

Transition to More Competitive Electricity Markets



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EXIST & TURKISH POWER MARKET OVERVIEW

EXIST Overview

MISSION

Efficient, transparent, and sustainable operation and development of energy markets

VISION

To become a reference energy exchange for global energy markets

FAIR APPROACH

RELIABILITY

TRANSPARENCY

CUSTOMER ORIENTED

SUSTAINABILITY

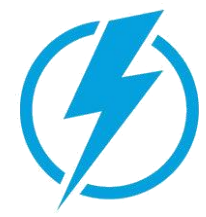
PARTICIPATION

INNOVATION

RESPECT TO EMPLOYEES

SOCIAL RESPONSIBILITY

Activities



Electricity Day Ahead and Intraday Market Operations



Settlement and Financial Transactions of Day-Ahead, Intraday, Balancing Power Markets



Organized Wholesale Natural Gas Spot Market Operations



Settlement and Financial Transactions of Organized Wholesale Natural Gas Spot Market



RESM Operations



Settlement of Ancillary Services Market,

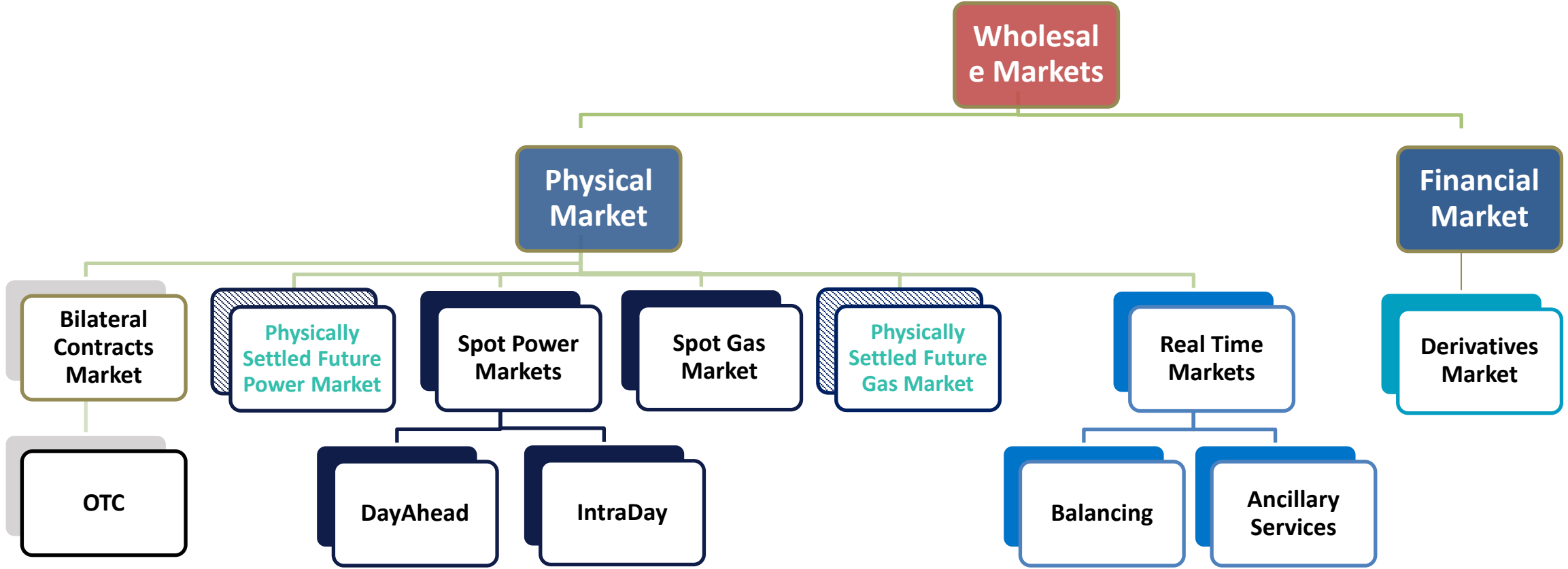


Billing Transactions



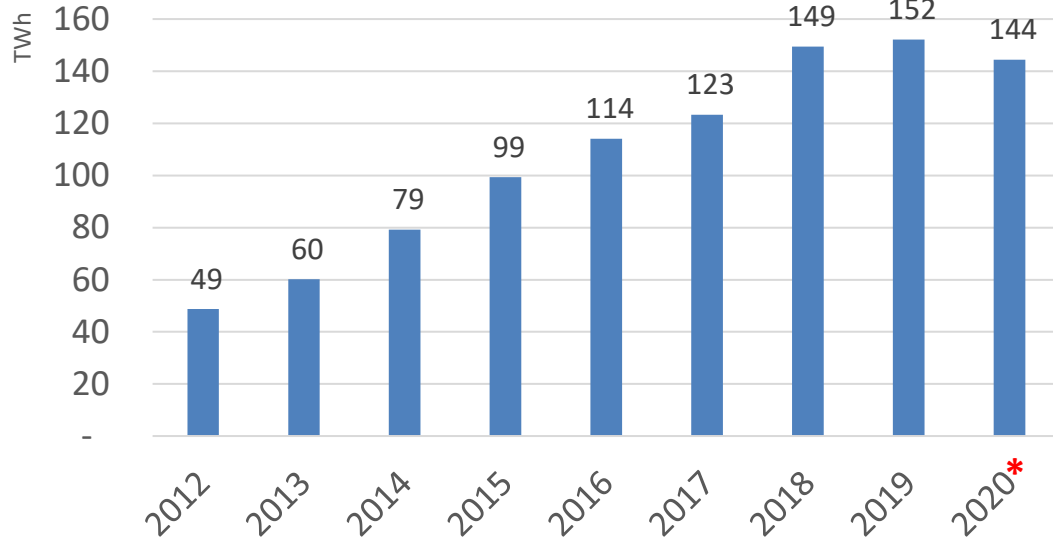
Eligible Customer Transactions

Wholesale Energy Markets

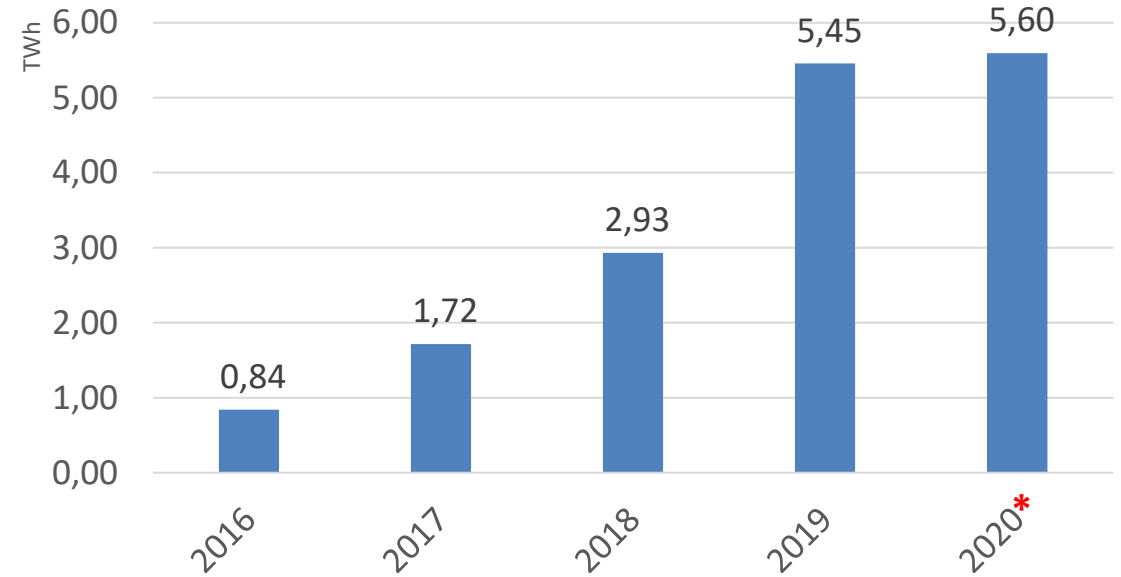


Day Ahead and Intra Day Markets

DAM Cleared Quantity (TWh)



