



# 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**

1<sup>st</sup> **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**

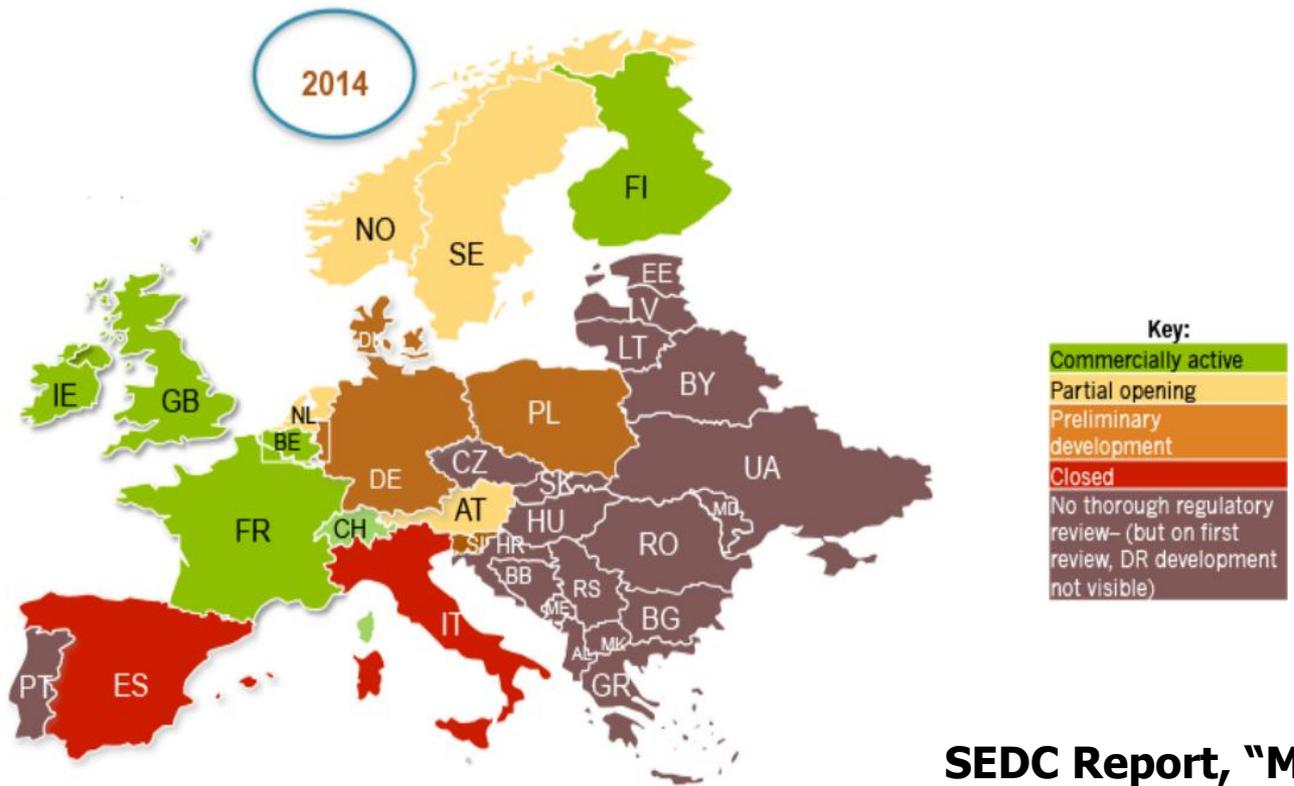
1<sup>st</sup> delivery year of the capacity market



# This has led DR to be able to participate in all existing market structures...

	Ancillary services	Balancing mechanism	Markets	Within portfolio
Capacity	Provision of services open to DR (connected to the transmission network)	DR participation to call for tenders for availability	Certificates for DR	Reduction of suppliers' capacity obligation
Energy		Activation of DR-based available offers	Direct valuation in energy markets	Portfolio optimization for suppliers (sourcing vs sales)

# ...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 1<sup>st</sup> delivery year of the capacity market**

# First feedback on the participation of DR in France



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**Beyond those factual elements, what have we learnt during the last 5 years of market reform?**

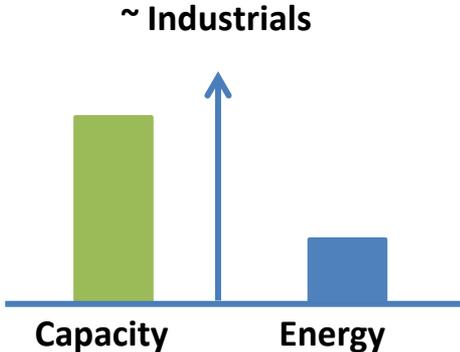
- 26% repla
- Balan
- reside
- 2 spe
- MW +
- DR call for tenders = 1700
- Several DR capacities have already received certificates for the 1<sup>st</sup> delivery year of the capacity market

