

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



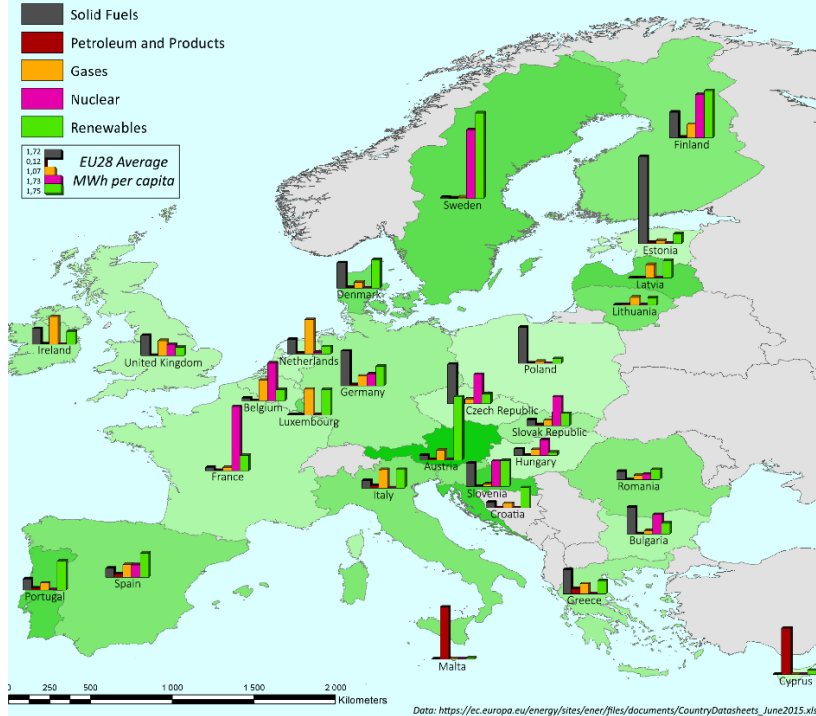
# European Electricity Market Integration

## *Challenges and perspectives*

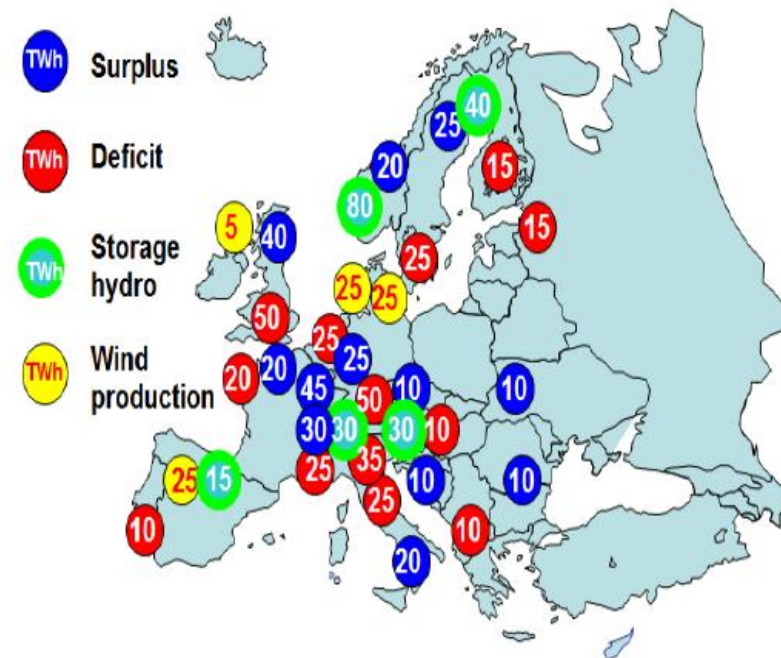
International Seminar "Integration and Electrical Security in Latin America"  
Rio de Janeiro  
25 August 2016

