

# THE EU ELECTRICITY MARKETS UNDER REFORM: CONSENSUS, DISAGREEMENTS AND UNKNOWN

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**TradeRES**

New Markets Design & Models for  
100% Renewable Power Systems

## WP3: Market Design and Regulation for ~100% Renewable Power Systems

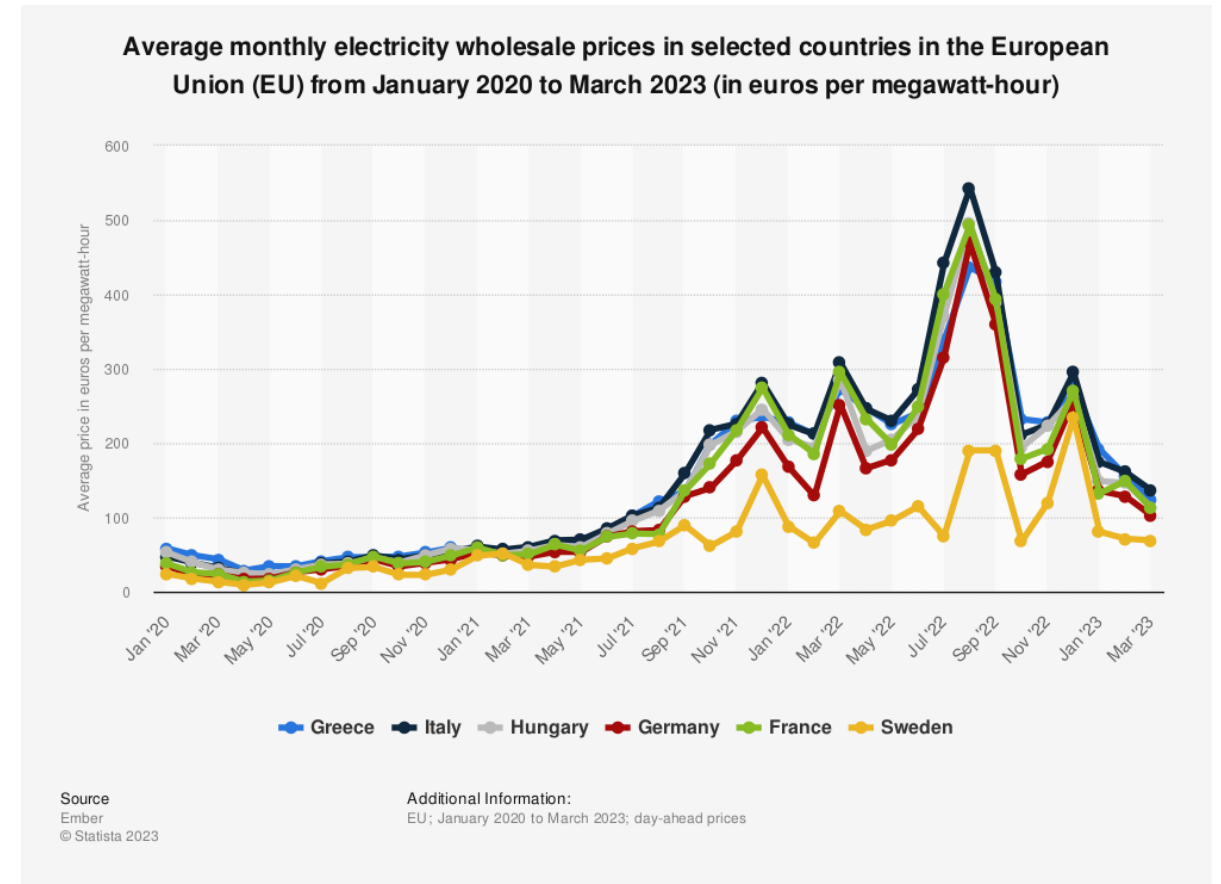


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# European Energy crisis

- Physical supply was not a problem
- Not a single black out
- Efficient short-term dispatch
- Economic energy crisis ( $\uparrow\pi$ )
- Consumers were hit bit record high prices
- Unexpected revenues for generators
- Financial problems for retailers





# Electricity market performance

- Short term signals (wholesale)
  - Promoted system efficiency
  - Need of more flexibility
- Consumers were not protected
  - Need to allow consumers to hedge risk
  - Promote electrification
- Need to ensure investment
  - Failure to send long-term investment signals
  - Speed up vRES penetration at lowest cost



