

Frequency Response Technical Sub-Group Update

Grid Code Review Panel 17th November 2011

Frequency Response Technical Sub Group (FR TSG) - Summary

- Sub Group Report is now complete
- Report provides
 - Information on future frequency response volume requirements (how much might we need)
 - Technical solutions which
 - enable compliance to be achieved under the most onerous foreseen conditions
 - reduce the overall amount frequency response, and hence curtailment, required
- Recommendations are made to the Frequency Response Working Group (FRWG)
 - This group will develop Grid Code and/or CUSC changes as necessary
- The GCRP is also asked to note the recommendations
 - The panel may wish to progress some issues independently of the FRWG

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Recommendations I

- The Report makes four Recommendations
 1. Develop a faster frequency response capability to deal with the faster rate of change of frequency
 - Why?
 - Faster Frequency Response was demonstrated to reduce response requirements significantly
 - What is it?
 - Capability based on current definition of Primary Response and High Frequency Response, delivered in 5 seconds rather than 10
 - How?
 - Case for market arrangements and/or obligations to be examined
 2. Clarify Primary Response Requirements
 - There is a need to review information and obligations on delays and ramp rates in response delivery as performance in the first few seconds of a frequency deviation will become more critical

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Recommendations II

- Recommendations (continued)

3. Response Volumes

- Note that requirements are markedly higher than current requirements
- Potential for very significant System Operator actions as asynchronous generation output increases

4. Rate of Change of Frequency

- The expected increase on the rate of change of frequency after a large infeed loss may have implications for the resilience of the total system

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Conclusions

- A number of other conclusions are highlighted
 - A Synthetic Inertia capability based on 'df/dt' (the rate of change of frequency) could also provide benefits but many technical questions are unresolved
 - 'Faster' Frequency response in all its forms (eg Low Frequency Triggered demand) helps
 - Additional inertia also helps
 - Including low load operation of synchronous generation
 - The analysis assumed we were able to make extensive use of wind for frequency response
 - Curtailment to a part load position is required to achieve this
 - the alternative is more curtailment!
 - Wind turbines currently being installed have demonstrated excellent performance although we have little experience of operation in practice

Frequency Response Working Group Update

Frequency Response WG Summary

- FR WG must now meet to consider TSG Report
- Agreed ToR states:
 - Must Report to the Jan 2012 CUSC and GCRP meetings
 - Summary of discussions and findings
 - Analysis of options considered
 - Detailed recommendations,
 - May include further work