

Developing network codes to facilitate European electricity market integration

Energy Ireland Conference

13 March 2013

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entsoe
Reliable Sustainable Connected



Network Codes – harmonised rules for Europe

The market related network codes along the target model

A focus on the CACM code

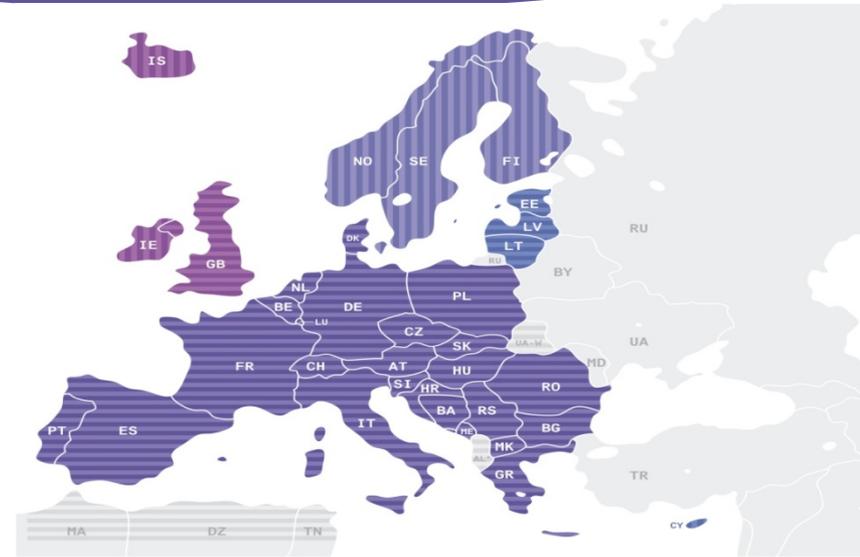
A bottom-up approach to complement the CACM code

The other pieces in the market jigsaw: Forwards & Balancing

The infrastructure challenge

The role of TSOs – ENTSO-E

- Mandate for network codes and ten-year plans in Reg. 714/2009
- 41 TSOs from 34 countries
- Fully operational since July 2009*
- A trans-European network*
 - 530 million citizens served**
 - 910 GW generation**
 - 300,000 km of transmission lines**
 - 3,400 TWh/year demand**
 - 380 TWh/year exchanges**
- Replaced former TSO organisations: ATSOI, BALTSO, RTSO, NORDEL, UCTE, UKTSOA*



