



*Promoting choice and value for
all gas and electricity customers*

Transmission licensees, potential offshore transmission licensees, generators, suppliers, consumer groups and any other interested parties

Date: 1 November 2011

Dear Colleague

National Electricity Transmission System Security and Quality of Supply Standard (NETS SQSS): Minimum transmission capacity requirements (GSR009)

Summary

This letter sets out the Authority's decision regarding the proposal GSR009, to modify the National Electricity Transmission System Security and Quality of Supply Standard (NETS SQSS or SQSS). GSR009 proposes to modify the way in which the minimum transmission capacity requirements are determined in the SQSS. It was submitted by the SQSS Review Group ('Review Group') on 1 April 2011¹.

The Authority's decision is to accept the proposed changes in GSR009. In coming to this decision the Authority has given particular consideration to the impact of the proposals on competition, consumers, security of supply and sustainable development.

In order to implement this change the Authority will issue a licence modification notice ("section 11A notice") in the coming weeks.

Background to the Modification Proposal

The SQSS sets out the criteria that transmission licensees must apply when planning and operating the National Electricity Transmission System (NETS). The SQSS Review Group is responsible for considering modifications to the SQSS and making modification recommendations to the Authority.

GSR009 is a proposal to amend Section 4 of the SQSS (and associated appendices), which outlines the assessment of minimum capacity requirements of the Main Interconnected Transmission System (MITS). When determining the required level of capacity, the SQSS requires that the system is able to accommodate generation and demand in different zones across the system. This involves considering the limits of bulk transfer across system boundaries.

The existing NETS SQSS methodology does not explicitly differentiate between conventional and intermittent generation. In recent years there has been significant growth in intermittent generation (such as wind) connecting to the transmission system. This has raised new issues for the design of the transmission system, which Transmission Owners (TOs) have so far addressed through informal means. In light of this, the Review

¹ http://www.nationalgrid.com/NR/rdonlyres/BC265EEB-7415-4C58-8C56-OCF580581B8C/47751/GSR009ofgemreportv1_2_.pdf

Group felt that it was appropriate to review the design criteria in the SQSS in particular relating to the minimum transmission capacity requirements.

The Changes to NETS SQSS proposed by the Review Group

GSR009 proposes a 'dual criteria' approach to assessing required capacity which would take into account both demand security and economic efficiency when developing the transmission network. Each of these criteria would include specific assumptions about different types of generation, including intermittent generation. A more detailed description of the proposals has been attached to this letter as Appendix 1, but in summary the proposals would introduce:

- A *Demand Security Criterion* which requires sufficient transmission system capacity such that peak demand can be met without intermittent generation (thus ensuring demand security at times when weather or other conditions prevent intermittent generation).
- An *Economy Criterion* which requires sufficient transmission system capacity to accommodate all types of generation in order to meet varying levels of demand efficiently. The approach involves a set of deterministic parameters which have been derived from a generic Cost Benefit Analysis (CBA) seeking to identify an appropriate balance between the constraint costs and the costs of transmission reinforcements. The assumptions in the generic or pseudo CBA would be reviewed every five years.

The more onerous of these two criteria would be binding (ie that which indicates the higher capacity requirement).

Ofgem's Impact Assessment and Consultation

Following the submission of the GSR009 Amendment Report on 1 April 2011, we published an Impact Assessment (IA) on the proposals on 12 August 2011 for consultation². The IA set out our assessment of the effect the proposals would have on consumers, competition and sustainable development.

Interested parties were invited to provide comments on the IA by 23rd September 2011. We received seven responses which have been published on our website³, a summary of the responses and our views on the points raised is attached to this letter as Appendix 2. The responses were generally supportive of the GSR009 proposal.

There was general support for the inclusion of two criteria in the SQSS with one respondent in particular flagging up the improvement in security for importing areas that they consider the proposal would deliver.

The detail of the proposed Economy Criterion generated more mixed views. A number of respondents felt that the proposed criteria would provide a clearer starting point for planning purposes and would improve transparency over the existing approach. Others indicated their belief that a full cost benefit approach (rather than the pseudo-CBA approach adopted in GSR009) would deliver a better solution. However, despite preferring an alternative solution they did suggest that this issue may be less of a concern as the SQSS is supplemented by additional CBA analysis for large projects. In addition a number of respondents felt the proposed approach may result in a better first estimate of capacity requirements.

²<http://www.ofgem.gov.uk/Networks/Trans/ElecTransPolicy/SQSS/Documents1/GSR009%20Impact%20Assessment.pdf>

³<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=18&refer=NETWORKS/TRANS/ELECTRANSPOLICY/SQSS>

The Authority's Decision

The Authority has considered the issues raised by the modification, taking into account the views and arguments put forward in response to our impact assessment on GSR009. The Authority has decided to approve the changes proposed by GSR009.

