2.3 and BC2.9.1.2 (e)(i), specifically excludes Black Start Emergency Instructions being treated as BOAs. This would mean that Parties would only receive payment, for complying with an Emergency Instruction, through the “single imbalance cash-out price x metered volume” calculation (and through the compensation process).
- 3.4.13 At the first Group meeting it was agreed that the current wording around the post events claims process in the Grid Code and the BSC may need to be clarified, as it is currently unclear whether both generation and demand customers can apply for compensation. The BSC currently states that a Lead Party of a BM Unit which has been given an (Emergency) Instruction by the Transmission Company can claim for ‘Avoidable Costs’ (BSC Section G, 2 and 3.3) which have occurred as a result from acting on the Emergency Instruction. National Grid clarified to the Group that demand customers can be given Emergency Instructions. For example, a large demand customer could receive an Emergency Instruction, such as ‘not to re-connect to the Transmission System’ or ‘do not start taking demand’. However, it was noted that if a route to compensation for demand customers given an Emergency Instruction were permissible this might sit uncomfortably with all other demand customers, who would receive no compensation.
- 3.4.14 BSC Section G, 2.2.1a states that “the Lead Party shall.....provide to the Panel such further information as the Panel may require for the purposes of making its determination under paragraph 2.1.2.’ The Group noted that this would give the Panel a fairly wide discretion in what it can request from Parties seeking compensation.
- 3.4.15 The Black Start compensation claims process disregards Trading Charges. For example, if a demand retail customer buys electricity at the single imbalance cash-out price, but then subsequently gets paid a lower price for that electricity, they cannot claim compensation for this difference. The Group noted that this may affect Parties’ financial viability.
- 3.4.16 The Group agreed that if Generators claim for compensation then the element of Avoidable Costs that would relate to fuel costs, they should only be able to claim for the cost of fuel that they have actually used during the Black Start Period (rather than the cost to replace fuel in the forwards market).
- 3.4.17 As noted above, Avoidable Costs are (subject to any overriding Authority directions to be taken into account) the amount, determined by the Panel as being (in its opinion), the net costs of operating a BMU which arise as a consequence of the relevant changes in Exports and/or Imports during relevant Settlement Periods.
- 3.4.18 The Group have also discussed a scenario where a Lead Party of a BMU which was not operating (i.e. has not been keeping warm or Importing or Exporting) before a Black Start Period commenced then, during a Black Start Period, receives a Black Start Instruction (“BSI”) informing it to “keep the BMU warm” (i.e. to stay ready to generate, but not to Import or Export).
- 3.4.19 In the above scenario, there would be no changes to Imports or Exports for the BMU described as a result of the BSI. The current BSC provisions for compensation during Black Start (paragraph

G3.3) explicitly link compensation to changes in BMU Imports/Exports, therefore the costs which do not involve a change in BMU Imports/Exports (e.g. 'hot standby') are not compensated.

- 3.4.20 The Group sought a view from National Grid who stated that there are two broad options to address this issue:
- a) Amend current Black Start provisions in the BSC so that compensation is applicable even if there is no change in BMU Imports / Exports (subject to the Lead BSC Party being able to demonstrate such incurred costs).
 - b) National Grid to utilise, and compensate for, the BM Start-up Balancing Service. National Grid will then recover this cost via an appropriate route (e.g. Income Adjusting Event).
- 3.4.21 National Grid's view and supported by the Group was to develop option (a) whilst National Grid further considers option (b).
- 3.4.22 The Group discussed this option further and **agreed that any Party should be able to seek compensation for any 'warm up' or 'hot standby' costs that were pursuant to a BSI, even though it does not in itself constitute a change in imports or exports.** Such costs would also be subject to the same determination and vetting process as Avoidable Costs (thus being subject to the Panel, and potentially the Authority's discretion).
- 3.4.23 **The Group also agreed that a simple 'claims lite' process should be used for processing Black Start compensation claims.** This view was fed into the Issue 33 Group's discussions.

3.5 **Appropriate arrangements, processes and timetables to successfully reinstate the market following a Black Start.**

Consideration should be given to developing criteria that the Panel can use to determine reinstatement of the market as well as the outline processes and arrangements to cover timescales, data and audit requirements, liaison with participants and National Grid, alignment with Grid Code arrangements and 'run in' to going live.

- 3.5.1 The BSC states that the Black Start Period shall not be deemed to have ended until the BSC Panel determines that Parties are ready to begin resubmitting Bids/Offers and contract notifications.
- 3.5.2 One of the main aims of the Group was to consider what criteria could be used to determine when BSC 'normal operation' could be resumed and all (or a majority of) Parties were ready to resume participating in the BM and submit contract notifications.
- 3.5.3 The Group discussed the key decision points and what information was required to enable these decisions in the Black Start Period. The Group developed a transition diagram, a timeline of events that occur in the Black Start Period see Attachment A. The left hand side of the diagram shows the step-by-step process of how first the Transmission System would return to 'normal' operation (points A-E). The major milestones are discussed further in the following paragraphs.
- 3.5.4 The Group agreed that during the Black Start Period, in particular points A-E, National Grid would keep the industry informed of the progress of re-energising the GB Transmission System and the state of generation and demand on the system.
- 3.5.5 In particular, the Group discussed the stage (point E) in a Black Start Period when National Grid would notify the Panel and ELEXON on its view on whether the market is capable of normal operation of the following information:

- the GB Transmission System has been re-energised;
- there was sufficient generation to meet demand (also in discussion with Parties on their ability to generate and amount available);
- National Grid is able despatch 'normally';
- there are no rolling black-outs occurring; and
- in theory Parties would be able to bi-laterally contract.

3.5.6 The Group noted that the Grid Code Black Start Working Group has extensively discussed the issue of Total System returning to normal operation, including the extent of system integrity and system stability (e.g. no rolling black-outs), and agreed the following considerations (in the proposed Grid Code section OC9.4.7.9) to be taken into account by National Grid:

- (a) the extent to which the GB Transmission System is contiguous and energised;
- (b) the integrity and stability of the GB Transmission System and its ability to operate in accordance with the Licence Standards;
- (c) the impact that returning to normal may have on transmission constraints and the corresponding ability to maximise the Demand connected;
- (d) the volume of generation or Demand not connected to the GB Transmission System; and
- (e) the functionality of normal communication systems (i.e. EDT, Control Telephony etc.).

3.5.7 National Grid considers that provisions (a) – (d) in the above list are useful indicators for 'certification of point E' in the transition diagram. The Group also agreed that National Grid should provide ELEXON/ the Panel with as much information as possible regarding the state of the Total System at point 'E'. This would include all considerations (a) – (e) in the list provided by National Grid. In turn, ELEXON would then communicate this information to BSC Parties.

3.5.8 National Grid would also provide ELEXON and the Panel with information on the state of the Total System, and following this, ELEXON would communicate this information to BSC Parties. The Group agreed the importance of BSC Parties having a timely understanding of the progress of returning to normal operation during the Black Start event.

3.5.9 The Group also noted that point 'F' on the transition diagram would be more of a process (perhaps over a number of days) of the Panel agreeing the resumption of normal BSC operation. This process suggested by the Group is where:

- the Panel would determine an initial start (point K) of the 'normal' BSC operation based on information so far received;
- consult with BSC Parties and National Grid on the suitability of this proposed point K; and
- based on the information received make a final decision on the Settlement Day and Period where normal operation of the BSC would resume.

3.5.10 During this 'F' process the Panel would also need to approve the methodology to be used to calculate the single imbalance cash-out price. The Group suggested the following steps:

- first of all National Grid would inform the Panel by point E if any exceptional circumstances have occurred (and therefore meaning that the single imbalance cash-out price should not be calculated using the average of SSP and SBP for each Settlement Period from the previous 30 Settlement Days before the Black Start Period commenced) plus National Grid would also inform the Panel of its view of these exceptional circumstances; and

- the Panel would then determine the price using a different time period (but using a minimum of 7 consecutive days) and inform Parties (through ELEXON) of exactly which methodology would be used and the resultant imbalance prices.

- 3.5.11 The Group discussed the need for an orderly transition from a Black Start Period to normal BSC operation. National Grid initially expressed a preference to extend Gate Closure (to, say, 3 hours) for the Settlement Period at point K, but did not consider that the extended Gate closure should be coded in its IT system. This would potentially aid National Grid in managing the generation and demand on the Transmission System. There was some initial concern within the Group to this suggestion. After discussions with the BSC Agent, the Group noted that a planned ECVAAs outage may be required in order to change the length of Gate Closure. It may not be sensible to have a planned outage at such a critical time. The Group, therefore, agreed that there should be no changes to BSC Systems to enforce a longer Gate Closure.
- 3.5.12 The Group agreed that Parties should be requested to use reasonable endeavours to submit firm Physical Notifications (PNs) for point K (the start of 'normal' BSC operation) to National Grid at point I, 'K – [10]' hours. This will be called 'Black Start Gate Closure.' This will be an obligation on BSC Parties, but will not be enforced through BSC Systems and National Grid's IT systems (as this would entail major and costly system changes). The Group agreed that this obligation would ensure that National Grid has a greater certainty of the potential state of the System and Parties' physical positions at the commencement of normal BSC operation at point K.
- 3.5.13 The Group also agreed that a provision is needed (similar to that used for NETA go-live) for National Grid to flag to the Market if there are issues with re-starting normal BSC operation, or go back to point F, if the Market is still not ready to re-start at point K. The Group proposed that at point J, 'K – [1]' hour, National Grid could make a final decision as to whether BSC normal operation is ready to resume at point K. If National Grid believes conditions of the Market and System are not right (say a 'red light' is shown at 'K – [1]' hour) it will advise the Panel, ELEXON and BSC Parties and the transition process will revert back to point F. Therefore, National Grid would need to submit a set of Emergency Instructions to every BM Unit, informing them that BSC 'normal' operation will no longer be re-starting in 1 hour. The timeline will return to point F, and the time of a revised point K would have to be considered and agreed by the Panel.

3.6 ELEXON's business continuity requirements specifically related to its role during a Black Start

Suggest consideration is given to:

- Communications via website, telephone and email*
- Response to queries from industry*
- Robustness of information systems during and following a Black Start to ensure these can facilitate timely re-instatement of the market.*

- 3.6.1 As stated in sections 3.2.3 and 3.2.4, it is likely (in a Total Shutdown situation) that normal Elexon communication with the industry will be difficult between points A – B on the transition diagram, due to lack of available power. ELEXON will use reasonable endeavours to communicate the progress of the Black Start Period to BSC Parties; however this may not always be possible due to power/communication issues. From point C, communications via website, telephone and e-mail should be generally available.

- 3.6.2 National Grid would need to contact ELEXON as soon as possible after the commencement of a Black Start to inform them that a Black Start event has commenced. Therefore, an ELEXON Black Start contact needs to be nominated, and contact details provided to National Grid.
- 3.6.3 ELEXON's current Business Continuity arrangements are set up so that a number of staff members have mobile phones, laptops and broadband internet access so that they are able to work from home. The mobile phone network would fail relatively quickly after a Black Start event, therefore ELEXON staff members would potentially not be able to be contacted by telephone until after point C on the transition diagram. The ELEXON Business Continuity arrangements rely on the fact that normal communication methods (e-mail, phone, internet etc) would be available for use. This means that the Business Continuity arrangements are not likely to be used in practice in a Black Start event until the Transmission System had been restored.
- 3.6.4 As communications channels return to functionality ELEXON would expect queries regarding a Black Start event to be received via the ELEXON helpdesk. Subject to having a suitable operational facility available and staff able to operate it, an ELEXON internal 'response team' could be set up as soon as possible following the commencement of a Black Start, to deal with any initial issues. A 'Working Group' comprised of industry members nominated by the Panel or the Imbalance Settlement Group (ISG) could also be set up soon after this. The Working Group would be expected to deal with queries from the industry. However, given disruption to travel etc., it may be difficult to put these arrangements in place in the short term.
- 3.6.5 It is possible that BSC information systems, such as BMRS, could be used to post information messages during a Black Start event. However, people would potentially not be able to access the internet before the Transmission System has been restored.
- 3.6.6 The Group discussed the requirement of BSC Parties needing to know their contract position before they start submitting Physical Notifications, contracts, bids/offers (shortly before BSC 'normal' operation returns). The Group suggested that the BSC Agents could distribute 7 day contract reports at K – 7 days, to inform BSC Parties of their contract position showing zero contracts for the Black Start Period and valid contracts after point K. However, Logica has informed the Group that due to the process used to derive the 7 day contract reports, it would be very difficult and costly to create a report showing 'zero' contracts as the whole contract handling process would need to be re-designed. Therefore, the Group has agreed that a 'health warning' would have to be attached to this report for the days prior to point K, informing Parties that they should assume that contracts are 'zero' until point K.

4 Other Issues

4.1 Trading arrangements following the commencement of a Black Start

- 4.1.1 The Group discussed the need for further clarification in the BSC regarding Trading Arrangements in a Black Start event. The Group agreed that BSC Parties should assume that if a Black Start event is declared, Trading Arrangements will cease and BSC Parties should not send in any notifications until further notice. If BSC Parties are able to continue submitting contract notifications following the commencement of a Black Start (possibly because: (i) they are not yet aware that a Black Start has commenced; or (ii) it is a Partial Shutdown rather than a Total Shutdown), these notifications will be ignored/deleted by Central Systems/BSC Agents for the duration of the Black Start Period. If BSC Parties receive any data from ELEXON or BSC Agents (according to 'normal BSC rules'), BSC Parties should ignore this if a Black Start has been declared. The BSC (section G, 3.2.1) currently states that for all Settlement Periods that fall within

a Black Start Period 'notification of contract volumes shall be suspended in accordance with Section P1.6'. This statement should be clarified that contract volumes will be suspended and disregarded (i.e. become null and void).

