



DS3: Demand Side Management Workstream

CONTEXT

This workstream, together with the other DS3 workstreams, considers the integration of renewables in terms of the operational management of Demand Side activity.

There is provision within the SEM for a Demand Side Unit (DSU) and an Aggregated Generator Unit (AGU). Essentially these units provide for the concept of aggregation of small loads/generators by an intermediary actor in the market. These units can operate commercially within the SEM and be centrally dispatched by the System Operators. Units like these can assist with the operational integration of renewable generation by providing flexible system services. At present, there is one AGU and two DSUs operational in the SEM and there is substantial interest from industry in the development of further DSUs.

Demand Side Management (demand flexibility in its broadest context – the ability to control the increase and/or decrease of demand) could play a role in facilitating the connection / management of more renewables. It is important that it is considered. In addition, the future role of domestic appliances, Electric Vehicles, heat pumps, etc. also needs to be factored into the DS3 programme.

The RAs have undertaken a programme of work to develop a Strategic Demand Response Programme for the island of Ireland. In this regard, a Decision Paper entitled “Demand Side Vision for 2020”¹ was published in May 2011 and follows a Consultation Paper (SEM-10-052) published in August 2010. This Decision Paper provides a view of the 2020 Demand Side Vision and a prioritised list of measures to enable it to be delivered. Some of the “key measures” outlined in the Decision paper which are relevant for the DS3 programme are as follows:

1. The SEM Committee will write to the Trading & Settlement Code (T&SC) Modifications Committee Chair asking it to consider any barriers to DSM identified through current modifications and to consider the implications for demand side participation in relevant future modifications brought before the T&SC Modifications Committee. The T&SC Modifications Committee will be required to report back to the SEMC.
2. CER will request that the TSOs consider if/how the current retail demand reduction schemes in Ireland will fit within the harmonising and further review of Ancillary Services currently proposed by the TSOs. It is the SEM Committee view that this review should also include an examination of the pricing of Ancillary Services with a view to promoting demand response.
3. The SEM Committee will write to the T&SC Modifications Committee and Grid Code Committee Chairs asking them to consider any barriers facing distributed generators and/or other measures to facilitate participation from distributed generation. The T&SC Modifications Committee and Grid Code Committee will be required to report back to the SEM Committee.
4. The SEM Committee will consult with industry on the development of standard contract structures between aggregators and capacity providers, which may facilitate participation from distributed generation (DG).

¹http://www.allislandproject.org/en/overview_1.aspx?article=185b17f5-e666-4943-8237-f2bdbd3df33f&mode=author

5. The SEM Committee will request that the TSOs undertake a review covering payments for system wide storage and provide recommendations to the SEM Committee.

OBJECTIVE

A key objective of this workstream is to remove any barriers to both DSUs and AGUs becoming operational in Ireland and Northern Ireland. This may require changes to the Grid Codes, Trading and Settlement Code and the Regulatory Authorities' Supply Licence.

The main objective over the coming years is to investigate and evaluate the effectiveness of demand side participation to assist in the delivery of the 2020 renewable targets, particularly with the System Services that it can provide. [Demonstration Projects](#) and the [Smart Grid Innovation Hub](#) will facilitate this investigation.

WORK COMPLETED IN 2012

In late 2011 and early 2012, the Regulatory Authorities/SEM Committee approved changes to the Ireland and Northern Ireland Grid Codes, the Trading and Settlement Code and the CER Supply Licence which removed many of the barriers to DSUs and AGUs participating in the SEM and becoming operational. Since then, two DSUs have become operational in Ireland in addition to the existing AGU in Northern Ireland. A [DSU section](#) of the EirGrid website has been developed including an [application form](#) and internally an application process including Grid Code testing procedures has been put in place by EirGrid and SONI. A process for performance monitoring of DSUs is also in operation and the details are currently being finalised. [DSU Workshops](#) were held in Dublin, Cork and Belfast during the summer and autumn to promote demand side participation in the SEM. There since has been a great deal of interest particularly in Ireland given that the CER have published a Decision Paper ([CER/12/163](#)) in which they have decided that winter 2012/13 will be the last season of the Winter Peak Demand Reduction Scheme.

A review and analysis of more appropriate communications mechanisms for aggregated units from the Control Centres has been completed. The existing mechanism in which a Remote Terminal Unit (RTUs) is used will be replaced with a more appropriate and less costly Secure ICCP connection over the Internet.

Since December 2011, the DS3 System Services workstream has published three consultation papers on proposed new System Services products and arrangements. DSUs and AGUs will be eligible to provide many of the proposed new products.

FOCUS AREAS FOR 2013

Following the experience gained from the application process and operation of DSUs and AGUs, a thorough review of the Grid Code standards is concluding. The aim is to bring a number of modifications to the Grid Code Review Panels in March 2013 with a decision from the RAs in Q2 2013. Of particular interest to the TSOs is the start-up time of DSUs. Any Grid Code modifications will also be assessed in the context of the Trading & Settlement Code. In addition, the rules in the Trading & Settlement Code relating to DSU and AGU need to be reviewed in the context of the Decision Paper on the Demand Side Vision for 2020.

