

Philipp Offenberg, Research Associate
European Centre for Energy and Resource Security (EUCERS)
Department of War Studies, King's College London



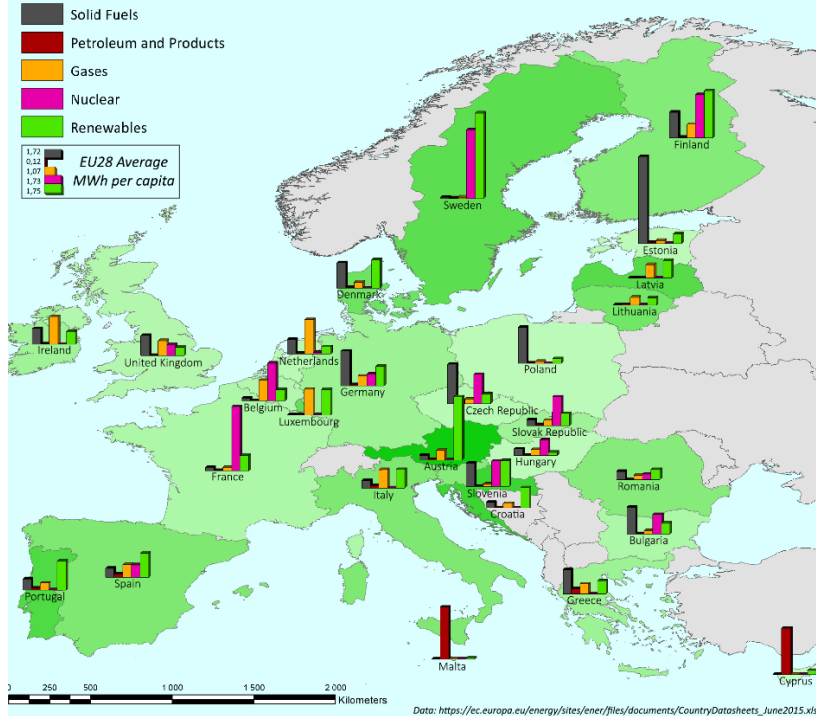
European Electricity Market Integration

Challenges and perspectives

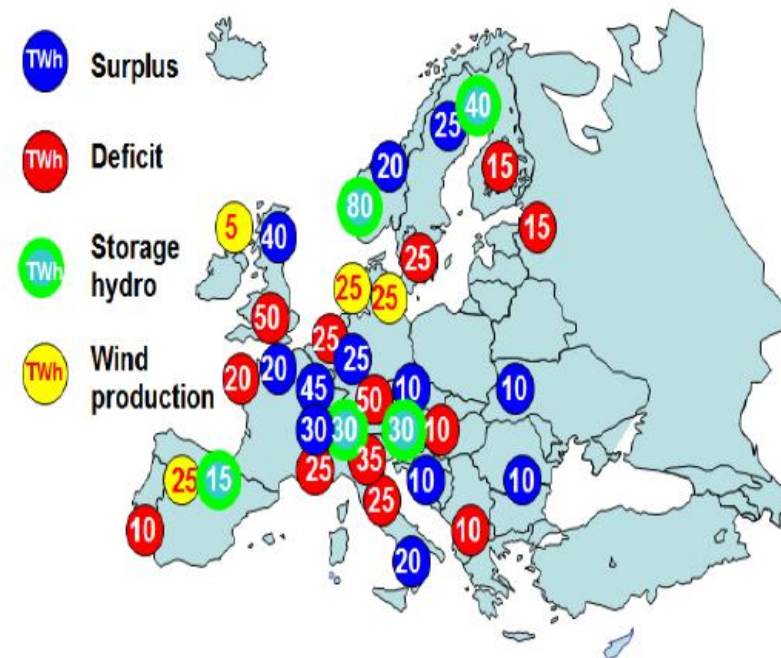
International Seminar “Integration and Electrical Security in Latin America”
Rio de Janeiro
25 August 2016

Optimising the use of generation assets

Electricity production per capita by fuel type (2013)