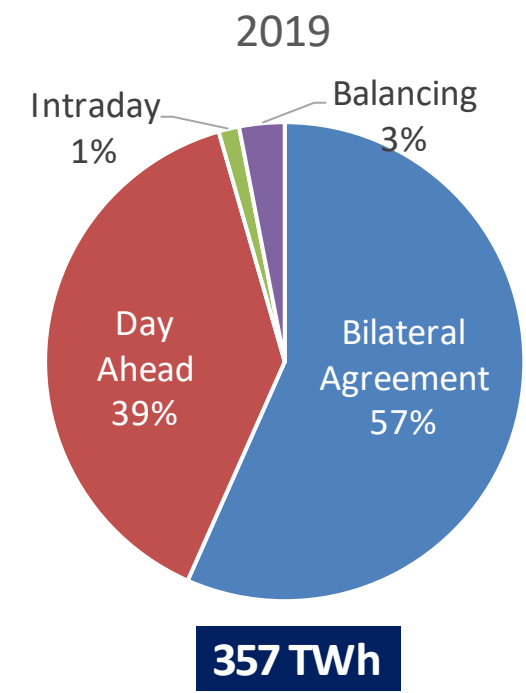
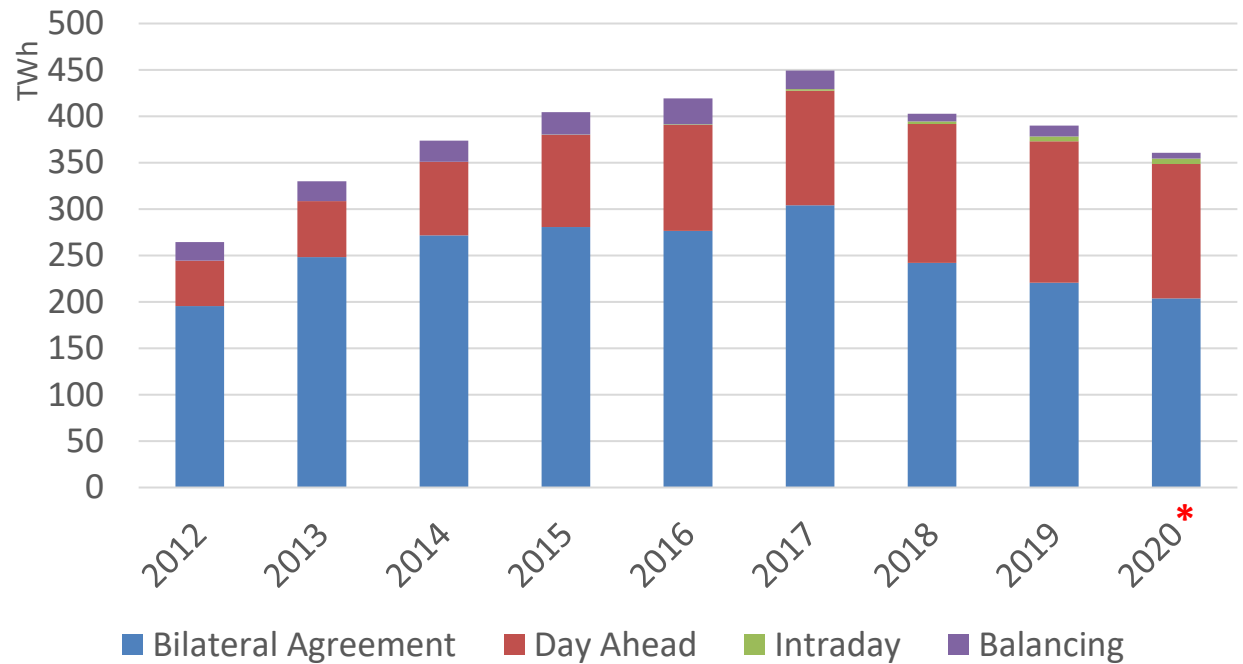
IDM Cleared Quantity (TWh)