Reasons for the Authority's decision

As the proposal would essentially replace one set of deterministic parameters with another more transparent set, there are no direct implementation costs associated with the proposal.

Impact on required transmission capacity

Our analysis, presented in the IA, showed that the GSR009 proposal could result in changes in the levels of required transmission capacity compared to applying the current deterministic rules in the SQSS. Specifically:

- The *Demand Security Criterion*, when becoming the determining factor of required capacity (ie if it is the more onerous of the dual criteria), could result in a level of required transmission capacity higher or lower than the current rules for certain parts of the transmission network.
- The *Economy Criterion* would result in a required transmission capacity level closer to the optimal level (ie the level that would be determined by a full CBA) than the current deterministic rules. This could be either higher or lower than the result from applying the current rules. In general, the proposed approach is more likely to result in lower total transmission costs (ie including transmission investment and constraints costs) than the current rules.

However, we recognise that, in practice, investment decisions are based on more than simply applying the SQSS rules to one isolated boundary for a particular set of background conditions. In particular:

- Large investments are subject to more detailed cost benefit analysis taking into account system-wide requirements such as interactive boundaries, multiple-year conditions with potential variation in capacity requirement, and the cost of specific elements based on a particular set of circumstances and level of uncertainty.
- There will also be wider consideration of other factors such as impact on overall security of supply, and facilitation for future development of various types of generation.

Therefore any actual investment decision could differ from that implied by applying either the rules proposed by GSR009, or the current rules.

There are also circumstances where it is possible for the level of capacity to fall below that identified in the SQSS as the required level. This can happen either if Ofgem has directed a derogation (in response to a specific request) or under the "self-derogation" arrangement introduced as part of the Connect and Manage regime⁴.

We recognise that a number of the respondents to our IA expressed disappointment that the proposal was based on a pseudo-CBA rather than a full CBA approach, but overall, compared to the current deterministic criteria, we consider that GSR009 would be expected to provide a better overall view of what the optimum investment is likely to be and give a 'first-pass' deterministic assessment likely to be closer to the optimum solution.

⁴ Details of the connect and manage self derogation arrangements can be found here <http://www.decc.gov.uk/assets/decc/Consultations/Improving%20Grid%20Access/251-govt-response-grid-access.pdf>

This in turn could have some directly related benefits as discussed in more detail in later sections of this chapter.

Effect on consumers

In our IA we found that the GSR009 proposal was not expected significantly to alter the investment decisions made, as such decisions would not be based solely on the SQSS but would be subject to more careful examination and assessment. However, the changes proposed by GSR009 would be expected to result in a 'first-pass' assessment that more closely matches the optimal results than would be identified under the current deterministic rules.

Therefore, although the GSR009 proposal would not change the cost of developing and operating the transmission system (nor would it have any direct implications for charging), it is likely to result in some secondary impacts on consumers. More specifically by providing a better 'first estimate' of the optimal capacity requirements GSR009 could bring better efficiency in transmission licensees technical design and planning processes. As the changes proposed under GSR009 provide a better starting point before a more detailed assessment is carried out, this could simplify and streamline the process avoiding some unnecessary or wasted effort.

Overall a small positive benefit to consumers from GSR009 is expected.

Effect on Competition

As with the impact on consumers, any impact on competition is expected to be indirect. The benefit comes from the improved process of identifying required capacity rather than any particular change in the level of that capacity.

Specifically, GSR009 is likely to give improved transparency and certainty to generators. As GSR009 would mean the required capacity initially identified under the deterministic SQSS rules is closer to the final outcome, generators would benefit from a simpler and more efficient way (than full CBA) of assessing likely investment.

This improved information available to generators (with the deterministic rules being clearly stated in the SQSS) could help reduce any existing barriers to entry that might exist under the current approach. In addition the proposal could facilitate more efficient decision making by generators.

GSR009 could also facilitate more efficient decision making by other policy stakeholders (such as planning agencies), which in turn could lead to more timely resolution of planning barriers for transmission investment which would also better facilitate competition in generation.

Overall GSR009 has the potential to be beneficial for competition by making the process for determining required transmission capacity more transparent.

Effect on Sustainable Development

GSR009 is intended to ensure that the transmission system is planned in such a way that is appropriate for the types of generation connecting to it. Intermittent generation is typically low carbon in nature and often situated far from centres of demand. Although the GSR009 proposal would not significantly alter the level of required capacity needed for renewable generation, it would make the process of identifying the required capacity simpler and more transparent.

