

Next Steps for the European Electricity Market Infrastructure and Market Design

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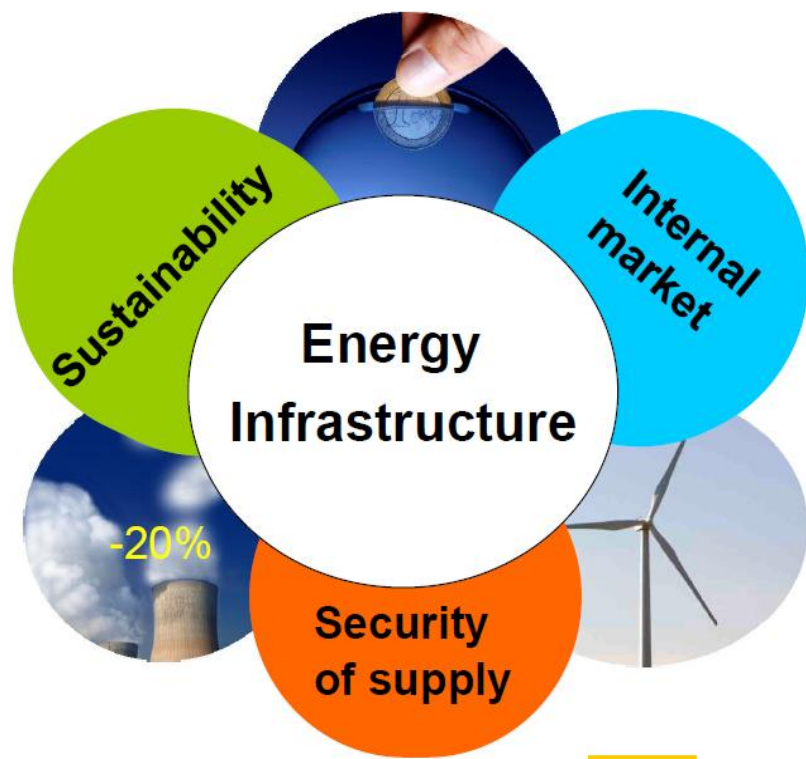
Outline of the Presentation

- The Internal Energy Market and EU Policy
- Energy Infrastructure
- Market Design
- Next steps

The EU Internal Energy Market

- Historical energy markets evolved along national lines, driven by national interests
 - Fuel mix
 - Security of Supply
 - Control
- Potential benefits of more integration:
 - Operational efficiency
 - Investment efficiency
 - Risk sharing

The Commission's EU Energy Union package



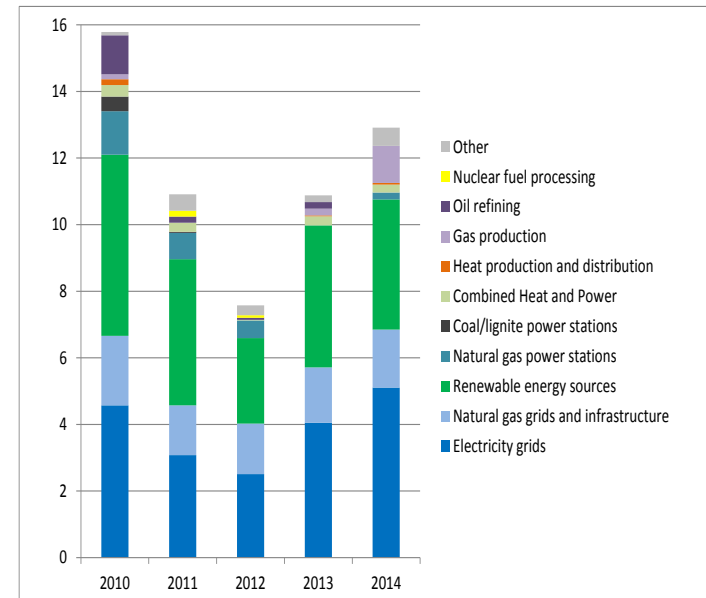
- Follow through existing regulation
- Security of gas supply review
- New electricity market design
- Enhanced role for ENTSOs and ACER
- 4th Energy Package?

Shifting EU Energy Policy Focus

- EU Energy policy priorities have shifted over time
 - From cost optimisation through markets, to security of supply, with a strong side line of decarbonisation
- Costs to final consumer keep increasing, offsetting efficiency gains
 - Climate
 - Internal Market Infrastructure
 - Security of Supply

EIB and Energy Infrastructure

- European Investment Bank
 - 2014: ~13 bn EUR energy infrastructure funding
- Estimated EU energy infrastructure needs
 - >100 of bn EUR in electricity networks alone (ENTSO-E TYNDP)
 - Reliance on leverage and multiplier effects