Following the decision to trial a replacement to RTUs by means of a Secure ICCP connection over the Internet for real-time communications between aggregators and the TSOs' Control Centres this piece of work will move into a design and implementation phase. The new mechanism will be trialled and evaluated with a single customer before a decision is made to fully roll out the new proposed solution.

In the SEM, there is no provision for an AGU to hold a license. Instead, a number of contracts are required including regulatory approval in the form of a contract to allow the AGU to become a party to the Trading and Settlement Code. In addition, a Generator Aggregator System Operator agreement (GASOA) is required between the system operator and the AGU which sets out the requirement to comply with the Grid Code, the operation conditions and the details of the AGU component sites. Currently, the GASOA only exists in Northern Ireland. Given that the agreement is nearly five years old and was written when there was no operational experience of AGUs, it will be reviewed and a version for Ireland will also be produced.

There is no contract between a DSU and the system operator, a review of this also needs to be carried out.

DEMONSTRATION PROJECTS

In April 2012, the TSOs issued an open invitation to take part in demonstration projects (<http://www.eirgrid.com/operations/demonstrationprojects/>) to develop, trial and prove new transmission system concepts and technologies. Two projects have initially been chosen, one in the area of demand side management; Glen Dimplex Quantum – Greenway Project. The aim of the project is to demonstrate how the Glen Dimplex Quantum space and water heating system can be deployed as an aggregated demand side management tool.

In addition, a collaborative initiative by EirGrid Group and NDRC (National Digital Research Centre) to promote the development of innovative Smart Grid solutions, with a focus on entrepreneurial initiatives by companies, academics and entrepreneurs in Ireland and Northern Ireland has been established which may lead to further projects in the area of demand side management. More information can be found at <http://www.smartgridinnovate.com/>.

HIGH-LEVEL PLAN

TASK NO.	TASK	RESPONSIBILITY	ORIGINAL DUE DATE	DUE DATE
DSU Readiness				
DSM.1.1	Approval of Grid Code Modification for DSU (MOD_36_10)	CER	Q4 2011	Complete
DSM.1.2	Northern Ireland Grid Code Modification Consultation	TSOs & RAs	Q4 2011	Complete
DSM.1.3	Northern Ireland Approval of DSU Modification	UReg	Q1 2012	Complete
DSM.1.4	Delivering T&SC Modification	SEMC	Q1 2012	Complete
DSM.1.5	System Services Consultation #1	TSOs / RAs	Q4 2011	Complete
DSM.1.6	System Services Consultation #2	TSOs / RAs	Q3 2012	Complete
DSM.1.7	WPDRS phase out	EirGrid / CER	2012 – 2013	Underway – Winter 2012 / 2013 will be the last season
DSM.1.8	DSU Operation (Ireland Pilot)	TSOs / Industry	Q2 2012	Complete
DSM.1.9	Review of System Services arrangements for DSU	TSOs	New Task	Q3 2013
Contracts & Licensing				
DSM.2.1	Review of licensing arrangements for AGU	RAs	Q2 2012	Complete – no action to be taken
DSM.2.2	Review of existing GASOA	TSOs	Q3 2012	Q1 2013
DSM.2.3	Development of regulatory contract for AGU	RAs	Q2 2012	Already in place – SEM-08-178a
DSM.2.4	Decision on DSU supplier license & tie in with Bidding Code of Practice	RAs	Q4 2011	Complete
DSM.2.5	Review if a DSU – SO contract is required		New Task	Q1 2013
DSU Commissioning & Testing				
DSM.3.1	Review and analysis of appropriate communications mechanisms for aggregated units from the Control Centres	TSOs	Q4 2012	Q4 2012
DSM.3.2	Decision on communications mechanisms from Control Centres	TSOs	Q1 2013	Q1 2013
DSM.3.2.1	Design and implementation of new communications mechanism from Control Centres	TSOs	New Task	Q2 2013
DSM.3.2.2	Pilot of new communications mechanism from Control Centres	TSOs / Industry	New Task	Q3 2013
DSM.3.3	Investigate metering mechanisms for AGU	TSOs	Q1 2012	Complete
DSM.3.4	Develop Grid Code testing procedures for AGU/DSU	TSOs	Q1 2012	Complete
DSM.3.5	Development of process for performance validation for DSU	TSOs	Q2 2012	Q1 2013
Grid Code				
DSM.4.1	Review of Grid Code standards for AGUs and DSUs	TSOs	New Task	Q4 2012
DSM.4.2	Bring modification to Grid Code Review	TSOs	New Task	Q1 2013

	Panel based on review			
DSM.4.3	Make decision on modification	RAs	New Task	Q2 2013
Demonstration Projects				
DSM.5	Evaluate new methods of Demand Side Participation through Demonstration Projects and the Smart Grid Innovation Hub	TSOs / Industry	New Task	Q4 2013