



# Designing Network Codes

Presentation to the Vienna Forum on European Energy Law

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Reputation built on results

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# Introduction to Baringa



- ▶ Baringa Partners LLP is a market-leading consulting company with a **focus on energy, commodities and financial services**
- ▶ Founded in the UK in 2000 – Baringa Partners has a market turnover of **approximately £80m, with more than 400 professionals**. Our **German branch office** opened in 2011 to increase support of our clients in central and eastern Europe
- ▶ Our expertise covers the entire gas and power value chain, upstream, generation, networks and retail. We are proud to be trusted advisors to **network operators, utilities, developers, investors, lenders and government bodies**, and with the results we have delivered for these clients.
- ▶ Our multi-disciplinary team consists of specialists with backgrounds in consultancy, finance, private equity, law, regulation and utilities. Our work is informed by knowledge of markets, regulation, assets, operations and capital, and in-depth insight into their interdependencies.

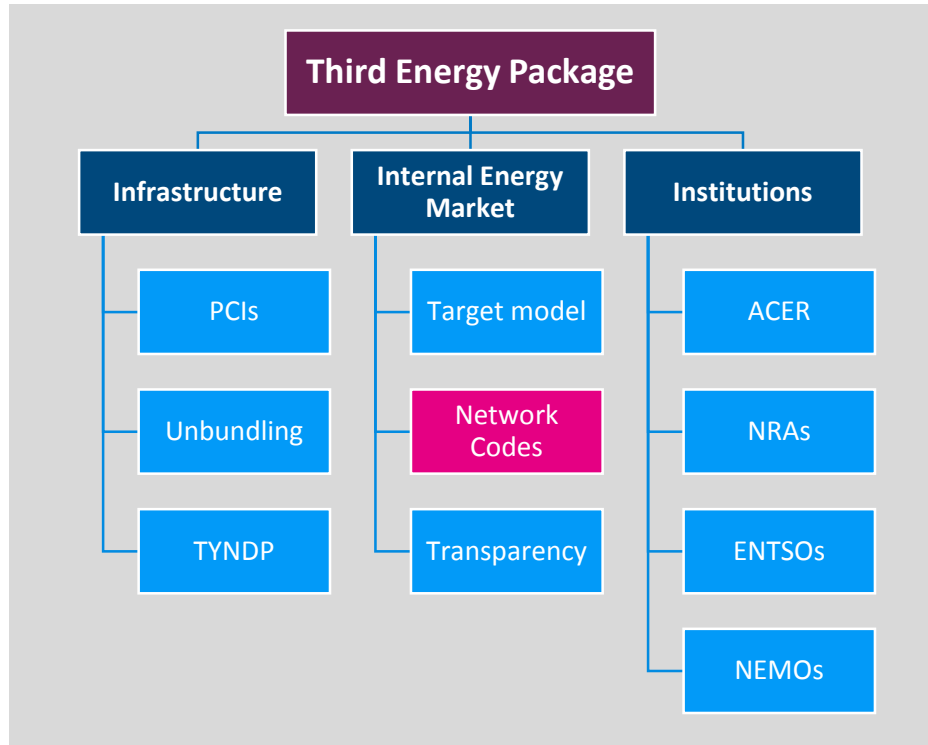


# Agenda

- ▶ Network Code development
- ▶ Current status
- ▶ Design principles
- ▶ Outstanding design issues and the Energy Union
- ▶ Concluding observations

