DS3 Programme Advisory Council Meeting Minutes

Date: 28/01/2014
Time: 10:00 – 15.35
Venue: EirGrid Offices, Dublin.
Chair: Andrew Cooke

Attendees: Mervyn Adams, Paul Brandon, Denis Cagney, Caitriona Diviney, Peter Duffy, Joe Durkan, Peter Harte, Tony Hearne, Gerry Hodgkinson, Carsten Junge, Andrew McCorriston, Gerald McTiernan, Gráinne O'Shea, Peter Thomas

TSO Reps: Jon O'Sullivan, Robbie Aherne, Maria Geraghty, Mark Gormley, Frank Groome, Michael Kilty, Tom McCartan, Ivan Dudurych, Martin McCarthy, Lisa Ruttledge, Simon Tweed

Apologies: Brian Carroll, Joe Duddy, Tanya Hedley, Ian Luney, Rebecca Minch, Mark O'Malley, Robert O'Rourke, JuanMa Rodriguez García, Joyce Rutherford, Donal Smith, Colin Spain, Bill Stevenson, Pamela Walsh, Paul Hickey, Sam Alexander, Brendan Woods, Michael Conlon

Introduction

- Robbie Aherne introduced by highlighting the changing focus of the DS3 programme.
- While initially the programme focused on identifying the path forward to 2020, now there is a clear emphasis on implementation and delivering on this path.

DS3 Programme Update

- Robbie Aherne gave a general status update on the DS3 programme.
- In relation to System Services, the SEM Committee published a Decision Paper on System Services Product Definitions on 20/12/2013. EirGrid is conducting Demand Side economic analysis and this analysis is to be completed by March. Following this, a consultation paper is due to be published by the RAs in May.
- A governance structure for TSO-DSO interaction was outlined and is discussed further in this document.
- Regarding Grid Codes, in NI, consultation on Dynamic Models modifications has been opened and will be discussed at the next Grid Code meeting on 12/02/2014.
- The 2nd DSU JGCRP Working Group meeting was held on 23/01/2014. Issues discussed included performance monitoring and application forms. There is big interest in DSUs across the Island and the EU at the moment. Currently there are 2 DSUs operational in Ireland. A paper is due to be published by UregNI in the coming weeks regarding the facilitation of DSUs in Northern Ireland (NI).
- With regard to Control Centre Tools, EirGrid are validating the EMS tool with Alstom and there are currently no issues with the Wind dispatch tool.
- A number of operational studies are underway. These include:
  - All Island study on future levels of reactive compensation – Q3 2014
  - Matrix of system security and stability metrics challenging the existing SNSP metric used
  - All Island Minimum Generation analysis is complete and is being reviewed from an operational implementation viewpoint. This will be presented on at the next meeting.
  - Over frequency generation shedding
  - Secondary tripping study (related to RoCoF)

Discussion

- 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.
- The TSOs outlined that changes to Operational policy are communicated through 3 mediums:
  - Via an update on the DS3 section of the EirGrid/SONI website
  - Via a suitable update of the published Operational Constraints Update Document
  - Via the DS3 Advisory Council
- A question was posed to the TSOs on the content of the Min. Gen. Studies and whether they are looking at emissions levels. It was stated that this study is complete and is being reviewed from an operational implementation viewpoint. The studies considered system operation issues, not emission levels.

Action Item

1. Circulate an update on the Operational Policy Review Committee and its role in the implementation of DS3 related policy changes **(TSOs)**
2. Provide an update on the Minimum Generation Studies to Council members following the Operations Policy Review meeting **(TSOs)**

Review of Actions from last meeting

- The actions from the last meeting were discussed and closed off.
- The RAs stated that the Pöyry review on the TSOs' System Services Recommendations Paper will have to go to the SEM Committee for decision. Thus it is not likely to be circulated / released until May.
- Procurement options on System Services have been published by the RAs for information. These are not necessarily the position of the SEM Committee.
- TSO/DSO studies on Reactive Compensation are currently at a scoping stage and are likely to be completed by Q3 2014.
- A question was posed to the TSOs as to whether these studies would support the minimum generation sets. TSOs responded by stating that a reduction in conventional synchronous generation requirements was being considered as part of the study.
- A DS3 Industry forum has been proposed for April and suggested topics for discussion are welcomed from all members. The Min Gen study was suggested as a suitable option.
- A high level discussion was held on the December High Wind levels where capacity factor went above 50% (Not SNSP levels). This is discussed further in the document.

