

# Capacity Remuneration Mechanisms: Paying the Right Price for Security of Supply

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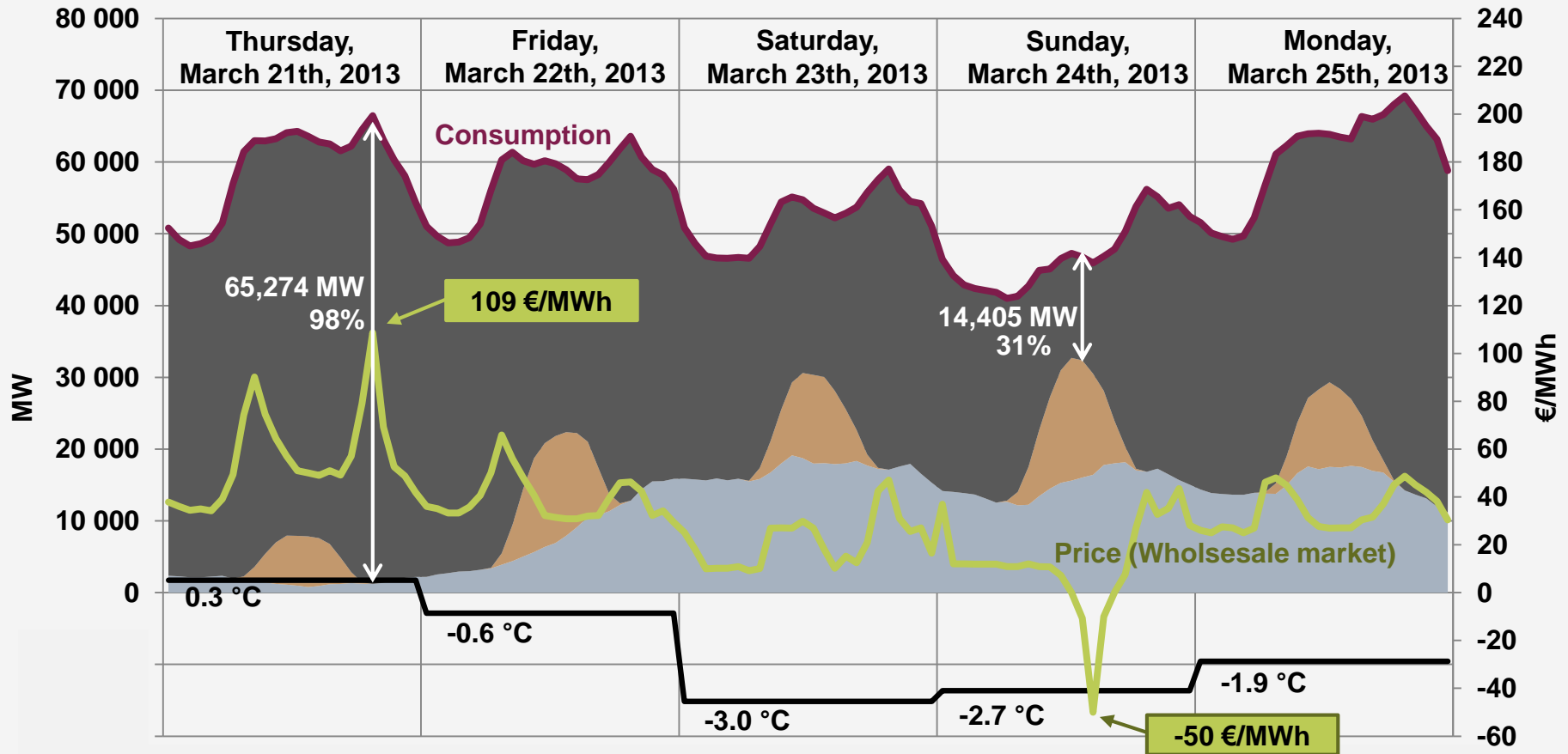
# Capacity markets: Debating a new electricity market design

- 1. Starting point**
- 2. The decentralised capacity market (DCM)**
- 3. European Dimension**