- 4.1.2 If the Black Start happened during normal working hours, BSC Agents would initially assume that it was a local incident and continue to work normally. The BSC Central Systems would be powered by stand-by power supplies for approximately 72 hours before the stand-by supplies were exhausted, however, there may be disruption during this time due to, for example, communications network failure. Only when BSC Agents were informed that a Black Start had been declared would they put in place their Black Start obligations. They would initiate a controlled shutdown of the flows that are not required during a Black Start Period and they would, where practical, (attention at this stage would be focussed on a controlled shutdown of relevant systems) unwind any flows that pertained to a Black Start Settlement Period but were not required e.g. Energy Contract Notifications. Assuming that it was practical to do so, they would continue with normal Settlement Runs (Information, Initial and Reconciliation) according to the Settlement timetable.
- 4.1.3 If the Black Start happened outside normal working hours the same procedure would be adopted, however, there may be a delay in getting staff into the office for the required manual processing/support activities.
- 4.1.4 BSC Agents have advised that subject to the procedure described above all Energy Contract Notifications would be suspended during a Black Start Period. Any contract notifications that were submitted before the commencement of a Black Start but were for Settlement Periods after the Black Start had finished would be valid, such as evergreen contracts. BSC Parties would not need to re-submit these contracts.
- 4.1.5 The Supplier Volume Allocation Agent (SVAA) and Supplier's Party Agents would process Settlement data according to the existing BSC obligations. The BSC makes no provision for different Supplier Volume Allocation obligations during a Black Start Period. There are default rules in place for missing data e.g. missing data from Data Aggregators (please see the following Code Subsidiary documents for more information: SVAA Service Line SSL300 for the SVA Agent – Supplier Volume Allocation' AND 'SVAA Service Line SSL310 for the SVA Agent – Daily Profile Production').

4.2 Total/Partial Black Start

- 4.3 The Group clarified that the Black Start arrangements under the BSC are exactly the same for either a Partial Shutdown or Total Shutdown of the Total System; as defined in the Grid Code; e.g. the application of a single imbalance price, suspension of contract notifications/application, etc. During a Black Start that arises from a Partial Shutdown, some BSC Parties may be able to continue submitting contract notifications; however these would be ignored by the BSC arrangements. The Group also noted that contract notifications are not locational.
- 4.4 During a Partial Shutdown of the Transmission System, there may be BSC Parties that are unaffected by the Black Start and they would, under instruction from National Grid, remain functioning as they were before the commencement of the Black Start. The Group noted the advice from National Grid that the instructions, to these BSC Parties unaffected by the Black Start, would be deemed to be Emergency Instructions from National Grid in accordance with the Grid Code.

- 4.5 The Group discussed the need for National Grid to clarify the definition of Partial Shutdown Black Start/Total Shutdown Black Start and to consider whether a new definition of 'local blackout' is required, where there is loss of power to a local area and National Grid has to issue instructions to local plant to restore power. Currently such 'local blackouts' would be considered to be a Partial Shutdown. The definition of a Partial Shutdown Black Start can be seen below:
- 4.6 *"A "Partial Shutdown" is 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".*
- 4.7 With this definition as it currently stands, the Group noted an increased risk of Partial Shutdown Black Start events having to be declared and therefore Black Start arrangements under the BSC would be invoked (and the suspension of BSC 'normal' operation). The Group believed that a new definition of 'local blackout' under the Grid Code could address this risk, and National Grid has agreed to investigate this. However, National Grid will need to be mindful of not unduly discriminating against BSC Parties in any approach taken to a 'local blackout' compared with a Partial Shutdown.

5 Conclusion

- 5.1 The Group have considered the areas of work identified in Issue 32 raised by National Grid. The Group have worked up a number of proposed solutions to these areas. In summary, the main proposals are:
1. Commencement of Black Start period under the BSC is the same as that declared by National Grid under the Grid Code;
 2. ELEXON would use normal communications routes and use reasonable endeavours to communicate this to all parties;
 3. Single imbalance price would apply (no contract notifications or Bids and Offers):
 - a. Default is average of SBP and SSP for previous 30 days (value for each SP) unless SP associated with EI, FSC or BS then use other historic replacement Settlement Periods;
 - b. National Grid can notify exceptional circumstances, if so Panel can choose different period to calculate single imbalance. Still average of SBP and SSP over min. of 7 days by Settlement Period;
 4. Process at F for Panel to agree single imbalance price and restart of normal BSC operation point J (incl. a consultation with parties);
 5. Compensation process would be a 'lite' process as defined under Issue 33 (see Panel paper 142/05);
 6. Parties can seek Avoidable Costs only as a result of a Black Start Instruction and change in imports/exports (as well as 'warm up/hot standby' costs);
 7. New transition process for orderly transition to normal BSC operation, where:
 - a. Parties would submit firm Physical Notifications at point I ('K - [10]' hours); and
 - b. National Grid decision point (red/green light) at point J ('K - [1]' hour).
- 5.2 In order to bring in these proposed solutions, the Group proposes that a Modification to the BSC be raised (as well as new/changes to the Code Subsidiary Documents). This would better facilitate the Panel, ELEXON and BSC Agents to fulfil their BSC Black Start obligations in a timely manner. The Group considers that the clarifications/amendments to the Black Start provisions outlined in this paper would benefit the determination and financial settlement of obligations

between parties and would bring about efficiencies in the administration and implementation of the BSC arrangements because these proposals would:

- Clarify the requirements for the determination of the single imbalance price which will affect the imbalance exposure of every BSC Party;
- Detail the compensation process and the types of costs that BSC Parties can claim for which will affect all BSC Parties financial exposure under a Black Start event;
- Provide for an orderly transition process from a Black Start Period to normal BSC operation and hence when BSC Parties can resubmit contract notification, Bids and Offers, etc and be subject to the usual financial settlement processes; and
- Determine the start of the Black Start Period and hence the use of a single imbalance price (instead of the normal SBP and SSP), suspension of contract notifications and the submission of Bids and Offers.

5.3 The Group also discussed the interaction with Issue 33 'Fuel Security Code' and the discussions regarding the compensation mechanism. The Group noted the work on defining a common compensation mechanism that could be used both for Black Start claims and for FSC claims. The Group also noted that there may be commonality in the approach and process for re-starting the normal BSC arrangements for Black Start and FSC. The Group then discussed the next steps with regards to the report to the Panel and the recommendations to raise BSC modifications. The Group's view was that one modification to the BSC would be required to both encompass the proposals for Black Start and FSC.

5.4 The Group noted that National Grid has indicated that it would be willing to raise the Modification to the BSC and would be doing so in due course. ELEXON would support National Grid in drafting and then submitting any necessary Modification(s). The Issue Group also volunteered to review any draft Modification. The Group also noted the current heavy workload in the industry in particular with the consideration of proposals and issues under the National Grid's work on transmission access and that a Modification to the BSC would not likely be raised until Autumn 2008.

6 Recommendations

6.1 The Panel is invited to:

- a) **NOTE** the contents of the Issue 32 Group's report and the recommendations of the Group;
- b) **NOTE** the interaction with Issue 33 (FSC) with regards to a common compensation mechanism and common process for restarting the normal BSC arrangements;
- c) **NOTE** the recommendation of the Group that one Modification should be raised which contains the proposals outlined by the Issue 32 Group (Black Start) and Issues 33 Group (FSC); and
- d) **NOTE** that ELEXON will assist in drafting a Modification with National Grid which can be submitted in the Autumn.

Justin Andrews

Service Delivery

List of Attachments:

Attachment A – Transition Diagram

Attachment B - European Daily Electricity Markets, methodologies and definitions

Attachment C - Credit Assessment Price (CAP) Review Guidance Document

Appendix 1: Issue 32 – Objectives of Issue 32 Group

Black Start

As a result of a recent Black Start exercise, a number of learning points and process improvements have been identified that are relevant to ELEXON's role and the successful suspension and recommencement of market arrangements as part of a Black Start. In particular, the following areas were identified where work could be undertaken to ensure that any Black Start progressed smoothly from a BSC perspective:

1. The arrangements for the formal declaration of the start of a Black Start under the BSC and calculation of the Imbalance Price.
 - a. When does the confirmation of the Settlement Period that forms the commencement of the Black Start Period need to be declared?
 - b. How will its declaration be communicated?
 - c. Consider what guidance can be given as to how imbalance prices should be set to support the Panel process during a Black Start?
 - d. Consider whether further guidance and clarity as to Black Start compensation arrangements can be given in the BSC and associated documentation, including recommendation for change to BSC in this area by Grid Code Black Start Working Group?
2. Appropriate arrangements, processes and timetables to successfully reinstate the market following a Black Start.

Consideration should be given to developing criteria that the Panel can use to determine reinstatement of the market as well as the outline processes and arrangements to cover timescales, data and audit requirements, liaison with participants and National Grid, alignment with Grid Code arrangements and 'run in' to going live.

3. ELEXON's business continuity requirements specifically related to its role during a Black Start. Suggest consideration is given to
 - a. Communications via website, telephone and email
 - b. Response to queries from industry
 - c. Robustness of information systems during and following a black start to ensure these can facilitate timely re-instatement of the market

We suggest that for all three areas above, consideration should be given by the Issue group as how best to establish arrangements to expedite the BSC processes during a Black Start and also to ensure that participants will understand how this should work with the overall aims ensuring:

- Timely progression of BSC processes during a Black Start
- Good co-ordination with other industry and government bodies and in particular with Grid Code Black Start arrangements
- How best to minimise industry uncertainty and queries to ELEXON during a Black Start.

Appendix 2 – BSC Section G

SECTION G: CONTINGENCIES**1. 1. GENERAL****1.1 Provisions in Code**

- 1.1.1 This Section G sets out or refers to provisions of the Code which are to apply in certain contingencies, and related provisions.
- 1.1.2 The following provisions of the Code address the possibility of certain emergencies and other unusual or unexpected events of various kinds:
- (a) Section P5, which addresses circumstances in which the ECVAA may be unable to receive Energy Contract Volume Notifications and Metered Volume Reallocation Notifications;
 - (b) Section Q7, which addresses the possibility of manifest errors in the submission or acceptance of Bids and Offers;
 - (c) Section Q8, which addresses circumstances in which the Transmission Company may be unable to receive Physical Notifications;
 - (d) paragraph 3, which addresses Black Start Periods; and
 - (e) paragraph 4, which applies where the Secretary of State exercises certain emergency powers.
- 1.1.3 For the avoidance of doubt, paragraph 1.1.2 is not intended to be an exclusive list of provisions of the Code which address failures or delays or other abnormalities in the implementation of the Code.
- 1.1.4 The provisions of the Code referred to in paragraph 1.1.2 are "**Contingency Provisions**".
- 1.1.5 Paragraph 5 sets out arrangements for giving effect to a Generator Compensation Instruction delivered pursuant to the Fuel Security Code.

1.2 Exclusion of reconciliation

- 1.2.1 Where, pursuant to any Contingency Provision, any entitlement or liability by way of Ad-hoc Trading Charge is to be determined in relation to any Settlement Day:
- (a) the amount of such Ad-hoc Trading Charge shall be determined on the basis of data derived from the Initial Settlement Run (or if any Reconciliation Settlement Run has already been carried out at the time at which the amount of such charge is to be determined, the latest such Reconciliation Settlement Run);
 - (b) unless the Panel expressly otherwise decides, no adjustment or reconciliation shall be made in the determination of such Ad-hoc Trading Charge upon or as a result of the later carrying out of any Reconciliation Settlement Run or other adjustment of any such data;
 - (c) the Ad-hoc Trading Charge itself will have arisen outside any Settlement Run and accordingly shall be excluded from account (in both paragraphs (a) and (b) of Section N6.4) by the FAA in carrying out any reconciliation under that Section.

1.3 Party Daily Reallocation Proportions

- 1.3.1 For the purposes of the Code, in relation to any Trading Party and any Settlement Day, the "**Party Daily Reallocation Proportion**" is the proportion determined as:

$$RCRC_p / \sum_p RCRC_p$$

where \sum_p represents the sum over all Trading Parties.

- 1.3.2 It is acknowledged that in certain circumstances the value of Party Daily Reallocation Proportion for a Trading Party might be negative, in which case any reference (in any Contingency Provision) to a liability of that Trading Party as to its Party Daily Reallocation Proportion of any amount shall be construed as an entitlement.
- 1.3.3 In accordance with paragraph 1.2.1, in the application of any Contingency Provision the Party Daily Reallocation Proportions shall be determined by reference to values of Daily Party Residual Settlement Cashflow determined in the Settlement Run (excluding the Interim Information Settlement Run) last carried out for the relevant Settlement Day before such proportions are to be determined, and shall not (unless the Panel decides otherwise) subsequently be revised.

1.4 Application of Contingency Provisions

- 1.4.1 For the avoidance of doubt, the Contingency Provisions shall apply (in accordance with their terms) only in relation to Settlement Periods commencing on or after the Go-live Date, but an event or circumstance giving rise to the application or operation of such provisions may occur or prevail before or on or after the Go-live Date.

1.5 Review of emergency arrangements

- 1.5.1 If at any time the Secretary of State announces his intention to carry out a review of arrangements which apply or may apply in anticipation of or following the exercise of any of his powers under Sections 34 and 35 of the Act, Section 96 of the Act, and sections 1 to 4 of the Energy Act 1976 (including the arrangements provided for in the Fuel Security Code) the provisions of this paragraph 1.5 shall apply.
- 1.5.2 BSCCo shall participate (as and to the extent requested by or on behalf of the Secretary of State) in any review of the type referred to in paragraph 1.5.1.
- 1.5.3 Following any review of the type referred to in paragraph 1.5.1 (or during such review if so requested by the Secretary of State), the Panel shall propose a modification of the Code (including the provisions in paragraph 4) which in the opinion of the Panel, on the recommendation of BSCCo, and after consultation with the Secretary of State and the Authority, is appropriate to support and/or to reflect any modifications of the arrangements referred to in that paragraph (including any modifications of the Fuel Security Code), or any new such arrangements, which may be made or established (by or on behalf of or at the behest of the Secretary of State) in consequence of such review.
- 1.5.4 Where the Panel has proposed a modification of the Code under paragraph 1.5.3, the Panel shall take steps, in consultation with the Authority, to coordinate the application (in relation to such proposal) of the procedures in Section F with other steps taken in consequence of such review for the consideration of modifications to (or establishment of) arrangements referred to in paragraph 1.5.3.

