DRAI

Demand Response Aggregators of Ireland

Brian Mulhern
Utility Regulator
Queens House
14 Queen Street
Belfast
BT1 6ED

Thomas Quinn
Commission for Energy Regulation
The Exchange Belgard Square
North Tallaght
Dublin 24

17th August 2015

Dear Sirs,

Re: I-SEM Capacity Remuneration Mechanism -- Consultation Paper

The Demand Response Aggregators of Ireland ("DRAI") is a recently-formed association of ten Demand Side Unit (DSU) and Aggregated Generating Unit (AGU) providers in the SEM. Our purpose is to provide a single voice on policy and regulatory matters of common interest and we very much look forward to working with you into the future. I hope that you will consider this response in your deliberations as we believe there is a significant role for DSUs and demand-side participation in any future market arrangements in Ireland.

Why AGUs/DSUs are important

AGUs/DSUs are capable of responding to signals from the system operator within one hour and therefore provide an effective means of reducing the demand requirement, which can assist in balancing the system and avoiding constraints. Facilitation of AGUs/DSUs increases demand flexibility and improves overall system stability by:

- providing reliable distributed capacity to the system;
- contributing to avoided investment in peaking plant by delivering peak load reduction;
- providing flexibility to mitigate the uncertainty of wind output;
- helping to mitigate transmission and distribution network constraints .[1]

[1] Single Electricity Market (SEM) (2011), Demand side Vision for 2020 Decision Paper, SEM/11/022.

Effective integration of AGUs/DSUs into the market structure will provide flexible, cost-effective capacity and in doing so complement thermal plant and renewables capacity. In addition, the participation of AGUs/DSUs can reduce the market power of conventional generators in the wholesale market, leading to more competitive outcomes.

In the past, inefficient diesel plant could run for hours in anticipation of high retail price signals or system demand (Peak lopping in NI, WPDRS in ROI), even such system demand did not always materialise. The SEM has been successful in positioning AGUs and DSUs correctly in the merit order, ensuring this relatively expensive capacity is available to the system operator to dispatch when needed, but not unnecessarily running the units. This is a substantive improvement, both economically and environmentally. The DRAI would therefore fully support the carryover of this aspect of the SEM model into the I-SEM, as the alternative would result in reverting to expensive load curtailment and would also see the unnecessary operation of diesel generation capacity.

Facilitation of AGUs/DSUs in the I-SEM

Fundamentally, the DRAI expects that AGUs/DSUs/Demand side capacity will become increasingly important in the design of the Irish electricity system and believes that the regulators need to give further consideration to how AGUs/DSUs[2] can be facilitated when developing the new I-SEM market arrangements.

Across Europe, AGUs/DSUs are increasingly recognised as an effective and highly efficient means of balancing the supply of electricity with consumer demand, and within the I-SEM the requirement to balance an increasing proportion of variable wind generation is expected to become ever more necessary. In Ireland the delivery of the 2020 and 2030 renewable energy targets is projected to result in one of the highest penetrations of variable non-synchronous generation on any power system in the world and is expected to create very challenging future operational scenarios for the grid system operators[3]. It is therefore paramount that this advanced and progressive electricity system is supported by appropriate market arrangements within the I-SEM to encourage the growth of demand-side participation and other system balancing measures.

Whilst the DRAI recognises that flexible dispatchable generation (peaking plants/OCGT) is effective at providing real-time balancing of renewable generation variability in the today's electricity system design, we expect that AGUs/DSUs will have an increasing role in delivering system balance in the future. The DRAI therefore believes that the regulators need to be mindful of this growing potential in order to ensure that the market arrangements within the I-SEM provide adequate support for AGU/DSU participation into the future.

[2] The term 'DSU' has been used throughout this letter. It should be understood to refer to both DSUs and AGUs as appropriate. The term 'DR' refers to Demand Response as provided by DSUs and AGUs

[3] EIRGRID GROUP ANNUAL RENEWABLE REPORT 2013 Towards a Smart, Sustainable Energy Future

In this consultation response, we begin by providing some general comments on the approach taken in the design of the Capacity Remuneration Mechanism (CRM) in the consultation paper. We then provide an explanation as to how AGUs/DSUs differ from conventional generation, before considering how the CRM can work to effectively incentivise AGUs/DSUs. A number of important points within the design of the CRM which impact on demand response generally and DSUs specifically, are then identified and discussed.

General comment

The DRAI are supportive of the approach taken to the design of the I-SEM CRM and in particular agree that:

- The market failures which afflict energy-only markets tend to be much more serious in smaller systems and in systems with high levels of intermittent generation (p.9).
- Central auctions and central settlement are the most efficient and transparent approach (p.9);
- The assessment criteria (p.16), especially that the trading arrangements should promote competition, incentivise appropriate investment and operation, and should allocate costs and benefits in a fair and reasonable manner.

In addition the DRAI consider that market risks should also be allocated in a fair and reasonable manner, and should be no larger than necessary to incentivise efficient operation. It is important that the market design does not present some or all participants with unmanageable risks, as these risks will result in costly risk premiums which will ultimately be passed through to end customers.