# Introduction

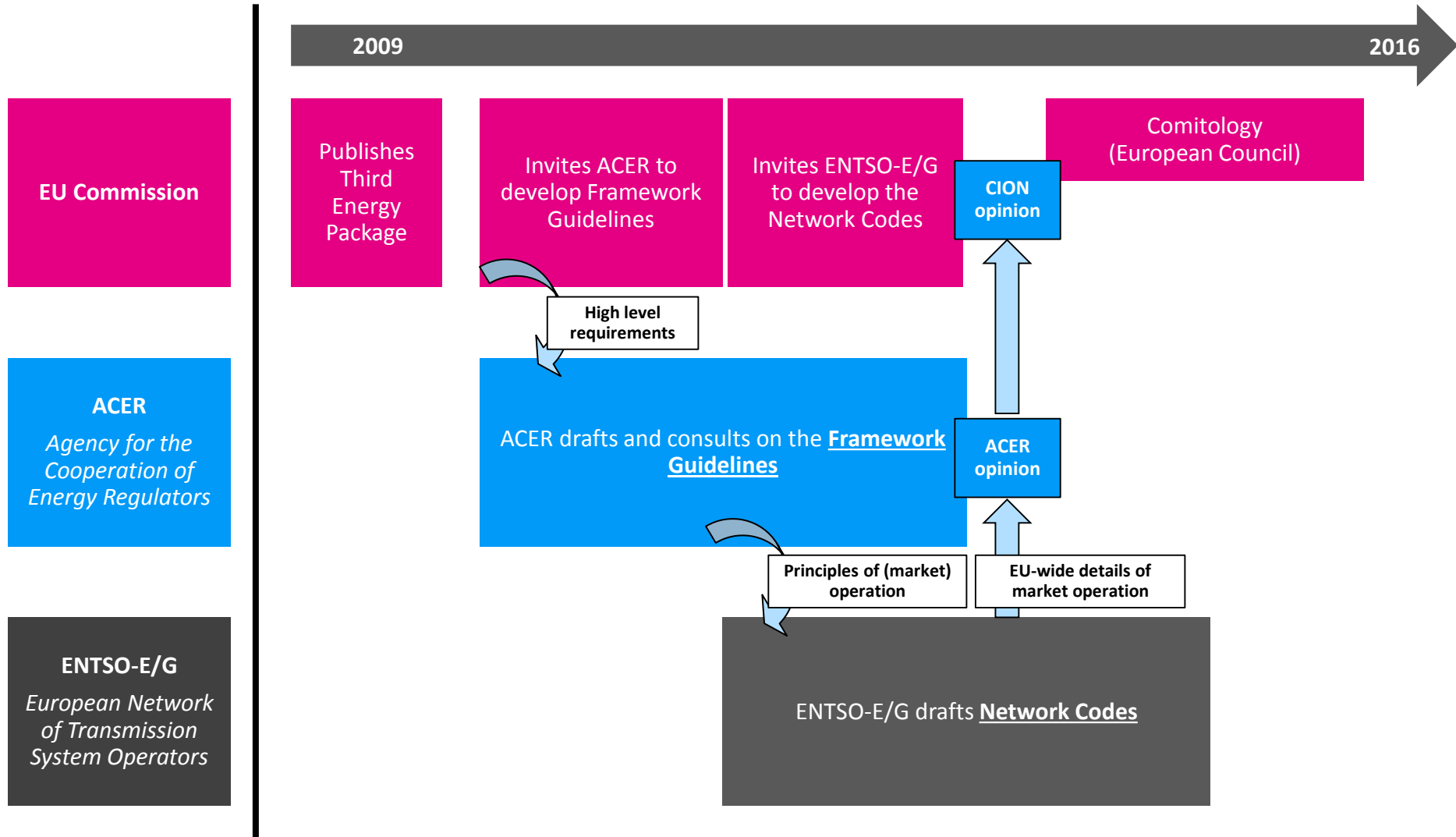
Network Codes are a key component of the Third Energy Package, underpinning the development of the Internal Energy Market for gas and electricity



- ▶ The Network Codes are a series of common rules that govern access to, the use of, and operation of the electricity and gas markets across Europe
- ▶ Aim to promote cross-border trade and create a level playing field to facilitate competition

# Code Development Process

New institutions created by the Third Package (ACER, ENTSOs) are central to code development