# 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

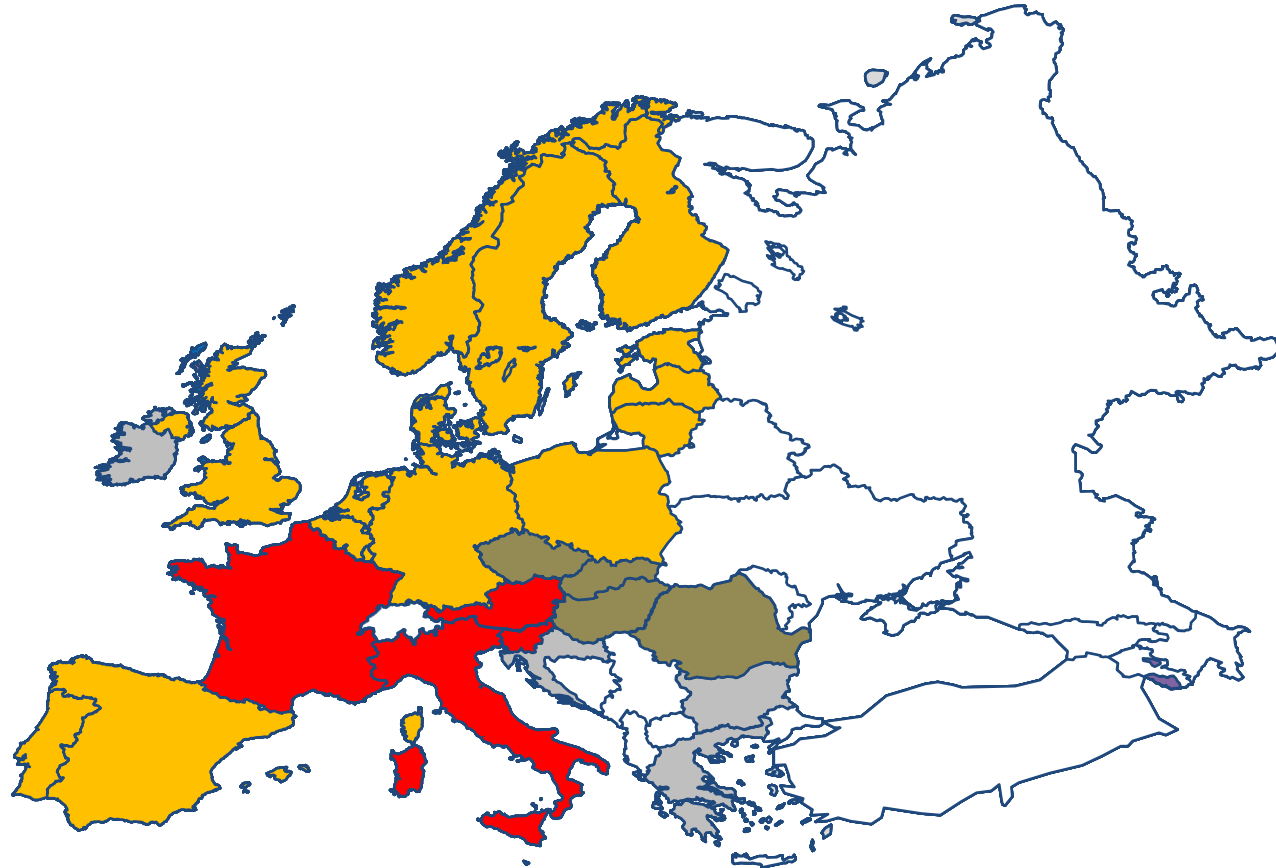
**2010:** MC  
South Western  
Europe (SWE)