2. AVOIDABLE COSTS

2.1 General

- 2.1.1 This paragraph 2 applies, for the purposes of any Contingency Provision which refers to Avoidable Costs, for the purposes of determining such costs in relation to:
- (a) a BM Unit, and
 - (b) such changes ("**relevant changes**") in Exports and/or Imports of that BM Unit during a Settlement Period as are specified in or determined pursuant to the relevant Contingency Provision.
- 2.1.2 Where any such Contingency Provision applies, the Panel shall determine, in its opinion, what is the amount of the net costs of operating the BM Unit which would not have been incurred but for the relevant changes in Exports and/or Imports.
- 2.1.3 For the purposes of the Code, the "**Avoidable Costs**" in relation to the relevant changes in Exports and/or Imports of the BM Unit shall be the amount determined by the Panel under paragraph 2.1.2 (which may for the avoidance of doubt be a negative amount, in a case where net costs were saved or revenues earned as a result of the relevant changes in Exports and/or Imports, and which otherwise shall be positive).
- 2.1.4 In determining what are the costs of operating a BM Unit and what such costs would not have been incurred (as provided in paragraph 2.1.2), the Panel shall have regard to the following:
- (a) costs include lost revenues, and costs saved include revenues earned;
 - (b) in the case of a BM Unit comprising premises of a Customer, the costs which are to be counted are the costs incurred by the Customer;
 - (c) costs are not to be counted unless they are demonstrably:
 - (i) costs directly incurred in the operation of the Plant and Apparatus comprised in the BM Unit;
 - (ii) costs which were reasonably and prudently incurred, and incurred pursuant to commitments reasonably and prudently made;
 - (iii) costs the amount of which would be expected to differ according to whether there occurred the relevant changes in Exports and/or Imports in the relevant Settlement Period alone;
 - (d) costs include costs (incurred or saved) of consumption of electricity or fuel;
 - (e) the following costs are not to be counted:
 - (i) costs or losses in respect of damage to property (including Plant or Apparatus) or death or injury to persons;
 - (ii) insurance premia;
 - (iii) financing costs and overhead costs;
 - (f) amounts payable (other than by way of rebate of payment for supply), under any contract or otherwise, by way of compensation for loss of supply or otherwise in

consequence of relevant changes in Exports and/or Imports, by the Lead Party to the person referred to in paragraph (b), are to be disregarded;

- (g) amounts payable or receivable under the Code in respect of Trading Charges or BSCCo Charges are to be disregarded.

2.2 Procedures

2.2.1 Where under any Contingency Provision the amount of Avoidable Costs is to be determined for any Settlement Period or Periods:

- (a) the Lead Party shall prepare, consistently with the principles in paragraph 2.1.3, and submit to BSCCo its estimate (for each such Settlement Period) of the net costs of operating the BM Unit which would not have been incurred but for the relevant change in Exports and/or Imports, together with an explanation of and supporting information for its estimate, and shall provide to the Panel such further information as the Panel may require for the purposes of making its determination under paragraph 2.1.2;
- (b) if required by the Panel, the Lead Party shall, by such time as the Panel may reasonably stipulate, submit a statement signed by its (or in the case in paragraph 2.1.4(b), the Customer's) statutory auditors to the effect that the Party's estimate of such costs have been prepared on a fair, complete and reasonable basis and consistent with the principles in paragraph 2.1.3;
- (c) BSCCo shall notify the Panel's determination under paragraph 2.1.2 to the Lead Party.

2.2.2 If requested by the Authority, the Panel will discuss with the Authority any determination(s) to be made under paragraph 2.1.2, and will take account of any guidance from the Authority in making such determination(s); and the Panel will exclude from account (in such determination(s)) any cost, or a cost of any description, which the Authority directs the Panel to exclude.

3. BLACK START

3.1 General

3.1.1 This paragraph 3 will apply if and only if the Transmission Company informs Users pursuant to OC9.4 of the Grid Code that either a Total Shutdown or a Partial Shutdown exists and that the Transmission Company intends to implement a Black Start (the terms 'Users', 'Total Shutdown', 'Partial Shutdown' and 'Black Start' each having, for the purposes of this paragraph 3, the meanings given thereto in the Grid Code).

3.1.2 Where this paragraph 3 applies:

- (a) the Panel shall (as soon as is practicable following the Transmission Company's notification under OC9.4) determine, in consultation with the Transmission Company, the Settlement Period with effect from which the Total Shutdown or Partial Shutdown commenced;
- (b) BSCCo shall, as soon and so far as is practicable, notify all Parties of the Panel's determination under paragraph (a);
- (c) following the Transmission Company's determination (under OC9.4.7.9) of the time of return to normal operation, the Panel shall determine, after consultation with the

Transmission Company, the Settlement Period with effect from which the provisions of this paragraph 3 are to cease to apply, having regard to the following matters:

- (i) the time of return to normal operation under the Grid Code determined by the Transmission Company;
- (ii) the desirability of a return to normal operation under the Code at the same time or as soon as practicable thereafter;
- (iii) the amount of time which (in the opinion of the Panel) it is reasonable to allow for Parties to recommence operations under or for the purposes of Sections Q and P;
- (d) BSCCo shall promptly notify all Parties of the Panel's determination under paragraph (c).

3.1.3 For the purposes of the Code, the "**Black Start Period**" is the period commencing at the start of the Settlement Period determined by the Panel under paragraph 3.1.2(a) and ending at the end of the Settlement Period immediately before the Settlement Period determined by the Panel under paragraph 3.1.2(c).

3.2 Variation of rules

3.2.1 In relation to all Settlement Periods which fall within a Black Start Period:

- (a) operation of the balancing mechanism shall be suspended in accordance with Section Q5.4;
- (b) the Lead Parties of BM Units which are given instructions under the Grid Code shall be entitled to be compensated subject to and in accordance with paragraph 3.3 (and, if otherwise applicable, Section Q8 shall not apply);
- (c) notification of contract volumes shall be suspended in accordance with Section P1.6 (and, if otherwise applicable, Section P5 shall not apply);
- (d) a single imbalance cash-out price shall apply in accordance with Section T1.6;
- (e) the value of Credit Assessment Energy Indebtedness (CEI_{pi}) shall be set to zero for all Trading Parties for the purposes of Section M.

3.2.2 Where this paragraph 3 applies, the Panel may, after consultation with the Transmission Company, for the purposes of making arrangements for a return to normal operations under the Code, determine and notify Parties that:

- (a) any data submitted (in accordance with Section Q2, Q3 or Q4) by Lead Parties, and/or
- (b) any Volume Notifications submitted by Volume Notification Agents

during any part or parts (as specified by the Panel in such notification to Parties) of the Black Start Period, shall be disregarded for the purposes of the Code.

3.3 Lead Party compensation

3.3.1 Subject to the provisions of the Code, each Party which:

- (a) is the Lead Party of any BM Unit (whether or not comprising Plant or Apparatus which is comprised in a Black Start Station as defined in the Grid Code), and

- (b) is given any instruction (a "**black start instruction**") by the Transmission Company pursuant to OC9.4.7.4, BC2.7 or BC2.9 of the Grid Code relating to any Settlement Period(s) during a Black Start Period

may, within the period of 20 Business Days (or such longer period as the Panel may approve in that case) after the end of the Black Start Period, submit to BSCCo a claim for payment of compensation to be determined in accordance with this paragraph 3.3.

- 3.3.2 For the purposes of this paragraph 3.3, in relation to a Settlement Period in the Black Start Period and a BM Unit:

- (a) the "**black start compensation amount**" shall be an amount determined as:

$$(A - B)$$

where

A is the amount of the Avoidable Costs of the Lead Party in relation to the changes in Exports and/or Imports determined by the Panel under paragraph 3.3.4(a);

B is an amount determined as:

$$(BSCQ_{ij}^n * P_{ij}^n)$$

where P_{ij}^n is the System Sell Price (equal, in accordance with Section T1.6.1, to the System Buy Price) for that Settlement Period;

- (b) the "**black start compensation volume**" ($BSCQ_{ij}^n$) is the quantity (in MWh) determined by the Panel under paragraph 3.3.4(b);
- (c) for the purposes of paragraph (b), $BSCQ_{ij}^n$ shall be negative where it represents an increase in net Imports or a reduction in net Exports, and otherwise positive.

- 3.3.3 Where a Party submits a claim under paragraph 3.3.1, each Settlement Period (in the Black Start Period) in relation to which the Lead Party is given any black start instruction shall be a "**relevant**" Settlement Period for the purposes of this paragraph 3.3, and the amounts to be determined under this paragraph 3.3 shall be determined for all such Settlement Periods.

- 3.3.4 Where a Party submits a claim under paragraph 3.3.1, the Panel shall determine, in its opinion:

- (a) what changes in Exports and/or Imports of the BM Unit during each relevant Settlement Period resulted from action taken by the Lead Party for the purposes of complying (in accordance with the Grid Code) with black start instructions relating to that Settlement Period; and
- (b) what is the net quantity (in MWh) of such changes in Exports or Imports of the BM Unit for each such Settlement Period.

- 3.3.5 For the purposes of this paragraph 3.3:

- (a) the Lead Party shall, at the time at which it submits its claim under paragraph 3.3.1, provide a statement to the Panel of the changes which the Lead Party considers to be the changes described in paragraph 3.3.4(a), and the quantity which the Lead Party considers to be the net quantity described in paragraph 3.3.4(b), and shall provide such other information as the Panel may reasonably request for the purposes of determining the matters in paragraphs 3.3.4(a) and (b), for each relevant Settlement Period;

- (b) the Lead Party shall comply with the requirements of paragraph 2.2.1 in relation to determination of Avoidable Costs;
- (c) the Transmission Company and each Distribution System Operator shall provide such information as the Panel may reasonably request for the purposes of determining the black start compensation volumes.

3.3.6 Where the Lead Party has submitted a claim in accordance with paragraph 3.3.1, subject to the provisions of the Code:

- (a) the Lead Party shall be entitled to be paid by the BSC Clearer the net sum, for all relevant BM Units and relevant Settlement Periods, of the black start compensation amounts, together with interest at the Base Rate on each compensation amount from the Initial Payment Date for the relevant Settlement Period to (but not including) the date (if later) when such payment is made;
- (b) each Trading Party (including the Lead Party) shall be liable to pay to the BSC Clearer its Black Start Reallocation Proportion of the net amount payable to the Lead Party under paragraph (a);
- (c) the amounts of the entitlements and liabilities under paragraphs (a) and (b) shall be Ad-hoc Trading Charges for the purposes of Section N6.9;
- (d) BSCCo shall give such instructions to the FAA as are necessary to give effect to the payment of such Ad-hoc Trading Charges.

3.3.7 Subject to Section I5.1, for the purposes of the Code, in relation to any Trading Party, the Black Start Reallocation Proportion is the proportion determined as:

$$\sum_d \sum_a \sum_i QCE_{iaj} / \sum_d \sum_p \sum_i QCE_{iaj}$$

where

\sum_i represents, for each Energy Account a, in Settlement Period j, the sum over all BM Units i that are in offtaking Trading Units;

\sum_a represents the sum over all Energy Accounts a, for Party p;

\sum_p represents the sum over all Trading Parties p;

\sum_d represents the sum over all Settlement Periods in the seven Settlement Days immediately preceding the Settlement Day on which the Black Start Period commenced

provided that, where such seven day period includes any day before the Go-live Date, there shall (in the above formula) be used, in relation to Settlement Periods in any such day, such quantities (pursuant to the Pooling and Settlement Agreement or otherwise) as the Panel shall determine to be appropriate.

4. CIVIL EMERGENCIES AND FUEL SECURITY PERIODS

4.1 Application of emergency powers

4.1.1 This paragraph 4 applies in any case (whether before, on or after the Go-live Date):

- (a) where the Secretary of State gives a direction under Section 34(4)(b) of the Act; or
- (b) where:
 - (i) any action is taken by or on behalf of Her Majesty's Government pursuant to and in accordance with the emergency provisions set out in sections 1 to 4 of the Energy Act 1976, and
 - (ii) the Secretary of State is of the opinion (in his discretion) that such action has, or will or is likely to have, a material effect on the ability of any person or persons to generate, participate in the transmission of, distribute or supply electricity in pursuance of a Licence or Exemption; or
- (c) where any action is taken by or on behalf of Her Majesty's Government pursuant to and in accordance with the emergency provisions set out in section 96 of the Act;

and (in any such case) for so long as such direction or action continues in force or effect, and for such period (if any) thereafter as appears to the Secretary for State to be appropriate in all the circumstances.

- 4.1.2 For the avoidance of doubt, where this paragraph 4 applies, directions and notices may from time to time be given by the Secretary of State under each of paragraphs 4.2, 4.3 and 4.4 independently or together.

4.2 Single Imbalance Price

- 4.2.1 Where this paragraph 4 applies, if at any time the Secretary of State, in his discretion, after consultation with the Authority, gives a direction to the Panel that this paragraph 4.2.1 is to apply, specifying the time of commencement of such direction in accordance with paragraph 4.2.2(a), a single imbalance cash-out price shall apply in accordance with Section T1.6 in relation to each relevant Settlement Period.
- 4.2.2 For the purposes of paragraph 4.2.1, a relevant Settlement Period is a Settlement Period for which Gate Closure falls within the period:
- (a) commencing at the time specified by the Secretary of State (not being earlier than the time at which his direction is given under paragraph 4.2.1); and
 - (b) ending at such time as the Secretary of State may (at any time after giving a direction under paragraph 4.2.1) direct by notice of not less than 48 hours given to the Panel.
- 4.2.3 Where the Secretary of State gives a direction to the Panel under paragraph 4.2.1 or 4.2.2(b), BSCCo shall send a copy of such direction to all Parties as soon as possible after receiving the same.
- 4.2.4 For the avoidance of doubt, directions under paragraph 4.2.1 may be given by the Secretary of State on more than one occasion (in relation to the same circumstances giving rise to the application of this paragraph 4) where, following any one such direction, the period referred to in paragraph 4.2.2 is to end or has ended.