System Development



System Operation



Electricity Market



Research and Development

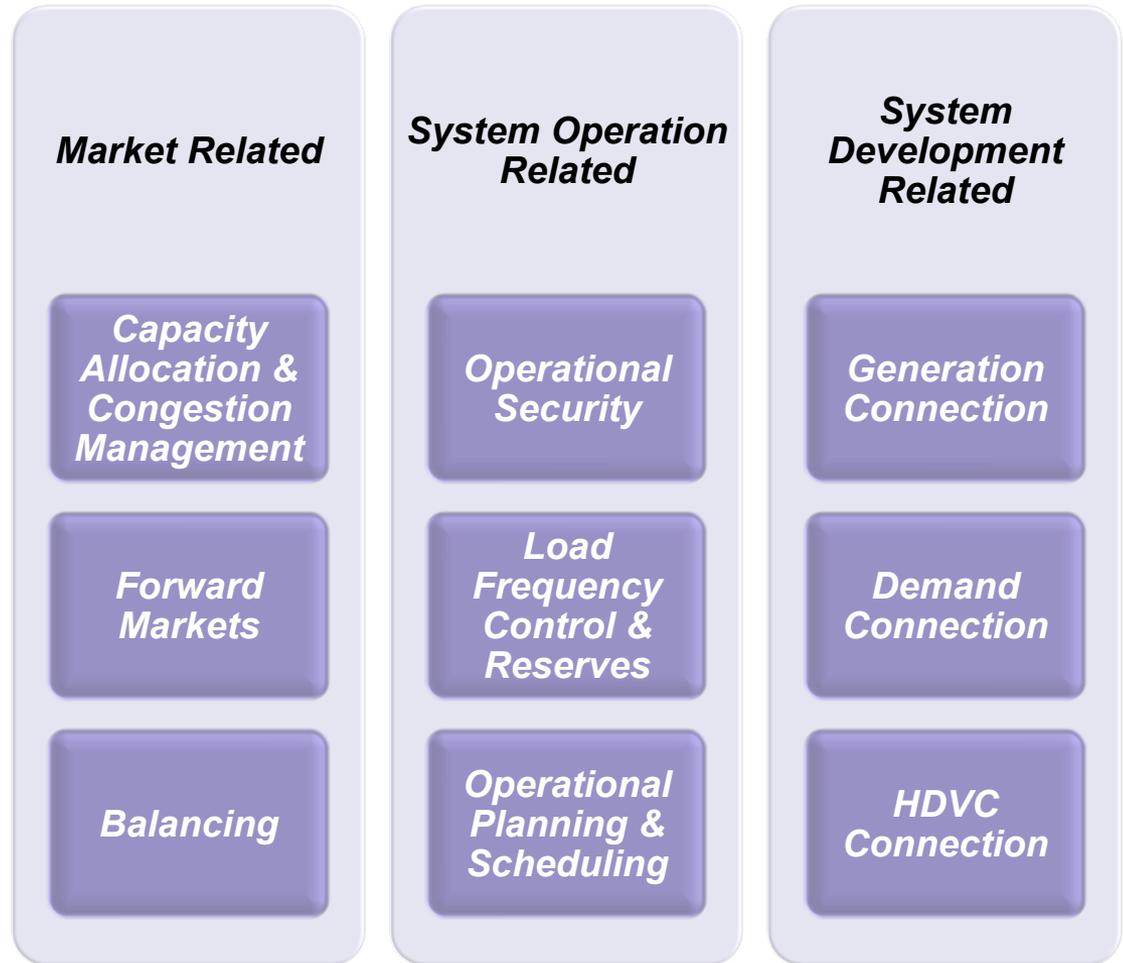


The Intention:

promote energy sector harmonisation by creating a set of legally binding rules applicable across Europe in the form of ‘network codes’

è The Suite of Network Codes 2011 – 2014

è The “Network Code Project”