# Capacity markets: Debating a new electricity market design

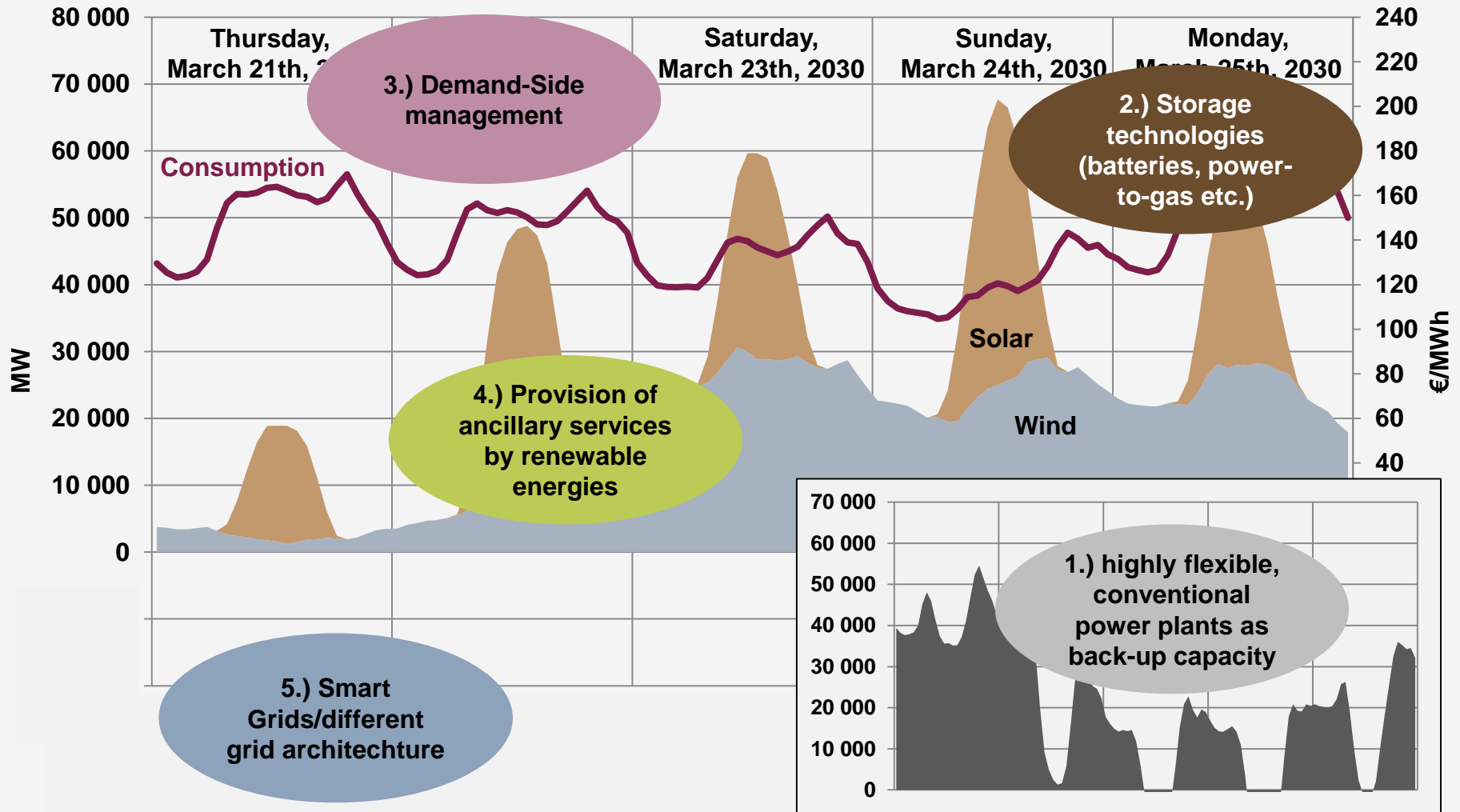
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# Electric Power Supply Today: The “March 24<sup>th</sup>-Situation”



Source: Transmission network operators, EEX, DWD, BDEW (own calculations)

