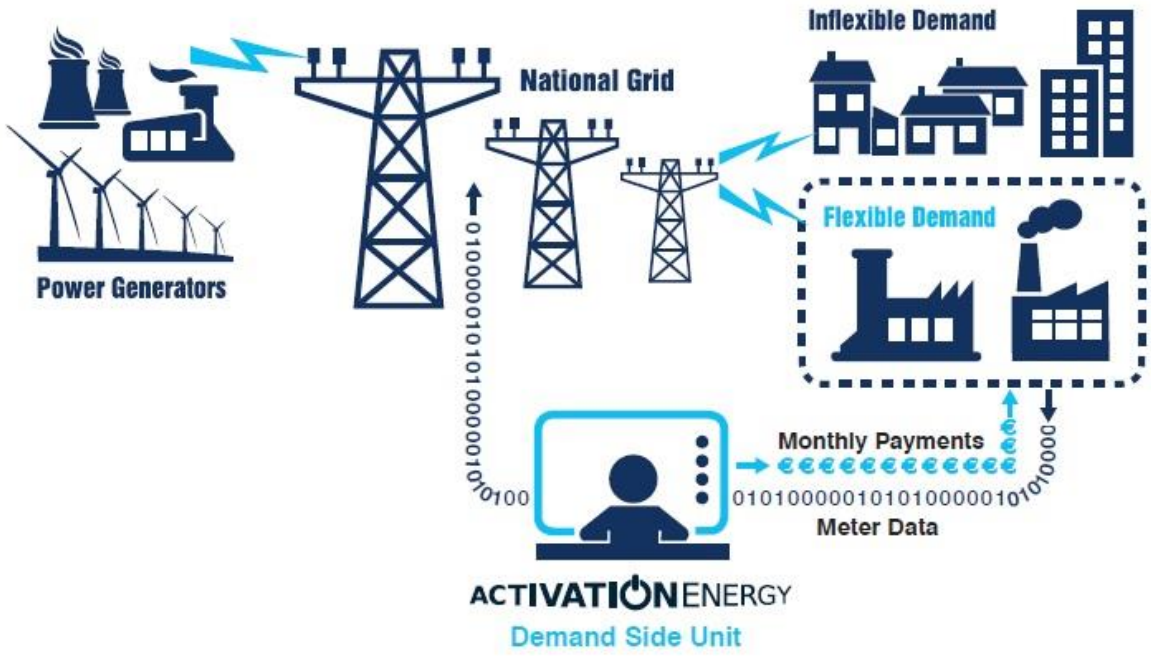
Integrated Single Electricity Market - High Level Design for Ireland and Northern Ireland from 2016

Dear Sir/Madam,

Activation Energy and EnerNOC are pleased to have the opportunity to comment on this consultation and thank the Regulatory Authorities for the time it has spent putting together this document. Activation Energy plays a leading role in the development of Demand Response and the Smart Grid in Ireland. Its parent company EnerNOC Inc (Nasdaq:ENOC) is a world leading Energy Intelligence Software provider with businesses across 4 continents.

Demand response refers to changes in electric usage by end-use customers from their normal consumption patterns in response to changes in the price of electricity over time, or to incentive payments designed to induce lower electricity use at times of high wholesale market prices or when system reliability is jeopardised.

Demand response makes energy markets more cost-effective for consumers and reduces stress on the electric grid. With the proper planning, demand response resources can meet a variety of needs on the grid, including providing capacity, energy, and ancillary services. Demand response also allows customers to reduce their electricity bills through peak load management, and other facility management tools.



Background

Benefits of Demand Response and the Smart Grid

Demand Response can provide many services to the electricity system and provides many benefits. Among these benefits are the following

- Provision of Capacity
- Reduction of energy costs for all
- Facilitation of Renewables
- Improvement of system security
- Returning of funds to energy users
- Increasing flexibility on the electricity system
- Diversification of energy sources
- Improvement of energy efficiency on users sites

Provision of capacity

Capacity is required in an electrical system to adequately meet the maximum demand of the system. Demand Response offers the ability to reduce this maximum in a way that provides the same net result but without having to build and support peaker power plants.

Reduction of energy costs

By reducing the need for costly peakers to run in the electricity system, the cost of generation can be lowered for all. This saving can then be reflected to all consumers, not just those who provide demand response. Furthermore as demand response is lower in cost than peakers, it has been shown to reduce capacity costs in many markets where the service has matured

Facilitation of Renewables

Intermittent energy resources can be challenging for system operators to manage as the natural demand curve of the system may not match the availability of generation. Demand Response and the Smart Grid offers a way to manipulate this load curve and so allow for increased integration of renewables.

