Capacity mechanism implementation in France and future steps

General Directorate for Energy and Climate

Electricity Markets Unit (1A)

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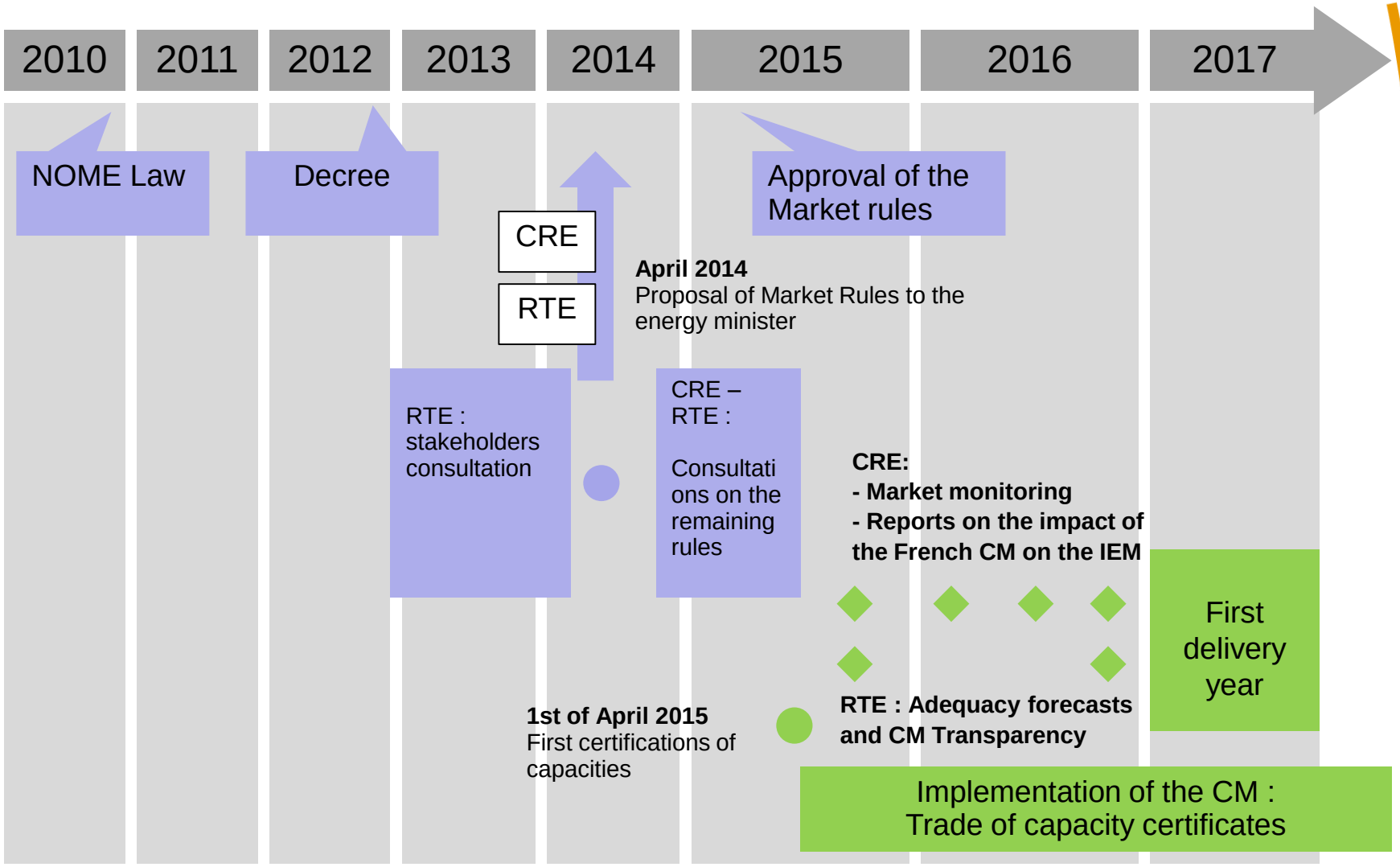
RÉPUBLIQUE FRANÇAISE

Ministère de l'Écologie, du Développement durable et de l'Énergie

Introduction : where are we ?

Approval of the Market rules in February 2015 : last step of a five-year process



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Rationale for a capacity mechanism in France

1- The Energy-Only market seems unable to reveal the real value of capacity

Increasing flexibility needs to cope with (i) intermittent renewable energies (ii) rising peak demand, but :

Low profitability of flexible capacities, like CCGTs

- Alleged difficulties to recover their fixed costs due to low difference between peak prices and base prices.
- Few running hours (1000 hours/y)
- Strange situation : overcapacities in Europe (approximately 60GW) could result in SoS problems due to mothballing / closing of flexible capacities.

