Public intervention to ensure adequacy

Markets as an appropriate solution to trigger Europe's investment needs?

Investing in European electricity markets today: challenges and opportunities

Chaire European Electricity Markets – November, 24th 2014

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Our electricity markets have worked well but are facing new challenges

2000s

- **Electricity markets have been designed at the EU level** relying on an "energy-only" model in a time of overcapacities and almost no evolution of energy mixes.
- **The deployment of a common "software" for European countries** has led to major achievements:
  - **Increase of energy exchanges between countries**.
  - **Optimization of the use of infrastructures** between countries.
  - **Harmonization of rules** at the European level.

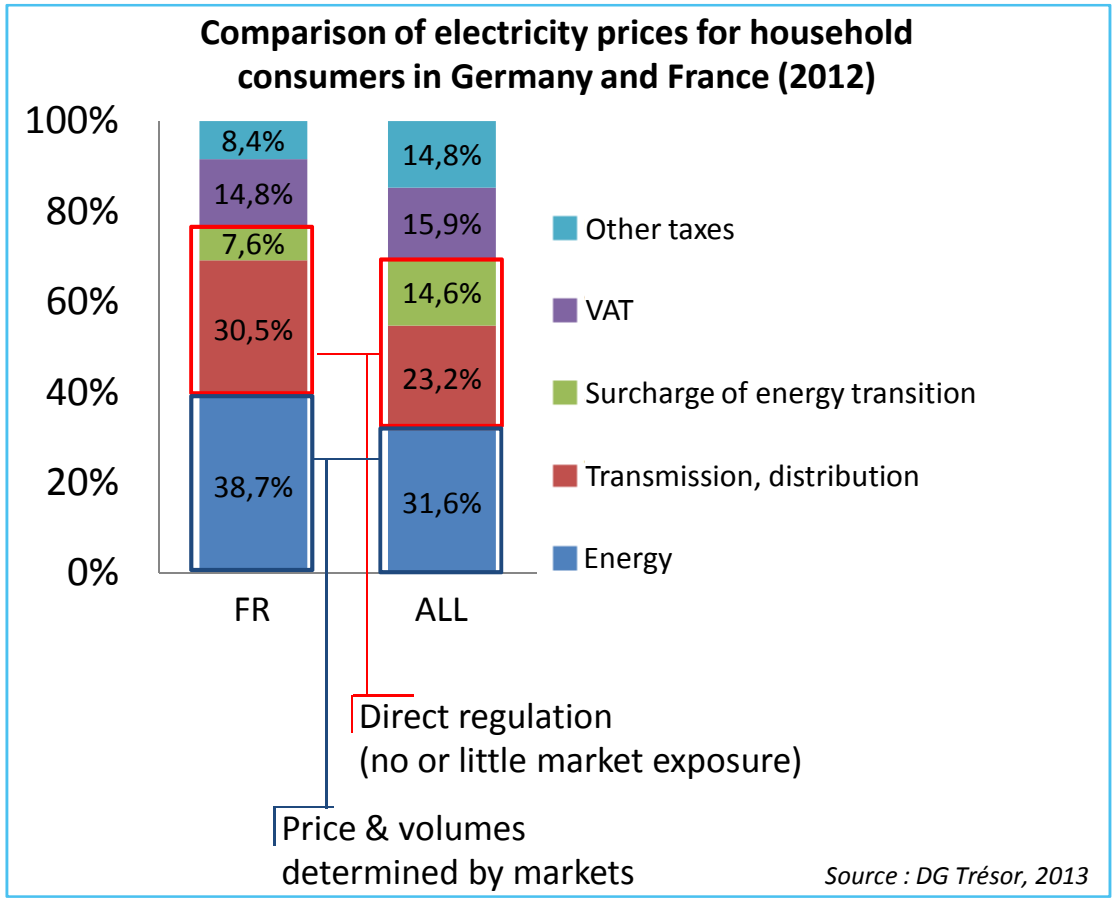
2010s

- **Energy policies are drastically evolving.**
- **European countries are facing new investment needs to finance energy transition.**
- **Many different options are considered by Member States to successfully achieved the energy transition and to ensure security of supply** (subsidies to RES, long-term contracts, carbon taxation, capacity mechanisms...).