AGUs/DSUs in Ireland are at the early stages of market development and are therefore predominantly developed and operated by relatively small market actors (aggregators) with limited resources. Participation in a market with an overly complex structure would require substantial resources which are beyond the capabilities of these new market entrants. Failure to factor in demand-side participation in the initial I-SEM design may inadvertently force its exclusion due to the complexity of the proposed market structures.

Important aspects of CRM design specific to Demand Side Participation

1. Capacity requirement

Security standard

Capacity margins in recent years have been well above those needed to uphold the security standard. The DRAI are therefore concerned that maintaining a standard of 8 hours LoLE may in fact lead to a deterioration in reliability due to the likely reduction in Capacity this will lead to on the Island. Consequently, **we do not support** the proposed carryover of this standard into the I-SEM.

2. Product design

Fundamentally, the DRAI believe that the market must have the flexibility to receive AGUs/DSUs' bids in the situation where both the capacity and bid price vary within trading periods throughout

the day. This is because the capacity available within an AGU/DSU customer mix can include both demand reduction and embedded generation. This mixture of capacity types will affect the unit's bid price: for example, during business hours a DSU's capacity might be a mix of embedded generation and load reduction, while outside business hours its capacity might be predominantly embedded generation.

Strike price

As discussed in the consultation paper,[4] setting the strike price too low is highly distortionary. This is a concern for the DRAI because it exposes participants with higher marginal costs to unmanageable risks and can also result in a distortion in bidding behaviour. Conversely, in a competitive energy market the consequences of setting the strike price too high are comparatively minor and considered preferable. **The DRAI would therefore support indexing the strike price to SRMC of the marginal capacity provider which is also the holder of the RO**, as this should ensure DSU participants are dispatched at RO events. In which case the DSU could pay the difference cost at no penalty.

Market reference price (MRP)

It is crucial that the market reference price is accessible to capacity providers; otherwise some or all participants will incur un-hedgeable risks. This will lead to costly risk premiums that will ultimately be passed through to the end customer. The consultation states this principle for generators and the DRAI argue that the same principle applies for DR. It is also important that the MRP avoids distorting energy market bidding behaviour through exposing participants to basis risk when they do not actively engage in a particular market.

Load following

The DRAI supports the introduction of a load following obligation as it reduces the potential for suppliers to benefit from windfall gains when a scarcity event occurs at a non-peak time, and therefore protects capacity providers from associated risks and costs.

The DRAI also considers that a non-load-following obligation would severely limit the range of customers that could participate in AGUs/DSUs, as it would greatly devalue non-24x7 loads. Restricting demand-side participation in this way would result in lower levels of demand side participation and also increase the cost of capacity in the auction.

Performance incentives

The DRAI recognise the need for caution to ensure that a common performance incentive regime is not geared to the needs of a specific technology, as this will serve to increase risk for market participants using all other technologies. The cost of managing this risk would result in additional costly risk premiums that would ultimately be passed through to end customers.

[4] p.29

Fundamentally, the DRAI supports the guiding principle that capacity providers should be incentivised to make their capacity available whenever needed and to deliver what the system operator requests from them. We therefore consider that if a workable technology-neutral performance incentive regime cannot be developed, then the development of separate schemes for different technologies may be required.

3. Eligibility

Energy payments

Opportunity costs are crucial and must be accounted for in the CRM cost calculations and economic models. This is because customers consume energy for a reason. In the case of an industrial customer, it might enable them to make widgets. The customer consumes electricity because the value they derive from it (the value added from making widgets) is greater than the cost. When the customer reduces their demand (stops consuming electricity) they forgo the benefit associated with assumption (they stop making widgets). In this way, the customer incurs a direct cost of providing demand response, which is comparable to the direct costs associated with fuel and variable operations and maintenance costs for a generator to provide the equivalent service. Therefore by omitting opportunity costs, the tables are modelling something akin to a generator with no fuel costs.

Short-run marginal costs for existing DSUs are known, because the Bidding Code of Practice requires their energy to be offered at that cost. They range from €200 to €390/MWh. These figures are quite low compared to DSUs opportunity costs calculated in other markets. This may be because in this relatively immature market participation is mostly from “low hanging fruit”; in that case it would be reasonable to expect new entrants to have higher costs.

Reliability Options

The DRAI support the statement on p.66 of the consultation paper: “minimising barriers to entry and ensuring the RO provides strong enough incentives to ensure that the value of capacity that would otherwise be sitting idle, is unlocked by parties such as aggregators”.

The RO as proposed is designed to reduce price volatility by recovering energy price spikes from market participants who are successful in the RO auction in return for an RO payment determined by auction. The DRAI therefore requests that the RO auction process has the flexibility to facilitate DSU participation.

AGUs/DSUs are primarily a capacity tool, rather than an energy tool, and within the I-SEM it is expected that AGU/DSU revenue will continue to be primarily derived from the CRM rather than energy trading, since the energy cost associated with diesel generation and load reduction positions AGUs/DSUs’ capacity relatively late in the merit order. Success in the RO auction is therefore

critically important and for this reason an RO process outturn that does not include AGUs/DSUs would be counterproductive and cannot be supported by the DRAI.