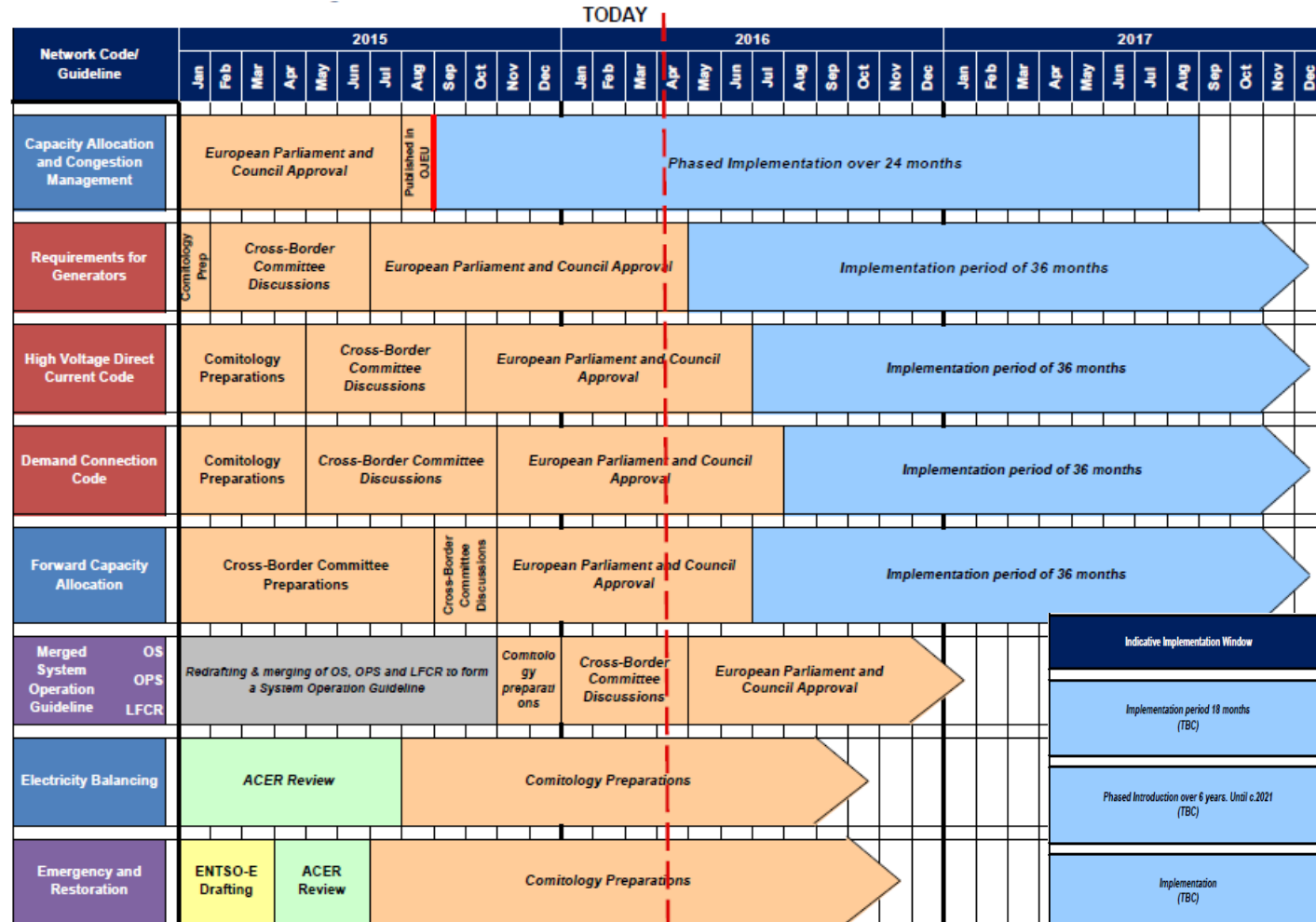


# Network Code Status – Electricity



Only one electricity code (CACM) adopted to date, seven others under development

- ▶ Three families of common market rules for electricity
  - Market rules for trading in defined timeframes (blue)
  - Standards for connecting different types of assets to the market (red)
  - Operating the transmission network in a consistent way across Member States (purple)
- ▶ Additional codes to be developed include harmonised transmission tariffs