4.3 Historic limit on balancing mechanism prices

- 4.3.1 Where this paragraph 4 applies, if at any time the Secretary of State, in his discretion, after consultation with the Authority, gives a direction to the Panel that this paragraph 4.3.1 is to apply, specifying the matters specified in paragraph 4.3.3, historic price limits shall apply in the Balancing Mechanism in accordance with Section Q5.5 in relation to each relevant BM Unit and relevant Settlement Period.

4.3.2 For the purposes of paragraph 4.3.1:

- (a) a relevant BM Unit is a BM Unit specified or of a description specified pursuant to paragraph 4.3.3(b);
- (b) a relevant Settlement Period is a Settlement Period for which Gate Closure falls within the period:
 - (i) commencing at the time specified by the Secretary of State in accordance with paragraph 4.3.3(b), and
 - (ii) ending at such time as the Secretary of State may (at any time after giving a direction under paragraph 4.3.1) direct by notice of not less than 48 hours given to the Panel.

4.3.3 The matters to be specified in a direction under paragraph 4.3.1 are:

- (a) the time of commencement of such direction (not being earlier than the time at which his direction is given under paragraph 4.3.1);
- (b) either:
 - (i) that historic price limits (in accordance with Section Q5.5) are to apply to all BM Units; or
 - (ii) the description or identity of the BM Units to which such historic price limits are to apply; and
- (c) whether such historic price limits are to be determined by reference to a period other than that determined under Section Q5.5.2(c)(i), and if so what other period.

4.3.4 Where the Secretary of State gives a direction to the Panel under paragraph 4.3.1 or 4.3.2(b)(ii), BSCCo shall send a copy of such direction to all Parties as soon as possible after receiving the same.

4.3.5 For the avoidance of doubt, directions under paragraph 4.3.1 may be given by the Secretary of State on more than one occasion (in relation to the same circumstances giving rise to the application of this paragraph 4):

- (a) where, following any one such direction, the period referred to in paragraph 4.3.2(b) is to end or has ended, or
- (b) for the purposes of changing the BM Units to which historic price limits (in accordance with Section Q5.5) are to apply or the period by reference to which such historic price limits are to be determined.

4.3.6 If requested to do so, BSCCo shall assist the Secretary of State or his representative in formulating any description of BM Units for the purposes of paragraph 4.3.3(b)(ii).

4.4 Revision of Credit Assessment Price

4.4.1 Where this paragraph 4 applies, if at any time the Secretary of State, in his discretion, after consultation with the Authority, gives a direction to the Panel that this paragraph 4.4.1 is to apply, specifying the time of commencement of such direction (in accordance with paragraph 4.4.2(a)) and the period for which the direction is to apply, the Panel shall determine a reduced value of the Credit Assessment Price in accordance with such principles and/or so as to achieve such objectives as may be specified in such direction.

4.4.2 For the purposes of paragraph 4.4.1:

- (a) the reduced value of Credit Assessment Price shall (notwithstanding Section M1.4.2(b)) be effective from the time specified by the Secretary of State (not being earlier than the time at which his direction is given under paragraph 4.4.1) and shall apply for the period so specified;
- (b) the Panel may (in accordance with the principles and/or so as to achieve the objectives so specified) determine different reduced values of Credit Assessment Price to apply at different times during such period;
- (c) the Panel shall not during such period determine a revised value of Credit Assessment Price other than pursuant to paragraph 4.4.1.

4.4.3 Where the Secretary of State gives a direction to the Panel under paragraph 4.4.1, BSCCo shall send a copy of such direction to all Parties as soon as possible after receiving the same.

4.4.4 For the avoidance of doubt, a direction under paragraph 4.4.1 may be given by the Secretary of State on more than one occasion (in relation to the same circumstances giving rise to the application of this paragraph 4) and whether or not during the period specified in an earlier such direction.

5. RECOVERY OF EXCEPTIONAL COSTS BY GENERATORS

5.1 Interpretation

5.1.1 In this paragraph the terms “Auditors”, “Exceptional Cost”, “Generation Business”, “Generator”, “Licence Holders” and “Security Period” shall have the meanings ascribed to those terms in the Fuel Security Code and the term “Claimant Customer” shall have the meaning ascribed to the term “Customer” in the Fuel Security Code.

5.2 Applications For Recovery Of Exceptional Costs

5.2.1 Where a Generator is or has been subject to a direction given by the Secretary of State under section 34 or section 35 of the Act and it considers that it has incurred Exceptional Costs in relation to a BM Unit in anticipation of or during a Security Period, the Lead Party in relation to that BM Unit may apply to the Panel for a determination that, in the opinion of the Panel:

- (a) the Generator has incurred Exceptional Costs in carrying on its Generation Business as a result of a direction or directions given by the Secretary of State (whether in anticipation of or during a Security Period) under section 34 or section 35 of the Act; and
- (b) the Generator should receive compensation in respect of those Exceptional Costs:
 - (i) in the sum specified by the Generator in accordance with paragraph 5.4.1; or
 - (ii) in such other sum as the Panel deems appropriate.

5.3 Timeframe For Applications

5.3.1 An application under paragraph 5.2.1 must be made within sixty days (or such longer period as the Panel may in any case approve) after:

- (a) the end of the period which begins with the date on which a direction under section 34(4)(b) of the Act is given by the Secretary of State and ends on:
 - (i) such later date of commencement of a Security Period as may be specified in that direction; or
 - (ii) in the case of an application for an interim payment of compensation in respect of Exceptional Costs incurred, such later date as is specified in that application where such application is made before the end of the Security Period; or
- (b) the end of the Security Period;

as the case may be during which the Exceptional Costs which are the subject of the application were incurred.

5.3.2 Double recovery of costs by Generators is not permitted.

5.4 Statement to Accompany Application

5.4.1 The Lead Party shall enclose with its application under paragraph 5.2.1 a written statement (signed by a director of the relevant Generator) of the circumstances in which that Generator considers that it has incurred Exceptional Costs and the amount of the Exceptional Costs which that Generator considers that it has incurred and the Lead Party shall provide a copy of any such application to the Authority.

5.5 Provision Of Assistance To The Panel

5.5.1 The Lead Party shall obtain and supply to the Panel any information or explanation (and shall provide such other assistance) as the Panel may from time to time request for the purpose of disposing of an application under paragraph 5.2.1.

5.6 Auditor's Statement

5.6.1 If required to do so by the Panel, the Lead Party shall, within such period as the Panel may reasonably stipulate, submit a statement signed by:

5.6.1.1 the Lead Party's Auditors; and

5.6.1.2 where the Exceptional Costs which are the subject of the application under paragraph 5.2.1 relate to a BM Unit comprising the premises of a Claimant Customer and include costs incurred by that Claimant Customer, the Claimant Customer's Auditors

to the effect that the Generator's estimate of Exceptional Costs has been prepared on a basis which is fair, complete and reasonable and consistent with the definition of the term Exceptional Cost.

5.7 Discussions With The Authority

5.7.1 If required to do so by the Authority, the Panel will discuss with the Authority any determinations to be made under paragraph 5.2.1 and, in making any such determinations, shall take account of any guidance given by the Authority.

5.8 Mechanism For Recovery

- 5.8.1 When the Panel has made a determination under paragraph 5.2.1, it shall notify the Lead Party of the determination, and that proportion of the Exceptional Costs allowed by the Panel shall be settled as a charge upon Suppliers in a manner to be determined by the Authority.

Appendix 3 – Extract of BSC Section T1.6**1.6 Single imbalance price**

- 1.6.1 Where, for the purposes of any Contingency Provisions, a single imbalance price is to apply in relation to any Settlement Period:
- (a) paragraph 1.6.2 shall apply;
 - (b) the provisions of paragraphs 4.4.5 and 4.4.6 in relation to the determination of System Buy Price and System Sell Price shall not apply;
 - (c) for all purposes of the Code, the System Buy Price and the System Sell Price for that Settlement Period shall be the same and shall have the value established in accordance with paragraph 1.6.2 (and shall be deemed to have been determined under paragraph 4.4).
- 1.6.2 Where this paragraph applies, the Panel shall determine, in its opinion, subject to the approval of the Authority, what is or would have been the market price for bulk electricity in the relevant Settlement Period; and for these purposes:
- (a) bulk electricity means electricity traded under contracts which may be performed by the notification of Energy Contract Volumes in accordance with Section P;
 - (b) the Panel may make reference for the purposes of its determination to reported prices and price indices for bulk electricity for any Settlement Period (on any day) which the Panel considers to be comparable, and to equivalent prices and indices relating to periods prior to the Go-Live Date (making appropriate adjustments in respect of any differing treatment of transmission losses and related matters).
- 1.6.3 The Panel shall wherever practicable make its determination in time for such determinations to be taken into account in the Initial Settlement Run in relation to the relevant Settlement Period.
- 1.6.4 BSCCo shall promptly notify the Panel's determination to the SAA and to each Party.

Appendix 4 – Information on Forward Prices

European Daily Electricity Markets, methodologies and definitions

See Attachment B.

Credit Assessment Price (CAP) Review Guidance Document

See Attachment C.

Setting the single imbalance price; a look at the ELEXON Credit Committee's use of forward price data

The Issue 33 Group noted that the Credit Committee already analyses forward price data in order to determine a single proxy for the price of power: in their case the Credit Assessment Price (CAP).

- They subscribe to a product called the Areport from Heren Energy;
- This report shows the price of power for the next 4 quarters;
- The source data is researched by calling up market participants (the full methodology is attached as a PDF file);
- One of the Committee's obligations is to keep the appropriateness of both the report and its supplier under review;
- The Committee uses the report to determine a reference price from which to start their assessment of the CAP; the final figure is a matter of debate and judgement (an ELEXON guidance note is also attached);
- This reference price is calculated using the EDEM report: the result is a figure for a 'floating' quarter which is always 3-6 months ahead of the current day.

Seeing as there already a substantial process in place at ELEXON for analysing forward prices, the group may want to consider 'piggybacking' the CAP price, which could be done by linking the single imbalance price to it in the code.

An argument against this idea would be that the single imbalance price would be known in the periods immediately leading up to a Black Start incident. The counter argument would be that, unlike an historic price, the CAP price would be likely to change over the duration of a Black Start episode. This is due to the 'trigger value' obligation, which requires the Credit Committee to review the CAP price if it deviates from the current reference price by £11/MWh.

Appendix 5 - High level summary of the black start provisions found within the Code and a more detailed 'plain English' summary of each relevant paragraph within the Code.

- Please note this Paper is divided into two sections; the first provides a high level summary of the black start provisions found within the Code and the second a more detailed 'plain English' summary of each relevant paragraph within the Code.

• SECTION G OF THE CODE

• BLACK START PROVISIONS – HIGH LEVEL SUMMARY

1. Black Start¹

- 1.1. A Black Start occurs when (in accordance with the relevant provisions of the Grid Code) the Transmission Company informs Users (as defined in the Grid Code) that there is a total or partial shutdown of the GB Transmission System. In addition the Transmission Company may issue instructions which require Parties to take or not take actions during a Black Start and such instructions are referred to herein as "**Black Start Instructions**" ("**BSI**").
- 1.2. Where there is a Black Start the Panel, in consultation with the Transmission Company, shall determine in which Settlement Periods ("**SPs**") the Black Start commenced and ended in. The "Black Start Period" ("**BSP**") shall be the period of time running from the SP in which the Black Start commenced to the end of the SP which is determined to be the SP that marks the end of the Black Start.

2. Black Start Compensation Claims²

- 2.1. When required to do so the Panel will determine in its opinion:
 - 2.1.1. what changes in Imports and / or Exports of a BM Unit ("**BMU**") are attributable to actions taken by the Lead Party in order to comply with the BSIs; and
 - 2.1.2. what is the net quantity (in MWh) for the BMU of such changes for each SP in the BSP.
- 2.2. The quantity referred to in 2.1.2 is then multiplied by a Single Imbalance Price.³ The total of this sum is then subtracted from the relevant Avoidable Costs. The result of this last calculation is the Black Start Compensation Amount.

3. What are "Avoidable Costs"?

- 3.1. In summary⁴ Avoidable Costs are (subject to 3.2) the amount, *determined by the Panel* as being (*in its opinion*), the net costs of operating a BMU which arise as a consequence of the relevant changes in Exports and/or Imports during a SP in a BSP.
- 3.2. Upon request by the Authority the Panel will discuss any Avoidable Cost determination(s) to be made with the Authority and the Panel shall take account of any guidance given by the Authority in respect of such determination(s). The Panel shall also exclude any cost(s) which the Authority directs the Panel to exclude from its determination(s).
- 3.3. Avoidable Costs can be a positive or negative figure.

¹ Summary of G3.1

² Summary of G3.3

³ Summary of G3.3.2(a)

⁴ A summary of Section G paras 2.1.1, 2.1.2 and 2.1.3.

3.4. Given the Panel's and the Authority's respective discretions in determining what Avoidable Costs are it is difficult to anticipate with great certainty whether some costs, or types of costs, would be considered to be Avoidable Costs.

3.5. However G2.1.4 does assist in clarifying that, for the Panel,:

3.5.1. an Avoidable Costs determination is a two step procedure consisting of determinations as to:

- 3.5.1.1. what are the costs of operating the BMU; and
- 3.5.1.2. what of those costs would not have been incurred but for the relevant changes in Imports and Exports (i.e. those costs which are attributable to the Lead Party's compliance to a BSI); and

3.5.2. in making those decisions the Panel shall have regard to those cost types listed in G2.1.4, and further such costs must be demonstrable.