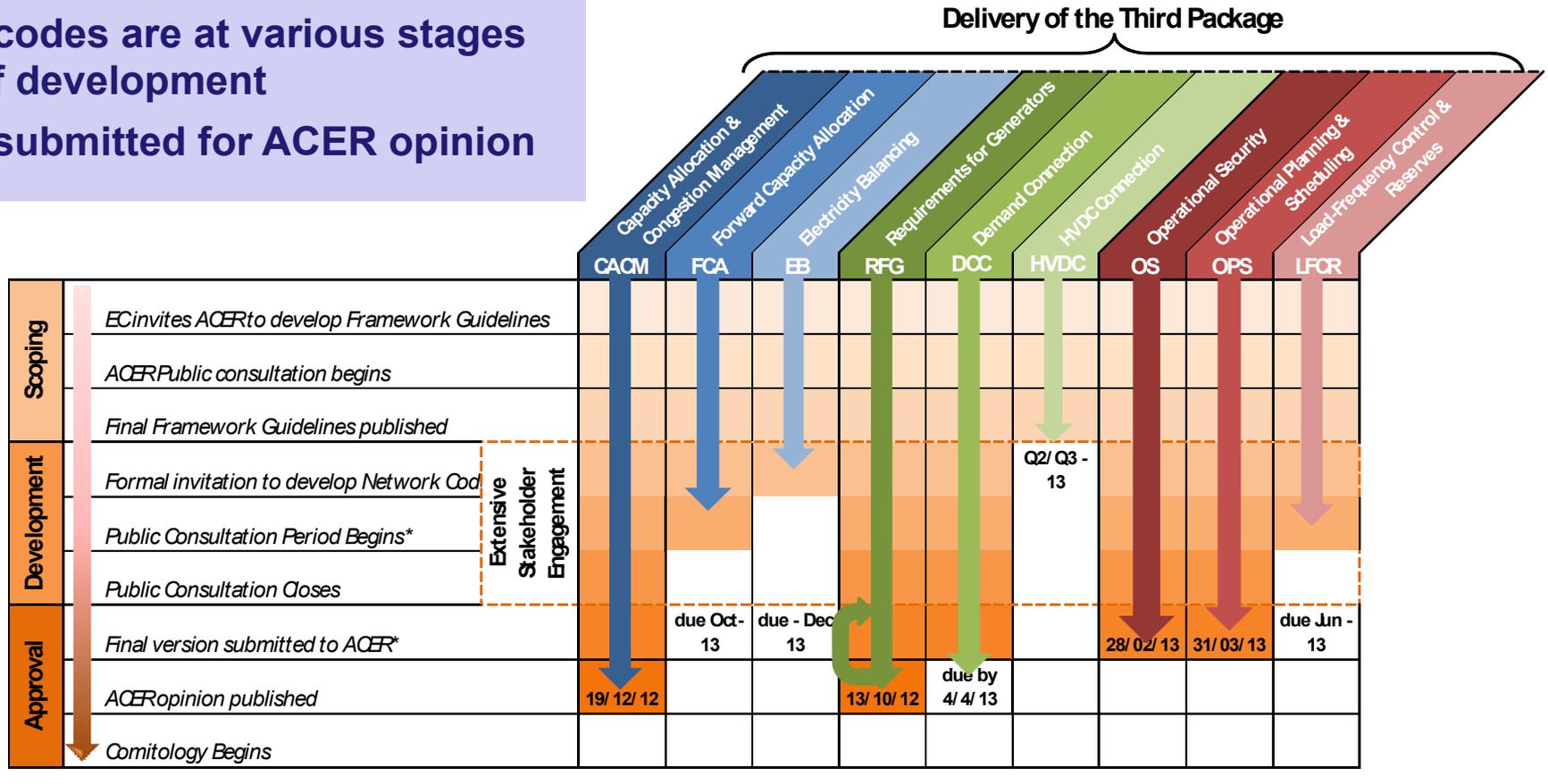


- **9 Network Codes currently prioritised by EC, ACER and ENTSO-E.**
- **EirGrid/SONI is fully involved in all 9 Network Codes**
- **EirGrid/SONI is leading the work in 2 of the those 9 Network Codes (i.e. Forwards & Demand Connection).**