Surplus and deficit areas



Source: European Commission, DG Energy

Day ahead market coupling

2006: Trilateral
Market
Coupling

2010: MC
Central
Western
Europe

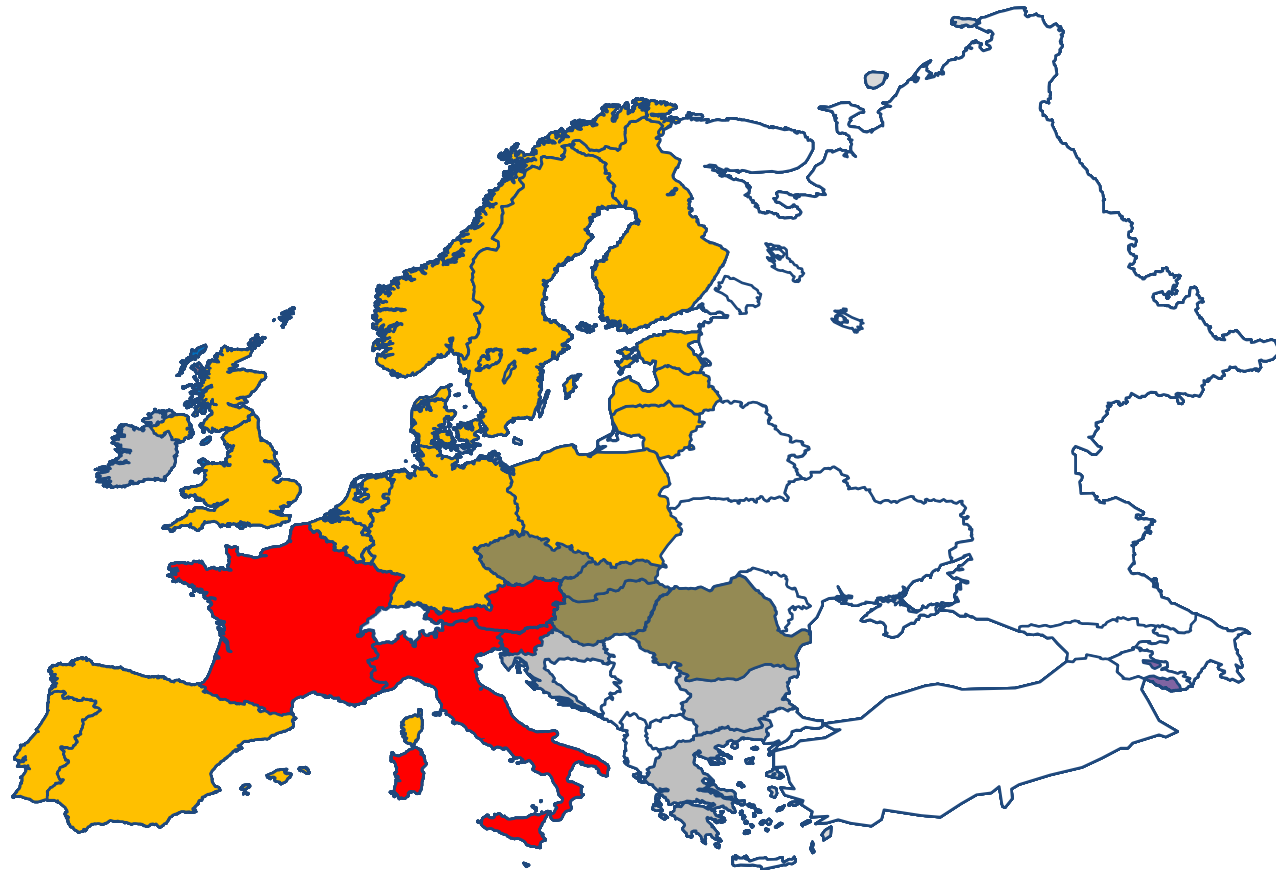
2010: MC
South Western
Europe (SWE)