Improvement of system security

As Demand Response can be faster acting than tradition generation it can improve the resilience of the system significantly. Furthermore the dispersed nature of the service means that there is a lower risk of an interruption of supply. Finally due to the diverse range of the fuel provision (from Diesel to simply switching off loads), the risk to the fuel supply is greatly reduced.

Returning of funds to energy users

Demand Response is provided to the Grid by the users themselves. This means that industrial and commercial users who are struggling with high energy prices can offset these costs against the payments they receive from the grid. This can mean the difference between increasing demand in a jurisdiction (and the associated jobs) or moving to a lower cost economy.

Increasing flexibility on the electricity system

Some electricity systems can struggle with the rapid ramp rates required by quickly changing loads or changes in generation. Demand Response is generally fast acting and so can better facilitate these changes than larger slower traditional generators. Further flexibility can be provided by the geographically spread nature of Demand Response, whereby local area schemes can be used to avoid system constraints and local grid loading problems.

Diversification of energy sources

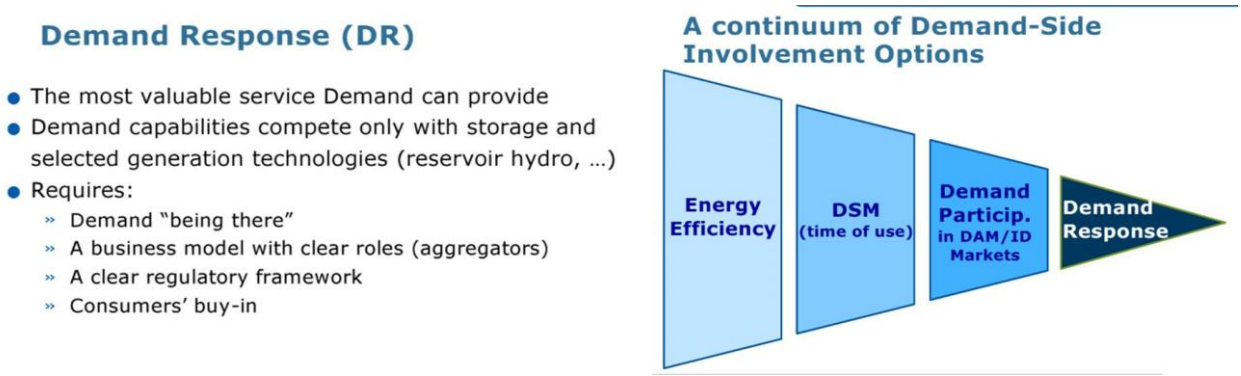
Demand Response is provided by a range of provider types. These can range from simply switching off non-essential equipment such as pumps, chillers or process equipment, or by using local energy resources such as backup diesel generators. These diverse sources demonstrate the diversity provided by Demand Response and the resulting improvement it provides to Security of Supply.

Improvement of energy efficiency on users sites

As consumers focus attention on their energy usage as part of Demand Response and the Smart Grid, it has been shown that this also results in the consumer carrying our energy reducing projects onsite. This reduces Ireland's energy demand generally, reduces greenhouse gas emissions and reduces energy imports.

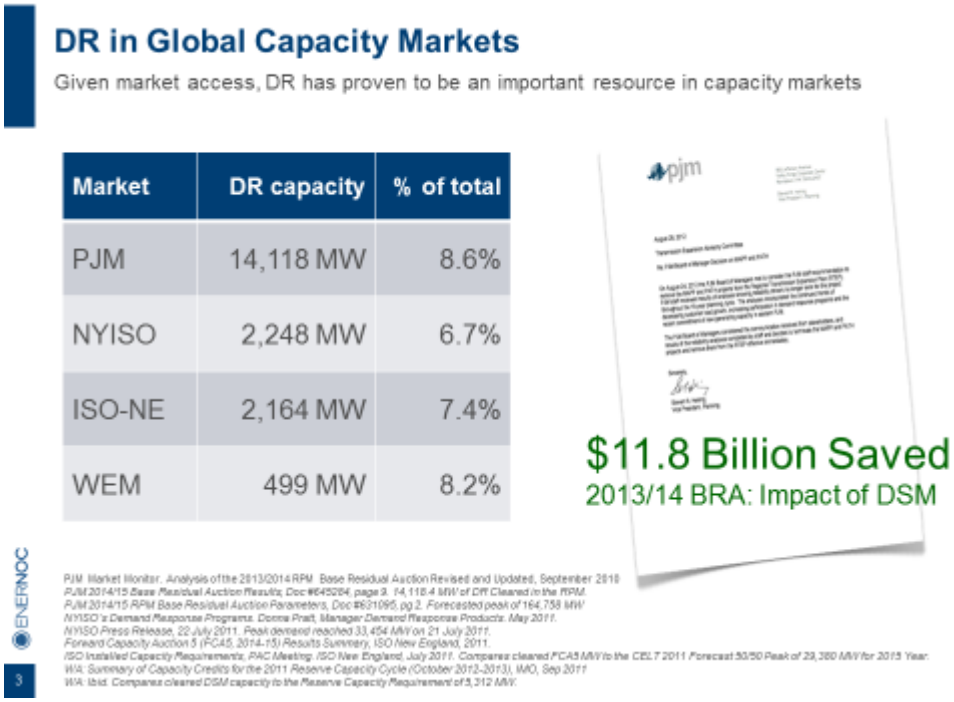
European Recognition of Demand Response Internationally

