DS3 Programme Advisory Council Meeting Minutes

Date: 25/09/2013
Time: 10:00 – 16:30
Venue: EirGrid Offices, Dublin.

Chair: Andrew Cooke

Attendees: Mervyn Adams, Sam Alexander, Paul Brandon, Caitriona Diviney, Joe Duddy, Peter Duffy, Joe Durkan, Peter Harte, Tanya Hedley, Paul Hickey, Carsten Junge, Ian Luney, Denis McBride, Andrew McCorriston, Catherine McDonald, Gerald McTiernan, Rebecca Minch, Robert O'Rourke, Gráinne O'Shea, Donal Smith, Colin Spain, Pamela Walsh, Robbie Aherne, Mostafa Bakhtvar, Ciara Corkery, Mark Gormley, Alan Kennedy, Sam Matthews, Martin McCarthy, Jonathan O'Sullivan, Seamus Power, Shane Rourke, Lisa Ruttledge, Simon Tweed, Brendan Woods

Apologies: Denis Cagney, Brian Carroll, Michael Conlon, Tony Hearne, Gerry Hodgkinson, Mark O'Malley, JuanMa Rodriguez García, Joyce Rutherford, Bill Stevenson, Peter Thomas

Summary

- CER presented on RoCoF and System Services updates.
- Denis McBride (AES) provided an update on the DS3 programme from an industry perspective.
- An overview of the TSO and DSO work programme and governance structure was provided by Sam Alexander (NIE).
- Alan Kennedy presented on the EirGrid and SONI Grid Code modifications, including updates on the wind farm, dynamic modelling and DSU modifications.
- The Wind Constraint and Curtailment report was summarised by Jon O'Sullivan with a template circulated at the meeting.
- The technical afternoon session allowed the speakers to present the findings from studies on Voltage Dip-Induced Frequency Dips, Short-term System Frequency Response and PV Analysis of the Donegal Area. Additionally, there was an update on the Glen Dimplex Quantum Demonstration Project.
- The feedback received with regard to the content and structure of the Advisory Council meetings was positive and a survey will now be issued to formally receive feedback.

DS3 Programme Update

Summary of Presentation
Robbie Aherne gave a general status update on the DS3 programme which included updates on RoCoF, System Services, TSO-DSO interaction, Grid Code, DSM and Renewable Data. In relation to the Renewable Data work stream, it was stated that the Q3 2013 All Island Renewable Connection Report – 36 Month Forecast is due to be published by the end of October 2013. Additionally it was noted that the Minimum Number of Generators studies will be complete by the end of Q4 2013.

Currently there is major re-planning of all DS3 work streams underway. Following on from this it is envisaged that the updated programme plans will be published by November 2013.

Discussion
It was confirmed that the Ireland Grid Code DSU modifications were approved by CER on 24th September 2013.

A request was made that the TSOs would outline how it plans to change operational policy based on the findings from studies conducted under the DS3 programme and to specify how these changes will be implemented.
A question was posed to the TSOs on the content of the Minimum Number of Generators study and whether it is confined to active power generation only or does it consider the possibility of synchronous compressors and other technologies on the system. The TSOs stated that the studies currently only look at the minimum number of sets without the addition of additional reactive power services; however this will be looked at in the next stage of the studies.

Comment
It was noted that further engagement outside of the Advisory Council meetings needs to take place in order to enable additional review and analysis of the technical studies that are undertaken by the TSOs.

Action Item
1. TSOs to consider how the developments of changes to the operational policies are communicated to industry as part of the DS3 programme.
2. Members of the Advisory Council to consider methods of further engagement outside of the Advisory Council meetings, e.g. review of technical documents, hosting workshops on specific issues, and send recommendations to the DS3 project team.

Review of Actions from last meeting

The actions from the last meeting were reviewed.

An update was provided on the new wind farm modifications for the Distribution Code. The modifications are currently with the RAs for approval. It is anticipated that these may be approved by 4th October 2013. Additionally, it was stated that a new version of the Ireland Distribution Code will be published in Q1 2014.