3.6. Interpretation of G2.1.4 in abstract is complex as, without a context in which to make judgments, it is difficult to anticipate which of those headings would be deemed by the Panel to be:

- 3.6.1. costs of operating the BMU; and
- 3.6.2. of the costs referred to in 3.6.1, which are costs that would not have been incurred but for the relevant changes in Imports and Exports ((i.e. those costs which are attributable to the Lead Party's compliance to a BSI).

3.7. In short it is reasonable to expect that the Panel will consider the headings set out in G2.1.4 in the context of the facts of each case put before it. It should also be remembered that the provisions of G2.2.2 (summarised in 3.2 above) may mean that, at the time of determination(s), the Authority may direct the Panel as to what costs may not be considered to be Avoidable Costs.

4. Who can claim Avoidable Costs?

4.1. The Lead Parties of BMUs that are given Grid Code instructions in relation to SPs falling within a BSP in accordance with Section G 3.3.⁵

4.2. Section G 3.3 sets out that:

- 4.2.1. a Party;
- 4.2.2. which is a Lead Party of any BMU; and
- 4.2.3. is given a black start instruction pursuant to the Grid Code⁶

may claim compensation.

4.3. The effect of the references to the Grid Code in G3.3 is such that if a consumer of electricity takes that electricity direct from the GB Transmission System and that consumer satisfies the other requirements of G3.3 then they may claim compensation.

5. What is the process for determining Avoidable Costs?⁷

5.1. In order to have the Panel make a determination on Avoidable Costs the Lead Party must calculate its estimate of the net costs of operating the relevant BMU which would not have occurred but for the change in Exports and / or Imports for each SP in the BSP and submit this (with supporting

⁵ G 3.2(b)

⁶ Instructions under OC9.4.7.4, BC2.7 or BC2.9 of the Grid Code.

⁷ G2.2

information, an explanation and any other information reasonably required by the Panel) to ELEXON.

5.2. The Panel may then require the Lead Party to also submit a statement signed by its auditors verifying the estimate of the costs submitted.

5.3. Once the Panel has made its determination ELEXON will notify the Lead Party of the Panel's decision.

6. What is the process for determining the Black Start Compensation Amount?

6.1. The Lead Party, at the time it submits a claim, must:

6.1.1. provide a statement with its view on the values referred to in 2.1.1 and 2.1.2 (above) and, in relation to that assessment, any other information the panel may reasonably require; and

6.1.2. comply with the requirements summarised in 5.1 above (Avoidable Costs)⁸.

6.2. The Transmission Company and each DSO provides the Panel with such information as it may reasonably require to determine the volume referred to in 2.1.2 above.⁹

6.3. The Panel will then make its determinations as to:

6.3.1. Avoidable Costs as described in 3.1 above¹⁰; and

6.3.2. the Black Start Compensation Amount as described in 2 above.¹¹

• BLACK START - PLAIN ENGLISH SUMMARY OF RELEVANT PARAGRAPHS OF SECTION G

Section G, Paragraph 2 "AVOIDABLE COSTS"

Summary

- This section relates to "Contingency Provisions" (which are those circumstances described in paragraph 1.1.2 e.g. when the Transmission Company is unable to receive Physical Notifications, when the Secretary of State exercises certain emergency powers and Black Start Periods). By way of summary section 2 sets out:
 - what is meant by "Avoidable Costs", including what matters are considered by the Panel when determining what the Avoidable Cost is; and
 - the procedures that are used when a body applies for Avoidable Costs.
- This section is important as "Avoidable Costs" form part of the calculation for compensation during Black Start Periods – which is dealt with directly in section G3.3.
- "Avoidable Costs":
 - are determined by the Panel;
 - shall be the net costs of operating the relevant BM Unit as a consequence of the relevant changes in Exports and/or Imports during the Black Start Period;

⁸ G3.3.5(a) and (b)

⁹ G3.3.5(c)

¹⁰ G2.1

¹¹ G3.3.4

- can be a positive or negative figure.

Paragraph 2.1.1

- Establishes that paragraph 2 applies to any of the Contingency Provisions (includes Black Start Periods) that refer to Avoidable Costs when the costs in relation to:
 - (a) a BM Unit; and
 - (b) changes in Exports and/or Imports of that BM Unit during a Settlement Period (“relevant changes”) need to be established.

Paragraph 2.1.2

- Establishes that:
 - (a) the Panel determines what the net costs of operating the BM Unit are which have been incurred due to the changes in Exports and/or Imports. These net costs represent the difference between the cost of operating the BM Unit during a normal Settlement Period and those during Black Start.
 - (b) these costs are what the Panel says they are – they are provided with discretion to determine what these costs are.

Paragraph 2.1.3

- Defines “Avoidable Costs”, in relation to the changes in Exports and/or Imports, as the amount determined by the Panel under paragraph 2.1.2.
- Establishes that Avoidable Costs can be a negative or a positive figure – it could cost more or less to operate a BM Unit during Black Start.

Paragraph 2.2

- Sets out the procedure that applies when the Panel determines what the Avoidable Costs are:
 - (a) the Lead Party calculates its estimate of Avoidable Costs for each Settlement Period and submits this to ELEXON.
 - (b) the calculation shall be the net costs of operating a BM Unit which would not have occurred but for the change in Exports and or Inputs; in short the additional costs incurred as a result of the black start, taking into account any savings (savings are required to be taken into account by paragraph 2.1.4). Supporting documentation must also be provided, together with any further information the Panel requires in making its decision.
 - (c) the Panel can require the Lead Party to also submit a statement signed by its auditors verifying the estimate of the costs submitted.
 - (d) ELEXON notifies the Lead Party of the Panel's decision.
- Establishes that the Authority has the right to:
 - (a) request the Panel discuss with it any Avoidable Cost determinations it has to make; and
 - (b) give the Panel guidance in respect of these determinations.

- Establishes that the Panel must:
 - (a) take into account any guidance it receives from the Authority; and
 - (b) exclude any costs which the Authority directs it to excludein making its determination as to what the Avoidable Costs are.

Section G Paragraph 3.3 Lead Party Compensation

Summary

This section:

- establishes who can apply for a black start compensation amount; a Lead Party who has received a black start instruction by the Transmission Company under OC9.4.7.4, BC2.7 or BC2.9 of the Grid Code.
- sets out the calculation to be used to determine what the black start compensation amount shall be – this includes Avoidable Costs.
- establishes what the Panel shall determine in connection with establishing what the black start compensation amount shall be.
- sets out the process that shall be used in determining the black start compensation amount.
- the process by which the black start compensation amount shall be paid.
- sets out the calculation to be used to determine what the Black Start Reallocation Proportion is in relation to a Trading Party.

Paragraph 3.3.1

- Establishes that a Party can submit a claim for black start compensation amount if:
 - (a) they are a Lead Party and;
 - (b) they have been given an instruction by the Transmission Company under OC9.4.7.4, BC2.7 or BC2.9 of the Grid Code (a “black start instruction”).

Lead Party means a Party registered to a BM Unit via Section K3 of the BSC.

OC9.4.7.4

Provides National Grid Electricity Transmission plc (“NGET”) the authority to

- (a) instruct Demand to be altered; and
- (b) instruct a User to re-configure its System; User being defined as *“a term utilised in various section of the Grid Code to refer to the persons using the GB Transmission System, as more particularly identified in each section of the Grid Code concerned.”*

Section OC9.3.1 identifies what it meant by NGET and Users within the context of OC9. This includes:

- (i) **Generators** – a person who generates electricity under licence or exemption under the Act acting in its capacity as a generator in Great Britain;
- (ii) **Network Operators** – a person with a User System directly connected to the GB Transmission system to which Customers and/or Power Stations (not forming part of the User System) are connected, acting in its capacity as an operator of the User System, but shall not include a person acting in the capacity of an Externally Interconnected System Operator; and

- (iii) **Non-Embedded Customers** – a Customer in Great Britain, except for a Network Operator acting in its capacity as such. Receiving electricity direct from the GB Transmission System irrespective of from whom it is supplied.

Accordingly NGET can issue an instruction for Demand to be altered or to a User, which includes a Generator, a Network Operator or a Non-Embedded Customer AS DEFINED within OC9 which is set out above.

BC2.7

Relates to Acceptance of Bids and Offers by NGET. It is not readily discernable to whom NGET has the authority to issue instructions to under this section.

BC2.9

Relates to Emergency Circumstances and provides NGET the authority to issue Emergency Instructions which is defined as:

“an instruction issued by NGET in emergency circumstances, pursuant to BC2.9 to the Control Point of a User. In the case of such instructions applicable to a BM Unit, it may require an action or response which is outside the Dynamic Parameters, QPN or Other Relevant Data, and may include an instruction to trip a Genset.”

Black start is used as an example of a circumstance requiring the issuing of Emergency Instructions.

Under this section NGET has the authority to issue instructions to:

(a) A User

A User in the context of BC2 means:

- (i) BM Participants – refer to the definition set out above.
- (ii) Externally Interconnected System Operators – a person who operates an External System which is connected to the GB Transmission System or a User System by an External Interconnection, and
- (iii) Network Operators – refer to the definition set out above.

(b) A Generating Unit;

- i. within an Existing AGR Plan to De-Synchronise if the relevant Generating Unit within the Existing AGR Plant has failed to offer to be flexible for the relevant instance at the request of NGET within the Existing AGR Plan Flexibility Limit (BC2.9.4.5); and
- ii. within an Existing Magnox Reactor Plant and/or an Existing AGR Plant in the limited circumstances described in BC 2.9.4.6.

(c) an exporting BM Unit(BC2.9.4.7) – a unit established and registered (or to be established or registered) by a User in accordance with Section K3 or, where the context so requires, the Plant and/or Apparatus treated as comprised in or assigned to such unit for the purposes of the BSC.

(d) Existing Gas Cooled Reactor Plant in the limited circumstances described in BC2.9.5.1) – includes both Existing Magnox Reactor Plant and Existing AGR Plant.

By way of summary those that can be issued instructions by NGET under OC9.4.7.4, BC2.7 or BC2.9 of the Grid Code and therefore can apply for black start compensation if they are also a Lead Party include:

Grid Code Section	Authorises NGET to provide the Instructions identified below
OC9.4.7.4	<ul style="list-style-type: none"> • Demand to be altered; • Users (as defined relevant to OC9) means – <ul style="list-style-type: none"> ○ Generators – a person who generates electricity under licence or exemption under the Act acting in its capacity as a generator in Great Britain; ○ Network Operators – a person with a User System directly connected to the GB Transmission system to which Customers and/or Power Stations (not forming part of the User System) are connected, acting in its capacity as an operator of the User System, but shall not include a person acting in the capacity of an Externally Interconnected System Operator; and ○ Non-Embedded Customers – a Customer in Great Britain, except for a Network Operator acting in its capacity as such. Receiving electricity direct from the GB Transmission System irrespective of from whom it is supplied.
BC2.7	Unclear – no direct instruction rights given to NGET.
BC2.9	<ul style="list-style-type: none"> • A User (as defined relevant to BC2) means - <ul style="list-style-type: none"> ○ BM Participants – refer to the definition set out above. ○ Externally Interconnected System Operators – a person who operates an External System which is connected to the GB Transmission System or a User System by an External Interconnection, and ○ Network Operators – refer to the definition set out above. • A Generating Unit; <ul style="list-style-type: none"> ○ within an Existing AGR Plan to De-Synchronise if the relevant Generating Unit within the Existing AGR Plant has failed to offer to be flexible for the relevant instance at the request of NGET within the Existing AGR Plan Flexibility Limit (BC2.9.4.5); and ○ within an Existing Magnox Reactor Plant and/or an Existing AGR Plant in the limited circumstances described in BC 2.9.4.6. • An exporting BM Unit (BC2.9.4.7) – a unit established and registered (or to be established or registered) by a User in accordance with Section K3 or, where the context so requires, the Plant and/or Apparatus treated as comprised in or assigned to such unit for the purposes of the BSC. • An Existing Gas Cooled Reactor Plant in the limited

	circumstances described in BC2.9.5.1) – includes both Existing Magnox Reactor Plant and Existing AGR Plant.
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- Paragraph 3.3 also establishes that a claim must be made within 20 Business Days (or such longer period as the Panel may approve in a particular case) after the end of the Black Start Period. Further that the claim is submitted to ELEXON.

Paragraph 3.3.2

- Sets out the calculation that shall determine the amount of black start compensation. I refer you to this section in full. Please note this calculation includes; Avoidable Costs and those costs the Panel determines relevant to changes in Exports and/or Imports of the BM unit as set out at the summary of paragraph 3.3.4 below.

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Paragraph 3.3.3

- Establishes that;
 - each claim submitted shall be in respect of each Settlement Period during black start;
 - the amount of black start compensation shall be determined for each relevant Settlement Period during black start.

Paragraph 3.3.4

- Sets out what the Panel must determine when a party submits a claim for black start compensation, this includes:
 - the changes in Exports and/or Imports of the BM Unit during each relevant Settlement Period caused by a Lead Party complying with black start instructions for the relevant Settlement Period;
 - the net quantity (in MWh) of these changes.
- Subject to the process set out at paragraph 3.3.5 and summarised below, the net quantity of the changes in Exports and/or Imports, together with the Avoidable Costs is then fed into the calculation that determines the black start compensation amount as set out at paragraph 3.3.2 of the Code.

Paragraph 3.3.5

- Sets out the obligations of the Lead Party, Transmission Company and each Distribution System Operator in respect of determining black start compensation amount. These include:
 - when submitting a claim, the Lead Party must provide a statement to the Panel outlining what it thinks:
 - the changes in Exports and/or Imports of the BM Unit during each the relevant Settlement Period caused by a Lead Party complying with black start instructions for the relevant Settlement Period;
 - the net quantity (in MWh) of these changes;

- (b) the Lead Party must also provide the Panel with any other information the Panel reasonably requests for the purposes of determining the matters it is required to determine under paragraph 3.3.4;
- (c) the Lead Party must comply with the requirements of paragraph 2.1.1 in relation to the determination of Avoidable Costs (this forms part of the calculation to determine what the black start compensation amount is);
- (d) the Transmission Company and each Distribution System Operator must provide such information as the Panel may reasonably request for the purposes of determining the black start compensation amount.

