# Report on

# BM System Replacement

## Industry Consultation 2

## *System interfaces and BMU modelling*

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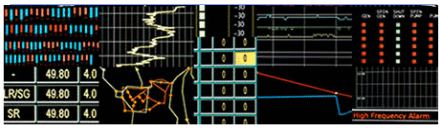

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# 1 Executive Summary

Following the first industry consultation on proposed replacement of the BM system on 7 October 2008, National Grid has carried out a second consultation on specific elements of the new Electricity Balancing System on 11 October 2010. This consultation is intended to inform the design phase of the EBS, and sought industry views on:

- The new industry electronic interfaces that will be offered after system go-live;
- Enhancements to the modelling of Balancing Mechanism Units (BMUs);
- Ongoing industry involvement in the BM replacement project.

Ten Industry responses were received by 15 November 2010.

This report provides details of the outcome of the consultation process undertaken by National Grid.

The main points from discussions industry responses and the proposed way forward are summarised below.

## 1.1 Electronic Interfaces with EBS

1. National Grid will design the electronic interfaces for computer-to-computer communications, with XML and web forms as a backup for occasional use.
2. The electronic interfaces will be developed to provide flexibility for industry communications (e.g. for system warnings).
3. The indicative timescale for transition to new interfaces (and cut-off period for the existing interfaces) will be around two years, recognising that this may extend to five years.

## 1.2 Modelling of Balancing Mechanism Units

1. National Grid will progress 'configuration modelling' as the preferred option but notes that further industry engagement will be needed on issues such as the definitions of dynamic parameters and transparency of this approach.
2. National Grid will incorporate the increased number of ramp rates (from three to ten) in the design of the EBS so that these are available soon after go-live. Any code proposals will be brought forward in a timely manner.

3. The EBS design will incorporate a lower threshold of 0.02MW/min (current 0.2MW/min) for ramp rates.
4. Whilst the EBS will have capability to model time-dependency of all dynamic parameters, this feature will initially focus on the modelling of SEL and SIL which are independent of time dimension and hence are relatively easy to deal with.

## 1.3 Future Industry Engagement

1. National Grid will continue to consult with the industry on specific aspects of the EBS but will also utilise other communication tools (e.g. one to one meetings and industry workshops).
2. National Grid will seek to establish 'user groups' so that the relevant contacts from organisations can be kept up to date and expert input can be fed into the EBS project.
3. National Grid will establish a dedicated webpage[1] on EBS project on its website so that market participants can access EBS-related information in one location.

[1] The webpage has been created and can be accessed via http://www.nationalgrid.com/uk/Electricity/Balancing/EBS/

# 2 Introduction

Following the first industry consultation on proposed replacement of the BM system on 7 October 2008, National Grid carried out a second consultation on specific elements of the new Electricity Balancing System (EBS) on 11 October 2010. This consultation was intended to inform the design phase of the EBS, and sought industry views on:

- The new industry electronic interfaces that will be offered after system go-live;
- Enhancements to the modelling of Balancing Mechanism Units (BMUs);
- Ongoing industry involvement in the BM replacement project.

Industry responses were received by 15 November 2010.

This report provides details of the outcome of the consultation process undertaken by National Grid.

# 3 Industry Responses

**Ten** organisations responded to the consultation:

- Centrica Energy
- EDF
- Elexon
- E.ON
- First Hydro Company
- RWE
- Scottish Power (SP)
- Scottish and Southern Energy (SSE)
- Seabank Power Limited
- Utiligroup Limited Ltd and Quorum Developments Ltd (joint response)

The individual responses can be found in Appendix A.

This section summarises the main points from the responses for each consultation question. The responses are grouped into three categories, namely, the electronic interfaces with EBS, modelling of BMUs and future industry engagement. At the end of each subsection, National Grid's response to the industry comments is provided.

## 3.1 Electronic Interfaces with EBS

### 3.1.1 Choice of Data Exchange Mechanisms

The options for data exchange mechanisms and the respondents' preferences for these mechanisms are summarised in Table 1.

**Table 1**

| | **Options for Data Exchange** | **Number of Responses Expressing Preference** |
|---|---|---|
| a | Web-browser forms-based data submission | 0 |
| b | Web-browser based XML file upload / download | 0 |
| c | Web-service based computer-to-computer exchange | 8* |
| d | A different mechanism or a variation on the above | 0** |
| * Two of these respondents also supported options 'a' and 'b'.<br>** One respondent preferred option 'c' but queried whether consideration has been given to retaining the existing CSV file format in the EBS. | | |

The majority of the respondents expressed a preference for a computer-to-computer data exchange (option 'c' in Table 1) for automated communications. The respondents provided a range of views in support of this option including:

- Least impact on users' existing systems and processes;
- Consistency with the current data exchanges;
- Consistency with 'Damas Web service' currently used in relation to the Anglo-French interconnector

Four respondents who supported option 'c' stated that other options (web-browser based forms and XML file upload / download) could be considered as backup mechanisms. One respondent suggested that web-browser based forms could be used in an emergency or for low volume of data whilst XML files could be useful for occasional or ad hoc submissions.

One responded commented that there should be flexibility to switch between the various data exchange options provided.

One respondent stated the need for robust underlying communication infrastructure to ensure reliable delivery of messages and for a cost effective way of connecting to such infrastructure. Another respondent stated that the design and operation of interfaces (for computer-to-computer data exchange) must deliver reliable, robust and auditable data transfer with recovery capability (e.g. from communications

failures) and a technical contract for the interface data. One respondent stated the use of leased lines as the main physical link with the internet link providing a backup.

One respondent supported:

- the use of industry standard data formats such as the ENTSO-E[2] for defining the message format and message content; this was reinforced by another respondent who suggested wider compatibility to promote harmonisation and standardisation of European electricity markets and systems, to avoid additional costs at a later date;
- Asynchronous standard message queue using JMS[3], as well as HTTP[4] based protocols;
- Appropriate protocol encryption, authentication, authorisation and confirmation to ensure integrity of information between counter parties;
- Use of a private cloud network such as MPLS[5] for user connections but taking into account whether there is a need for dedicated connectivity to each asset.

One responded noted that the options in Table 1 may impact the scope and cost of the BM Audit and may require consultation with the BSC Panel in accordance with section H5.7.2 of the BSC.

One respondent reinforced the need to continue to support existing interfaces in order to ensure efficient long term transition to the new interfaces.

**National Grid's View:**

National Grid notes respondents' preference for a computer-to-computer data exchange with XML files and web forms as a flexible backup, and for secure and reliable communications. National Grid will incorporate these preferences into the design of the EBS.

National Grid acknowledges respondents' views on adherence to ENTSO-E standards which are currently being developed but are not obligatory. National Grid notes that such views were also expressed in the October 2008 consultation and have already been included in the EBS requirements. However, when considering

[2] European Network of Transmission System Operators for Electricity
[3] Java Message Service
[4] Hypertext Transfer Protocol
[5] Multiprotocol Label Switching

power stations located in Great Britain (as opposed, for example, to interconnectors), National Grid is not aware of any ENTSO-E standard that is directly applicable to the data sent by current EDL and EDT. As a result, the approach National Grid plans to take is to design the new industry interfaces with ENTSO-E standards in mind, and then, hopefully with the support of market participants, seek amendments to the ENTSO-E standards to include the data transmitted via the new industry interfaces.

The ABB system and all similar industry standard systems use XML internally rather than CSV file format. XML has potential advantages over CSV as it is less reliant on file formats and can, to some extent, decouple National Grid's and market participants' systems. As a result, XML-based changes do not require bespoke development and are easier to make. National Grid also notes that Microsoft Excel has supported the generation of XML for many years. Implementing a solution utilising CSV format files has been considered, but for the reasons given above, it has not been progressed.

National grid understands that the new interfaces will use protocols such as JMS.

Data transmitted over the new industry interfaces will be subject to encryption, authentication, authorisation and confirmation.

In the future, it may be appropriate to investigate whether National Grid should provide a private MPLS cloud that market participants could connect to. However, it would need careful consideration; for example, the obligation is on market participants to submit Physical Notification data to National Grid, but, unlike the present arrangements, they would not control the communications over which data was transmitted.

National Grid understands that the comment about direct connectivity to each asset relates to the requirement to have EDL line(s) to each power station when the market participant may already have communications between their Trading Point and power stations. The alternative is understood to be communications between National Grid and the Trading Point (main and disaster recovery sites where applicable) who would then pass EDL instructions on to their power stations. National Grid is open to this approach as it offers potential savings to the industry as a whole. However, as the rapid and reliable communication of instructions to power stations has an important role in safeguarding supplies to customers, National Grid would have an interest in the reliability and resilience of the market participant's infrastructure over which the instructions would be transmitted.

National Grid will consider the impact of EBS on the BSC BM Audit Process, with a view to bringing forward any BSC proposals[6] at an appropriate time.

The timeline for supporting the existing system interfaces is discussed in section 3.1.4.

### 3.1.2 Transition from EDL/EDT to New System Interfaces

In the consultation document, National Grid confirmed that it will continue to support EDL/EDT for an agreed period after go-live but stated that, at some point, it would be desirable and more efficient to transfer all users to the new interfaces.

Eight respondents stated that they would be interested in moving to the new interfaces and one respondent (not affected by the industry interfaces) did not express an opinion. One respondent stated that this move would be of significant benefit in terms of efficiency of working practices; this respondent also stated that electronic data submissions via the new interfaces should include all fax-based data submissions including those related to STOR and Black Start. One respondent stated that the new interfaces would help in:

- Moving away from fax forms;
- Take advantage of increased flexibility
- Embrace ENTSO-E standards.

One respondent supported the move to new interfaces but stated that they would "adopt the new interfaces in an efficient manner in conjunction with other internal business developments rather than inefficiently according to imposed external requirements".

One respondent stated that the wider range of capabilities provided by the new industry interfaces will open up opportunities for innovative software solutions.

One respondent stated that consideration should be given to the publication of the additional electronic data supported by the new interfaces on the BMRS. Another

[6] Alternatively, these proposals could be developed via future industry engagement, as discussed in section 3.3.

respondent expressed support for provision of additional data (e.g. system warnings and PGBTs[7]) via the new interfaces instead of SONAR[8] and Tibco messages.

**National Grid's View:**
National Grid notes the benefits cited by respondents of moving to the modern system interfaces. With regard to providing additional data (e.g. system warnings) via the EBS, the standard system has the capability to send messages to those market participants connected via the new industry interfaces. For example, National Grid currently publishes Notification of Insufficient System Margin warnings to the BMRS and also faxes these warnings to market participants; the new system will enable these messages to be sent electronically to market participants at the same time as they are sent to the BMRS.

### 3.1.3 Timescales for Transition to New System Interfaces

National Grid sought industry views on the indicative timescales within which the market participants may wish to move to the new system interfaces; the industry preferences for a range of timescales are summarised in Table 2.

**Table 2**

| | **Timescale for Transition to New Interfaces** | **Number of Responses Expressing Preference** |
|---|---|---|
| i | At go-live | 1* |
| ii | Soon after go-live / within 2 years of go-live | 7** |
| iii | Within 5 years of go-live | 2** |
| iv | More than 5 years after go-live | 0 |
| * For interfaces with Elexon systems<br>** One respondent provided two transition periods, one for conventional plant (< 2 years) and the other for nuclear plant (< 5 years) | | |

Seven respondents expressed a preference to move to the new interfaces within two years of go-live, with three of these respondents also stating a desire to move to the new interfaces soon after go-live. One respondent suggested that a two year transition period would be sufficient for bedding down of new interfaces and processes. One respondent commented that, whilst the benefits should be delivered quickly, transition soon after go-live may be too ambitious. One respondent who intended to move to new interfaces within one year stated that the actual timescale

[7] Pre-Gate Balancing Mechanism Unit Transactions
[8] System Operator Notification and Reporting System (National Grid's website which can accessed on https://www.nationalgrid.com/sonar/

for transition may depend on the extent, availability, and access to testing facilities. One respondent wished to be involved in the interface testing as soon as possible to ensure understanding of the new interface and establish confidence in its reliability.

Two respondents expressing a preference for transition within five years referred to additional rigorous requirements for nuclear plant and the involvement of 3rd party software supplier respectively.

One respondent (Elexon) stated that implementing new interfaces between Elexon and EBS at go-live would avoid the need for the new EBS to duplicate legacy interfaces.

**National Grid's View:**
National Grid notes that most respondents would prefer to move to the new system interfaces within two years of go-live. This feedback from the industry would help National Grid plan an orderly transition to the new interfaces. National Grid would also ensure that, for testing of interfaces, the industry is involved at the earliest possible stage and any relevant information is communicated in a timely manner.

National Grid acknowledges that, in some circumstances, the parties may require longer periods to move to the new interfaces. However, National Grid would wish to minimise such situations in order to ensure an efficient transition to the new interfaces.