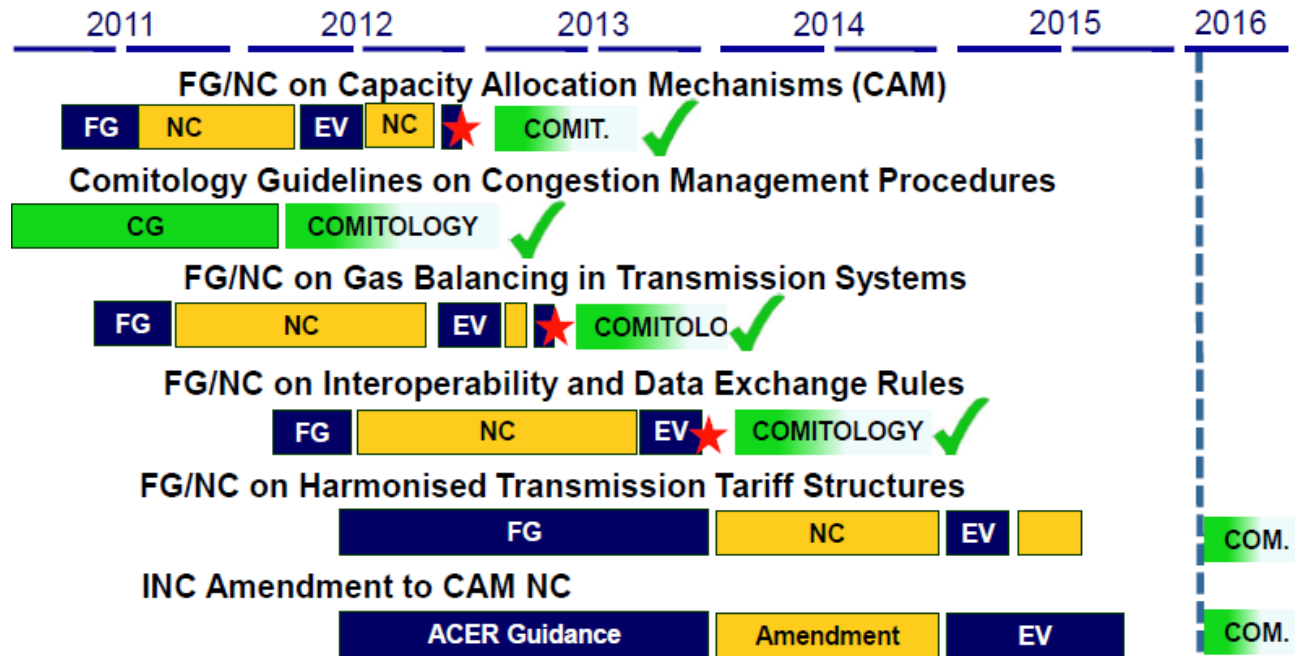
Source: National Grid

# Network Code Status – Gas



Gas Network Codes now largely in place, tariffs and incremental capacity in progress

Network Code	Adopted?
Capacity Allocation Management	✓
Congestion Management Procedures	✓
Gas balancing	✓
Interoperability and data exchange	✓
Harmonised Transmission Tariff Structures	<i>Pending</i>
Incremental capacity	<i>Pending</i>



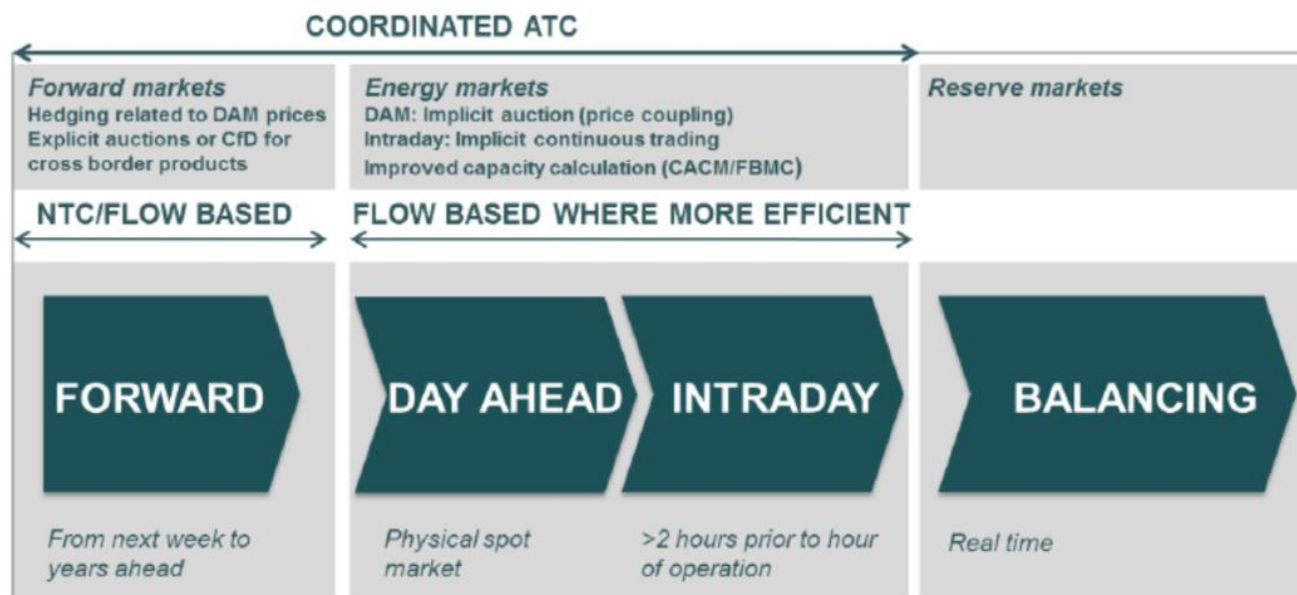
Source: E-CONTROL

# Design principles and objectives

An integrated trading framework over all market timescales with harmonised rules

► Primary objectives:

1. To ensure optimal use of transmission network capacity in a coordinated way
2. To achieve reliable prices and liquidity in day-ahead capacity allocation (via market coupling)
3. To design and facilitate efficient markets across all timeframes – forward markets, day-ahead and intraday
4. To harmonise EU-wide balancing arrangements to enable sharing of resources close to real-time



Source: ENTSO-E (2012)