Action Item

3. Suggest topics to be discussed at the next Advisory Council meeting in May **(All Members)**
4. Suggest topics to be presented at the next DS3 Industry Forum **(All Members)**

DS3 Workstream Plans

- 10 out of the 11 workstream plans for 2014 were circulated to the Advisory Council members for review on 17/02/2014. The revised Frequency Control workstream is outstanding and will be circulated shortly.
- TSOs stated that the Grid Code workstream of DS3 is winding up effectively. The current changes required are minimal and the focus now is on Network code changes.
- TSOs mentioned that the WSAT model is underpinned by studies such as Min. Gen., reactive compensation, transient voltage control, ramping, Inertia and RoCoF issues. This is core of DS3 and it is extremely important to make sure the quality of the output remains.
- Some of the key work is on Control Centre Tools and their implementation through operational policy changes.
- It was stated that RA support is key and decisions have been too slow.
- 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.

- ESBN stated that a number of factors, including DCC Code requirements, CER decision on remuneration for stady-state reactive power, potential reduction in “8 set rule”, outcome and detailed discussions and pilot studies, need to be considered in informing the quantum of Tx System reactive compensation requirements.
- The TSOs noted that further TSO-DSO engagement was required before the TSO-DSO work-plans could be finalised.
- The Advisory Council members have an opportunity to comment on the plans until 04/02/2014.
- One member requested more time to review the plans in detail.
- All 11 workstream plans are due to be published externally on 10/02/2014.

Action Item

5. Feedback and comments on revised DS3 Workstream plans to be sent to TSOs by February 4th **(All Members)**
6. Collate responses from the Advisory Council on the revised DS3 Workstream plans **(TSOs)**
7. Publish revised Workstream plans on February 10th **(TSOs)**

Industry Perspective

Carsten Junge (GE)

- Carsten Junge (CJ) provided an industry perspective from GE.
- It was highlighted that there are too many inconsistent documents relating to Grid Codes (e.g.) there is an MPID proposal document, guidance notes and supporting docs and in some cases these contradict each other.
- Thus when GE are analysing or looking to change a product, it is becoming more and more challenging as a supplier to remain compliant.
- A limit to the number of documents and more regular updates was a suggested solution.
- Concerns were raised that there is a tendency to have similar sets of requirements for all types of generation. This does not make sense from a technical point of view.
- Peter Thomas of Nordex was in support of these points.

Discussion

- TSOs acknowledged these points and agreed that there are inconsistencies in the Network codes. TSOs stated that they will look to engage directly with industry in order to address these issues going forward.
- It was highlighted that the guidance notes are there as a TSO interpretation, so if any Advisory Council members feel there are issues; they are to get in contact with the TSOs.
- There is a clear regulatory desire with Network codes to treat everyone the same. It was noted that ENTSO-E have made a fair effort in representing the standards but there are challenges ahead.

Action Item

8. Advisory Council members to make TSOs aware of any known inconsistencies between Grid Code, Guidance notes or MPID documentation or any areas where further clarification is required **(All Members)**

Gráinne O’Shea (ESB)

- Gráinne O’Shea (GOS) provided an industry perspective from ESB and stated that the Advisory Council is very beneficial as it helps further understanding, provides a mechanism to get further information and helps move issues forward.
- ESB have commissioned a RoCoF report from KEMA building on EirGrid’s original report, using real parameters taken from their generators; using min generation and low loads and increasing the time intervals of the RoCoF events. Results on this were presented to EirGrid on 27/01/2014 and will be presented to EAI on 28/01/2014 and CER on 29/01/2014. The study looks at electrical issues and it highlights real issues (e.g. tripping on reverse power during an event).
- It was stated that in order to progress these studies, there will need to be dynamic modelling and further information provided by EirGrid.
- Issues around mechanical stability will also need to be investigated. ESB are currently putting new and innovative tortional probes in a pilot station.

- Concerns were raised on the overall project management of RoCoF and reiterated that having an overall project manager is good but it should not be someone who has a vested interest in this project.
- With regard to Grid code testing, concerns were raised that decisions from testing will have a significant commercial impact and thus ESB would like more governance and transparency, perhaps that the grid code tests become part of the grid code or under the same governance.
- With regard to System Services, concerns were raised that ESB needs to make investment decisions in a timely manner and that the delayed decision on System Services is an issue.

Discussion

- The TSOs stated that the issue is not about whether the decisions are in the grid code or not but that there needs to be appropriate communication so that people are clear on what testing is required.
- A question was raised whether the ESB KEMA study is confidential or could be shared. GOS confirmed that it will be shared.
- Question raised from these studies whether the indications are that generators will be able to comply with the increase in RoCoF. On this, it was noted that it is early days for solutions; some could be about generation and some could be around system operation (e.g. Interconnector).
- TSOs stated that based on their analysis, no fundamental issues can be seen; however there may be issues on mechanical stresses on the generator (Campbell curves).