National Grid agrees with Elexon that implementing the new interfaces with Elexon systems at go-live (rather than after go-live) would avoid duplication. This transition should have no impact on market participants or their systems. National Grid is already working with Elexon with the aim of moving to the new interfaces at go-live.

### 3.1.4 Cut-off Date for Existing Interfaces

In the consultation document, National Grid confirmed that it will continue to support the existing interfaces for an agreed period of time after go-live but stated that the retention of duplicate interfaces would not be efficient in the long term. National Grid sought industry views on the indicative cut-off date for the existing interfaces.

Six respondents supported a cut-off date for the existing interfaces. Four respondents expressed a view on indicative cut-off timescales with three

respondents suggesting 2 years whilst one respondent stating 2-5 years. These respondents stated that:

- Without a cut-off date, the industry may be held back by the need to retain old EDT/EDL-based systems;
- Two years is sufficient time for all parties to migrate their systems and perform interface tests without resource contention;
- The existing interfaces should be retained for at least two years and potentially up to five years to allow users sufficient time to modify their own systems and processes efficiently.

One respondent did not support a cut-off date, and stated the need for supporting legacy interfaces for incumbents whilst encouraging new entrants to use the new interfaces.

Two respondents did not express any views on the timescales but stated that:

- The cut-off date would depend on the level of change which is influenced by the chosen solution;
- The cut-off date would need to include sufficient time to prove the stability of the new interface;
- During the transition period, the EBS should permit the users to switch back from the new interface to the old interface at any time;
- Consideration should be given to different cut-off dates for EDT and EDL interfaces.

Two respondents did not express any preference for a cut-off date.

**National Grid's View:**

National Grid notes that most respondents who expressed a view on a cut-off date for the existing interfaces would be comfortable with current support arrangements for a two-year period (extending to five years in some circumstances, e.g. for nuclear plant). National Grid agrees that this is a reasonable period for parties to migrate their systems and for National Grid to continue to provide support for the existing interfaces during this period. National Grid is mindful of respondent views that such a cut-off date would only work if the new interfaces were operating satisfactorily.

National Grid understands that market participants will be able to freely switch between EDT and its replacement during the transition period. This does not seem to be possible for EDL given that it uses dedicated socket-level communications;

however, voice telephony is available as a back-up for all instructions sent and data received via EDL.

Consideration will be given to different cut-off dates for EDT and EDL interfaces. However, this may not be practicable; for example, if a Trading Point has moved to EDT replacement, but an associated power station has not yet adopted new EDL, then the Trading Point may be able to submit new data that the power station is unable to revise using existing EDL. Such issues are probably best considered by the user groups referred to in section 3.3.

## 3.2 Modelling of Balancing Mechanism Units

### 3.2.1 Modelling of Multi-shaft CCGTs in the EBS

National Grid outlined three approaches for the modelling of multi-shaft CCGTs in the EBS, including high level advantages and disadvantages of each approach. The respondent preferences for these approaches are summarised in Table 3.

**Table 3**

| | **BMU Modelling Approach** | **Number of Responses Expressing Preference** |
|---|---|---|
| i | Single unit modelling | 2 |
| ii | Pseudo unit modelling | 1* |
| iii | Configuration modelling | 4* |
| iv | A different approach or variation on the above | 0 |
| One respondent preferred pseudo / configuration modelling to single unit modelling | | |

The respondents who preferred single unit modelling stated that this approach was simpler, less complex and more transparent. One respondent stated that reduced complexity will allow the market to respond to price signals.

One respondent did not consider single unit modelling to be feasible in the long term where a generator may offer all or part of a CCGT into the Balancing Mechanism from shutdown which may require despatch of an individual GT within a CCGT. This respondent preferred either pseudo unit or configuration modelling as a replacement of the current fax processes but stated that they would not wish to register one BMU multiple times with Elexon. This respondent also stated transparency of different options as an important consideration in their selection.

The respondents who preferred configuration modelling stated that:

- This approach accurately reflects the operating characteristics of a multi-shaft CCGT and mirrors current data submission via fax;
- Industry agreement would be required on the definitions of the dynamic data parameters needed for this approach;
- They would need confidence that all possible configurations would be modelled correctly.

One respondent stated that they would require more information on the relative benefits of various approaches before deciding on the preferred approach. This respondent stated that, in principle, accurate modelling offered by complex configuration modelling approach should be best but the benefits from additional complexity were not clear. This respondent foresaw difficulty with pseudo modelling where bid-offer acceptances would not correspond to BM Units and physically measurable flows.

One respondent did not express a preference for any of the approaches but stated the potential impacts on the BSC as follows:

- For single unit modelling, no BSC impact is identified;
- For pseudo unit modelling, changes are likely to be required to the standard BM Unit definition for CCGT modules in section K3.14(a), and for re-registration of Metering Systems and BM Units for existing plant.
- For configuration modelling, changes are likely to be required to Sections Q and V for reporting of Dynamic Data.

**National Grid's View:**

National Grid notes a range of respondent preferences on the modelling approaches for multi-shaft CCGTs, with majority responses expressing preference for the configuration modelling approach.

National Grid considers that, whilst there is merit in pursuing a simpler, less complex and more transparent approach, this is an opportunity to incorporate accurate modelling of multi-shaft CCGTs and ensure that operational decisions based on this information are as efficient as possible. The reasons for moving away from the existing arrangements of single unit modelling plus other data submitted by fax include:

- Multi-shaft CCGT modules, or parts of modules, are likely in future, to be a significant part of the fossil fuel generation which is started up or shutdown when

the output from renewables changes. Therefore, it is important for economic and efficient operation to correctly model their capabilities at start up and shutdown.

- The current single unit model, combined with fax-based data, does not provide a coherent model of a CCGT module and only partially models the capabilities of CCGT modules, for example, it only models one additional or two-shifted GT and does not model the change to frequency response or reactive power capabilities as a result of the change in the number of GTs running. It would be difficult, if not impossible, for the industry-standard optimisation tools, which assist with economic and efficient operation and meeting the challenges presented by the decarbonisation of electricity, to comprehend the current modelling approach.

National Grid therefore agrees with respondents who preferred the configuration modelling approach. However, National Grid also acknowledges that issues such transparency, industry agreement on definitions of dynamic parameters would need to be addressed. However, National Grid does not intend to introduce any more complexity than is justified, and it is quite possible that some modes of operation specific to particular power stations may not be fully modelled.

National Grid also notes the potential impact on the BSC and the Grid Code, and will bring forward any proposals at an appropriate time such that any code changes could be developed and implemented to coincide with (or ahead of) system go-live.

### 3.2.2 Implementation of Increased Number of Ramp Rates

Industry views were sought on the implementation timescales for the increased number of ramp rates offered by the EBS. The number of ramp rates used at present is three whereas the maximum number of ramp rates offered by the EBS is ten.

Seven responded supported implementation of the increased number of ramp rates soon after go-live, with three respondents stating that these should be implemented as soon as is practical. One respondent stated that the increased number should improve the effectiveness of balancing action despatch. One responded commented that this is a valuable and straightforward improvement. One respondent suggested that any benefits above 3-6 ramp rates may not justify the costs and administrative burden arising from increase data requirements.

One respondent stated that this change should be implemented at the same time as system interfaces so that users only have to implement a single upgrade to their systems.

One respondent stated that this change would require amendments to the BMRS software (via BSCP40 process) which currently only supports three ramp rates.

**National Grid's View:**
National Grid notes respondents' preference for increased number of ramp rates, with implementation as soon as possible or soon after go-live. National Grid will incorporate this preference in the design of the EBS so that the increased rates are available, via the new interfaces, soon after go-live. National Grid will bring forward any Code and/or BSCP proposals at an appropriate time in order to ensure timely implementation of this change[9]. As is the case at present, market participants will have choice as to how many ramp rates they may wish to utilise.

### 3.2.3 Minimum Value for Ramp Rates

The minimum value for the ramp rates is currently set at 0.2MW/min and industry views were sought on lowering this threshold for potentially improved modelling in the EBS. The industry preferences on the minimum ramp rates are summarised in Table 4.

**Table 4**

| | **Minimum Ramp Rate** | **Number of Responses Expressing Preference** |
|---|---|---|
| i | 0.01 to 0.02 MW/min | 6* |
| ii | 0.2 MW/min (current value) | 2 |
| * One respondent stated that lowering the current ramp rates is a valuable improvement but did not state what the new threshold should be. | | |

Three respondents who preferred a lower minimum ramp rate (0.01MW/min) stated that the lower threshold would better represent 'holds' in ramps. One of these respondents also stated that a minimum ramp rate of 0.1MW/min should be sufficient for practical purposes.

One respondent who supported a minimum ramp rate of 0.02MW/min stated that this figure should be as low as possible to accurately reflect the start-up profile of a CCGT. Another respondent stated that 0.02MW/min is acceptable.

[9] Alternatively, these proposals could be developed via future industry engagement, as discussed in section 3.3.

One of the two respondents who were satisfied with the existing threshold of 0.2MW/min questioned the technical feasibility of a lower threshold (e.g. ramping by 1MW over 30 minutes) and whether this would serve any practical purpose.

**National Grid's View:**
National Grid notes that most respondents would prefer to have lower minimum ramp rate (0.01 to 0.02 MW/min) than the present threshold of 0.2MW/min. National Grid understands that these slower rates are intended to better model "holds" in the run-up of units. A ramp rate of 0.02MW/min is probably the slowest practicable rate; if the ramp rate is lower than 0.02MW/min, it would not be possible to issue a Bid-Offer Acceptance within the Balancing Mechanism Window where the instructed power changed by a whole megawatt. National Grid also agrees that any reduction in the minimum ramp rate should take into account technical feasibility. National Grid therefore considers that it might be reasonable to reduce the current threshold to 0.02 MW/min.

### 3.2.4 Time-dependent Stable Export Limit (SEL) and Stable Import Limit (SIL)

In the consultation document, National Grid stated that the EBS could incorporate Stable Export Limit (SEL) and Stable Import Limit (SIL) that vary with time (e.g. to reflect planned changes in SEL overnight). Industry views were sought on the usefulness of this functionality.

Seven respondents supported time-varying SEL and SIL and one respondent supported this feature conditional upon efficient operation of the Balancing Mechanism. The respondents expressed a range of views in this area:

- SEL and SIL can vary according to the operational status of the plant, and electronic provision of this information to the system operator should assist planning and efficient and secure operation of the system;
- Time-varying SEL is required to indicate changing flexibility of cascade hydro as water is transferred through the cascade; this feature also gives forward visibility of periods of inflexibility for a BMU;
- Time-varying Notice to Deviate from Zero (NDZ), requested in October 2008 consultation, has not been taken into account[10];

[10] National Grid has reviewed the relevant response from October 2008 consultation but has not found any record of such request.

- Run Up Rates should also be accommodated as greater benefits could be derived from time-varying Run Up Rates;
- "Our customers implement this on internal systems at present in any case";
- The provision of time tagged dynamic parameters has been identified on the Grid Code Review Panel (GCRP) outstanding issues list[11] for a number of years but has not been specifically acknowledged in this consultation[12];
- This feature needs to be considered in conjunction with the possible changes to the modelling of multi-shaft BMUs;
- Implementation of this change may require amendments to the BMRS software (e.g. to distinguish more clearly between effective time and time of receipt); such changes would need to be progressed via BSCP40 change process.

**National Grid's View:**

National Grid notes the benefits of, and the need to have, time-varying SEL and SIL. National Grid would ensure that this functionality is incorporated in the EBS.

National Grid notes respondents' desire to incorporate time-varying characteristics of other dynamic parameters such as ramp rates and NDZ. National Grid also notes that the issue of time-varying parameters has been frequently discussed at the GCRP. National Grid can confirm that the requirement to make all dynamic parameters time-dependent had been specified in the EBS requirements and that this functionality would be available in the EBS. However, National Grid would wish to point out that incorporating time-dependency of all dynamic parameters is likely to be complex, in particular those parameters that already have a time dimension to them (e.g. ramp rates, NDZ etc). For example, if a Bid-Offer Acceptance crossed a change in ramp rates, the already difficult task of constructing a valid Bid-Offer Acceptance is likely to get significantly more complex. National Grid has taken a pragmatic approach to incorporating the time-dependency of key parameters such as SEL and SIL at this stage that don't already have a time dimension and are, as one respondent noted, often already modelled this way in market participants' systems. The time-dependency of other parameters could be incorporated in the longer term (i.e. some time after go-live). In the meantime, National Grid would be interested in seeing any detailed proposals market participants may have for the

[11] The outstanding issues list can be found on http://www.nationalgrid.com/NR/rdonlyres/08A416D0-A232-4C27-AC56-12522D6D8B62/43086/pp_10_19ConsultationPapersandAmendments.pdf

[12] National Grid acknowledges that this longstanding issue has been discussed at GCRP on more than one occasion, including discussions at the GCRP meetings in September / November 2002. This issue is now being addressed as part of the EBS.

application of time-dependency to parameters that already have a time dimension[13]. National Grid will seek details from ABB as to their standard implementation of time-dependent parameters.

