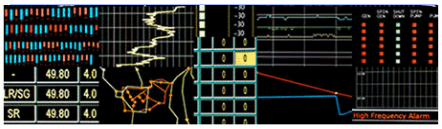
BM System Replacement

Report on Industry Consultation

18 December 2008

Information Contact:
Shafqat Ali
Phone: 01926 655980
Mobile: 07879 602814
E-mail: shafqat.r.ali@uk.ngrid.com

nationalgrid
The power of action.



CONTENTS

EXECUTIVE SUMMARY **3**

SYSTEM PROCUREMENT CONSIDERATIONS IN PHASE 1 3
SYSTEM ENHANCEMENT CONSIDERATIONS IN PHASE 2 4

1 INTRODUCTION **6**

2 INDUSTRY RESPONSES **6**

2.1 INDUSTRY RESPONSES ON PHASE 1 SYSTEM DEVELOPMENT 7
2.1.1 Change Drivers (Consultation Question 1 » 5 responses) *7*
2.1.2 System Replacement Objectives (Q6 » 9 responses) *8*
2.1.3 Automated Despatch Instructions (Q3 » 8 responses) *9*
2.1.4 Change Freeze Period (Q9 » 7 responses) *11*
2.1.5 Impact of System Testing (Q10 » 7 responses) *13*
2.1.6 Impact on Industry Codes (Q11 » 8 responses) *13*
2.1.7 Market Information Requirements (Q8 » 5 responses) *14*
2.1.8 Other Technologies and Initiatives (Q7 » 9 responses) *15*
2.1.9 Other System Development Considerations (Q12 » 5 responses) *17*
2.1.10 Benefits of New System (Q13 » 4 responses) *18*
2.1.11 Risks (Q14 » 6 responses) *19*
2.1.12 Other Comments (Q15 » 4 responses) *19*
2.2 INDUSTRY RESPONSES ON PHASE 2 SYSTEM DEVELOPMENT 21
2.2.1 Industry Standards for EDL/EDT Interfaces (Q2 » 8 responses) *21*
2.2.2 Open Despatch Instructions (Q4 » 8 responses) *23*
2.2.3 Other Phase 2 Developments (e.g. AGC, wind) (Q5 » 7 responses) *24*
2.3 INDUSTRY FEEDBACK ON CONSULTATION DOCUMENT 26

3 PROPOSED WAY FORWARD **27**

3.1 SYSTEM PROCUREMENT CONSIDERATIONS IN PHASE 1 27
3.2 SYSTEM ENHANCEMENT CONSIDERATIONS IN PHASE 2 28
3.3 INFORMATION CONTACT 29

APPENDIX A – INDUSTRY RESPONSES **30**

Executive Summary

National Grid has consulted with the industry on the proposed replacement of its Balancing Mechanism (BM) system with a global best-practice IT system using up to date technologies and a go-live target of mid 2012. The consultation document was published on 7 October 2008 and industry responses were received by 6 November 2008.

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

The industry responses and National Grid's views can be broadly grouped into two categories:

1. System procurement considerations in Phase 1
2. System enhancement considerations in Phase 2

System Procurement Considerations in Phase 1

Further to the industry responses, National Grid agrees with and confirms the project will take into consideration the following views in the procurement of the new system:

- Availability of standard interfaces within the new system, including those adopted by ETSO (European Transmission System Operators);
- Data validation;
- Disaster Recovery;
- Significant allowance for future growth of market participants (in addition to accommodating the current volume of market participants);
- Requirement to limit the number and effect of instructions produced by the automated despatch process;
- Procurement of a system that delivers value for money (e.g. via robust tendering process);
- Minimising the impact of change freeze by rigorous impact assessment of any regime changes required by the market;
- Requirement to maintain delivery of existing market information and incorporate new requirements (e.g. tagging of constraint costs);

- Minimising voice/fax communications (e.g. for notification of availability of Frequency Response);

The following areas highlighted by the respondents will require further discussion with the market participants (either separately or as part of the phase 2 consultation):

- Industry discussion on the impact of more frequent despatch instructions on market participant systems, processes and costs;
- Consideration of any undesirable system limitations revealed during vendor/system assessment process;
- Recovery of costs incurred by National Grid in the procurement of the new system;
- Development of a communication plan detailing the duration, timing and level of system testing by National Grid and market participants;
- Consideration of any impact on Industry Codes resulting from implementation of Phase 1 system development;
- Data buffering or backfilling of missing data during outages;
- Consideration of the consequential changes resulting from implementation of tagging of constraint costs (i.e. P217).

System Enhancement Considerations in Phase 2

Following industry responses, National Grid believes that the following areas should be considered in Phase 2 system enhancements:

- Industry discussion on the impact of more frequent despatch instructions on market participant systems, processes and costs;
- Discussion on the merits and implementation of open instructions and AGC (Automatic Generation Control);
- Incorporation and use of standard interfaces for communications between market participant and National Grid systems;
- Electronic communications with demand side;

National Grid believes that the scope of Phase 2 should also include the following issues that have been raised by the industry:

- Additional demand forecasts (may be considered via the normal BSC governance arrangements);
- Provision of market information on a single platform;

- Prompt calculation of system prices;
- Proposals to change the modelling of generating units in the balancing mechanism e.g. CCGT module configuration, operation below SEL.

1 Introduction

National Grid has consulted with the industry on the proposed replacement of its Balancing Mechanism (BM) system with a global best-practice IT system using up to date technologies. This industry consultation is the first phase of the process (Phase 1) focusing on the procurement of a new IT system; National Grid will bring forward a second (Phase 2) consultation around mid 2010 covering potential enhancements to the new system.

The Phase 1 consultation document[1] was published on 7 October 2008 and industry responses were received by 6 November 2008.

This report provides details of the outcome of the Phase 1 consultation process undertaken by National Grid.

2 Industry Responses

11 organisations responded to the consultation, with two requesting confidentiality. Non-confidential responses were received from the following organisations:

- Demand Logic
- Siemens Energy
- RWE Supply and Trading
- RLtec
- InterGen
- First Hydro Company
- E.ON
- Drax Power Limited
- Scottish and Southern Energy

The individual (non-confidential) 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 two categories

[1] The consultation document can be accessed on National Grid's website on http://www.nationalgrid.com/uk/Electricity/Balancing/consultations/

according to the two phases of system development. Phase 1 (section 3.1) is the main subject of the current consultation and focuses on system replacement internal to National Grid, whilst Phase 2 (section 3.2), which will be the subject of a future consultation, considers potential enhancements to the new system once Phase 1 system development has been completed.
At the end of each subsection, National Grid's response to the industry comments is provided.

Section 3.3 summarises industry feedback on the consultation document and the consultation process.

2.1 Industry Responses on Phase 1 System Development

2.1.1 Change Drivers (Consultation Question 1 » 5 responses[2])

The industry responses identified the following drivers, in addition to those summarised in the consultation document[3]:

- Recommendations from the Government's Renewable Strategy White Paper (which has not yet been published);
- Significant growth in intelligent and dynamic loads, and smaller distribution generation volumes;
- Communications barriers to participation which could be reduced by low cost, universal and interoperable communications;
- Increase in balancing costs as a result of more frequent and longer duration unplanned outages of the existing BM system;
- Lack of capability to model generating units in the BM (e.g. modelling of unsynchronised Gas Turbines in a CCGT module);
- Lack of direct interface with the demand side.

One respondent reinforced system reliability as the key driver because of its impact on market players, and specifically on the accuracy of data provided to the industry.

[2] These are the total number of industry responses to this particular question where a rationale for the response has been provided.

[3] The consultation document can be accessed on National Grid's website on http://www.nationalgrid.com/uk/Electricity/Balancing/consultations/

One respondent commented that their concerns and issues had been captured by the change drivers outlined in the consultation document.

National Grid's View:
National Grid notes the additional change drivers that the industry respondents have identified for the replacement of the BM system. The additional drivers further emphasise the need to develop a system that is not only suitable for the current needs but also helps meet the challenges presented by the evolution of electricity supply in Great Britain.

Some of the more specific comments (e.g. universal / interoperable IT communications) will be considered in the System Requirements Specification.

2.1.2 System Replacement Objectives (Q6 » 9 responses)

Eight respondents agreed that the high level objectives outlined in the consultation document captured what the new system should aim to achieve. Some respondents suggested the following additional objectives:

- Compliance with all possible industry standards which will allow maintenance and upgrades using widely available labour skills;
- Accuracy and measures for data checking processes, and an appropriate strategy for Disaster Recovery;
- Scalability to reflect the potential for many more suppliers of low volume ancillary services;
- Ability to cope with high volume of data in short timescales so that the new system would not experience problems similar to those at the start of NETA.

One respondent disagreed with the scope of the stated objectives and suggested that a key consideration is ensuring that the system delivers value for money, particularly if National Grid expects any degree of cost recovery from the industry.

National Grid's View:
National Grid notes the objectives identified by the respondents. Some of these objectives (e.g. compliance with industry standards, data validation, and Disaster Recovery) are expected to be an inherent part of the vendor's new

system and are covered in our System Requirements Specification (SRS) and hence will be duly considered in the tender evaluation stage.

National Grid recognises the potential increase in the number of market participants and suppliers of ancillary services, as highlighted by the respondents. The new system will be specified based on the current volumes of market participant data plus a significant allowance for future growth during the life of the system.

National Grid agrees that the new IT system should deliver value for money. National Grid is taking steps (e.g. this industry consultation) to ensure that the final product meets the needs of both the industry and National Grid, and will be undertaking a robust tendering and contract award process to ensure that the new IT system delivers value for money, and meets current, and where possible future, needs. One of the key reasons for National Grid seeking to purchase a global best-practice IT system, rather than developing a system in-house, is the greater certainty of cost and risk that it will provide. Once the tendering process is complete, National Grid will have a better indication of the likely costs of the BM replacement project; any discussions on cost recovery will be considered after the completion of the tendering process.

2.1.3 Automated Despatch Instructions (Q3 » 8 responses)

The majority of the respondents envisaged benefits from more precise despatch instructions but also expressed concerns about any significant increase in the number of instructions that are issued.