Energy-Only market was not sufficient to really foster the development of demand response

- Demand-side response capacities have greatly declined in France since the 1990's, from 6 GW to only 3 GW.
- DSR capacity might decline even further with the end of regulated tariffs for large consumers in 2016 (appro. 1 GW)

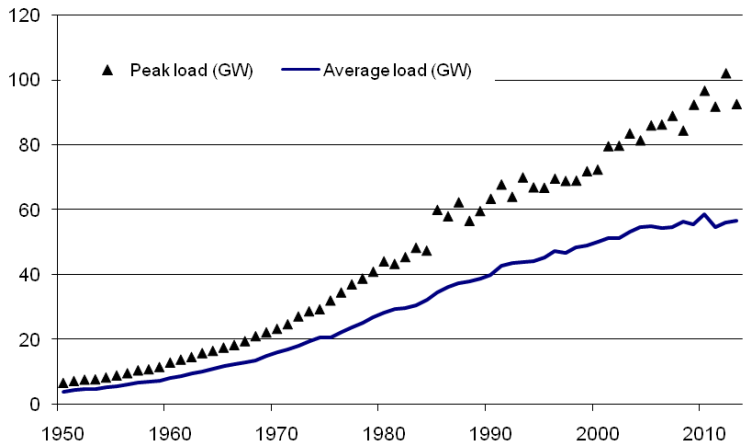
Ratio between tariff's (TEMPO) peak and base periods	
Current tariffs	Market-based structure
10 x	**2 x**

Rationale for a capacity mechanism in France

1- The Energy-Only market seems unable to reveal the real value of capacity

2- Growing concern about security of supply, in a context of rising peak demand in France

Peak load has grown 2,5 times as fast as average load between 2002 and 2014



France represents nearly half of European thermosensitivity

- French thermosensitivity : 2400 MW/° C
- The high sensitivity of consumption to temperature is mainly explained by the development of electric heating.
- Peak consumption continues to rise.

Rationale for a capacity mechanism in France

1- The Energy-Only market seems unable to reveal the real value of capacity

2- Growing concern about security of supply, in a context of rising peak demand in France

3- Continuous reduction of security of supply margins, with a potential risk identified as early as winter 2015.

- RTE forecasts a 900 MW deficit for winter 2015-2016, and a 2 000 MW deficit for winter 2016-2017
  (RTE, *Bilan prévisionnel 2014*)

→ **Need for a forward-looking mechanism (before it is too late)**

→ **The implementation of a capacity mechanism is not a substitute for other structural changes of the market.**

A continuous improvement of the Energy-Only market is needed.

Rationale for a capacity mechanism in France

1- The Energy-Only market seems unable to reveal the real value of capacity

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4- In the context of the opening-up of the market, it was necessary to redefine the responsibilities of each market player regarding security of supply

Key objectives of the market rules

The mechanism is a decentralised market, relying on three pillars :

- Obligation for all capacity owners in metropolitan France to commit on their forecasted availability during « peak periods » (3 years in advance for existing capacities) ;
- Obligation for suppliers to own capacity certificates corresponding to the consumption of their own clients located in metropolitan France during “peak periods”, also taking into account an extreme reference temperature and the contribution of interconnections ;
- Exchange of “capacity certificates”, beginning 4 years ahead of delivery year.

The elaboration of the rules paid careful attention to five main objectives :

Equal treatment of each stakeholder

Peak demand management

Participation of demand response

Competition issues, in a concentrated market

Compatibility of the mechanism with the IEM

Equal treatment of each stakeholder

The treatment of each stakeholder only depends on its actual contribution to SoS

- The contribution of stakeholders to security of supply is calculated on **actual measurements** of capacities availability / consumptions and gradients during the “peak periods”
  - intermittent capacities can also opt for a normative approach
- Few normative parameters

➡ **Equal treatment of all stakeholders:**

Technologically neutral : a capacity will be rewarded in proportion to its actual contribution to SoS

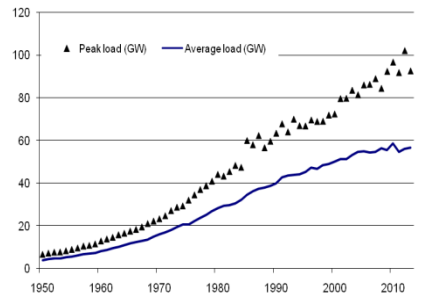
A supplier’s obligation will accurately represent the risks on the system associated with the actual consumption of its clients

➡ **A capacity that is not available during the peak periods won’t receive any certificate.**

Peak demand management

The mechanism targets periods of high consumption

- **The definition of the "Peak Periods" is an important design choice :**
  - **Short "Peak Periods" (100 – 250 hours per year) corresponding to the period at risk in terms of SoS ;**



  - **"Peak Period" days are <u>not normatively</u> defined, but <u>notified in D-1</u> ;**
    - The signal is mainly triggered by a demand criterion (days when demand is expected to be highest).

➡ **The mechanism will contribute to SoS by targeting periods of high consumption**

➡ **The mechanism will reveal the real value of demand response for the system.**

The peak period signal can evolve to integrate new risks on SoS

- A tension criterion has been included in the rules, to take into account the increasing level of intermittency in the generation mix.

