Regulatory barriers (and enablers) to Demand Response development

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Energy Pool?  
Who are we?

**HISTORY**

- **2009**: First operations in France
- **2010**: Strategic partnership with Schneider Electric
- **2013**: First operations in BE & UK
- **2014**: First operations in Cameroon, Japan & Norway
- **2015**: 70 employees Deployment in 4 new countries 1500MW

**EXPERTISE**

- Industrial Sites
  - Identify DR potential & educate end users
  - Design market/regulation
  - Develop DRMS tools
  - Operate 24/7
- Clients
  - TSO
  - Utilities
  - DNO

**RESOURCES**

- London
- Chambéry
- Tokyo
- Douala
- 505MW

**OPERATING CENTERS**
using our unique DRMS technology « Everest »

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**Preliminary remarks**

Why do we need a regulatory framework for Demand Response?

1. If markets (balancing, wholesale, reserves) are liquid,
   - No need for additional regulation

2. If market signals and products effectively reflect system needs,
   - No DR development without a streamlined regulatory framework

3. If Demand Response can prove competitiveness vis-à-vis generation,
   - Most electricity markets = dominant market players (former monopolies)
   - Markets traditionally designed for generation
   - Distorted market signals (due to various subsidies)
   - Analysis prove competitiveness of DR, but
   - Less trust and recognition of traditional stakeholders (BRP, suppliers)
Preliminary remarks

Why do we need a regulatory framework for Demand Response?

- Political priorities:
  1. Environmental concerns (increase share of RES)
  2. Reduce energy costs for customers (residential & industrial)
  3. Develop smart grids and energy efficiency

Demand Response as a flexible resource can help integrating RES in the system

Monetizing Demand Response can become a revenue source for end users

Demand Response is integral part of smart grid business

Demand Response in the political agenda
Preliminary remarks

Why do we need a regulatory framework for Demand Response?

We **NEED** a regulatory framework for DR since markets are not perfect.

We **CAN** develop a regulatory framework for DR since strong political interest for DR.
Regulatory framework for DR development
3 challenges to unlock DR potential

1. Open markets to Demand Response
2. Develop DR use by BRP
3. Re-define market structure?
Regulatory framework for DR development

Open markets to Demand Response

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Regulatory Framework in Europe = Art. 15.8 (Energy Efficiency Directive)

- “Member States shall ensure that national regulatory authorities encourage demand side resources, such as DR, to participate alongside supply in wholesale and retail markets”

- “[...] shall promote access to and participation of DR in balancing, reserves and other system services markets, inter alia by requiring national regulatory authorities [...] in close cooperation with demand service providers and consumers, to define technical modalities for participation in these markets on the basis of the technical requirements of these markets and the capabilities of DR”.

Implementation by 5th June 2014, but...
# Regulatory framework for DR development

**Open markets to Demand Response**

### SYSTEM/NETWORK MARKETS
- **Ancillary services**
  - Frequency response < 15’ reserves
  - > 15’ reserves
- **Balancing Services**
  - Supplemental Reserve
  - AOE
- **Balancing Market**
- **Congestion management**

### ENERGY MARKETS
- **Wholesale Markets**
- **Capacity Markets**

### France
- Primary and secondary reserves
- Interruptibility
- Fast Reserve
- Supplemental Reserve
- AOE
- Balancing market
- Brittany mechanism

### Belgium
- Primary and secondary reserves
- R1 load
- ICH
- ICH
- R3 DP

### Great Britain
- FFR
- FCDM
- Fast Reserve and STOR
- NEBEF
- Strategic reserve
- DSBR
- DSR TA and CM

**Mechanism for DR only**
Define DR and the role and responsibilities of the parties (end users, BRP, aggregators...)

Regulatory framework for DR development
Open markets to Demand Response
Regulatory framework for DR development
Open markets to Demand Response

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Define DR and the role and responsibilities of the parties (end users, BRP, aggregators...)

Adapt market rules to DR specificities
- Measurement & Verification
  Aggregation (number of sites per aggregate, minimum size (in MW) of each site)
Regulatory framework for DR development
Open markets to Demand Response

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Define DR and the role and responsibilities of the parties (end users, BRP, aggregators...)

Adapt market rules to DR specificities
- Measurement & Verification
- Aggregation (number of sites per aggregate, minimum size (in MW) of each site)

Identify the competent authorities to manage and monitor opening of the markets to DR
Regulatory framework for DR development
Open markets to Demand Response

Who's competent for designing, monitoring, operating these markets/topics?

- Ministry for Energy?
- National regulatory authority?
- TSO?
- Other?
Regulatory framework for DR development

Open markets to Demand Response

1. **CRE decision on residential DR**
   - Compensation due by the aggregator to the supplier of the energy curtailed
   - 9th July 2009

2. **State Council cancels the decision**
   - CRE overrided its competency by defining compensation rules for aggregator
   - 3rd May 2011

3. **Brottes bill**
   - Principles of compensation
   - Modalities of payment to be defined in a decree
   - 16th April 2013

4. **FERC Order 745**
   - DR providers to be paid same locational marginal price (LMP) for demand curtailment that generators are paid for supply
   - 15 March 2011

5. **Court of Appeals**
   - FERC order 745 was out of FERC's jurisdiction
   - DR occurs behind the meter, has an impact on retail market
   - FERC can only regulate wholesale market (Federal Power Act)
   - 23 May 2014

6. **Modification of the FPA?**
   - ?
## Regulatory framework for DR development

### Open markets to Demand Response

| Define DR and the role and responsibilities of the parties (end users, BRP, aggregators...) |
| Adapt market rules to DR specificities |
| • Measurement & Verification Aggregation (number of sites per aggregate, minimum size (in MW) of each site) |
| Identify the competent authority to regulate Demand Response |
| Secure a budget which can ensure a sustainable DR development (amount and visibility) |
Regulatory framework for DR development

Open markets to Demand Response

**BENEFITS OF DR**
- Optimisation of generation assets
- Reduced costs for reserves
- Network investments avoided
- CO2 savings

**MARKETS**
- SYSTEM/NETWORK MARKETS
  - Reserve markets
  - Balancing markets
  - Congestion markets

**REVENUES**
- Revenues for end users and aggregators
How to make sure BRP/utilities use DR to optimize their portfolio? And offer DR programs to their clients?

- Regulatory framework for DR development
  - Develop DR use by BRP

Diagram:
- GENERATION
- WHOLESALE MARKET
- SUPPLIERS
- END USERS

SUPPLIERS
- "Basic" supply

SUPPLIERS
- "Natural" change of behaviour
- Competitive pressure (e.g., via aggregators)
- Regulatory pressure

END USERS
- (DR)

SUPPLIERS
- Supply + DR
Regulatory framework for DR development

Re-define market structure?

- Is the distinction “Load” vs “Generation” still relevant?
- Quid Prosumers?
Thank you for your attention

ENTSO-E, 09/12/2014

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