The benefits listed above play a significant part in ACERs view that Demand Response represents the most valuable benefit the Smart Grid can provide to the system, as demonstrated in the slides below.



1Alberto Pototschnig - Types and Profiles of Demand Response: the Vision of ACER – 6/11/2013

Internationally Demand Response has provided significant savings to markets where it provides a large proportion of the capacity, notably in parts of USA and Australia.



[1] Alberto Pototschnig - Types and Profiles of Demand Response: the Vision of ACER - 6 November 2013

I-SEM Energy Trading Arrangements

Activation Energy believes that at a high level the proposed trading arrangements could work well for Demand Side Participation. We do believe however that as the detail is progressed the following issues must be considered.

Price Responsive Demand (PRD)

The creation of a Day Ahead Market with reliable pricing may be very useful to those who wish to a) expose themselves to market volatility, and b) move their load in response to price signals. While a subset of customers may be interested in this approach, in our experience most commercial and industrial electricity customers seek out retail arrangements with suppliers that shield them from market volatility and mitigate such risk. That said, the most flexible and energy savvy customers may indeed seek supply arrangements that enable them to maximize their economic benefit through well-planned modifications of their consumption patterns. This could be in the form of freezing, pumping, charging and other processes which only need to run for part of the day.

For this to succeed however

- The variance of price between the high point and the low point of the market must be significant
- The portion of the final price of electricity that the ISEM (or other variable) price makes up must be significant.
- Suppliers must be incentivised to offer this pass through product and not have other factors which mean it is costly to them (such as unnecessarily burdensome collateral costs etc.)

It is important to note that the participation of demand side resources in this manner may help contribute to reductions in wholesale energy prices, such energy-based paradigms, by virtue of being purely voluntary, cannot necessarily be counted on to contribute to system reliability, to the extent that would be the case for demand acting as a dedicated reliability resource, as in the capacity (market).

Demand Response (DR)

While some customers will be happy to take the uncertainty that comes with of pass through tariffs of the day ahead market, others will wish to stay with the current system of allowing a supplier to manage this variability. These customers can still engage with the wholesale electricity market in a different manner through participation in a capacity or availability mechanism or market. Empirical data demonstrates that capacity-based schemes are the most successful in encouraging demand response[2], and for a clear reason. It allows customers to contribute to system security while enjoying the budgetary certainty in regards to electricity costs they are used to. Such approaches provide customers with a known revenue stream in turn for their firm commitment to be there when called upon.

