

## DS3 Programme Advisory Council Meeting Minutes

**Date:** 19/06/2013  
**Time:** 10:00 – 16:00  
**Venue:** EirGrid Offices, Dublin.

**Chair:** Andrew Cooke

**Attendees:** Pamela Walsh, Caitriona Diviney, Carsten Junge, Michael Conlon, Denis Cagney, Robert O'Rourke, Peter Thomas, Colin Spain, Joe Duddy, Joe Durkan, Stephen Walsh, Donal Smith, Gerry Hodgkinson, Mark O'Malley, Jonathan O'Sullivan, Yvonne Coughlan, Brendan Woods, Tom McCartan, Michael Preston, Michael Burke, Paul Cuffe, Eadaoin McLoughlin, Ciara Corkery, Martin McCarthy, Mark Gormley, David Cashman (part), Ivan Dudurych (part)

**Apologies:** Peter Duffy, Gráinne O'Shea, Paul Brandon, Ian Luney, Mervyn Adams, Tony Hearne, Andrew McCorriston, Natalie McCurry, Brian Carroll, Bill Stevenson, Joyce Rutherford, Tanya Hedley, Rebecca Minch

### Summary

- Two members of the Advisory Council gave updates on the industry perspective on the DS3 programme.
- CER provided an update on the upcoming publication of the CER position on RoCoF.
- Paul Cuffe (UCD) presented on Voltage Control Studies carried out which investigated the reactive power control which can be provided by Wind Farm Clusters
- An overview of the 2012 Curtailment report which will be published pending the approval of CER was discussed.
- A presentation on the All Island High SNSP reports for 2012 and the TSOs' next steps was provided.
- The recently published TSO recommendations paper on System Services was discussed and a shortened version of the presentation for the System Services workshop (scheduled for June 26<sup>th</sup>) was given.
- The pilot results on the Minimum number of sets studies were outlined.
- 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.

### Review of Actions from last meeting

The actions from the last meeting were reviewed.

An update was provided on the System Operator Interconnector Countertrading. Historically System Operator to System Operator counter trading could take place for quantities up to 200 MW. An arrangement has now been put in place with Statkraft to allow for quantities above 200 MW to be traded. Registration with APX Power in the UK is complete and the potential to set up trading arrangements with Ireland is still under review.

## DS3 Programme Update

### Summary of Presentation

Yvonne Coughlan gave a general status update on the DS3 programme which included updates on System Services, Grid Code Changes and Implementation, Model Development and Studies, Demand Side Management, Performance Monitoring and Testing and Operational Limits and Relevant Industry Developments.

Further information was also provided on vector shift settings and loss of the largest infeed. The relevant Industry Developments were briefly discussed with regards to assumptions made in the Gate 3 constraint reports and to non-compliant generation.

### Discussion

It was noted that the TSOs have written to all windfarms requesting confirmation of compliance with the new Grid Code standard. There was a discussion on the responses which were received to these letters. The discussion highlighted that responses received do not fully address the technical queries requested by TSO and that sufficient timelines for implementation of changes were not provided by wind farms. In addition, it was pointed out that the deadline for derogation requests is the 2<sup>nd</sup> August 2013.

A request was made that the TSO review responses and specify specific areas where more detailed information should be provided by the wind farms. In addition to this, it was requested that the most up-to-date version of the Grid Code is made available.

It was also noted that the wind industry is currently working towards compiling a generic table highlighting which models are compliant with the new Grid Code modifications. The wind industry also stated that they are willing to discuss the problems with the responses with the TSOs and suggested a meeting with the TSOs to progress this. They will then follow this up with their members.

ESBN Distribution Code Review Panel meeting took place on the 18<sup>th</sup> June. Recommendations on ramping, reactive power, fault ride through and voltage requirements of Type A and Type B wind farms have been passed to CER for approval. NIE have organised a meeting in relation to Distribution Code modifications and a timeline will be drafted following on from that.