The main potential benefits identified by the respondents are as follows:

- Benefits arising from System Operator efficiency that are reflected back to industry;
- More precise despatch instructions (e.g. BOAs) would be beneficial for both ourselves [respondent] and the GB market;
- Reduced despatch costs;
- More accurate system prices;
- More frequent instructions closer to real-time would benefit demand side contribution (e.g. from commercial buildings aggregated across sites) which can be brought on and off quickly (in seconds and minutes); this is currently restricted by long lead times for availability notifications and associated uncertainties (e.g. weather).

The unfavourable impacts and potential mitigation measures identified by the respondents are as follows:

Unfavourable Impacts

- Numerous small volume BOAs would have an adverse impact on plant;
- Individual BMUs may be subject to more variable output which may result in additional costs;
- Handling of more frequent instructions for small incremental or decremental volumes could lead to added workload on plant operators, leading to errors in acceptances/rejections and subsequent despatching of units;
- More frequent instructions would result in an increase in data processing with potential implications for software applications and hardware requiring additional manpower:

Mitigation Measures

- Put an upper limit on the number of instructions issued;
- Restrict the number of instructions which may reverse the direction of an existing load change;
- The instructions should have a minimum duration of instructed load and any small and frequent load changes should be provided by frequency response;
- Quantify the impact of adopting more automated despatch processes (e.g. potential percentage increase in the volume of instructions received by generators);
- Provide more information on how automated despatch would work.

National Grid's View:

National Grid agrees with respondents that automated despatch should improve efficiency of National Grid's despatch process and the benefits from this potential efficiency would ultimately be reflected back to the industry and consumers. National Grid will have more information on any potential improvement in efficiency once it has assessed vendor offerings in this area.

National Grid recognises the respondents concerns regarding potentially more frequent despatch instructions and their potential impact on plant, data processing and generator costs. Despatch automation is used by other

system operators around the world and National Grid believes that despatch automation would overall be beneficial to the GB market.

National Grid will include requirements in the SRS to provide the capability to limit the number and effect of instructions produced by the automated despatch process. We will have a better understanding of system capability in these areas after closer examination of vendor products next year.

2.1.4 Change Freeze Period (Q9 » 7 responses)

The majority of the respondents considered the three year change freeze to have a negative impact on the industry. These respondents commented that:

- Ofgem would be unlikely to agree to a moratorium on new modification proposals;
- Consequential modification may be required to cope with the consequences of implementing P217;
- There may be reluctance to implement changes on a newly installed system, prolonging the change freeze and leading to additional costs to the wider industry;
- Flexibility is needed to deal with critical issues (e.g. dealing with registration issues such as change of ownership and new-build during change freeze);
- Incorporate a change process so that any changes made to the existing system during the change freeze are also incorporated into the scope for the new system;
- The backlog of changes during the change freeze period will lead to substantial changes to the new system, resulting in further delays.
- Every effort should be made to reduce the change freeze period and any prevailing proposals should be dealt with prior to the cut-off time in mid 2009;
- A change freeze period of three years would be unacceptable as the energy market and system change requirements are likely to change considerably in eighteen months, let alone three years;
- Distinguish core modules from non-core modules and, where possible, replace some modules in parallel; these measures may reduce the extent of system affected by change freeze and may reduce the change freeze period.

One respondent supported the need for a change freeze in principle to allow National Grid the opportunity to implement the new system robustly and with minimum risk. This respondent also suggested that National Grid should put a change process in place with its chosen vendor to accommodate critical changes.

National Grid's View:

National Grid acknowledges industry views that a change freeze period of three years is significant as regime changes may be needed during this period. National Grid has reviewed past BSC and other industry modifications since NETA go-live and has found that the vast majority did not involve changes to the BM Systems. Out of the ten modifications that did involve changes to the BM Systems, only three involved changes to the core systems. The remaining seven modifications were essentially interface changes to facilitate greater data reporting and it is a key requirement of the replacement system that any changes to interfaces should be easier to make than is the case at present. It is anticipated that modifications requiring such changes to interfaces would not be subject to a change freeze as they would not significantly increase the costs, timescales or risks associated with the introduction of the replacement system.

National Grid considers that any consequential modifications as a result of implementing P217 (e.g. a move to marginal pricing) would, if they affected the BM Systems at all, fall in the category of interface changes, rather than changes to the core BM Systems.

From the above discussion, National Grid concludes that, providing future market-driven changes are similar to those in the past, very few modifications are likely to be affected by the change freeze.

National Grid anticipates that any proposed market changes during the change freeze period would undergo thorough impact assessment (e.g. costs/benefit and urgency) as these changes could have major implications for BM replacement project costs, delays in delivering the project and impact on the robustness of the new system.

With regard to the BMU registration process, National Grid's considers that a change freeze would not have a significant effect on this process because the

BMU registration information is stored as static (rather than dynamic) data. The new system would be required to maintain this information as static data.

2.1.5 Impact of System Testing (Q10 » 7 responses)

Five respondents commented that the system testing would require a parallel testing environment because of the potential risks of testing in a live environment. One respondent suggested the impact on live operation could be minimised by providing a representative test system, partial end to end tests, operation tests, and system trials. This respondent also commented that a parallel run is very difficult to achieve in practice.

Four respondents considered that system testing could have some or significant impact on their resources and costs.

One respondent stated the need for a detailed dialogue with National Grid on the level and duration of participant testing. This respondent fully supported the robust testing suggested by National Grid as it will provide critical proofing of ability to communicate, manage risks and obligations, and deliver value.

One respondent considered that testing may increase the risk of errors in ECVNA notifications and incoming/outgoing files. This respondent also suggested that the testing should be scheduled at an appropriate time in order to minimise the impact of testing.

National Grid's View:
National Grid acknowledges the potential impact of system testing on market participants' systems and resources. National Grid agrees with the respondents that the system testing details such as the level and duration of participant testing need to be developed and communicated to the market participants in a timely manner. From past experience of major projects such as NETA and BETTA, National Grid is fully aware of the importance of the timely industry communications and close collaboration throughout the testing process. National Grid will provide further details (around mid 2010) well in advance of the system testing which is scheduled for mid 2011.

2.1.6 Impact on Industry Codes (Q11 » 8 responses)

Six respondents agreed with National Grid that Phase 1 is unlikely to have an impact on the industry codes.

One respondent commented that contingency should be build into the project to cater for unexpected developments.

One respondent commented that Phase 1 is more likely to impact the Grid Code than the BSC, and that any impact is likely to depend on the nature of the system that is ultimately procured.

National Grid's View:
National Grid agrees with the majority of the respondents that no impact on industry codes is envisaged as a result of Phase 1 system development. If, during the life of the project, any code changes are identified, National Grid would seek industry support to progress these changes so that the delivery of the new system is not unduly delayed.

2.1.7 Market Information Requirements (Q8 » 5 responses)

The respondents considered that the new system should take into account the following market information requirements:

- Maintain delivery of existing market information;
- Consider solutions to high profile cashout issues such as tagging of constraint costs and treatment of reserve option costs;
- Provide transparency for calculation of system prices;
- Provide better long term plant outage information and better forecasts of demand and system margin;
- Incorporate SONAR into the new system;
- Deliver market information on a single platform, rather than on several websites (i.e. Elexon, SONAR, other National Grid website);
- Provide market information via web services, specifically SOAP over TCP/IP.

National Grid's View:
National Grid agrees with the respondents that the new system should maintain delivery of the existing market information and comply with ongoing requirements such as the tagging of constraint costs for the calculation of system prices. The prompt calculation of system prices is carried out in the BSCCo systems and will not be within the scope of the new BM system. Any

information on the longer term plant outages and demand forecasts (in addition to what is already available) is also unlikely to be within the scope of the new system.

With regard to the provision of market information on a single platform, National Grid refers to the work recently delivered in this area:

i) Ofgem-led Demand Side Working Group;
ii) National Grid's industry consultation on provision of electricity market information[4], published on 1 October 2007;
iii) National Grid's BSC proposals P219 and P220[5] which, following Ofgem approval, were implemented on 6 November 2008.

This above work resulted in close collaboration between Elexon, Logica and National Grid in the delivery of key operational data in one place i.e. a daily summary page on the BMRS. The daily summary page can be viewed on http://www.bmreports.com/bsp/bsp_home.htm. If the industry considers that this area should be explored further, then, in National Grid's view, appropriate routes (e.g. BSC change process) are available for an industry debate on this issue.

2.1.8 Other Technologies and Initiatives (Q7 » 9 responses)

The respondents considered that the new system should take the following into consideration:

- Manage demand side, as well as all forms of generation and new generation technologies;
- Manage stored electric systems which may arise in response to an increase in wind generation;
- Add a system feature to deal with operation below declared SEL (Stable Export Limit);
- Deal with availability of additional GTs (Gas Turbines) in a CCGT (Combine Cycle Gas Turbine) module;

[4] Electricity market information: Consultation on potential developments http://www.nationalgrid.com/uk/Electricity/Data/electricitymarketinfo/information/consultation_report.htm

[5] BSC Modification P219: Consistency between Forecast and Out-turn Demand; BSC Modification P220: Provision of new data items for improving market information

- Build flexibility to quickly deal with more frequent prices changes for balancing services;
- Allow additional dynamic parameter data set for multi shaft BMUs and unlock extra BMU flexibility (e.g. for cascade hydros);
- Facilitate altering ramp rates for first and second GT in a '2+1' CCGT configuration; allow for up to 5 ramp rate configurations;
- Introduce data buffering capability to enable data submissions during system outages and post-outage data processing, as was envisaged pre-NETA;
- The 'EU ADDRESS' research project[6] which aims to develop technologies and processes for, amongst others, innovative use of communications and automation, could be highly relevant to the BM replacement project;
- The technology 'DRBizNet' developed by UISOL[7] and supported by California Automated Demand Response programs focuses on distributed intelligence, and could be relevant to the BM replacement project;
- Introduction of dynamic demand technologies should not be delayed by the changes to the BM system;
- Specify that vendor provided IT platform can easily integrate vendor or National Grid software;
- Specify the system ability to confirm delivery of data over interfaces between the National Grid and market participant systems.

National Grid's View:

The industry responses fall into two broad categories: those that have implications for the codes that govern the operation of the balancing mechanism (e.g. CCGT module configuration) and those that refer to IT system architecture (e.g. IT interfaces).