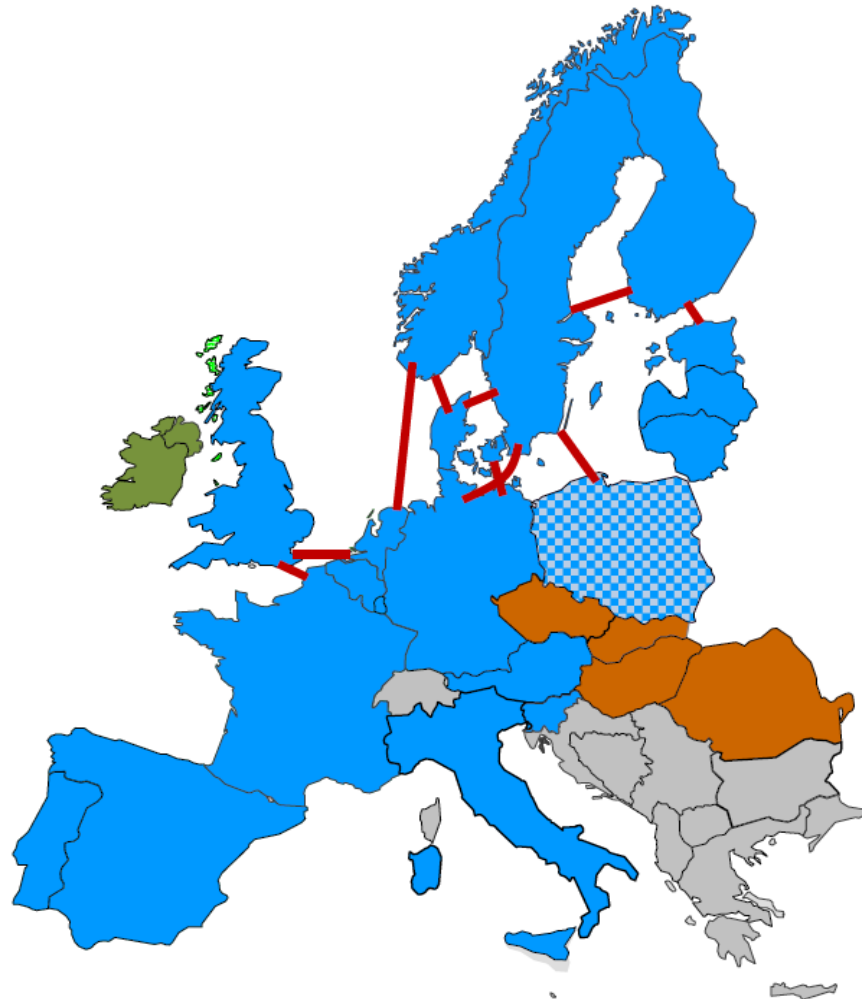
2014: MC
North Western
Europe (NWE)

2014: MC
SWE / NWE


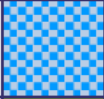


2014: 4M
Market
Coupling

2015: MC
Italian borders





Market coupling - Status

REGIONAL DAY AHEAD IMPLICIT AUCTIONS		
	North West Europe (NWE)	Price coupling
	Poland	Poland price coupled within NWE through SwePol-link
	Ireland and Northern Ireland	All Island market, single price zone
	Czech – Slovak – Hungary-Romania	Price coupling

Western Europe: Flow-based market coupling. Central and Eastern European countries (Poland, the Czech Republic, Slovakia, Austria, Hungary and Slovenia) will join in Q3 2018.

