

MARKET REVISION: ECONOMIC SIGNALS FOR LONG TERM INVESTMENTS

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DECARBONIZING ELECTRICITY

2030 scenarios

- **Based on massive RES. Photovoltaic and wind energies representing more than 50% of electricity generation in 2030**
- **PV and WE, very competitive**
 - **Average cost lower than variable cost of thermal generation**
 - **Deployment conditioned by technical rather than economic factors**
 - **Back up capacity, firm and flexible**
 - **Inertia, frequency control, voltage control, ramps**

OBJECTIVES OF THE MARKET REVISION

- **Assure investments in new generation capacity, storage and DSM**
 - RES according to the decarbonization path
 - Back up capacity
- **Optimize operation of existing facilities and provide short term economic signal for demand management**
- **Guarantee balance and ancillary services**
- **In the context of the Internal Market for Electricity**

FIRST GENERATION ELECTRICITY MARKETS

- **Energy only wholesale markets**
- **Designed for two competing marginal technologies, CCGT of NG and Coal Plants**
- **Main challenges**
 - **Installed generation. Windfall profits and losses**
 - **Price caps. “Missing money”**
 - **Regulated capacity payments**
 - **Low development of long term markets as efficient risk sharing mechanism**
 - **Low interconnection capacity**

RES AND THE CRISIS OF THE MARKET DESIGN I

- **RES, capital intensive, very low variable cost**
 - Out of the market incentives during the learning curve
 - Depressing market prices when primary resource is abundant
 - intermittent, low manageability
 - “Cannibalization effect”: difficult remuneration of capital investment in the energy market
 - Relevance of the financial cost and risk sharing
- **RES aggravates adequacy problem**
 - less working hours for conventional generation
 - depressed prices and price volatility
 - Risk of policy induced overcapacity

RES AND THE CRISIS OF THE MARKET DESIGN II

- **EU energy and climate policy**
 - Irrelevance of the carbon price
 - Market design for a world without physical, environmental and security of supply restrictions
 - RES incentives, capacity payments and other non market payments non harmonized
 - Insufficient interconnections
- **The consequences**
 - “Missing money” for RES and back up capacity
 - “Missing markets”
 - Flattenig of the intraday price curve
- **The challenges**
 - ensure resource adequacy in the long term
 - ensure RES investments according to the decarbonization path
 - ensure enough flexible resources in place, incentivized to operate flexibly

PROPOSALS OF THE COMMISSION OF EXPERTS I

CAPACITY AUCTIONS FOR FIRM AND FLEXIBLE BACK UP

➤ Pre-requisites

- According to EU regulation
- Allowing energy markets to emit adequate economic signals
- Reserve adequacy analysis with common methodology
- Non distorting European market coupling. Euphemia
- Avoiding overestimation of future needs
- ensure firm but as well flexible capacity
- Do not subsidize fossil fuels and non competitive assets

➤ Characteristics

- Capacity auctions. Two products: firm and flexible capacities
- Central buyer: System Operator
- Medium-long term auctions. Annual adjustments
- Extra-border participation, conditioned.
- Participants: generation, storage and demand facilities
- Retribution: marginal price of the auctions
- Cost allocation: consumption according to instantaneous capacity demand
- Penalizing unfulfillment
- Volumes: Estimated and published by the SO

➤ Hibernation. Safeguards

PROPOSALS OF THE COMMISSION OF EXPERTS II

INTEGRATION OF RENEWABLES

- **More than 40.000 MW of RES additional capacity for 2030**
- **PV and WE competitiveness**
- **“cannibalization effect”**
- **Probably RES capacity auctions needed to ensure investments**
- **Capacity or energy auctions ? Pros and cons**
- **Should the auctions be technology neutral’**
- **Auctions non distorting market prices**
- **Calendarization welcome**

PROPOSALS OF THE COMMISSION OF EXPERTS III

MARKET INTEGRATION OF FLEXIBILITY RESOURCES

- **With RES variability, they ahead markets loose importance in favor of intraday, real time and flexibility markets**
- **Need to exploit all the flexibility resources: generation, including RES, storage and demand**
- **Eliminate barriers to participate in balancing markets. Requisites: observability and controlability**
- **Promoting aggregators of demand, storage and distributed generation**
- **Towards a more decentralized system**

PROPOSALS OF THE COMMISSION OF EXPERTS IV

CONCLUSIONS

- **Capacity auctions for firm and flexible back up**
- **Capacity or energy auctions for RES investments according to decarbonization path**
- **Promotion of distributed resources (demand, storage and distributed generation) via aggregators in the balance and ancillary services markets**
- **In the context of the Internal Market for Electricity Guidelines**
- **Coherence with fiscal and network tariffs reform proposals to promote economic signals for final consumers**