In this context, 2 main questions need to be addressed:

1. **Why are there so many options on the table and does it lead to a fragmentation of the market?**
2. **Is there still a place for market-based instruments to regulate those investments? Or will we go towards some form of direct cost regulation?**

Is there still a place for market-based instruments to regulate European investments needs?



The share of markets are less and less important in the price of electricity paid by consumers:

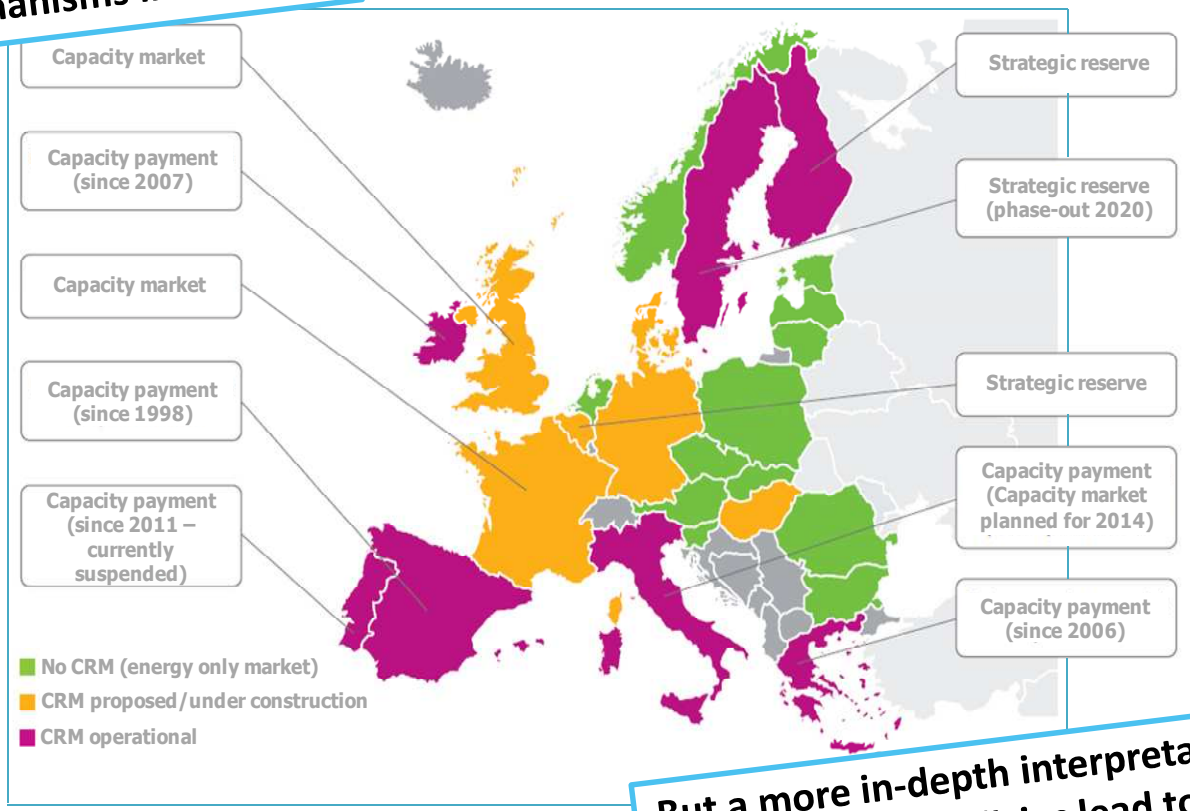
- **Market signals are no longer consistent with the physical needs of the system:** weak market prices, no incentives for investments in low-carbon assets.
- **"Out-of-market" solutions are increasing, especially to finance the energy transition:** RES support schemes.