Network Code Overview

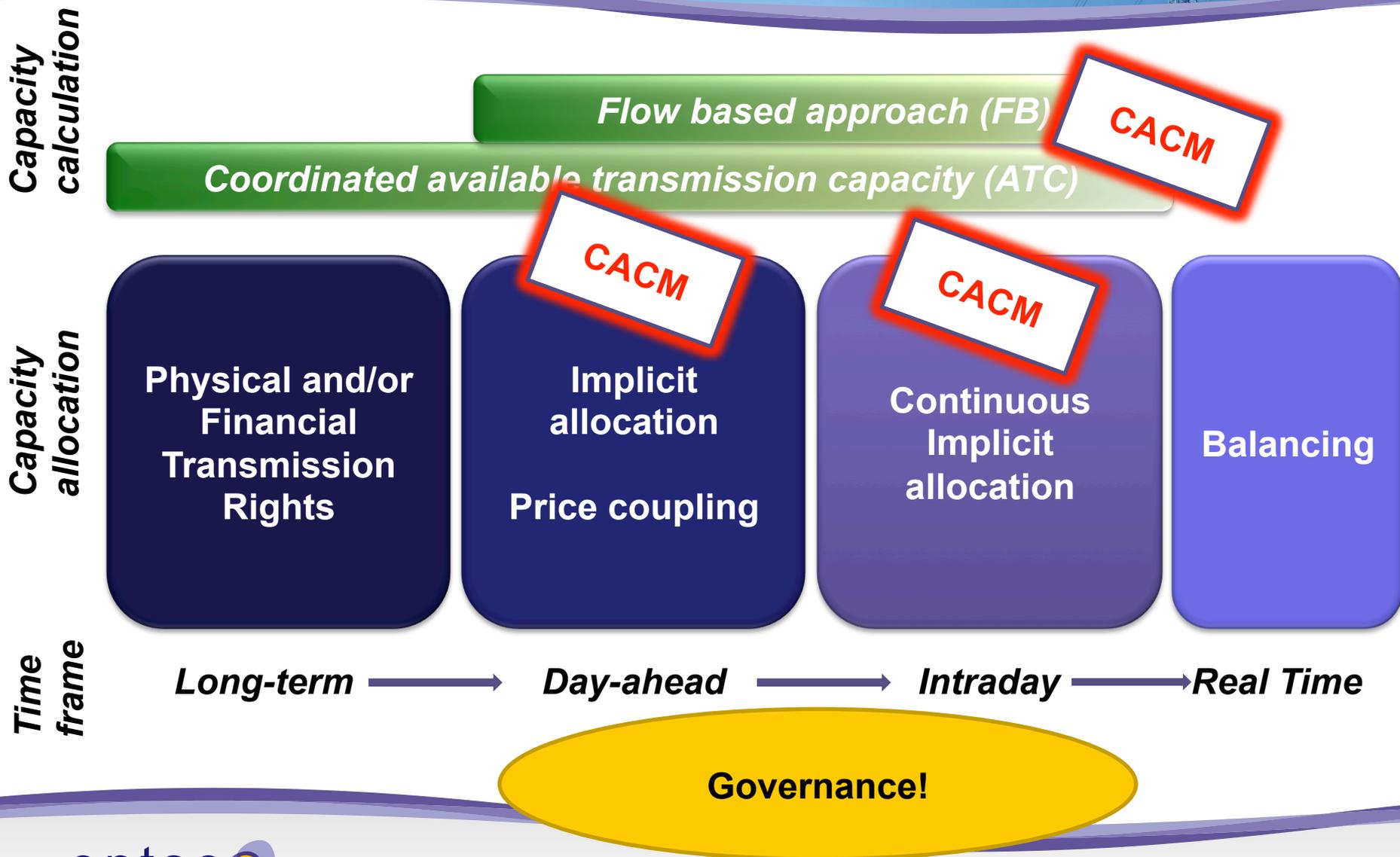


- 9 codes are at various stages of development
- 4 submitted for ACER opinion

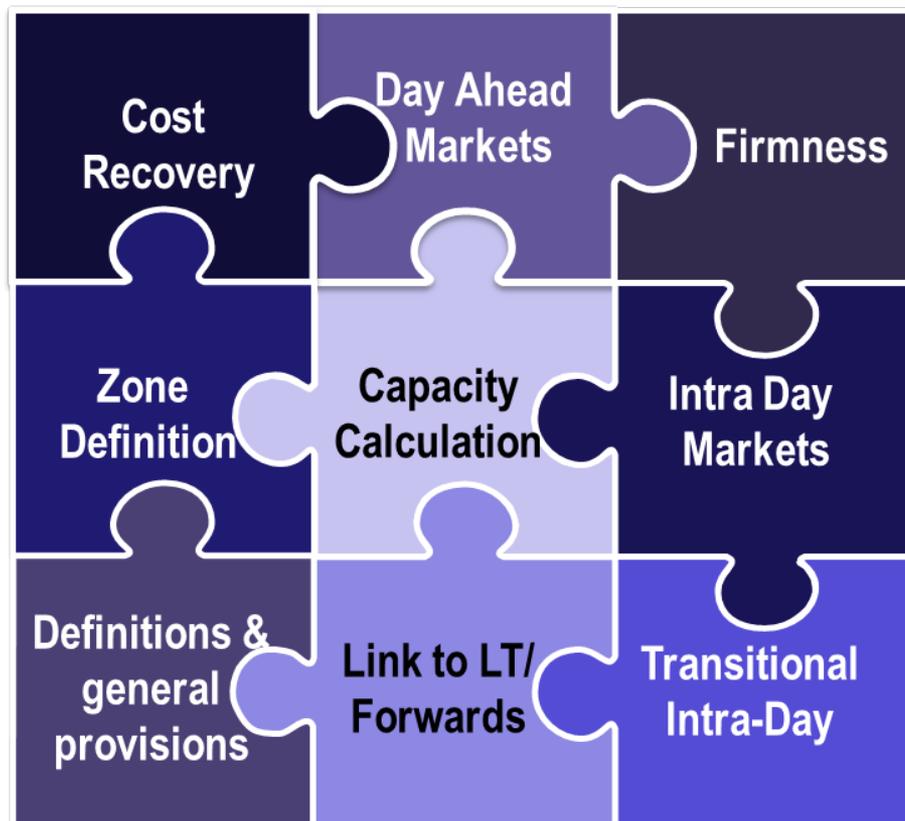


Latest information on Network Codes Status is available on the ENTSO-E website, [here](#)

The market related network codes along the Target Model



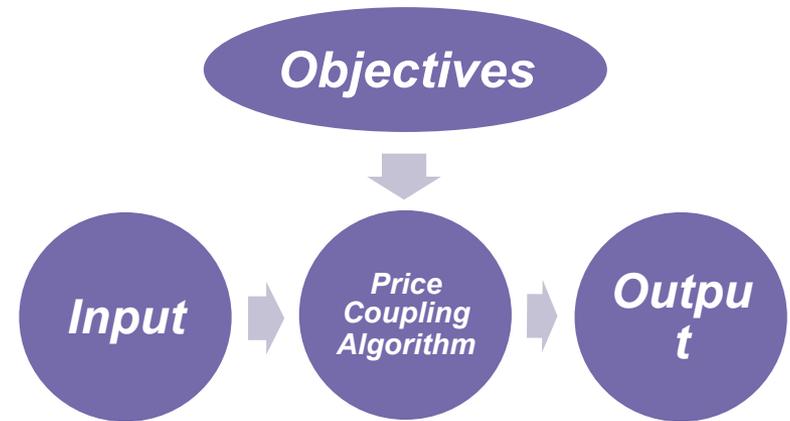
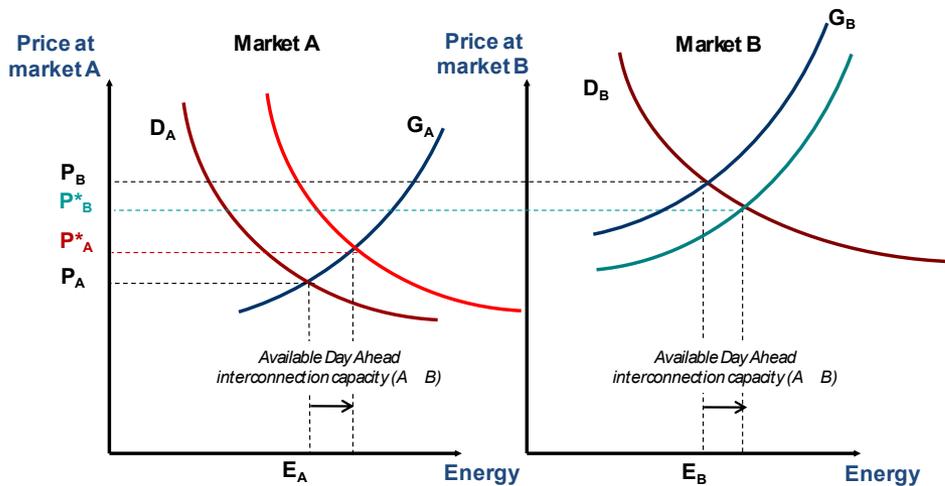
What's covered in the CACM code?