In the consultation document, National Grid has stated that Phase 1 is intended to deliver the new system within the existing market rules. Consequently, National Grid considers that any changes that have

[6] Link to the recently launched 'EU ADDRESS' project: http://cordis.europa.eu/fetch?CALLER=FP7_PROJ_EN&ACTION=D&DOC=26&CAT=PROJ&QUERY=011b84760a16:3597:1cb872bf&RCN=86701

[7] Link: http://uisol.com/

implications for the codes that govern the operation of the balancing mechanism are best raised and considered in the appropriate industry forums. However, National Grid recognises that the issue of CCGT module configuration needs to be carefully considered and will discuss this potential requirement and IT system capability with the potential vendors; if this system capability is not part of their core systems, it may need to be considered separately (or as part of Phase 2 system development).

With regard to the respondent suggestions on IT system architecture, National Grid will consider these in the SRS.

2.1.9 Other System Development Considerations (Q12 » 5 responses)

The majority of the additional comments on system development considerations focussed on industry interfaces, whilst other comments ranged from effective communications during the life of the project and costs of system development:

- Ensure regular communication with affected parties throughout the duration of the project; ensure industry involvement during any design decisions on any changes to external interfaces;
- Interface functionality should use standard technology suitable for secure and guaranteed data delivery;
- The electronic interfaces should allow changes to the data content without major modifications to the software on either side of the interface;
- Facilitate further electronic data exchange, such as the data associated with availability for FR (Frequency Response), replacing the current voice and fax-based processes;
- Data format changes should be kept to a minimum because any changes to industry bespoke systems will be costly;
- The new system should deliver value for money for both National Grid and the industry, as the industry will be expected to share the procurement costs.

National Grid's View:

National Grid acknowledges industry views on the importance of industry communications and further industry debate on issues (e.g. changes to external interfaces) that could have a more significant impact on the industry.

Where remaining processes still rely on voice communications or exchanging faxes (e.g. fax-based notifications for availability of unsynchronised Gas Turbines), National Grid is keen to move to electronic means of communicating data and will include this in the SRS in order to understand what the vendors can offer.

2.1.10 Benefits of New System (Q13 » 4 responses)

Three respondents cited improvement in resilience and reliability as the key benefit of the new system.

One respondent considered that a reliable system will improve market conditions and encourage competition. This respondent also suggested that greater data transparency will also assist in market competitiveness.

Two respondents also considered the flexibility and affordability to cope with future market changes as a key benefit.

One respondent stated that greater process innovation associated with the new system would be beneficial to the wider market. This respondent also stated that, in the longer term, the ongoing support costs should also reduce.

National Grid's View:
National Grid agrees with the key benefits identified by the respondents and believes that the system resilience and reliability could be a key benefit. Following an independent review (commissioned by National Grid) of the IT systems used by other System Operators around the world, National Grid is reassured that substantial parts of the global best-practice system that it intends to procure will have been in service with a number of other System Operators and, therefore, have a proven track record of resilience and reliability.

The costs associated with IT system support and maintenance will be a key criterion in the procurement of a new IT system. National Grid will have a better understanding of these costs once it has completed the vendor assessment process.

2.1.11 Risks (Q14 » 6 responses)

The respondents identified the following risks with some suggestions for mitigating the risks:

- Risk associated with testing in a live environment (this could be mitigated by extensive testing in a dedicated environment);
- Potential risks associated with AGC and open ended instructions including higher system costs and impact on system security;
- Risk of longer duration outages adversely impacting the transition phase and resulting in high costs to the industry;
- Inability to manage communication between National Grid and Trading and Control Points; this risk could be mitigated by allowing sufficient time for testing a broad range of scenarios and conducting a parallel run;
- High risk of errors associated with data submissions if appropriate data validation checks are not in place;
- A lack of testing infrastructure (e.g. independent testing system) would make modification of the participants' system extremely difficult.

National Grid's View:
National Grid has sought industry input to the BM replacement project at the earliest opportunity so that any issues and risks could be highlighted and any mitigation measures could be put in place at an early stage. National Grid will aim to mitigate any risks that are within its control (e.g. timely communications between National Grid and market participants). The market participants may have their own risk mitigation strategies for risks that are internal to their business (e.g. their own systems dedicated testing environment).

As relevant risks materialise during the life of the BM replacement project, National Grid would work closely with market participants to mitigate these risks and ensure successful delivery of this project which is important to both National Grid and the wider GB market.

2.1.12 Other Comments (Q15 » 4 responses)

One respondent queried whether pure 'off the shelf' systems are available which do not require any customisation.

One respondent commented that the industry needs to be kept informed, and consulted where appropriate, on proposed changes so that any changes required to the market participant systems could be planned and implemented in a timely manner.

One respondent stated that a distinction needs to be made between a reasonable level of system investment to achieve market benefits and the level of investment for National Grid benefit as a commercial enterprise driven by the need to create shareholder value. This respondent stated that, following this consultation process, a clearer and more detailed timetable is needed to discuss these issues.

One respondent suggested that the new system should also consider backfilling of missing data following a system outage, which is currently not feasible due to the large volume of data; this respondent commented that these outages also impact National Grid's internal systems which may miss out essential data during external communications.

National Grid's View:

National Grid concurs with the view that it will not be possible to procure a pure 'off the shelf' package and some customisation will be necessary to accommodate rules specific to the GB market. National Grid will have a better understanding of the required level of any customisation after closer examination of the 'off the shelf' packages during the tender process.

National Grid's views on the importance of communications between National Grid and the industry have been covered in other sections of this document (e.g. sections 3.1.5, 3.1.9, and 3.1.11).

With regard to the benefits of the new system for National Grid and the GB market, National Grid believes that any improved reliability and flexibility is likely to benefit both National Grid and the GB market. Other potential benefits such as despatch efficiency will also be ultimately reflected back to the industry through the System Operator cost efficiencies and the BSUoS[8] charges.

[8] Balancing Services Use of System

National Grid notes the views on buffering data during an outage or backfilling it afterwards. National Grid's view is that the best way to avoid issues associated with system outages is to avoid having outages and where they are unavoidable, to keep their duration as short as possible. National Grid expects that the replacement system should have an unavailability of an order of magnitude less than the current system. National Grid will need to discuss the proposals for buffering or backfilling data with the respondents concerned in order to understand how it might work.

2.2 Industry Responses on Phase 2 System Development

2.2.1 Industry Standards for EDL/EDT Interfaces (Q2 » 8 responses)

Respondents provided the following comments on the future changes to the industry interfaces:

- Any changes to industry interfaces should have minimal impact unless there are justifiable benefits for the industry as a whole;
- Support all existing interfaces in order to minimise industry costs;
- Enforce compliance with industry standards such as EFET[9] eCM[10] and UN/CEFACT[11] ebXML[12] (adopted by ETSO[13]); these standards also encompass generic W3C[14] standards such as XML, WSDL[15] and SOAP[16];
- Use standard interface formats such as the XML standard SOAP which provide strict definitions but also flexibility to alter protocols; this may enable a wide range of Users to interact with the new system and may improve the ability for the BSC Parties and National Grid to make changes to the data flows;

[9] European Federation of Energy Traders
[10] electronic Confirmation Matching
[11] United Nations Centre for Trade Facilitation and Electronic Business
[12] e-business Extensible Markup Language
[13] European Transmission System Operators
[14] World Wide Web Consortium
[15] Web Service Description Language
[16] Simple Object Access Protocol

- Interfaces should move away from proprietary standards and protocols that do not support effective handshaking (e.g. FTP[17]) towards open standards (e.g. web services);
- Incorporate all interfaces; however, this will require careful consideration because of high impact and costs and will require a phased approach;
- Ensure that the new system interfaces are adaptable to the output of 'EU ADDRESS' project which is investigating future standards;
- The new system should remove reliance on faxes;
- Data submissions for target frequency instructions, availability of Frequency Response and reactive power capability should be carried out electronically;
- A new optimisation package should avoid operational staff's subjective preference for a particular technology type but allow manual override;
- The overriding criterion should be efficient operation of the network and any omission of rules in the new system should not require a major system rewrite;
- Improve internal interfaces and hence the accuracy and consistency of data for settlement of ancillary services; provide such data to the industry in a more efficient manner.

National Grid's View:

National Grid acknowledges respondents' initial views that the new system should support all the existing interfaces and also incorporate new interfaces that meet industry standards (e.g. interface standards adopted by ETSO). National Grid will consider respondents' suggestions on a wide range of interface standards in assessing the capability of the new system. Given the high level of industry support for a move to standard interfaces, National Grid may make standard interfaces available sooner if this was considered feasible (as well as supporting the existing interfaces). In National Grid's view, the need to incorporate a wide range of interface standards (particularly those that may not be available in a standard package) will need to be balanced against the cost of delivering them. National Grid will bring forward a separate consultation for any additions to the electronic interfaces.

[17] File Transfer Protocol

2.2.2 Open Despatch Instructions (Q4 » 8 responses)

The majority of the respondents expressed concerns about future deployment of open despatch instructions. These respondents commented that:

- Open instructions would be operationally feasible but commercially problematic unless accompanied by a minimum instruction duration; if such an instruction is closed down very quickly, the affected party could be exposed to financial uncertainty;
- Whilst open instructions may provide further efficiencies for System Operator, careful consideration must be given to the way in which generators wish to operate their plant in order to make the safest and most efficient use of their investments;
- An open instruction may require a maximum time limit in order to ensure closure that National Grid has not simply forgotten to close it down;
- Open instructions may be confusing as no indication would be given of the likely end time of a BOA;
- Open instructions may require changes to the vendor/bespoke systems of BSC Parties;
- The shift from issuing a small number of large volume instructions to a large number of small volume instructions would have a major cost and efficiency impacts on operational staff, instruction handling processes and IT systems;
- Open instructions should retain the flexibility to change bids and offers on a Settlement Period basis in accordance with changes to plant operating parameters which may be necessary where, for example, an open instruction crosses a period of the day with different operating parameters (e.g. two shifting);
- Incorporation of open instructions would require a review of the industry codes with respect to BM processes and settlement arrangements; any code changes will require evaluation by an industry working group and subject to cost benefit analysis;
- More explanation on how open instructions would work is needed.

One respondent queried whether open instructions would emulate long duration PGBTs. This respondent also queried how open instructions would work in the current NETA environment.

