DS3 Programme Advisory Council Meeting Minutes

Date: 18/05/2017
Time: 10:30 – 15:30
Venue: The Ballsbridge Hotel, Dublin
Chair: Jon O' Sullivan
Attendees

Name	Surname	Organisation
Rodney	Ballentine	NIE
Robert	O'Rourke	CER
Joe	Duddy	RES
James	Kelly	ESB Networks
Andrew	McCorriston	UREGNI
Bernie	Comey	DCCAE
Michael	Conlon	DIT
Peter	Thomas	Nordex
Carsten	Junge	GE
Paddy	Finn	Electricity Exchange
Graham	Brennan	SEAI
Colin	D'Arcy	Tynagh Energy
Gary	Healy	IWEA
JAG	Basi	ESB
Donal	Smith	Switched in Consulting
Peter	Harte	IWEA/ Element Power
Graham	Stein	National Grid UK
Colin	Spain	Gaelectric
Jon	O'Sullivan	EirGrid
Karen	O'Doherty	EirGrid
Doireann	Barry	EirGrid
Jason	Hannon	EirGrid
Thomas	Williams	EirGrid

Apologies:
Mark McGranaghan, Bob Hanna, Denis McBride, Mo Cloonan, Tony Hearne.

Industry Perspective:

- Peter Thomas from Nordex UK Ltd presented on "Nordex turbines Capability with regard to Rate of Change of Frequency". Nordex carried out testing the Rate of Change of Frequency on an island operation with a number of Wind Turbines.
- The test setup saw the development a large temporary generation site 33KV grid connection. The test highlighted the difficulty in keeping the frequency constant. It required disabling the G59 frequency protection because they experienced excursions and the turbines were tripping on the G59. The frequency protection was taken off to investigate what could be done in terms of frequency deviation.
- Measurement of change of frequency for sites, which is relevant to future Fast Frequency Response, is challenging.
- Colin Darcy from Tynagh Energy Limited presented on 'Realising full CCGT DS3 Capability' which discussed ramping. Taking into context I-SEM, GPIs and imbalance there is a suggestion that there are some aspects that might prevent full realisation of CCGT ramping.
- Currently the TSO cannot fully rely on the Technical Offer Data (TOD) and the CCGT plants cannot receive payment for this variable capability and there are restrictions preventing this capability being offered.
- Some potential solutions were proposed to mitigate the risk of the TSO losing out on capability and the CCGT fleet being underutilised and losing out on a potential revenue stream.

Reprogramming DS3 Plan:

Doireann Barry provided an update to the Advisory Council on the Reprogramming of the DS3 Plan.

- The reprogramming is to reorient focus towards the key issues delivering DS3, other than SNSP increases. SNSP can be increased but there are other binding constraints which lead to wind being dispatched down such as local network constraints, minimum inertia levels and minimum sets on a jurisdiction/ island level
- A significant milestone was reached on February 6th 2017 with a wind peak of 3,071 MW, resulting in 60% SNSP. The milestones for the DS3 programme to 2020 haven't moved substantially including
    - SNSP increasing year on year from its current level of 60% out to 75% in 2020
    - RoCoF transitioning over the course of 2018 from 0.5 Hz/s to 1 Hz/s.
    - Dropping the inertia floor as we reduce the number of minimum sets.
    - Moving the exports from the interim solution for 500 MW export this year to the enduring solution from 2019.

  This is all underpinned by moving the performance having system service providers that can replace the loss of conventional service providers. The whole plan is predicated by us being able to get service provision from new technologies.

  More information in the Annual Renewable-dispatch down report available on our website – see link here.
- The DS3 teams are currently re-establishing themselves with Doireann Barry the DS3 Programme manager, Karen O 'Doherty leading on Control Centre Tools and two new lead engineers Noel Cunniffe and Barry O'Connell starting with the team at the end of June.

- Changes in the control centre to facilitate the ISEM Market Trial in 2018, will limit additional changes being made in the Control Centre. That will be approx. 4-6 weeks before the start of the market trial and the 3 months after the end of the market trial.
- The key risks were discussed in relation to delivering DS3:
    - failure to operate to a new RoCoF 1 Hz/s standard
    - failure to implement changes in the control centres and the potential impact of I-SEM in delaying DS3 specific Control Centre Tools
    - failure to secure investment in new System Services providing technologies,
    - a serious system event such as Oscillations, which halt progress to DS3. The risks and mitigating actions were outlined and discussed in detail during the meeting.