The CACM network code :

- Day ahead target model for market coupling.
- Intra-day target model of implicit continuous trading.
- Rules for calculating capacity and defining bidding zones.
- General sections on definitions, firmness, cost recovery & congestion income distribution.

The day-ahead electricity market

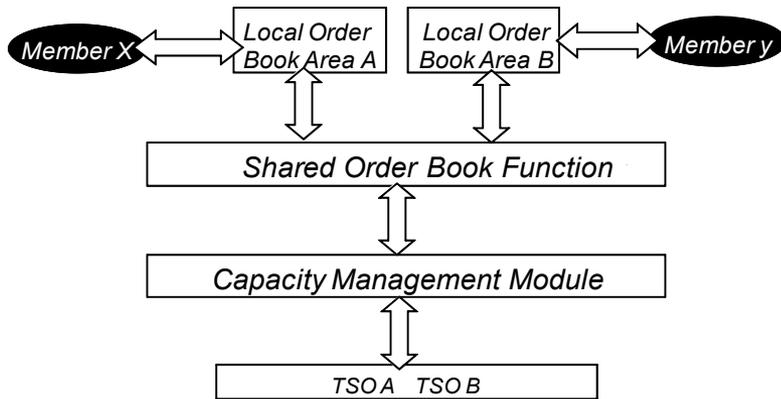


Market coupling enables an efficient use of the transmission grid through strong interactions between local markets and an efficient European wide price formation

A single price coupling algorithm to be defined across Europe

Clearing prices, net positions for all bidding zones and cleared orders are calculated by the Price Coupling Algorithm