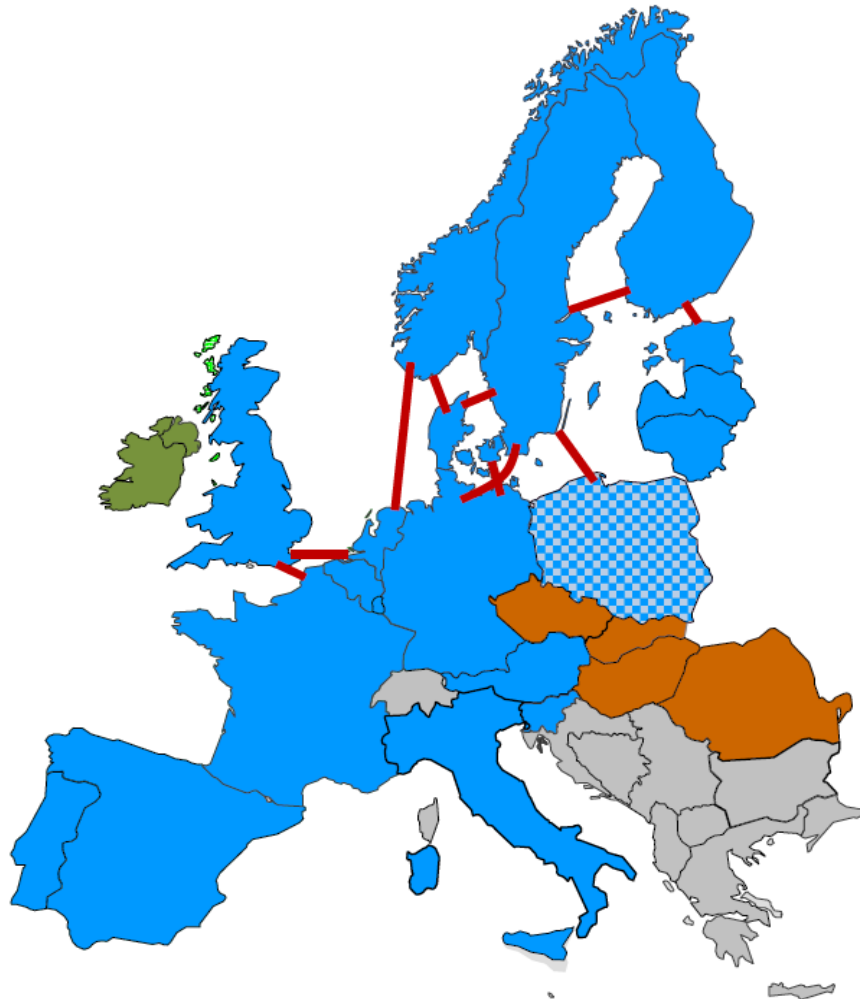
**2014:** MC  
North Western  
Europe (NWE)

**2014:** MC  
SWE / NWE


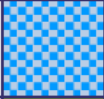


**2014:** 4M  
Market  
Coupling

**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

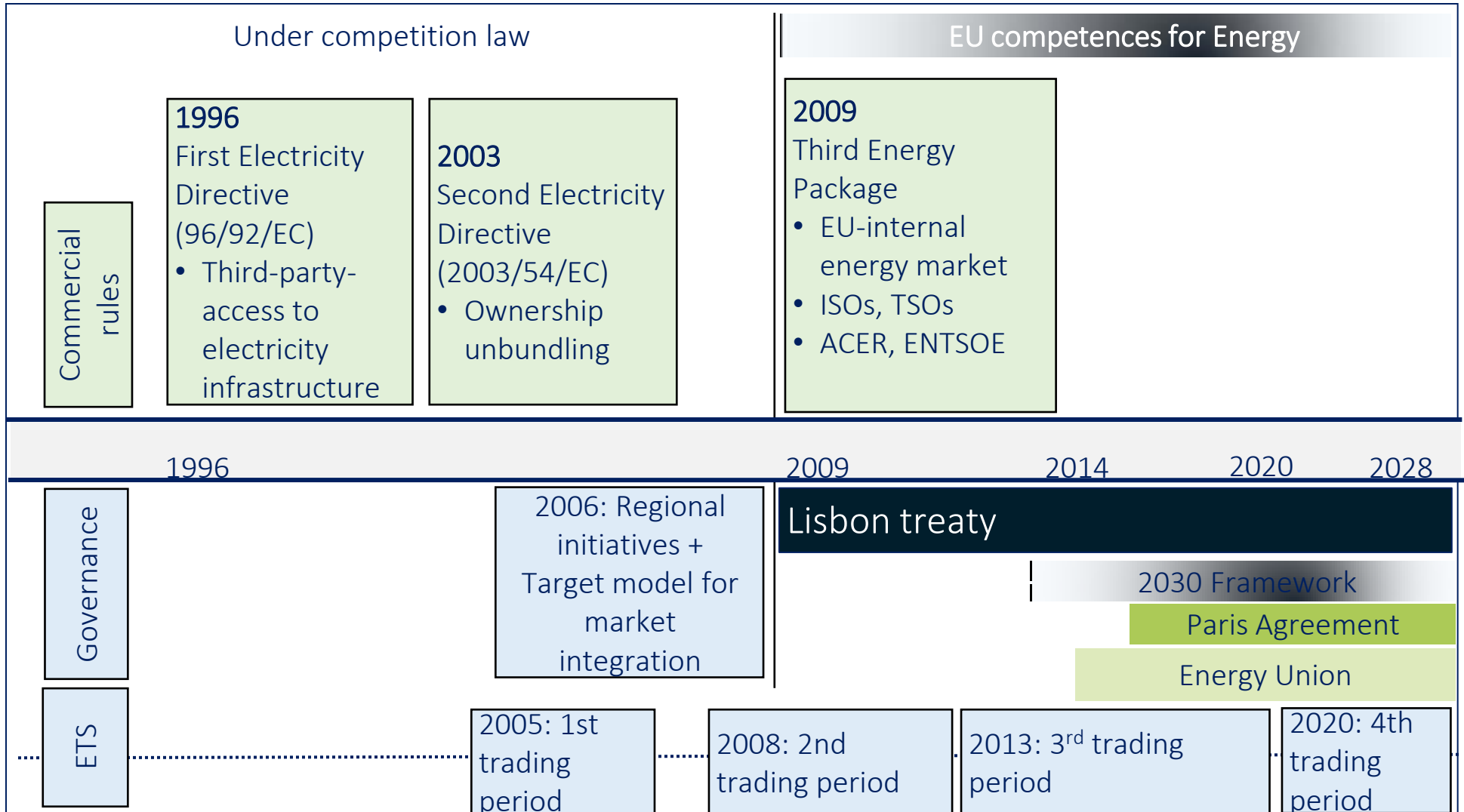
# How did the internal electricity market evolve?