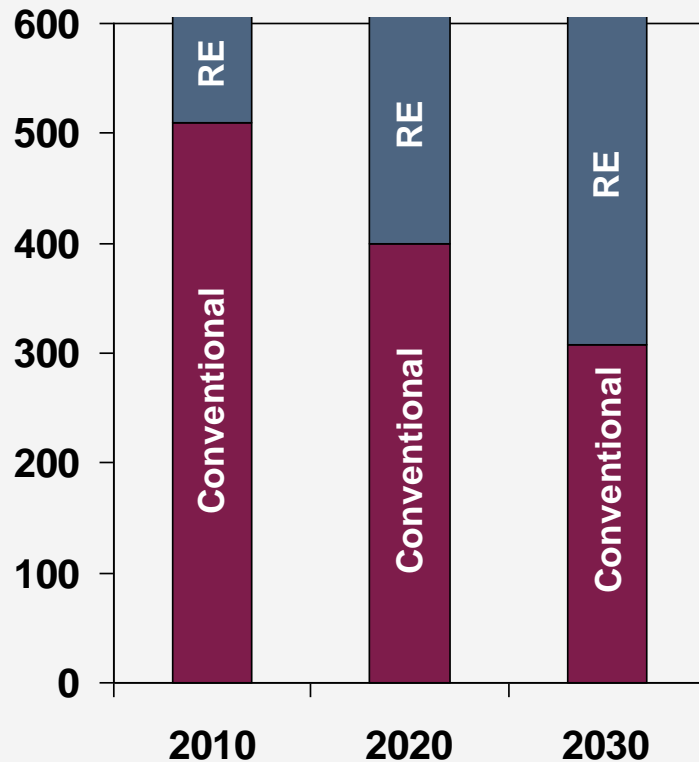
# March 2030: What could it be like?



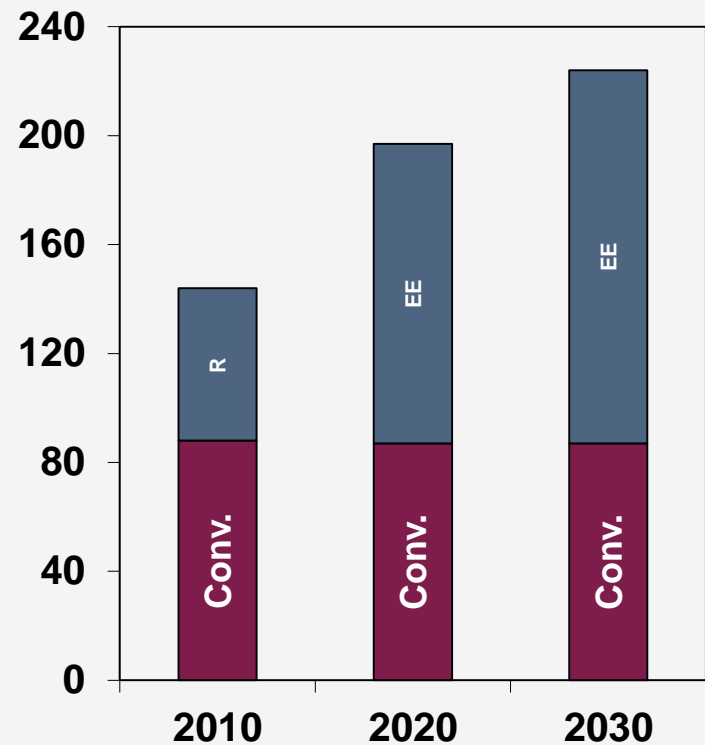
Source: Transmission network operators, EEX, DWD, BDEW (own calculations)

# Challenges for the power plant fleet: Much more capacity for the same

**Gross electricity generation (TWh)**



**Electricity generation capacity (GW)**



- To achieve RE share of electricity consumption of 35% by 2020 and 50% by 2030 an enormous expansion of renewable energies is necessary (here: with constant electricity demand)
- Conventional power plant fleet has to be maintained almost unchanged (Back up, ancillary services), however electricity production falls considerably (profitability?)