Annual Renewable Report 2013 and EU 2030 Energy Policy Developments

- Frank Groome (FG) gave a presentation on the Annual Renewable Report 2013, launched on 28/11/2013.
- This included a brief overview on our All-Island targets out to 2020, the All-Island connection rates needed, grid development, policy and international developments.
- Noted that in 2013, max All-Island wind output was 95% of all wind installed on the system.
- There was an overview on the recent EU 2030 Energy Policy Developments.
- The major points the EU Commissions are asking the EU Council/Parliament to endorse are:
    - 40% reduction in CO_2 in EU on 1990 level by 2030 (binding national targets)
    - A binding RES target of 27% at EU level in RES and increased governance from the EU over national plans but no binding national targets.
    - Reform of the ETS system
- MEPs are to discuss their own proposals in greater detail in early February 2014 and the EU Council are meeting on this at the end of March.
- It is likely to be another year until there is legislative agreement.
- It was emphasised that these will have no impact on the current 2020 targets.

ROCOF

- Paul Brandon (PB) of CER gave an update on RoCoF. Comments have been taken on board including phasing studies, priority generators, introducing GPIs for RoCoF compliance.
- CER and URegNI held discussions in January and it was confirmed that the decision is likely to be a common approach for both jurisdictions. Following the SEM committee meeting, a decision is likely to be made by the end of February
- The RAs have indicated, but have not confirmed, that the decision will likely follow a staggered approach including an 18 month study phase.
- The RAs have also indicated that a GPI for non compliance and the possible inclusion of a short term flexibility service for RoCoF are being considered.
- PB confirmed that there will be an Oversight committee meeting on February 11th where the RAs will propose their approach. If there are no concerns, a decision will be published 10 days later.
- It was highlighted that additional analysis will be needed going forward – high frequency, tripping events, SNSP indices and metrics matrix

System Services:

- Jon O'Sullivan (JOS) gave an update on System Services from a TSO perspective.
- TSOs are running the benefit analyses on System Service payments arising from different assumptions that the RAs have asked. System Service Payments will be presented to the SEM oversight committee by 7th March and are on schedule.
- Some of the studies that the TSOs are currently carrying out include modelling at different levels of installed wind, different levels of SNSP and other Operational constraints.
- The outcomes of these will help highlight areas such as the level of RES generation, curtailment levels, SMP, consumer costs and the total fuel bill.

- PB gave an update on System Services from an RAs perspective
- Overall the workstream is split into two: the product definitions themselves and the commercial aspects. The modelling mentioned above refers to the commercial aspects of System Services.
- PB confirmed that the definitions of products have been decided on by the SEM Committee and that these were very well received. The issue now is to try and value these products.
- Thus there will be 3 aspects of further work:

1. Demand Side Work (TSO Modelling):
   - Looking at the value of System Services, Levels of Curtailment, higher SNSP etc
   - These results are due to be delivered in March
2. Supply Side Analysis:
   - This analysis will look at investment types and price (e.g.) costing new plants
   - This piece of work will go out to tender shortly. A paper is due to be published in April and will follow the Demand Side output.
3. Procurement Mechanism:
   - RAs will shortly tender for consultants to look at the procurement aspects to the Demand and Supply side analysis.
   - This will follow on from the work carried out by Pöyry and submitted by the RAs to the SEM Committee in December. The SEM Committee have not taken a view on this yet.

- Based on these studies, PB stated that the RAs are targeting a consultation period that will begin in May and a decision to be published by September 2014.

Discussion:

- A discussion was held on steady state reactive power and other interdependencies which will all have a bearing on System Services (e.g.) min gen studies, reactive power and network codes.
- RAs stated that the SEMC committee realise the urgency of the decision but that given the consumer impact the appropriate balance needs to be there in terms of contracts, procurement etc.

TSO-DSO Engagement

- Simon Tweed gave an update on TSO-DSO DS3 Engagement
- The development of an engagement plan is under way which will cover all aspects of interaction. The Governance structure of this TSO-DSO interaction was outlined.
- The interaction will be overseen by the NIE-ESBN-SONI/EirGrid Joint Oversight Committee. This committee will meet on a quarterly basis in order to track delivery of plans.
- The Workstreams covered by this committee are: Voltage control, RoCoF, Performance Management and Testing, Demand Side management and Frequency control.
- The NIE-ESBN-SONI/EirGrid Joint Working Group will meet monthly.
- There a large number of deliverables in this remit and the next phase will be implementing these deliverables.

Discussion

- Discussion was held on whether these plans were final and whether the DSOs have committed to these plans.
- TSOs acknowledged that there is genuine commitment to these plans from all parties and that the next steps are to harness this agreement and implement these plans.
- DSOs stated that this is recognition that there needs to be more formal interaction to ensure that outputs are delivered. The DSOs confirmed their commitment to the plans.