Source: APX /DG ENER

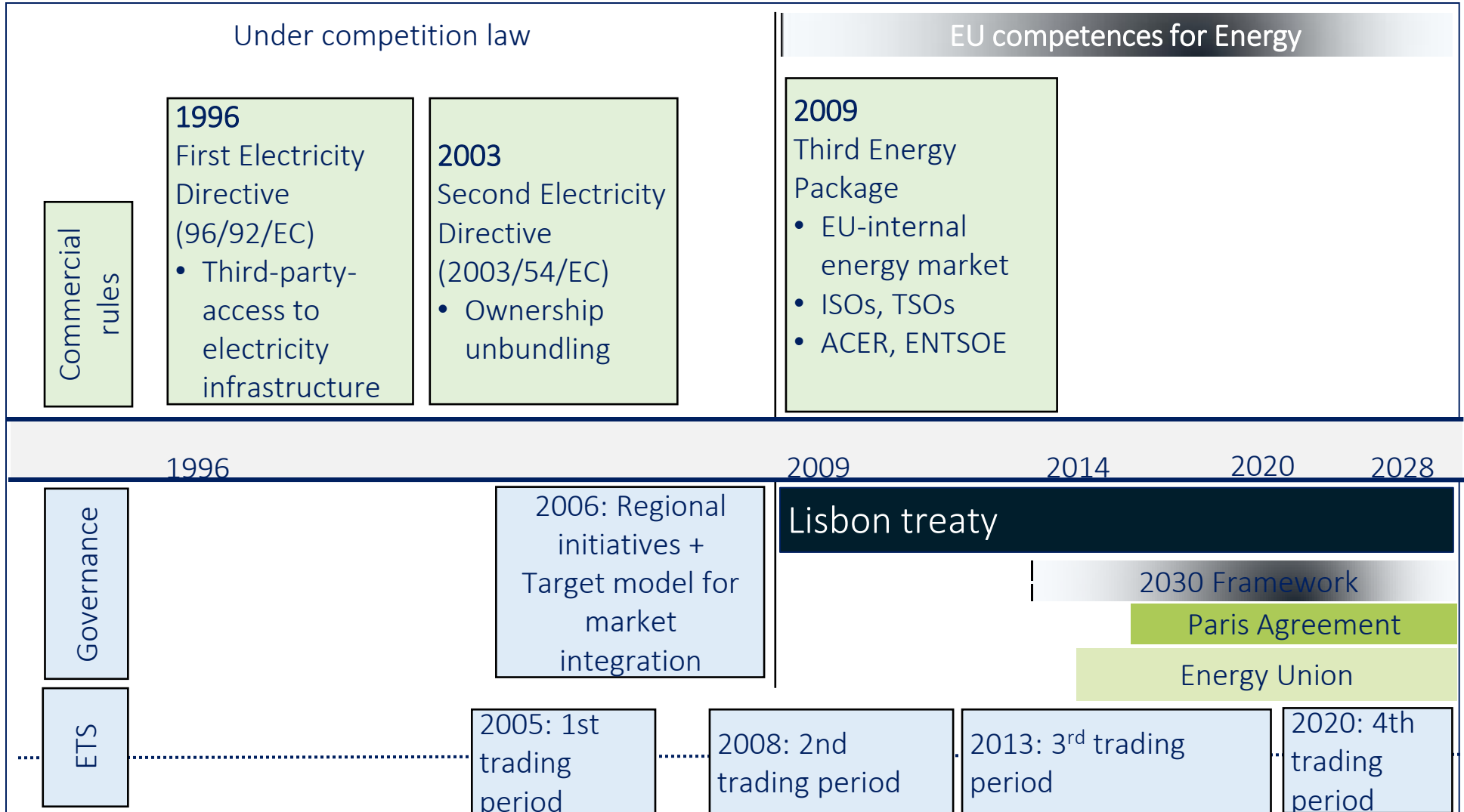
How did the internal electricity market evolve?