One respondent stated that open instructions would have a minimal impact because the current instructions (albeit closed) are also subject to change and/or extension. This respondent added that, with open instructions, the plant dynamics will still need to be adhered to.

One respondent commented that open instructions would suit demand side response from commercial buildings (aggregated across sites) which can be ramped up or down quickly without process impacts.

National Grid's View:
National Grid acknowledges respondents views on the need for setting limits on the use of open instructions, and the potential impact on participant systems and industry codes. National Grid also acknowledges respondents views that the current instructions are also subject to frequent changes (and hence open instructions will have minimal impact) and that the open instructions would suit demand side response.

National Grid recognises that a move to open instruction is potentially a significant change to the market rules and the operation of the GB transmission system. National Grid also agrees with the respondents that this area requires much more industry debate and detailed explanation of open instructions. Whilst National Grid does not intend to implement open instructions in Phase 1, the initial respondent views will be fed into the Phase 1 vendor assessment process in order to enquire availability of this functionality. More detailed discussion and explanation of open instructions will be the subject of a separate consultation which is likely to be due in 2010.

2.2.3 Other Phase 2 Developments (e.g. AGC, wind) (Q5 » 7 responses)

Respondents commented on a number of issues covering renewables, AGC, distributed generation and intelligent demand load:

- The new IT system should have sufficient flexibility and capacity for the next 15 years, particularly for the expected massive increase in renewable generation;
- The system will need to be capable of coping with a varying reserve level (exacerbated by unpredictability of wind) that will be dependent on the generation mix predicted over different timescales;

- Enhanced management of diverse generation mix with greater levels of intermittent and distributed generation seems the right path to explore but would require more detailed proposals in Phase 2 consultation;
- AGC is a fundamental change to the market and would require extensive changes to the Grid Code without providing significant benefits to the market;
- Removing control from power stations could pose risks in terms of personnel safety and damage to turbines; as such, the implementation of AGC would require strict override controls;
- There is a risk of loss of expertise at National Grid if an AGC system is put in place;
- The ability to reject AGC instructions (prior to such instructions automatically entering into the generator's Distributed Control System) would need to be retained by the generators;
- If AGC is intended to remotely control the BMUs, further industry consultation would be required on the technical/system changes and safety and commercial issues;
- AGC would require the ability to submit plant operating parameters that are different from those submitted under the current arrangements; this may be the case where an AGC instruction crosses a period of the day with different operating parameters;
- The industry should be consulted prior to the introduction of any new functionality that may have a direct effect on the operation of the generation assets;
- Detailed consideration of mechanism to accommodate intelligent loads and distributed generation.

National Grid's View:

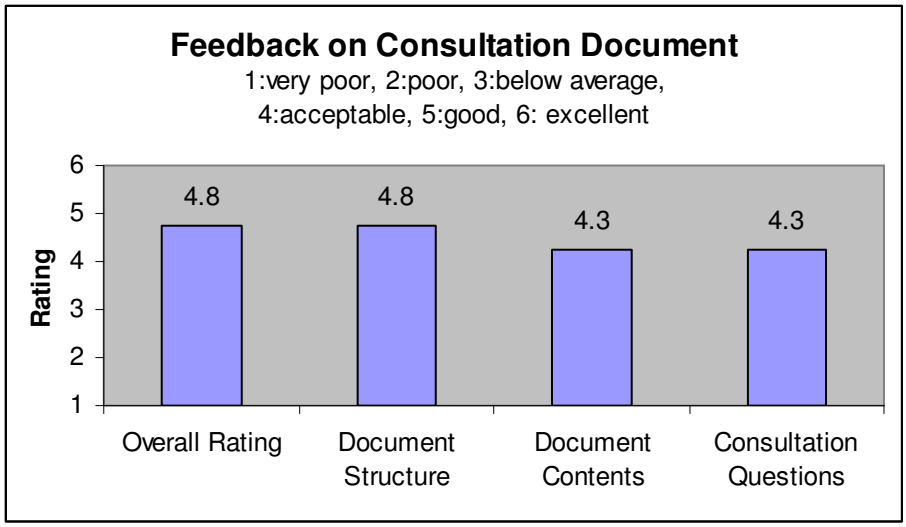
National Grid acknowledges respondents views on the AGC and its potential impact on the plant operation, industry codes and systems. Whilst this area will also be the subject of a separate consultation, National Grid envisages that the AGC will be a commercial ancillary service and it will up to the market participants to assess suitability of their plant and systems for the provision of this service.

National Grid also acknowledges respondents views on other potential Phase 2 developments such as the renewable generation and its impact on reserve requirements, distributed generation and intelligent loads. National Grid will

review these suggestions for assessing the broad capabilities of the new system.

2.3 Industry Feedback on Consultation Document

Four industry respondents provided feedback on the consultation document. The feedback (average rating) is summarised in the diagram below.



The industry feedback shows that the overall rating of the consultation document was 'acceptable to good'. The document structure, document contents, and the consultation questions were also rated as 'acceptable to good'.

Two respondents provided the following additional comments:

- The most useful part of the document was the overview of the IT system. However, more details of the current IT system structure and potential alterations should have been provided;
- The least useful part was the description of open instructions, AGC etc. This respondent stated that, after contacting National Grid, all questions were answered promptly;
- The document was too high level and did not detail on testing, implications to ECVNA system or file flows.

National Grid's View:

National Grid would like to thank the industry respondents who provided very useful feedback on various elements of the consultation document. This feedback would be used to enhance future industry consultations.

3 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 industry responses and National Grid's views can be broadly grouped into two categories:

1. System procurement considerations in Phase 1
2. System enhancement considerations in Phase 2

The following sections outline the proposed way forward for each of the above categories.

3.1 System Procurement Considerations in Phase 1

National Grid will take into consideration the following views in the procurement of the new system:

- Availability of standard interfaces within the new system, including those adopted by ETSO;
- Data validation;
- Disaster Recovery;
- Significant allowance for future growth of market participants (in addition to accommodating the current volume of market participants);
- Requirement to limit the number and effect of instructions produced by the automated despatch process;
- Procurement of a system that delivers value for money (e.g. via robust tendering process);
- Minimising the impact of change freeze by rigorous impact assessment of any regime changes required by the market;
- Requirement to maintain delivery of existing market information and incorporate new requirements (e.g. tagging of constraint costs);

- Minimising voice/fax communications (e.g. for notification of availability of Frequency Response);

The following areas highlighted by the respondents will require further discussion with the market participants (either separately or as part of phase 2 consultation):

- Industry discussion on the impact of more frequent despatch instructions on market participant systems, processes and costs;
- Consideration of any undesirable IT system limitations for the GB market revealed during vendor/system assessment process;
- Recovery of costs incurred by National Grid in the procurement of the new system;
- Development of communication plan detailing the duration, timing and level of system testing by National Grid and market participants (by around mid 2010 for system testing in around mid 2011);
- Consideration of any impact on Industry Codes resulting from implementation of Phase 1 system development;
- data buffering or backfilling of missing data during outages;
- Consideration of the consequential changes resulting from implementation of tagging of constraint costs (i.e. P217).

3.2 System Enhancement Considerations in Phase 2

Following industry responses, National Grid believes that the following areas should be considered in Phase 2 system enhancements:

- Industry discussion on the impact of more frequent despatch instructions on market participant systems, processes and costs;
- Discussion on the merits and implementation of open instructions and AGC (Automatic Generation Control);
- Incorporation and use of standard interfaces for communications between market participant and National Grid systems;
- Electronic communications with demand side;

National Grid believes that the scope of Phase 2 should also include the following issues that have been raised by the industry:

- Additional demand forecasts (may be considered via the normal BSC governance arrangements);

- Provision of market information on a single platform;
- Prompt calculation of system prices;
- Proposals to change the modelling of generating units in the balancing mechanism e.g. CCGT module configuration, operation below SEL.

3.3 Information contact

If you have queries regarding any aspect of this consultation report, please contact:

Shafqat Ali
Senior Commercial Analyst
National Grid House
Gallows Hill
Warwick Technology Park
Warwick
CV34 6DA

Phone: 01926 655980
Mobile: 07879 602814
E-mail: shafqat.r.ali@uk.ngrid.com

Appendix A – Industry Responses

- Demand Logic
- Siemens Energy
- RWE Supply and Trading
- RLtec
- InterGen
- First Hydro Company
- E.ON
- Drax Power Limited
- Scottish and Southern Energy

Appendix 1: Consultation Questions

National Grid invites responses to this consultation by 6 November 2008. 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:	Dan Mauger
Company Name:	Demand Logic
Does this response contain confidential information?	No

No	Question	Response (Y/N)	Rationale
1	*Are there any change drivers that have not been captured in this consultation (section 2.1)?*	Y	a. Massive increase in contribution of intelligent and dynamic loads to enable system balancing and improve forecasting. b. Changing profiles resulting from incorporation of more diverse intelligent/controllable loads and embedded generation types. c. Scalability - the potential for the system to accommodate a very significant growth in participants representing smaller distributed volumes. d. Communications – using embedded, low cost, universal and interoperable communications (retaining resilience and security) to reduce barriers to participation.
2	*Do you have any initial views on which standard industry interfaces (e.g. for EDL/EDT) should be*	Y	It was a little unclear whether this related to the pattern of despatch instructions or the technical implementation (eg

No	Question	Response (Y/N)	Rationale
	supported by the new IT system (section 2.3)?		physical/transport/application protocols). No suggestion is made for the pattern of messages or the transport mechanisms. It is noted, however, that the EU ADDRESS (http://cordis.europa.eu/fetch?CALLER=FP7_PROJ_EN&ACTION=D&DOC=26&CAT=PROJ&QUERY=011b84760a16:3597:1cb872bf&RCN=86701) project is now investigating future standards. It is hoped the system will be adaptable to the output of that project. In broad terms, however, it is felt that XML standards such as SOAP offer a useful combination of capabilities in relation to: ○ defining strict and interoperable interfaces, ○ discovering and learning protocols by client systems ○ providing flexibility to extend or alter protocols.
3	*Do you have any initial views on the benefits arising from more frequent and precise despatch instructions:* *a) For you?* *b) For GB market?* *(section 2.3)*	Y	a. More frequent and precise despatch instructions in regard to ancillary services would benefit us in as far as they can be based on closer to real-time system-wide analysis. The potential demand response contribution from commercial buildings - aggregated across sites - is versatile and can be brought on or off quickly (seconds to minutes). The closer to real-time that the system can make use of notifications of service availability, the greater the potential contribution from commercial buildings. At present, margins of error are significant (eg accounting for weather).