There were questions regarding Dynamic Model modifications and the need for wind farms to provide source code. The TSOs proposed that the Joint Grid Code working group, which is scheduled for the end of July, should assist in the resolution of these queries.

Finally Yvonne Coughlan announced that she would no longer perform the role of Programme manager to the DS3 programme, having been appointed to a new role in the EirGrid Group. Several members of the Advisory Council took this opportunity to thank Yvonne for her contribution to the DS3 programme.

### Comment

It was noted that a more detailed discussion in relation to fault ride through testing, needs to take place; in respect of previous fault ride through tests which did not focus on ride time or reaction time.

### Action Item

1. TSOs to ensure updated version of Grid Code is available
2. TSOs to share draft All Island Performance Monitoring & Testing procedure with Advisory Council
3. TSOs to prepare a short paper on Loss of Largest Infeed for the Advisory Council
4. DSOs are required to:
  - Clarify if RoCoF reports will be published
  - Provide information on the steps which must be taken to update the Distribution Code according to the changes which have been made to the Wind Farm Settings Schedule.
  - Provide a timeline in which this update will be completed.
5. Follow up meeting between the TSOs and wind industry to be scheduled

## Industry Perspective

### Summary of Presentation

Peter Harte from Element Power and Joe Duddy from RES gave industry perspectives on the DS3 programme of work.

Peter focused on the financial risk of investing in new plant. The major risks highlighted which were identified as constraining investment included:

- EU target Model
- RAs' final decision on System Services
- RoCoF dependency
- Interconnection

More manageable risks were also identified and included, Model assumptions, Investment timelines, Build rate of Wind and Contract structure.

Joe Duddy focused on providing information in relation to National Grid activities which are related to certain workstreams within the DS3 programme. The following National Grid work groups were discussed:

- Fast Frequency Response
- High Wind Speed Shutdown
- Frequency Changes during Large Disturbances and their Impact on the Total System (RoCoF)
- Electricity Market Reform (Capacity Mechanism)

The National Grid frequency change report is due to be released next month.

### Discussion

There was a discussion on the investment timelines required for new build and an outline timeline including the planning stages was discussed. The discussion centred on the investment signals which the proposed new system services offered and the timeframes to which new developments would be able to contract for system service.

Fast frequency response was discussed and in particular the provision of this service from wind technology. An update on the work currently being conducted by the High wind speed shut down working group was also provided. It was also pointed out that the figure of 5% wind energy constrained could hamper investment in the wind industry. The TSOs clarified that it may not be possible to significantly reduce this figure. The recent tenders for Inertia and Voltage management products in GB were also discussed.

### Comment

It was noted that RES export developments could also be linked into the System in Ireland and Northern Ireland.

## RoCoF Update

### Summary of Presentation

Robert O'Rourke from CER gave an overview on RoCoF from a CER perspective. The proposed decision from the CER is that MPID 229 will be approved in principle and effective in the Grid Code after the TSOs confirm system security at 1Hz/s. It is allowing an 18 month lead-time for all studies in relation to this project to be completed. Generator studies, system operator studies and alternative solutions to RoCoF studies will be completed in co-ordination with the TSOs. This proposed consultation paper is due to be published the week ending 28<sup>th</sup> of June.

### Discussion

The three main issues from a CER perspective were:

- RoCoF increasing from 0.5Hz/s to 1Hz/s – CER strongly support this.
- What else needs to be done before implementation of this standard? – Studies on existing plant; cost incurred and how these costs should be met.
- How will the standard be incentivised?

**Comment**

CER will publish their consultation paper on RoCoF separately to that of UREGNI. UREGNI have previously committed to providing an update on RoCoF in a timeline that roughly aligns with the timeline of the CER.

**Action List**

6. TSOs to circulate the CER paper once published
7. TSOs to revert with new timelines for increasing SNSP and the likely effect this will have on the curtailment levels
8. TSOs to re-programme RoCoF workstream following the receipt of updates from both CER and UREGNI

## Voltage Control

**Summary of Presentation**

Paul Cuffe (UCD) presented on the conclusions from the Voltage Control Studies he conducted for the TSOs, in co-ordination with UCD on reactive power and Wind Farm Clusters. The study was undertaken to look at the performance of different control schemes on a sample of distribution connected wind-farm clusters, namely Magherakeel and Corderry.