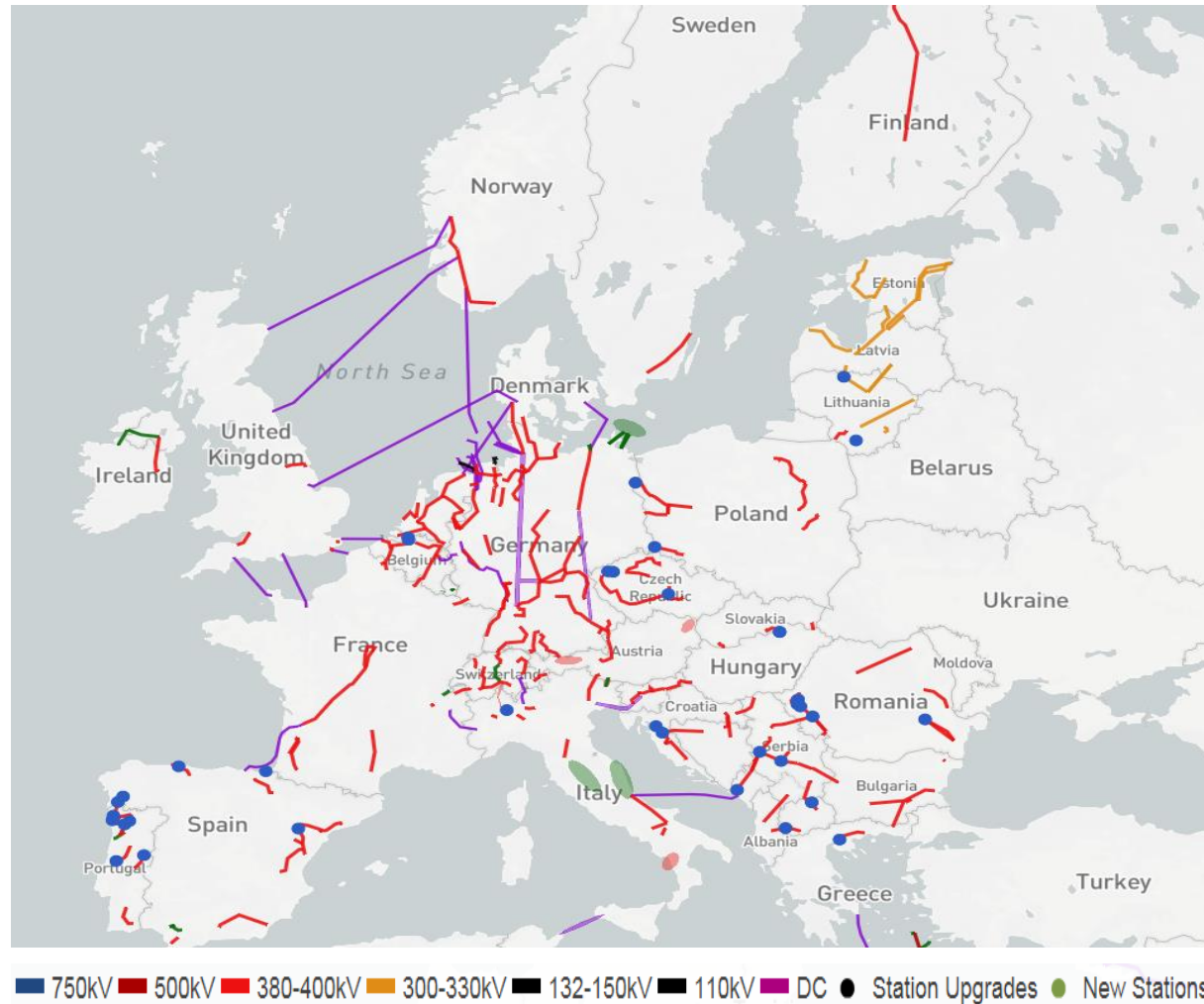
1. The rules – the market design

2. Infrastructure – Interconnectors

1. The Rules – The EU's energy and climate policies



2. The infrastructure – Ten-Year Network Development Plan 2016





2. The infrastructure: Projects of Common Interest, 28 July 2016


Electricity

Projects of common interest (PCI)


