



DS3: Demand Side Management Workstream

BACKGROUND

This work stream, 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 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 SEM and be centrally dispatched by the system operators. Units like this can assist with the operational integration of renewable generation by providing flexible system services. At present, there is one AGU operational in SEM. However, there is substantial interest from industry in the development of further AGUs and DSUs.

Demand Side Management (demand flexibility in its broadest context – 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 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 ROI 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).
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.

In terms of implementation for the DS3 programme, the measures outlined above can be broadly categorised into five workstreams as follows:

1. Demand Side Schemes (2)
2. Grid Code (3) (5)
3. Trading & Settlement Code (1)
4. System Services (5) (2)
5. Contracts & Licensing (4)

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

6. Readiness for DSU/AGU (3) (1)

Note: Workstream 1 has already been advanced through the publication of the Decision paper on WPDRS for 2011/12.

APPROACH

Work has already begun on many of the areas e.g. Grid Code, Demand Side Schemes, and Contracts & Licensing etc. The completion and approval of the relevant Grid Code modifications, along with a more thorough review of the Grid Code will be the next step. In addition, the phase out of WPDRS and the review of System Services will all feed into developing demand side participation in SEM. Other key areas include real time communications from the Control Centres, dispatch procedures, testing and commissioning procedures, metering and validation of unit performance.

Effectively, workstreams 1 -4 (Demand Side Schemes, Grid Code, System Services, Contracts & Licensing) all feed into workstream 5, readiness.

SCOPE

Notwithstanding the work going on relating to domestic/energy efficiency demand side measures, the scope of this is limited to demand side participation/management at a commercial/industrial level where system operator interaction is involved.

GRID CODE

DSU

Following a modification that was raised to the Trading and Settlement Code in January of this year, a substantial review of the Grid Code rules for DSU was carried out. These changes have been brought to the Ireland, Northern Ireland and Joint Grid Code Review Panel meetings on 13th October and were agreed in principle. The next step is to work with DSU developers and further analyse the rules.

This will be covered off by the Grid Code workstream as part of the DS3 programme and will be completed in 2012.

AGU

A thorough review of the Grid Code rules is required.

For both DSU and AGU, any Grid Code changes need to be assessed in the context of the Trading & Settlement Code.

A review of storage technologies will also be carried out.

This will be covered off by the Grid Code workstream as part of the DS3 programme and will be completed in 2012.

TRADING & SETTLEMENT CODE

Any changes made to the Grid Code may have an impact on the review on 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.

SYSTEM SERVICES

Similar to other units on the system, both DSU and AGU are capable of supplying system services. In particular, these units can provide ramping and reserve type services. As part of the DS3 programme, a significant review of the level and type of system services required out to 2020 is being carried out. This review of system services will be non-discriminatory in terms of what technology/plant can provide the necessary system services.

This will be covered off by the System Services workstream as part of the DS3 programme.

CONTRACTS & LICENSING

AGU

In 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. In Northern Ireland, these contracts have been set up for the existing operational AGU.

A review of the licensing and contract requirements is now required to identify if any remaining barriers exist. Consideration must be given to the TUoS arrangements for AGU.

DSU

A Trading and Settlement Code modification (MOD_36_10) was raised last year to request the removal of the requirement for a DSU to be the supplier for all the individual demand sites within a DSU. This modification has been approved by the SEM Committee. However, this change now requires a license change to ensure compliance of the supplier license with the Bidding Code of Practice for the DSU when bidding into SEM.

A full review of the licensing and contract requirements is now required to identify if any barriers exist.

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

DEMAND SIDE SCHEMES

The current Winter Peak Demand Reduction Scheme (WPDRS) provides for approximately 120 MW of demand reduction from November to February in the Republic of Ireland. The CER has published a WPDRS roadmap for the coming years, outlining its intention to phase out the scheme over a two year period beginning 2010/2011² subject to the availability of viable DSU alternative being available in the market. In parallel with this phase out, the system operators will ramp up work in preparation for additional DSU/AGU in SEM. This roadmap is in line with the philosophy outlined in the Demand Side Vision decision paper.

Powersave is a demand reduction scheme which is called by EirGrid when there is a generation capacity shortfall. This scheme offers approximately 60 MW of demand reduction depending on the time of day/season when it's called. This scheme will continue to be operated by EirGrid.

² <http://www.cer.ie/en/electricity-retail-market-current-consultations.aspx?article=1fee8ce6-3f35-4345-8481-dd4d399e45bb>

APPENDIX 1 – HIGH-LEVEL PROJECT PLAN

Task	Responsibility	Timeline
1. Approval of Grid Code Modification for DSU (MOD_36_10)	CER	Q4 2011
2. Northern Ireland Grid Code Modification Consultation	TSOs & RAs	Q4 2011
3. Northern Ireland Approval of DSU Modification	NIAUR	Q1 2012
4. Delivering T & SC Modification Panel	SEM Committee	Q1 2012
5. System Services Consultation #1	TSOs/RAs	Q4 2011
6. System Services Consultation #2	TSOs/RAs	Q3 2012
7. WPDRS Phase out³	EirGrid/CER	2012 – 2013
8. DSU Operation (ROI Pilot)	TSOs/Industry	Q2 2012
<u>Contracts & Licensing</u>		
9. Review of licensing arrangements for AGU	RAs	Q2 2012
10. Review of existing GASOA(dependent on 9)	TSOs	Q3 2012
11. Development of regulatory contract for AGU (dependent on 9)	RAs	Q2 2012
12. Decision on DSU supplier license & tie in with Bidding Code of Practice (8 is dependent on this)	RAs	Q4 2011
<u>DSU Commissioning & Testing</u>		
13. Review and analysis of appropriate communications mechanisms for aggregated units from the Control Centres	TSOs	Q4 2012
14. Decision on communications mechanisms from Control Centres	TSOs	Q1 2013
15. Investigate metering mechanisms for AGU	TSOs	Q1 2012
16. Develop Grid Code testing procedures for AGU/DSU	TSOs	Q1 2012
17. Development of process for performance validation for DSU	TSOs	Q2 2012

³ Subject to viable DSU alternatives being available in the market