# Market coupling

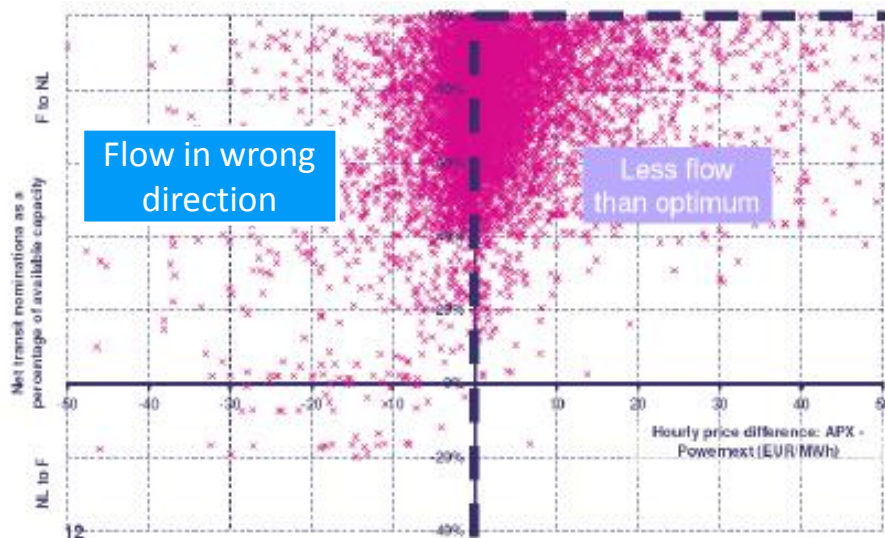
Implicit allocation of interconnection capacity via market coupling improves the efficiency of cross-border day-ahead trading, with potential benefits estimated at over €1bn p.a. across EU28

Netherlands ↔ France

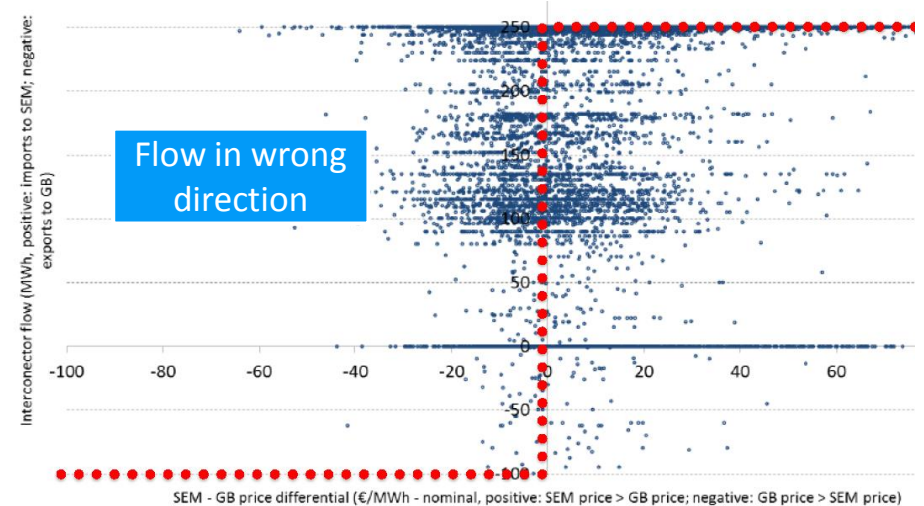
Ireland ↔ Great Britain

- ▶ NL-FR price differences and flows pre-market coupling

- ▶ SEM-GB price differences and Moyle interconnector flows, 2013



Source: Moss (2009)



