DS3 Programme Advisory Council Meeting Minutes

Date: 19/01/2017
Time: 10:30 – 15:30
Venue: The Radisson Blu Hotel, Belfast
Chair: Jon O' Sullivan
Attendees

Name	Surname	Organisation
Rodney	Ballentine	NIE
Robert	O'Rourke	CER
Joe	Duddy	RES
Brendan	McGrath	ESB
Paul	Bell	UREGNI
Gerry	McTiernan	DCCAE
Patrick	Mohr	NTMA
Jag	Basi	ESBI
Peter	Thomas	Nordex
Carsten	Junge	GE
Paddy	Finn	Electricity Exchange
Graham	Brennan	SEAI
Colin	D'Arcy	Tynagh Energy
Mary	Doorly	IWEA
Jenny	Reisz	AEMO
Jon	O'Sullivan	EirGrid
David	Cashman	EirGrid
Karen	O'Doherty	EirGrid
James	Ryan	EirGrid
Conor	Egan	EirGrid

Apologies:
Mark McGranaghan, Kevin Chan, Peter Harte, Bob Hanna, Denis McBride, Jane McArdle, Donal Smith, Graham Stein, Tony Hearne, Colin Spain, Mick Hogan, Michael Conlon

Industry Perspective:

- Mary Doorly from IWEA presented on IWEA's perspective of the DS3 programme. Mary highlighted the belief that Ireland and the DS3 programme can elevate Ireland to the status of world leaders in the integration of renewable energy. Mary outlined IWEA's top priority policy issues for 2017, with discussions focused on support systems for a REFIT 2 and facilitating the reduction of curtailment. This is of particular concern with the high build out forecast for 2017/2018. Highlighted were the concerns pertaining to the requirements in planning policies

for windfarms to be a minimum distance away from housing, which depending on the minimum requirement, could limit the available build out of wind generation on the island. IWEA commends EirGrid's work to date on progressing of an increase in SNSP. Mary declared that clarity is required from the regulatory authorities on timelines and volumes of the enduring arrangements.

ACTION: TSO's to issue 2016 curtailment report to attendees as an update on the all-island dispatch down figures.

- Joe Duddy presented on battery energy storage and the significant learnings at RES from the operation of their battery storage portfolio. Battery energy storage is now a feasible technology resulting from falling costs, technology improvements and a shift in policy. Battery technology holds the potential to provide non-energy services to the power system due to their fast-acting control. The modular structure of RES battery technologies allows flexibility in capacities due to the easy addition of modules. Current regulation and codes (market/network) have not historically recognised electricity storage as a type of system user. These frameworks can therefore pose barriers for storage to enter the market and should be reviewed in relation to the value that storage can add to the system. Battery energy storage is in a position for deployment – it will require the correct commercial solutions to be brought to the market.
- Jenny Riesz from AEMO (Australian Electricity Market Operator) gave a presentation on security challenges facing the evolving Australian power system.
    - To operate a power system prudently in the future, challenges such as frequency control (RoCoF, FFR etc.) and optimising system strength need to be addressed. AEMO developed a security program to adapt AEMO's functions to address security and reliability on a long term and short term basis.
    - A review of international experience of RoCoF gave AEMO insight into other operators who have encountered RoCoF issues such as EirGrid/SONI and National Grid. These operators provide opportunity for collaboration and information sharing. Screening took place to assess system RoCoF limits, with operators comfortable operating up to 1 Hz/s, however anything above that appeared to cause issues for a select number of units. It is proposed that increased RoCoF limits be examined for the system and a targeted approach of assessing select units is being considered.
    - A potential solution that has been examined by AEMO, in the case of an interconnector contingency occurring, could be to use a special protection scheme to tranche any unit tripping.
    - AEMO recorded RoCoF rates of up to 6 Hz/s over short time periods during the system blackout event experienced in September 2016. There were no reports by either generators or customers regarding damage issues following this level of RoCoF.
    - A member pointed out that a cost-risk analysis on the effects of high RoCoF events should be conducted to gain insight into the level of impact.
    - AEMO are still completing studies to quantify costs of protection setting changes, which the Government will have to rule on outcomes to decide whether the RoCoF standards are to be changed.
    - GE completed studies on behalf of AEMO on the potential for FFR to be a substitute for synchronous inertia. The outcome suggests this is possible to a certain minimum level of inertia.
    - System strength has historically been an issue on the South Australian power system. This has seen AEMO insert a four minimum set rule for the system.