# 1. Perspectives of the EOM

## EOM cannot deliver cost covering and security at the same time

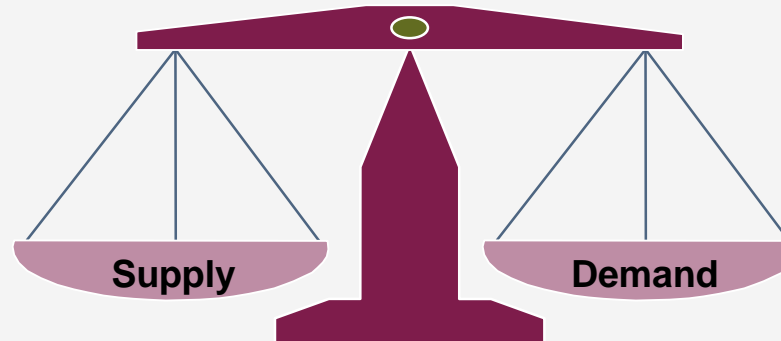
- **Additional RE** reduces capacity utilisation and electricity prices for conventional plants without being able to replace all functions of conventional facilities.
  - Just a few hours must be enough to cover the fixed costs of the power station fleet. The highly stochastic nature of these price peaks makes the calculation for the operators very difficult.
- **Capacity markets in other EU member states** regularly lead to more power station capacity there without being able (due to network bottlenecks) to replace conventional plants in Germany.
  - Number of hours with potentially high prices falls further. i.e. the price peaks will become even more extreme.
- **Price peaks only exist at times of extreme shortages on the market, i.e. the margin of security is very low.** Interventions in the market operation are thus probable.
  - e.g. through subsidies to prevent closures or state ordered construction of new power plants. Both make it impossible for power plants to cover their existing costs.
  - The bidding restrictions of the German Federal Cartel Office have destroyed faith in the market at times of peak prices.

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1. Starting point
- 2. The decentralised capacity market (DCM)**
3. The debate in the platform electricity market design of the BMWi



# Physical balancing of demand and supply of electric power



## Capacity certificate issuer

Is obligated  
in times of shortage  
to offer/feed in power  
equal to certificates sold

**Penalty for failure  
to feed-in in times of  
shortage**

## BKV

Is obligated  
in times of shortage  
to hold certificates  
equal to required firm capacity

**Penalty for lack of cover  
in times of shortage**

# DCM design (selected features)

## Monitoring time: Shortage

- Applies as soon as the day ahead price exceeds value set by regulator
- Indicated shortage is some distance from actual shortage

## Penalty

- Multiple of the calculated certificate price
- Level is crucial for degree of security of supply (regulator!)

## Certificate Issuer

- No prequalification necessary, pooling possible
- Ensuring discrimination free access of all technologies and suppliers

## Capacity certificate

- Term of one year
- Close of trading one day prior to fulfilment. No ex-post trading

## Certificates from abroad

- Certificate volume smaller than physical transmission capacity
- Remaining capacity margin sufficiently large

# Compare EOM 2.0 with DCM

## EOM 2.0

- Financing provision of capacity through temporarily extremely high shortage prices (high level of price risk for investors)
- Risk of interruptions in supply due to
  - lack of timely addition of capacity
  - early shutdown of existing plants
- No capacity reserves in critical situations
- Lower cost, as "just in time"

## DCM

- Financing provision of capacity through less volatile capacity price (lower level of price risk for investors)
- Security of supply always provided due to
  - timely addition of capacity
  - voluntary reduction of consumption by customers in times of shortage
- Capacity reserve in order to handle critical situations
- Higher costs (0.07 ct/kWh = +0.2% for HK) (r2b: 6.8 bn € over 16 years and 600 TWh per year)

# Steps to a decentralised capacity market:

**BDEW demands the following from government policy:**

## **Step 1: (2015 at the latest)**

- The creation of a legislative basis for the introduction of a decentralised capacity market, based on obligatory capacity certificates.
- Definition of the conditions necessary for the transition to the decentralised capacity market described.