Paragraph 3.3.6

- Sets out how Lead Parties who have successfully applied for compensation shall be paid. The section establishes that:
 - (a) the BSC Clearer shall pay the net sum for all relevant BM Units and relevant Settlement Periods in respect of black start compensation amounts.
 - (b) in addition to the relevant black start compensation amount interest is payable at the Base Rate, calculated from the Initial Payment Date (for each relevant Settlement Period) to the date when such payment is made.
 - (c) each Trading Party (which includes a Lead Party) is liable to pay the BSC Clearer its Black Start Reallocation Proportion of the black start compensation amount payable to the Lead Party.
 - (d) the black start compensation amounts and relevant interest is treated under the BSC as Ad-hoc Trading Charges for the purposes of Section N paragraph 6.9 of the BSC. Further, ELEXON is under an obligation to give the FAA instructions as necessary to give effect to the payment of such Ad-hoc Trading Charges i.e. the black start compensation amounts together with relevant interest.

Paragraph 3.3.7

- this paragraph establishes that subject to Section I 5.1 (Replacement of Section G3.3.7 commencing on BETTA Effective Date), in relation to any Trading Party the Black Start Reallocation Proportion is determined by the calculation set out within paragraph 3.3.7 itself.

Appendix G - Applicable BSC Objective (d)

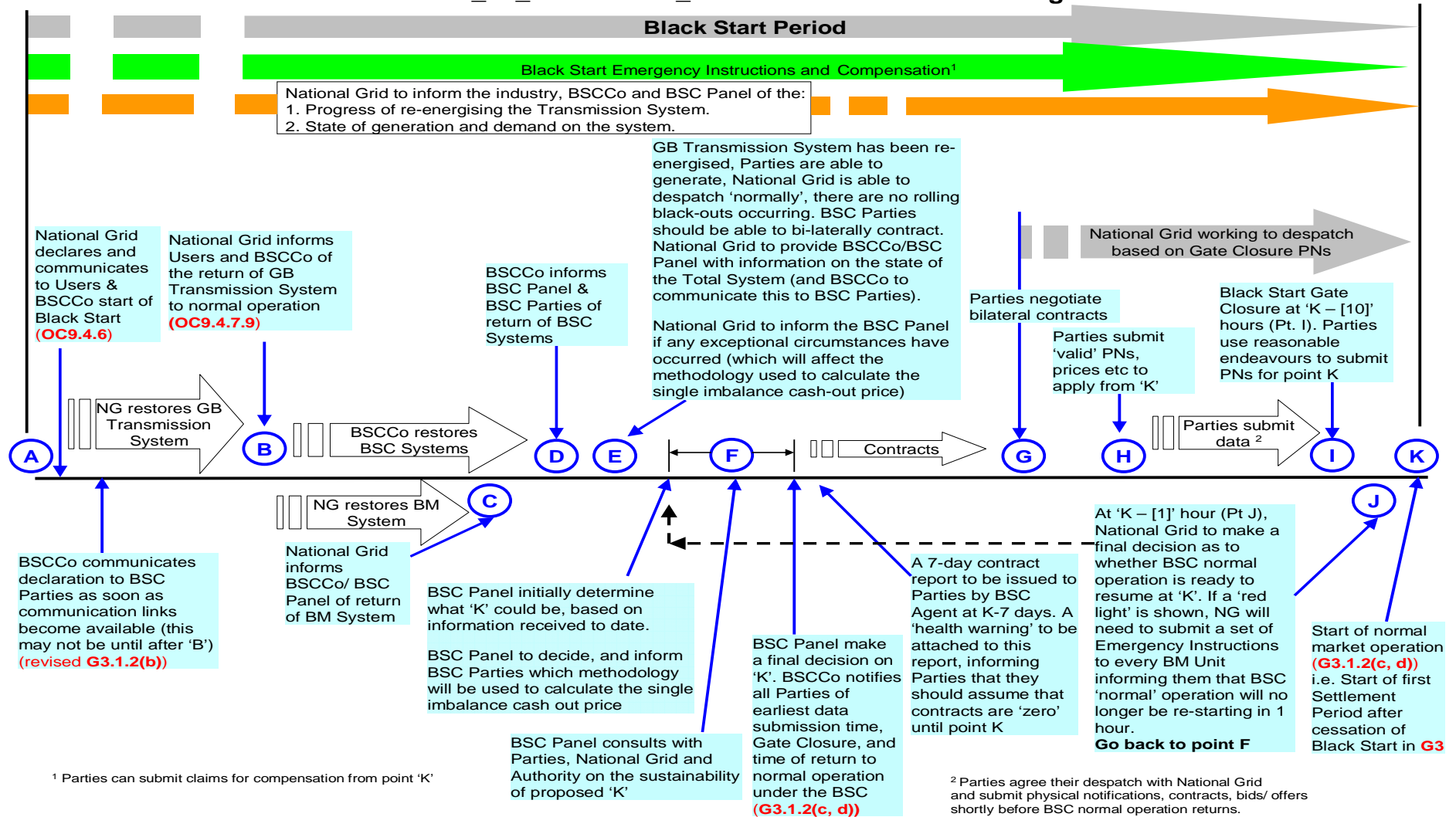
The **Applicable BSC Objective (d)**, as set out at paragraph 3 of Condition C3 of the Transmission Licence, is:

- (d) Promoting efficiency in the implementation and administration of the balancing and settlement arrangements.

The **balancing and settlement arrangements** are defined in paragraph 2 of Condition C3 of the Transmission Licence as being:

- (a) arrangements pursuant to which BSC parties may make, and the licensee may accept, offers or bids to increase or decrease the quantities of electricity to be delivered or taken off the total system at any time or during any period so as to assist the licensee in co-ordinating and directing the flow of electricity onto and over the GB transmission system and balancing the GB transmission system; and for the settlement of financial obligations (between BSC parties, or between BSC parties and the licensee) arising from the acceptance of such offers or bids; and
- (b) **arrangements**
 - (i) **for the determination and allocation to BSC parties of the quantities of electricity delivered to and taken off the total system; and**
 - (ii) which set, and provide for the determination and financial settlement of, obligations between BSC parties, or (in relation to the systems operator's role in co-ordinating and directing the flow of electricity onto and over the GB transmission system) between BSC parties and the licensee, arising by reference to the quantities referred to in sub-paragraph (i), including imbalances (after taking account of the arrangements referred to in sub-paragraph (a)) between such quantities and the quantities of electricity contracted for sale and purchase between BSC parties.

142_04_Attachment_A: Black Start Transition Diagram





Methodologies & Definitions

Introduction

Heren Energy publishes *European Daily Electricity Markets (EDEM)* on every working day of the year in Britain. *EDEM* assesses and records prices and market activity on the liquid markets in Britain and Europe, including but not limited to:

- Britain
- Germany
- France
- The Netherlands
- Spain
- Czech Republic
- Italy

The financial value of electricity is established by two methods:

1. Price Assessments. *Heren Energy* assesses the market closing prices for a range of European power hubs on the day of publication, and publishes a price range for each delivery period on a number of liquid markets. This is known as the BID-OFFER RANGE, representing the highest buyer's bid and the lowest seller's offer at the relevant close of each market.
2. Indexation (Heren Index). Indices are published for a variety of delivery periods and delivery points. Each Heren Index is a transaction-based price, calculated using the volume-weighted average of eligible transactions (trades) for the relevant delivery period reliably reported to *Heren Energy*.

More precise details of *Heren Energy's* Price Assessments and Heren Indices, together with further information about our service, will be found below.

EDEM Price Assessments - General definitions

Certain key criteria apply to all of *EDEM's* daily price assessments. The European electricity markets (variously defined as spot or over-the-counter markets) are assessed each working day during the period 15:00 to 18:00 London time (varying by country and market), when *Heren Energy* contacts by telephone a wide range of active market participants.

Price assessments published in *EDEM* are formulated by *Heren Energy* at the conclusion of this process and represent *Heren Energy's* close-of-day bid-offer ranges for electricity delivered at a number of hubs in the time ranges specified in the table. They are not based on deals done during the day (listed separately in *EDEM*).

"Bid" is deemed to be the highest price bid by buyers at the close of business on the trading day in question.

"Offer" is deemed to be the lowest price offered by sellers at the close of business on the trading day in question.

Baseload prices quoted are for power delivered at a flat rate throughout the specified delivery period. Peak prices quoted are for power delivered during the peak period of working days (generally approximately 07:00-19:00 but varying according to individual market) and do not include Weekend delivery.

Periods

Day-ahead: Day-ahead prices are for power to be delivered for the working day following the date of the report. Thus, in a report published on Friday, the Day-ahead quote would apply to the following Monday, unless this was a public holiday.

Weekend: Weekend prices are for the first Saturday and Sunday following the date of the report, and for the Christmas/Boxing Day (December 25/26) holidays, and for New Year's Day (1st January) when these fall midweek. In the latter circumstance, the Weekend price on the publishing days immediately preceding Christmas or New Year's Day would apply to power to be delivered on Christmas/Boxing

Day or New Year's Day, while the Weekend price on the one or two publishing days following Christmas or New Year would apply to the Weekend following Christmas or New Year.

Months: Each month quoted represents power to be delivered on each day of the month.

Quarters: The quarters are three month periods beginning on 1st January (Q1), 1st April (Q2), 1st July (Q3) and 1st October (Q4). Each represents power to be delivered on each day of the quarter.

Seasons: The seasons are six month periods beginning on 1st April (Summer) and 1st October (Winter). The exceptions to this rule are the UK market, which follows EFA month patterns rather than calendar months (the calendar can be viewed at https://www.theice.com/publicdocs/EFA_Calendar.pdf) and the Nordic (Nord Pool) market, which has three seasons per year in four month blocks.

Years: EDEM Price Assessment Yearly quotes are for Calendar Years unless otherwise stated. Each assessment listed represents electricity to be delivered on each day of the twelve-month period. April Annual refers to electricity supplied for a Year from the beginning of April (not necessarily 1st April in the UK, see above) of a particular year while October Annual refers to electricity supplied for a Year from the beginning of October (not necessarily 1st October in the UK).

"Balance (Bal.):" The 'Balance' of a period, whether it be month, quarter, season or year, refers to prices for power to be delivered on each of the remaining days of the current period, beginning with the day following the date of the report. The number of days thus declines through the period.

UK OTC Power Price Assessments

The UK physical power market (variously defined as the spot or over-the-counter market) is assessed each working day during the period 16:30 to 18:00 London time, when *Heren Energy* contacts by telephone a wide range of active market participants.

Price assessments published in the "UK OTC POWER PRICE ASSESSMENTS" table are formulated by *Heren Energy* at the conclusion of this process and represent *Heren Energy's* close-of-day bid-offer ranges for power delivered under Grid Trade Master Agreement (GTMA) terms. They are not based on deals done during the day (listed separately in EDEM).

Load Shapes: Daily power traded on the UK market is by custom split into six, 4-hour Week Day (WD) or Weekend (WE) periods. The periods are laid out as follows:

Time Period	Weekday	Weekend
23.00-03.00	WD1	WE1
03.00-07.00	WD2	WE2
07.00-11.00	WD3	WE3
11.00-15.00	WD4	WE4
15.00-19.00	WD5	WE5
19.00-23.00	WD6	WE6

Baseload prices quoted are for power delivered at a flat rate throughout the specified delivery period, i.e. WD 1-6 and WE 1-6 (if the period traded includes a weekend.)

In the context of the UK market Peak prices quoted are for power delivered during the peak period of working days (0700-1900), i.e. WD 3,4 & 5 and does not include Weekend delivery, i.e. Winter Peaks includes WD 3-5 but NOT WD 1,2,6 and NOT WE 1-6. Off-peaks refers to WD 1, 2 & 6 and WE 1-6 (if the period traded includes a weekend.)

Various other non-standard load shapes are traded on the UK power market. Where these are reported in EDEM, EDEM will provide a definition based on the WD/WE periods they comprise.

Trading periods on the UK power market do not follow the standard calendar format but instead are based on the EFA (Electricity Forwards Agreement) calendar (the calendar can be viewed at https://www.theice.com/publicdocs/EFA_Calendar.pdf).

German Price Assessments

The German electricity market is assessed each working day during the period 15:00 to 17:00 London time. Baseload prices quoted are for power delivered at a flat rate throughout the specified delivery period. Peak prices quoted are for power delivered during the peak period of working days (08:00-20:00) and do not include Weekend delivery.

French Price Assessments

The French electricity market is assessed each working day during the period 15:00 to 17:00 London time. Baseload prices quoted are for power delivered at a flat rate throughout the specified delivery period. Peak prices quoted are for power delivered during the peak period of working days and do not include Weekend delivery.

Dutch Price Assessments

The Dutch electricity market is assessed every Wednesday during the period 15:00 to 17:00 London time. Baseload prices quoted are for power delivered at a flat rate throughout the specified delivery period. Peak prices quoted are for power delivered during the peak period of working days (08:00-23:00) and does not include Weekend delivery.

Spanish Price Assessments

The Spanish electricity market is assessed every Wednesday during the period 15:00 to 17:00 London time. Baseload prices quoted are for power delivered at a flat rate throughout the specified delivery period.

Czech Price Assessments

The Czech electricity market is assessed every Tuesday during the period 15:00 to 17:00 London time. Baseload prices quoted are for power delivered at a flat rate throughout the specified delivery period.

Italian Price Assessments

The Italian electricity market is assessed every Thursday during the period 15:00 to 17:00 London time. Baseload prices quoted are for power delivered at a flat rate throughout the specified delivery period.

