MARKET REVISION: ECONOMIC SIGNALS FOR LONG TERM INVESTMENTS

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DECARBONIZING ELECTRICITY 2030 scenarios

Based on massive RES. Photovoltaic an 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 conditionned 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 Electriciy

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 primay resource is abondant
- intermittent, low manageability
- "Cannibalization effect": difficult remuneration of capital investment in the energy market
- Relevance of the financial cost and risk sharing
- RES aggravates de adequacy problem
 - Iess 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 methodologie
- Non distorting european market coupling. Euphemia
- Avoiding overestimation of future needs
- ensure firm but aswell flexible capacity
- > Do not subisidize 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, conditionned.
- Participants: generation, storage and deman facilities
- Retribution: marginal price of the auctions
- Cost allocation: consumption according to instantaneous capacity demand
- Penalizing unfullfilment
- 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 aditionnal capacity for 2030
- PV and WE competitiveness
- "cannibalization effect"
- Probably RES capacity auctions neede to ensure investments
- > Capacity or energy auctions ? Pros and cons
- Should the auctions be tecnology 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