- A member highlighted that wind turbines are not tuned to specific power system strengths, and that a process needs to be put in place to re-tune turbine settings to suit present power system strength.
- Following the black system event that AEMO experienced in September, operators saw that some windfarms connected to the system "locked-out" after three consecutive voltage dip events occurred. This is a protection mechanism for the turbine to prevent the element overheating. This type of protection was previously not known to the operators and was not represented in wind farm models.
- A discussion took place on this wind farm protection and whether it should be investigated in Ireland and Northern Ireland. Communications between OEM's and system operators need to remain open to determine if this protection exists on different wind farms and what modifications may be required to avoid system stability issues. It was suggested that once all the information on these "lock-out" settings is gathered, an assessment should be completed to justify the system risks of this protection setting. This may include mandating standards for such protection functions.

ACTION: TSOs to follow up with the wind industry on how best to determine if such protection is implemented in Ireland and whether further action is required.

DS3 Programme Update:

David Cashman provided an update to the Advisory Council on DS3 programme work.

- SNSP is currently trialling at a 60% limit, with analysis ongoing. As it is still in a trial phase, no decisions have yet been made with regard to implementation of this limit as future policy. This would require more than 48 hours of operation between 55 and 60% SNSP.
- EWIC trial set up is still underway, with windfarm and generator high frequency protection settings to be rolled out. EWIC returned to service December 23rd. Concerns were noted over issuing of tranche settings to windfarms, that it is important for all windfarms to be treated equally for the trial period. This may involve a rotation of tranche settings between the participating windfarms.
- It was pointed out that the DS3 plans are currently under review and will consider developments that may occur beyond 2020. The plans will need to consider changes in the delivery of I-SEM and on the System Services plans to be published by the regulators. The TSOs will aim to have plans in place in the coming months and will present this to the DS3 Advisory Council at the next meeting. A discussion is also to take place on the impacts of the EU's winter package for the DS3 program going forward.

ACTION: TSOs to present DS3 project plans at next Advisory Council.

ACTION: TSO's to include discussions on the impact of the winter package on the DS3 program at the next Advisory Council.

RoCoF:

Generator Studies Project:

David Cashman provided an overview on the progress of the RoCoF implementation project.

- 11 RoCoF generator studies reports have been reviewed and signed off.
- 7 units have successfully completed their testing to date and 13 generators are due to undertake testing before 1st March 2017.

TSO-DSO Implementation Project:

Brendan McGrath and Rodney Ballentine provided individual overviews on the progress of the TSO-DSO implementation project.

- Brendan provided an update on the progress of the windfarm RoCoF protection settings upgrades to date, with the majority of settings updates now being completed for wind farms. The remainder of settings are due to be completed over the coming months.
- Engagement with non-wind generation is ongoing with meetings taking place with OEMS/agents on the 13th of October 2016. ESBN have proposed a 5 step process to move the customer engagements forward. This process is now currently underway.
- Rodney Ballentine gave an update on the learning outcomes of the Strathclyde sensitivity analysis on setting changes for large 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 reclosure. The installation of Neutral Voltage Displacement (NVD) protection significantly reduces this risk.
- 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 are still currently developing a position on small scale generation impacts following the studies.
- The implementation of new RoCoF standards has benefits across costs, curtailment and renewable targets. NIEN are currently running a consultation regarding the charging arrangements for changes to these protection settings. This consultation closed on the 3rd of February.