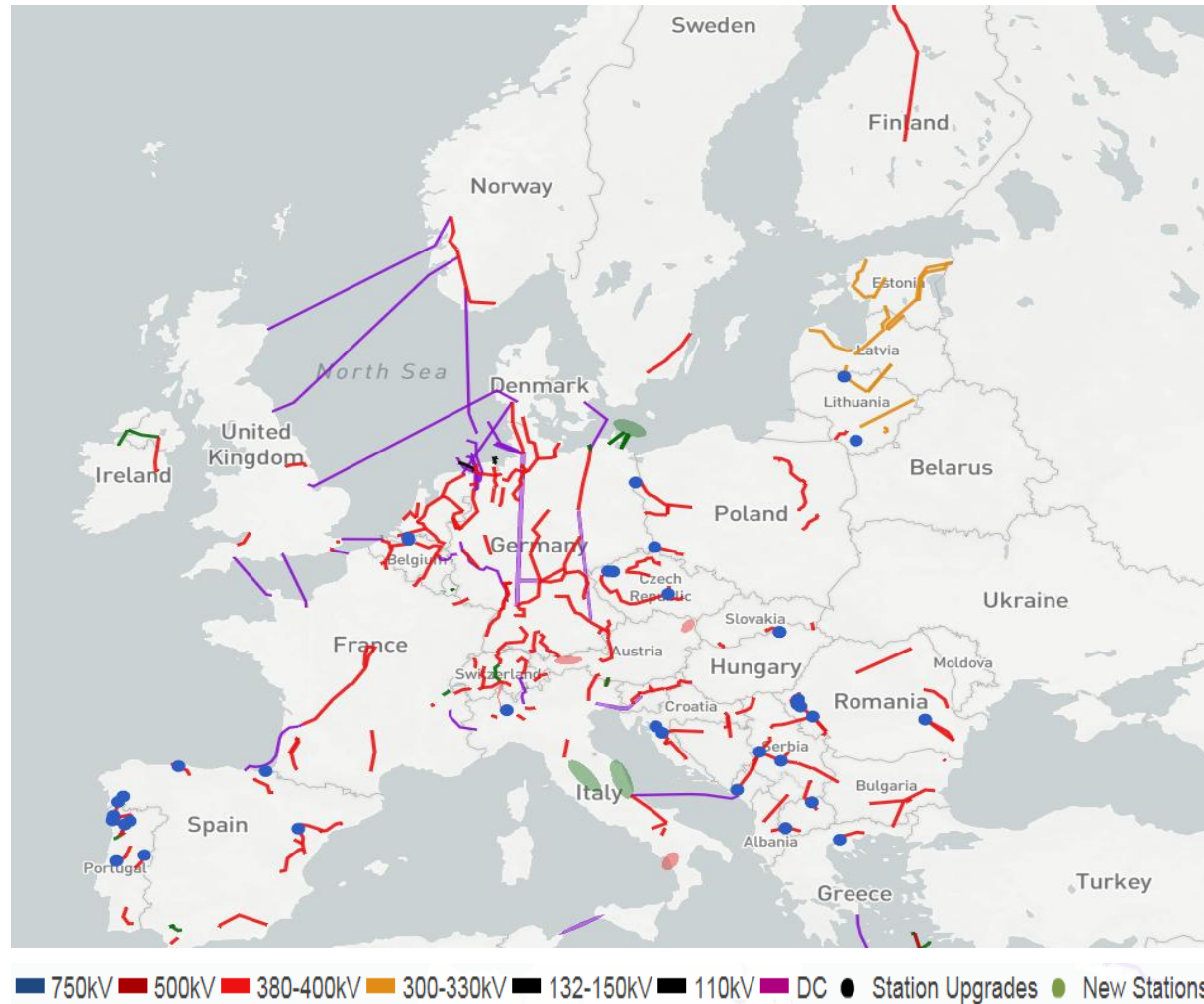
**1. The rules – the market design**

**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

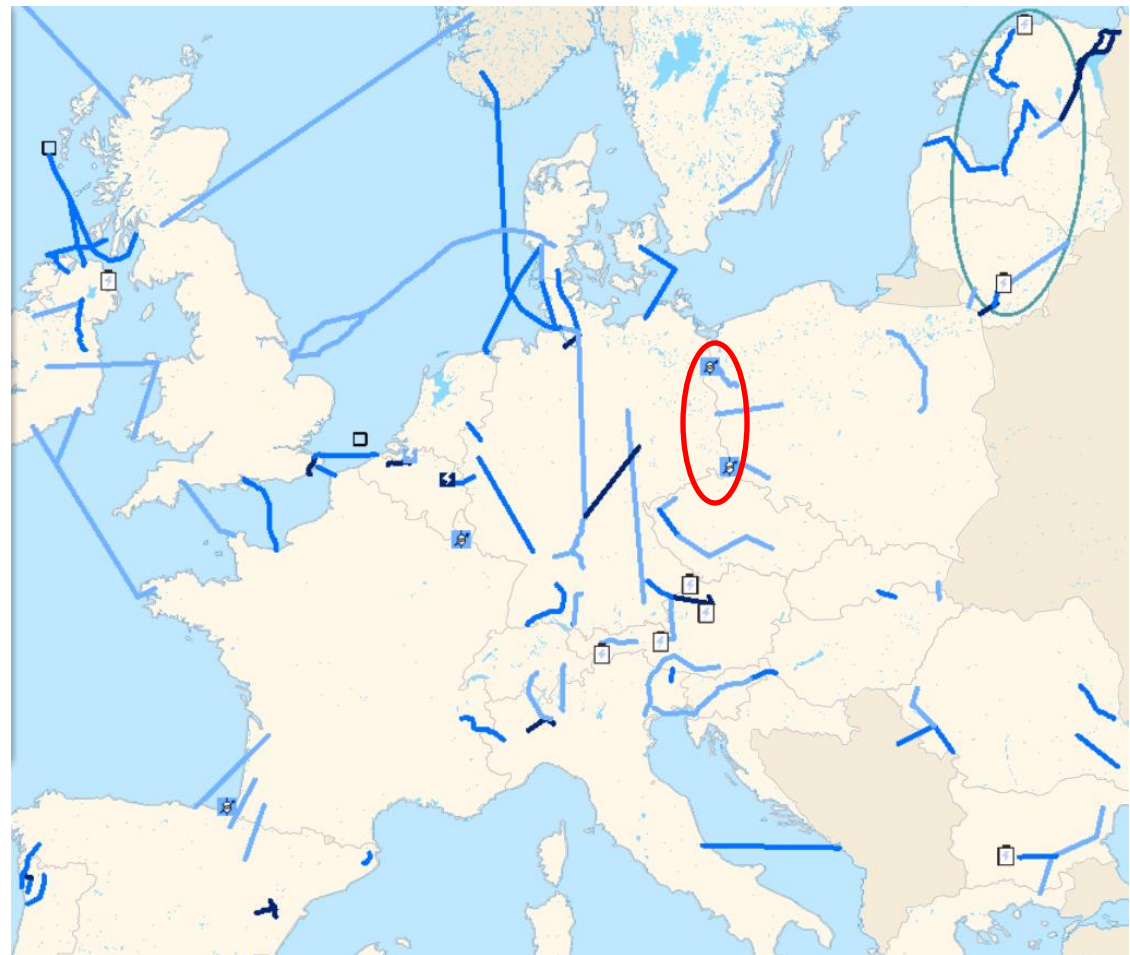
between 2017 and 2020