The TSOs stated that Version 5 of the EirGrid Grid Code had already been published in advance of the Advisory Council meeting. However, the TSOs clarified at the end of the meeting that Version 5 of the EirGrid Grid Code will be published by 7th October 2013.

RoCoF

Summary of Presentation
Robbie Aherne introduced the presentation with a brief overview of the RoCoF concept and the impact of the RoCoF change. Paul Brandon (CER) then provided an update on RoCoF. The focus of the presentation was on the financial arrangements for the implementation of the RoCoF modifications and the responses received from the CER consultation on the proposed RoCoF decision. The CER's preferred option for conducting the RoCoF studies on Generating units is for no cost recovery. The general consensus from wind generators is broad support of the RoCoF proposed decision. There has been some feedback from conventional generators who believe an 18 month timeline is too short to complete the studies and are strongly in favour of alternative solutions. It was stated that the CER have already met with a number of generators on the Generator Performance Incentive and that the CER are available for further consultation on this. It was noted that the URegNI consultation on the proposed RoCoF decision closes on 27th September 2013.

Discussion
A discussion around the worst case RoCoF scenario was discussed. Further RoCoF traces were requested by Council members following feedback from OEMs. The TSOs stated that it is difficult to provide a definitive worst RoCoF case. Based on the analysis completed for the Facilitation of Renewables report, further RoCoF traces can be provided for a range of different scenarios. However a guarantee could not be issued with theses traces that the traces would represent a worst case scenario.

Action Item
3. TSOs to investigate whether the technical detail and assumptions behind the RoCoF analysis completed by KEMA may be circulated.

4. TSOs to consider the feasibility, specification and publication of further frequency / RoCoF traces to aid generator RoCoF studies.

System Services

Summary of Presentation
Shane Rourke summarised the System Services consultation process prior to an update on System Services from Paul Brandon (CER). An overview of the SEM Committee System Services Consultation Paper was provided and it was noted that the paper is open for consultation until 11th October 2013. The significant work of the TSOs on System Services was highlighted by the RAs. It was stated that the System Services Terms of Reference will be further discussed at the September SEM Committee meeting.

Discussion
It was stated that the Terms of Reference for the economic analysis will not be made available for consultation but will be issued on an informative basis. A request was made to publish the Pöyry review on the TSOs' System Services Recommendations Paper. This request will be brought to the SEM Committee.
It was suggested that consideration of the counterfactual needs to be transparent. Assuming more wind if the SNSP limit is lower is not credible.
A point was raised that the consultation on the allocation and procurement of the services could be developed in parallel with the economic analysis. This was accepted; however the RAs indicated a preference was for a single consultation phase as opposed to running the two aspects separately.
There was concern over the wording of the System Services: Next Steps slide as to whether the decision or a proposed decision would be made in Q1 2014. This was confirmed to be the intended timeframe for a proposed decision.

Action Item
5. RAs to consider if Pöyry review on the TSOs' System Services Recommendations Paper can be circulated.

Industry Perspective

Summary of Presentation
Denis McBride (AES) gave a presentation on the DS3 programme from a conventional generators perspective. Denis highlighted the specific issues that are a cause of concern to conventional generators, namely the cost recovery of RoCoF studies, the risk of investment in System Services and the implications for Performance Monitoring with regard to the changing nature of transients, as SNSP increases. It was stated that there was a concern that the System Services proposals may be of no benefit to older, more flexible conventional plant.

Discussion
A question was raised on whether there are conventional generators currently in operation in countries with a higher RoCoF requirement than that proposed for Ireland and Northern Ireland. It was noted that there may be some instances of generators operating in regions with a higher RoCoF although there may be no grid code standard in relation to RoCoF. In addition, where there are higher RoCoF standards, the system non-synchronous penetration would be below that expected for the Ireland and Northern Ireland System.
There was a discussion on the views of other conventional generators in relation to investment in plant for System Services. It was stated that conventional generators are uncertain of the return from investment and concerned about the dispatch profile and a position change in the merit order.