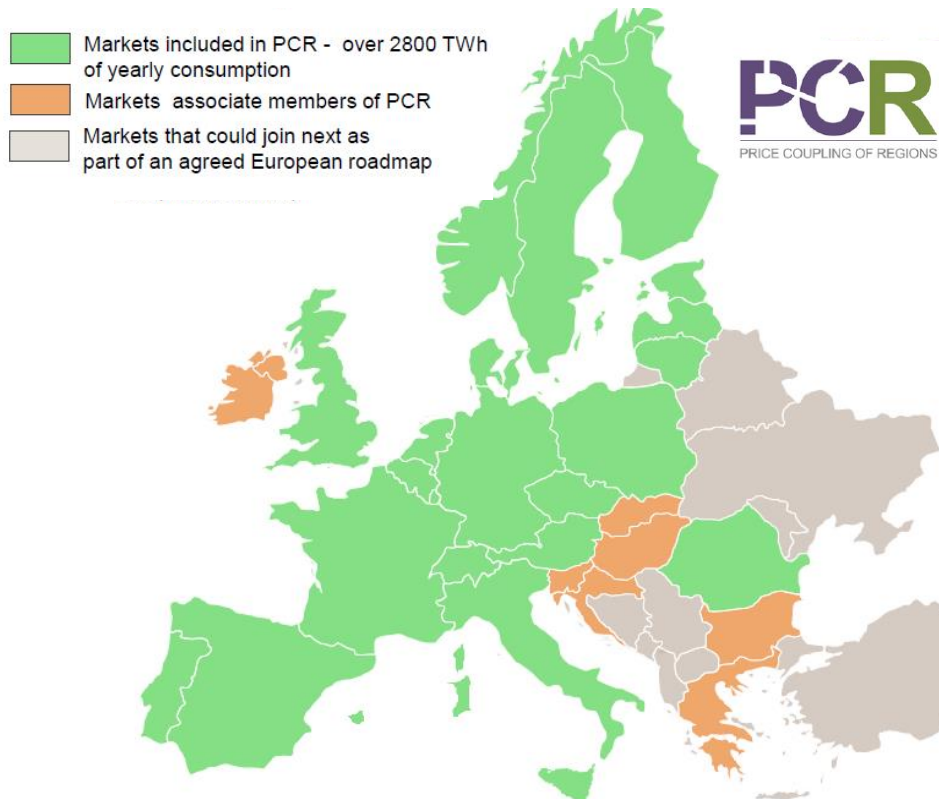
Source: SEM Committee (2015)

# Progress to date

Day-ahead market coupling operational, intra-day and balancing to follow in 2-6 years

## Day-ahead Market ✓

- ▶ Roll-out of day-ahead coupling largely completed via 'Regional Initiatives' before formal adoption of CACM Network Code



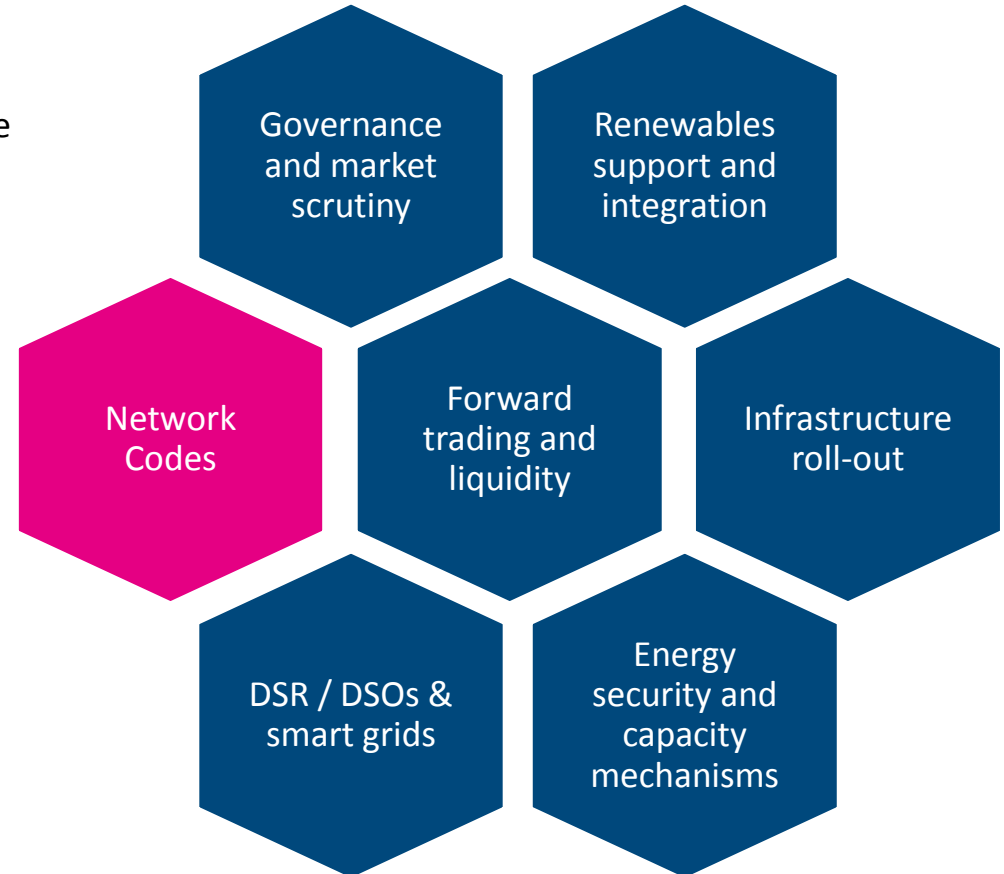
## Intra-day / Balancing ✗

- ▶ Intra-day implementation delayed, extended timeline envisaged for harmonising balancing arrangements and facilitating cross-border exchange of balancing services
- ▶ Successful roll-out of day-ahead coupling built upon established and proven practices in Nordic and North West European markets, but fewer precedents for the intra-day and balancing markets
- ▶ Greater technical challenges associated with real-time co-ordination and prevalence of system operational constraints
- ▶ But material benefits from harmonised balancing arrangements due to increasing deployment of intermittent renewable resources