ACTION: TSOs to circulate presentation given to the Operational Policy Review on the Minimum Generator Sets studies in Box to the members.

Discussion on the Winter Package:

Bernie Comey, DCCAE gave an update on the main proposals of the Winter Package published by the EU Commission on 30 November 2016

- The Winter Package contains 8 legislative proposals and proposes a wide range of amendments to existing energy legislation. The EU Working Group on Energy is currently considering proposals for an Energy Efficiency Directive (EED) and the Energy Performance in Buildings Directive. The aim is to have both proposals agreed at the Energy Council in June 2017.
- The proposed Internal Electricity Market Design Directive and the Regulation envisage regulatory changes in terms of market rules and approaches from wholesale and generation to retail. The proposals also envisage new rules on priority dispatch, participation in the market and measures involving greater cross-border participation. There are potential issues and concerns in relation to various types of capacity mechanisms to remunerate generators. The Commission aims to ensure more co-ordination between TSOs with the creation of new Regional Operational Centres.
- The ACER proposal provides for enhanced roles and governance/decision making changes. The voting procedure is to change from 2\3 majority to a straight majority.
- The proposal regarding Risk Preparedness in the Electricity Sector Regulation envisages common rules on crisis prevention to ensure Security of Supply.
- As regards the proposed Renewable Energy Directive, a new EU-wide binding target of 27% renewable energy in Electricity, Heating and Cooling and Transport has been set for 2030. The 2020 national targets will be the baseline to 2030. The support schemes aim to provide the most cost effective deployment of RES.
- The proposal for Governance Regulation integrates energy and climate planning and reporting. It will provide a new energy and climate reporting structure covering the period 2021-2030. Member states will be required to draft a National Energy and Climate Plan (NECP) by the 1st January 2018 and a final plan by 1st January 2019.

Oscillations in Power Systems:

Jon O' Sullivan provided an update on Oscillations in Power Systems.

- System issue such as oscillations could impact DS3 and influence operational policy. Whilst we have experience of system oscillations over many years, it has been difficult to pinpoint the root cause of oscillations.
- An overview of some recent system events was provided. Oscillations have been occurring on the system for some time; however the more recent oscillations appear to be more severe in duration and magnitude. The frequency curves constituted a swing of between 150-200 MW of energy over a period 0.5 seconds in some cases
  The work on RoCoF is providing a good understanding of the generators however, if oscillations are persistent then we will need to run the system at lower levels of wind to see if is mitigates the oscillations. Analysis has been conducted which shows that there is some correlation with high wind.
- The current qualification of large-scale system oscillations is inadequate in the EirGrid and SONI Grid Codes. EirGrid is reviewing experiences in other countries and systems and relevant international publications.

Action: Peter Thomas suggested that EirGrid could engage with WFPS on the system oscillations as many will have their own high speed data records which could be made available to the TSO for assessment.

TSO-DSO Implementation Project:

Jon O' Sullivan provided an overview on the progress of the TSO-DSO implementation project.

- TSO have been successfully engaging with both NIEN and ESBN and progress is being made across all elements of the RoCoF project and we are on course to achieving the new standard/setting by the end of 2017, to enable a phased transition to the 1Hz/s standard in 2018.
- **Generators:**
  - In Ireland, 20 reports have signed off for the Large Scale Generators and a significant number of generators have been tested. Some concerns have arisen with two generators and careful engagement with plant owner/operators and their OEMs is required. Similarly in NI a significant number of generators have been tested but concerns exist for 2 generators and careful engagement with plant owner/operators and their OEMs is required.

- **Embedded Generation**
  - NIE Networks are aiming to get out to all 54 wind sites by the end of 2017 in order to adjust the settings. There are concerns over the decision that the generators have to pay for the modifications. NIE Networks noted that it is not in their remit to enforce that decision. NIE Networks have done considerable studies with Strathclyde on Loss of Mains settings. A decision from NIEN is required as to whether they will change their Small Scale Generation settings based on those studies.
  - ESB Networks have circa 400MW over 400 small scale units on their system; the generators are in the study phase of the process with testing programmed for 2018.
- **Demand**
  - SONI and NIEN have agreed a prudent approach to managing risk of impact on demand if high RoCoF event occurs and are sharing relevant learnings from experience of RoCoF in other jurisdictions.

