DS3:
Performance Monitoring & Generator Testing Workstream

CONTEXT

The nature of the all-island power system is changing to meet both Governments' policies with respect to renewable energy. The recent "Delivering a Secure, Sustainable System (DS3)" report has indicated that the nature of the power system in Ireland and Northern Ireland will change significantly by 2020. At the core of this change is the replacement of large thermal synchronous plant with variable non-synchronous renewable power plants. To manage this transformation it is essential that a detailed understanding of the changing characteristics of the power system is developed. At the core of this understanding is the need to systematically monitor the actual performance of all users of the power system over a wide range of operating conditions and disturbances. Performance monitoring, including both commissioning and on-going testing of generators, needs to evolve in the coming years to meet these challenges.

OBJECTIVE

The Performance Monitoring and Testing workstream has the following objectives:

- Provide understanding and certainty as to how the system and the users connected to the power system are performing;
- Provide objective information on the actual performance of users of the system and use this to enforce all relevant Grid Code standards, and where appropriate Distribution Code standards;
- Using this information to inform operational policies and to improve the modelling of the power system in order to provide greater certainty in how the power system is likely to behave with higher penetrations of wind power plant; and
- Facilitating the appropriate regulation and incentivisation of Generator Performance Incentives and System Services products to ensure that the necessary aggregate portfolio performance is delivered.

WORK COMPLETED IN 2012

To date the Performance Monitoring section of the workstream has focused on standardising and documenting the current processes in EirGrid and SONI. Monthly and quarterly all-island reports are now produced on the aggregated portfolio performance which feeds into operational policy. Phase 1 of Performance Monitoring also focused on identifying and documenting high-level business requirements for an enhanced all-island performance monitoring process. The aim of this enhanced process is set out in the Objective section.

Phase 1 of the Testing and Commissioning section of the workstream focused on carrying out an industry review of the current Commissioning and Testing process and to present recommendations to industry on areas for improvement in the current processes. The industry review was discussed at the Joint Grid Code Review Panel meeting in May 2012 and it was agreed to set up all-island workshops to review the current processes employed for both conventional and wind farm power

stations. The scope and high-level project plan has been updated to reflect the current status of this workstream.

FOCUS AREAS IN 2013-2014

The next phase of the Performance Monitoring workstream involves implementing the enhanced performance monitoring requirements as follows:

- The high-level requirements developed in phase 1 are analysed and suitable IT systems that can deliver these requirements are proposed;
- The new data measuring recorders and telecoms infrastructure are to be rolled out where required;
- Briefing sessions will be carried out with industry on the philosophy of performance monitoring, the proposed approach for the system that will be taken and on the interface between the TSOs and the users under the enhanced performance monitoring process;
- Following this, a procurement process will result in a suitable vendor being appointed and then detailed development and testing of the new enhanced IT system can be progressed;
- Industry users will be invited to carry out acceptance testing of the new system for functionality and usability; and,
- Finally, the required documentation and processes will be developed to allow for the roll out of the enhanced performance monitoring process.

Performance monitoring metrics will be designed for the new System Service products so there is a dependency on the Regulatory Approval of these new services before the performance monitoring designs can be finalised.

The next phase of the Testing and Commissioning section of the workstream will involve the documentation and standardisation of testing procedures where applicable on an all-island basis. In particular, the development of the commissioning and testing procedures for the new System Services will be on an all-island basis. In addition, where appropriate, standard processes will be developed based on new Grid Code modifications.

New standards regarding many aspects of Power System Operation and Planning are coming in the medium-term from the ENTSO-E Network Codes. There is a body of work to be carried out in identifying the commonalities and differences between the approaches to Grid Code testing in Ireland and Northern Ireland. It makes sense to adopt a 'best of both' approach to Grid Code testing standards are operating a single electricity market and as a single synchronous system, particularly if both Grid Codes need to adopt some new elements coming from the ENTSO-E Network Codes. This work will require input from EirGrid and SONI Commissioning & Testing teams. This work will commence towards the end of this year and a plan will be developed and published to update the industry.

2013-2014 SCOPE

Performance Monitoring

- Develop detailed all-island business requirements for enhanced performance monitoring system including:
    - The enhanced data requirements required including the roll-out of disturbance recorders across the system;
    - Performance metrics against Grid Code and contracted requirements; and
    - Customer facing reporting system.
- Industry briefing sessions on proposed new enhanced performance monitoring process;
- Procurement of IT system that meets developed requirements;
- Design, develop and test enhanced performance monitoring system;
- Development of required documentation and processes to facilitate the roll out of the new system;
- Industry involvement in testing of enhanced performance monitoring system and processes; and
- Publication of documentation and processes to facilitate the roll out of the new system.