Markets can play their initial role and convey prices that would give investors the necessary signals to invest, only if:

- **The existing "energy-only" model is enhanced in order to be more reflective of costs.**
- **Electricity markets are completed by "new" market design elements.**

Are current national energy policies leading to a fragmentation of the market? (1/3)

A "well-known" taxonomy of capacity mechanisms in Europe



But a more in-depth interpretation of national policies lead to different conclusions…

Are current national energy policies leading to a fragmentation of the market? (2/3)

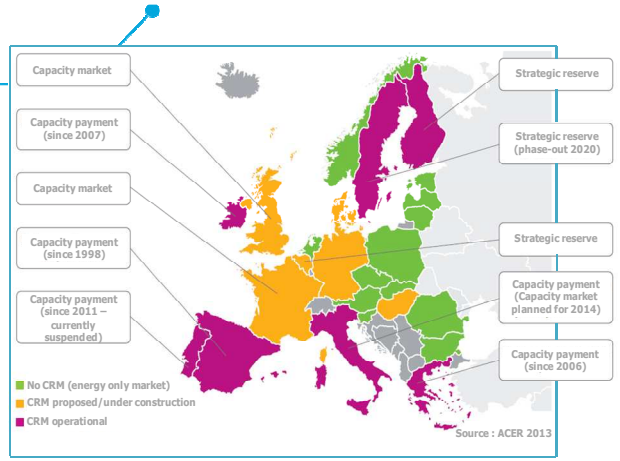
UK → **Capacity market**

France → **Capacity market**

Germany → **No existing capacity scheme**

Is it really the same approach?

Is it true?



- For low-carbon assets: **feed-in-tariffs with contract for differences**
- For other assets: **capacity auctions** with long-term products for new and refurbishing plants

>> No volume risk for market players

- **Central buyer**

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- **No contract for differences**
- **Decentralized capacity market** with yearly products

>> Market players are exposed to volume and price risks

- **No central buyer**

Reserve Power Plants:

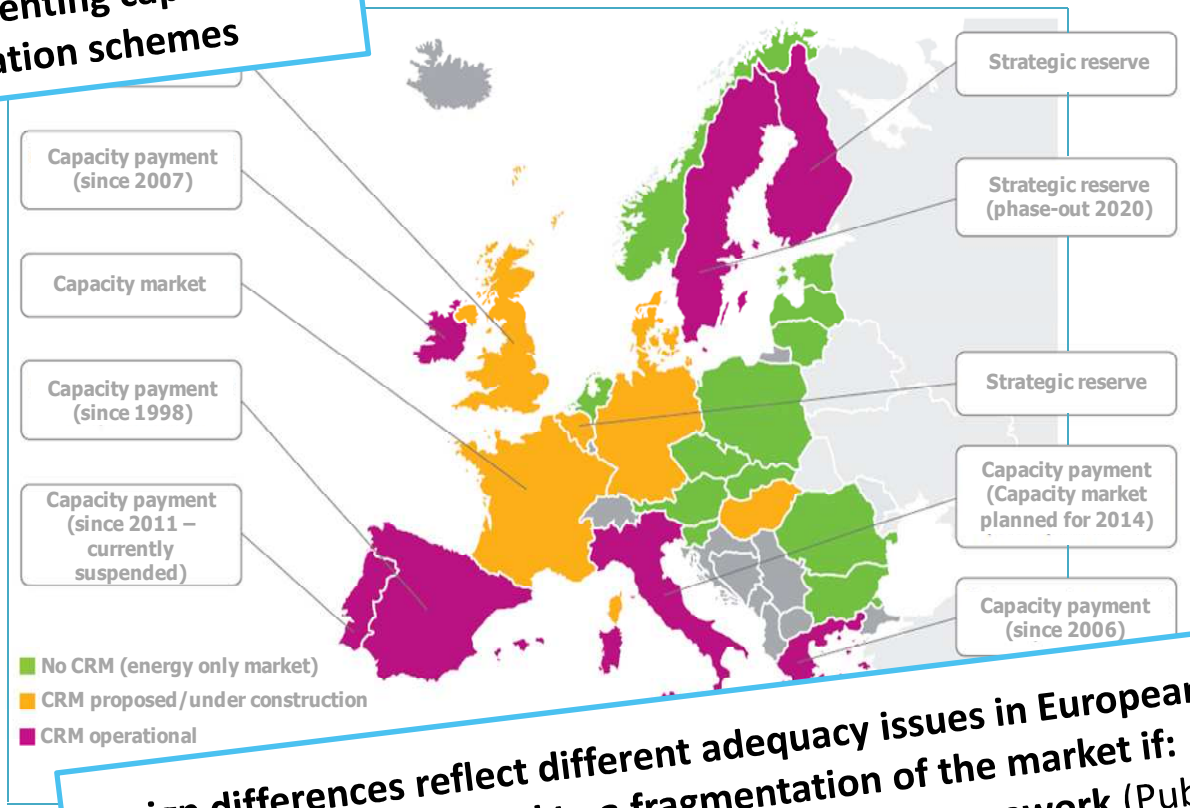
- Rules concerning existing and (exceptionally) new facilities away from the energy market
- Based on agreements between TSOs and operators, in consultation with the NRA
- No right to participate in the energy market