## 3.3 Future Industry Engagement

In the consultation document, National Grid stated the detailed design, development and testing of the EBS may need ongoing industry involvement and requested industry views on how this might best be achieved. The industry preferences for a range of communication tools are summarised in Table 5.

**Table 5**

| | Industry Engagement Method | Responses from Individual respondents | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| i | Consultation documents | ✓ | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 8 |
| ii | Individual meetings | ✓ | - | - | ✓ | - | ✓ | ✓ | - | ✓ | 5 |
| iii | Group seminars | ✓ | ✓ | - | ✓ | - | - | ✓ | ✓ | ✓ | 6 |
| iv | Dedicated EBS project webpage | ✓ | ✓ | - | ✓ | ✓ | - | ✓ | ✓ | ✓ | 7 |
| v | Information bulletins | ✓ | ✓ | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 8 |
| vi | Other | - | * | ** | - | - | - | - | *** | - | - |
| * Clear contact points; user groups for formulating consultations and assessing responses<br>** Ensure co-ordination between EBS, BSC and Grid Code changes<br>*** Dedicated contacts group | | | | | | | | | | | |

Table 5 shows that the majority of the respondents prefer the use of all the communication tools outlined above, and some respondents have suggested setting up of dedicated industry groups.

The respondents stated that different communications tools could be used for different purposes depending on the context of industry engagement, as summarised in Table 6.

**Table 6**

| | Industry Engagement Method | Purpose |
|---|---|---|
| i | Consultation documents | • Consult on technical details and key features of the EBS;<br>• Deliver concise documentation as part of the consultation |

[13] This issue could be discussed during future industry engagement, as detailed in section 3.3.

| | Industry Engagement Method | Purpose |
|---|---|---|
| | | process. |
| ii | Individual meetings | • Discuss testing issues;<br>• Provide detailed user specific clarification. |
| iii | Group seminars | • Communicate general messages;<br>• Set the scenes for consultations; it may be possible to combine this with regular Operational Forums. |
| iv | Dedicated EBS project webpage | • Keep EBS-related documentation in one place on National Grid's electricity website (although it is not necessary to set up a particularly sophisticated webpage);<br>• Share all EBS-related information and views across all stakeholders;<br>• Maximise involvement of smaller parties. |
| v | Information bulletins[14] | • Provide management overview on project progress;<br>• Inform the industry on project developments via Operational Forums, Grid Code Review Panel and nominated contacts. |
| vi | User groups | • Involve appropriate contacts within user companies;<br>• Notify relevant information from the above communication methods to the relevant contacts;<br>• Assist in formulating consultations (e.g. more focussed consultation) and assessing responses. |

**National Grid's View:**

National Grid notes respondents' views for use of different tools for different purposes e.g. using consultations for industry input on technical details of the EBS and establishing a dedicated EBS web page for wider industry access to EBS-related information at a single location.

National Grid will continue to consult the industry on specific aspects of the EBS as and when the need arises. A dedicated EBS webpage[15] will shortly be set up where the industry will be able to access the consultation material to date as well as other EBS-related information.

National Grid will continue to hold individual meetings to discuss and clarify any user specific issues

[14] One respondent stated that they would not expect information bulletins to be frequently utilised during development and implementation phase as these represent a one-way flow and do not provide for user issues to be raised.

[15] The webpage has been created and can be accessed via http://www.nationalgrid.com/uk/Electricity/Balancing/EBS/

National Grid also notes the respondents' views on establishing user groups and agrees that this will ensure involvement of appropriate contacts from user companies. National Grid will contact the industry through various distribution lists (e.g. Operational Forum and Grid Code Review Panel) with a view to identifying the relevant user contacts. This will ensure involvement of the relevant users without excessive impact on industry resources.

In utilising the various communication tools discussed above, National Grid will ensure that the industry engagement is tailored to suit stakeholders with different degrees of involvement and awareness.

## 3.4 Other Comments

This section covers industry views provided (by four respondents) under 'other comments' and can be broadly categorised as follows:

- Dynamic parameters
- Impact of developments in Europe
- Impact on other plant types
- BMRS data interfaces
- Ancillary Services Contract information
- Separation of business and IT issues
- Involvement of EDL/EDT software suppliers

Specific comments in these areas are summarised in Table 7.

**Table 7**

| | **Discussion Topic** | **Comments** |
|---|---|---|
| i | Dynamic parameters | • All the dynamic parameters in Grid Code section BC1.A.1.5 should be reviewed; the examples of dynamic parameters contained in the consultation document are not sufficient;<br>• In addition to time-dependency of SEL and SIL, other dynamic periods should also have pre-declared periods of applicability; for example, Notice to Deviate from Zero (NDZ) may depend on when a start actually occurs;<br>• Remove artificial limits of 999 minutes on certain parameters such as Minimum Zero Time (MZT);<br>• The windfarms and future sources such as tidal power and demand-based response could have predictable time-dependent variations and may benefit from time-dependent parameters. |
| ii | Impact of | • National Grid should ensure that any proposed developments are |

| | Discussion Topic | Comments |
|---|---|---|
| | developments in Europe | compatible with European initiatives to promote harmonisation and standardisation to avoid supplementary costs at a later stage;<br>• EBS must be aligned with the definitions and operational requirements of the European Network Code. |
| iii | Modelling Windfarms | • It is inefficient to fit the innate capability of windfarms into the current modelling and bid/offer framework. |
| iv | BMRS data interfaces | • BMRS data should continue to reflect prevailing balancing information, including data for any new parameters;<br>• A change to the BMRS data interface may provide development flexibility for future changes; |
| v | Ancillary Services Contract information | • Availability of Ancillary Services contracts should be communicated via EBS in order to minimise the number of IT applications. |
| vi | Separation of business and IT issues | • The consultation appears to combine IT and business issues; it would be more appropriate to consider the business issues under the governance of the core industry codes. |
| vii | Involvement of EDL/EDT software suppliers | • Many participants' current systems are supplied by third-party software vendors; have these vendors been consulted so that they anticipate and plan any necessary changes to their systems? |

**National Grid's View:**

National Grid's views on each of the above discussion topics are given below.

i) Dynamic Parameters: The requirement to make all dynamic parameters time-dependent has been specified in the EBS requirements and this functionality would be available in the EBS. Detailed discussion on dynamic parameters can be found in section 3.2.4.

With regard to artificial limits (e.g. 999 minutes for MZT), National Grid is not aware of any material effect of these limits. However, National Grid will consider if there is greater flexibility in the EBS to either remove such limits or set them to such a level that they are unlikely to be breached.

ii) Developments in Europe: National Grid has already considered the impact of European developments such as ENTSO-E standards for system interfaces in the requirements specification. As more information from these developments becomes available (e.g. European Codes), National Grid will bring this to the attention of the industry via 'user groups (to be established, as discussed in section 3.3).

iii) Modelling Windfarms: National Grid considers that the requirement specification of the EBS takes into account the modelling of windfarms as operated at present. National Grid notes that a recommendation to set up a joint Grid Code/BSC Working Group on windfarm data and the settlement of Bid-Offer Acceptances was presented to the Grid Code Review Panel on 18th November 2010 and suggests that this forum (or the 'user groups' to be established as discussed in section 3.3.) may be the appropriate place to consider these issues.

iv) BMRS Data Interfaces: National Grid agrees that BMRS should continue to reflect prevailing balancing information and any additional data on dynamic parameters incorporated in the EBS should be made available on the BMRS. National Grid will bring forward any BSC proposals[16] to ensure that such data is published on the BMRS.

National Grid is working with Elexon with the aim of updating their bilateral interface at go-live. This may improve efficiency of any future changes to the interfaces (e.g. for provision of new data items to the BMRS).

v) Ancillary Services Contracts: National Grid agrees with the principle of minimising the number of IT applications, or more specifically, simplifying market participants' interactions with National Grid. However, EBS has a key role is maintaining supplies to customers and also receiving data critical to the operation of market participants' businesses e.g. Physical Notifications. There are a number of downsides to funnelling all market participant data, regardless of its criticality, through EBS:

- It is very expensive to do as EBS is a highly available system with significant in-built redundancy;
- The increased complexity is likely to make EBS less reliable and less secure;
- If the industry wants to make a change, it has to change EBS too as well as the destination system, which because of its criticality will be subject to commensurate change control processes and testing;

However, as stated above, National Grid recognises the need to simplify market participants' electronic interfaces to National Grid and, as a result, has included an item entitled "New external data transfer mechanism (portal)" in its TCPR4 (rollover) and RIIO submissions. The intention of this work is to provide a common look and

[16] Alternatively, these proposals could be developed via future industry engagement, as discussed in section 3.3.

feel to market participants' interactions with National Grid's Electricity System Operator function and to transition data communicated by fax to electronic means. Such a portal would route the data to or from the appropriate National Grid system.

vi) Separation of IT and Business Issues: National Grid recognises that the current consultation covers both IT and business issues, and that the business issues need to be considered under appropriate industry codes. In our view, the issues outlined in the current consultation are all part of the EBS and hence have been considered in the same consultation document. This approach has simultaneously provided useful industry input to the design phase of the EBS and for developing future Code proposals (increasing the number of ramp rates, for example, falls in both categories). Any changes to the industry codes could be developed by the 'user groups' (to be established as discussed in section 3.3) and would go through appropriate governance groups in a timely manner.

vii) EDL/EDT Software Suppliers: At the suggestion of a market participant, National Grid has sent a link to the consultation to all the software suppliers it is aware of. However, National Grid is not aware of the identity of the software suppliers of all market participants and it is hoped that the market participants would communicate with their own software suppliers.

# 4 Proposed Way Forward

National Grid has carefully considered the industry responses and has provided its views at the end of each relevant subsection in section 3. The main points from discussions in section 3 and the proposed way forward are summarised below.

## 4.1 Electronic Interfaces with EBS

4. National Grid will design the electronic interfaces for computer-to-computer communications, with XML and web forms as a backup for occasional use.
5. The electronic interfaces will be developed to provide flexibility for industry communications (e.g. for system warnings).
6. The indicative timescale for transition to new interfaces (and cut-off period for the existing interfaces) will be around two years, recognising that this may extend to five years.

## 4.2 Modelling of Balancing Mechanism Units

5. National Grid will progress 'configuration modelling' as the preferred option but notes that further industry engagement will be needed on issues such as the definitions of dynamic parameters and transparency of this approach.
6. National Grid will incorporate the increased number of ramp rates (from three to ten) in the design of the EBS so that these are available soon after go-live. Any code proposals will be brought forward in a timely manner.
7. The EBS design will incorporate a lower threshold of 0.02MW/min (current 0.2MW/min) for ramp rates.
8. Whilst the EBS will have capability to model time-dependency of all dynamic parameters, this feature will initially focus on the modelling of SEL and SIL which are independent of time dimension and hence are relatively easy to deal with.

## 4.3 Future Industry Engagement

4. National Grid will continue to consult with the industry on specific aspects of the EBS but will also utilise other communication tools (e.g. one to one meetings and industry workshops).
5. National Grid will seek to establish 'user groups' so that the relevant contacts from organisations can be kept up to date and expert input can be fed into the EBS project.
6. National Grid will establish a dedicated webpage[17] on EBS project on its website so that market participants can access EBS-related information in one location.

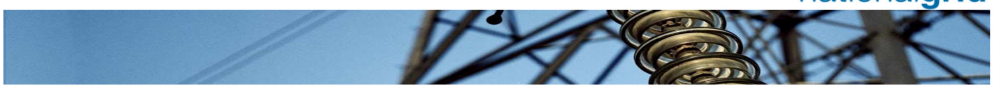
[17] The webpage has been created and can be accessed via http://www.nationalgrid.com/uk/Electricity/Balancing/EBS/

# 5 Appendix A - Industry Responses

- Centrica Energy
- EDF
- Elexon
- E.ON
- First Hydro Company
- RWE
- Scottish and Southern Energy (SSE)
- Scottish Power
- Seabank Power Limited
- Utiligroup Ltd and Quorum Developments Ltd (joint response)

## 5.1 Centrica Energy





# Response Proforma for BM system consultation 2

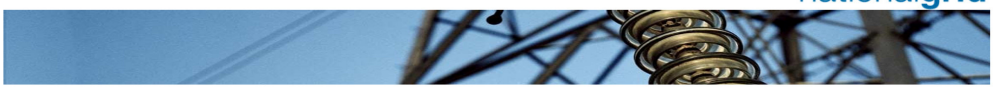
National Grid invites responses to this consultation **by 11 November 2010**. The responses to specific consultation questions (summarised below) or any other aspect of this consultation can be provided by completing the following proforma.

