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Dear Colleague

A fundamental review of the Great Britain Security and Quality of Supply Standard

The Great Britain Security and Quality of Supply Standard (GB SQSS) Review Group is responsible for ensuring that the GB SQSS is kept up-to-date and relevant as the energy industry develops and technology advances. The GB SQSS Review Group (The Review Group) initiates reviews of the GB SQSS, considers requests for reviews and conducts industry consultations on proposed amendments. The Review Group is also responsible for recommending changes or amendments to the GB SQSS to Ofgem for approval.

The Energy industry is actively seeking solutions to integrate new generation technologies such as wind generation into the electricity networks. Consequently, a wide range of initiatives are under consideration, ranging from review of transmission access and commercial frameworks to a number of security standard reviews. In addition to the review areas identified by The Review Group, the Transmission System Operation Review Group (TSORG) identified a number of issues to be reviewed.

Given the pivotal role played by the GB SQSS in facilitating demand and generation connection and efficient market operation, The Review Group is proposing to carry out a holistic and coordinated review of the GB SQSS to ensure it remains a robust standard and is able to support the integration of new generation technologies into the electricity networks. Such a review will also ensure that there is a transparent basis for transmission investment in the GB electricity market and that this is coordinated with other changes to the commercial frameworks. This review builds upon the GB SQSS review work already in progress.

The review will incorporate appropriate individual GB SQSS reviews and consider interdependencies with Transmission Access Review and other relevant reviews. Where the individual reviews are already at an advanced stage, the review will seek to use the findings in the context of the wider review objectives.

Two reviews of the GB SQSS are currently in consultation (Review for Onshore Intermittent Generation (GSR001) and Housekeeping (GSR002)) and the Review of Generation Connection (GSR003) is at an advanced stage. The Review Group is proposing to incorporate GSR001 conclusions whilst taking the opportunity to give further consideration to

the range of questions raised in response to our initial consultation in this wider review. In the meantime, the Transmission Licensees will continue using the current methodology based on 60% scaling factor for wind generation in the GB SQSS until the wider review has been completed. The outcome from GSR002 will be incorporated at the GB SQSS redrafting stage. The GSR003 working group will continue its review work on generation connection.

The Review Group has drafted the terms of reference for the review (attached) and is seeking comments and expression of interest from industry stake holders (Generators, Distribution Network Owners, industry groups, developers, Universities and other interested parties) by 26 August 2008. The Review Group is committed to engage industry in an open and inclusive manner in order to ensure that all the relevant areas of the security standard are duly considered in this review.

If you require further information or have any queries on the issues raised in this letter, please do not hesitate to contact me.

Yours faithfully

A handwritten signature in black ink, appearing to read "Edgar Goddard". The signature is fluid and cursive, with a distinct initial "E" and a long, sweeping tail.

Edgar Goddard
Chairman, GB SQSS Review Group

GB SQSS Review Terms of Reference

– GB SQSS Review Group –
24 June 2008

Purpose of Review

The purpose of the review is to take a coordinated approach to the Great Britain Security and Quality of Supply Standard (GB SQSS) in light of GB SQSS reviews currently underway and the interdependencies with other reviews currently being progressed. This forms part of the wider industry initiatives to support the government's renewable and carbon reduction targets.

There is significant activity in the electricity industry on how to integrate new generation technologies into the transmission and distribution networks in an economic and efficient manner. In addition to the review areas identified by the GB SQSS Review Group (The Review Group), the Transmission System Operation Review Group (TSORG) identified a number of areas where the GB SQSS should be reviewed. Since the creation of the GB SQSS governance arrangements in May 2007, The Review Group has officially received seven review requests (Appendix 1 refers). Of these, four are in progress and three have hardly commenced. Additionally, there are eight review areas identified for GB SQSS review (Appendix 2 refers). There are also other industry reviews currently in progress (notably the Transmission Access Review) which have a significant impact on the GB SQSS. Given the pivotal role played by the GB SQSS in facilitating demand and generation connection and efficient market operation, it is now appropriate to undertake a more fundamental and coordinated review of the GB SQSS and redraft it where appropriate.

Given the number of GB SQSS reviews in hand and the impact of other reviews relating to the GB SQSS, a piece wise review would be too resource intensive and may not work effectively as a result. In recognition of this, The Review Group has proposed to undertake a fundamental and coordinated review of the GB SQSS, taking account of all the relevant issues and culminating in the redrafting of the GB SQSS.