No	Question	Response (Y/N)	Rationale
			This is due to long lead times and notifications of availability to meet current service requirements. b. Demand turndown/turn-up from commercial buildings could also be used by BM participants to balance their own positions and enable them to adapt better to changing system requirements. That knowledge may inform considerations that some BM participants may give to this question.
4	*Do you have any initial views on the benefits arising from open despatch instructions (combined with indicative despatch information):* *a) For you?* *b) For GB market?* *(section 2.3)*	Y	The following is again in regard to despatch instructions for ancillary services. Provided indications of required periods are true indications, an open instruction would suit the contribution from commercial buildings. Again, the potential demand response contribution from commercial buildings - aggregated across sites - is versatile and can be ramped up or down quickly without process impacts (seconds to minutes).
5	*Do you have initial views on any other phase 2 developments which may be beneficial, such as Automatic Generation Control or management of diverse generation mix (section 2.3)?*	Y	We would warmly welcome detailed consideration of mechanisms to accommodate intelligent loads and diverse and distributed forms of embedded generation.
6	*Do the system replacement objectives capture what the new system should aim to achieve (section 3)?*	Y	One additional objective would be scalability to reflect the potential for many more suppliers of ancillary services at lower volumes than those currently allowed.
7	*Are there any other technologies / initiatives that the new system should take into consideration*	Y	a. As mentioned, an apparently highly relevant research project has begun

No	Question	Response (Y/N)	Rationale
	(section 4.2.3)?		in the last few months under the EU ADDRESS project. The aim stated on Cordis is "ADDRESS will research, develop and deploy technologies and processes to increase usage of Distributed Generation and Renewable Energy Resources thereby engaging in a new relationship between customers, generators and network operators. ADDRESS aims to develop new innovative architectures for Active Distribution Networks (ADN) able to balance in real time power generation and demand allowing network operators, consumers, retailers and stakeholders to benefit from the increased flexibility of the entire system. Innovative use of communications, automation and household technologies will be combined with new trading mechanisms and algorithms providing ADN with low cost and reliable solutions." http://cordis.europa.eu/fetch?CALLER=FP7_PROJ_EN&ACTION=D&DOC=26&CAT=PROJ&QUERY=011b84760a16:3597:1cb872bf&RCN=86701 b. In regard to technologies, one has stood out to us with its emphasis on distributed intelligence and support from the Californian Automated Demand Response programs. It is known as DRBizNet and has been developed by UISOL

No	Question	Response (Y/N)	Rationale
			(http://uisol.com/). However, the extent to which the distributed intelligence APIs is closed and proprietary is not clear. While the effort seems sound, our view is that speed and efficiency of developments are best served by competition and that, in turn, is best served by ensuring open standards, interfaces and even open source code.
8	*Do you have any specific market information requirements that the new system should take into consideration (4.2.4)?*	Y	We would welcome a high emphasis on making market information available via web services (specifically SOAP over TCP/IP).
9	*Would a change freeze period of 3 years have a significant impact on the market? If yes, are there any ways to mitigate these impacts? (section 4.4.2)?*	N	
10	*Would testing of the new system have any impact on your systems and processes (section 4.4.3)?*	N	
11	*Do you envisage any impact on the industry Codes (e.g. the BSC) from phase 1 system replacement (section 4.4.4)?*	N	
12	*Are there any other factors that should be considered in the development and implementation of the new system (please provide examples from your experience of the GB electricity market as well as non-electricity markets within or outside of GB (section 4.5)?*	N	
13	*Are there any other benefits of the new system:* *a) To you?*	N	

No	Question	Response (Y/N)	Rationale
	b) To wider market? (section 4.5)?		
14	*Are there any risks of the new system during or post-implementation:* *a) To you?* *b) To wider market? (section 4.5)?*	N	
15	*Are there any other comments that you wish you to make on this consultation?*	N	

Appendix 1: Consultation Questions

National Grid invites responses to this consultation by 6 November 2008. The responses to specific consultation questions (summarised below) or any other aspect of this consultation can be provided by completing the following proforma.

Please complete the form by ticking the appropriate boxes and providing additional comments where appropriate. Please return the completed form to balancingservices@uk.ngrid.com.

Respondent:	Michael McDermott
Company Name:	Siemens Energy. (Siemens Energy is the market leader for supply of EDT and EDL systems for participants, with approx 60% share by volume).
Does this response contain confidential information? If yes, please mark clearly.	No (please do not publish email address on public websites).

No	Question	Response (Y/N)	Rationale
1	*Are there any change drivers that have not been captured in this consultation (section 2.1)?*	N	
2	*Do you have any initial views on which standard industry interfaces (e.g. for EDL/EDT) should be supported by the new IT system (section 2.3)?*	Y	*Interface should move away from proprietary standards (e.g. CTC messaging) and protocols that do not support effective handshaking (e.g. FTP) towards open standards based on modern software and hardware platforms, e.g. web services.* *The most important consideration for the interface is that it is accurately specified, and that this specification is independently reviewed and tested for accuracy and consistency.*
3	*Do you have any initial views on the benefits arising from more frequent and precise despatch instructions:* *a) For you?* *b) For GB market?* *(section 2.3)*	N	*We are a systems supplier and do not participate in market operations*
4	*Do you have any initial views on the benefits arising from open despatch instructions (combined with indicative despatch information):* *a) For you?* *b) For GB market?*	N	*We are a systems supplier and do not participate in market operations*

	(section 2.3)		
5	*Do you have initial views on any other phase 2 developments which may be beneficial, such as Automatic Generation Control or management of diverse generation mix (section 2.3)?*	N	*We are a systems supplier and do not participate in market operations*
6	*Do the system replacement objectives capture what the new system should aim to achieve (section 3)?*	Y	*The objectives are very general, but appear to capture the IT system aspects.*
7	*Are there any other technologies / initiatives that the new system should take into consideration (section 4.2.3)?*	Y	*One aspect of system reliability not mentioned is the ability to confirm delivery of data over interfaces between the BM system and participants, and rectify issues in a timely manner.*
8	*Do you have any specific market information requirements that the new system should take into consideration (4.2.4)?*	N	*We are a systems supplier and do not participate in market operations*
9	*Would a change freeze period of 3 years have a significant impact on the market? If yes, are there any ways to mitigate these impacts? (section 4.4.2)?*		*We are a systems supplier and do not participate in market operations*
10	*Would testing of the new system have any impact on your systems and processes (section 4.4.3)?*	Y	*Testing process should have minimal impact on live operation. This could be achieved by providing an independent but representative test system for Type Approval, partial end to end tests, operation tests, system trials and parallel run. The latter is very difficult to achieve in practice.*
11	*Do you envisage any impact on the industry Codes (e.g. the BSC) from phase 1 system replacement (section 4.4.4)?*	N	
12	*Are there any other factors that should be considered in the development and implementation of the new system (please provide examples from your experience of the GB electricity market as well as non-electricity markets within or outside of GB (section 4.5)?*	Y	***Interface functionality*** *The electronic interfaces between the BM system and participants should use standard technology suitable for secure, guaranteed data delivery.* ***Interface modifications*** *The electronic interfaces should allow changes to the data content to be made without major modifications to the software on each side of the interface.*
13	*Are there any other benefits of the new system:* *a) To you?* *b) To wider market?* *(section 4.5)?*	Y	*b) Potentially more reliable data flows between BM system and participant.*
14	*Are there any risks of the new system during or*	Y	*A lack of testing infrastructure (e.g. independent testing system) would*

	postimplementation: *a) To you?* *b) To wider market?* *(section 4.5)?*		*make modification of the particpants' systems extremely difficult.*
15	*Are there any other comments that* *you wish you to make on this consultation?*	N	

Appendix 1: Consultation Questions

National Grid invites responses to this consultation by 6 November 2008. 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:	Raoul Thulin
Company Name:	RWE Supply and Trading
Does this response contain confidential information?	No

No	Question	Response (Y/N)	Rationale
1	*Are there any change drivers that have not been captured in this consultation (section 2.1)?*	N	
2	*Do you have any initial views on which standard industry interfaces (e.g. for EDL/EDT) should be supported by the new IT system (section 2.3)?*	Y	All current system interfaces should be supported to the extent possible in order to minimise the cost of change implementation to the industry as a whole.
3	*Do you have any initial views on the benefits arising from more frequent and precise despatch instructions:* *a) For you?* *b) For GB market?* *(section 2.3)*	Y	Whilst there may be benefit in terms of economic despatch, the result of such changes may result in individual units being subject to more variable output, which may result in additional costs.
4	*Do you have any initial views on the benefits arising from open despatch instructions (combined with indicative despatch information):* *a) For you?* *b) For GB market?* *(section 2.3)*	Y	There should be minimal impact since although current instructions are 'closed' they are subject to change and/or extension. However, plant dynamics will still need to be adhered to.
5	*Do you have initial views on any other phase 2 developments which may be beneficial, such as*	N	

No	Question	Response (Y/N)	Rationale
	Automatic Generation Control or management of diverse generation mix (section 2.3)?		
6	*Do the system replacement objectives capture what the new system should aim to achieve (section 3)?*	Y	
7	*Are there any other technologies / initiatives that the new system should take into consideration (section 4.2.3)?*	Y	As well as being capable of accommodating new generation technologies, the system should add features to deal with issues such as operation below declared SEL and the availability of additional GTs in CCGT modules. We would also suggest that flexibility is built in to any new systems to deal with more frequent price changes for balancing services such that, in the event of market changes in that direction, the systems are able to accommodate such moves easily and quickly. Also this is a good opportunity to introduce data buffering capability to enable data submitted during outages to be processed post-outage as was envisaged pre-NETA.
8	*Do you have any specific market information requirements that the new system should take into consideration (4.2.4)?*	N	
9	*Would a change freeze period of 3 years have a significant impact on the market? If yes, are there any ways to mitigate these impacts? (section 4.4.2)?*	Y	A three year freeze period is clearly significant and there needs to be some flexibility to deal with critical issues. There will also be a requirement to be able to deal with registration issues such as change of ownership and new-build during this time.
10	*Would testing of the new system have any impact on your systems and processes (section 4.4.3)?*	Y	In particular, the availability of parallel testing environments will be required, which will have associated costs.