# Extending the Target Model

Increasing recognition that further evolution of the Target Model and Network Codes is likely, given some key market design components were out of scope for initial phase of harmonisation

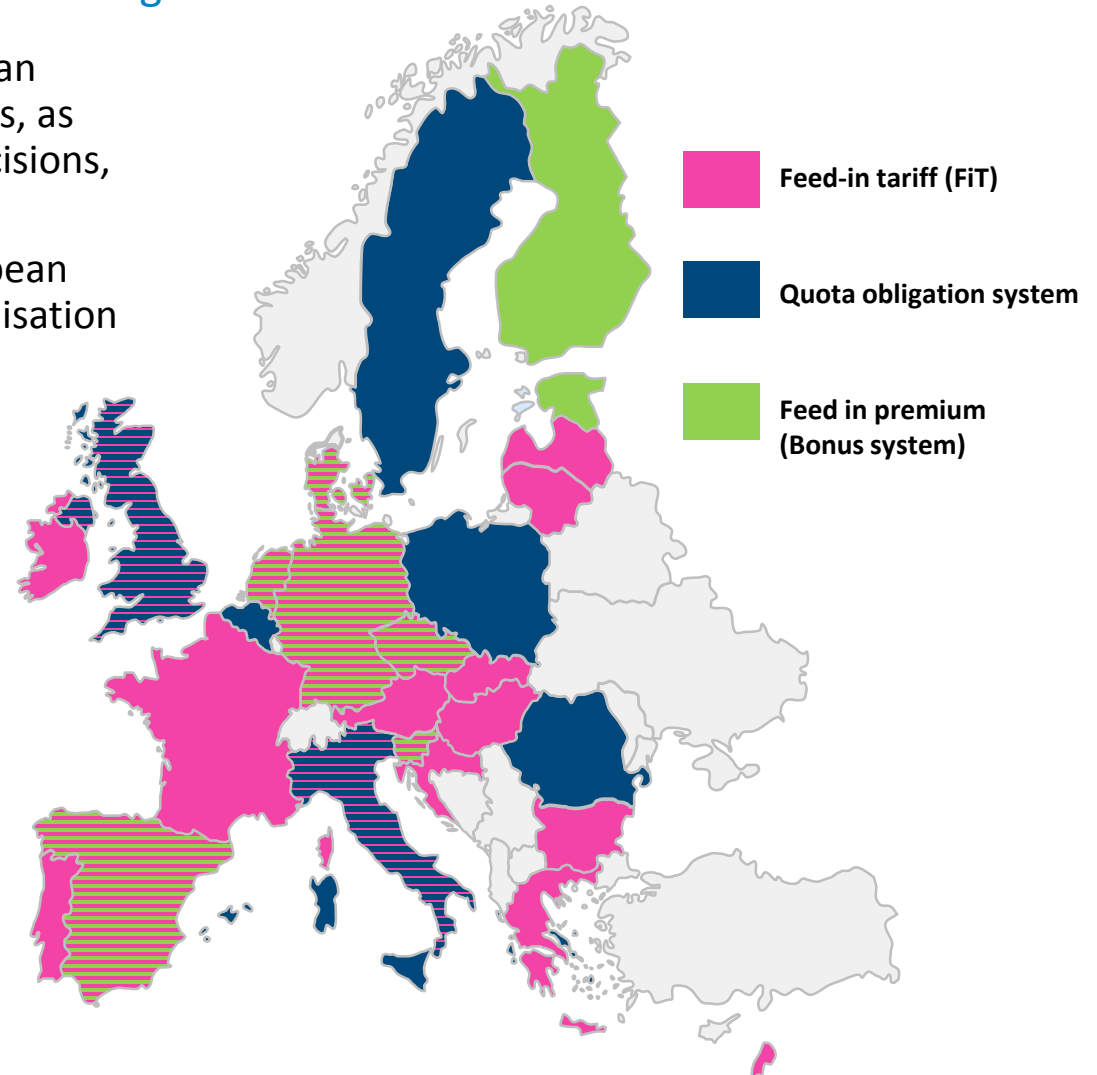
- ▶ Potential areas for consideration include energy security interventions, renewables integration, forward trading, decentralised resources and demand-side response
- ▶ Launch of the European Energy Union in 2015 represents the latest in a series of EU wide projects to coordinate the transformation of European energy sector
- ▶ The project is based around five pillars:
  1. Energy security, solidarity and trust
  2. Internal market, interconnections and renewables integration
  3. Demand moderation, energy efficiency
  4. Decarbonising the economy
  5. Research and development