Advisory Council Review:

- A review of the Advisory Council's working methods was held.
- Advisory Council members suggested that more 'advising' could be done and further input should be provided on the more detailed studies.
- It was suggested that the Advisory Council should consider critical path items, risks and dependencies.
- Further it was mentioned that there needs to be improved Project Management of the Advisory Council. This would involve: maintaining a risk register and looking at risks, risk mitigation strategies and actions.
- A discussion was then held on what the high level risks of DS3 are. A summary of the risks highlighted by the Advisory Council members are outlined below:

1. Impact of Network codes and EU Intervention
2. RoCoF and Generators Capability
3. Non Grid Code compliance of older generators
    - Suggested that too much equipment on a gridwide scale remains non compliant. What analysis needs to be done to clarify this?
4. Timely decisions on System Services
5. External Issues (e.g.) Pylon debate, policy, renewed emphasis on CBAs / CO2 CBA
6. Critical Path not being clearly outlined
7. Future of REFIT contracts and economic analysis out to 2025
    - Caitriona Diviney looking at a study on this and will look to circulate in a few months

Action Item

9. Produce a draft list of the risks raised at the Advisory Council meeting and circulate to the Advisory Council members **(TSOs),**
10. Advisory Council members to provide feedback on risks. **(All Members)**.

Nodal Control

- A presentation was given by Gerry Hodgkinson on Nodal Control and Future HV/MV Grid Monitoring and Control.
- At a high level, the presentation gave an overview on managing voltage, so that we can maximise generation and increasing levels of renewable generation
- An overview was provided on the differences between Cluster nodes, Hybrid nodes and Step Down nodes
- Similarly a SCADA Data Hierarchy Model was presented and how data generated by a smart network could be incorporated, assimilated and utilised within the business.
- The next steps are that NIE will be commissioning a pilot project on a specific 110/33 Kv node that will assess the scope for a nodal controller to manage voltage control on the distribution network while supporting the reactive power requirements of the transmission system.

Discussion:

- There was a broad discussion on the issues of voltage control that may affect the transmission and distribution system and the relevant mitigation factors.
- Interaction between control systems was flagged as a potential issue and it was noted that the approach on other systems was to slow down the speed of response to avoid interactions.
- The implications of the control approach on commercial arrangements for the provision of reactive power services was also discussed.

Recent High Wind Generation

- Maria Geraghty of EirGrid gave a presentation on 'Recent High Wind Generation'.
- The presentation gave an overview of the high levels of wind output in December and the operational issues faced from such high levels.

- The presentation highlighted figures on total wind, curtailment levels, counter trading levels for priority dispatch, wind forecasting inaccuracies and high speed shutdown.
- It was noted that in December there was a 52% capacity factor of wind compared to around 30% for the rest of the year.
- A broad discussion was held on counter trading and curtailment levels as there was a lot of trading in the month of December to reduce curtailment of priority dispatch generation. In December 37GW hours of wind was curtailed which equates to around 4.1% of all available wind. In the same month almost 50GW hours was counter traded and curtailment levels could have been close to 10% if there had not been any trading.
- It was emphasised that even if you had perfect forecasting, there would still be a need to counter trade or curtail.
- It was stated that while counter trading was heavily used during December to avoid curtailment, the option of counter trading may not always be available.
- Operational complexities that were faced due to high levels of wind included: wind forecasting errors, rate of change of wind, and high speed shutdown of wind farms.

Action Item

11. Provide clarity as to the cause of the large wind forecasting errors seen on the 29th December in the 'Recent High Wind Generation' presentation and if this was as a result of high wind speed shut down **(TSOs)**
12. Provide further clarity on whether capacity payments had effect on counter trading in the month of December **(TSOs)**

Frequency Response Studies Overview

- Lisa Ruttledge, a UCD PhD student, gave a presentation on over-frequency response, including proposing over-frequency trip settings for some generators. It is anticipated that this study will be completed in February 2014.
- The presentation looked at 2 studies: 'Impact of Embedded Generation LoM RoCoF Relays' and 'Over Frequency Generation Shedding'
- The studies looked at the Impact of Secondary Tripping of Distribution Connected Generation and the potential impact the loss of a large export would have on the system.
- A discussion was held on RoCoF protection vs. Vector shift protection
- ESBN stated that this study seems to suggest that even if ROCOF was eliminated on 98% of all generation on the island of Ireland, including distribution connected, there would still be an impact on under frequency load shedding.
- ESBN questioned what point it was trying to make, given that ESBN is still working on establishing the quantum of D connected generation for which the ROCOF settings would currently remain.
- It was noted that this study is not the definitive answer, but rather is important in re-emphasizing the fact that further studies on RoCoF are essential.
- Again the issue of legacy equipment was raised about how older wind farms going to 1 Hz for the first time will be tested.
- In summary, secondary tripping must be considered, even if at low levels of wind. More detailed analysis is required to get solid figures.