Heren Assessments published and start dates	
Country	Start date
UK	07-Apr-97
German	09-Aug-99
Spanish (weekly from 07-Feb-03)	02-Jan-01
Dutch (weekly from 07-Feb-03)	08-Jan-01
French	11-Jul-01
Czech	22-Aug-08
Italian	07-Jun-07

Heren Indices - General definitions

Heren Energy's various market indices share a number of common characteristics, regardless of market or time period. They are all volume-weighted averages of trades reported to *Heren Energy* during the course of its market reporting activities. All of the trades on which the indices are based are published in *EDEM* on a daily in the tables of trades reported. This information is subject to *EDEM's* usual tests of reliability:

1. Confirmation is sought from both parties to the deal.
2. If, as is often the case, both counter-parties are unwilling to confirm, confirmation is accepted from one side only. However, corroboration is also sought from other market participants.
3. If no confirmation is available, the deal may still be included if it is accepted by the wider market, and if *EDEM* itself regards it as reliable.
4. In addition to price and volume, which are essential for inclusion in the Index, *EDEM* ensures that deals included in the Index are stand-alone deals.
5. In the event that reported trades fall noticeably above or below the traded range for that contract on a given day, and in the absence of any reasonable explanation, *EDEM* would discard the deal or deals. Deals would be liable for rejection if they were 1% above or below the highest or lowest deals reported to *EDEM* on that day. Evidence of the traded range given by market

participants during the market reporting process would also be taken into account when assessing whether to include or discard a deal. Any discarded deals would not be entered into *Heren Energy's* database and would not appear in the reported deals tables in *EDEM*. They would therefore also be excluded from any Heren Index.

- Each daily Index requires a minimum of three transactions. On days when there are fewer than three eligible transactions for an Index, that Index is published as the midpoint of the bid/offer spread published in *EDEM's* OTC power price assessment table.

The UK Electricity Heren Daily Index

The UK Electricity Heren Day-ahead Index values electricity traded for the next working day and is published by *Heren Energy* each working day in *European Daily Electricity Markets (EDEM)*.

The Index day is the first working day following the date of publication. Thus, the Index published on 27th March values power traded on 27th March for delivery on 28th March. The Day-ahead Index published on a Friday values power to be delivered on Monday, or on Tuesday when the Monday is a public holiday.

Expressed in pounds per Megawatthour (£/MWh), the index is derived from actual transactions for baseload electricity for the Day-ahead period. The Index is the volume-weighted average of transaction prices.

The UK Electricity Heren Weekend Index

The UK Heren Weekend Index is published by *Heren Energy* every Friday (or final working day of the week when Friday is a public holiday) in *EDEM*.

The Weekend Index is a volume-weighted average of deal prices for electricity to be delivered for the forthcoming weekend. It values power traded for the forthcoming weekend period over the immediately preceding working days. Thus, the Index published on, for example, Friday 6th April values power traded on 2-6th April for delivery on 7-8th April. It is published on the working day immediately prior to the Weekend period.

Because the 'Weekend' period is generally interpreted within the UK power market as referring purely to Saturday and Sunday and not including any contiguous public holidays, Heren's Weekend Index is based purely on Saturday and Sunday deals. *EDEM* will include separate Indices for any public holidays that are contiguous with the weekend.

Expressed in pounds per Megawatthour (£/MWh), the index is derived from actual transactions for baseload electricity for the Weekend period. The Index is the volume-weighted average of transaction prices.

The UK Electricity Heren Monthly Index

The *UK Electricity Heren Monthly Index* is a monthly index of value for electricity traded under GTMA terms and is published by *Heren Energy* each working day in *European Daily Electricity Markets (EDEM)*.

Expressed in £/MWh, the index is derived from actual transactions for baseload electricity for the month in question (Index Month). The Index is the volume-weighted average of transaction prices.

The transactions on which the Index is based are those which took place in the EFA month preceding the Index Month. Thus, for the July Index, only entire July deals which took place in the June EFA period were eligible.

The German Electricity Heren Daily Index

The German Electricity Heren Day-ahead Index values electricity traded for the next working day on the German market and is published by *Heren Energy* each working day in *European Daily Electricity Markets (EDEM)*.

The Index day is the first working day following the date of publication. Thus, the Index published on 27th January values power traded on 27th January for delivery on 28th January. The Day-ahead Index published on a Friday values power to be delivered on Monday, or on Tuesday when the Monday is a public holiday.

The Day-ahead Index is a volume-weighted average of transaction prices for electricity to be delivered in Germany. Expressed in Euros per Megawatthour (EUR/MWh), the index is derived from actual transactions for baseload electricity for the Day-ahead period. The Index is the volume-weighted average of transaction prices.

The German Electricity Heren Weekend Index

The German Heren Weekend Index is published by *Heren Energy* every Friday (or final working day of the week when Friday is a public holiday) in *EDEM*.

The Weekend Index is a volume-weighted average of deal prices for electricity to be delivered for the forthcoming weekend. It values power traded for the forthcoming weekend period over the immediately preceding working days. Thus, the Index published on, for example, Friday 6th April values power traded on 2-6th April for delivery on 7-8th April. It is published on the working day immediately prior to the Weekend period.

Because the 'Weekend' period is generally interpreted within the German power market as referring purely to Saturday and Sunday and not including any contiguous public holidays, Heren's Weekend Index is based purely on Saturday and Sunday deals. *EDEM* will include separate Indices for any public holidays that are contiguous with the weekend.

Expressed in euros per Megawatthour (EUR/MWh), the index is derived from actual transactions for baseload electricity for the Weekend period. The Index is the volume-weighted average of transaction prices.

The German Electricity Heren Monthly Index

The German Electricity Heren Monthly Index is a monthly index of value for electricity traded on a month-ahead basis and is published by *Heren Energy* each working day in *EDEM*.

Expressed in EUR/MWh, the index is derived from actual transactions for baseload electricity for the month in question (Index Month). The Index is the volume-weighted average of transaction prices.

The transactions on which the Index is based are those which took place in the month preceding the Index Month. Thus, for the July Index, only entire July Baseload deals which took place in the June period are eligible.

The French Electricity Heren Daily Index

The French Electricity Heren Day-ahead Index values electricity traded for the next working day on the French market and is published by *Heren Energy* each working day in *European Daily Electricity Markets (EDEM)*.

The Index day is the first working day following the date of publication. Thus, the Index published on 27th January values power traded on 27th January for delivery on 28th January. The Day-ahead Index published on a Friday values power to be delivered on Monday, or on Tuesday when the Monday is a public holiday.

The Day-ahead Index is a volume-weighted average of transaction prices for electricity to be delivered in France. Expressed in Euros per Megawatthour (EUR/MWh), the index is derived from actual transactions for baseload electricity for the Day-ahead period. The Index is the volume-weighted average of transaction prices.

The French Electricity Heren Weekend Index

The French Heren Weekend Index is published by *Heren Energy* every Friday (or final working day of the week when Friday is a public holiday) in *EDEM*.

The Weekend Index is a volume-weighted average of deal prices for electricity to be delivered for the forthcoming weekend. It values power traded for the forthcoming weekend period over the immediately preceding working days. Thus, the Index published on, for example, Friday 6th April values power traded on 2-6th April for delivery on 7-8th April. It is published on the working day immediately prior to the Weekend period.

Because the 'Weekend' period is generally interpreted within the French power market as referring purely to Saturday and Sunday and not including any contiguous public holidays, Heren's Weekend Index is based purely on Saturday and Sunday deals. *EDEM* will include separate Indices for any public holidays that are contiguous with the weekend.

Expressed in euros per Megawatthour (EUR/MWh), the index is derived from actual transactions for baseload electricity for the Weekend period. The Index is the volume-weighted average of transaction prices.

The French Electricity Heren Monthly Index

The French Electricity Heren Monthly Index is a monthly index of value for electricity traded on a month-ahead basis and is published by

Heren Energy each working day in *EDEM*.

Expressed in EUR/MWh, the index is derived from actual transactions for baseload electricity for the month in question (Index Month). The Index is the volume-weighted average of transaction prices.

The transactions on which the Index is based are those that took place in the month preceding the Index Month. Thus, for the July Index, only entire July Baseload deals that took place in the June period are eligible.

The Czech Electricity Heren Daily Index

The Czech Electricity Heren Day-ahead Index values electricity traded for the next working day on the Czech market and is published by *Heren Energy* each working day in *European Daily Electricity Markets (EDEM)*.

The Index day is the first working day following the date of publication. Thus, the Index published on 27th January values power traded on 27th January for delivery on 28th January. The Day-ahead Index published on a Friday values power to be delivered on Monday, or on Tuesday when the Monday is a public holiday.

The Day-ahead Index is a volume-weighted average of transaction prices for electricity to be delivered in France. Expressed in Euros per Megawatt-hour (EUR/MWh), the index is derived from actual transactions for baseload electricity for the Day-ahead period. The Index is the volume-weighted average of transaction prices.

The Czech Electricity Heren Weekend Index

The Czech Heren Weekend Index is published by *Heren Energy* every Friday (or final working day of the week when Friday is a public holiday) in *EDEM*.

The Weekend Index is a volume-weighted average of deal prices for electricity to be delivered for the forthcoming weekend. It values power traded for the forthcoming weekend period over the immediately preceding working days. Thus, the Index published on, for example, Friday 6th April values power traded on 2-6th April for delivery on 7-8th April. It is published on the working day immediately prior to the Weekend period.

Because the 'Weekend' period is generally interpreted within the Czech power market as referring purely to Saturday and Sunday and not including any contiguous public holidays, Heren's Weekend Index is based purely on Saturday and Sunday deals. *EDEM* will include separate Indices for any public holidays that are contiguous with the weekend.

Expressed in euros per Megawatt-hour (EUR/MWh), the index is derived from actual transactions for baseload electricity for the Weekend period. The Index is the volume-weighted average of transaction prices.

The Czech Electricity Heren Monthly Index

The Czech Electricity Heren Monthly Index is a monthly index of value for electricity traded on a month-ahead basis and is published by *Heren Energy* each working day in *EDEM*.

Expressed in EUR/MWh, the index is derived from actual transactions for baseload electricity for the month in question (Index Month). The Index is the volume-weighted average of transaction prices.

The transactions on which the Index is based are those that took place in the month preceding the Index Month. Thus, for the July Index, only entire July Baseload deals that took place in the June period are eligible.

Trades series published and start dates	
UK	01-Dec-97
German	27-Sep-00
Spanish (weekly)	26-Mar-01
Dutch (weekly)	08-Mar-01
French	11-Jul-01
Czech	12-Sep-06
Italy (weekly)	14-Jun-07

Heren indices published and start dates	
Daily Indices	
UK Day-ahead	18-Aug-00
German Day-ahead	01-Feb-02
French Day-ahead	30-Apr-07
Czech Day-ahead	11-Apr-07
Weekend Indices	
UK	05-Jan-01
German	03-May-02
French	04-May-07
Czech	13-Apr-07
Monthly Indices	
UK	01-Feb-99
German	01-Jul-01
French	01-Aug-01
Czech	01-Jun-07

Spark and Dark Spreads

The UK and German gas and power prices cited in *EDEM's* Spark and Dark Spread tables in *EDEM* are derived from the price assessment tables in *EDEM*. All the power prices quoted are for baseload delivery. Gas prices cited are NBP for the UK and the Dutch TTF for Germany. The TTF hub is currently the most liquid gas market in the region and is widely used as a reference for German gas prices. For a full explanation of how the power and gas prices are derived please see the *EDEM/ESGM* methodologies. The coal price is based on the CIF ARA market and is derived from a number of market sources.

Clean Spark/Dark Spreads are a reflection of the cost of generating after taking into account fuel (gas/coal) and carbon allowance costs. A positive spread effectively means that it is theoretically profitable to generate electricity on a baseload basis for the period in question, while a negative spread means that generation would be a loss-making activity. However it is important to note that the Clean Spark/Dark Spreads do not take into account additional generating charges (beyond fuel and carbon), such as operational costs.

Clean Spark Spreads: Both the UK and German Spark Spread tables use a fuel efficiency factor of 49.13% for the gas conversion. In reality, each gas-fired plant has a different fuel efficiency, but 49.13% is used as a standard in the UK market because it provides an easy conversion between gas and power volumes (25,000 therms of gas = 15 MW of power). The spark spread value is therefore the power price minus the gas price divided by 0.4913, i.e. $\text{Spark Spread} = \text{Power Price} - (\text{Gas price}/0.4913)$.

The Clean Spark Spread is calculated using a gas emissions intensity factor of 0.411 tCO₂/MWh. Therefore the clean spark spread is calculated by subtracting the carbon price (multiplied by 0.411) from the 'dirty' spark spread, i.e. $\text{Clean Spark Spread} = \text{Spark Spread} - (\text{Carbon Price} \times 0.411)$.

Clean Dark Spreads: Clean Dark Spreads are a reflection of the cost of generating after taking into account fuel (coal) and carbon allowance costs. A positive spread effectively means that it is profitable to generate electricity on a baseload basis for the period in question, while a negative spread means that generation would be a loss-making activity. However it is important to note that the Clean Spark Spreads do not take into account additional generating charges (beyond fuel and carbon), such as operational costs.

Both the UK and German Dark Spread tables use a fuel efficiency factor of 35% for the coal conversion, and an energy conversion factor of 7.1 for converting tonnes/coal into MWh/electricity. In reality, type of coal has a different energy value and each coal-fired plant has a different fuel efficiency, but 35% is accepted as a broad standard. At the time of writing (January 2007) there is no liquid Dark Spread traded market in either the UK or Germany. However if a standard efficiency factor emerges for trading purposes *EDEM* will review its methodology. The Dark Spread value is the power price minus the coal price divided by 0.35, i.e. $\text{Dark Spread} = \text{Power price} - (\text{Coal price}/0.35)$.