Please return the completed proforma to balancingservices@uk.ngrid.com.

| | |
|---|---|
| **Respondent:** | Christopher Proudfoot |
| **Company Name:** | Centrica Energy |
| **Does this response contain confidential information?** | No |

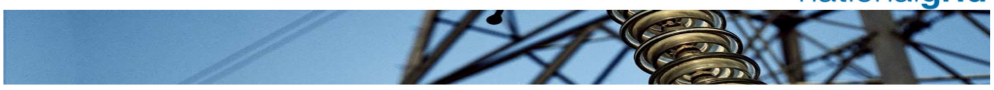
| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| 1 | *Do you have a preference for one of the following mechanisms for data exchange with EBS:*<br>*(i) Web-browser forms-based data submission;*<br>*(ii) Web browser-based XML file upload/download capability;*<br>*(iii) Web services-based computer-to-computer data exchanges*<br>*(iv) A different mechanism or a variation on the above (please provide details and benefits of such a mechanism over other mechanisms mentioned above)?* ***(section 5.3)*** | Y | Centrica would prefer the use of computer to computer automated interfaces to support the transmission of both EDT and EDL communications, utilising a common communications mechanism that utilise appropriate technology industry standard communication protocols. We are supportive of the use of appropriate industry data formats such as the ENTSO-E format for defining the message formats and/or content. We would also expect that asynchronous standard message queue using JMS are supported as well as the often less appropriate HTTP based protocols to ensure low resource assured delivery. In addition, Centrica would wish to ensure that appropriate interface authentication, authorisation and confirmation, including this use of message and / or protocol encryption, to ensure the integrity of information exchange between counterparties. Finally, Centrica would wish to ensure that any underlying communications infrastructure is able to provide both an appropriate service level for the assured and reliable delivery of messages, but also a cost effective method members to connect their infrastructure to. We would wish for National Grid to consider the use a private |





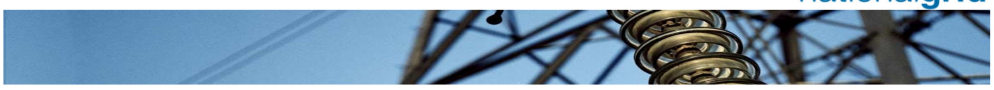
| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | | | cloud network, such an MPLS cloud on to which all participants could connect. This connectivity should also consider whether the absolute need for dedicated connectivity from each asset is a requirement, and that counter parties should be able to make single connections to Grid infrastructure.<br>Centrica would additionally wish to be able to use whichever channel, of those provided, it so wishes and chose to switch between channels as and when required. |
| 2 | *Would you be interested in moving to the new industry interfaces with their capability to electronically submit a wider range of data?* ***(section 5.5)*** | Y | |
| 3 | *If the answer to Q1 is yes, please indicate when you would envisage moving to the new industry interfaces:*<br>*(i) Soon after go-live?*<br>*(ii) Within 2 years of go-live?*<br>*(iii) Within 5 years of go-live?*<br>*(iv) More than 5 years (please specify)?* ***(section 5.5)*** | Y | Option (ii) is preferred to provide time for bedding down of new communications interfaces and processes before mandating migration to adopt. This allows for less of a central testing and validation bottleneck with all parties transitioning within a few weeks. |
| 4 | *Would you support a cut-off date for migrating to the new interfaces? If so, please provide views on the cut-off date.* ***(section 5.5)*** | Y | Option (ii) above provides an up to 2 year window in which all parties can migrate their systems and perform their interfacing validation tests with NGC without central resource contention. |
| 5 | *Do you have a preference for one of the following modelling approaches offered by the vendor:*<br>*(i) Single unit modelling?*<br>*(ii) Pseudo unit modelling?*<br>*(iii) Configuration modelling?*<br>*(iv) A different approach or a variation on the above (please provide details and benefits of such an approach over other* | Y | Centrica Energy welcomes the possibility of modelling individual generators within CCGT modules. The "fax" process is open to interpretation and is no longer seen as appropriate. It should be borne in mind that despatching individual GTs within a CCGT module is currently still relatively rare although there is the possibility that this may increase. It remains perfectly feasible for generators to make a commercial judgment on whether to offer all or part of a CCGT module into the BM |





| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | *approaches mentioned above)? **(section 6.3.4)*** | | from shutdown. We would not wish to register what is currently one BMU multiple times with ELEXON. We do not consider option (i) to be feasible in the long term. We have no strong preference between option ii & iii. Our requirement for either is that there is a formal means by which Gencos can indicate that GTs can be taken on or off and the parameters and prices associated with those actions. There also needs to be a formal means by which NG can instruct the transition from one state to another.<br>Transparency of these options and which are called by NG would also be an important consideration. |
| 6 | *Do you think that the increased number of ramp rates should be made available soon after system go-live? **(section 6.4.1)*** | Y | We welcome an increase in ramp rates and feel it should be introduced as soon as possible. |
| 7 | *Do you think that the minimum value for ramp rates should be set to a lower value than the current value of 0.2MW/min? If yes, what should it be? **(section 6.4.2)*** | Y | Even with increased ramp rates it does not support hold points therefore we would welcome a reduction in the lower permissible RUR. If a new system can cope with 0.02 then can it cope with 0.01? |
| 8 | *Do you think that the new system should provide functionality for a time-dependent Stable Export Limit (SEL) and Stable Import Limit (SIL)? **(section 6.4.2)*** | Y | We welcome the option of a time varying SEL. This would need to be considered in conjunction with the possible changes to modelling of multi-shaft BMUs. |
| 9 | *(a) Please state which of the following methods we should, or should not, use in engaging the industry in on-going issues relating to EBS e.g. detailed design of new industry interfaces:*<br>*1. Consultation documents*<br>*2. Individual meetings*<br>*3. Group seminars*<br>*4. Dedicated EBS project webpage*<br>*5. Information bulletins*<br>*6. Other, or a combination of the above (please state).* | Y | Centrica would prefer option 6 and would expect that a mixture of the suggested communications methods would be employed by the programme to allow Parties to engage with this Programme at different levels e.g. detailed consultation documents and meetings on interface communications links and message protocols as well as information bulletins for management overview of programmes progress.<br>Centrica would prefer to be directly represented in individual meetings and Group Seminars. |





| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | *(b) Please state if any of the engagement methods listed above we should definitely not use. Please give reasons in each case.* ***(section 7)*** | | |
| 10 | *Are there any other comments that you wish you to make on this consultation?* | N | |

## 5.2 EDF



# Response Proforma for BM system consultation 2

National Grid invites responses to this consultation **by 11 November 2010**. The responses to specific consultation questions (summarised below) or any other aspect of this consultation can be provided by completing the following proforma.

Please return the completed proforma to balancingservices@uk.ngrid.com.

| | |
|---|---|
| **Respondent:** | Martin Mate |
| **Company Name:** | EDF Energy (including EDF Energy plc; British Energy Generation Ltd; EDF Energy Customers Plc; British Energy Direct Ltd; Seeboard Energy Limited; EDF Energy (Cottam Power) Ltd; West Burton Ltd; EDF Energy (West Burton Power) Ltd; British Energy Trading & Sales Ltd; British Energy Generation (UK) Ltd) |
| **Does this response contain confidential information?** | No |

| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| 1 | *Do you have a preference for one of the following mechanisms for data exchange with EBS:*<br>*(i) Web-browser forms-based data submission;*<br>*(ii) Web browser-based XML file upload/download capability;*<br>*(iii) Web services-based computer-to-computer data exchanges*<br>*(iv) A different mechanism or a variation on the above (please provide details and benefits of such a mechanism over other mechanisms mentioned above)?* ***(section 5.3)*** | | Initially, upon implementation of the new Electricity Balancing System (EBS), we expect the existing message structure and interface with external users to continue to be supported. This will allow efficient long term transition by users to new interfaces.<br>In the longer term, our preference for data exchange with the new Electricity Balancing System would be "(iii) Web services-based computer-to-computer data exchanges", provided that the design and operation provide reliable, robust and auditable data transfer with recovery capability (for example from communications failures) and a technical contract for the interface data. However use of this would only be undertaken in conjunction with internally driven long term business requirements and system developments.<br>Our second preference for longer term development would be "(ii) Web browser-based XML file upload/download capability".<br>"(i) Web-browser forms-based data |



| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | | | submission" could provide a useful emergency back-up capability.<br><br>National Grid should take into consideration at all times the compatibility of proposed developments with initiatives to promote harmonisation and standardisation of European electricity markets and systems, to avoid supplementary costs at a later stage. |
| 2 | *Would you be interested in moving to the new industry interfaces with their capability to electronically submit a wider range of data?* ***(section 5.5)*** | | Yes. We would be interested in moving to new industry interfaces, although not necessarily initially. We welcome continued support for existing EDT/EDL interfaces. This will allow us to adopt new interfaces in an efficient manner in conjunction with other internal business developments, rather than inefficiently according to imposed external requirements. |
| 3 | *If the answer to Q1 is yes, please indicate when you would envisage moving to the new industry interfaces:*<br>*(i) Soon after go-live?*<br>*(ii) Within 2 years of go-live?*<br>*(iii) Within 5 years of go-live?*<br>*(iv) More than 5 years (please specify)?* ***(section 5.5)*** | | Although difficult to be certain at this stage, we provisionally envisage a move of EDT/EDL interfaces to new industry interfaces at or soon after go-live for some communications concerning conventional power stations. Provisionally, we would expect communications with conventional stations to be moved within 2 years of go-live (by 2015). Processes for changing software and operational processes at nuclear stations are more rigorous and it may be more efficient to move some or all of them over timescales longer than 2 years, perhaps up to 5 years. |
| 4 | *Would you support a cut-off date for migrating to the new interfaces? If so, please provide views on the cut-off date.* ***(section 5.5)*** | | Yes. Although we and many other parties may intend to move to the new interfaces in time, continued use of existing interfaces should be retained for at least 2 years and potentially up to 5 years to allow users sufficient time to modify their own systems and processes efficiently. |
| 5 | *Do you have a preference for one of the following modelling approaches offered by the vendor:*<br>*(i) Single unit modelling?*<br>*(ii) Pseudo unit modelling?* | | We are undecided on this. More information is required on the relative benefit achievable from the different options. In principle, the more complicated but more accurate "(iii) Configuration modelling" should be best, but it is not clear what benefit would be |



| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | *(iii) Configuration modelling?*<br>*(iv) A different approach or a variation on the above (please provide details and benefits of such an approach over other approaches mentioned above)?* ***(section 6.3.4)*** | | achieved from the additional complexity.<br>We foresee difficulty with (ii) Pseudo unit modelling, as instructions/bid-offer acceptances issued would not correspond with BM Units and physically measurable flows, creating difficulty in assessing performance and comparing with other BM Units. |
| 6 | *Do you think that the increased number of ramp rates should be made available soon after system go-live?* ***(section 6.4.1)*** | | Yes. An increased number of ramp rates should improve the effectiveness of balancing action despatch; the facility should be made available as soon as is practical. |
| 7 | *Do you think that the minimum value for ramp rates should be set to a lower value than the current value of 0.2MW/min? If yes, what should it be?* ***(section 6.4.2)*** | | Yes, noting that as at present and in accordance with the Grid Code, any submitted values should "reasonably reflect the expected true operating characteristics of the **BM Unit** and shall be prepared in accordance with **Good Industry Practice".**<br>Nuclear units can have particularly low ramp rates in some circumstances, though they do not normally currently provide balancing energy. A minimum rate of 0.1 MW/min should be sufficiently low for practical balancing mechanism purposes. Lower rates down to 0.01 MW/min should be accommodated for potential other System Operational purposes in future, for example to represent holds in ramps. |
| 8 | *Do you think that the new system should provide functionality for a time-dependent Stable Export Limit (SEL) and Stable Import Limit (SIL)?* ***(section 6.4.2)*** | | Yes. Stable Export and Stable Import Limits can vary according to the operational status of plant, and in some cases it may be possible to predict changes. The ability to provide this information to the system operator electronically should assist planning and efficient and secure system operation. |
| 9 | *(a) Please state which of the following methods we should, or should not, use in engaging the industry in on-going issues relating to EBS e.g. detailed design of new industry interfaces:*<br>*1. Consultation documents* | | National Grid should identify clear contact points within each user company for this specific subject, and ensure all communications are copied to that contact(s) as well as usual contacts for other matters.<br>Consultations should be issued on key features of the EBS, as required. National |