# Further considerations: RES-E support

EU Member States Europe have deployed a variety of subsidy mechanisms to support the drive towards renewable targets, but at risk of distorting the internal market

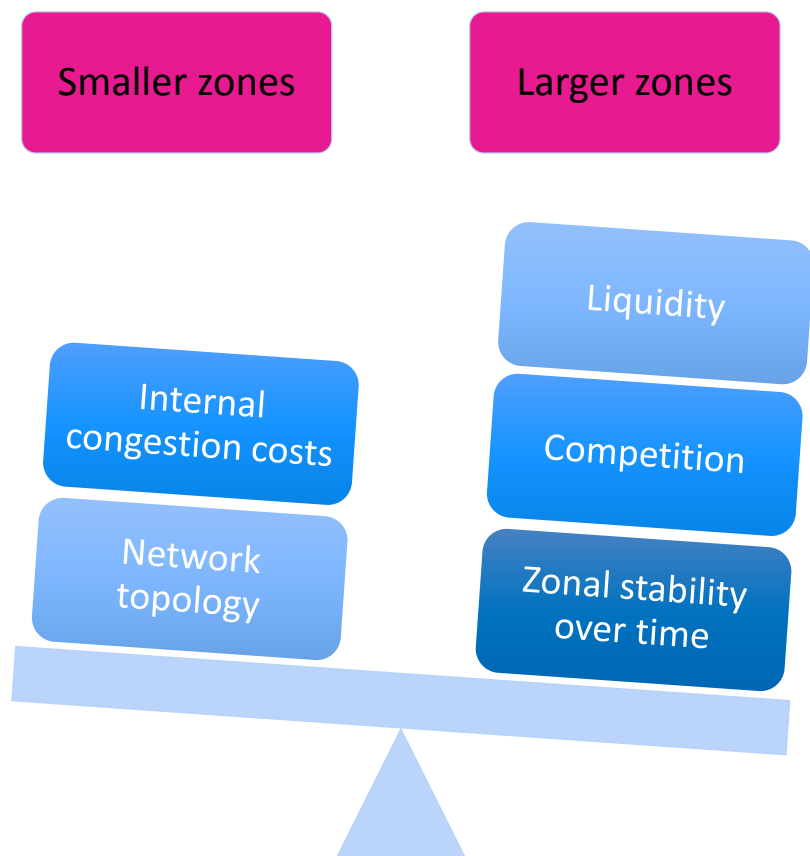
- ▶ Differences in renewable support schemes can distort investment decisions between regions, as well as distorting short-term operational decisions, interconnector flows and balancing costs
- ▶ Deploying renewables at lower cost to European consumers will likely require greater harmonisation and cross-border co-operation



*Similar considerations apply to security interventions such as capacity mechanisms*

# Further considerations: forward trading

What will the EU Target Model mean for forward trading?



- ▶ CACM Network Code sets out principles for defining market zones for congestion management and spot pricing, but the Target Model does not set out a clear vision for forward trading hubs
- ▶ The zones defined for day-head trading have the potential to create or dilute local hubs of liquidity
- ▶ ACER's 2014 report on bidding zones recognises that forward liquidity is limited in smaller markets and suggests that alternative cross-border products may be required to create a level playing field

*How many liquid trading hubs are envisaged for European gas and power?*

# Concluding observations

- ▶ Significant effort and resources have been devoted to developing and implementing network codes
- ▶ Tangible benefits already realised, examples are:
  - Day-ahead market coupling in electricity
  - Roll-out of booking platforms in gas
- ▶ Anticipate increasing focus on the network code amendment process as the vehicle for accommodating emerging design features and regional priorities
- ▶ Stakeholders with extended implementation timelines (e.g. Energy Community, Ireland) have the advantage of building on proven methodologies, systems and arrangements...
- ▶ *But* may still need to hit a moving target (e.g. electricity intra-day trading and balancing)
- ▶ *And* designs based on common practice in continental / North West Europe may not always be the most appropriate (e.g. HVDC interconnectors, centralised dispatch, island systems)



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