# **Lesson 1: DR is a reliable product to ensure security of supply**

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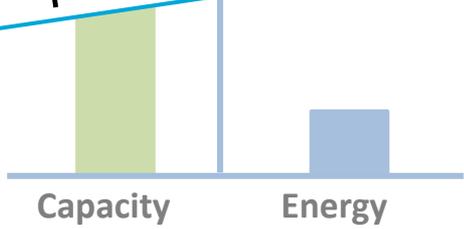
# DR has added-value both in capacity and energy markets

Emergency DR  
*(low fixed cost, high marginal costs)*



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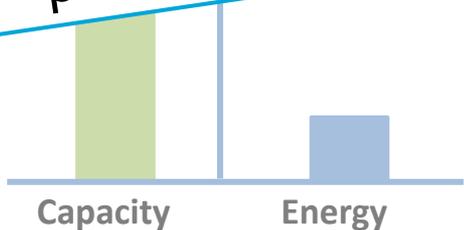
Emergency DR  
DR is often thought only to correspond to « emergency » solutions → there is a large potential for it.



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

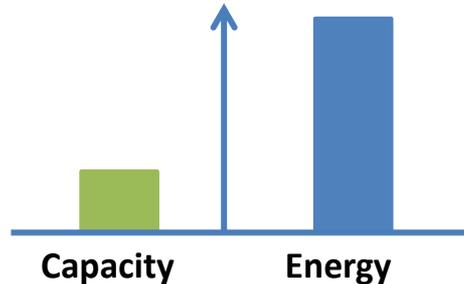
Emergency DR  
(low cost)

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)

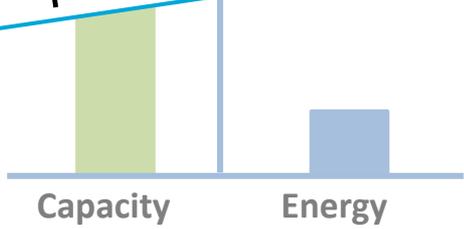
~ Service companies, households, some industrials with storage process embedded



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

Emergency DR  
(low cost)

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



Energy savings / optimization  
(high frequency)

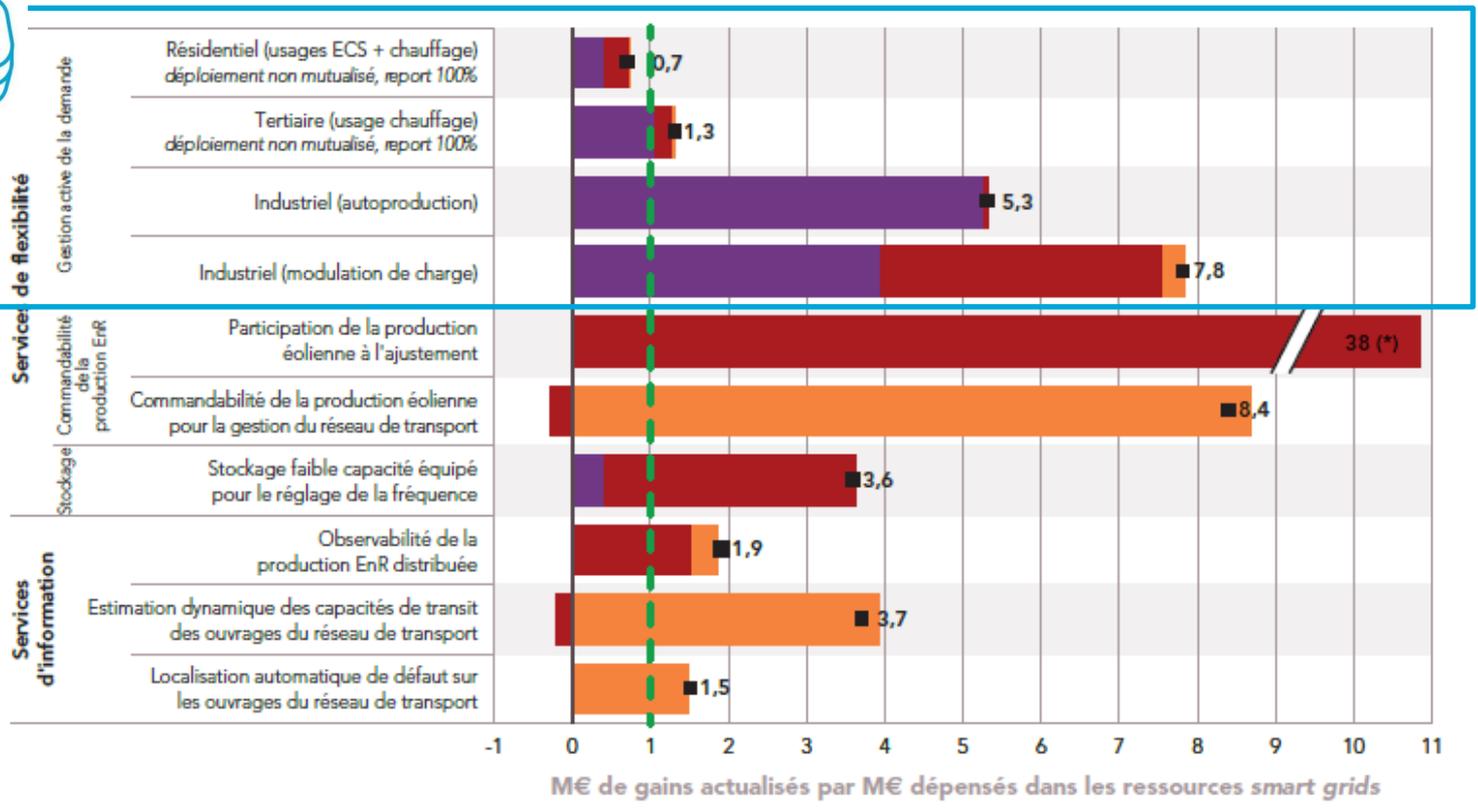
**New players emerge with different business cases → DR is becoming a credible economic alternative to generation in some cases (energy value)**