No	Question	Response (Y/N)	Rationale
11	*Do you envisage any impact on the industry Codes (e.g. the BSC) from phase 1 system replacement (section 4.4.4)?*	N	
12	*Are there any other factors that should be considered in the development and implementation of the new system (please provide examples from your experience of the GB electricity market as well as non-electricity markets within or outside of GB (section 4.5)?*	N	
13	*Are there any other benefits of the new system:* *a) To you?* *b) To wider market?* *(section 4.5)?*	N	We agree that the intended improvement in resilience and reliability is a key benefit as well as added flexibility to cope with future market changes.
14	*Are there any risks of the new system during or post-implementation:* *a) To you?* *b) To wider market?* *(section 4.5)?*	Y	Clearly the transition will have to be carefully managed in order to minimise outage times and to ensure that the replacement system is as robust as it can be since system failures are very costly to the industry as a whole.
15	*Are there any other comments that you wish you to make on this consultation?*	Y	Throughout the change process the industry needs to be kept informed and consulted where appropriate on planned changes. This is critical so that planning for changes required to parties' systems can be properly carried out and implemented in a timely way.

Appendix 1: Consultation Questions

National Grid invites responses to this consultation by 6 November 2008. 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:	Joe Warren
Company Name:	RLtec
Does this response contain confidential information?	No

No	Question	Response (Y/N)	Rationale
1	*Are there any change drivers that have not been captured in this consultation (section 2.1)?*	Y	The Government's Renewable Strategy White Paper has not yet been published. Any system will clearly need to accommodate the recommendations of this legislation. The requirements for the system cannot be fully drawn up until the strategy has been agreed. Even once the White Paper is completed, there will be ongoing changes to requirements.
2	*Do you have any initial views on which standard industry interfaces (e.g. for EDL/EDT) should be supported by the new IT system (section 2.3)?*		
3	*Do you have any initial views on the benefits arising from more frequent and precise despatch instructions:* *a) For you?* *b) For GB market?* *(section 2.3)*		
4	*Do you have any initial views on the benefits arising from open despatch instructions (combined with indicative despatch information):*		

No	Question	Response (Y/N)	Rationale
	a) For you? *b) For GB market?* *(section 2.3)*		
5	*Do you have initial views on any other phase 2 developments which may be beneficial, such as Automatic Generation Control or management of diverse generation mix (section 2.3)?*		
6	*Do the system replacement objectives capture what the new system should aim to achieve (section 3)?*	Y	See answer to question 1.
7	*Are there any other technologies / initiatives that the new system should take into consideration (section 4.2.3)?*	Y	We agree with your view that the system should take into account Dynamic Demand Technologies. For the avoidance of doubt we do not believe changes to the BM system should delay the introduction of Dynamic Demand.
8	*Do you have any specific market information requirements that the new system should take into consideration (4.2.4)?*		
9	*Would a change freeze period of 3 years have a significant impact on the market? If yes, are there any ways to mitigate these impacts? (section 4.4.2)?*	Y	A change freeze period of 3 years would be unacceptable. The energy market and the requirements for the BM system are likely to change considerably in 18 months, let alone three years. Therefore changes to the system are likely to be required, as are changes to the requirements for any new system. One way to mitigate might be to divide replacement of the system into smaller phases, staggered over time. To what extent can the "core" of the system be separated from the replacement of any other modules? Can any modules be replaced in parallel? This might reduce the length or extent of systems affected by the change freeze.

No	Question	Response (Y/N)	Rationale
			Finally, the impacts of a change freeze could also be mitigated by waiting for the Renewable Strategy white paper to be published.
10	*Would testing of the new system have any impact on your systems and processes (section 4.4.3)?*		
11	*Do you envisage any impact on the industry Codes (e.g. the BSC) from phase 1 system replacement (section 4.4.4)?*		
12	*Are there any other factors that should be considered in the development and implementation of the new system (please provide examples from your experience of the GB electricity market as well as non-electricity markets within or outside of GB (section 4.5)?*		
13	*Are there any other benefits of the new system:* *a) To you?* *b) To wider market?* *(section 4.5)?*		
14	*Are there any risks of the new system during or post-implementation:* *a) To you?* *b) To wider market?* *(section 4.5)?*		
15	*Are there any other comments that you wish you to make on this consultation?*		

Appendix 1: Consultation Questions

National Grid invites responses to this consultation by 6 November 2008. 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:	Lisa Mackay
Company Name:	InterGen
Does this response contain confidential information?	No

No	Question	Response (Y/N)	Rationale
1	*Are there any change drivers that have not been captured in this consultation (section 2.1)?*	N	InterGen believes that the main change drivers have been included. System reliability is key to all market players including InterGen and in order to ensure the reliability and also the accuracy of data provided to industry it is imperative that changes are made if necessary.
2	*Do you have any initial views on which standard industry interfaces (e.g. for EDL/EDT) should be supported by the new IT system (section 2.3)?*	Y	InterGen believes that a transition to a new IT system should include all interfaces. However the impact/cost implications to the industry will be high and will need to be given adequate consideration in the consultation. We believe that a more phased approach will be necessary to overcome the high risk levels involved. InterGen believes the off-the-shelf solution proposed should mean that more cost effective solutions will be in place across the industry.
3	*Do you have any initial views on the benefits arising from more frequent and precise despatch instructions:* *a) For you?* *b) For GB market?* *(section 2.3)*	Y	A. InterGen believes that system issues with more frequent and precise despatch instructions will cause an increase in data processing. We would be concerned about the implications to applications/hardware in addition to extra manpower that may be required to facilitate this at

No	Question	Response (Y/N)	Rationale
			site. B. InterGen believes that in respect to the GB market frequent and precise despatch could lead to better pricing and more accurate system prices.
4	*Do you have any initial views on the benefits arising from open despatch instructions (combined with indicative despatch information):* *a) For you?* *b) For GB market?* *(section 2.3)*	Y	InterGen would require a more detailed explanation on how this would work in practice before we could provide an adequate response. We believe that this would cause issues for InterGen, mainly changes to systems, and calculation methods.
5	*Do you have initial views on any other phase 2 developments which may be beneficial, such as Automatic Generation Control or management of diverse generation mix (section 2.3)?*	Y	InterGen believes that the management of diverse generation is important within the industry and should be considered at this stage in order for renewables etc. to be accounted for and managed effectively. InterGen believe that a change to Automatic Generation control is a fundamental market change, which would require extensive changes to the grid code without providing significant market benefits. In removing control from the power station this poses many issues and risks, especially since this could lead to damage of turbines and/or safety of personnel. If AGC was implemented very strict override controls would need to be put in place.
6	*Do the system replacement objectives capture what the new system should aim to achieve (section 3)?*	Y	InterGen believes that system should also aim to achieve accuracy and measures for data checking processes implemented from the offset. We would also encourage discussion of an appropriate Disaster Recovery

No	Question	Response (Y/N)	Rationale
			strategy.
7	*Are there any other technologies / initiatives that the new system should take into consideration (section 4.2.3)?*	Y	InterGen believes that the BMU 2+1 Configuration CCGT should be accounted for correctly, at the moment NGET are unable to facilitate altering ramp rates for 1GT plus the 2nd GT. Systems should be able to cope with the additional dynamic data required in order to despatch these units more effectively. InterGen also believes that there should be better ramp rates provisions to allow hold points for starts, and more than three elbow/rates to allow for different configurations (suggest up to 5).
8	*Do you have any specific market information requirements that the new system should take into consideration (4.2.4)?*	Y	InterGen believes the new system should be able to provide better long term plant outage information, better demand and margin system forecasting. InterGen would also like more transparency of the complex calculation of System prices.
9	*Would a change freeze period of 3 years have a significant impact on the market? If yes, are there any ways to mitigate these impacts? (section 4.4.2)?*	Y	InterGen believes that a change freeze of this duration will have a high negative impact on the market. The backlog of changes will cause issues once the system is in place and there is a high risk that substantial changes will be required as a result of the new system, therefore resulting in further delays getting these addressed. InterGen believes that in order to mitigate this, every effort should be taken to reduce the freeze period of 3 years and a review of the current high levels of consultations should be undertaken. We would also

No	Question	Response (Y/N)	Rationale
			propose that changes should be encouraged to be dealt with as a matter of urgency leading up to the cut off time in mid 2009. An impact assessment and mitigation plan is required for this.
10	*Would testing of the new system have any impact on your systems and processes (section 4.4.3)?*	Y	InterGen believes that testing would have a great impact as errors may occur with ECVNA notifications or with incoming/outgoing files which could cause system errors and mistakes will not be spotted. This is a high risk for InterGen and would need to be staffed and researched accordingly. Testing should be scheduled at an appropriate time to ensure minimal system impact.
11	*Do you envisage any impact on the industry Codes (e.g. the BSC) from phase 1 system replacement (section 4.4.4)?*	N	
12	*Are there any other factors that should be considered in the development and implementation of the new system (please provide examples from your experience of the GB electricity market as well as non-electricity markets within or outside of GB (section 4.5)?*	Y	InterGen believes that an assessment should be undertaken of existing industry applications used to interact with NGET system. Industry bespoke systems will need to be amended which will be very costly for all participants, data format changes should be kept to a minimum in order for these changes to be limited. An IT industry assessment should be made to ensure focus is left on the vendors to pursue solutions to the issues that will inevitably arise.
13	*Are there any other benefits of the new system:* *a) To you?* *b) To wider market?*	Y	InterGen believes that a more robust and reliable system will improve market conditions and encourage competition as

No	Question	Response (Y/N)	Rationale
	(section 4.5)?		participants will have more confidence in the IT structure. We believe that better data transparency will also assist in the competitiveness of the market.
14	*Are there any risks of the new system during or post-implementation:* *a) To you?* *b) To wider market?* *(section 4.5)?*	Y	InterGen believes that there is a high risk of errors during system implementation and the necessary checks may not all be in place. We believe there may be a downgrade in flexibility due to uncertainty over accuracy of submissions.
15	*Are there any other comments that you wish you to make on this consultation?*	Y	Section 4.1 InterGen believes that system outages should also include the back-fill of historic missing data. Currently this can be unfeasible due to failure of systems to process the large volume of data at once. In addition an NGET outage can cause an internal system issues, and by the time this is resolved, essential data has been missed while broadcast.