➡ **The capacity mechanism can evolve to facilitate the integration of renewable energies in the power system**

Competition issues, in a concentrated market

The following measures contribute to mitigate the risk of market power abuse :

- **Obligation for each generator to certify its capacity, in order to prevent withdrawal behavior**
- **Market monitoring by the regulator (CRE)**
  - The regulator has access to the evolution of the level of capacity certified.
  - Each trade and each bid is reported to the regulator, including self-supply (of integrated operators) in the confidential « registry of capacity certificates » held by RTE
- **Market transparency : frequent reports**
  - Adequacy reports by RTE **:**These reports also include publications on peak demand management measures declared by market participants.
  - Market reports by CRE **:** Frequent reports and information on capacity prices and trades for each delivery year.
- **Legal obligation to sell by public offer the amount of certificates in excess of supplier requirement.**
- **ARENH: includes associated capacity certificates**

Compatibility of the mechanism with the Internal Energy Market (1/2)

A design that aims to minimize impact on the IEM

- Short term impact

- Long term impact on investments decisions

Short term impact ?

- **No impact on merit order**
  - **No interference with the energy market** : Capacity certificates are traded apart from the energy market : owning a capacity certificate does not give any right to the corresponding energy.
  - **Capacity certification only rewards availability.** The CM does not have a short term impact on energy prices : there is no obligation to produce energy.
- **No impact on interconnection capacity reservation, nor cross border energy flows**

Compatibility of the mechanism with the Internal Energy Market (2/2)

A design that aims to minimize impact on the IEM

- Short term impact

- Long term impact on investments decisions

Long term impact on investment decisions ?

- **The French capacity mechanism has been designed to avoid overcapacities :**
  - State intervention limited to the definition of the adequacy criterion ;
  - No commitment on several years ;
  - Equal treatment of demand-side management and generation ;
  - Prices should tend toward zero when the adequacy standard is reached.
- **Analysis of transborder effects is complex : they should remain limited, at least in the short term.**
- **Work on explicit participation of foreign capacities to be launched shortly**

Participation of cross-border capacities

Cross-border capacities are taken into account implicitly in the French capacity mechanism, through the diminution of the suppliers' obligation.

- This solution :
  - prevents overcapacities by taking the contribution of interconnections into account
  - shares the benefit of the interconnections between suppliers.
  - has been accepted in the EC State aid Guidelines, "as an interim step".

➡ **Pragmatic approach, given the unanswered questions raised by the explicit participation of cross-border capacities.**

Participation of cross-border capacities

The Energy Minister has asked RTE, on its proposal, to carry out a study on the participation of cross-border capacities within ten months after the publication of the market rules.

Participation of cross border capacities should respect the following principles :

- Compatibility with the IEM ;
- Improvement of security of supply ;
- Equal treatment of domestic and foreign capacities regarding their contribution to the reduction of the risk of failure, and regarding their respective commitments ;
- Respect of the adequacy standards set by each Member State.

Coordination between Member states and between TSOs is necessary for further market integration and ensuring SoS :

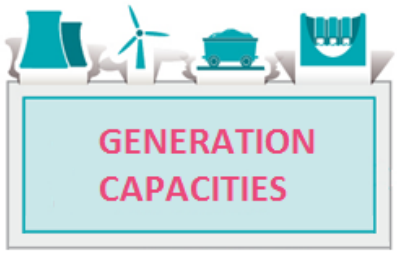
- It is necessary to develop a common methodology to assess generation adequacy and to work toward a joint regional adequacy assessment, as a useful complement to the work carried out at national level, and without prejudice of the responsibility of MS regarding security of supply.
  - The Pentalateral Forum is carrying out a study to improve the assessment in the region.
- France is working with UK and DE (Trilateral workshops)
- ENTSOE’s work under progress

Appendix

Main principles

All capacity owners in metropolitan France must have their production tools certified (more than three years in advance for existing capacities)

Every supplier has to contribute to security of supply and prove its ability to provide with the capacity its clients need.



Certification process

Adequacy criterion

Contribution of interconnections

Offer of certificates

- Commitment to be available during peak demand hours
- Control and testing methods to assess the availability.
- Penalty if availability commitment is not reached.

Capacity market

- **Continuous trading, beginning 4 years ahead of delivery**

Suppliers' obligation

- Obligation = consumption of their own clients located in metropolitan France during "peak demand hours", also taking into account an extreme reference temperature and the contribution of interconnections.
- Penalty if obligation is not reached

Participation of demand response

Even though the mechanism is technologically neutral, the market has been carefully designed to allow the participation of demand response

- **DR can be valued either explicitely or implicitely :**

- **Availability during the short « peak periods » of only 100 to 250 hours is consistent with the typical duration of shortfall episodes, enabling peak load reductions to be rewarded in proportion to their contribution to reducing the shortfall risk**
  - Demand response has a high potential of development during the « peak periods » (Heating consumption)
  - Notification of “Peak Periods” in D-1 will encourage the availability of DR when needed

  ➡ **The mechanism will reveal the real value of DR for the power system.**

- **Flexible certification process for demand response**
  - Demand response will be able to react dynamically to adequacy tensions, by adjusting offer and demand in capacity until the last moment.