The study involved simulations of power factor regimes, voltage control modes and active control schemes. It demonstrated that reactive power response remains sensitive despite an increase in voltage droop. The following conclusions were drawn from the study:

- Performance achievable is dependent on the local distribution network
- Transmission system reactive power requirements vary by location
- A number of control options are available and there is no optimal generic solution
- The control method or methods used can significantly reduce the amount of tap changing which need to be carried out. The studies showed that well designed Voltage Control strategies and also Smart Power Factor can reduce the number of tap operations conducted per month to zero.

Consequently, further analysis is underway to determine the wider transmission system impact (Q.4 2014). As well as that, the TSOs and DSOs will work together on further consideration of control arrangements and their implementation. An agreed TSO/DSO reactive/voltage control protocol is envisaged for Q.4 2014.

**Comment**

The general consensus on the studies was highly positive. There was a high level of interest in both the content and the results. The question was asked if further information on the studies would be made available. It was noted that the TSOs are currently working with the DSOs in this space and a final paper may be available at a later date.

**Additional Discussion**

ESBN provided an update on their Integrated Vision for an Active Distribution Network (IVADN) Project which has recently been established to engage with the TSOs' DS3 project.

**Action Items**

9. TSOs and DSOs to work together on further consideration of control arrangements and their implementation.

## System Services Update

**Summary of Presentation**

Michael Preston provided a general update on the progress of the System Services workstream. The presentation noted that the TSOs' Recommendation Paper on System Services has been published on the TSOs' websites and that the TSOs have been engaging with the RAs' consultant Poyry over the last 3 weeks.

The outline principle recommendations made by the TSOs in the paper were presented. In addition, the topics which the TSOs are recommending for further consultation as identified in the paper were also outlined.

### **Discussion**

The next steps for the System Services workstream were discussed noting that a specific presentation and discussion on the System Services recommendation paper would be provided in the afternoon session.

## **Curtailment Report 2012**

### **Summary of Presentation**

Jon O'Sullivan presented on curtailment reporting and provided an overview of the 2012 Curtailment Report which has been compiled by the TSOs. It was noted that the curtailment values in 2012 show an overall better performance in terms of both the percentage of curtailment as well as in terms of total volumes in comparison with the curtailment levels seen in 2011.

The jurisdictional differential between Ireland and Northern Ireland was identified as probably largely down to autonomous units in Northern Ireland not being included as VPTGs.

The TSOs are also investigating curtailment reporting on other technologies such as CHP, Hydro etc but note that reporting on these areas was not feasible at this time.

It was pointed out that the monthly percentage of dispatched down wind generation in Ireland had fallen from 7% in 2011 to 4% in 2012. The availability of Turlough Hill was noted as being a significant contributory factor to this.

### **Comment**

A question was asked if the TSOs plan to include reporting on autonomous units going forward. It was noted that a Wind Dispatch tool is due to be delivered in Q2 2014 which will facilitate this improved reporting.

### **Action Items**

10. TSOs to investigate producing regional specific, half hourly "All Island dispatch down of wind volumes" charts to further help identify times and regions possibly effected by network constraints.
11. TSOs to publish the 2012 curtailment report pending sign off from CER

## **All-Island High SNSP Reports**

### **Summary of Presentation**

David Cashman provided a presentation on the All Island High SNSP reports for 2012. The presentation included wind statistics for 2012 and it was pointed out that high SNSP events were recorded on 49 days during 2012. The criteria for this being situations whereby wind generation exceeds the threshold of 40% of the demand at a point during the day, using 15 minute data.

An overview of the System performance was also discussed with particular focus on times when SNSP reached 50%. In all cases Voltage and Transient Stability issues do not arise.