The simplified process of identifying this required capacity is likely to facilitate the future development of generation. Much of this new generation is likely to be renewable and therefore its timely development would help achieve sustainable development targets.

Overall any impact of GSR009 on sustainability is expected to be positive.

Overall Assessment of the proposals against the Relevant Principles of the Review Group

In this section we summarise our assessment of the proposals under GSR009 against the relevant principals of the SQSS Review Group.

1. Development, maintenance and operation of an efficient, economical and coordinated system of electricity transmission.

It is our assessment that GSR009 will aid in the development of an efficient, economical and coordinated system by improving the visibility/transparency of the transmission design and planning process. This would facilitate more informed and efficient decision making by other relevant stakeholders such as generators.

2. Ensure an appropriate level of security and quality of supply and safe operation of the NETS⁵ Transmission System.

It is our assessment that GSR009 will not have an adverse effect on the security and quality of supply and the safe operation of the transmission system. We consider that there could be some small benefits from the proposals in this area, specifically:

- The dual criteria approach will help ensure that the level of demand security is maintained without undue reliance on intermittent generation.
- The proposals would help ensure a consistent approach to the development of the transmission system.

3. Facilitating effective competition in the generation and supply of electricity.

It is our assessment that GSR009 will not have any negative impact on competition and that it could result in some small benefits, specifically:

- Making improved information available to generators and developers could help reduce any barriers to entry.
- Improved transparency could improve the decision making process, thus facilitating competition.

Assessment against the Authority's statutory objectives and duties

For the reasons outlined above the Authority considers that the proposals set out in GSR009 would better facilitate the Authority's principal objective and statutory duties.

Ofgem's principal objective is to protect the interests of existing and future consumers, wherever appropriate by promoting effective competition. In protecting the interests of consumers we must have regard to protecting the security of energy supplies, including the need to secure that all reasonable demands for gas and electricity are met and also the need to contribute to the achievement of sustainable development.

The Authority is generally required to carry out its functions in the manner it considers is best calculated to further the principal objective, wherever appropriate by promoting effective competition between persons engaged in commercial activities connected with:

- The shipping, transportation or supply of gas conveyed through pipes
- The generation, transmission, distribution or supply of electricity

⁵ The SQSS governance (available on National Grid website) refers to the GB Transmission System but the SQSS has since been updated to reflect the offshore transmission system. The NETS is made up of the onshore transmission system (previously referred to as the GB Transmission system) and the offshore transmission system.

- The provision or use of electricity interconnectors.

Subject to the above, the Authority is required to carry out the functions referred to in the manner which it considers is best calculated to:

promote efficiency and economy on the part of those licensed⁶ under the relevant Act and the efficient use of gas conveyed through pipes and electricity conveyed by distribution systems or transmission systems; protect the public from dangers arising from the conveyance of gas through pipes or the use of gas conveyed through pipes and from the generation, transmission, distribution or supply of electricity; and secure a diverse and viable long-term energy supply, and shall, in carrying out those functions, have regard to the effect on the environment.

It is the Authority's view based on the assessment set out above that the GSR009 proposal better facilitates these functions by way of improved transparency.

Implementation and Future Work

This letter sets out the Authority's decision to approve the changes to the NETS SQSS proposed in GSR009. In order for these changes to take effect the Transmission Licences will need to be modified such that they refer to the new version of the NETS SQSS. Therefore, the next step is a statutory licence change consultation which will be issued in the coming weeks. Any queries regarding the content of this letter should be made to Sheona Mackenzie (Sheona.mackenzie@ofgem.gov.uk , telephone: 0141 331 6019) in the first instance.

Yours faithfully

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⁶ Or persons authorised by exemptions to carry on any activity.

Appendix 1 – The GSR009 proposals

- 1.1 Under the GSR009 proposal, the SQSS would contain two separate assessment criteria (the demand security criterion and the economy criterion), which would be based on two different system backgrounds: the *Security Background* and the *Economy Background*. Whichever of the two assessment criteria produces the more onerous result would be the one used to determine capacity requirements in any given circumstance.
- 1.2 The *Security Background* would indicate a level of required transfer capacity between two parts of the transmission system based on:
- the *Security Planned Transfer* condition (to be set out in Appendix C of the SQSS),
 - plus the *Interconnection Allowance* adjustment (already set out in Appendix D of the SQSS, but with minor modifications).
- 1.3 The *Economy Background* would indicate a level of required transfer capacity between two parts of the transmission system based on:
- the *Economy Planned Transfer* condition (to be set out in Appendix E of the SQSS),
 - plus the *Boundary Allowance* adjustment (to be set out in Appendix F of the SQSS).