+ Provisions to avoid shutdown of assets under the control of the NRA

An administrative framework exists in DE

Are current national energy policies leading to a fragmentation of the market? (3/3)

All countries have implemented / are implementing capacity remuneration schemes



Design differences reflect different adequacy issues in European countries.
It will not necessarily lead to a fragmentation of the market if:

- **All designs are consistent with the European framework** (Public intervention package, Nov. 2013 + State aid guidelines, Apr. 2014).
- **They are appropriate and proportionate to the needs of the system.**

Investment needs in Europe: what is at stake?

Different needs lead to different approaches

Massive investments in new low-carbon assets are required to successfully achieve the energy transition

New long-term instruments required by market participants to provide stable and predictable revenues
→ Reduction/suppression of risks

Example: UK

- Fifth of plants closing by 2020
- Investment needs (1,4 billion Euros)

Two major tools :

- **Feed-in tariffs with contracts for difference** for low-carbon investments
- **Centralized capacity auctions with stable revenues** for new capacities (15y.) or refurbishing capacities (3y.)
- State aid clearance in 2014

Ensuring security of supply by ensuring the availability of new and existing assets

Market signals need to be completed to integrate a "security of supply" component
→ No reduction of investment risks

Example: FR

- Increase of adequacy risks
- Need to secure investments (including demand response) to ensure security of supply

Two major tools :

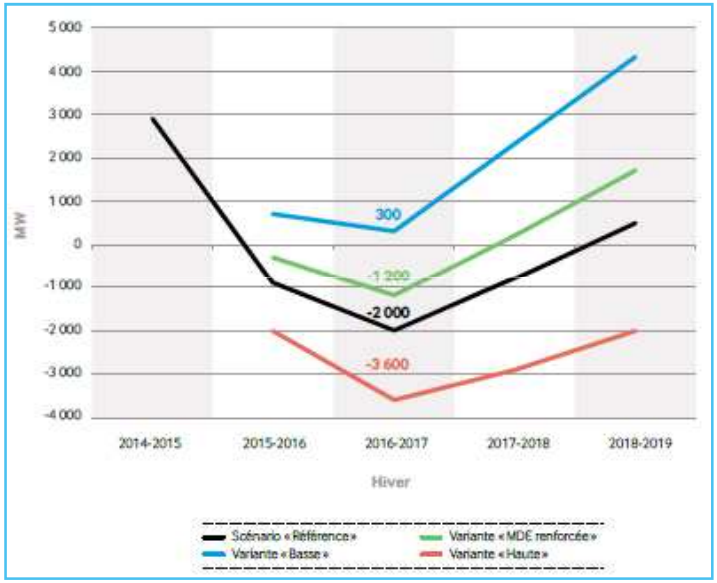
- **Reform of the existing market design**
- **Decentralized capacity market**