## **Lesson 2: DR has a positive cost-benefit for the system in a context of energy transition**

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# 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**

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# 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'Etat) 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

# Strong political and regulatory involvement is required



- Every French Energy law since 2007

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- Severa

service

- Several economic studies delivered by RTE

- Dozens of stakeholders meetings

**Developing a European framework will require attention and ambition from all stakeholders**

of market, ancillary

# **Lesson 4: Competition can only take place if DR and supply are fully unbundled**

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# 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

## 1<sup>st</sup> 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**

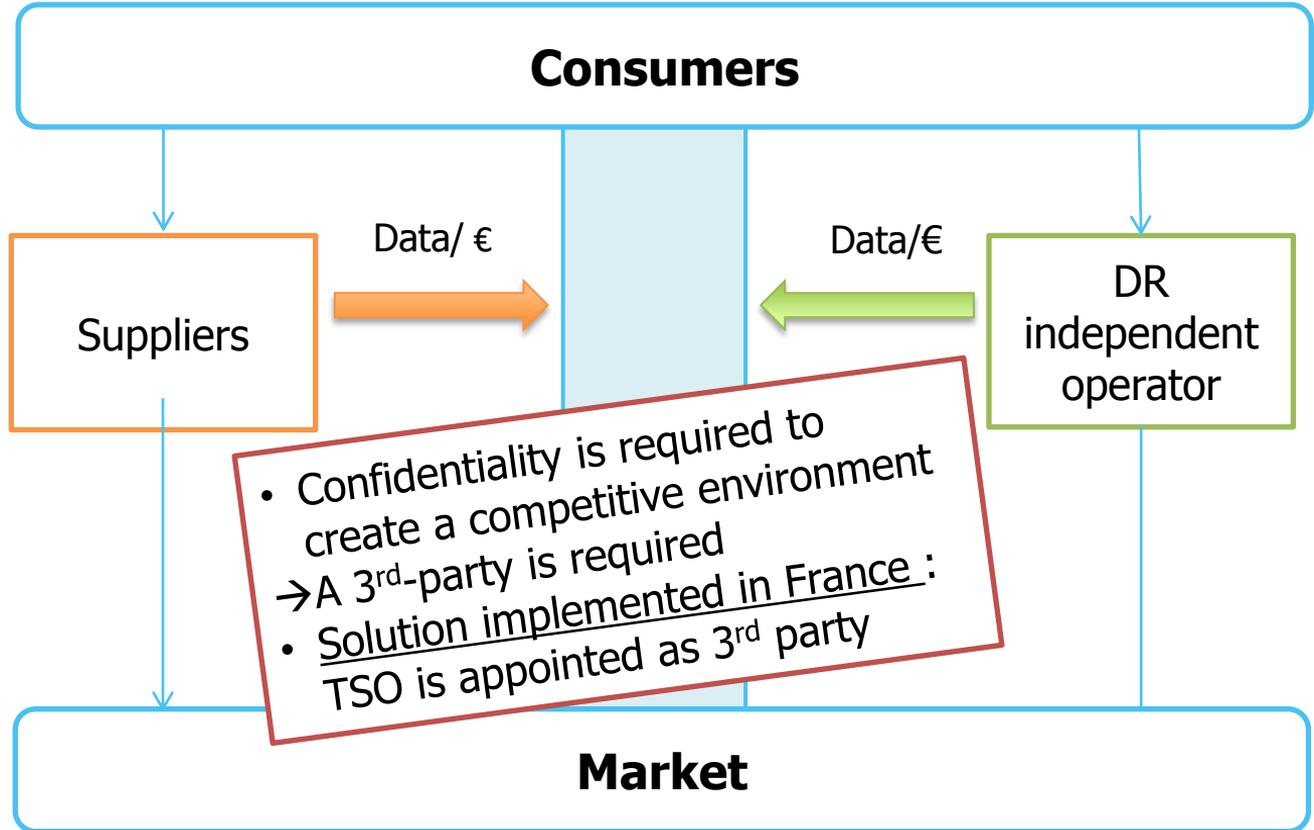
This solution guarantees that **the amount of MWh traded in the market equals the physical energy injected in the system.**

## 2<sup>nd</sup> 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

## 3<sup>rd</sup> step: ensure confidentiality between DR operators and suppliers



# **Lesson 5: Technical barriers to aggregation should not be discarded in terms of market design**

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# Technical barriers need to be removed in order for regulation to be effective

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