Electricity storage


 after 2020


 between 2017 and 2020

 before 2017

Substation

 after 2020


 between 2017 and 2020


 before 2017


Phase-shift transformer



High-voltage line

 before 2017

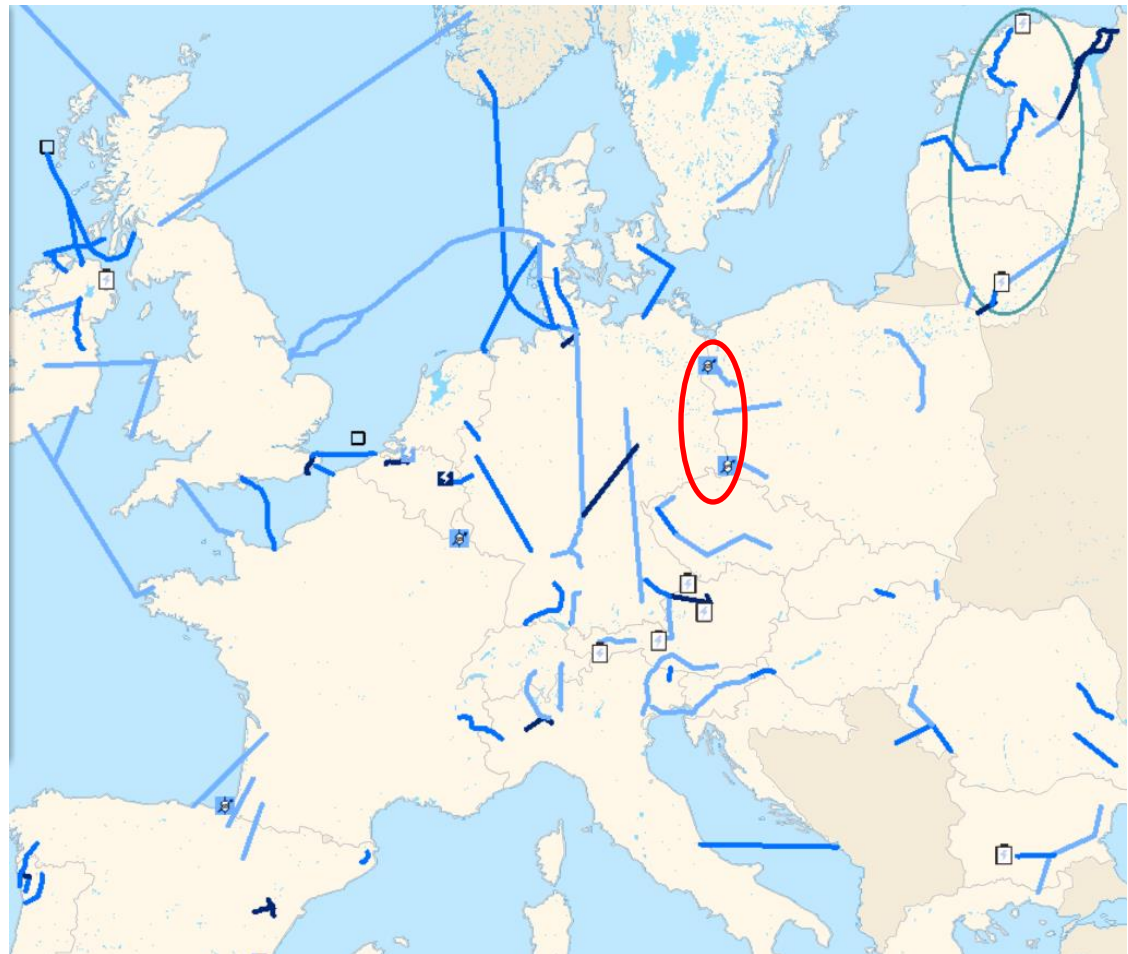
 between 2017 and 2020

 after 2020

Electricity Baltic synchronisation

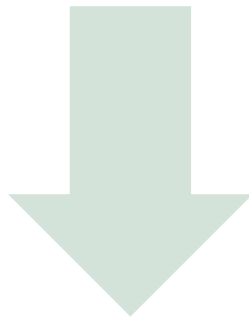


Electricity offshore hubs



EU electricity markets built top down and bottom-up

**Rules harmonisation through
Network Codes**



Regional projects

Connection Codes: connection requirements for generators and large customers, development of HVDC lines