France is making the choice of a market-based solution to tackle its adequacy needs

France is facing adequacy challenges

1ST challenge to address in the medium-term → **meeting demand during peaks**

An existing challenge → conclusions of RTE's 2014 adequacy forecast (adequacy studies are based on a stochastic approach, modelling Central Western Europe countries)



- **"Reference" scenario: - 2 000 MW of margin in 2016-2017**
- "High-level of demand-side management" scenario: - 1 200 MW of margin

Like other capital-intensive industries, **the electricity sector is likely to experience boom & bust cycles which may affect security of supply**

2ND challenge to address in the medium/long-term →**coping with intermittent generation and preparing the system for the energy transition**

- An emerging challenge with limited impacts for the time being in France...
- Nonetheless, addressing this issue is a key-element that is considered in the field of the French law on energy transition

An in-depth reform of the French market design

2009 - 2010

Diagnosis

- Peak load increase (in a context of flat average load);
- Insufficient participation of demand-response to electricity markets;
- Risk of decommissioning/mothballing of capacities which have a real added-value for the system.

2010 - 2014

Structural solutions

1. Enhancing the target model through:

- **Direct participation of demand-response** to all market structures;
- **Completion of the electricity regional initiatives**;
- **Current revision of RES support schemes** to integrate RES in the markets.

2. Complete existing market signals with a properly-designed capacity market, which:

- Allows **full participation of demand-response**;
- Is adapted to tackle both the peak load issue and **the energy transition challenge**;
- Ensures **security of supply**, thanks to proper market structures and signals.

