Opening markets to DR: lessons learnt from the French experience

Demand-response: Challenges and Opportunities in the Context of Energy Transitions

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France has conducted an in-depth reform of its electricity market to increase DR participation.

- **2003**: Balancing market is open to industrial consumers.
- **2007**: Balancing market starts to be open to households.
- **2008**: 1st call for tenders dedicated to DR.
- **2013**: DR is able to participate as a resource in the energy market.
- **2014**: DR is competing to ancillary services and reserves.
- **2015**: End of the “multi-tout” program dedicated to DR.
- **2017**: 1st delivery year of the capacity market.
This has led DR to be able to participate in **all** existing market structures...

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...and France to be considered as one of the top countries of the development of DR

SEDC Report, “Mapping DR in Europe today”, 2014
First feedback on the participation of DR in France

- Aggregators are now able to compete on a level playing field with suppliers on upstream markets and with producers on downstream markets. **Around 10 DR operators are “active” in France.**
- **10% of the French frequency containment reserve (FCR) is procured through DR**
- **400 MW out of 1500 MW of the French frequency restoration reserves (mFRR) and replacement reserves (RR) is procured through DR** (available twice a day).
- Balancing market = 12 GWh of DR in 2014 (more than 50% of which is residential load).
- **2 specific products for DR have been designed**: DR call for tenders = 1700 MW + interruptibility = 600 MW
- **Several DR capacities have already received certificates for the 1st delivery year of the capacity market**
First feedback on the participation of DR in France

- Aggregators are now able to compete on a level playing field with suppliers on upstream markets and with producers on downstream markets. **Around 10 DR operators** are “active” in France.

- 26% of the French frequency restoration reserves (mFRR) and replacement reserves (RR) is procured through DR.

- 10% of the French frequency containment reserve (FCR) is procured through DR.

- Balancing market = 12 GWh of DR in 2014 (more than 50% of which is residential load).

- 2 specific products for DR have been designed: DR call for tenders = 1700 MW + interruptibility = 600 MW.

- Several DR capacities have already received certificates for the 1st delivery year of the capacity market.

**Beyond those factual elements, what have we learnt during the last 5 years of market reform?**
Lesson 1: DR is a reliable product to ensure security of supply
DR has added-value both in capacity and energy markets

Emergency DR
(low fixed cost, high marginal costs)

~ Industrials

Capacity

Energy
DR has added-value both in capacity and energy markets

DR is often thought only to correspond to «emergency» solutions → there is a large potential for it.
DR has added-value both in capacity and energy markets.

DR is often thought only to correspond to « emergency » solutions → there is a large potential for it.

Energy savings /optimization DR
(high fixed cost, low marginal cost - when equipped)

~ Service companies, households, some industrials with storage process embedded
DR has added-value both in capacity and energy markets

DR is often thought only to correspond to « emergency » solutions → there is a large potential for it.

New players emerge with different business cases → DR is becoming a credible economic alternative to generation in some cases (energy value)
Lesson 2: DR has a positive cost-benefit for the system in a context of energy transition
DR is one of the promising “smart grid” options.
Lesson 3: allowing DR to participate as a resource in market require implementing structural measures, which need careful attention and time
Strong political and regulatory involvement is required

- Every French Energy law since 2004 have touched upon DR
- Especially the Brottes law and the recent Energy transition law
  - 1 decision of the Constitutional court in 2013
  - 2 opinions from the Competition Authority in 2012 and 2013
  - 1 opinion from the Supreme court for public law (Conseil d’État) in 2013
  - Several opinions and regulatory approvals of the Regulator
  - Several set of market rules developed by RTE (bal., energy market, ancillary service, capacity market...)
  - Several economic studies delivered by RTE
- Dozens of stakeholders meetings
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Developing a European framework will require attention and ambition from all stakeholders
Lesson 4: Competition can only take place if DR and supply are fully unbundled
DR operators need to have access to consumers

Competition can only take place if DR and supply are fully unbundled

- Aggregators can operate independently of suppliers
- With the unbundling of DSR and supply, the consumer is truly able to choose the best offer for supply and the best offer for DSR.

Unbundling of DR and supply is based on two complementary requirements

- Free access to consumers
  - An aggregator should not have to require any authorization from the supplier to operate
- Confidentiality
  - Finding flexibility resources and convincing consumers to participate are core business activities of aggregators, and represent a significant cost.
  - Ensuring the confidentiality is key to ensure a level playing field.
Market design issues need to be tackled

**1st step: ensure that “DR” can be traded as “generation”**

- Ensure that a consumer buying a block of energy from a DR operator is indeed buying energy.
- Ensure that the balance responsible parties that inject energy on behalf of the DR operator are incentivized to maintain their injections.
- Solution implemented in France: **adjustment of imbalances**

  This solution guarantees that the amount of MWh traded in the market equals the physical energy injected in the system.

**2nd step: ensure that all market players are paid for the service they provide**

- If the balance responsible party is maintaining its injection whilst not supplying its own customers, it is providing a service to the DR operator (and to the system).
- Solution implemented in France: **financial adjustment**
Market design issues need to be tackled

3rd step: ensure confidentiality between DR operators and suppliers

- Confidentiality is required to create a competitive environment
  → A 3rd-party is required
- Solution implemented in France: TSO is appointed as 3rd party
Lesson 5: Technical barriers to aggregation should not be discarded in terms of market design
RTE has implemented an ambitious program to reform the market design from 2010 to 2015 which touches upon the following issues:

- **Multi-tout aggregation**: DR operator can now aggregate capacities regardless of the BRP, the supplier, the size and the connection grid of consumers.

- **Control measures**: aggregation is encouraged through adapted control methods.

- **Use of DR operators’ data**: data collected by DR operators can be used under a regulated regime in the absence of smart meter.
Thank you for your attention!

Click here to read RTE’s report on smart grids