Voltage Control/ Reactive Power work stream:

Brendan McGrath gave an update on the ESBN voltage control and Reactive Power work stream.

- ESB Networks currently progressing on coding of the nodal controller algorithm onto the Master RTU for the trial. The trial is waiting on testing of windfarms to take place. It is expected that testing of wind farms involved will take place in the coming weeks. Upgrade works for the Cauteen station are currently being investigated which are required for commencement of the trial. The trial potentially could begin in summer 2017.

System Services:

TSO Update:

Jon O' Sullivan provided an update on the Qualification Trials Process.

- The procurement phase of the QTP is still ongoing, with the successful tenderers to be issued award notifications in the first week of February 2017.

Regulatory Update:

Robert O'Rourke (CER) – provided a Regulatory Authorities update on the progress to date of the enduring arrangements decision.

- RA's are currently looking at interactions between I-SEM and system services and how these interactions could impact the CRM auction. Discussions have taken place with the EC and ACER in terms of how the Electricity Balancing (EB) codes could affect system services. There will be certainty on how the EB code will affect SS by March following a publication to the SEMC which will outline the approach for enduring arrangements and tariffs. The publication will not be consulted on but comments will be taken on it.
- It is agreed that the TSO will need to decide with the RA's on how future procurement for enduring arrangements will run.
- Council members reiterate that certainty is required with regard to levels of reserve that are available for the interim and enduring arrangements. The right signals need to be sent to industry for investment.

- RA's will provide explanations on decision made on the final outcomes for the overall funding and how it will develop. Paul Bell updates that there will be a consultation on the proposed tariffs for the services and the methodology used.

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Ramping Studies

James Ryan, a UCD PhD student working on ramping studies at EirGrid, gave a presentation on the outcome of his work to date.

- Residual ramping capability is seen to be a function of the scheduling process and time series inputs of demand and wind.
- The residual ramping capability is expected to decline due to the increasing amounts of wind generation due to connect and the amount of variability that that brings to the system.
- With the power system changing, the TSO are still required to operate the system in a prudent manner, and a ramping constraint can provide better security to maintaining supply-demand balance than current operational rules.
- Studies have indicated that ramping risk will soon be dominated by average wind forecast error. This indicates that the variability of wind generation will contribute to a requirement for ramping capability.
- Further studies need to be completed on ramping requirements and assessment of reliability impacts. This analysis would inform the development of a ramping scheduling tool.

Control Centre Tools

Karen Creighton provided an update on control centre tools to the Advisory Council.

- As of November 2016, 5 minute WSAT was launched and is now fully operational.
- There have been EDIL releases for system services and progression of the control centre tool for the nodal controller.
- Investigations are still ongoing with issues regarding Wind Dispatch Tool (WDT). The frequency response of wind farms when dispatched down and in times of high system frequency is causing the wind farms to experience greater levels of dispatch down time than windfarms who don't operate with frequency response. Communications were issued to affected wind farms in November and December 2016. Initial analysis has been completed to identify a potential solution and discussions with the tool vendor are ongoing.

Power Off & Save Project:

Conor Egan gave an update on the progress of the Power Off and Save project to date.

- Two events have taken place to date, both of which took place on weekdays in the evening time.
- There are currently 821 customers signed up to participate in the trial, 389 smart energy control customers and 432 Smart Pay as You Go customers.
- Participant demand reduction is measured against the customer's average historical energy consumption at the event day and time, for the previous five weeks.
- Event one totalled a demand reduction of 93.4kW and event two totalled a demand reduction of 119 kW.

Actions:

- TSOs to follow up with the wind industry on how best to determine if protection settings(i.e. tripping after low voltage ride through events) is implemented in Ireland and whether further action is required.
- JOS to provide update on the revised DS3 project plans at the next Advisory Council
- Curtailment reports for 2016 to be issued to Council members when published.
- A discussion on the winter package to be scheduled for the next Advisory Council meeting