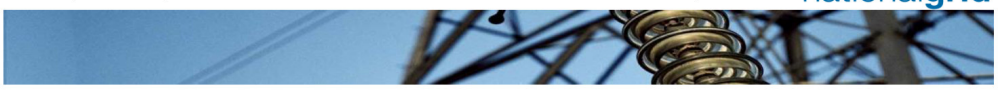
| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | *2. Individual meetings*<br>*3. Group seminars*<br>*4. Dedicated EBS project webpage*<br>*5. Information bulletins*<br>*6. Other, or a combination of the above (please state).*<br><br>*(b) Please state if any of the engagement methods listed above we should definitely not use. Please give reasons in each case.* ***(section 7)*** | | Grid may wish to invite members for a User Group to assist in formulating consultations and assessing the responses. This may help to focus issues for wider consultation more effectively.<br><br>Seminars may be useful to set the scene for consultations on key issues and to inform system users at key stages in the project. However, it may be possible to combine much of this with regular Operational Fora.<br><br>There should definitely be a dedicated EBS project webpage.<br><br>Information bulletins/updates should be issued on a regular basis to the Operational Forum, Grid Code Panel and nominated contacts. |
| 10 | *Are there any other comments that you wish you to make on this consultation?* | | Question 5 touches on the issue of conditional dynamics – those which depend on the particular composition and state of plant at a particular time. This applies not only to CCGTs and cascade hydro plant, but to other power stations with multiple units, for example windfarms whose composition can change, and potential future tidal schemes.<br><br>Questions 7 & 8 concern specific dynamic parameters: ramp rates and stable export and import limits.<br><br>Consideration should also be given to allowing other dynamic parameters, in addition to SEL and MIL, to have pre-declared start times or periods of applicability. For example, the Notice to Deviate from Zero may be known to depend on when a start occurs. Parameters for possible future sources such as tidal power and demand based response may have predictable time dependent variations.<br><br>Opportunity should also be taken to remove current internal System Operator artificial limits of 999 minutes on certain time parameters such as Minimum Zero Time.<br><br>National Grid should take into consideration at all times the compatibility |



| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | | | of proposed developments with initiatives to promote harmonisation and standardisation of European electricity markets and systems, to avoid supplementary costs at a later stage.<br><br>National Grid and Elexon in consultation with users should ensure that BMRS reporting continues to reflect information used in balancing, for example if new parameters are used. In conjunction with this, BMRS data interfaces may also benefit from change in future to provide development flexibility. Any such changes should also take into consideration initiatives to promote harmonisation and standardisation of reporting in European markets. |

## 5.3 Elexon





# Response Proforma for BM system consultation 2

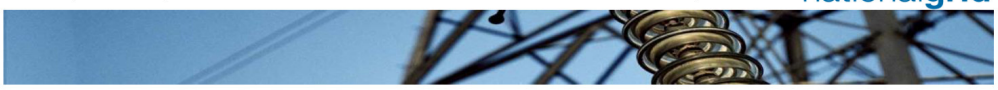
National Grid invites responses to this consultation **by 11 November 2010**. The responses to specific consultation questions (summarised below) or any other aspect of this consultation can be provided by completing the following proforma.

Please return the completed proforma to balancingservices@uk.ngrid.com.

| | |
|---|---|
| **Respondent:** | John Lucas |
| **Company Name:** | ELEXON Ltd |
| **Does this response contain confidential information?** | No |

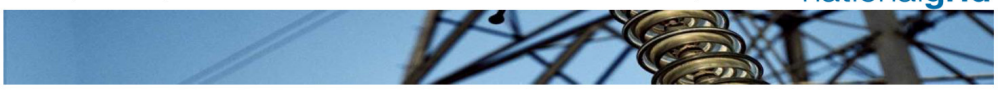
| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| 1 | *Do you have a preference for one of the following mechanisms for data exchange with EBS:*<br>*(i) Web-browser forms-based data submission;*<br>*(ii) Web browser-based XML file upload/download capability;*<br>*(iii) Web services-based computer-to-computer data exchanges*<br>*(iv) A different mechanism or a variation on the above (please provide details and benefits of such a mechanism over other mechanisms mentioned above)?* ***(section 5.3)*** | | These questions relate to the EDT and EDL interfaces, which aren't used by ELEXON systems. Therefore the different options impact us only to the extent that they affect the scope and cost of the BM Audit (which is funded by BSC Parties in accordance with Section H5.7 of the BSC).<br>We believe that National Grid should take the requirements of the BM Audit into account when choosing which mechanism(s) to support, in order to ensure that the chosen solutions can be effectively and efficiently audited, and minimise any increase in audit costs. But, subject to that caveat, we don't have any preference on which option(s) replace EDT and EDL.<br>If the replacement of the BM system and/or the introduction of new interfaces impacts the scope of the BM Audit, you will need to consult with the BSC Panel in accordance with section H5.7.2 of the BSC.<br>Although this isn't explicitly covered in the consultation, the question of whether to modernise legacy interfaces also applies to the interfaces from National Grid to BSC Central Systems. We are currently discussing this issue with yourselves, and envisage that this work may lead to |





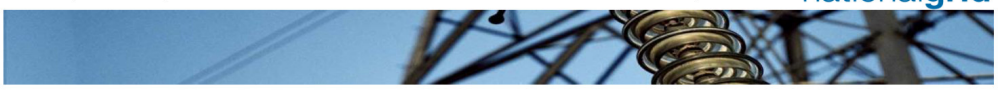
| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | | | National Grid raising a Change Proposal (in accordance with BSCP40) to replace the legacy CSV interfaces with XML files from the point at which the EBS is implemented. |
| 2 | *Would you be interested in moving to the new industry interfaces with their capability to electronically submit a wider range of data?* ***(section 5.5)*** | | Section 5.4 of the consultation document identifies a number of additional data items that the new system may support. Where these relate to the Balancing Mechanism, consideration should be given to including the new data on BMRS (alongside current Dynamic Data). Please get in touch if you would like to discuss this further (see Q10 for contact details). |
| 3 | *If the answer to Q1 is yes, please indicate when you would envisage moving to the new industry interfaces:*<br>*(i) Soon after go-live?*<br>*(ii) Within 2 years of go-live?*<br>*(iii) Within 5 years of go-live?*<br>*(iv) More than 5 years (please specify)?* ***(section 5.5)*** | | For EDT and EDL interfaces we don't have a view on this (subject to the comments on avoiding unnecessary increase in the cost and complexity of the BM Audit – see question 1 above).<br>For the interfaces between National Grid and NETA Central Services, implementing any change at go-live would avoid the need for the new EBS system to duplicate legacy interfaces. |
| 4 | *Would you support a cut-off date for migrating to the new interfaces? If so, please provide views on the cut-off date.* ***(section 5.5)*** | | |
| 5 | *Do you have a preference for one of the following modelling approaches offered by the vendor:*<br>*(i) Single unit modelling?*<br>*(ii) Pseudo unit modelling?*<br>*(iii) Configuration modelling?*<br>*(iv) A different approach or a variation on the above (please provide details and benefits of such an approach over other approaches mentioned above)?* ***(section 6.3.4)*** | | We do not have a preference, and believe that the BSC should be amended to support whichever option best meets the needs of National Grid and CCGT stations in balancing the Grid. The potential BSC impacts include the following:<br>• Option (i) – no BSC impacts identified<br>• Option (ii) – likely to require changes to the standard BM Unit definition for CCGT Modules in Section K3.14(a); and re-registration of Metering Systems and BM Unit for existing plant.<br>• Option (iii) – likely to require changes to the Section Q and V provisions for |





| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | | | reporting of Dynamic Data<br>We suggest that (once you have identified the preferred option) any necessary Modifications Proposal is raised at an early stage in the process, in order to provide a firm baseline for development of the new EBS. Please get in touch if you would like to discuss this further (see Q10 for contact details). |
| 6 | *Do you think that the increased number of ramp rates should be made available soon after system go-live?* ***(section 6.4.1)*** | | We support this if it leads to more efficient operation of the Balancing Mechanism. Implementing this change would require amendments to the BMRS software, which currently only supports three run-up and run-down rates. Note that any system changes would need to be progressed through the BSCP40 change process (see our response to Q9). |
| 7 | *Do you think that the minimum value for ramp rates should be set to a lower value than the current value of 0.2MW/min? If yes, what should it be?* ***(section 6.4.2)*** | | No view. |
| 8 | *Do you think that the new system should provide functionality for a time-dependent Stable Export Limit (SEL) and Stable Import Limit (SIL)?* ***(section 6.4.2)*** | | We support this if it leads to more efficient operation of the Balancing Mechanism. Implementing this change may require amendments to the BMRS software e.g. to distinguish more clearly between effective time and time of receipt. We can help investigate this if you decide to progress the option. Note that any system changes would need to be progressed through the BSCP40 change process (see our response to Q9). |
| 9 | *(a) Please state which of the following methods we should, or should not, use in engaging the industry in on-going issues relating to EBS e.g. detailed design of new industry interfaces:*<br>*1. Consultation documents*<br>*2. Individual meetings*<br>*3. Group seminars*<br>*4. Dedicated EBS project webpage* | | Changes to the BSC and its associated systems and processes will need to be assessed and approved through BSC change processes (i.e. Section F of the BSC and BSC Procedure BSCP40). We will aim to work closely with National Grid to ensure that BSC change processes are coordinated with Grid Code changes processes and the EBS project. |





| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | *5. Information bulletins*<br>*6. Other, or a combination of the above (please state).*<br><br>*(b) Please state if any of the engagement methods listed above we should definitely not use. Please give reasons in each case.* ***(section 7)*** | | |
| 10 | *Are there any other comments that you wish you to make on this consultation?* | | If you would like additional information on any of the topics raised in this response, please contact John Lucas (john.lucas@elexon.co.uk, 020 7380 4345). |

## 5.4 E.ON



### Response Proforma for BM system consultation 2

National Grid invites responses to this consultation **by 11 November 2010**. The responses to specific consultation questions (summarised below) or any other aspect of this consultation can be provided by completing the following proforma.

Please return the completed proforma to balancingservices@uk.ngrid.com.

| | |
|---|---|
| **Respondent:** | Paul Jones |
| **Company Name:** | E.ON UK |
| **Does this response contain confidential information?** | No |

| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| 1 | *Do you have a preference for one of the following mechanisms for data exchange with EBS:*<br>*(i) Web-browser forms-based data submission;*<br>*(ii) Web browser-based XML file upload/download capability;*<br>*(iii) Web services-based computer-to-computer data exchanges*<br>*(iv) A different mechanism or a variation on the above (please provide details and benefits of such a mechanism over other mechanisms mentioned above)?* ***(section 5.3)*** | Y | Of the options presented here (iii) would appear to be the preferable solution which is likely to impact on users' existing processes and systems the least.<br>Option (ii) would be our next preference, but we believe that it should only be considered as a backup mechanism.<br>Option (i) would be least desirable as it would have the highest impact and we suspect would be rather cumbersome to work with day to day. However, again it could be considered as a backup mechanism.<br>In terms of (iv) all of the above solutions appear to be based on XML format. Present communications with National Grid utilise CSV file format which has the benefit to business users that it can be easily read and understood (ie input and altered in Excel spreadsheet form). Has any consideration been given to implementing a solution utilising CSV format files? |
| 2 | *Would you be interested in moving to the new industry interfaces with their capability to electronically submit a wider* | Y | Yes this would be of significant benefit in terms of improving efficiency of working practises. However, we note that the list in section 5.4 does not include the full list |

BM System Replacement Consultation 2 - Interfaces & BMU modelling

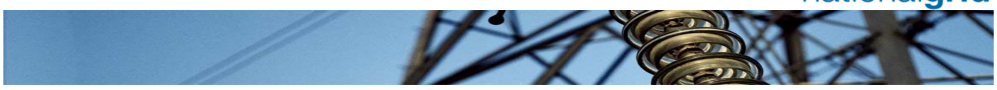
| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | *range of data?* ***(section 5.5)*** | | of services which presently use fax submission such as STOR and Black Start. We would be interested in understanding if these are presently out of scope of this work and if they are why this has to be the case. We believe that they should be included. |
| 3 | *If the answer to Q1 is yes, please indicate when you would envisage moving to the new industry interfaces:*<br>*(i) Soon after go-live?*<br>*(ii) Within 2 years of go-live?*<br>*(iii) Within 5 years of go-live?*<br>*(iv) More than 5 years (please specify)?* ***(section 5.5)*** | | Within 2 years of go live. The benefits should be delivered relatively quickly but soon after go live may be too ambitious, depending of course on what "soon" actually means. |
| 4 | *Would you support a cut-off date for migrating to the new interfaces? If so, please provide views on the cut-off date.* ***(section 5.5)*** | Y | There should be a target date for completing this work. A sensible date would depend on the level of change that is entailed which of course is influenced by the solution that it chosen. |
| 5 | *Do you have a preference for one of the following modelling approaches offered by the vendor:*<br>*(i) Single unit modelling?*<br>*(ii) Pseudo unit modelling?*<br>*(iii) Configuration modelling?*<br>*(iv) A different approach or a variation on the above (please provide details and benefits of such an approach over other approaches mentioned above)?* ***(section 6.3.4)*** | | Configuration modelling would be our preference but we would need confidence that all configurations could be modelled correctly. |
| 6 | *Do you think that the increased number of ramp rates should be made available soon after system go-live?* ***(section 6.4.1)*** | | The facility to input increased numbers of ramp rates should be introduced in the same timescales as other changes, as in our response to Q3 above, so that users only have to implement a single upgrade to their systems. |
| 7 | *Do you think that the minimum value for ramp rates should be set to a lower value than the current* | | We are comfortable operating with the present limit. Whilst a reduction in the present minimum ramp rate may be |



| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | *value of 0.2MW/min? If yes, what should it be?* ***(section 6.4.2)*** | | feasible in a mathematical sense, we would question whether it would serve a practical purpose. Would any units really be asked to ramp by 1MW over a 30 minute period and is it technically feasible for any unit to do so? |
| 8 | *Do you think that the new system should provide functionality for a time-dependent Stable Export Limit (SEL) and Stable Import Limit (SIL)?* ***(section 6.4.2)*** | | Time varying SEL should be introduced but we query why it is restricted only to SEL. In our previous response in October 2008 we suggested time varying NDZ, but this does not seem to have been taken up. Furthermore we believe time varying Run Up Rates should be accommodated too. |
| 9 | *(a) Please state which of the following methods we should, or should not, use in engaging the industry in on-going issues relating to EBS e.g. detailed design of new industry interfaces:*<br>*1. Consultation documents*<br>*2. Individual meetings*<br>*3. Group seminars*<br>*4. Dedicated EBS project webpage*<br>*5. Information bulletins*<br>*6. Other, or a combination of the above (please state).*<br><br>*(b) Please state if any of the engagement methods listed above we should definitely not use. Please give reasons in each case.* ***(section 7)*** | | A combination of all of these would be helpful depending on the context of the engagement. For instance seminars are useful to put over general points, but individual meetings would be more appropriate to discuss testing issues. It may not be necessary to set up a particularly sophisticated dedicated EBS webpage, but it would be helpful if all documentation was available on a dedicated section of National Grid's electricity website. |
| 10 | *Are there any other comments that you wish you to make on this consultation?* | | No thank you. |