Objectives of the Review

This review aims to develop a GB SQSS which provides the basis for design of a transmission network which facilitates future requirements whilst retaining required levels of security. The review will amalgamate appropriate individual GB SQSS reviews and consider interdependencies with other reviews. Where the individual reviews are already at an advanced stage (e.g. GSR001 – GSR003), this review will seek to tap into the findings thereof in the context of the wider objectives considered here. For those individual reviews that have just commenced or made little progress, the review will seek to merge these where appropriate. The objectives of the review are as follows:

1. Amalgamation of appropriate existing reviews listed in Appendix 1;
2. Close coordination of existing reviews and a coordinated uptake of potential reviews listed in Appendix 2;
3. Incorporation of the Offshore GB SQSS regime (to build upon the outcome of the ongoing consultation on the development of the Offshore security standard);
4. Address recommendations made by the TSORG review with respect to the GB SQSS.

5. Address dependencies with the Transmission Access Review (The objective is to provide clarity on the relationship between transmission access requirements and capacity requirements in a transparent manner) and other relevant reviews;
6. Redrafting the GB SQSS as appropriate.

Background

History

The GB SQSS has its roots in the 1940s and has evolved from a suite of six individual standards which concerned: the design of generation connections (PLM-SP-1); the design of the supergrid transmission network (PLM-SP-2); criteria for system transient stability studies (PLM-ST-4); voltage criteria for the design of the 400kV and 275kV supergrid system (PLM-ST-9); the design of demand connections (ER P2/5); and the operational standards of security of supply (OM3). At vesting in March 1990, these standards were inherited by National Grid and were lodged with the then Office of Electricity Regulation (Offer subsequently Ofgem) in accordance with Condition 12 of National Grid's Transmission Licence and became commonly known and referred to as the License Standards.

The standards were written as separate, relatively independent, guidance notes for engineers. Their use by National Grid identified a number of areas of ambiguity and inconsistencies both within and between the standards. A Review of Security Standards (RSS) was initiated by National Grid following a formal request by Offer (now Ofgem) in 1992. The review concluded in 1996 when Offer requested National Grid to update the standards and in so doing maintain the principles of the original License Standards except as modified by the RSS (e.g. in respect of customer choice and the greater use of operational flexibility). In meeting Offer's request, National Grid took the opportunity to combine all the standards into a single document referred to as the NGC System Security and Quality of Supply Standard (NGC SQSS). The previous six standards ceased to have effect from November 2000 when the new NGC SQSS came into force around the time when the New Electricity Trading Arrangements (NETA) came into force. However, in Scotland the transmission licensees had a different set of transmission planning and operational standards such as NSP 366, OM3 and GCI B1 and these were not part of the RSS undertaken by NGC. Consequently, the Scottish transmission licensees continued to apply these standards until the introduction of the GB SQSS

In 2003, in preparation for the introduction of the British Electricity Trading and Transmission Arrangements (BETTA), Ofgem requested that National Grid (as GBSO designate) and the three GB transmission owners (i.e. NGC, SHETL and SPT) harmonise the standard, as far as practical, while still retaining the principles of the NGC SQSS and without altering the underlying security of the system or incurring significant infrastructure expenditure. With the introduction of BETTA on 1st April 2005 and the new standard, referred to as the Great Britain Security and Quality of Supply Standard (GB SQSS) replaced the previous standards used by the three GB transmission owners (including the NGC SQSS).

Recent and Current Developments

The GB SQSS sets out criteria for both planning and operating the onshore transmission system and is used by each of the three GB transmission licensees. The standard was established for a power system predominantly supplied by conventional generation and has provided the basis for the development of an economic and efficient transmission system over the years. However, the amount of renewable generation (particularly wind generation) connecting to the onshore transmission system is increasing as a consequence of the government's aspirations to reduce greenhouse gas emissions from electricity generation.

Advances in generation technologies have seen large generating sets (1500MW and above) become viable in recent years. The GB SQSS planning and operational criteria and methodologies were not designed for such large single units. Therefore the change in generation technologies has two modes, namely the increase in variable generation and the prospect of larger units than previously foreseen. This potential shift in generation mix presents new challenges both in operational and in planning timescales to ensure continued development of an economic and efficient transmission system.

At the same time, transmission technologies and system operation tools have also been advancing. Offshore networks connecting offshore power stations to onshore networks are emerging. Such networks of 132kV and above will be classified as offshore transmission systems and will form part of the overall GB transmission system (i.e. onshore and offshore). Offshore transmission systems differ from the onshore transmission system in a number of respects, e.g. there is no non-power station consumer demand offshore and they are likely to be predominantly radial in nature. Onshore, the increase in embedded generation has an impact on the power flows on the transmission system. Additionally, recent extreme weather patterns, and threats from terrorist activities have prompted serious concerns on security of electricity supplies. Above all, the commercial environment in which the system is operated has changed dramatically and a number of transmission access frameworks are currently being debated. It is clear that a considerable number of issues need to be considered in order that the GB SQSS may continue to deliver an efficient transmission system.