The intraday electricity market



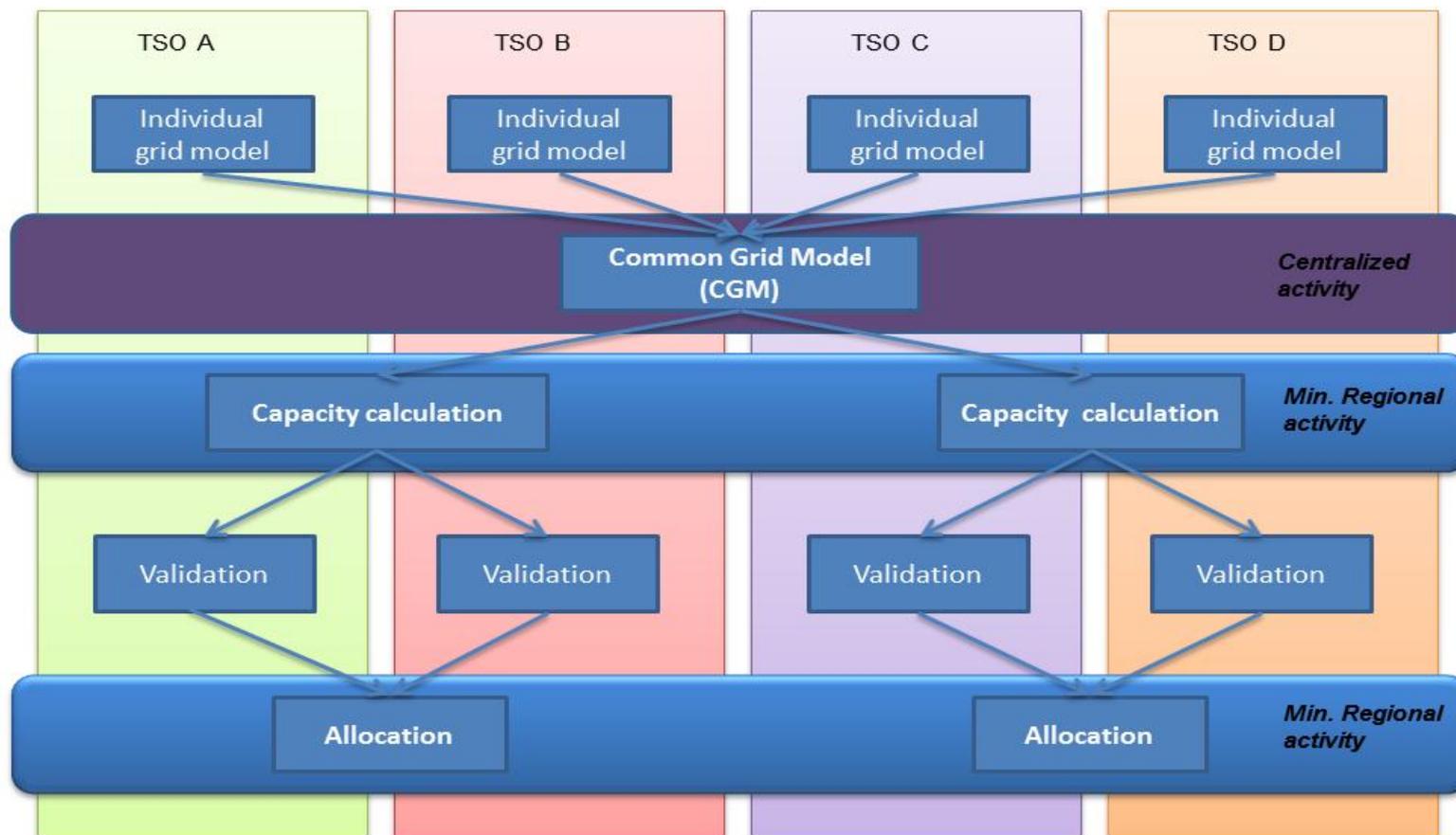
European target model cross-zonal intraday (XBID) capacity allocation and energy trading based on **implicit continuous allocation (continuous trading)**

A continuous intraday market let positions be fine tuned close to real time. This is vital to managing wind and solar variability.

The target models setup pools all liquidity to maximize economic benefits.

The relationship between SOB function and CMM will be one-to-one.