TSO/DSO Engagement

Summary of Presentation
Simon Tweed gave a brief introduction to the ongoing TSO and DSO engagement. Sam Alexander (NIE) then provided an overview of the draft joint DSO and TSO work plan and governance structure on behalf of the TSOs and DSOs. The joint work programme consists of six work streams; Loss of Mains, Development of a High Frequency Generation shedding schedule, Voltage Control, Projected

System Requirement studies, Demand Side Management and Compliance and Performance Monitoring. The estimated timelines for some of these work streams was provided in the presentation.

In relation to the Demand Side Management & Performance Monitoring work streams it is anticipated that a work plan will be scoped out and developed by Q4 2013.

It was stated that the TSOs and DSOs were working together to publish a combined work plan by the end of October 2013.

Discussion
The contribution of renewable generation and statcoms to the voltage control work stream was discussed.
There was a discussion on the TSO/DSO studies in this area and the assessment of the reactive requirements of the system.
It was also stated that it may be beneficial to all stakeholders if the approach to reactive compensation studies being undertaken were discussed and shared with all stakeholders. This comment was accepted.
The point was raised that different models of wind turbines have different capabilities and that the Grid Code and Distribution Code requirements for wind turbines were minimum requirements and that in many cases wind farms could actually deliver greater capabilities (especially at reduced active power output).

Action Item
6. TSOs/DSOs to provide information on the approach to reactive compensation studies.

Grid Code

Summary of Presentation
Alan Kennedy provided an update on the DS3 Grid Code workstream including requirements for wind farm power stations, dynamic modelling and demand side units.

The SONI Grid Code modifications on WFPS settings schedule are awaiting URegNI approval.

The dynamic modelling modification, which was tabled at the Grid Code Review Panel on 11th September 2013, has been submitted to the CER for approval. SONI plan to issue a similar modification for consultation before the GCRP in December 2013.

A Terms of Reference for a Demand Side Unit (DSU) Joint Working Group has been circulated to the interested parties.

Discussion
A question was raised as to whether the EirGrid and SONI Grid Code modifications for wind farm generators differ. It was stated that the modifications are similar.
In relation to dynamic modelling it was noted that the TSOs must provide more clarity on model requirements in order to ensure the correct model are provided by OEMs. This point was accepted.
A comment was made that the wind industry is uncomfortable with the length of transition periods for Grid Code modifications.

Action Items
7. TSOs to circulate version 5 of the Grid Code when published.

Wind Constraint & Curtailment Template Report

Summary of Presentation
Jon O'Sullivan presented on the Wind Constraint & Curtailment report template. A sample report was circulated to the Advisory Council members. It was noted that the figures used in this sample were dummy values and not in any way indicative of 2013.

The TSOs plan to issue Q1, Q2, Q3 and Q4 reports for 2013 by the end of January 2014. It was highlighted that the figures for Ireland are calculated using market data, whereas the figures for Northern Ireland are calculated directly from operational data.

Discussion
A question was posed to the TSOs as to when a complete RES Constraint and Curtailment report may be made available. The TSOs stated that this will take at least two years to develop.
Additionally, the TSOs were asked whether the wind dispatch tool has the ability to record the reason for constraint or curtailment of the generator and if so could this be documented in the reports.
The wind industry noted that there was positive engagement with the TSOs in relation to the development of the report.
The subject of EWIC and countertrading was brought up and the TSOs noted that €2.5m worth of energy has been countertraded since May 2013 for the purpose of reducing or avoiding the curtailment of priority dispatch generation.

Action Item:

8. TSOs to circulate confirmation on whether the wind dispatch tool in the development of records can provide a reason for constraint or curtailment.

DS3 Advisory Council Review

Summary of Presentation
Andrew Cooke led a discussion on the role being carried out by the Advisory Council and the format, timing and content of the topics discussed at the council meetings. Advisory Council meetings for 2014 are due to be scheduled.

Discussion
The feedback received by the TSOs during the meeting was positive with regard to the content and structure of the meeting.