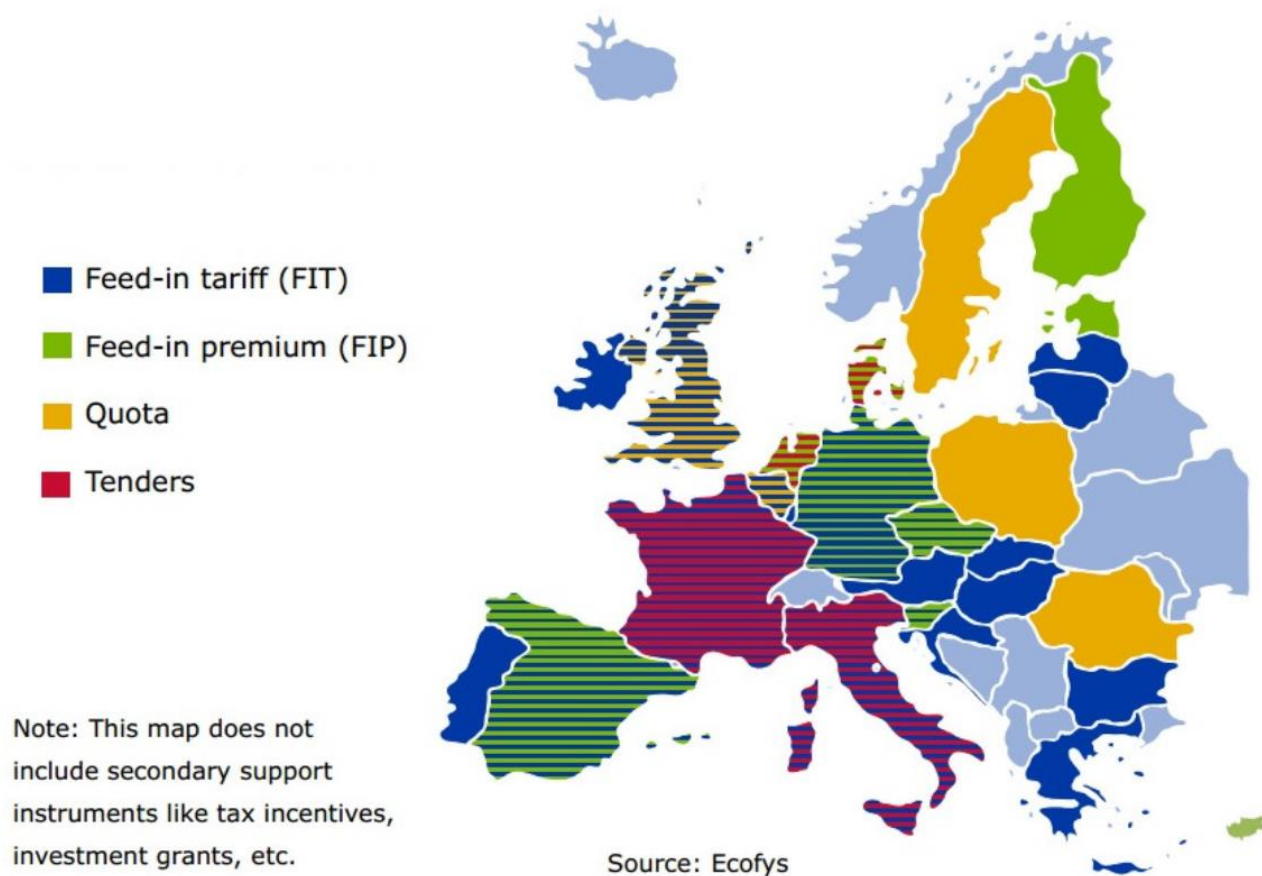
Operational Codes: specify how TSOs should operate: grids' operational security, planning and scheduling; frequency and load regulation

Market Codes: these are three codes that deal with harmonisation of individual markets (day-ahead, intraday, futures markets and balancing markets).