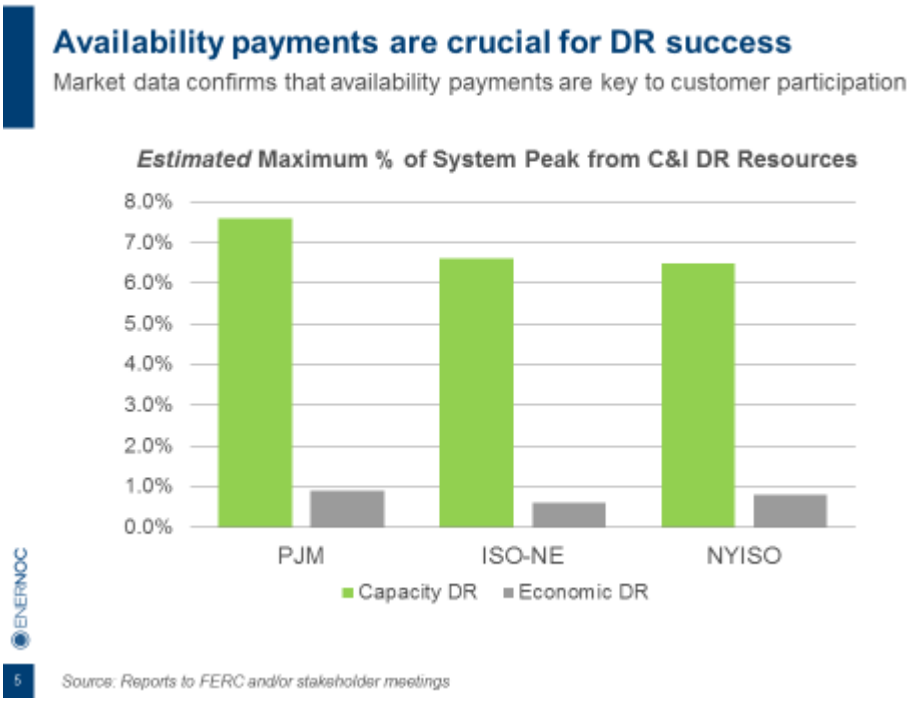
Furthermore Demand Response is a service that can provide fast acting Capacity to the system at times of high wind penetration. When other generators are not synchronised or hot, Demand remains on the system and available to reduce if required. Pass-through tariff customers and traditional fixed

[2] Experiences of Availability Based Market Mechanisms for Demand Response Programmes

DR schemes struggle in markets where no capacity or standby payment exists, primarily due to a lack of certainty about the benefits of participation. Without a clear understanding of the economic benefit of participating in demand response, it is often difficult to achieve consensus within an organization that time and resources should be invested in load curtailment strategies. The same challenge exists for aggregators, who are the primarily vehicle through which C&I demand participates in electricity markets. Revenue certainty in the form of capacity payments allows aggregators to invest in recruiting customers for DR participation, not to mention building and maintaining technology platforms which support meter and load curtailment.

In short a capacity or standby price mechanism of some sort is required to facilitate any significant amount of DR to participate in the market, as is the case with the current CRM. Moreover, the same is increasingly viewed to be true in regards to investments in generation resources, as the following excerpt from a report by NERA Economic Consulting demonstrates:

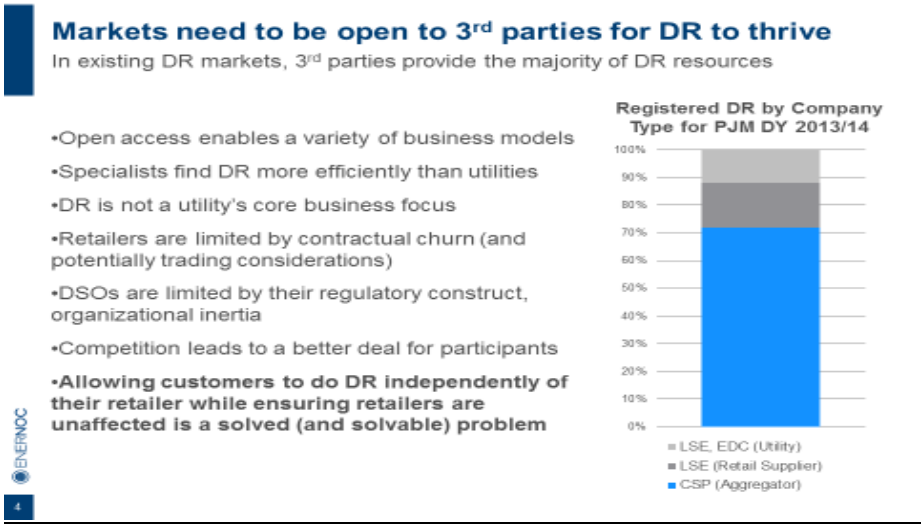
> Capacity markets, in which generators receive payments to make their capacity available to control room operators, were similarly deemed theoretically superfluous by economists who felt that simply paying generators the marginal value of their energy would suffice to yield sufficient capacity to keep the lights on. In the three large Eastern US markets (PJM, NYISO and ISO-NE) there is now general consensus that merely hoping that energy prices alone will incentivize market participation is not good enough. Even without a formal capacity market, many jurisdictions go through a planning and procurement phase which promises payments upfront in advance of any exposure to energy prices. Demand-side resources may well participate in these processes directly, in which case their availability payments are simply the same sort of payments generators receive, for the same reasons.[3]



[3] Effective Use of Demand Side Resources: The Continued Need for Availability Payments, 23 October 2013. NERA Economic Consulting.