## 5.5 First Hydro Company





# Response Proforma for BM system consultation 2

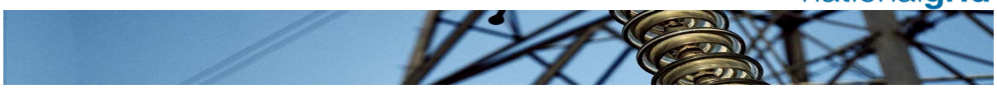
National Grid invites responses to this consultation **by 11 November 2010**. The responses to specific consultation questions (summarised below) or any other aspect of this consultation can be provided by completing the following proforma.

Please return the completed proforma to balancingservices@uk.ngrid.com.

| | |
|---|---|
| **Respondent:** | Kevin Kennedy / Andrew Scott |
| **Company Name:** | First Hydro Company |
| **Does this response contain confidential information?** | No |

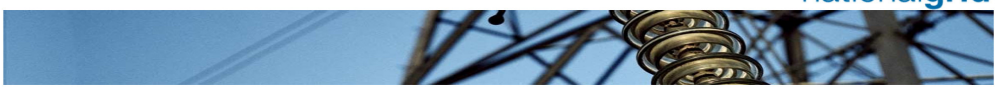
| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| 1 | *Do you have a preference for one of the following mechanisms for data exchange with EBS:*<br>*(i) Web-browser forms-based data submission;*<br>*(ii) Web browser-based XML file upload/download capability;*<br>*(iii) Web services-based computer-to-computer data exchanges*<br>*(iv) A different mechanism or a variation on the above (please provide details and benefits of such a mechanism over other mechanisms mentioned above)?* ***(section 5.3)*** | Y | We are happy with either of the three options, (i) (ii) or (iii) but would probably only implement (ii) or (iii) ourselves. |
| 2 | *Would you be interested in moving to the new industry interfaces with their capability to electronically submit a wider range of data?* ***(section 5.5)*** | Y | For example, it would be good to receive System Warning, PGBT data via the new interface (rather than via current methods, eg Sonar / TibCo). |
| 3 | *If the answer to Q1 is yes, please indicate when you would envisage moving to the new industry interfaces:*<br>*(i) Soon after go-live?* | Y | Probably within 2-5 years – given that our software is supplied via a third party and they would need to be involved in making any necessary changes. |





| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | *(ii) Within 2 years of go-live?*<br>*(iii) Within 5 years of go-live?*<br>*(iv) More than 5 years (please specify)?* ***(section 5.5)*** | | |
| 4 | *Would you support a cut-off date for migrating to the new interfaces? If so, please provide views on the cut-off date.* ***(section 5.5)*** | N | We doubt whether the industry will support a cut-off – it will be probably be necessary to support legacy interfaces for incumbents. New entrants should be forced/encouraged to use the new interfaces. |
| 5 | *Do you have a preference for one of the following modelling approaches offered by the vendor:*<br>*(i) Single unit modelling?*<br>*(ii) Pseudo unit modelling?*<br>*(iii) Configuration modelling?*<br>*(iv) A different approach or a variation on the above (please provide details and benefits of such an approach over other approaches mentioned above)?* ***(section 6.3.4)*** | n/a | |
| 6 | *Do you think that the increased number of ramp rates should be made available soon after system go-live?* ***(section 6.4.1)*** | Y | Although this would not affect our operations, we think this is a valuable and fairly straightforward improvement. |
| 7 | *Do you think that the minimum value for ramp rates should be set to a lower value than the current value of 0.2MW/min? If yes, what should it be?* ***(section 6.4.2)*** | Y | Although this would not affect our operations, we think this is a valuable and fairly straightforward improvement. |
| 8 | *Do you think that the new system should provide functionality for a time-dependent Stable Export Limit (SEL) and Stable Import Limit (SIL)?* ***(section 6.4.2)*** | Y | Although this would not affect our operations, we think this is a valuable and fairly straightforward improvement. |
| 9 | *(a) Please state which of the following methods we should, or should not, use in engaging the industry in on-going issues relating to EBS e.g. detailed* | Y | 6 eg a combination of 1, 4 and 5. |

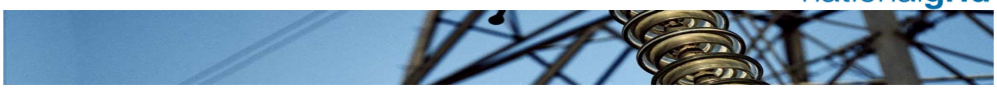




| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | *design of new industry interfaces:*<br>*1. Consultation documents*<br>*2. Individual meetings*<br>*3. Group seminars*<br>*4. Dedicated EBS project webpage*<br>*5. Information bulletins*<br>*6. Other, or a combination of the above (please state).*<br><br>*(b) Please state if any of the engagement methods listed above we should definitely not use. Please give reasons in each case.* ***(section 7)*** | | |
| 10 | *Are there any other comments that you wish you to make on this consultation?* | Y | Given that many participants' current EDL/dispatch systems are supplied by third-party software vendors, are these vendors being consulted through this process so that they may anticipate / plan any necessary changes to their systems? |

## 5.6 RWE





# Response Proforma for BM system consultation 2

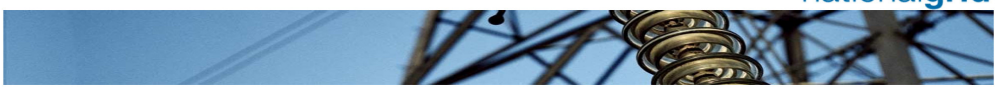
National Grid invites responses to this consultation **by 11 November 2010**. The responses to specific consultation questions (summarised below) or any other aspect of this consultation can be provided by completing the following proforma.

Please return the completed proforma to balancingservices@uk.ngrid.com.

| | |
|---|---|
| **Respondent:** | John Norbury |
| **Company Name:** | RWE Npower plc, RWE Npower Renewables Limited and RWE Supply & Trading GmbH |
| **Does this response contain confidential information?** | No |

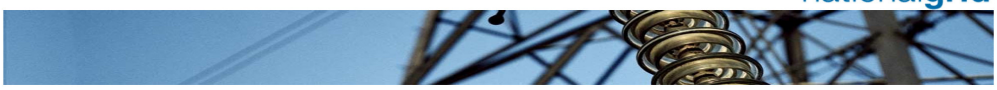
| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| 1 | *Do you have a preference for one of the following mechanisms for data exchange with EBS:*<br>*(i) Web-browser forms-based data submission;*<br>*(ii) Web browser-based XML file upload/download capability;*<br>*(iii) Web services-based computer-to-computer data exchanges*<br>*(iv) A different mechanism or a variation on the above (please provide details and benefits of such a mechanism over other mechanisms mentioned above)?* ***(section 5.3)*** | Y<br>(iii) | *(iii) Web services-based computer-to-computer data exchanges*<br><br>This approach best matches other computer-to-computer exchanges that are currently used within the industry. This approach would also be consistent with the Damas Web service interface currently used in relation to the France interconnector.<br><br>To ensure the appropriate level of security can be accommodated, where required by the User, the use of leased lines should be provided for as the main physical link with the internet capable of providing a backup. |
| 2 | *Would you be interested in moving to the new industry interfaces with their capability to electronically submit a wider range of data?* ***(section 5.5)*** | Y | Based on :<br>• to move away from fax forms<br>• to take advantage of increased flexibility<br>• to embrace ENTSO-E standards |





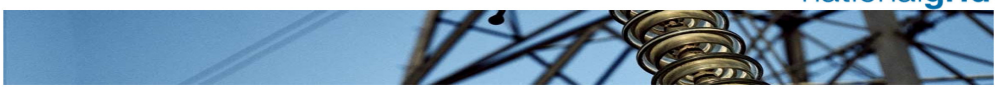
| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| 3 | *If the answer to Q1 is yes, please indicate when you would envisage moving to the new industry interfaces:*<br>*(i) Soon after go-live?*<br>*(ii) Within 2 years of go-live?*<br>*(iii) Within 5 years of go-live?*<br>*(iv) More than 5 years (please specify)?* ***(section 5.5)*** | (i) or (ii) | RWE would wish to take part in the "*Market participant interface testing*" as early as possible to help ensure that the new interface is understood and establish confidence in its reliability. |
| 4 | *Would you support a cut-off date for migrating to the new interfaces? If so, please provide views on the cut-off date.* ***(section 5.5)*** | Y | The cut off date would need to include sufficient time to prove the stability of the new interface.<br><br>During this period, NG's system should permit the User to switch back from the new interface to the old interface at any time.<br><br>Consideration should be given to different cut-off dates for existing EDT and EDL interfaces |
| 5 | *Do you have a preference for one of the following modelling approaches offered by the vendor:*<br>*(i) Single unit modelling?*<br>*(ii) Pseudo unit modelling?*<br>*(iii) Configuration modelling?*<br>*(iv) A different approach or a variation on the above (please provide details and benefits of such an approach over other approaches mentioned above)?* ***(section 6.3.4)*** | Y (i) | We are concerned that the complexity of approaches (ii) and (iii) reduces the transparency to the market. Maintaining market transparency is an essential requirement for any change. The more complex you make a process the less the market is able to respond to price signals. As a result approach (i) is preferred over approach (ii) or (iii). |
| 6 | *Do you think that the increased number of ramp rates should be made available soon after system go-live?* ***(section 6.4.1)*** | Y | Whilst generally satisfied with the existing provisions, there may be a benefit in increasing the current number of permitted run-up rates and run-down rates from 3 to 6. Any benefit above this number may not justify the cost and administrative burden arising from the increased data requirements. |
| 7 | *Do you think that the minimum value for ramp rates should be set to a lower value than the current* | N | RWE is satisfied with the current minimum value for ramp rates. |





| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | *value of 0.2MW/min? If yes, what should it be?* ***(section 6.4.2)*** | | |
| 8 | *Do you think that the new system should provide functionality for a time-dependent Stable Export Limit (SEL) and Stable Import Limit (SIL)?* ***(section 6.4.2)*** | Y | In addition to time dependent SEL and SIL, we consider that greater benefits would also arise from the provision of time dependent ramp rates.<br>We note that the provision of time tagged dynamic parameters has been identified on the Grid Code Review Panel outstanding issues list for a number of years but has not been specifically acknowledged in this consultation. |
| 9 | *(a) Please state which of the following methods we should, or should not, use in engaging the industry in on-going issues relating to EBS e.g. detailed design of new industry interfaces:*<br>*1. Consultation documents*<br>*2. Individual meetings*<br>*3. Group seminars*<br>*4. Dedicated EBS project webpage*<br>*5. Information bulletins*<br>*6. Other, or a combination of the above (please state).*<br><br>*(b) Please state if any of the engagement methods listed above we should definitely not use. Please give reasons in each case.* ***(section 7)*** | (a) 1 and 2<br><br>(b) 5 | Concise documentation should be provided by NG as part of the consultation process with User specific meetings held to provide detailed clarification where necessary<br><br>(b) We would not expect information bulletins to be frequently utilized during the development / implementation stages since these represent a one-way flow of information and do not provide for User issues to be raised. |
| 10 | *Are there any other comments that you wish you to make on this consultation?* | | We are concerned that this consultation appears to comprise a combination of IT based issues and business related issues. We believe it would be more appropriate for these business issues to be considered under the governance of the core industry codes.<br>We suggest that consideration be given to generating units powered by an intermittent power source (i.e. wind farms). Attempting to fit the innate capability of these generating units into the current modelling and bid/offer |

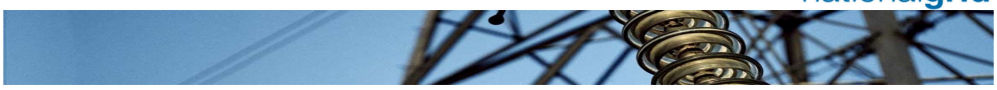




| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | | | framework would appear to be an inefficient process. |

## 5.7 Scottish and Southern Energy (SSE)





# Response Proforma for BM system consultation 2

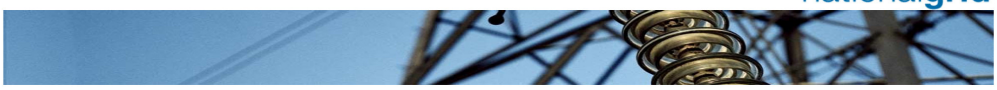
National Grid invites responses to this consultation **by 11 November 2010**. The responses to specific consultation questions (summarised below) or any other aspect of this consultation can be provided by completing the following proforma.