# EU Commission market reform proposal

- Protect consumers from volatile energy prices
  - Hedging opportunities
  - Emergency mechanism, cap prices
- Stability and predictability of energy prices
- Promoting investments in renewable energy via derisking
  - CfDs
  - PPAs
- Need of mechanisms to deploy non fossil flexibility by using capacity mechanisms



Strasbourg, 14.3.2023  
COM(2023) 148 final  
2023/0077 (COD)

Proposal for a

**REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**

**amending Regulations (EU) 2019/943 and (EU) 2019/942 as well as Directives (EU) 2018/2001 and (EU) 2019/944 to improve the Union's electricity market design**



# Market Design key aspects

- Wholesale market design
- Transmission networks
- Retail markets
- System adequacy
- De-risking investment in vRES



# Wholesale market design

- Shorter lead times between market closure and delivery time;
- The implementation of a rolling time-horizon market clearing process;
- Trade shorter time units, e.g., of 30, 15 or 5 minutes ;
- The organization of the intraday market

Auction > Day-Ahead > 60min > NL > 27 June 2023

Last update: 26 June 2023 (12:46:56 CET/CEST)

Time Range Day ▾

Show Baseload

Show Peakload

Price



MCV Volume

Total: 83,879.7 MWh



# Disagreements - wholesale market

- Mandatory bidding
- Price caps under crisis
- Wind fall profits
- Nodal pricing/copper plate





# Retail markets

- Design of network tariffs + energy prices
- Capacity subscription
- Real time signals
- Role of retailers and aggregators in enhancing flexibility



# Disagreements - Retail markets

- Energy and network tariff design
- Needed?
- Hedging consumers – mechanism?



# System adequacy

- Uncertainties associated to investment
  - Weather variations (hourly but also yearly)
  - Technology risks
  - Import supply shocks
- Reliability options
- Linked to the subscribed capacity by consumers



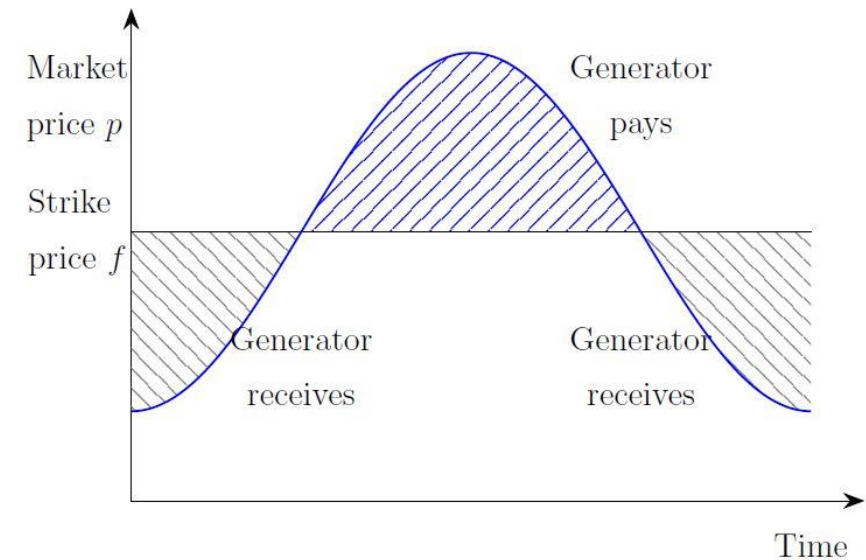
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# De-risking investments in vRES

- Two-way CfDs
  - Price certainty
  - Auctioning contracts
  - Potential risk of suboptimal dispatch
  - Design parameters as Financial CfDs
- Power Purchase Agreements (PPAs)
  - Hedge for short-term volatility to consumers
  - Confidentiality might result in a reduction of the competition among vRES
  - PPAs by themselves they are not able to motivate the needed investment in vRES





# Disagreements - De risking vRES

- Two-way CfDs
  - Mandatory or not?
  - Design parameters
  - Included technologies
  - Technology specific or neutral → Planning role
  - Private or public owned
  - Preference in dispatch
  - Passing benefits to consumers



# Unkwons

- Little modelling
- Lack of quantitative results
- Optimal CfD design
- Feedback loops
- Agent behaviour in the new



# Conclusions

- Energy crisis was mainly economic
- Current electricity market is not fit for the transition
- Future market Combination:
  - De-risking investment in vRES (CfDs)
  - Short-terms markets for efficient dispatch
  - Reliability options + Capacity subscription to hedge consumers
- ❖ Further research and consensus is needed
- ❖ There are still some areas with great disagreements
- ❖ Lack of quantitative and more realistic studies are required





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**Thank you for your  
attention**