### **Discussion**

The RoCoF values during High SNSP scenarios were discussed. It was made clear that in normal operation the loss of the Largest Single In-feed (LSI) in any of these events would not result in a RoCoF greater than 0.5Hz/s occurring. The effects of a 3 phase fault on the HV terminals of a generator followed by the tripping of a generator were also presented. In these instances RoCoF as high as 0.55Hz/s were seen in the studies. It was made clear that the probability of this occurring in reality was low.

The TSOs confirmed that the inertia of system demand was not included in the above calculations. The method used by National grid for estimating the "residual inertia" of demand was described (After

a frequency event, NG compares the actual frequency time series with the theoretical time series based on a simulation of generator inertia alone, the difference between the two time series is the residual inertia which can be attributed to demand). It was suggested that a similar methodology could improve the TSOs' calculations.

The question was also raised on what actions the TSOs were taking in relation to situations where RoCoF of  $>0.5\text{Hz/s}$  were identified. The TSOs noted that the Control room would re-dispatch plant to alleviate this issue if such scenarios arose in real time.

Going forward the TSOs will feed available data from PMU's into future reporting. The Frequency models in TSAT will continue to be updated to ensure accuracy on modelling of RoCoF

The TSOs will also begin work on the development of a control room scheduling policy for times when TSAT identifies potential for high RoCoF during times of High SNSP.

## System Services Discussion

### Summary of Presentation

Jon O'Sullivan provided a presentation on the recently published TSO Recommendations Paper on System Services. The presentation started by looking at the existing market signals before providing context and background to the System Services Review process. The technical issues which the system will face in 2020 without enhanced service provision were then discussed before looking at the new System Service products recommended by the TSOs, the costs for these services and the value they will deliver to the system.

The key response areas were then described before outlining the principle recommendations of the System Services Recommendation Paper. Finally, the areas which the TSOs have recommended which require further consultation with the industry were also outlined.

### Discussion

It was noted that a System Services workshop is scheduled to take place in Dublin on the 26<sup>th</sup> of June, where a more detailed version of this presentation would be provided to the wider industry. Feedback was received from a council member that it would be beneficial to include more detail around the rate scalar element of the System Service recommendation.

Feedback was also provided by a member that there should be more focus on what the TSOs' recommendations are during the System Services workshop.

### Action Items

12. TSOs to confirm venue for System Services workshop on 26<sup>th</sup> June
13. TSOs to input the feedback received from the Advisory Council into the presentations at the System Services workshop.

## Minimum Number of Units Study

### Summary of Presentation

Ivan Dudurych presented on the results of the pilot study on the Minimum number of sets. The presentation included an overview of the methodology used to conduct the studies and details of the main factors influencing the minimum number of units.

A summary slide outlining the minimum number of units required to securely operate the system in a range of system scenarios was also provided along with a summary of next steps.

### Discussion

It was noted that the current All Island minimum number of sets rule used by the TSOs requires a minimum of 8 sets to be operating at any given time which does not include units which operate under priority dispatch. The minimum values indicated by this pilot study do not account for localised and or regional constraints and the studies have not yet considered ramping requirements. It was also noted that the studies to date focus on 28 snap shots.

The question was also raised on the effect that the current operation of the East West Interconnector was having on the minimum number of sets required on the system. The TSOs noted that in the studies, in situations where flows on EWIC were equal to zero the interconnector was providing static reserve and thus reducing the minimum number of sets required in these scenarios.

#### **Action Items**

14. TSOs to carry out more in-depth Minimum number of sets studies. Ramping requirements are to be included in these studies.

## **DS3 Advisory Council Review**

#### **Summary of Presentation**

Finally the meeting concluded with Andrew Cooke leading 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.

#### **Discussion**

The feedback received by the TSOs during the meeting was wholly positive with regard the content and structure of the meeting, with a number of Council members commenting on their preference for a format which includes the level of detail as was provided at this meeting (Meeting No. 6). A survey is to be issued to formally receive further feedback.

#### **Action Items**

15. The TSOs to circulate an Advisory Council Review questionnaire to the Council members requesting feedback in relation to format, content, timing, and location of the meetings.