* 2020 First 10 Months

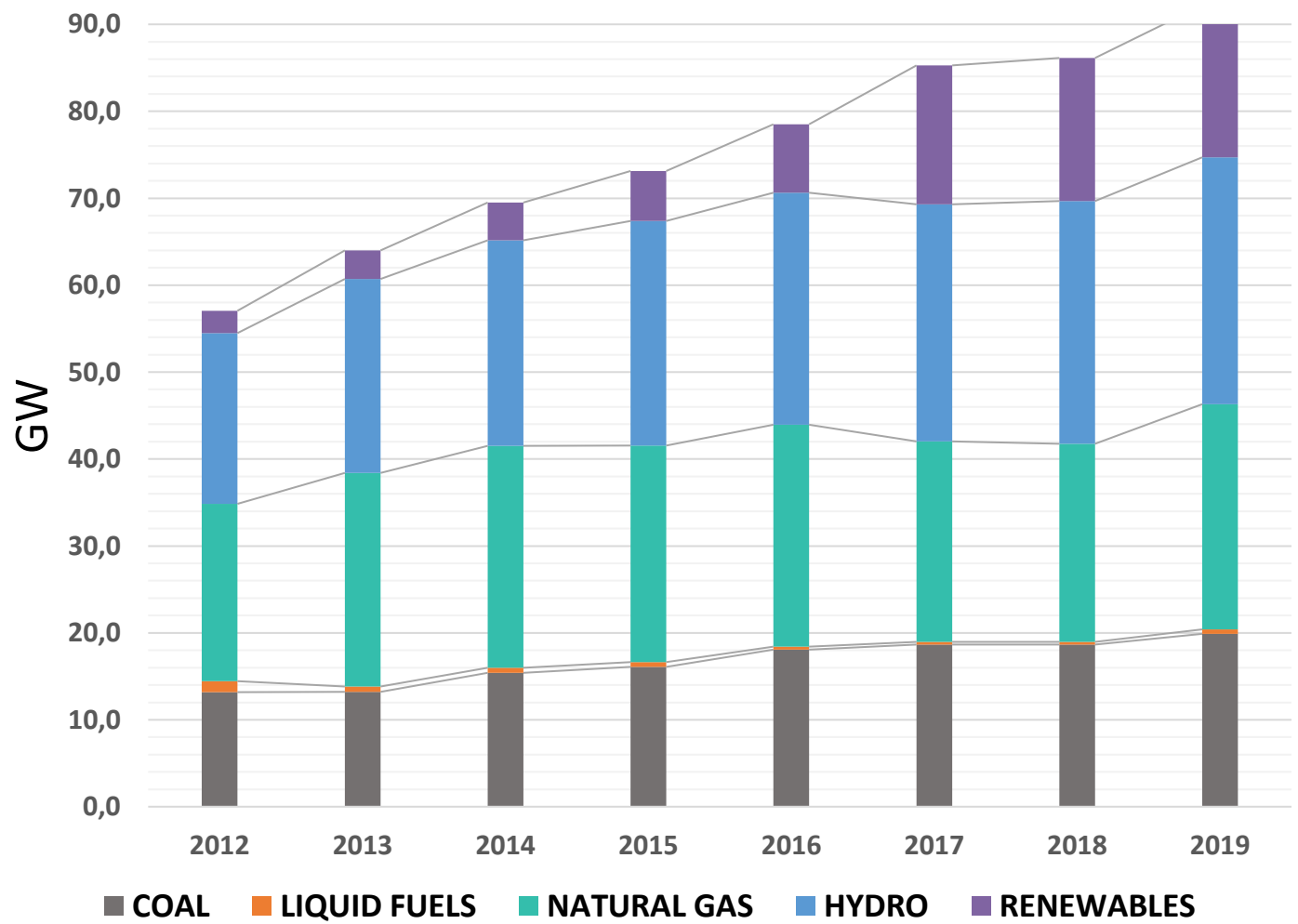
Shares of Markets

Share of Markets on Power Trade



* 2020 First 10 Months

Renewable Energy Growth



- In 2019 around 47% of installed capacity consists from renewable and hydro sources.
- In 2019 around 43% of power generation supplied from renewable and hydro sources.

