

Grid Code Review Panel

Grid Code Reactive Requirements

1. In February 2000 the Grid Code Review Panel was asked by the then Transmission Users Group (TUG) to review the Grid Code requirements for the provision of reactive power. At the September 2000 GCRP meeting a working group was initiated to carry out this review. The working group reported back to the GCRP at the February 2001 GCRP meeting. Refer to paper GCRP 01/04 and report which can be accessed via the following link

http://www.nationalgridinfo.co.uk/grid_code/pdfs/reactwgrep.pdf

2. In summary the working group considered two issues:

A) Capability requirements at the time of initial commissioning of new generation.

The working group concluded that:

- i) New generating units should be designed to standard EN 60034-3, with the implication that:
 - Minimum Short Circuit Ratio would reduce from 0.5 to 0.4. This would reduce a generating unit's load angle for a given power output and could result in reduced stability margins.
 - A maximum value of 0.9 for rated lagging power factor would be required; and
 - Significant changes to generating units that permanently alter their reactive parameters would still be notified to NGC and may be the subject of Modification Applications.
- ii) Only a minimum capability needs to be maintained throughout the lifetime of the plant; and
- iii) Appropriate mechanisms need to be in place to procure reactive capacity to meet system needs.

B) Ongoing Operational needs

The working group concluded that:

- a) The majority of operational reactive requirements would be procured via market mechanisms;
- b) Generating units should have the choice of either;
 - i) Not participating in the reactive market and therefore remaining at (or about, subject to technical tolerances) zero Mvar output at the HV terminals; or

- ii) Participating in the reactive market and therefore being instructed to a particular Mvar output of target voltage.
 - c) the decision to participate in the reactive market should be driven by the commercial incentives provided by the prevailing reactive market mechanism.
3. Conclusions A) and B) detailed above were provisional on the appropriate market mechanisms being in place.
4. The CUSC Balancing Services Standing Group (BSSG) has been considering among other things the need for a reactive market.
5. Th BSSG believe that before an progress can be made on the issue the GCRP need to consider and comment on two questions:
 - a) Is it still the case that standard EN 60034-3 is appropriate. If so then this would represent a relaxation of the reactive capability that is built into a generating unit at the time of commissioning and therefore over time could reduce the reactive capability available to the Transmission System.
 - b) Does the GCRP consider that it would be valuable for the BSSG to progress with any work and are there any new issues arising since the original recommendations of the reactive power working group were presented in February 2001.
6. Depending on the response to the above questions the BSSG would then go on to consider whether the current reactive markets were adequate to incentivise generators to maintain an operational capability to provide reactive power under instruction from the system operator.

GCRP members are invited;

- To consider whether standard EN 60034-3 is still appropriate for the reactive design capability of new generating plant:
- To advise whether it believes it would be valuable for the CUSC Panel to initiate work to assess the appropriateness of the current reactive mechanism for incentivising generators to maintain reactive operational capability.
- To advise on any new issues that have arisen since the original report was presented in February 2001.