The GB SQSS Review Group

In recognition of the extent of the challenges facing the electricity supply industry, the incumbent onshore transmission licensees (i.e. NGET, SHETL and SPT) formed the GB SQSS Review Group, which is charged with the responsibility of ensuring that the GB SQSS is kept up-to-date with changes within the electricity supply industry and with technological advances. The Review Group considers requests to review the GB SQSS and facilitates industry consultations on proposed amendments. The Group is also responsible for recommending the changes or amendments to Ofgem for approval.

Scope of Review

This review does not seek to repeat work that has already been done. It will build upon completed works; consider the outcomes from work in progress; and take up some issues already earmarked for review. The horizon for this overall review extends to year 2020 and beyond and will consider the following:

1. Generation connection:
 - a. Incorporation of large generating sets (infeed loss limits and reserve requirements);
 - b. Flexibility in generation connection options;
 - c. Customer choice;
 - d. Substation design to accommodate 'TEC' trading.
 - e. Cost Benefit approach to connect generation.

2. Demand connection:
 - a. Clarity on how much demand can be lost;
 - b. Clarity on tripping of interconnectors.
 - c. *Resolution of discrepancies between Section 3 of the GB SQSS and ER P2/6;*
 - d. *Clarity on demand transfer capabilities.*

(The last two could be covered outside this review as OFGEM is considering a review of ER P2/6.)

3. Main interconnected transmission system

- a. International Benchmarking;
 - b. Minimum deterministic criteria to provide a backstop on transmission capacity requirements based on security criteria;
 - c. Additional capacity requirement to facilitate market operation over and above that determined in (b) above – based on appropriate market signals (i.e interaction with access arrangements)
 - d. Cost benefit approach and its appropriate proxies ;
 - e. Clarity on use of Registered Capacity and TEC;
 - f. Use of intertrips;
 - g. Review of possible relaxation of N-2/N-1/N-D criteria;
 - h. Review of treatment of intermittent generation;
 - i. Review of voltage and stability criteria;
 - j. Review of treatment of generation reserve in planning timescales.
 - k. Review of switch faults and consideration of interaction of local and wider generation loss.
4. Incorporation of Offshore GB SQSS work;
 - a. Impact of offshore transmission systems on the onshore transmission system.
 - b. Unifying offshore and onshore GB SQSS work.
 5. Identification of interdependencies between the GB SQSS and other industry codes and reviews.
 6. Redrafting of the GB SQSS

Out of Scope

Reviews for which working groups have been nominated and have started work will not be disrupted. These will continue under their current terms of reference. The review will seek to apply the findings of those reviews in the light of the wider objectives. For the avoidance of doubt, the reviews that will not form part of this exercise are:

1. Review for Onshore Intermittent Generation (GSR001). This review has reached an advanced stage. A number of the responses to the January 2008 consultation on the GB SQSS expressed concern over the impact of the ongoing Transmission Access Review and related work on the GB SQSS. The Review Group will consider the conclusions from GSR001 in this wider review while taking the opportunity to give further consideration to the range of questions raised in response to the initial consultation. Meanwhile, the Transmission Licensees will continue using the current methodology based on 60% scaling factor for wind generation in the GB SQSS until the wider review has been completed.
2. Housekeeping review (GSR002). Will be concluded as part of an independent review and incorporated into the wider review at drafting stage.
3. Review of 'Design of Generation Connections' (GSR003). To the extent covered by its terms of reference, this work will not be repeated. Aspects of generation connection design not covered in the terms of reference of the review may be reviewed as appropriate. The outcome from this review will be considered in the drafting of the standard.

Deliverables

1. Terms of reference;
2. Report on high level principles;

3. Detailed proposals;
4. Submission of a 'revised' GB SQSS draft to Ofgem for approval.

Governance

The proposed review will be sponsored by The Review Group and will ensure appropriate representation from the wider industry. The intention is to involve all industry stakeholders to ensure that a holistic approach is adopted in reviewing the GB SQSS. The Review Group will appoint a Project Manager for this review who will oversee the overall progress and will be responsible for coordinating and managing the review work. The Project Manager will be responsible for carrying out the necessary review work, preparing consultation reports, undertaking consultations on proposals, preparing the GB SQSS draft and consulting on it.