Action Items

9. The TSOs to consider circulating an Advisory Council Review questionnaire to the Council members requesting feedback in relation to format, content, timing, and location of the meetings.
10. TSOs to request input from Advisory Council into November DS3 Industry Forum.
11. TSOs to schedule 2014 Advisory Council meetings. Provisionally scheduled for January, May and September 2014.

Voltage Dip-Induced Frequency Dips Study

Summary of Presentation
Séamus Power presented on the results of the Voltage Dip-Induced Frequency Dips study. These detailed studies examined a range of the worst contingencies of the system, the loss of largest infeed/outfeed and slow active power recovery of wind turbines. This study has provided a capability to allow for further studies of voltage dip-induced frequency dips with a more detailed system model.

Discussion
There was a discussion on the validity of the model and the ability of wind turbine active power recovery. There was agreement on the effectiveness of studying the possible worst contingencies for the system.
A question was posed to the TSOs on the reason behind the increase in frequency prior to the drop in frequency, after a fault has occurred. The TSOs stated that the frequency rise is caused by a power imbalance due to the demand being reduced while the voltage is depressed (i.e. during the fault).
It was stated that bench-testing of RoCoF relays is underway to determine the responses of the relays.
It was noted by the TSOs that a three-phase fault occurs about five times a year on the transmission system.

Short-term System Frequency Response

Summary of Presentation
Lisa Ruttledge (UCD) provided an overview of the findings from the Short-term System Frequency Response study. This study analysed the short-term frequency response of the system in scenarios of high SNSP (thus with fewer conventional generators providing inertia and System Services). It then considered the potential for emulated inertia from wind farms and the impact of RoCoF relays on the frequency response of the system.

Discussion
There was a discussion on the impact of changing all RoCoF relay settings and the potential of anti-island issues.
Additionally, the response shape of the model was highlighted. It was stated that the ideal response shape may differ from system to system and that the parameters developed for the model must be specifically tuned for the electrical system it is been modelled in. This led to a further discussion on the changing of parameters and models of wind turbines by OEMs without consulting the owners or the TSOs.

PV Analysis Study

Summary of Presentation
Mostafa Bakhtvar (UCD) presented the results from the pilot PV (Power vs Voltage) analysis study of the Donegal area. This study considered three different generator reactive power control schemes (0.95 leading power factor, 1.0 power factor and generator voltage droop control) as well as tapchanging transformers, shunt compensators, hydrogenerators and network topology. Two scenarios were chosen for the study (i) High Wind – High Demand scenario for a strong network and (ii) High Wind – Low Demand scenario for a weak network. The results indicated that a 0.95 absorbing power factor in both scenarios resulted in the lowest stability margin and potential difficulties in detecting impending voltage collapse. The results also indicated that in both scenarios a generator voltage control strategy provided the highest stability margin and some advance warning of impending voltage collapse.

Discussion
The studies demonstrated that there was a fundamental change to the PV performance of the network dependant on the reactive operating modes of wind farms. There was general support for the use of voltage control on wind farms rather than fixed power factor and it was noted that reactive support from wind farms was likely to be more cost effective than installing reactive compensation devices. It was noted that co-ordination of voltage settings on wind farms and transformer AVCs was very important.

Quantum Demonstration Project

Summary of Presentation
Mark Gormley provided an update on the Glen Dimplex Quantum Demonstration Project. The objective of this project is to demonstrate the capabilities of distributed electric thermal storage to provide both frequency response services and ramping capabilities through aggregator controlled charging of the devices. Phase 1 of the project was initiated in November 2012 with two test sites located in Dublin. Phase 1 is planned to be closed out by 25th October 2013. The results of the availability profiles of the system were presented.

Discussion
There was clear interest in the capabilities of the device with questions on the efficiency of the system compared to old storage heaters. There was also a discussion on the seasonal element of storage heating and the potential to use this technology for hot water storage. It is planned to include hot water storage in phase 2 of the project which will begin in October 2013.