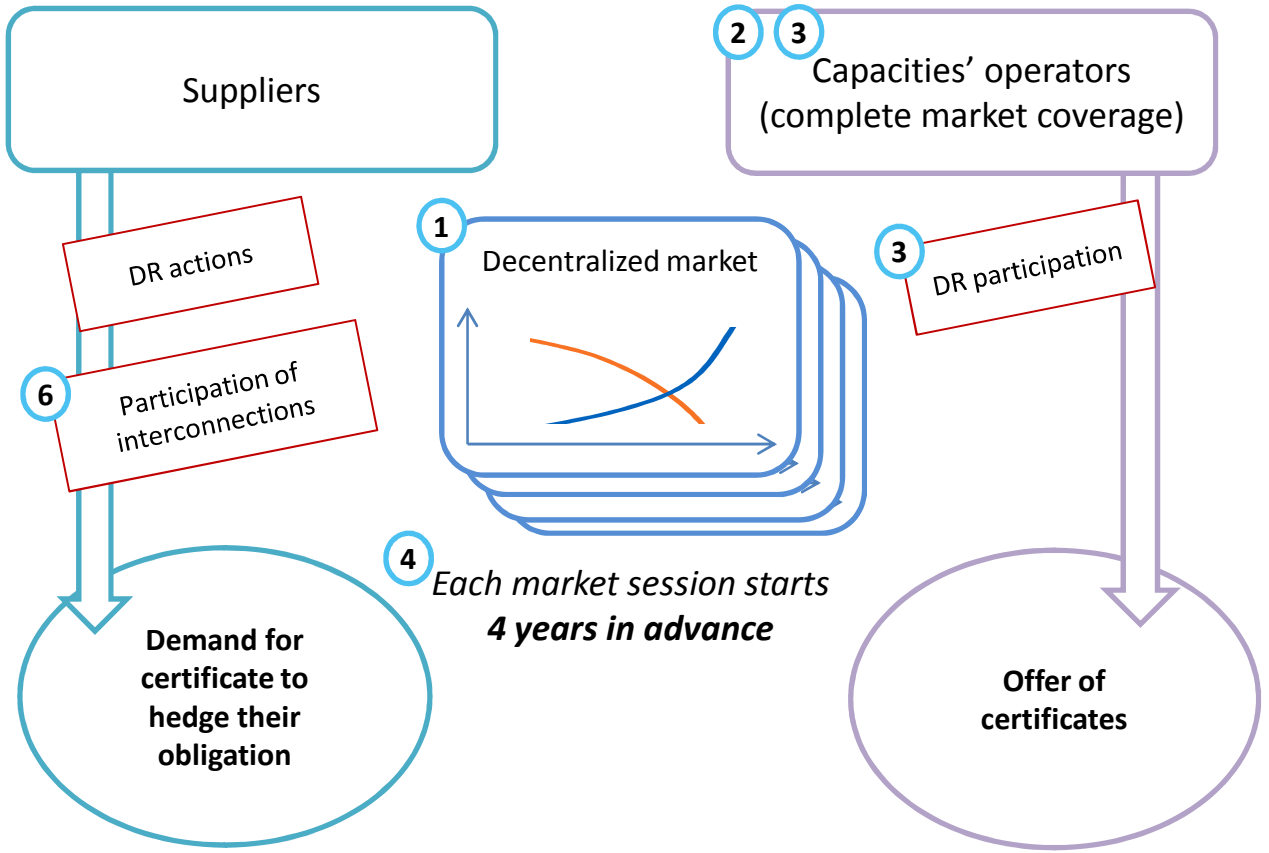
2014

1st results

- Demand response is able to compete in all existing market structures but **the deployment of its real potential is entangled with the introduction of the capacity market**.
- Market signals are improving and competition is increasing in the French market. However, **major challenges remain** to ensure security of supply and to smoothly implement the energy transition.

Core elements of the French capacity market (1/2)

1. **Market-based**
2. **Capacity-wide**
   All capacities can compete
3. **Level playing field**
   (1 RES certificate = 1 therm. certificate = 1 DR certificate)
4. **Forward looking**
5. **Transparency**
6. **Participation of interconnections** (starting from the 1st delivery year)



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- Public register on the certification process (incl. certified capacities), held by RTE;
- **Transparency on prices and volumes**, given by the Regulatory Authority;
- **National adequacy forecast,** published by RTE (non-binding document);
- **Annual observatory of the capacity market,** published by the Regulatory Authority.

Core elements of the French capacity market (2/2)

1ST question: is the French capacity market designed to systematically address the "missing money" problem?

Generation and demand-response capacities will be remunerated for the effective service they provide to ensure security of supply. This remuneration is not a subsidy (the French capacity market will not prevent all capacities to be mothballed or to be decommissioned if they provide no added value to the system).

2ND question: should the mechanism be really "capacity-wide"?

Any available capacity contributes to security of supply. A capacity-wide mechanism allows for an increased efficiency in terms of security of supply and avoids costly overcapacities (no slippery-slope effect and no market distortion).

3RD question: is the French capacity market really decentralized?

There is a unique security of supply criteria (defined by the State) which provides market players with the overall target in terms of security of supply. However, market players are trading certificates as a commodity and hedge against their risk (through differentiated means and strategies). There is no capacity target.

4TH question: can the capacity market lead to a technology lock-in effect regarding the energy mix?

RES generation and demand-response are fully integrated in the capacity market and can compete on a level playing field with conventional generation. The French capacity market should increase the role of demand-response regarding system adequacy (6 GW of demand-response is a reachable target).

