

Constant Terminal Voltage

Issue update for discussion November 2012

Constant Terminal Voltage

- Background
 - Last discussed at the Grid Code Review Panel in [February 2010](#)
 - There was debate over the background to the requirement
 - Proposals for clarification were not agreed
 - Issue relates to how reactive power and voltage control are delivered by synchronous generators
 - The question arose over whether it was legitimate to deliver reactive power by varying generator terminal voltage
 - Issue was raised in compliance discussions where difficulties were encountered in delivering the required reactive range with the available transformer tap range
 - A number of users achieved compliance by adopting a modified operating procedure
 - Two users have derogation decisions outstanding

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- What does National Grid need?
 - Reactive power and voltage control capability from users to keep the network secure
 - A clear and consistent view of a generator's capability
 - The generator performance chart provides this
 - The requirement to operate with a 'constant terminal voltage' adds clarity

Excitation and Voltage Control Performance Requirements

- CC.6.3.8
- (a) Excitation and voltage control performance requirements applicable to **Onshore Generating Units, Onshore Power Park Modules and Onshore DC Converters and OTSDUW Plant and Apparatus**.
 - (i) A continuously-acting automatic excitation control system is required to provide constant terminal voltage control of the **Onshore Synchronous Generating Unit** without instability over the entire operating range of the **Onshore Generating Unit**.

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- What is required of the Panel?
 - A view on the clarity of the current drafting
 - To assist in current derogation decisions
 - A recommendation on whether to review the code and in what context this should be undertaken

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- What is National Grid's view?
 - The code clearly states in CC6.3.8 that constant terminal voltage control capability is required
 - Clarification could be added if the Panel see a need to do this
 - Our assessment of the capital costs saved by changing this requirement in isolation is that they would be small
 - A change would lead to diminished reactive power and voltage control capability and greater operational complexity
 - Any change needs to be considered as part of broader work on reactive power and voltage control
 - There are two potential routes
 - European code compliance
 - Grid Code/CUSC review of reactive power and voltage control
 - Issue record needs to be retained to ensure that it falls within the relevant Terms of Reference