Please return the completed proforma to balancingservices@uk.ngrid.com.

| | |
|---|---|
| **Respondent:** | Garth Graham |
| **Company Name:** | Scottish Southern Energy |
| **Does this response contain confidential information?** | No |

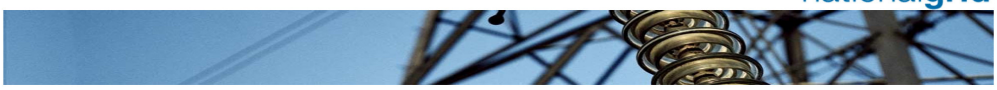
| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| 1 | *Do you have a preference for one of the following mechanisms for data exchange with EBS:*<br>*(i) Web-browser forms-based data submission;*<br>*(ii) Web browser-based XML file upload/download capability;*<br>*(iii) Web services-based computer-to-computer data exchanges*<br>*(iv) A different mechanism or a variation on the above (please provide details and benefits of such a mechanism over other mechanisms mentioned above)?* ***(section 5.3)*** | Yes | We have reviewed the four options outlined in Section 5.3 of the consultation document and have concluded that our preference is for option (iii); the Web services-based, with high integrity and security. |
| 2 | *Would you be interested in moving to the new industry interfaces with their capability to electronically submit a wider range of data?* ***(section 5.5)*** | Yes | We are mindful of the details outlined in Section 5.5, and conclude that we would be interested in moving to the new industry interfaces. |
| 3 | *If the answer to Q1 is yes, please indicate when you would envisage moving to the new industry interfaces:*<br>*(i) Soon after go-live?* | | Based on our preference in Q1 (for option (iii)) we would envisage moving to the new industry interfaces soon after go live (i.e. option (i) in Q3). |





| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | *(ii) Within 2 years of go-live?*<br>*(iii) Within 5 years of go-live?*<br>*(iv) More than 5 years (please specify)?* ***(section 5.5)*** | | |
| 4 | *Would you support a cut-off date for migrating to the new interfaces? If so, please provide views on the cut-off date.* ***(section 5.5)*** | Yes | We have considered the information contained in Section 5.5. and conclude that we would support a cut-off date which, in our view should be within 2 years of Go Live. |
| 5 | *Do you have a preference for one of the following modelling approaches offered by the vendor:*<br>*(i) Single unit modelling?*<br>*(ii) Pseudo unit modelling?*<br>*(iii) Configuration modelling?*<br>*(iv) A different approach or a variation on the above (please provide details and benefits of such an approach over other approaches mentioned above)?* ***(section 6.3.4)*** | Yes | We have reviewed the four options outlined in Section 6.3.4 of the consultation document and have concluded that our preference is for Option (iii), the Configuration model. However, this is based on there being an industry wide consultation and agreement of the definitions of the dynamic data parameters required. |
| 6 | *Do you think that the increased number of ramp rates should be made available soon after system go-live?* ***(section 6.4.1)*** | Yes | We have considered the views set out in Section 6.4.1 and believe that there are benefits in this functionality being provided as soon as practical after the system go-live. |
| 7 | *Do you think that the minimum value for ramp rates should be set to a lower value than the current value of 0.2MW/min? If yes, what should it be?* ***(section 6.4.2)*** | Yes | Mindful of the comments in Section 6.4.2 we believe that there should be a lower minimum value for ramp rates than at present. In our view 0.02 MW/min is acceptable. |
| 8 | *Do you think that the new system should provide functionality for a time-dependent Stable Export Limit (SEL) and Stable Import Limit (SIL)?* ***(section 6.4.2)*** | Yes | Taking account of the detail in Section 6.4.2 we agree that the new system should provide this functionality as there are distinct benefits associated with this. For example a forward profile of SEL is required to reflect the changing flexibility of cascade hydro as water is transferred through the cascade. It would also gives forward visibility of periods of inflexibility for a BMU. |

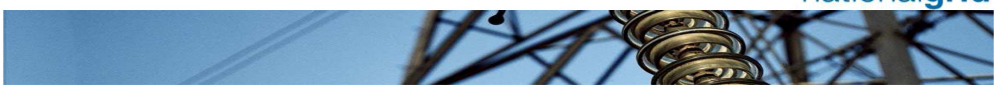




| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| 9 | *(a) Please state which of the following methods we should, or should not, use in engaging the industry in on-going issues relating to EBS e.g. detailed design of new industry interfaces:*<br>*1. Consultation documents*<br>*2. Individual meetings*<br>*3. Group seminars*<br>*4. Dedicated EBS project webpage*<br>*5. Information bulletins*<br>*6. Other, or a combination of the above (please state).*<br><br>*(b) Please state if any of the engagement methods listed above we should definitely not use. Please give reasons in each case.* ***(section 7)*** | --- | In reviewing the information in Section 7 we have come to the conclusion that a combination of all of the mechanisms (i.e. option 6) is the most appropriate way to support a recognised consultation. In particular we welcome the suggestion of a dedicated EBS Project Web Page (containing all documents) as this we have found to be very useful for sharing info and views across all stakeholders. In addition this approach is, we believe, conducive to maximising the involvement of smaller parties in the process. |
| 10 | *Are there any other comments that you wish you to make on this consultation?* | Yes | We would like to express our support for moving towards widening the range of data submissions to cover other types of dynamic data and not just the examples contained in the consultation document. In our view the examples shown in the consultation aren't wide enough as all the dynamic parameters in BC1.A.15 should be reviewed to fit the BETTA requirements. In addition, given the work emerging from ENTSOe, the system *must* ensure it can align with future European Network Code operational requirements and definitions. Furthermore, Ancillary Service Contract availability should also be communicated within the EBS system to minimise the number of IT applications required. |

## 5.8 Scottish Power





# Response Proforma for BM system consultation 2

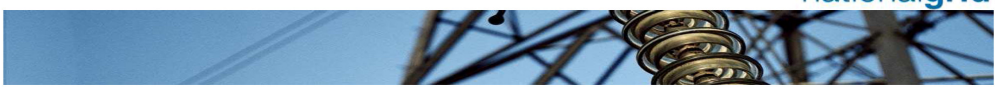
National Grid invites responses to this consultation **by 11 November 2010**. The responses to specific consultation questions (summarised below) or any other aspect of this consultation can be provided by completing the following proforma.

Please return the completed proforma to balancingservices@uk.ngrid.com.

| | |
|---|---|
| **Respondent:** | James Anderson |
| **Company Name:** | ScottishPower Energy Wholesale |
| **Does this response contain confidential information?** | No |

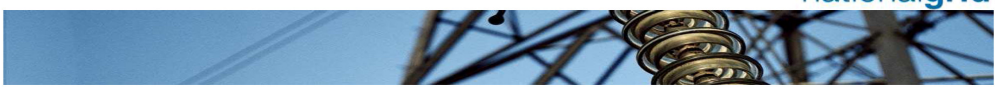
| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| 1 | *Do you have a preference for one of the following mechanisms for data exchange with EBS:*<br>*(i) Web-browser forms-based data submission;*<br>*(ii) Web browser-based XML file upload/download capability;*<br>*(iii) Web services-based computer-to-computer data exchanges*<br>*(iv) A different mechanism or a variation on the above (please provide details and benefits of such a mechanism over other mechanisms mentioned above)?* ***(section 5.3)*** | Y | ScottishPower's preference would be for either option (ii)Web browser-based XML file upload/download or (iii) Web services-based computer-to-computer data exchanges. |
| 2 | *Would you be interested in moving to the new industry interfaces with their capability to electronically submit a wider range of data?* ***(section 5.5)*** | Y | ScottishPower supports the existing EDL/EDT mechanisms but recognises the benefits achievable from moving to new interfaces and extending the range of data covered by these. |
| 3 | *If the answer to Q1 is yes, please indicate when you would envisage moving to the new industry interfaces:*<br>*(i) Soon after go-live?* | | ScottishPower would support a move to the new industry interfaces within 2 years of go-live, option (ii). |





| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | *(ii) Within 2 years of go-live?*<br>*(iii) Within 5 years of go-live?*<br>*(iv) More than 5 years (please specify)?* ***(section 5.5)*** | | |
| 4 | *Would you support a cut-off date for migrating to the new interfaces? If so, please provide views on the cut-off date.* ***(section 5.5)*** | Y | ScottishPower would support a cut-off date to ensure that all parties migrate and are aligned to the new technologies, enabling National Grid to achieve reduced support costs by rationalising the interfaces which they support. |
| 5 | *Do you have a preference for one of the following modelling approaches offered by the vendor:*<br>*(i) Single unit modelling?*<br>*(ii) Pseudo unit modelling?*<br>*(iii) Configuration modelling?*<br>*(iv) A different approach or a variation on the above (please provide details and benefits of such an approach over other approaches mentioned above)?* ***(section 6.3.4)*** | N | Whilst we would welcome the option of multi-shaft CCGT modelling under EBS the options provided do not represent any improvement to the current methods used. Approach 1 omits crucial data required to model a CCGT and would still require fax based data from EMCs. Approach 2 would have repercussions in other areas which look difficult to overcome, e.g. simultaneous BID and OFFER BOA's issued to multiple GTs at the same BMU. Approach 3 is close to providing a solution but does not address the issue of the limitations the current Bid/Offer pairs creates whereby Offer Price +1 must be less than Offer Price +2 and less than Offer Price +3 etc.. Whilst a generator may be able to offer a 1+1, 2+1 or 3+1 configuration they must recover their costs and achieve a level of profit for the 1+1 configuration. Subsequent configurations can in many cases be offered at a reduced price (due to the majority of startup costs already incurred and also economies of scale) but the current Bid/Offer price rules prevent this from happening. Implementation of Approach 3 would therefore not be the ideal solution it set out to achieve as pricing of the multi-shaft CCGT would not be optimal. |
| 6 | *Do you think that the increased number of ramp rates should be made available soon after system go-live?* ***(section 6.4.1)*** | | The increased number of ramp rates should be made available as soon as possible after Go-Live. Scottish Power already have a requirement under certain circumstances to employ more than 3 rates and so the sooner this is implemented the better. |
| 7 | *Do you think that the minimum* | | Whilst none of SPs current BMUs require |

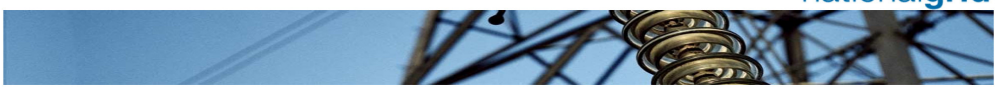




| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | *value for ramp rates should be set to a lower value than the current value of 0.2MW/min? If yes, what should it be?* ***(section 6.4.2)*** | | a RDRE/RURE of <0.2MW/Min that is not to say that future ones may not. Therefore to exclude them from participating in the Balancing Mechanism at such a time for this reason alone would be unfortunate if the industry have the opportunity now to reduce this to the lowest permitted value which would be 0.02MW/Min. |
| 8 | *Do you think that the new system should provide functionality for a time-dependent Stable Export Limit (SEL) and Stable Import Limit (SIL)?* ***(section 6.4.2)*** | | The new system should include the functionality for a time-dependent SEL and SIL. The present system has always caused problems for both EMCs and NGET alike and this would solve these issues immediately leading to an enhanced optimisation and scheduling of BMUs. |
| 9 | *(a) Please state which of the following methods we should, or should not, use in engaging the industry in on-going issues relating to EBS e.g. detailed design of new industry interfaces:*<br>*1. Consultation documents*<br>*2. Individual meetings*<br>*3. Group seminars*<br>*4. Dedicated EBS project webpage*<br>*5. Information bulletins*<br>*6. Other, or a combination of the above (please state).*<br><br>*(b) Please state if any of the engagement methods listed above we should definitely not use. Please give reasons in each case.* ***(section 7)*** | Y | National Grid should continue to use a combination of methods to engage industry in this process. Group seminars are useful to ensure that all issues affecting industry are covered and consultation documents are useful for formalising the change process and clarifying and defining proposed changes. |
| 10 | *Are there any other comments that you wish you to make on this consultation?* | N | No |

## 5.9 Seabank Power Limited





# Response Proforma for BM system consultation 2

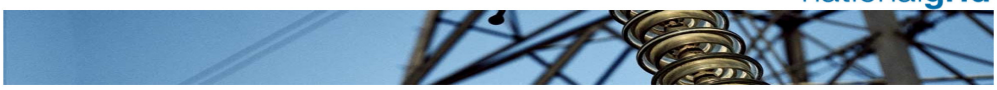
National Grid invites responses to this consultation **by 11 November 2010**. The responses to specific consultation questions (summarised below) or any other aspect of this consultation can be provided by completing the following proforma.