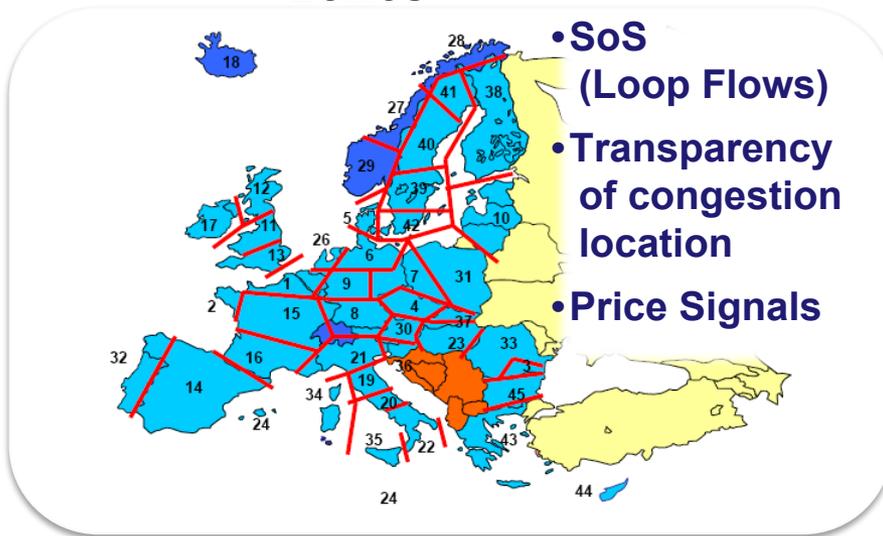
The capacity calculation process





Diverging views on Market Zone boundaries

splitting of zones



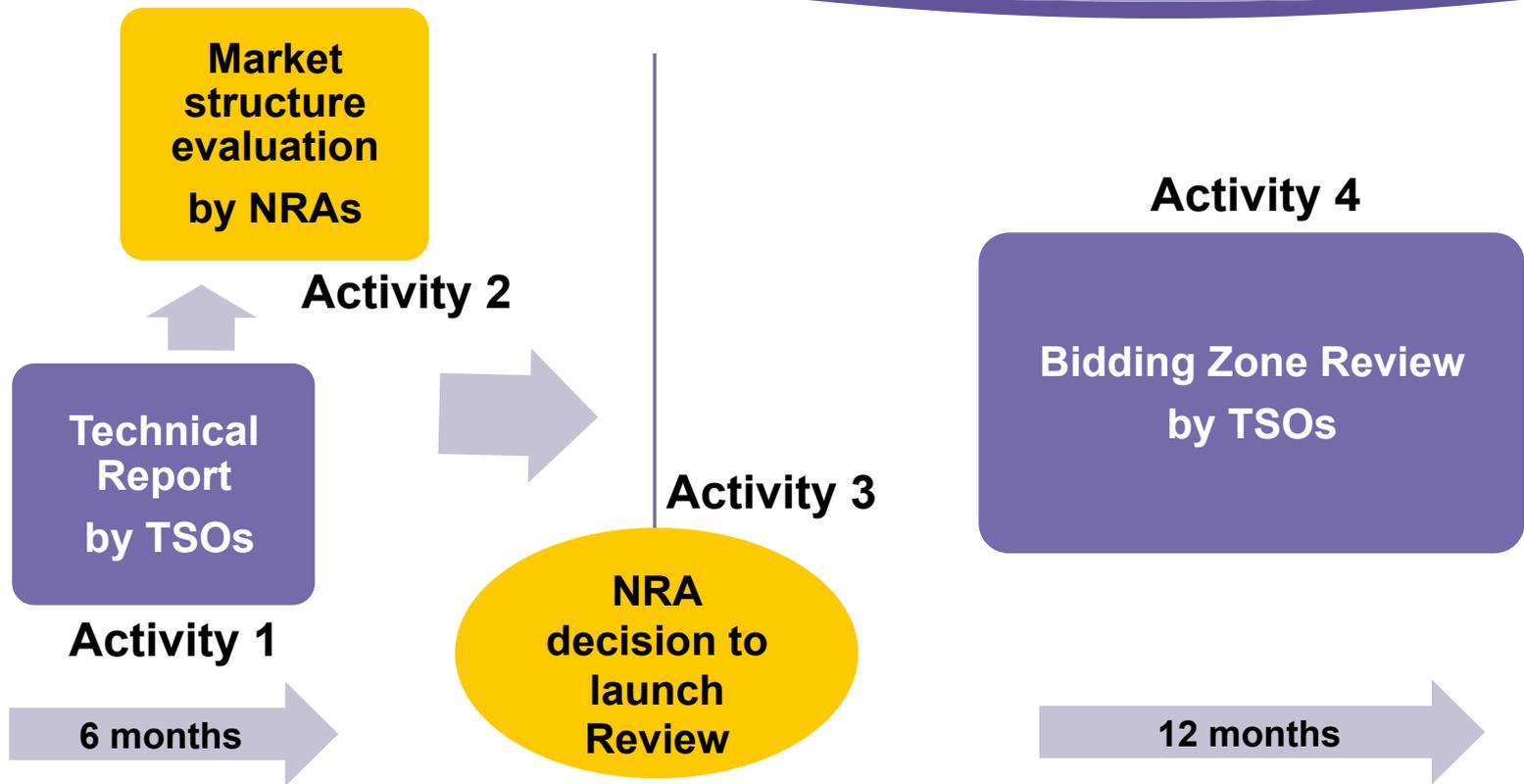
vs.

advantages of larger zones



A clear process towards assessment and re-definition in CACM code

Process according to NC CACM



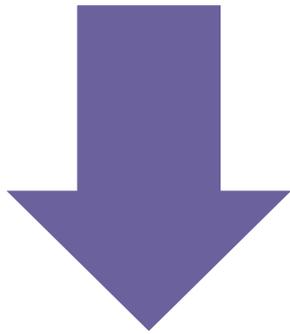
ENTSO-E has launched a pilot to implement CACM provisions on bidding zones for CEE, CWE, DK-W, IT and CH

Impact of Target Model Implementation in Ireland



- *The CACM code together with the Governance Guideline aim at creating a single set of rules for a well functioning IEM*
- *Given the different existing market designs, this would necessarily imply changes in some countries*
- *In the case of Ireland, the current SEM design has a number of relevant differences with the target model so the implementation of the CACM code would inevitably lead to some changes in the design of SEM*
- *In order to facilitate the transition and full implementation of the CACM code, the code defines transitional arrangements for island systems with central dispatch such as Ireland and Northern Ireland  target model to be in place no later than 31/12/2016*

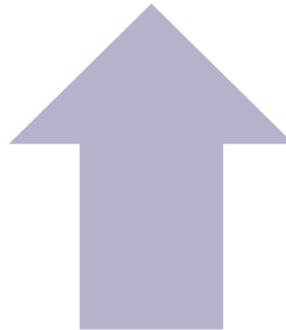
A combination of a bottom up and a top down approach is essential



Network codes:
Top-down approach



Regional Implementation projects:
Bottom-up approach



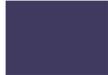
Network codes and implementation projects are compliments.