Appendix 1: Consultation Questions

National Grid invites responses to this consultation by 6 November 2008. 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
Company Name:	First Hydro Company
Does this response contain confidential information?	No

No	Question	Response (Y/N)	Rationale
1	*Are there any change drivers that have not been captured in this consultation (section 2.1)?*	N	
2	*Do you have any initial views on which standard industry interfaces (e.g. for EDL/EDT) should be supported by the new IT system (section 2.3)?*	Y	If EDT/EDL interface formats are to be reviewed and possibly changed, it would be desirable to use standard interface formats, eg SOAP or XML. This may enable a wider range of end-user system to interact with the BM system (ie not tied down to specific software), and also improve the ability for NGC/BSC Parties to make changes to the data flows/functionality.
3	*Do you have any initial views on the benefits arising from more frequent and precise despatch instructions:* *a) For you?* *b) For GB market?* *(section 2.3)*	Y	More precise despatch instructions (eg BOAIs) would be beneficial for both ourselves and the GB market. However, more frequent instructions could lead to added workload on plant operators, thereby leading to more scope for errors in acceptances/rejections and subsequent despatching of units (for ourselves and GB market).
4	*Do you have any initial views on the benefits arising from open despatch instructions (combined with indicative despatch*	Y	We would be concerned that "open" despatch instructions may be more confusing, eg no indication would be given of the

No	Question	Response (Y/N)	Rationale
	information): *a) For you?* *b) For GB market?* *(section 2.3)*		likely end time of a BOAI. More clarification is required of this proposal. It may require changes to BSC Party internal systems to cope with open instructions.
5	*Do you have initial views on any other phase 2 developments which may be beneficial, such as Automatic Generation Control or management of diverse generation mix (section 2.3)?*	Y	If AGC means changes to NGC's internal systems on the way that it generates BOAIs to send to BSC Parties / plant, then we have no comments. However, if AGC implies that NGC may "remotely control" BMUs, then this is a significant change that would require further industry consultation (eg technical/system changes, safety and commercial issues).
6	*Do the system replacement objectives capture what the new system should aim to achieve (section 3)?*	Y	
7	*Are there any other technologies / initiatives that the new system should take into consideration (section 4.2.3)?*	N	
8	*Do you have any specific market information requirements that the new system should take into consideration (4.2.4)?*	N	
9	*Would a change freeze period of 3 years have a significant impact on the market? If yes, are there any ways to mitigate these impacts? (section 4.4.2)?*	Y	We suggest that a 3 year freeze on system changes could be problematic for BSC parties. Is there a way to incorporate a Change process in Phase 1 so that any changes made to existing systems are also incorporated into the scope for Phase 1 deliverables?
10	*Would testing of the new system have any impact on your systems and processes (section 4.4.3)?*	Y	If there are any changes to the EDT/EDL interface flows, the impact on our internal systems and processes could be quite significant, both in terms of making the changes and in performing the necessary testing. Similarly, even if the changes are

No	Question	Response (Y/N)	Rationale
			internal to NGC's BM system, we anticipate that there would still be significant market participant testing required (eg mandatory testing) and so a significant impact on our own resource time and effort.
11	*Do you envisage any impact on the industry Codes (e.g. the BSC) from phase 1 system replacement (section 4.4.4)?*		
12	*Are there any other factors that should be considered in the development and implementation of the new system (please provide examples from your experience of the GB electricity market as well as non-electricity markets within or outside of GB (section 4.5)?*	Y	Ensure regular communication with affected parties through project. Ensure that affected parties have enough consultation and involvement in design decisions on any changes to external interfaces (eg EDL/EDT).
13	*Are there any other benefits of the new system:* *a) To you?* *b) To wider market?* *(section 4.5)?*	N	
14	*Are there any risks of the new system during or post-implementation:* *a) To you?* *b) To wider market?* *(section 4.5)?*		
15	*Are there any other comments that you wish you to make on this consultation?*	N	

Appendix 2: Feedback

National Grid would welcome any feedback on this consultation document or any other aspect of the consultation process.

Please complete the form by ticking the appropriate boxes and providing additional comments where appropriate. Please return the completed form to balancingservices@uk.ngrid.com.

Respondent:	Kevin Kennedy
Company Name:	First Hydro Company
Does this response contain confidential information? If yes, please mark clearly.	No

(1) very poor (2) poor (3) below average (4) acceptable (5) good (6) excellent							
		1	**2**	**3**	**4**	**5**	**6**
(a)	How would you rate the consultation document overall?					X	
(b)	How well was the document structured?					X	
(c)	How clear were the contents of the document?				X		
(d)	How appropriate were the consultation questions?					X	

Which parts of the document did you find most useful?

Which parts of the document did you find least useful?

Please provide any additional comments that may assist future consultations.
Some ambiguity in certain areas, eg AGC, open instructions – may need further explanation/clarification.

Shafqat Ali
NGT House
Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA

E.ON UK plc
Westwood Way
Westwood Business Park
Coventry
CV4 8LG
eon-uk.com

Paul Jones
024 76 183 383

paul.jones@eon-uk.com

7 November, 2008

Dear Shafqat,

BM System Replacement – Industry Consultation

Thank you for the opportunity to respond to the above consultation. This response is made on behalf of E.ON UK plc.

Q1. Are there any change drivers that have not been captured in this consultation?
Q2. Do you have any initial views on which standard industry interfaces (e.g. for EDL/EDT) should be supported by the new IT system?

Any changes NGT make should seek to have a minimal impact on the industry, unless there is a mutual benefit within the industry that justifies such changes. We would be very concerned about too big a change on either EDT or EDL unless justified to meet a demonstrable industry need. The design of the new system should seek to remove any ongoing reliance on the use of faxes. Information flows between NGT and participants such as the issuing of instructions should be carried out electronically. In particular, Target Frequency instructions, Frequency Response availability submissions and MVAr capability submissions should be carried out electronically.

Any new optimisation package should include some risk parameters that ensure that sufficient reserve is carried in order to avoid, for instance, a subjective preference by operational staff for a particular technology type. However, this should be balanced against the needs to operate the network efficiently so that if a rule is omitted, or a mistake is made, it doesn't require a major system rewrite to correct it.

Q3. Do you have any initial views on the benefits arising from more frequent and precise despatch instructions?

Any change to the system in this respect needs to be made with consideration of the practicalities of any instructions being physically put into action at a power station. If there are too many instructions this would be a serious concern to us. There needs to be a limit to the frequency of instructions, a minimum duration of instructed load and a restriction on receiving an instruction during a ramp, which could possibly reverse its direction. Constraints are likely to be required on grounds of practicality, cost and safety. There should also be a minimum limit to the size of any instruction, possibly based on the frequency response matrix i.e. the SO should not instruct small frequent load changes which could be provided by frequency response. Similarly, an increase in the frequency of instructions will have an effect on the ability of a participant to settle the financial implications.

Q4. Do you have any initial views on the benefits arising from open despatch instructions (combined with indicative despatch information)?

We could cope operationally with “open instructions”, but these could prove commercially problematic for generators unless they are accompanied by a minimum instruction period that is agreed in advance with the industry. If a generator receives an instruction that is open ended there is a risk that it could also be closed down very quickly, which gives huge financial uncertainty for the party concerned. There may also be a requirement for a maximum time limit which could be applied to ensure that NGT had not simply forgotten to close the relevant instruction down.

Q5. Do you have initial views on any other phase 2 developments which may be beneficial, such as Automatic Generation Control or management of diverse generation mix?

The system should have sufficient flexibility and capacity for next 15 years. In particular it should be able to cope with the expected massive increase in renewable generation. This time period is likely to be one of enormous change not least due to the amount of intermittent generation that will connect to the transmission network. The system therefore will need to be capable of coping with a varying reserve level that will be dependent on the generation mix predicted over different timescales.

Q6. Do the system replacement objectives capture what the new system should aim to achieve

Yes, broadly. The aim should be to make the system more secure and stable than at present. NGTs system came to near collapse at the start of NETA due to being flooded with data which it could not handle at a sufficiently quick speed. The new system must be able to cope with high volumes and at frequent intervals and for longer lengths than current system, without falling over or falling outside of “quick” modern standards for data communication.

Q7. Are there any other technologies / initiatives that the new system should take into consideration?

The system should be capable of coping with demand side management as well as all the forms of generation specified and probably should also allow for stored electric systems which may arise in response to the increase in wind generation.

Q8. Do you have any specific market information requirements that the new system should take into consideration?

Besides not losing any of the current information flows, the industry has stated before that its desire is to have a single data source, i.e. not having some data flowing from Elexon, some from Sonar and some from the NGT website. The overriding principle should be to have a single source of data.

Q9. Would a BM change freeze period of 3 years have a significant impact on the market? If yes, are there any ways to mitigate these impacts?

A period of no change may be a useful thing for the market, however in practice a 3 year freeze on changes would not be possible as it would require a moratorium on new modification proposals – something that Ofgem would be unlikely to agree to. One specific concern would be that there may well be a requirement for a number of consequential modifications to cope with any consequences of implementing P217. Furthermore, for any change freeze to work it would have to apply across all market arrangements and equally to market participants and National Grid.

Q10. Would testing of the new system have any impact on your systems and processes?

Any testing of the proposed system must be carried out in a totally separate environment. We cannot even envisage doing anything else. The consequences of testing on the live system could be enormous.

Q11. Do you envisage any impact on the industry Codes (e.g. the BSC) from phase 1 system replacement?

Any impact on the Balancing and Settlement Code or more likely the Grid Code will depend on the nature of the system that is ultimately procured.

Q12. Are there any other factors that should be considered in the development and implementation of the new system (please provide examples from your experience of the GB electricity market as well as non-electricity markets within or outside of GB)?

No further comments other than outlined above.

Q13. Are there any other benefits of the new system?

No further comments other than outlined above.

Q14. Are there any risks of the new system during or post-implementation?