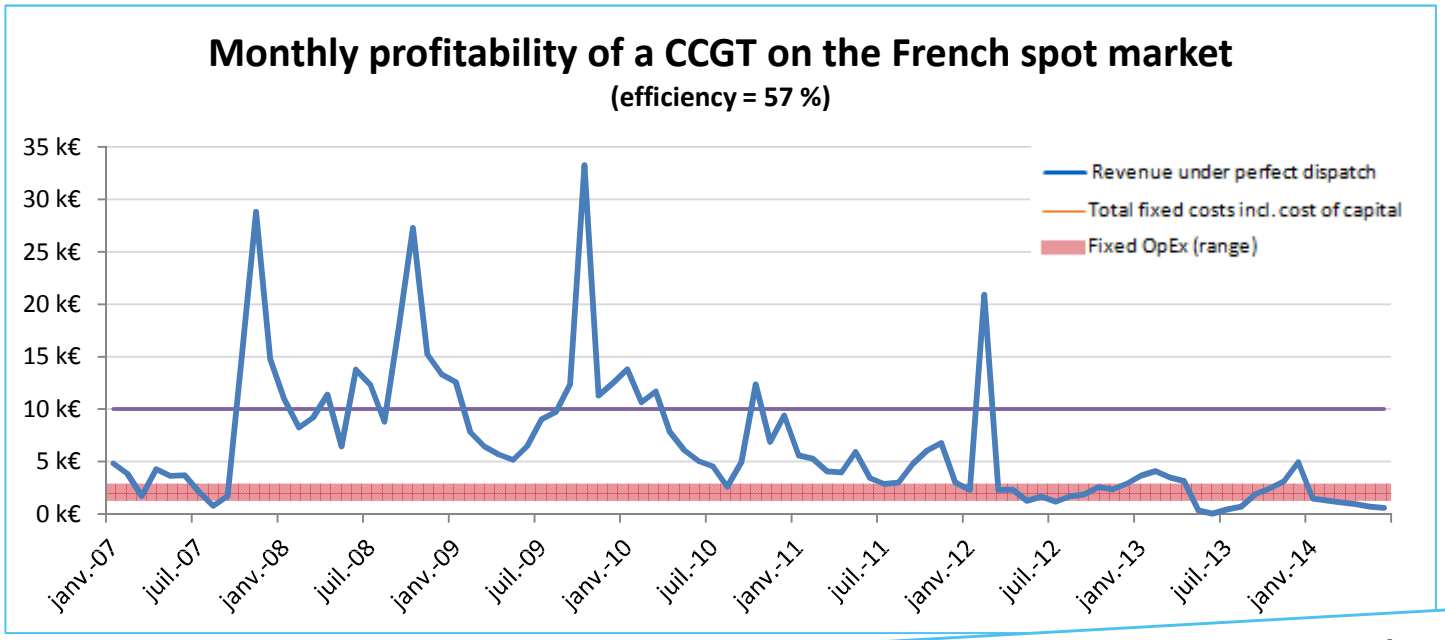
What kind of investments should be triggered by such a mechanism?

- In the French context, **there are well-known possibilities that can be considered to tackle adequacy issues:**
  - **Deployment of demand-response;**
  - **No mothballing of CCGTs;**
  - **Extension of operation of fuel power plants.**

→ **Choice to let markets find the winner of competition, i.e. to select the most affordable capacities to ensure security of supply** (by comparison with a technology-driven choice)**.**

- A market-based approach for capacity will:
  - **Create a level playing field between stakeholders** → all capacities will be able to compete on the market, to reveal their "real" added-value for the security of supply and to receive the same remuneration if they provide the same service even if they are from different technologies.
  - **Ensure that no overcapacities are paid by customers and that security of supply is achieved in the most efficient way** (and at the lowest costs) → no administrative price, no "unnecessary" remuneration, incentives for stakeholders to accurately shape their bids.

