

# GSR005

## GB SQSS REVIEW REQUEST

DATE: 11 November 2007

<b>1. Title of review request</b>
Review of planning voltage criteria in the GB SQSS
<b>2. Name of Proposer (<i>include name of contact person</i>)</b>
The Secretary of the GB SQSS Review Group on behalf of the 3 transmission licensees.
<b>3. Proposer Contact Details<sup>1</sup></b>
National Grid House, Technology Park, Warwick, CV 34 6DA Tel: ?????????? Fax: ?????????? Email: <a href="mailto:GBsqss.review@uk.ngrid.com">GBsqss.review@uk.ngrid.com</a>
<b>4. Description of issue(s)/Defect(s) to be addressed by the request</b>
<p>Section 6 of the GB SQSS deals with voltage limits in planning and operation of the transmission system. In planning timescales, voltage limits are specified for pre-fault and post-fault 'steady state'<sup>1</sup> conditions. The pre-fault limits are <math>\pm 2.5\%</math> at 400kV and <math>\pm 5\%</math> at 275kV. For post-fault conditions, the limits are <math>-5\%/+2.5\%</math> at 400kV and <math>-10\%/+5\%</math> at 275kV. The 400kV voltage limits are tighter than the 275kV limits.</p> <p>In transmission planning, there are cases where voltage limits impose a limit on the power transfer capability of the transmission system. In such cases, relaxing the voltage limits could release additional transmission capacity. It is proposed to review 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.</p>

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<sup>1</sup> Steady state here is defined as "a condition of a power system in which all automatic and manual corrective actions have taken place and all the operating quantities that characterise it can be considered constant for the purpose of analysis".

## 5. Description of the review request, its nature and purpose

The purpose of this review request is to determine if significant transmission capacity can be released by relaxing the planning voltage standard. Additional transmission capacity would enable more generation to be connected and improve asset utilisation, resulting in a more economic transmission system.

The proposal seeks to review the steady state voltage limits at 400kV. It is recognised that in cases where post-fault steady state voltage limits are the limiting condition on boundary transfer capability, relaxing the voltage limits could release additional transmission capacity. The trade off between the risk of relaxing the planning voltage limits and the possible increase in power transfer capability needs to be evaluated in order to determine whether there is any merit in relaxing the voltage limits and if so, to what extent.

6. Impact on the GB SQSS<sup>ii</sup>

6 (a) Parts of the GB SQSS that require amendment to give effect to the request

Table 6.3 – Steady state voltage limits in planning timescales.

6 (b) Parts of the GB SQSS that would otherwise be affected by the request

The criteria for unacceptable voltage conditions in Section 6.2 where steady state voltage limits listed in Table 6.3 are referenced.

6 (c) Nature and contents of amendments or effects

As in 6(a) and (b)

7. Justification of the request, giving the background thereof<sup>iii</sup>

Given that the 400kV planning voltage limits are tighter than the 275kV limits, there is scope to evaluate the potential benefits and risks in relaxing the 400kV limits to at least the same level as the 275kV limits. Potential benefits from this review would not only enable more generation to connect but would also result in efficient utilisation of the transmission system.

In the evaluation of the amount of additional generation that can be connected as a result of the relaxed voltage limits, care needs to be taken to ensure that the locations of the generation applications relative to the transmission system is taken into account as the transfer capability limiting factors can be varied and location specific. The overall benefit will depend on how and to what extent the voltage limits dominate the limiting conditions on transfer capability in the different areas of the transmission system.

8. Potential impact of the request on other Core Industry Documents<sup>iv</sup>

None

9. Potential impact of request on relevant computer systems<sup>v</sup>

None

**Guidance notes**

- (i) Please include address, contact telephone/fax number and optionally, a contact email address.
- (ii) Impact on the GB SQSS - Where possible, give an indication of those parts of the GB SQSS which, in the opinion of the Proposer, would be likely to require amendment in order to give effect to (or would otherwise be affected by) the request and an indication of the nature and contents of those amendments or effects (including, where relevant, any need for the establishment of new, or removal of existing GB SQSS criteria and methodologies).
- (iii) Justification - Please give reasons why you believe that the request would better facilitate achievement of the GB SQSS objectives as compared with the then current version of the GB SQSS, together with background information in support thereof. If more space is needed you can use additional sheets of paper which should be attached to this form.
- (iv) Core Industry Documents include but not limited to The Grid Code, System Operator – Transmission Owner Code and the Connection and Use of System Code
- (v) Where possible, please give an indication of the potential impact of the request on relevant computer systems and processes used by the Transmission Licensees.
- (vi) Incomplete forms will not be processed. The Proposer may be asked to clarify any information that is not clear. The Proposer's attention is drawn to clause 4.2.1.5 of the GB SQSS governance document.