after 2020

##### Electricity Baltic synchronisation



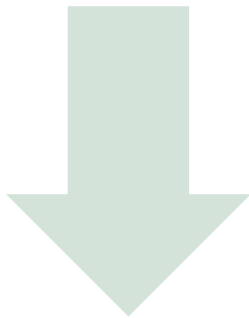
##### Electricity offshore hubs





# 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

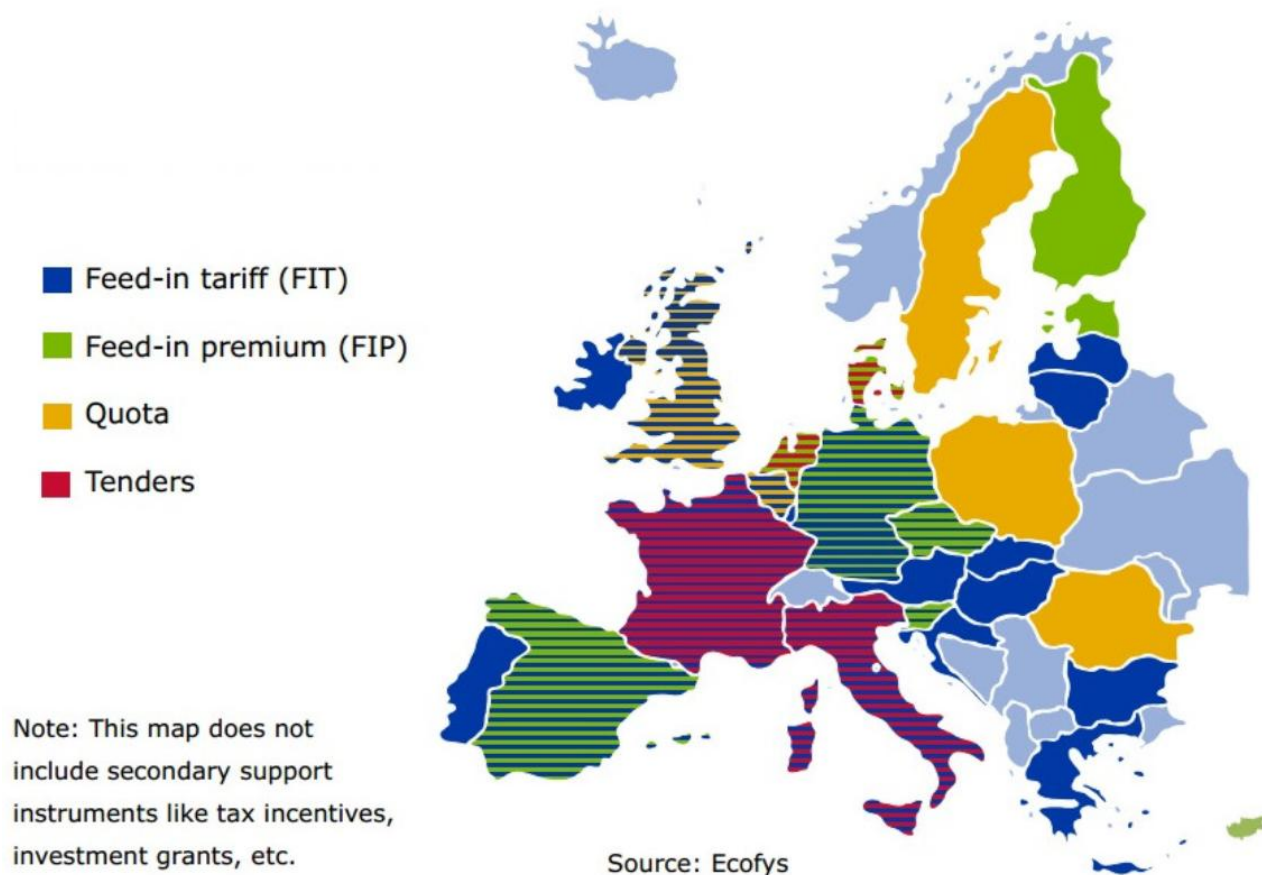
**Operational Codes:** specify how TSOs should operate: grids' operational security, planning and scheduling; frequency and load regulation