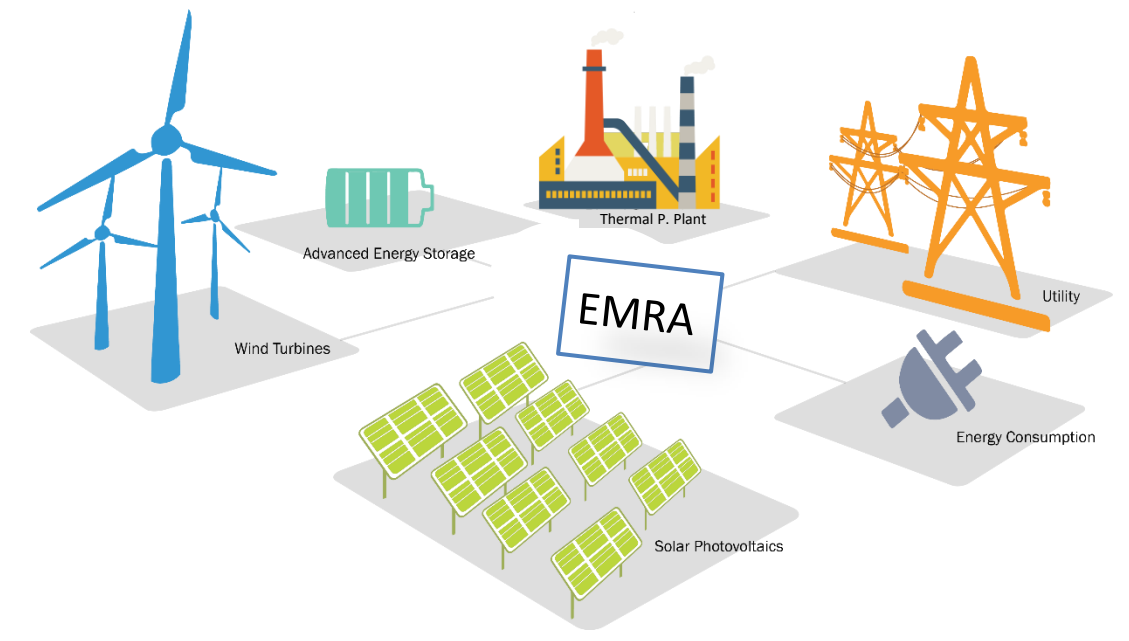
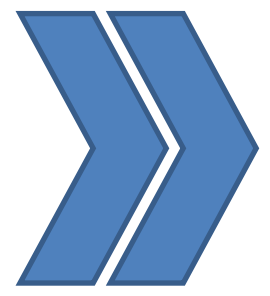
Power Generation	GWh	%
Hydro + Renewables	132.277,8	43,53
Total	303.897,6	100

TRANSITION TO THE MORE COMPETITIVE ELECTRICITY MARKET

From Monopoly to Unbundling



Market Reform



Monopoly Structure of Electricity Sector

Unbundling & Electricity Market Liberalization

Market Reform - Benefits

Governance

By unbundling different market activities and privatization it is easier to have an comprehensive control over the system.

Cost - Saving

Having multiple private generator or service provider creates an environment where companies compete with each other to provide lower and more appealing prices, ultimately benefiting the consumer.

Transparency

Transparency allows for greater predictability on matters of financial management and accounting for costs within the system. Transparency supports efficiency in each segment.

Efficiency

Privatization of utulites and power generation units boosts operational and service efficiency.

Competition

Competition between actors providing the same service can increase overall quality and reduce costs for end customers.

Resilience

Horizontal unbundling also increases the resilience of an electricity sector. Because including multiple actors allows for the diversification of power sources, thereby spreading risks to energy supply.