Specialist Aggregation Providers

When designing the SEM rules were out in place which prevented independent DSU aggregators from entering the market. This resulted in a barrier to new entrants and so a halt on innovation which was only removed when the rules were changed. It is critically important that no such barriers are replicated in the ISEM and that new entrants are allowed to continue to progress the market.



Balancing Responsible Party

A final area which we believe will be critical to the success of Demand Response and aggregators which is not covered in this document is the “Balancing Responsible Party” (BRP). In other jurisdictions the relationships between aggregators (who may resell customer flexibility into a market) and the customers BRP (who is responsible for that customers demand position) has been problematic. We feel that it is critical that this be designed appropriately.

Though an aggregator may be selling “power” into a balancing (or other) market, it cannot be the aggregators responsibility to directly make the BRP whole (for the power that the customer didn’t buy) as this would mean having a bilateral relationship with each supplier (or other BRP). That supplier could, and in many European jurisdictions, does, simply refuse to enter such an agreement, or it simply refuses to allow aggregators to work with "its" customers, even though the customer may wish to do business with the aggregator. This would result in incumbent suppliers being the only practical participants to provide aggregation (a solution which was tried and failed in the SEM).

We propose that where an aggregator is bringing Demand Side Participation to the balancing or other markets that the question of BRP management must be handled centrally by the market. Also it would be a licence requirement of all BRPs to allow customers to take part in DSM schemes without penalty in any way.

We commend to the Regulatory Authorities the approach similar to the one utilised by the SEM which automatically Nets out the aggregators position would be suitable. If an aggregator “sell” electricity into a market, its position can simply be netted off. If necessary the BRP can also be held whole by an automated process (though as dispatches occur at times of high price this may not be necessary).

The approach facilitates aggregator participation in the market, without requiring supplier/BRP approval, but could also holding them harmless from the load reductions due to the customer’s participation with the aggregator.

Capacity Remuneration Mechanism

Quantity based CRM

Activation Energy and EnerNOC accept the Regulators decision to adopt a Quantity based Capacity Remuneration Mechanism. We do believe however that the detailed design must be consider the profiled requirement of the system for capacity provision.

Activation Energy and EnerNOC believe that the system's need for capacity varies during the day, week and year. We therefore do not believe it is necessary that a capacity provider should need to provide 100% of its capacity at all times. Instead we believe that while a capacity provider should be required to provide 100% of its obligation at times of high system demand, a lower amount of capacity should suffice at times of lower system demand.

This is particularly important to Demand Response as its availability is usually lower at nights and weekends than it is during system peaks. A requirement to provide capacity which is profiled to the system demand would most closely match the availability of Demand Response.

Reliability Options

Activation Energy and EnerNOC believe that the mechanism proposed for Reliability Options will pose significant barriers to the participation of Demand Side Units participation in the CRM. This is due to the following the nature of Energy Payments and Demand Side Participation.

Under the current market mechanism DSUs do not receive an energy payment when they are scheduled to run. This practice is followed to avoid creating an imbalance in the market. This means that while other Capacity Obligation Holders could fund their Reliability Options through Energy Payments, a DSU could not. In effect it would mean that when the Reference Price rose above the Strike Price, the DSU would be penalised whether they were available or not.

A further issue arises with the setting of the Strike Price. Some DSUs may have a very high marginal price. This would mean that either a) the Strike Price would be set to match their bid price or b) they may bid above the Strike Price. In the case of a) the strike price would be very high. In the case of b) the DSU would be penalised despite being available to provide their capacity.

Proposed Solutions

Activation Energy and EnerNOC propose one or a combination of the following solutions to the problem explained above

1. DSU paid an energy payment
    - This would require the regulator to fund these payments through a dedicated source
    - It may have the effect of incentivising cheaper demand response to participate in the market as it could benefit more when dispatched
2. DSU customers exempt from a capacity charge in the first place
    - As DSU customers provide capacity it could be argued that they should not pay others to provide this service
    - As some DSU customers only offer part of their capacity to the market it may be difficult to implement this option
    - Rather than trying to manage removing charges from a customer's bill, Implementation of this could option could be in the form of paying an aggregator the amount their customer paid for capacity as a rebate
3. DSU exempt from the reliability option (but still takes part in the auction)
    - This most similarly resembles the current practice
    - A penalty mechanism could be introduced for non performing participants