## **Step 2:** Activation, once need is foreseeable

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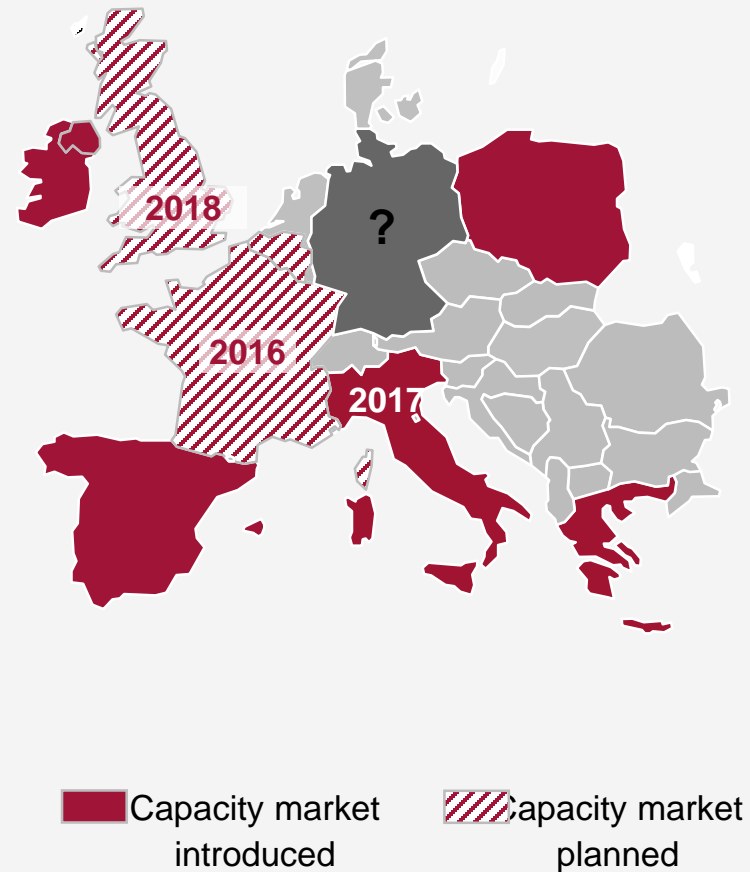
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## A purely national introduction of a capacity mechanism ...

- is contrary to the idea of a European internal market.
- does not guarantee per se definite security of supply as the energy markets are connected to one another ("*copycat effect*") and
- will be expensive because capacity available abroad is not used,

→ **Regionally harmonised concept would be best option!**

→ **Pilot: Germany / France**



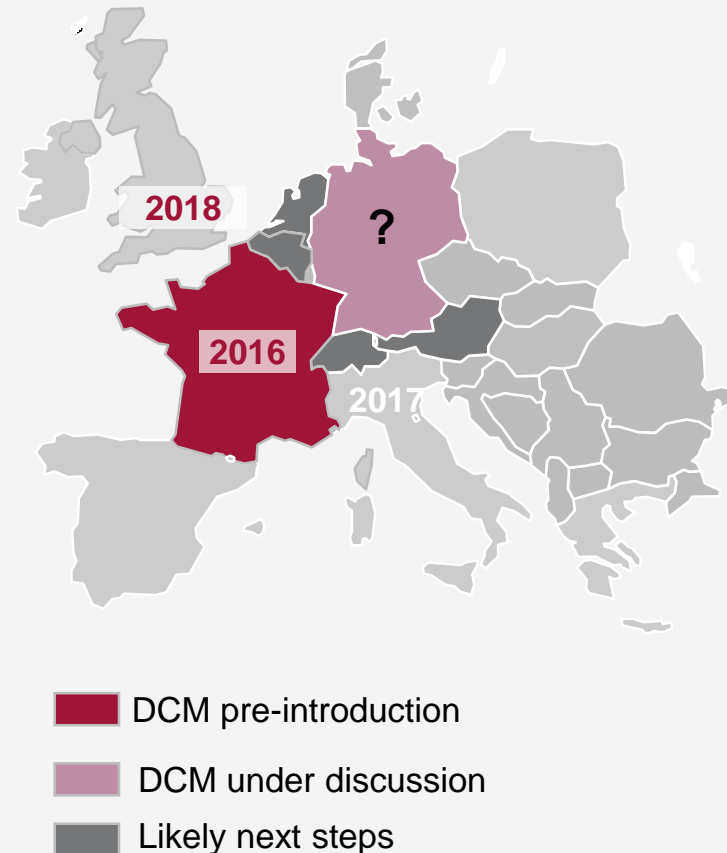
# Pilot: Germany - France

**Many similarities between the BDEW proposal and the (in large part) adopted French capacity market model**

→ **Coupling the two systems could serve as a pilot for the region**

→ Cooperation *bdew-ufe*

- How could the explicit participation by facilities in one country in the capacity market of another be designed?
- At which points in the respective models are changes required in order to enable such participations and to reduce market upheaval?



# Thank you for your attention!

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