The Clean Dark Spread is calculated using a coal emissions intensity factor of 0.96 tCO₂/MWh. Therefore the Clean Dark Spread is calculated by subtracting the carbon price (multiplied by 0.96) from the 'dirty' spark spread, i.e. $\text{Clean Dark Spread} = \text{Dark Spread} - (\text{Carbon Price} \times 0.96)$.

Power Plant Outages

Heren Energy publishes a list of power plant outages across a number of key markets with, where known, the date of the outage, the reason for the outage and the estimated plant/unit restart date.

Other Data

The following information is published in *EDEM* but is based on secondary data not generated by *Heren Energy*.

Across The Market: The Across The Market table compares the Day-ahead prices of Europe's leading electricity markets (either OTC, exchange or index-based, varying by country), published elsewhere in the report. Prices are quoted in EUR/MWh and are compared to the previous day's prices.

German Day Ahead Settlement Prices: The European Energy Exchange (EEX) offers Day-ahead hourly spot trading contracts. The prices published are the hourly price of power traded at the exchanges for Day-ahead power. See the exchange's website – www.eex.de for further details.

Powernext French Day Ahead Market: The Powernext Exchange offers Day-ahead hourly spot trading contracts. The prices published are the hourly price of power traded at the exchanges for Day-ahead power EUR/MWh. See the exchange's website – www.powernext.fr – for further details.

Italian IPEX Results: GME, the Italian electricity market operator, publishes the Baseload and Peak results of its Day-ahead electricity exchange on its website. See the market operator's website – www.mercatoelettrico.org - for further details.

Nordic Prices: Prices for the Nordic electricity market (covering Norway, Sweden, Denmark and Finland) are reproduced from the Nord Pool exchange's closing Best Buyer/Best Seller prices for key Baseload contracts.

The System Price is an average Day-ahead price based on bids for purchase and sale of hourly contracts and block contracts that cover all 24 hours of the next day. Prices are determined through auction trade for each delivery hour.

Nord Pool volume is the total volume of electricity traded on the Nord Pool futures exchange for the day in question.

APX NL Hub Results: The Amsterdam Power Exchange (APX) offers Day-ahead hourly spot trading contracts. The prices published are the average of these hourly prices expressed in Day (Baseload), Peak Hours (9-20) and Off-Peaks (1-7, 23-24) terms in EUR/MWh. See the exchange's website – www.apx.nl – for further details.

Belpex Belgian Hub Results: The Belgian Belpex offers Day-ahead hourly spot trading contracts. The prices published are the average of these hourly prices expressed in Day (Baseload), Peak Hours (9-20) and Off-Peaks (1-8, 21-24) terms in EUR/MWh. See the exchange's website – www.belpex.be – for further details.

Austrian EXAA: The Austrian EXAA (Energy Exchange Austria) operates a Day-ahead market offering 24 hourly power contracts for delivery the following day. The EXAA prices published in *EDEM* represent the weighted average of the 24 prices, represented as the Baseload price, as well as the Peaks price and a maximum and minimum price. The volume is the total volume traded for the following day. See the market operator's website – www.exaa.at – for further details.

Spanish Pool Price: OMEL, the Spanish electricity market operator, publishes the hourly results of its Day-ahead electricity pool on its website. The Spanish Pool Price published in *EDEM* represents the Baseload and Peak price averages of the hourly prices. See the market operator's website – www.omel.es - for further details.

PPX: The Polish Power Exchange (PPX) operates a Day-ahead market offering 24 hourly power contracts for delivery the following day. The PPX price published in *EDEM* represents the weighted average of the 24 prices. The volume is the total volume traded for the following day. See the market operator's website – www.polpx.pl – for further details.

Romanian OPCOM: Romania's OPCOM operates a Day-ahead market offering 24 hourly power contracts for delivery the following day. The OPCOM price published in *EDEM* represents the weighted average of the 24 prices. See the market operator's website – www.opcom.ro – for further details.

Czech OTE Day-ahead: The Czech Republic's OTE operates a Day-ahead market offering 24 hourly power contracts for delivery the following day. The OTE price published in *EDEM* represents the weighted average of the 24 prices. See the market operator's website – www.ote-cr.cz – for further details.

UK Electricity Balancing Market System Sell And Buy Prices: The UK electricity Balancing Mechanism is used by the National Grid as a means of balancing power flows on to and off the electricity transmission system. For further information on the function of the balancing market and a definition of the terms used in the table please refer to the web-site www.bmreports.com.

APX Power UK Spot Contracts: These charts, provided by APX UK, give a breakdown of the prices and volumes for spot electricity traded on the exchange on a daily, two-hourly, four-hourly and half-hourly basis. For more information on the data please visit the Exchange's website at www.apx.nl.

ICE Baseload UK Electricity Futures: This table represents the closing prices for the InterContinental Exchange's (ICE) key UK electricity

Baseload futures contracts. For more information on the data please visit the Exchange's website at www.theice.com.

Endex Dutch Electricity Futures Exchange: This table represents the closing prices for the Endex exchange's key Dutch electricity Baseload and Peaks futures contracts. For more information on the data please visit Endex's website at www.endex.nl.

Weather: Pan-European weather forecasts on a 1-5 day and 6-10 day basis are provided to *EDEM* by Weather Services International. For more information, please e-mail energy@wsieurope.com or visit the company's website – www.wsieurope.com.

Credit Assessment Price (CAP) Review Guidance Document

1. Introduction

This guidance document sets out the processes ELEXON use to determine when a review of the Credit Assessment Price (CAP) will be held and the procedures followed during a review of the CAP value.

The Credit Assessment Price is defined in section M1.4 of the Balancing and Settlement Code ('the Code'). CAP is essentially a parameter used to convert Actual Energy Indebtedness and the credit cover lodged by a BSC Party into an equivalent MWh amount.

In accordance with the procedures set out in this guidance document, ELEXON actively monitors the CAP value against forward looking electricity prices. Where significant deviations occur the CAP value is reviewed.

More information on the Credit Assessment Price is available by contacting the ELEXON Helpdesk at helpdesk@elexon.co.uk.

This guidance document is approved for use by the BSC Panel and can only be changed with its approval, with the exception of the value of the trigger level, set out in section 4 which may be amended by the Credit Committee. The Credit Committee may also recommend other changes to this guidance document for consideration by the BSC Panel.

2. Process Overview

The CAP review procedures are as follows:

- On the first working day of each week ELEXON compares the current CAP value to a value derived from forward looking electricity prices. This derived value is calculated as described in section 3;
- If the difference between CAP and the derived value exceeds a pre-set trigger value on two consecutive weeks then ELEXON calls a meeting of the Credit Committee;
- ELEXON are permitted to propose a new CAP value to the Credit Committee which is equal to the derived value;
- The Credit Committee discusses the trigger and the new value of CAP proposed by ELEXON and, if the Committee feels it appropriate, recommends a new CAP value, which may be the value proposed by ELEXON or some other value;
- Where the Credit Committee recommends a new value of CAP there follows a 10 working day industry consultation period. This discharges the consultation obligation set out in Section M1.4 of the Code;
- Following the consultation period there is a Credit Committee meeting to determine whether the recommended or some other new CAP value should be implemented or no change should be made; and
- If a new CAP value is approved by the Credit Committee, this value comes into effect following a 20 working day Implementation Period as required by section M1.4.2(b) of the Code.

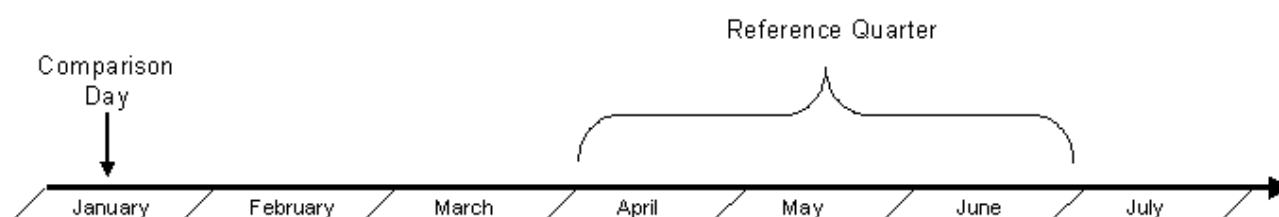
3. Use of Forward Price Data

Forward price data is received by ELEXON from a provider approved by the BSC Panel. The Credit Committee will keep the suitability and availability of such data for CAP review purposes under review and may recommend a change of provider, or data, or to this guidance document to the BSC Panel from time to time. On the first working day of each week this forward price data is used to derive a value which is compared to the current value of CAP. This section provides an overview of how this value is derived.

The derived value is essentially a forward price which covers a three month period (i.e. CAP is compared to a quarterly forward price). For the purpose of this guidance document this three month period shall be referred to as the 'reference quarter.'

Determining the Reference Quarter

The three months which make up the reference quarter are determined by the current month (i.e. the month that the first day of the week falls in). To reflect the time that it takes to review CAP, the reference quarter will begin on the first day of third month on from the current month. For instance, in the diagram below the comparison day lies in January therefore the reference quarter will begin on the first day of April and end on the last day of June.



Columns 1 to 3 of the following table show the corresponding reference quarter for each month of the year:

Table 1

Month that First Day of Week Falls In	Start Date of Reference Quarter	End Date of Reference Quarter	Forward Price Calculation Factor
January	1 April	30 June	Q2
February	1 May	31 July	$(2/3 * Q2) + (1/3 * Q3)$
March	1 June	31 August	$(1/3 * Q2) + (2/3 * Q3)$
April	1 July	30 September	Q3
May	1 August	31 October	$(2/3 * Q3) + (1/3 * Q4)$
June	1 September	30 November	$(1/3 * Q3) + (2/3 * Q4)$
July	1 October	31 December	Q4
August	1 November	31 January	$(2/3 * Q4) + (1/3 * Q1)$
September	1 December	28/29 February	$(1/3 * Q4) + (2/3 * Q1)$
October	1 January	31 March	Q1
November	1 February	30 April	$(2/3 * Q1) + (1/3 * Q2)$
December	1 March	31 May	$(1/3 * Q1) + (2/3 * Q2)$

Where Q1 is the average Quarter 1 forward price based on five days' worth of data; Q2 is the average Quarter 2 forward price based on five days' worth of data, etc. so the derived forward price value is a simple average of one or more Quarter prices.

Calculating the Derived Value

The derived forward price over the reference quarter will be referred to in this guidance document as the 'derived value'.

On the first working day of each week ELEXON gathers the quarterly forward price data produced on the last five working days (for which there is data available) and uses an average of this data to calculate the forward price over the reference quarter, i.e. the derived value.

The supplier of forward price data provides ELEXON with prices which are divided into four distinct quarters as follows:

Q1	Q2	Q3	Q4
January	April	July	October
February	May	August	November
March	June	September	December

It is therefore often necessary to mix the forward price products to obtain a quarterly forward price over the reference quarter. In such cases the appropriate forward price calculation factor shown in *Table 1* will be applied to obtain the derived value, where:

- Q1 = the forward price for quarter one, based upon the average quarterly prices for quarter one produced on the last five working days before the comparison day.
- Q2= the forward price for quarter two, based upon the average quarterly prices for quarter two produced on the last five working days before the comparison day.
- Q3 = the forward price for quarter three, based upon the average quarterly prices for quarter three produced on the last five working days before the comparison day.
- Q4 = the forward price for quarter four, based upon the average quarterly prices for quarter four produced on the last five working days before the comparison day.

Once the derived value has been calculated, in accordance with the appropriate formula in *Table 1*, it will be compared against the current CAP value. Where these two prices deviate by more than the trigger value it will be termed a trigger event.

4. The Trigger Level

The trigger level is currently set at the following value: **£11/MWh**

The value of the trigger level is determined by the Credit Committee and will be subject to its review from time to time and at least once a year. This guidance document will be reissued following any change of the trigger level.

5. The CAP Review Process

A CAP review is only initiated after two sequential trigger events, i.e. on consecutive weeks. This is intended to limit the effect of shocks to the forward price on the trigger process. Once initiated, the CAP review process is as follows:

- The weekly trigger process is suspended. This suspension is to ensure that a situation does not arise where there are a multiple reviews of CAP occurring simultaneously. The suspension lasts until either (1) the point at which a decision is made not to implement a new value of CAP or (2) where a decision is made to implement a new value of CAP, the point at which that new value of CAP is implemented. Following this point the weekly trigger process is resumed.
- However, during the suspension, ELEXON continues to calculate the derived weekly values (from forward prices) and provides this information to the Credit Committee meeting at which it is asked to make a decision on a CAP value following the industry consultation, noting that such data will not have been available to consultees;
- The Credit Committee meeting is held within three working days of the second trigger event;
- At this meeting the Credit Committee discusses the trigger event and, if felt appropriate, recommends a new CAP value. ELEXON proposes a new CAP value to the Credit Committee based upon forward looking prices and derived using the above methodology. However, any new CAP value proposed for industry consultation will be entirely at the discretion of the Credit Committee;
- Where a new CAP value is not proposed the CAP review shall be closed and weekly comparisons of CAP against the reference price will resume;
- Where the Credit Committee recommends a new CAP value, there shall be a ten working day industry consultation. This Consultation Period begins on the first working day immediately following the Credit Committee meeting. At this point ELEXON will arrange a Credit Committee meeting for the first practical date after the consultation closes but with at least one clear working day between the closure of the consultation and the Credit Committee meeting to allow ELEXON time to collate and distribute the responses to Committee members;
- At this meeting the Credit Committee shall consider the consultation responses and the derived weekly values calculated by ELEXON since the consultation was initiated and set a new CAP value if it deems it appropriate to do so;
- If the Credit Committee decides not to set a new CAP value then the review shall be closed and the suspension of the trigger process will be lifted;
- Should the Credit Committee set a new CAP value then BSC Parties, the FAA and ECVAAs will be informed of the new CAP value and the date from which it is effective in accordance with the Code;
- Once a new CAP value comes into effect the weekly trigger process is resumed on the first working day of the following week.