**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



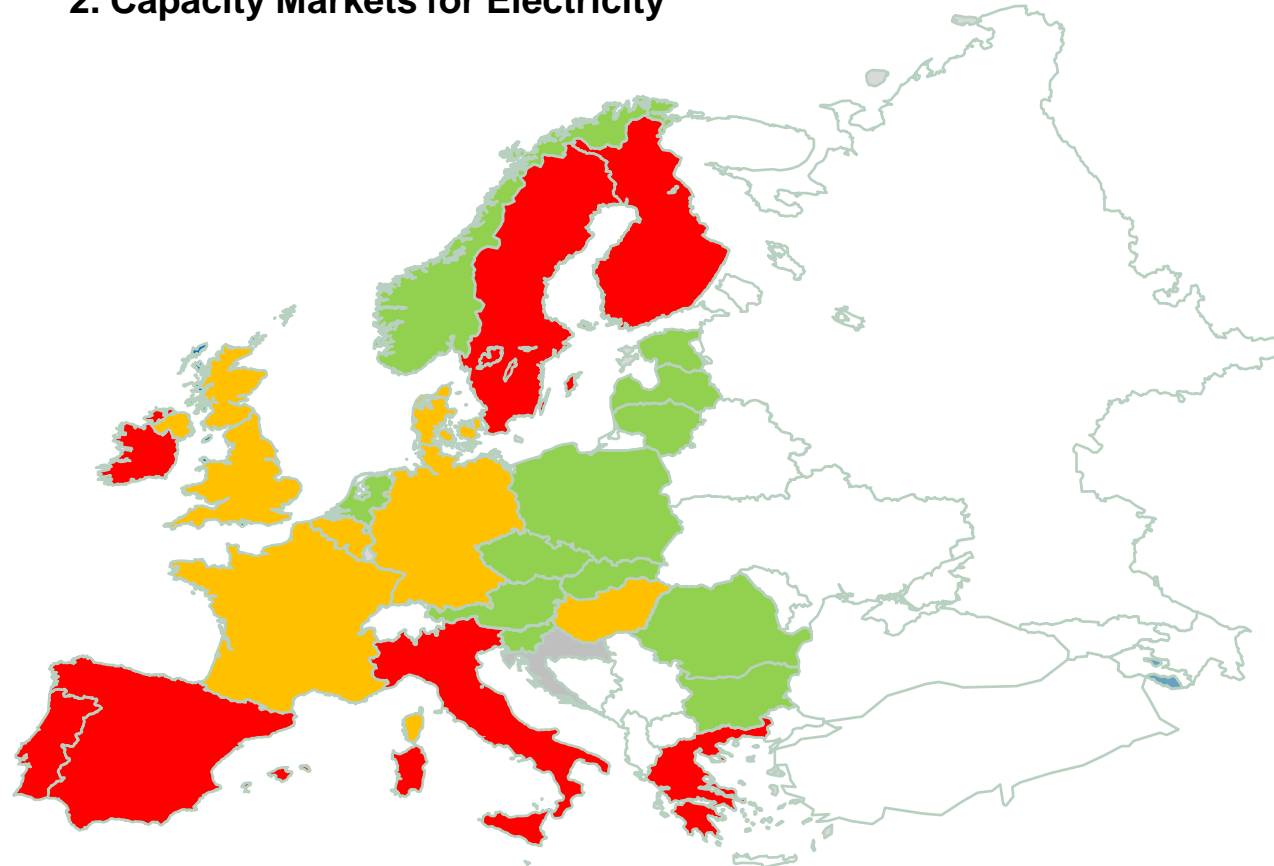
# New challenge: Fragmentation through national energy policies

## 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.**