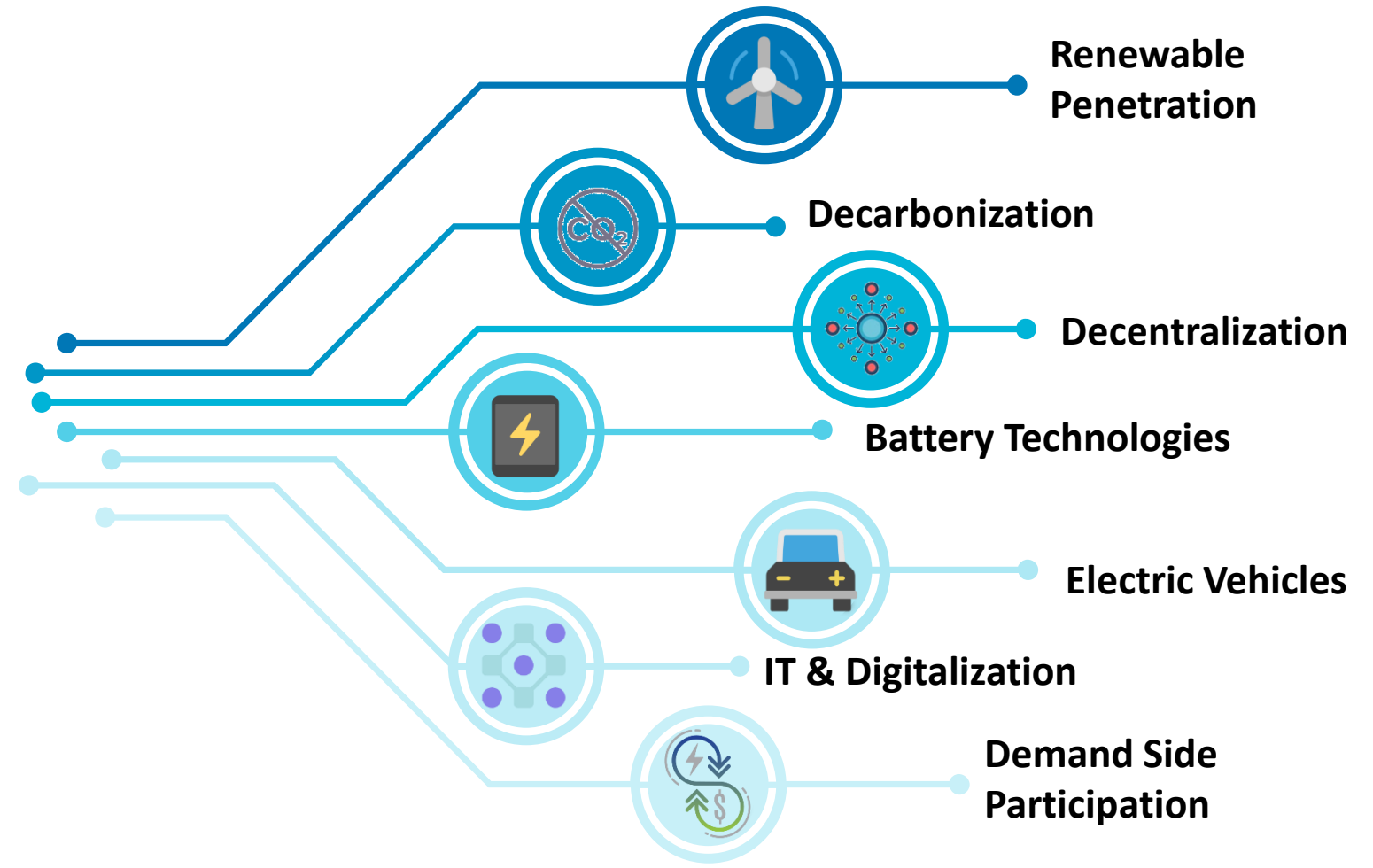


Market Reform & Liberalisation

Market Evolution

Trends & Policies

Accelerated technological change, shifting consumer preferences, the application of communication technologies to link power generation and demand as well as the evolving EU climate and energy policy agenda are some of the key drivers impacting the industry.



Renewable Energy



- Renewable energy penetration has been increasing dramatically since last decade.
- European Commission plans to reach at least %32 renewable energy share up from %20 in EU's energy mix for 2030.
- Renewable energy technology cost getting cheaper
- Renewable growth does not lead to cheap wholesale price early future
- Energy suppliers attract customers with «green tariffs»

Decarbonization



- Replacement of fossil fuels with electricity
- Carbon price is expected to get higher especially with EU Green Deal
- Power Purchase Agreement becomes popular
- Electric Vehicles
- Sector Coupling
- Electricity grid flexibility & non dispatchable renewables.