Demand Side Participation

The consultation paper specifically requests feedback on the relative merits of each of the following options regarding DSU energy payments and RO Difference Payments:

Option	Energy Payment	RO Difference Payment	DRAI Comment
I	Receive NO energy payments when dispatched	Responsible for Difference Payments	Unworkable – does not allow DR participation.
2	Receive energy payments when dispatched	Responsible for Difference Payments	Workable – However Energy Payment system will be required.
3	Receive NO energy payments when dispatched	No Difference Payment	Workable – Simple, effective solution.

The DRAI consider that the introduction of either Option 2 or Option 3 would result in a workable/feasible solution. We would have a preference for Option 2, however we also recognise that Option 3 may be the most practical given the project timeframe. The DRAI are not supportive of Option 1 as we consider this mechanism would prevent participation by DSUs and is therefore unworkable.

Rationale

<u>Option1</u>

Currently, within the SEM DSUs do not receive an energy payment when dispatched. However, within the I-SEM Option1 this would be expected to present a particular problem in the event of the RO being called, as the DSU will be responsible for the Difference Payment but without having received the Market Reference Price (MRP).

<u>The DRAI therefore consider Option 1 to be unworkable</u> as it does not provide an incentive for DR as it makes no difference whether DSU performs well or not at all: essentially, it treats all DSUs like a generator that fails to run.

In addition, it is not reasonable to assume that customers will be spot price exposed in the I-SEM. Very few customers actively participate in the spot market and the DRAI would consider it unfair to make it a precondition for DSU participation.

Furthermore should the proposed I-SEM scarcity pricing model be selected it would be necessary to model DSU cash-flows into the scarcity prices, otherwise DSUs would be exposed to extreme cost penalties which would also render their participation in the market unfeasible.

Option 2

The DRAI supports the statement on p.52 of the consultation paper: "Ideally all eligible capacity providers should face the same performance incentive regime including requirement to pay difference payments, and any additional performance incentives for under or over delivery of physical capacity at times of system stress.[5]"

Option 2 is therefore the DRAI's preferred solution as it enables DSU providers to earn spot market revenue when they curtail consumption in response to a dispatch instruction, which will cover their Difference Payments if they deliver their full capacity. It is therefore the only option consistent with the stated requirement for all types of capacity to face the same performance incentives. However, it will be important to ensure that the strike price is set at a level which doesn't leave DSUs with difference payments to make in the event of an RO being called, but no energy payments due to not being dispatched.

The DRAI do however recognise that funds need to be made available to support payments to the DSUs, and acknowledge that a solution will be required. A common approach adopted in comparable market jurisdictions is to recover the cost of these relatively small payments in a generic fashion through a levy. The DRAI also recognises that work will be required to determine how the option will work in practice.

Option 3

Although Option 2 is the preferred solution for the DRAI, we recognise that Option 3, being simpler, may be most practical solution within the timeframe of the project. The **DRAI are therefore also supportive of Option 3** as it has the potential to provide a penalty/incentive scheme for DR, encouraging DSUs to respond to signals from the system operator by being available at times of system stress and also delivering according to the dispatch schedule.

Interaction with central dispatch is key and therefore in the case where DSUs do not receive an energy payment the guiding principle should be that capacity providers should not be exposed to Difference Payments under the reliability options, so long as they have made themselves available at the time of scarcity and have fully responded to dispatch instructions. Constrained-off payments may be needed to achieve this.

[5] It is noted that the clause 'including requirement to pay difference payments' would appear to be at variance with Option 3

Terms and duration of ROs

Any one DSU could see an increase or decrease in their available capacity as IDSs move from one aggregator to another. This has the effect of making forward predictions of a AGU's/DSU's available capacity more difficult than for conventional generation and could force small aggregators into the high-risk secondary market. The DRAI therefore consider it important that the terms and duration of ROs be sufficiently flexible to facilitate DSUs at different stages of their growth, i.e. as they add capacity by contracting with additional IDSs.

De-rating

The DRAI is supportive of the rationale behind de-rating, and recognise that historic forced outage rates for relevant technologies can be effectively applied to conventional generators (p.5). However, the DRAI argues that there is no intrinsic forced outage rate for AGUs/DSUs, since the performance of specific AGUs/DSUs is a result of the specific programme rules. The DRAI also recognise error in the market design in GB which has adopted a de-rating value for Demand Response from an unrelated programme with very different rules.

Aggregators within the DRAI effectively impose their own de-rating as they never offer the full "nameplate" capacity of their portfolio. To ensure reliability of response, aggregators analyse their portfolio and calculate the requirement necessary to meet a stated capacity obligation. For this reason AGUs/DSUs should not be subject to further de-rating.

We look forward to hearing from you and would welcome the opportunity to discuss matters relating to the I-SEM CRM and how they could potential assist the development of the AGU/DSU market within the context of the All Island electricity market.

Yours sincerely,

_____

PATRICK LIDDY
DRAI Chairman