There are always risks associated with implementing a new system covering such an important area of operation. This is why extensive testing in a dedicated environment is essential.

I hope the above comments prove helpful.

Yours sincerely

Paul Jones
Trading Arrangements

Drax Power Station • PO Box 3 • Selby • North Yorkshire • YO8 8PQ • T. +44 (0)1757 618381 • F. +44 (0)1757 618504

Balancing Services
NGT House
Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA

6th November 2008

Dear Sir/Madam,

Industry Consultation on the Balancing Mechanism System Replacement

Drax Power Limited is the operating subsidiary of Drax Group plc and the owner and operator of Drax Power Station in North Yorkshire. We are pleased to have an opportunity to respond to the industry consultation regarding the BM System Replacement.

Drax recognises the need to ensure that the Balancing Mechanism (BM) system remains reliable and adaptable to future change. The BM has been subject to a number of changes since the beginning of NETA, which has resulted in an increasingly complex system. Given the challenges that National Grid faces as the industry aims to meet the Government's renewables targets for 2020, it is important to ensure that the equipment and software used to facilitate the BM remains fit for purpose. Drax agrees that it seems sensible to review the BM system and prepare for the challenges ahead.

Phase 1

Drax broadly agrees with the approach that National Grid has detailed for Phase 1 of the BM system replacement. With regards to the instructions sent by National Grid to system users, it does not appear that the Phase 1 work will affect the current interfaces. Therefore, the Phase 1 upgrade work should not materially impact our operations.

However, we wish to raise a query regarding the potential adoption of "more automated" despatch processes during Phase 1 (as mentioned in section 2.3). Drax would like further clarification on the potential effects of adopting such processes and would like to raise the following questions:

1. What quantitative analysis has National Grid performed to establish the potential effect of adopting more automated despatch processes (such as the potential percentage increase in the volume of instructions received by generators)?

2. If no analysis has been performed, what plans are in place to (a) perform such analysis and (b) consult the industry, prior to implementing such automated processes?

Once such analysis has been performed, it will become more clear as to how individual parties may be affected if the new functionality is adopted upon completion of the Phase 1 work.

Phase 2

Again, Drax broadly agrees with the approach that National Grid details, in terms of holding a separate Phase 2 consultation prior to implementing any changes. However, at this stage, we have some general concerns regarding the use of open despatch instructions and Automatic Generation Control (AGC).

Drax envisages that in order to make use of open despatch instructions and AGC, generators would need to be able to submit different plant operating parameters to those submitted under the current arrangements; for example, open despatch instructions may cross a period of the day where the operating parameters of a plant change from one period to the next. Whilst open despatch instructions and AGC may provide further efficiencies for the System Operator, careful consideration must be given to the way in which generators wish to operate their plant, in order to make the safest and most efficient use of their investments.

Further to the above, National Grid will need to review the BM processes and settlement arrangements contained within the industry codes, in order to advise industry participants of any required changes in order to proceed with Phase 2. Changes to the codes will require code amendments, with any such changes being evaluated by an industry working group and subject to cost benefit analysis.

Overall, it is important that the industry is kept informed of the progress of the upgrade work and that the industry is consulted prior to any new functionality being introduced that may have a direct effect on the operation of generation assets. We look forward to reviewing the Phase 2 consultation in due course.

If you have any queries regarding the comments in this response, please feel free to contact me.

Yours faithfully,

Stuart Cotten

Regulation
Drax Power Limited

Appendix 1: Consultation Questions

National Grid invites responses to this consultation by 6 November 2008. 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:	Andrew Colley
Company Name:	Scottish and Southern Energy plc
Does this response contain confidential information?	No

No	Question	Response (Y/N)	Rationale
1	*Are there any change drivers that have not been captured in this consultation (section 2.1)?*	N	Our key concerns and issues appear to have been captured.
2	*Do you have any initial views on which standard industry interfaces (e.g. for EDL/EDT) should be supported by the new IT system (section 2.3)?*	Y	We would agree that the interfaces described in 2.2.3 should be supported as a minimum. To the extent that the BM system directly interface with NGET's back office and billing systems (not clear from the context diagram) we also believe that there is an opportunity to improve the accuracy and consistency of information utilised for settlement of ancillary services. At the same time an opportunity arises to provide such data to industry in a more efficient manner.
3	*Do you have any initial views on the benefits arising from more frequent and precise despatch instructions:* *a) For you?* *b) For GB market?* *(section 2.3)*	Y	Whilst we can see the obvious benefits for SO efficiency and therefore balancing cost reflected back to industry, this must be balanced with the increased cost to participants that would be likely to arise through having to handle increased numbers of instructions for small incremental/decremental

No	Question	Response (Y/N)	Rationale
			volumes. A layer of control still needs to be retained at Trading and Control points, which would result in increased costs and inefficiency to industry were despatch instructions to increase significantly. Much more debate and information is required as to how this would work in practice before SSE could support this initiative, there is a danger that it could prove counter-productive.
4	*Do you have any initial views on the benefits arising from open despatch instructions (combined with indicative despatch information):* *a) For you?* *b) For GB market?* *(section 2.3)*	Y	Similarly to point 3 above, whilst we see obvious benefits for NGET as SO in moving from closed to open despatch instructions, we are very concerned about the practical impact of this. We assume the impact will be a resulting shift from issuing a small number of large volume instructions to a large number of small volume instructions. Given the large number of BM Units managed by SSE, such a change would have major cost and efficiency impacts upon our operational desks. There would also be an impact upon our I.T systems, which would currently automatically close an open instruction and return the unit to PN within a very short period of time (under the assumption that an open instruction was issued in error). We would need to make changes to handle open instructions with a process to close them prior to real time.
5	*Do you have initial views on any other phase 2 developments which may be beneficial, such as Automatic Generation Control or management of diverse generation mix (section 2.3)?*	N	We would need much more information and dialogue on the level and extent of change and how new processes would work in practice before taking a view on whether there would be a benefit. In principle enhanced

No	Question	Response (Y/N)	Rationale
			management of a diverse generation mix, capable of contending with greater levels of intermittent and distributed generation, seems the right path to explore, but the devil lies in the detail. We will therefore defer our view in anticipation of more detailed proposals within the Phase II consultation.
6	*Do the system replacement objectives capture what the new system should aim to achieve (section 3)?*	N	We would suggest that ensuring that the system delivers value for money is a key consideration, particularly if NGET expect any degree of cost recovery from industry.
7	*Are there any other technologies / initiatives that the new system should take into consideration (section 4.2.3)?*	Y	We would also suggest that redevelopment of the system provides a perfect opportunity to review the dynamic parameter data set associated with multi-shaft BM Units. The ability to provide additional dynamics for multi-shaft technologies could assist NGET's ability to balance by unlocking extra BMU flexibility for cascade hydros, as an example.
8	*Do you have any specific market information requirements that the new system should take into consideration (4.2.4)?*	Y	Lengthy debate has taken place within industry since the introduction of NETA (and even more so since BETTA), regarding the rules and imperfections associated with the derivation of energy imbalance cashout prices. It would be helpful in consideration of system requirements, if NGET could consider solutions to some of these high profile issues (e.g. constraint cost tagging and treatment of reserve option costs).
9	*Would a change freeze period of 3 years have a significant impact on the market? If yes, are there any*	Y	It is assumed that NGET are suggesting a change freeze on the system under development as opposed to current operational

No	Question	Response (Y/N)	Rationale
	ways to mitigate these impacts? (section 4.4.2)?		systems. With this assumption in mind, we support the need for a change freeze in principle to allow NGET the opportunity to implement the new system robustly and with minimum risk, and avoid the need to manage non-essential change at critical times. We would however suggest that NGET considers the need that critical change will have to still be accommodated throughout the project life cycle and to put in place a process with its chosen vendor to support this.
10	*Would testing of the new system have any impact on your systems and processes (section 4.4.3)?*	Y	We will need to establish appropriate test environments and commit resources to participate in testing/parallel run. We would expect a detailed dialogue with NGET on the level and duration of participation within testing/parallel run processes to minimise the burden upon us. Having said the above, SSE fully support the robust testing approach suggested and will participate as best we can, as it will provide a critical proofing of maintained ability to communicate, manage risks and obligations and deliver value.
11	*Do you envisage any impact on the industry Codes (e.g. the BSC) from phase 1 system replacement (section 4.4.4)?*	N	Not given the scope, but one should be mindful of the possibility of issues arising from testing that drive change, so sufficient contigency should be built into the project plan to cater for the unexpected.
12	*Are there any other factors that should be considered in the development and implementation of the new system (please provide*	Y	Cost – to the extent that industry will be expected to foot part of the costs of procurement, it should be carefully noted that the system should deliver value for

No	Question	Response (Y/N)	Rationale
	examples from your experience of the GB electricity market as well as non-electricity markets within or outside of GB (section 4.5)?		money, for both NGET and industry.
13	*Are there any other benefits of the new system:* *a) To you?* *b) To wider market?* *(section 4.5)?*	Y	It is beneficial to all to achieve greater system resilience and reliability, more flexible and affordable change and greater process innovation, which over the long-term should reduce ongoing support costs relative to today.
14	*Are there any risks of the new system during or post-implementation:* *a) To you?* *b) To wider market?* *(section 4.5)?*	Y	The critical risk remains the inability to be able to manage key communications between NGET and our Trading and Control points. Allowing sufficient testing time to ensure that a broad range of scenarios are tested and conducting a parallel run should mitigate these risks.
15	*Are there any other comments that you wish you to make on this consultation?*	Y	To the extent that NGET expect a cost recovery on the system procurement from industry, then it needs to be made clear what the costs are at the earliest opportunity and how any recovery mechanism would work. At the same time, a debate needs to take place as to what represents a reasonable level of investment in the systems by industry to achieve key market benefits, and what represents a reasonable investment by NGET as a commercial enterprise looking to establish a competitive advantage in the provision of SO services (given that NG plc. are a commercial entity, driven by the need to create shareholder value). Greater clarity is required on the next steps following the consultation closure, and the timetable that will be adhered to.

No	Question	Response (Y/N)	Rationale
			There is no obvious point at which NGET engage industry in a more detailed dialogue should substantial issues be raised (such as cost revovery). We would welcome and clearer and more detailed timetable on how issues will be addressed and taken forward.