Decentralization



- Renewable and battery technologies get cheaper and number of prosumers increases rapidly
- Virtual power plant systems create new competition areas
- With aggregators prosumers can provide capacity services during peak demand and participate spot market
- Utility scale battery systems get cheaper. Electricity stored in the batteries will be traded on both wholesale electricity market and instantaneous reserve markets
- Daily electricity spot price volatility decreases

Digitalization

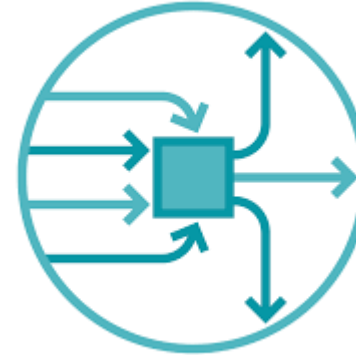
Big Data



Artificial Intelligent



Smart Grids



Instant Monitoring



- Reducing operations and maintenance costs
- Managing decentralized system efficiently
- Improving power plant and efficiency
- Extending the operational lifetime of assets
 - Sharper price estimation
 - Solid integration with customers

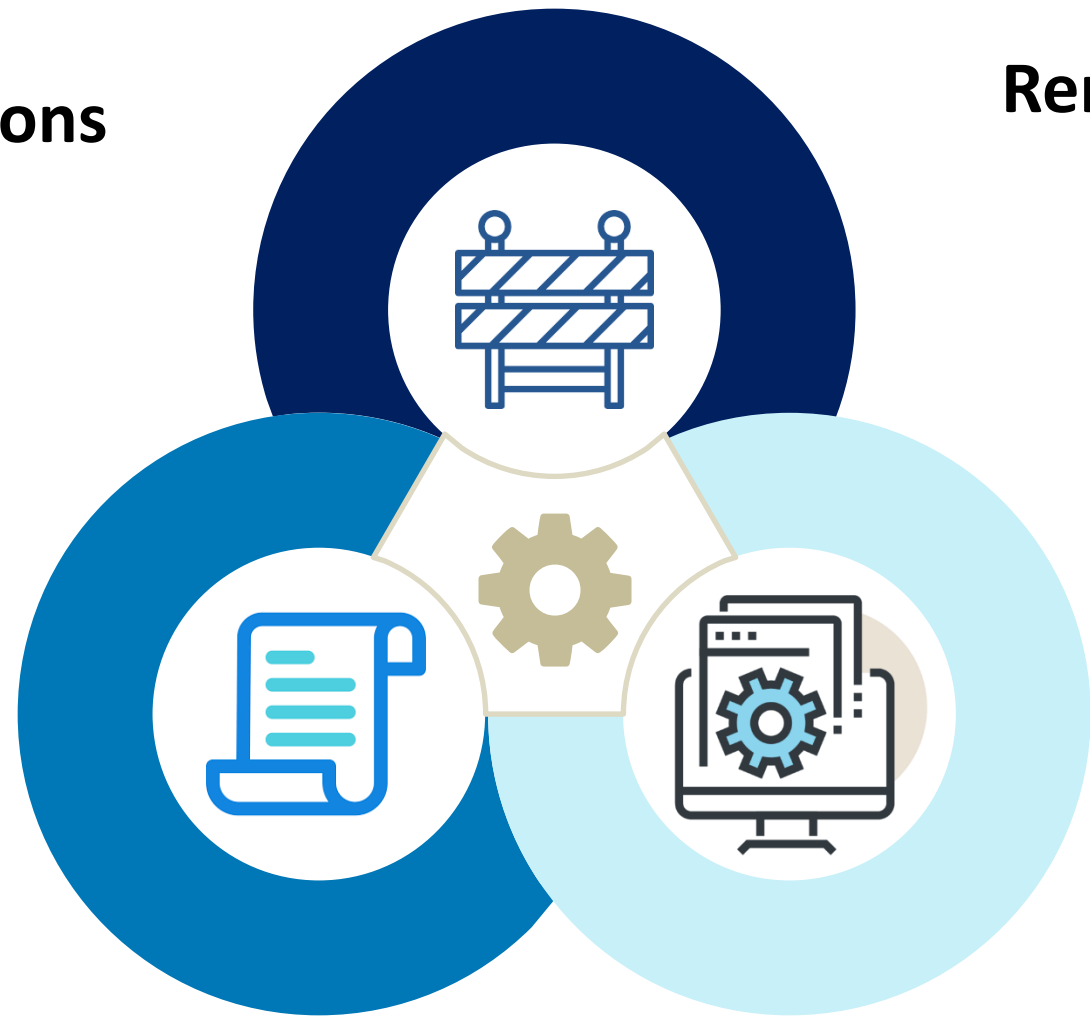
Conclusion

Proper Regulations

Removing Barriers

Grid Investment

Supporting New Technologies



THANK YOU