Demand Security Criterion

- 1.4 The *Security Planned Transfer* would be based on the existing *Planned Transfer* arrangements, the main difference being that different availability factors would be applied to the registered capacities of power stations before the uniform scaling procedures are carried out. This would effectively replace the offline adjustment currently made by the transmission licensees (as described in paragraph 2.8). The proposed availability factors are:
- 0 for stations powered by wind wave or tides
 - 0 for imports of exports from/to external systems
 - 1 for all other power stations
- 1.5 The *Interconnection Allowance*⁷, which is used to adjust the planned transfer in the current version of the SQSS, would not be materially altered by the proposal (including the restriction of its application for size of zones and location, as set out in paragraph 2.9). It would be used to adjust the *Security Planned Transfer* condition to reflect the assessment of the capacity required under the demand security criterion.

Economy Criterion

- 1.6 For the purposes of the *Economy Planned Transfer* condition, generation plant would be split into three categories:
- Non contributory generation – this type of plant, including open cycle gas turbines (OCGTs), would not form part of the generation background.

⁷ An allowance in MW to be added in whole or in part to transfers arising out of the *security planned transfer condition* to take some account of non-average conditions (e.g. power station availability, weather and demand).

- Directly scaled plant – where a fixed scaling factor will be applied (most plant would fall into this category).
- Variably scaled plant – all output from plant in this category would be uniformly scaled by a variable scaling factor. The scaling factor would be calculated to ensure that generation and demand balance.

1.7 The proposed scaling factors for directly scaled plant (which would be reviewed at least every five years) are:

85% for nuclear stations and coal/gas fired stations fitted with carbon capture and storage (CCS)

70% for power stations powered by wind, waves or tides

50% for pumped storage based stations

100% for importing interconnectors.

1.8 The Boundary Allowance⁸ would be used to adjust the economy planned transfer condition to take into account year round variations in the levels of generation and demand. Unlike the interconnection allowance (which is the corresponding adjustment for the security planned transfer condition under the demand security criterion), the Boundary Allowance would apply to all boundaries which split the NETS into two contiguous parts, irrespective of their size or location.

1.9 The Boundary Allowance is determined by the group generation and demand in the smaller of the two areas. The full boundary allowance would apply for fault outages and half of the boundary allowance for all other secured events.

Further development

1.10 The proposal states the scaling factors used in the Economy Criterion will be regularly reviewed (at least every five years) and revised as appropriate. The Review Group also indicated that it will, along with the wider industry, actively seek ways of improving the accuracy of the input data forecasts.

⁸ An allowance in MW to be added in whole or in part to transfers arising out of the Economy planned transfer condition to take some account of year round variations in levels of generation and demand.

Appendix 2 – Summary of Responses to Impact Assessment

We received seven responses to our consultation. Respondents were in general supportive of implementing the proposals although some did note specific concerns. All responses have been published on our website⁹.

Chapter 3, Question 1: Do respondents support the proposed dual criteria approach?

Six of the seven respondents expressly supported the introduction of a dual criteria, although some did express some reservations about the detail of the economy criterion.

One respondent made some specific comments about wind availability at peak demand periods but accepted that whether the correct assumption (for the demand security criterion) is 0% or some other small number is largely immaterial.

Chapter 4, Question 1: Do respondents consider that we have identified and, where appropriate, quantified the impacts of the GSR009 proposal?

The majority of respondents considered that the impacts of the GSR009 proposal had been appropriately identified in the IA. However two additional points were made:

- One respondent indicated that the updated analysis used by Ofgem in its assessment of the proposal should have been published in order to allow industry parties to make a more informed assessment.
- Another respondent felt more prominence should be given to the positive impact expected from the introduction of the demand security criterion. This would help ensure sufficient security in importing zones.

Chapter 4 Question 2: Do respondents consider that there are any additional impacts that we have not fully considered?

Whilst no respondent raised any concern that there were additional impacts which had not been considered, two respondents did make specific points:

- One respondent felt greater attention should be given to the impact on investment in the near term. They noted that the analysis indicated additional investment might be identified as a result of the proposed change but requested that a clearer summary of planned investments and decision dates be made available (particularly in light of the transmission price control).
- Another respondent noted that the analysis presented was based on scenarios for future development and that as the volume of intermittent generation becomes significant, design and operational challenges might be identified.

Chapter 4, Question 3: Do respondents wish to present any additional analysis that they consider would be relevant to our assessment of the GSR009 proposal?

No respondents presented any additional analysis in their response. One party indicated that it would not be feasible for interested parties other than transmission licensees to carry out such analysis.

Other Comments

A number of respondents commented on the Review Group process, requesting greater transparency and indicating that industry involvement would be useful.

⁹

<http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=18&refer=NETWORKS/TRANS/ELECTRANSPOLICY/SQSS>