

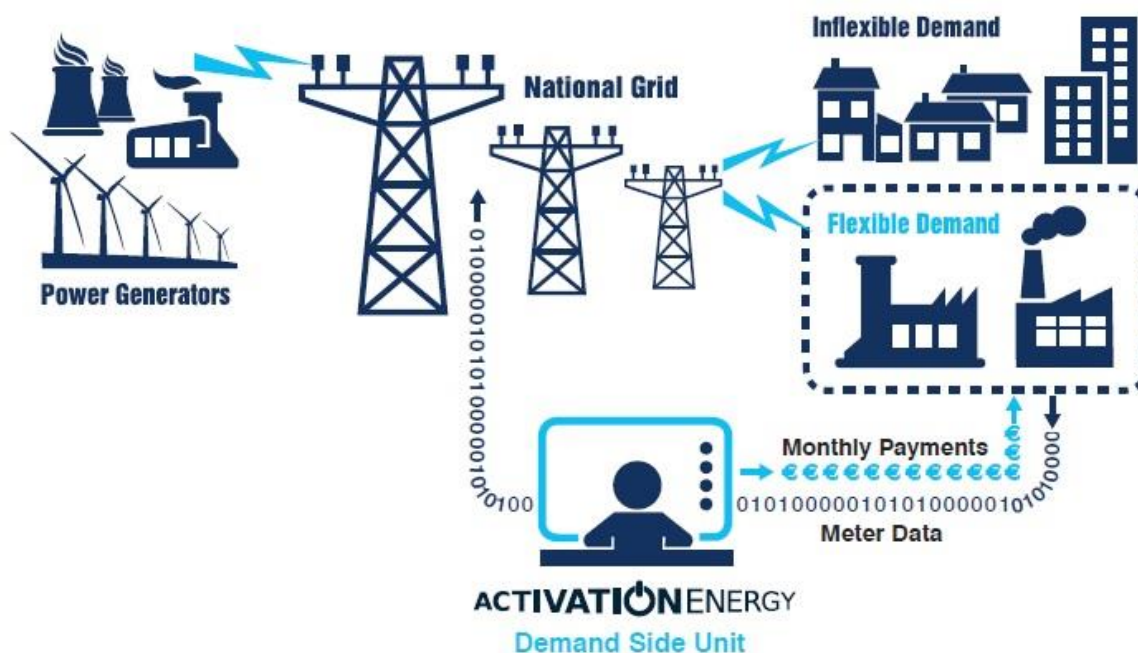
## DS3 System Services Procurement Design SEM Committee Consultation

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](http://www.enernoc.com) (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

We believe it is critical that Demand Side Response be facilitated in the provision of System and Ancillary Services wherever possible. This is due to the wide range of benefits they provide to the system, electricity customers, and the country as a whole. Some of these benefits are set out below.

- 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
- No RoCoF Problem

### 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 out energy reducing projects onsite. This reduces Ireland's energy demand generally, reduces greenhouse gas emissions and reduces energy imports.

### No RoCoF Problem

As Demand Response is generally provided by loads which reduce (or disconnect) when called upon, or by generators which disconnect from the Grid, they are not effected by Rate of Change of Frequency (RoCoF) effects. As they are not connected to the grid when they are providing their services they are not at risk of disconnecting due to systems faults.

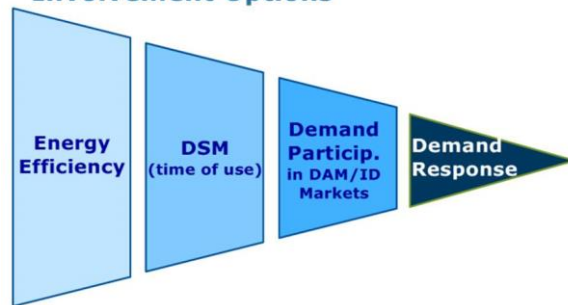
European Recognition of Demand Response Internationally

The beneficial nature of Demand Response is shared by ACERs, who view Demand Response as the most valuable opportunity which the Smart Grid can provide to the system. This view is demonstrated in the slides below which consider all parts of Demand Side involvement and rank these on the basis of the value they could provide.

**Demand Response (DR)**

- The most valuable service Demand can provide
- Demand capabilities compete only with storage and selected generation technologies (reservoir hydro, ...)
- Requires:
  - » Demand "being there"
  - » A business model with clear roles (aggregators)
  - » A clear regulatory framework
  - » Consumers' buy-in

**A continuum of Demand-Side Involvement Options**



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

These slides set out the hierarchy of value of which ACER expect from Demand Side Participation. At the peak of these expectations is Demand Response, the reduction of load on the electricity system at times of system stress. The value of the opportunity has already been measured internationally with Demand Response providing significant savings to markets where it provides a large proportion of the capacity, notably in parts of USA and Australia.

**DR in Global Capacity Markets**

Given market access, DR has proven to be an important resource in capacity markets

Market	DR capacity	% of total
PJM	14,118 MW	8.6%
NYISO	2,248 MW	6.7%
ISO-NE	2,164 MW	7.4%
WEM	499 MW	8.2%



PJM Market Monitor, Analysis of the 2013/2014 RPT Base Residual Auction Revised and Updated, September 2013  
 PJM 2014/15 Base Residual Auction Results, Doc #645204, page 9, 14,118.4 MW of DR Cleared in the RPTM  
 PJM 2014/15 RPTM Base Residual Auction Parameters, Doc #621095, pg 2, Forecasted peak of 164,758 MW  
 NYISO's Demand Response Programs, Donna Pratt, Manager Demand Response Products, May 2011  
 NYISO Press Release, 22 July 2011, Peak demand reached 33,454 MW on 21 July 2011  
 Forward Capacity Auction 5 (FCA5, 2014-15) Results Summary, ISO New England, 2011  
 ISO Installed Capacity Requirements, PAC Meeting, ISO New England, July 2011, Companies cleared FCA5 MW to the CEL 7 2011 Forecast 30/50 Peak of 29,360 MW for 2015 Year  
 WA: Summary of Capacity Credits for the 2011 Reserve Capacity Cycle (October 2012-2013), WAO, Sep 2011  
 WA: Ibid. Companies cleared DSM capacity to the Reserve Capacity Requirement of 3,312 MW