Testing and Commissioning

- Present finalised recommendations from industry review;
- Internal decision on industry review details;
- Implement recommendations from industry workshops into current testing processes;
- Develop standardised testing processes for new Grid Code modifications.
- Develop standardised testing processes for new Distribution Code modifications.
- The development of standardised all-island commissioning and testing procedures for new DS3 Systems Services products, in conjunction with Industry, will be considered during 2013 and the plan will be updated to reflect timelines around this process.

HIGH-LEVEL PLAN

TASK NO.	DECISION / DELIVERABLE	RESPONSIBLE	ORIGINAL DUE DATE	DUE DATE
Documentation All-Island Performance Monitoring process and reports				
PMT.1.1	Defining the current processes in EirGrid and SONI	TSOs	Q2 2012	Completed
All-Island Performance Monitoring Reporting				
PMT.2.1	Publish all-island monthly system level Performance Monitoring statistics	TSOs	Q4 2011	Completed
PMT.2.2	Delivery of EirGrid unit level quarterly Performance Monitoring reports	TSOs	Q4 2011	Completed
PMT.2.3	Delivery of all-island unit level quarterly Performance Monitoring reports	TSOs	Q2 2012	Completed
Enhanced All-Island Performance Monitoring				
PMT.3.1	Development of requirements for standardized Performance Monitoring on All-Island basis	TSOs	Q4 2012	Q1 2013
PMT.3.2	Development of requirements for standardized Performance Monitoring for new system services products including engagement with industry	TSOs	Q3 2012	Q1 2014
PMT.3.3	Implementation plan for roll-out of Enhanced Performance Monitoring system	TSOs	Q1 2013	Q1 2013
PMT.3.4	Hold briefing sessions with Industry on performance monitoring approach and the high-level proposals for the enhanced Performance Monitoring system	TSOs, Industry	New Task	Q2 2013
PMT.3.5	Development, Testing and Implementation of new IT Systems for enhanced performance monitoring system	TSOs	New Task	Q3 2014
PMT.3.6	Roll out of data recording devices required for enhanced performance monitoring system	TSOs, DSOs	New Task	Q3 2014
PMT.3.7	Documenting and publication of enhanced performance monitoring system and on new processes	TSOs	New Task	Q3 2014
PMT.3.8	Testing by Industry users of enhanced performance monitoring system	Industry	New Task	Q3 2014
PMT.3.9	Hold briefing sessions on enhanced performance monitoring system and on new processes	TSOs, Industry	New Task	Q3 2014
PMT.3.10	All-Island enhanced Performance Monitoring rolled out	TSOs	Q1 2014	Q4 2014
Feedback of Performance Monitoring results into Operational Policy				
PMT.4.1	EirGrid System Portfolio Performance Monitoring results aggregated	TSOs	Q4 2011	Completed
PMT.4.2	All-Island System Portfolio Performance Monitoring results aggregated	TSOs	Q2 2012	Completed

PMT.4.3	Operational Policy Review	TSOs	Q2 2012	Completed
PMT.4.4	Enhanced System Portfolio Performance Monitoring capability aggregated	TSOs	Q4 2014	Q4 2014
Standardised and documented All-Island testing process				
PMT.5.1	Update on Industry review of Commissioning and Testing process to Joint Grid Code Review Panel (JGCRP)	TSOs	Q2 2012	Q1 2013
PMT.5.2	Documented All-Island recommendations (wind and conventional) to improve and harmonise (where possible) commissioning and testing process	TSOs, Industry	Q3 2012	Q1 2013
PMT.5.3	Implement recommendations received from workshops	TSOs	Q1 2014	Q4 2013
PMT.5.4	Develop standard processes based on new Grid Code modifications which require testing	TSOs	New Task	Q4 2013
PMT.5.5	Consideration of standardised testing processes arising from Distribution Code Modifications	DSOs	New Task	Q4 2013
System Services Dependencies				
SS.1.16	Decision by SEM committee on new System Service Products	SEM Committee	New Task	26/09/2013
Grid Code Dependencies				
GC.06.4	Regulatory approval on Demand-side Unit Grid Code Modification	RAs	New Task	Q3 2013
GC.08.3	Regulatory approval on Over-Frequency Grid Code Modification	RAs	Q2 2013	Contingent