

DS3 Programme Advisory Council Meeting Minutes

Date: 02/02/2012
Time: 10.00 – 13.30
Venue: EirGrid Offices

Chair: Fintan Slye

Attendees: Paul Brandon, Donal Smith, Peter Duffy, Juan Ma Rodríguez, Katrina Polaski, Ian Luney, Gráinne O'Shea, Carsten Junge, Úna Dixon, Joe Duddy, Michael Conlon, Gerry Hodgkinson, Pamela Walsh, Mervyn Adams, Colin Spain, Mark O'Malley, Catríona Diviney, Peter Thomas, Rónán Ó hÓgartaigh, Jonathan O'Sullivan, Dick Lewis, Yvonne Coughlan, Shane Rourke, Tom McCartan, Alan Rogers, Michael Flynn, Séamus Power

Apologies: Peter Harte

DS3 Programme Update

Yvonne Coughlan provided a general update on the programme and the upcoming milestones.

Comment:

Concern was raised over resourcing (both EirGrid and industry) and the level of input required. In particular, the testing of plant was mentioned as something that would require significant resources. Within EirGrid, the resources are currently coming from day-to-day resources but are being monitored closely to check if there are additional requirements.

Voltage Control

Summary of Presentation:

Jonathan O'Sullivan presented a summary of the DS3 Voltage Control workstream. The changing location of reactive sources, the changing nature of sources due to less "conventional" dynamic sources and the different reactive capabilities from embedded generation relative to synchronous thermal plant were highlighted as the main challenges.

The Facilitation of Renewables (FoR)¹ and Ensuring a Secure, Reliable and Efficient Power System in a Changing Environment² studies show that there will be less synchronous reactive power capability in 2020 relative to 2010 due to the displacement of synchronous plant. These studies also show that an over-reliance on reactive compensation could lead to voltage collapse scenarios and as System Non-Synchronous Penetration (SNSP) increases, dynamic stability issues become more apparent. However, the FoR report also shows that more advanced reactive power support from wind farms can assist in mitigating dynamic stability issues.

Discussion:

The proposed approach to Voltage Control that was discussed included:

- Ensuring that necessary controls are in place and fully operational for remote control of reactive power from the Control Centres.
- Clarifying, agreeing and enforcing universal standards on all wind farms.
- Developing reactive control strategy between TSOs and DSOs.
- Agreeing the standards at the Joint Grid Code DS3 Working Group.

¹ <http://www.eirgrid.com/media/FacilitationRenewablesFinalStudyReport.pdf>

² http://www.eirgrid.com/media/Ensuring_a_Secure_Reliable_and_Efficient_Power_System_Report.pdf

Further areas that need to be considered include:

- The outputs from the European Network Code which is under development.
- Any solution should consider all types of plant on the system.
- Clear standards, including high-level testing procedures / principles are important.
- The locational aspect of Voltage Control and how this is reflected in the Grid Code.
- Network connections allowing for the reactive capability of connected plant to be fully utilised.
- Coordination of set-point values to avoid hunting and large reactive power flows with increasing numbers of wind farms and associated voltage controllers.
- The DSOs' experience with voltage control when developing a solution.

Advisory Council members are generally in favour of proposals.

Action Items:

- Develop a discussion paper on Voltage Control similar to the RoCoF discussion paper and circulate. **[TSOs]**
- Include examples of voltage control issues in the discussion paper. **[TSOs]**

Spanish Experience of Integrating Renewables

Juan Ma Rodríguez presented on the Spanish Experience of Integrating Renewables.

Comments:

- The point was made that Fault Ride-Through (FRT) requirements are different across Europe and a common approach would be beneficial.
- It was queried whether the SNSP limit could be determined dynamically (computing resource required is relatively inexpensive).

Action Items:

- Updated presentation slides will be circulated. **[TSOs]**

RoCoF

Summary of Presentation:

Alan Rogers provided an update on the RoCoF workstream. The three RoCoF issues of Loss of Largest Infeed/Outfeed, Voltage Dip-Induced Frequency Dips and Anti-Islanding RoCoF relays were presented along with potential solutions. The TSOs are investigating if other island systems have seen high values of RoCoF and are attempting to get information from manufacturers on plant capability. The ENTSO-E Draft Network Code for Requirements for Grid Connection applicable to all Generators³ is proposing a 2 Hz/s RoCoF standard. The DS3 Joint Grid Code Working Group will consider the RoCoF solutions proposed in the discussion paper.

Discussion of RoCoF Performance:

The discussion centred on the need to get an understanding of the RoCoF performance of existing generation and protection equipment and how to test this performance.

- A question was posed whether manufacturers could model the RoCoF capability of existing plant.
- RoCoF is not just a protection problem. It also depends on the capability of plant and associated auxiliaries to be able to ride-through a RoCoF event.
- It was stated that measuring RoCoF is not reliable and data from the UK shows that only 1 in every 100 trips of RoCoF protection is due to a genuine RoCoF event.

³ <https://www.entsoe.eu/consultations/download.php%3Fid%3Dffff-4950-dcfe-75cc-3166&sa=U&ei=MuoZT83FJcPKhAeOnqj-AQ&ved=0CBUQFjAD&usq=AFQjCNFc1NMEVhYhF6BsA1Ry-qsj6BvyJg>

- It was stated that based on empirical data most plant should be able to ride-through a RoCoF of 1 Hz/s.
- The DSOs are investigating a RoCoF standard of 2 Hz/s in the context of whether this provides adequate protection at distribution-level. There is a requirement to balance costs and benefits without compromising security of supply.

General Comments:

- It was queried whether there could be retrospective application of the RoCoF standard in the European Network Code and suggested that any retrospection would require a Cost Benefit Analysis.
- RoCoF capability is currently not a specific requirement in many Grid Codes internationally, including the Northern Ireland Grid Code.
- SNSP levels above 50% depend on changing the Distribution System RoCoF relays/settings and ensuring generators can ride-through higher RoCoFs for the loss of the largest infeed and voltage dip-induced frequency dips.

Action Items:

- Letters will re-issue to generators enquiring about their RoCoF capability. **[TSOs]**
- Review of historical events on both Ireland and Northern Ireland electricity systems to investigate the effect of large RoCoFs. **[TSOs]**

System Services Review Update

Shane Rourke gave an update on the System Services Review. The main points included:

- KEMA System Services International Review was published on the EirGrid website 20/01/2012. All products similar to those already in place in Ireland/Northern Ireland. All comments on review welcome.
- System Services Review Preliminary Consultation closes 03/02/2012.
- DS3 Industry Forum to be held 14/03/2012. The responses to the System Services Review will be summarised and KEMA will present on the System Services International Review.

Action Items:

- Reminder to be sent out and notice to be put on EirGrid and SONI websites for System Services Review Preliminary Consultation bilateral meetings to be held on the last two weeks in February. **[TSOs]**

Demonstration Projects

The TSOs are currently putting in place a structure for demonstration projects which will include areas of interest and criteria for selection. An invitation notice will be issued to industry (and the Advisory Council) and posted on the EirGrid website in the coming months. Multi-stakeholder partnerships will be encouraged.

AOB

- Terms of Reference and membership of the Joint Grid Code Working Group will issue on 03/02/2012. **[TSOs]**

Next Meeting Date

The next meeting will be in Belfast at the end of May. Details to be circulated 10 business-days in advance of the meeting.