## Specific Concerns on this consultation

### Differing contract lengths

We understand from the documentation provided and the Forum held in Dundalk on the 24th of July that differing contract lengths may be offered to different provider types. We feel that insufficient information is provided on this matter. If longer contracts are facilitated, they should only apply to new resources, how will this be defined and certified.

We understand that some types of new generation resources may need certainty of more than one year for investment purposes. However, once the decision is made to accommodate longer durations for some types of new resources, the issue is then one of market fairness and level competition.

Demand Response will be competitively disadvantaged if not also allowed the option of longer contract durations. Clearly, demand response, which could amortise its costs over longer periods could bid a lower price. This would increase the proportion of demand response accepted and if the service was provided at a lower cost, consumers would be better off.

Limiting longer term contracts for one type of resource unfairly provides incentives to that resource that would not exist for all. In effect, while generation will have the opportunity to secure their return on investment over multiple years, demand response would not. By limiting contract lengths for demand response, its business case is less favourable and it is put at a strong competitive disadvantage to generation,

### Remuneration Methodologies

We understand the RAs attraction to a Dispatch and Availability model for the provision of System Services. We do believe that these models may cause challenges for service providers however.

#### Dispatch Model

We believe that this model will make it extremely challenging for a provider to finance any project. In the case of Demand Response it would be extremely challenging to get customers to agree to invest in providing a service which may not result in any payments. In their study<sup>1</sup> on the topic NERA demonstrated that Demand Side customers generally prefer predictable financial arrangements which offer them a budgetable income.

To demonstrate this we point to the Powersave scheme. This scheme offered little guarantee of payment to the customer. We understand that this led to low uptake, and poor performance by customers when they were called. A further example can be seen with electricity supply. Despite offering a lower cost option, few customers take-up pass through tariffs on their electricity supply. This is due to budgeting needs which are key to the vast majority of businesses.

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<sup>1</sup> Effective Use of Demand Side Resources: The Continued Need for Availability Payments NERA October 23, 2013 (attached document)

A further problem with a Dispatch Based Model is budgeting the cost of these services for the system. In the event of a large number of calls on these services the budget could be exceeded and service providers could be in line for bumper profits.

### **Availability**

We understand the RAs interest in only paying providers of services at times that their units are actually online and available to provide system services. We believe in that spirit therefore that Demand Side Resources must be recognised as being online at all times that they are consuming and available, rather than when they are in the market merit order or under dispatch from the TSO.

We therefore urge the RAs that should this remuneration methodology be advanced, that Demand Side Resources are seen as available whenever they are declared available (and validated as such) to the TSO.

### **Fixed Vs Variable pricing**

We understand from this consultation that it is proposed to pay a flat rate per MWh for available ancillary services. We understand that this simplifies the process of dispersing the funds but we are concerned that this would not adequately encourage service provision at key times of the day. We therefore encourage the RAs to consider a time-valuing payments system that varies in line with system demand.

### **Locational Pricing**

While we understand that the RAs are not minded to introduce locational pricing, we believe it should be reconsidered. As Demand Side Response is spread across the system it can provide a system wide response or location specific response as required. We believe that this pin pointed service could provide great value to the system and help reduce system infrastructure costs significantly.

### **Competitive Multiple Bid Auction**

We agree that this model could work well for procurement of System Services. We are concerned however regarding the frequency of the auctions. Infrequent (such as annual) auctions could act as a barrier to entry for new technologies or businesses. Infrequent procurement also runs into problems when breakdowns or unexpected demand growth occurs and so could lead to a shortfall of service provision in between auctions. We recommend shorter duration commitment periods, with the ability to tender for multiple commitment periods as the preferred approach.

**Resources which provide differing quantities of services in line with system demand**

We believe that it is important that any remuneration methodology facilitate providers who vary their service provision during the day, week and year. This fits well with the “Availability” model proposed by the regulator as the provider will only be paid for the quantity of service they have available for the times when they have it available.

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 services which is profiled to the system demand would most closely match the availability of Demand Response.

**Facilitation of New Services, Technologies and Providers**

While we understand the attraction to setting out clear rules and regulations around System Services requirements and procurement, we do feel that it is essential that the RAs provide some other route for new services, technologies and providers. Over the past number of years we have observed that as new technologies are developed, they very often do not comply with the regulations which have been put in place. In many cases this is not due to them falling outside the spirit of the regulation, but rather the detailed wording which is codified. One current example of this is the “Battery Storage” project proposed by AES.

We encourage the RAs to provide an alternative route which can be applied to facilitate new technologies and providers in the event of it being deemed necessary in the future.

## Conclusion

In conclusion we would like to summarise the main points which should be considered by the RAs when finalising the regulations around the provision of System Services for the Irish System.

- System services should have clearly defined product requirements and be open to demand response.
- All providers should be treated equitably in the market proposed
- For Availability based procurement Model, Demand Side Resources should be considered available at all times that they are declared as available to the TSO
- Auctions should be held with a regularity greater than annually to facilitate new or growing technologies
- Where providers meet the spirit of the requirements but do not necessarily meet the wording, The RAs should provide an alternative route to service provision for new technologies