The capacity market can provide incentives for CCGTs

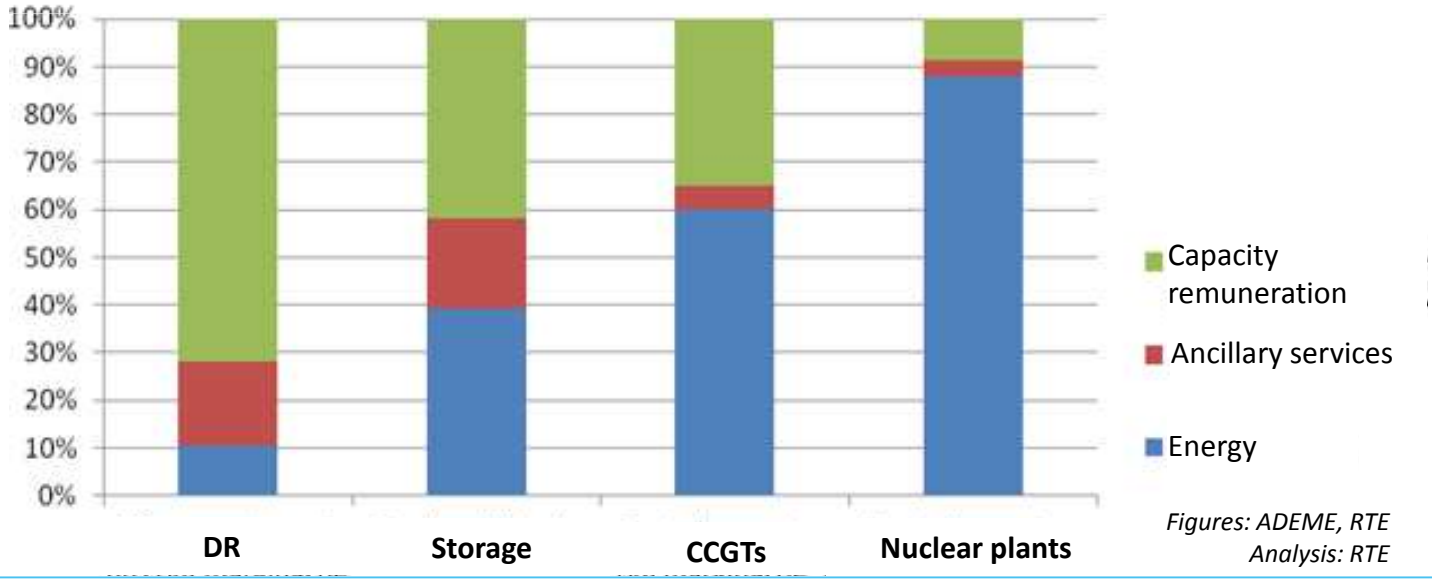


- **CCGTs operators are incentivized not to mothballed their assets** even if the market design does not provide long-term stable revenues. Existing CCGTs can be exposed to prices and risk volumes as other market players.
- In a competitive environment, **CCGTs operators should act as rational market players**, shape their bids in order to cover their operational costs and guarantee that they will receive a remuneration. Otherwise, they take the risk to have higher bids than other capacities (especially DR) and not to receive any remuneration if the market clears below their bids. **This ensure the availability of assets at the lowest costs possible for customers.**

The capacity market will mostly reveal the true potential of demand-response and storage for the power system

Those capacities targeted by the energy transition have a remuneration structure with an important "capacity" share (75% for DR, around 40% for storage).

- **For those capacities, the implementation of the capacity market is all the more important that it will highly contribute to their financial viability.**
- The capacity market will allow those technologies to become more competitive and "financially" mature and their market shares will increase.
- This is not the case for conventional generation units such as :
  - Nuclear power plants →the "energy" share is 9 times higher than the "capacity" one;
  - Base-load thermal power plants → the "energy" share is 5 times higher than the "capacity" one.



Conclusions

Public interventions in the energy market is on the agenda : all Member States are implementing new public instruments, the EC has published guidelines dedicated to this question.

→ Should this intervention be a “dedicated”, “out-of-market” ad-hoc solution or a structural market reform?

Those interventions are directly questioning the ability of the energy-only market to provide the right incentives.

→ Are capacity schemes the only interventions questioning the role of the energy market? Is the introduction of market distortions through RES support schemes the real starting point?

Design differences between Member States reflect different adequacy issues in European countries and different organization of markets.

→ Those differences are not a problem *per se* as long as they are appropriate and proportionate.

→ The European integration has proved the efficiency of bottom-up approaches → this will even more be the case for future market design elements.

To tackle new challenges, market solutions should be given high priority or we risk jeopardizing the improvements of the European integration of markets and preventing customers to effectively have leverage on investment choices.

→ We are at a crossroads: will we give a chance to markets to play their role and provide incentives for investments or will we only focus on administrative cost regulation and reduce the share of markets?

Thanks for your attention

More information can be found in the supporting document for the proposed capacity markets rules:

- in French
- in English