E.g. Pentalateral Energy Forum (Benelux, France, Germany, Austria, Switzerland): Next project: cross-border intraday market, regional integration of balancing markets

New challenge: Fragmentation through national energy policies

1. National Renewable Support Schemes



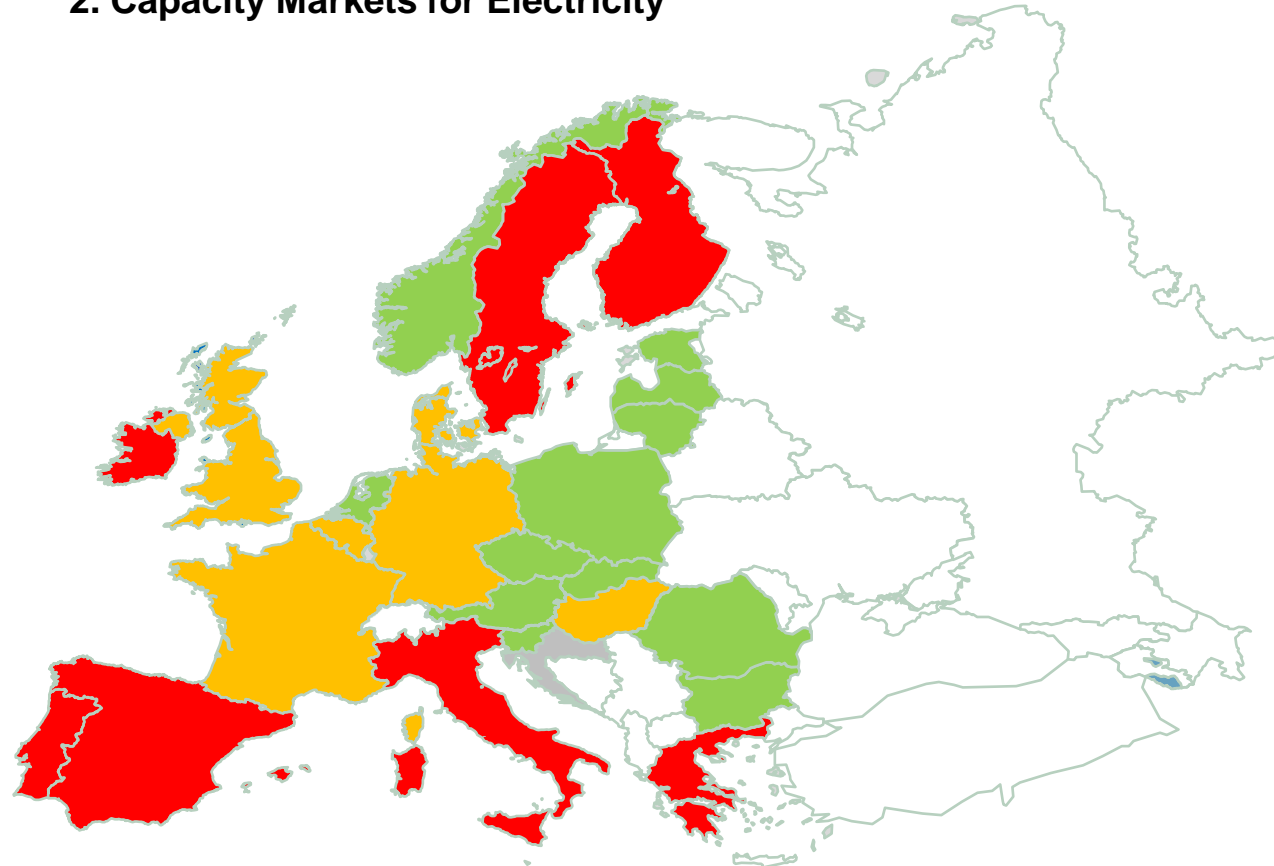
New challenge: Fragmentation through national energy policies

2. Capacity Markets for Electricity

Energy Only
Market

Capacity Market
under
construction

Capacity Market
operational



EU support framework for RES with common rules for national support schemes

- Roadmap of market integration for RE towards 2030. All support schemes should move towards market based (e.g. tender) and market responsive support (e.g. premiums)
- Cooperation agreement in which MS choose the design options for opening and clarify the details (volume; technical issues, share of costs and RES amounts); **reciprocity of opening;**

EU Minimum Blueprint elements for capacity mechanisms

- All capacity mechanism should be temporary. Where introduced, a phase-out-roadmap is required
- Must be open to cross-border participation: needs to differentiate between market-wide mechanisms and capacity reserves operating outside of the market

OR: Focus on local market development instead?

Thank you for your attention.