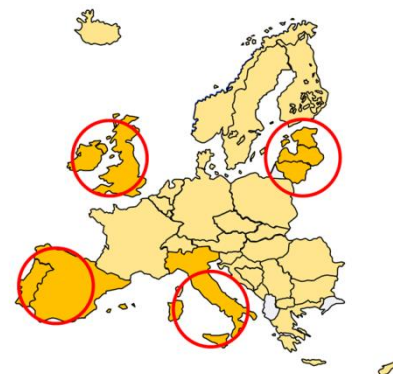


Two Requirements for a Functioning Energy Market

- Adequate and secure physical infrastructure and resources
 - “Hardware”
- Regulatory and market framework to develop and operate, cost-effectively and sustainably
 - “Software”

Physical Infrastructure and Resources

- Access to primary fuels
 - Fossil fuels, RES, Nuclear...
 - Primary fuel supply mix is national policy
- Grid infrastructure
 - Regulated networks
 - Interconnection to share the risks
 - Changing generation and demand patterns
- Generation infrastructure



Generation infrastructure

- Sufficient capacity at any time to meet **peak** demand
- Reluctance by incumbents to invest in new capacity, or even keep existing capacity on the system
 - Overinvestment followed by slump, crisis...
 - Impact of intermittent generators
 - Reduce reliance on imported fossil fuels
 - Cause market distortions and increase system costs (balancing)
 - Pressure on increasingly idle non-intermittent capacity
 - Tightening reserve margins in many countries
 - Is the market going to deliver sufficient capacity?
 - Are we doomed to boom and bust cycles?
 - What about demand side?

Market Design – Energy and Capacity

ENERGY:	actual production of consumed power
CAPACITY:	ability to produce when needed
ENERGY MARKET:	generate power at lowest available (variable) cost
CAPACITY MARKET:	make investment and retirement decisions based on lowest fixed (O&M and investment) costs

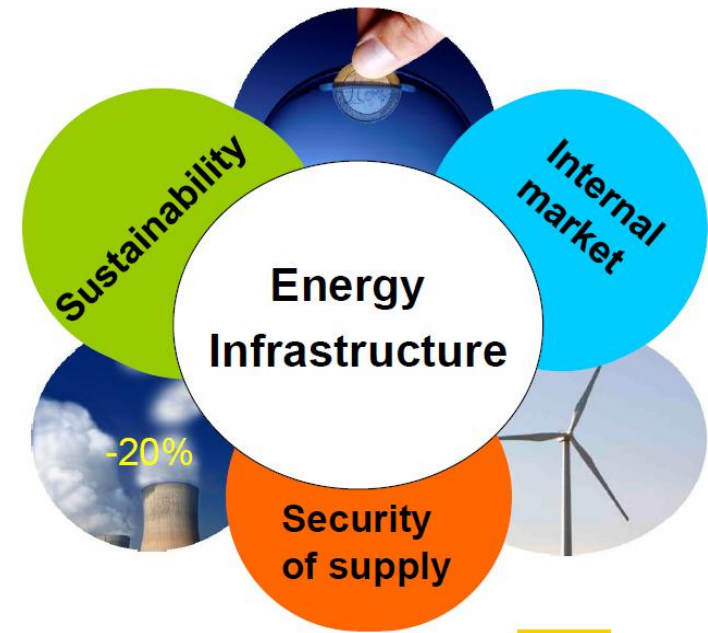
- Most energy markets in Europe are energy-only markets
 - Single and transparent commodity, liquid and easy to trade
 - But increasingly difficult to recover fixed costs of essential peak and reserve capacity
- Energy only markets do NOT inherently deliver low cost capacity
 - Volatile and uncertain market environment
 - Reluctance of investors to make long term commitments
 - Reluctance of financiers to share risks
- It's all about sending the correct signals

Capacity Market Design Questions

- Who decides how much capacity is needed?
 - TSOs, political decision makers, the market...?
 - Are Capacity Remuneration Mechanisms State Aid?
- Who pays?
 - Consumer? Tax Payer?
 - What price? For how long?
- Who participates in capacity markets?
 - All capacity? Peak only?
 - How about demand side?
- How does this work across borders?
 - Interconnections?
 - Who decides where the lights go out if capacity is short?
- Potential disruption from new technologies?
 - Demand reduction through energy efficiency
 - Smart infrastructure and automated demand management
 - Electricity storage

Next steps towards an integrated and long-term electricity market

- Setting investment signals to reflect needs and policy goals
- The future role and impact of RES in the market
- Cross-border co-ordination, cost and benefit allocation
- The costs and benefits to the final consumer
- Sustainability and Climate Change





**European
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The EU bank



Backup

EIB Products

- Lending
 - Project and corporate finance
- Blending
 - Tools to help clients blend our funding with other sources of finance
 - Structured finance, guarantees, project bonds...
 - Targeted sector funding initiatives
 - PF4EE (Private Finance for Energy Efficiency)
 - NCCF (Natural Capital Financing Facility - biodiversity, ecosystem management and green infrastructure)
 - EFSI: (European Fund for Strategic Investments; “Juncker Plan”)
- Advising
 - Technical assistance and advisory services
 - JASPERS (Cohesion and Regional Development)
 - JESSICA (Urban Development)
 - ELENA (Local Energy Efficiency and Renewables)
 - InnovFin (Research and Innovation)
 - NER300 (ETS New Entrant Reserve for Innovative Renewables & CCS)