Please return the completed proforma to balancingservices@uk.ngrid.com.

| | |
|---|---|
| **Respondent:** | Karen Davies / Daniel Webb |
| **Company Name:** | Seabank Power Limited |
| **Does this response contain confidential information?** | No |

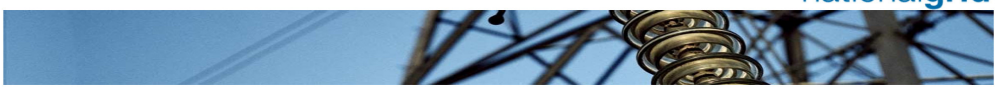
| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| 1 | *Do you have a preference for one of the following mechanisms for data exchange with EBS:*<br>*(i) Web-browser forms-based data submission;*<br>*(ii) Web browser-based XML file upload/download capability;*<br>*(iii) Web services-based computer-to-computer data exchanges*<br>*(iv) A different mechanism or a variation on the above (please provide details and benefits of such a mechanism over other mechanisms mentioned above)?* ***(section 5.3)*** | | Probably (iii) |
| 2 | *Would you be interested in moving to the new industry interfaces with their capability to electronically submit a wider range of data?* ***(section 5.5)*** | Y | |
| 3 | *If the answer to Q1 is yes, please indicate when you would envisage moving to the new industry interfaces:*<br>*(i) Soon after go-live?* | Y | At or soon after go live. |





| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | *(ii) Within 2 years of go-live?*<br>*(iii) Within 5 years of go-live?*<br>*(iv) More than 5 years (please specify)?* ***(section 5.5)*** | | |
| 4 | *Would you support a cut-off date for migrating to the new interfaces? If so, please provide views on the cut-off date.* ***(section 5.5)*** | No Preference | |
| 5 | *Do you have a preference for one of the following modelling approaches offered by the vendor:*<br>*(i) Single unit modelling?*<br>*(ii) Pseudo unit modelling?*<br>*(iii) Configuration modelling?*<br>*(iv) A different approach or a variation on the above (please provide details and benefits of such an approach over other approaches mentioned above)?* ***(section 6.3.4)*** | **Y (iii)** | **(iii) Strong Preference for Configuration modelling**<br>Accurately reflects the operating characteristics of a multi shaft CCGT and mirrors what is currently submitted via fax. |
| 6 | *Do you think that the increased number of ramp rates should be made available soon after system go-live?* ***(section 6.4.1)*** | **Y** | |
| 7 | *Do you think that the minimum value for ramp rates should be set to a lower value than the current value of 0.2MW/min? If yes, what should it be?* ***(section 6.4.2)*** | **Y** | **0.02 MW/min. Strong preference for this figure to be as low as possible to accurately affect the start up profile of a CCGT.** |
| 8 | *Do you think that the new system should provide functionality for a time-dependent Stable Export Limit (SEL) and Stable Import Limit (SIL)?* ***(section 6.4.2)*** | No preference | |
| 9 | *(a) Please state which of the following methods we should, or should not, use in engaging the industry in on-going issues relating to EBS e.g. detailed* | | |

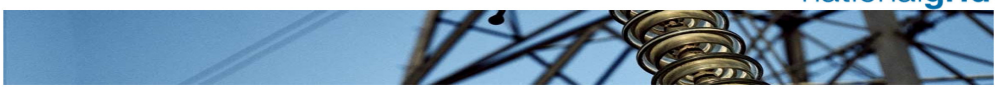




| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | *design of new industry interfaces:*<br>*1. Consultation documents*<br>*2. Individual meetings*<br>*3. Group seminars*<br>*4. Dedicated EBS project webpage*<br>*5. Information bulletins*<br>*6. Other, or a combination of the above (please state).*<br><br>*(b) Please state if any of the engagement methods listed above we should definitely not use. Please give reasons in each case.* ***(section 7)*** | | 1 (Y)<br>3(Y)<br>4 (Y)<br>5 (Y)<br>6 Establish dedicated contact groups from each organisation for notification of the above. |
| 10 | *Are there any other comments that you wish you to make on this consultation?* | | |
| | | | |

## 5.10 Utiligroup Ltd and Quorum Developments Ltd (joint response)





# Response Proforma for BM system consultation 2

National Grid invites responses to this consultation **by 11 November 2010**. The responses to specific consultation questions (summarised below) or any other aspect of this consultation can be provided by completing the following proforma.

Please return the completed proforma to balancingservices@uk.ngrid.com.

| | |
|---|---|
| **Respondent:** | Martin Evans and Ian Mort |
| **Company Name:** | Utiligroup Ltd and Quorum Developments Ltd |
| **Does this response contain confidential information?** | No. |

## Introduction

This document is a joint response to the consultation by Utiligroup Ltd and Quorum Developments Ltd.

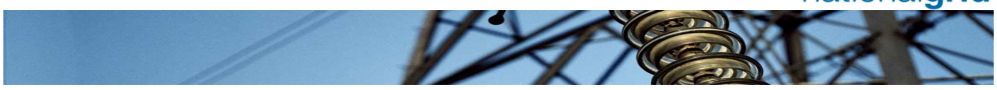
Utiligroup is a leading UK and Australian based provider to energy and utility companies from its software products, managed services and trusted guidance. The company's core focus is to enable effective participation in energy markets by market roles in trading, supply, metering and distribution. In the UK trading market, Utiligroup's solutions are used by around thirty participants of all types, including non-physical traders, interconnector users, suppliers and generators. Utiligroup's customers in this sector include Centrica, Deutsche Bank, Gazprom, Fred Olsen Renewables, GdF Suez and Sembcorp.

Quorum is a specialist company offering the highest quality IT consultancy, support and software development services to customers in the power generation industry. The company's products cover many aspects of optimising operations for a power generator, including Technical Availability, Despatch Planning, Fuel Forecasting and Nomination, and Position Keeping. All of Quorum's customers in the UK have links with the Grid EDL and EDT systems as an intrinsic part of the solution.

Both Utiligroup and Quorum have been tracking the potential replacement of the energy balancing systems operated by National Grid for a number of years. By collaborating together, we intend to develop and introduce a software suite for those interfacing to the replacement balancing systems that enable their operations and position management. This software will integrate with their wider Energy Trading & Risk Management architecture and enable end-to-end operations across generation, trading, balancing and settlement processes.

Utiligroup is part of Bglobal PLC, the UK's leading provider of smart energy information services which starts its value creation with smart meter deployments and then seeks to





realise real-time value from the data that informs decision on energy use. National Grid seeks to balance future supply and demand, considering factors such as intermittent low-carbon generation and demand response becoming core aspects of the mix. We envisage the balancing market will reflect the dynamic interactions of such factors and become an important source of flexible services and real-time prices that will be core to the sector's evolution.

We therefore seek to reflect the real-time nature of balancing by bringing together data that enables effective participation by generators and demand response service providers across production assets, traded positions, energy saving potential from smart metering and National Grid's real-time alerting. This will create a software solution that can enable balancing services to evolve in line with National Grid's requirements.

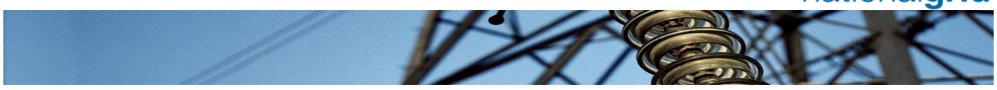
In establishing a software solution that can be redeployed across many companies we seek to work with open standards for data definition and communication. These standards should be extensible without replacement to allow value from the new Balancing Systems to emerge organically over time in response to market dynamics. We note the potential to use Web Services and this may provide such an open standard. Our experience of providing services to the Single Electricity Market (SEM) in Ireland from 2008 onwards which used Web Services based on the ABB market software showed that focus may be required on their scale and prioritisation to ensure that the real-time nature of balancing can be operated effectively.

We welcome your contact and look forward to working with National Grid and other stakeholders in this important step towards the evolved energy market.

## Responses

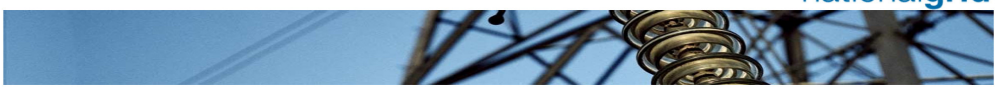
| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| 1 | *Do you have a preference for one of the following mechanisms for data exchange with EBS:*<br>*(i) Web-browser forms-based data submission;*<br>*(ii) Web browser-based XML file upload/download capability;*<br>*(iii) Web services-based computer-to-computer data exchanges*<br>*(iv) A different mechanism or a variation on the above (please provide details and benefits of such a mechanism over other mechanisms mentioned above)?* | Y | We are happy to support all three of the proposed mechanisms for data exchange.<br>For our customers, Type 1, i.e. Web-browser forms-based submission would be useful only in an emergency or for very low volume implementations.<br>Type 2 may be useful for occasional or ad hoc submissions, but our objective will be to support Type 3 for all transaction types, so that all interactions with Grid are as automated as is possible. |





| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | ***(section 5.3)*** | | |
| 2 | *Would you be interested in moving to the new industry interfaces with their capability to electronically submit a wider range of data?* ***(section 5.5)*** | Y | The new industry interfaces will enable a wider range of capabilities, which will in turn open up new opportunities for innovative software solutions. |
| 3 | *If the answer to Q1 is yes, please indicate when you would envisage moving to the new industry interfaces:*<br>*(i) Soon after go-live?*<br>*(ii) Within 2 years of go-live?*<br>*(iii) Within 5 years of go-live?*<br>*(iv) More than 5 years (please specify)?* ***(section 5.5)*** | Y | The timescale for moving to the new interfaces is somewhat dependent upon extent, availability and access to testing facilities, alongside cooperation from our customers. It is therefore difficult at this stage to be precise, but our intention would be to move to the new interfaces within one year after go live. |
| 4 | *Would you support a cut-off date for migrating to the new interfaces? If so, please provide views on the cut-off date.* ***(section 5.5)*** | Y | We strongly support the principle of a cut-off date – without this the industry may be held back by the need to retain compatibility with old EDT/EDL-based systems. We suggest that a one year cut-off date after go-live is both reasonable and appropriate. |
| 5 | *Do you have a preference for one of the following modelling approaches offered by the vendor:*<br>*(i) Single unit modelling?*<br>*(ii) Pseudo unit modelling?*<br>*(iii) Configuration modelling?*<br>*(iv) A different approach or a variation on the above (please provide details and benefits of such an approach over other approaches mentioned above)?* ***(section 6.3.4)*** | Y | Single unit modelling for the sake of simplicity. |
| 6 | *Do you think that the increased number of ramp rates should be made available soon after system go-live?* ***(section 6.4.1)*** | Y | Yes |
| 7 | *Do you think that the minimum value for ramp rates should be set to a lower value than the current* | Y | Yes. To facilitate "holds" on the block ramps, we have seen values of 0.01MW/minute being used in block |





| No | Question | Response (Y/N) | Rationale |
|---|---|---|---|
| | *value of 0.2MW/min? If yes, what should it be?* ***(section 6.4.2)*** | | models. |
| 8 | *Do you think that the new system should provide functionality for a time-dependent Stable Export Limit (SEL) and Stable Import Limit (SIL)?* ***(section 6.4.2)*** | Y | Yes. Our customers implement this on internal systems at present in any case. |
| 9 | *(a) Please state which of the following methods we should, or should not, use in engaging the industry in on-going issues relating to EBS e.g. detailed design of new industry interfaces:*<br>*1. Consultation documents*<br>*2. Individual meetings*<br>*3. Group seminars*<br>*4. Dedicated EBS project webpage*<br>*5. Information bulletins*<br>*6. Other, or a combination of the above (please state).*<br><br>*(b) Please state if any of the engagement methods listed above we should definitely not use. Please give reasons in each case.* ***(section 7)*** | Y | We believe that all of the suggested methods for engaging stakeholders should be utilised. |
| 10 | *Are there any other comments that you wish you to make on this consultation?* | Y | No. |