Rodney Ballentine provided an overview on the progress of the TSO-DSO implementation project in Northern Ireland.

- Rodney Ballentine gave an update on the learning outcomes of the Strathclyde sensitivity analysis on setting changes for large scale and small scale generation. The studies indicate

that a change in settings could cause incremental increase in risk of fatality and incremental risk of Out-of-Phase enclosure.

- NIEN are broadly satisfied with the results obtained for changing settings on large scale generation and now looking to sign off on the new settings proposals. NIEN believe the LSG will subsequently benefit from the settings changes; however NIEN cannot formally ask the generators to make the settings changes. NIEN are still currently developing a position on small scale generation impacts following the studies. There are 54 LSG with circa 900 MW generation and 100s of SSG with circa 300 MW of generation capacity.
- NIEN ran a consultation regarding the charging arrangements for changes to these protection settings. The D-Code modification and G-59 settings are to be issue at the end of May and it is expected there will be a short consultation to generators. The analysis from the Strathclyde studies will be published as part of the consultation. The outcomes from the consultation will be fed to the Utility Regulator (UR) in June and after approval from the UR NIEN hope to begin formally engaging with the Generators.

James Kelly provided an overview on the progress of the TSO-DSO implementation project in Ireland.

- An update on the progress of the windfarm RoCoF protection settings upgrades to date was provided, with 82% of settings updates now being completed for wind farms. The remainder of settings are due to be completed over the coming months.
- In terms of non-wind 9% of the interface protection settings have been upgraded leaving 92% to be upgraded. Engagement with non-wind generation is ongoing.
- ESBN have proposed a 5 step process to move the customer engagements forward. This process is now currently underway. First stage is a letter sent to the customer asking permission to contact their OEM. Subsequently ESBN will contact the OEM asking them for a short topology technical document. Based on the information the OEM provides ESBN will issue a second letter determining whether their settings need to be changed. If the settings need to be changed then ESBN will instruct the customer to engage their OEM to upgrade settings.

System Services:

TSO Update:

Jason Hannon gave a presentation on the outcome of Qualification Trials Process to date.

- Overall 15 service providers across various lots were successful in the Qualification Trial Process and are now taking part in the Trials. We have a number of service provider's trialling inertial emulation. In terms of Demand Side Management there are two Demand Side Units (DSU) providing reserve services. Both the inertial emulation and the DSU providing reserve are providing some significant learnings in terms of signalling, how we schedule and how we develop operational policies for those services.
- In terms of Fast Frequency Response we are developing performance methodologies focusing on high speed data recording.
- In terms of performance we are looking at availability forecasting for reserve particularly with the onset of wind DSM.
- There have been two under frequency events to date and none for FRT.
- The midpoint review meetings commence at the end of May and will run into June.

Dublin Voltage Study:

Alan Rogers gave an update on the Dublin Voltage Study.

- There are a variety of transmission constraint groups (TSG) on the system which are a rule that feeds into the unit commitment programme to account for network and system issues.
- The TCGs can lead to significant constraint costs due to divergence from unconstrained market runs.
- There can be a significant deviation between the way the TSO operate the system and what the market requires. Minimising that core deviation is a large part of our remit.
- Removing constraints can help make more room for renewables.

- Currently there are 3 min sets kept on in Dublin for voltage support and we are looking to see if we can drop it to 2 min sets, one of which would be EWIC.
- Looking at fundamentally different configurations of the power system in which we have operated at before because we have always operated with 3 min sets.
- It is timely that the TCG is being reviewed with the new reactor in Poolbeg, and in advance of I-SEM.

Actions:

- The presentation to the Operational Policy Review on the Minimum Gen Sets studies to be circulated in Box to the members. Circulate links to the Facilitation of Renewables studies report to Advisory Council Members.
- TSO to circulate a survey asking members to provide feedback about their experience at the DS3 Advisory Council with a view to improving the effectiveness of future DS3 Advisory Council meetings.
- An update on policy surrounding New Connections was requested - a policy paper may be issued by CER on this over the coming weeks.

Noted:

Peter Thomas suggested that EirGrid could engage with WFPS on the system oscillations as many will have their own high speed data records which could be made available to the TSO for assessment.