Key Target Dates

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| 1. Terms of reference | Jun 2008; |
| 2. Report and consult on high level principles | Sep 2008; |
| 3. Report and consult on detailed proposals | Sep 2009; |
| 4. Submission of 'new' GB SQSS draft to Ofgem for approval | Dec 2009. |

Appendix 1 – Current GB SQSS Reviews

Project		Proposer	Brief Description	Status	Request Date	Expected Completion	Remarks
ID	Name						
GSR 007	Review of Infeed Loss Limits	EDF Energy	<p>Review of:</p> <ul style="list-style-type: none"> – Balancing services associated with having several larger plant connected to the system – Efficiency benefits of connecting plant to the system. – Barriers to efficient entry for larger plant. – Reserve requirements as a result of expected evolution of the GB generation mix to around 2020 and in subsequent years. 	In progress	22 Feb 2008		GSR007 presented to April 2008 Review Group meeting
GSR 006	Review of Stability Criteria	The GB SQSS Review Group Secretary on behalf of the 3 transmission licensees (SHETL, SPT and NGET).	<p>It is proposed to review the GB SQSS in respect of the following two aspects:</p> <ul style="list-style-type: none"> – Stability criteria for use in stability studies (to cover credible stability related events) and – Whether the stability criteria should form part of the standard and to what detail it should be. 	Received	24 Jan 2008		GSR006 presented to January 2008 Review Group meeting. Awaiting the completion of pre-assessment before proceeding to Working Group.
GSR 005	Review of Voltage Criteria	The GB SQSS Review Group Secretary on behalf of the 3 transmission licensees (SHETL, SPT and NGET).	Review of the voltage limits at 400kV with the view to release transmission capacity to enable more generation to connect to the transmission system for a given amount of transmission capacity.	Received	24 Jan 2008		GSR005 presented to January 2008 Review Group meeting. The Review Group agreed that the review should proceed to Working Group.
GSR 004	Review of the GB SQSS Section 4 with regards to bus coupler security	SP Transmission Limited	A bus coupler fault may cause system instability and lead to a loss of power infeed in excess of the infrequent loss risk. Bus couplers or section switches are omitted from all secured events in Section 4 of the GB SQSS.	Received	17 Oct 2007		Pending resource allocation. 23Oct 2007
GSR 003	Review of 'Design of Generation Connections'	Scottish Hydro Electric Transmission Limited	Review deterministic criteria for generation connection for 132kV radial networks in the SHETL area in order to facilitate economic and efficient investment.	In progress	27 Sep 2007	July 2008	Working group set up. 23 Oct 2007.
GSR 002	Housekeeping	The GB SQSS Review Group Secretary on behalf of the 3 transmission licensees (SHETL, SPT and NGET).	<ul style="list-style-type: none"> – Replacing the term NGC with NGET in the GB SQSS. – Decoupling the GB SQSS definition of "small medium and large power stations" from that in the Grid Code. – Copyrighting the GB SQSS 	In progress	17 Apr 2007	May 2008	Consultation closed. Preparing amendment report. 26 Nov 2007
GSR 001	Review of need for intermittent generation specific parameters in the GB SQSS	The GB SQSS Review Group Secretary on behalf of the 3 transmission licensees (SHETL, SPT and NGET).	With the expected increase in penetration of intermittent generation (particularly wind) in the GB electricity grid, the deterministic planning standard (GB SQSS) needs to be reviewed to ensure that it continues to deliver the required level of security.	In progress	30 Jan 2007	June 2008	First consultation on GB SQSS principles took place in January 2008.

Appendix 2 – Issues Identified for Potential GB SQSS Review

Project		Proposer	Brief Description	Status	Request Date	Expected Completion	Remarks
ID	Name						
1	Treatment of embedded generation.	Identified by The Review Group	<ul style="list-style-type: none"> – Contribution of embedded generation to demand security. – Impact of P2/5 to P2/6 change on the GB SQSS. – Additional requirements for week 24 data. Submissions. 	pending			
2	Generation connection criteria	Identified by The Review Group	<ul style="list-style-type: none"> – Review of generation connection standard. – Threshold generation capacity for 'N-1' security. – Definition of generation circuit. 	Pending			
3	Impact of Offshore systems on the Onshore system	Identified by The Review Group	Impact of offshore networks on onshore GB SQSS with regards to the interface between onshore and offshore systems.	Pending			
4	Demand Transfers	Identified by The Review Group	Clarification on pre-fault and post-fault demand transfers between NGET (SO) and DNOs	Pending			
5	Use of Registered Capacity and Transmission Entry Capacity	Identified by The Review Group	The use of "Registered Capacity" in the GB SQSS Vs "TEC".	Pending			
6	Accommodating new technologies	Identified by The Review Group	Impact of new technologies (generation, transmission, system operation).	Pending			
7	Use of operational intertrips in MITS planning	TSORG initiative	Review of the use of operational intertripping in the design of the Main interconnected Transmission System.	Pending			
8	N-1 Vs N-2 MITS planning criteria	TSORG initiative	Review of the impact of changing from N-2 planning criteria to N-1.	Pending			