Experience gained via projects is reflected in the codes and the codes facilitate the projects.

Both are essential for the delivery of the Internal Electricity Market by 2014

Status - current day ahead market coupling

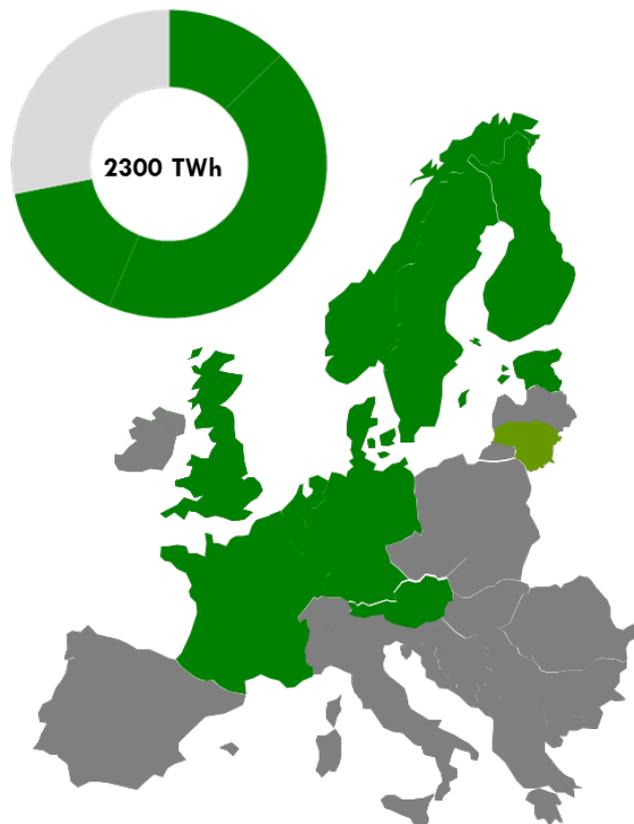


Regional Implicit Auctions		
	CWE	Price Coupling
	Nordic-Baltic	Price Coupling
	Swepol	Poland price coupled to Nordic via Swepol
	Austria	Price coupled to GE/ CWE (no congestion)
	BritNed	GB price coupled to NL/CWE via BritNed
	Mibel	Price coupling
	ITVC	Volume coupling CWE-Nordic-Baltic
	Italy-Slovenia	Price coupling
	Czech-Slovak-Hungarian	Price coupling

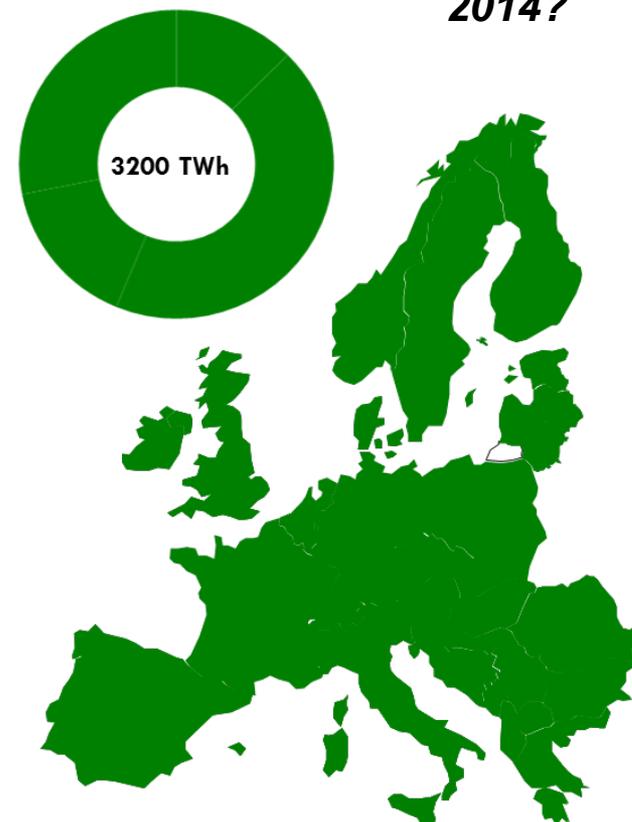
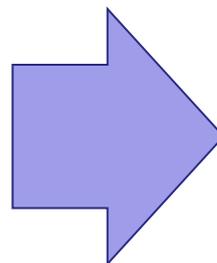
Moving towards an Integrated EU Electricity Market



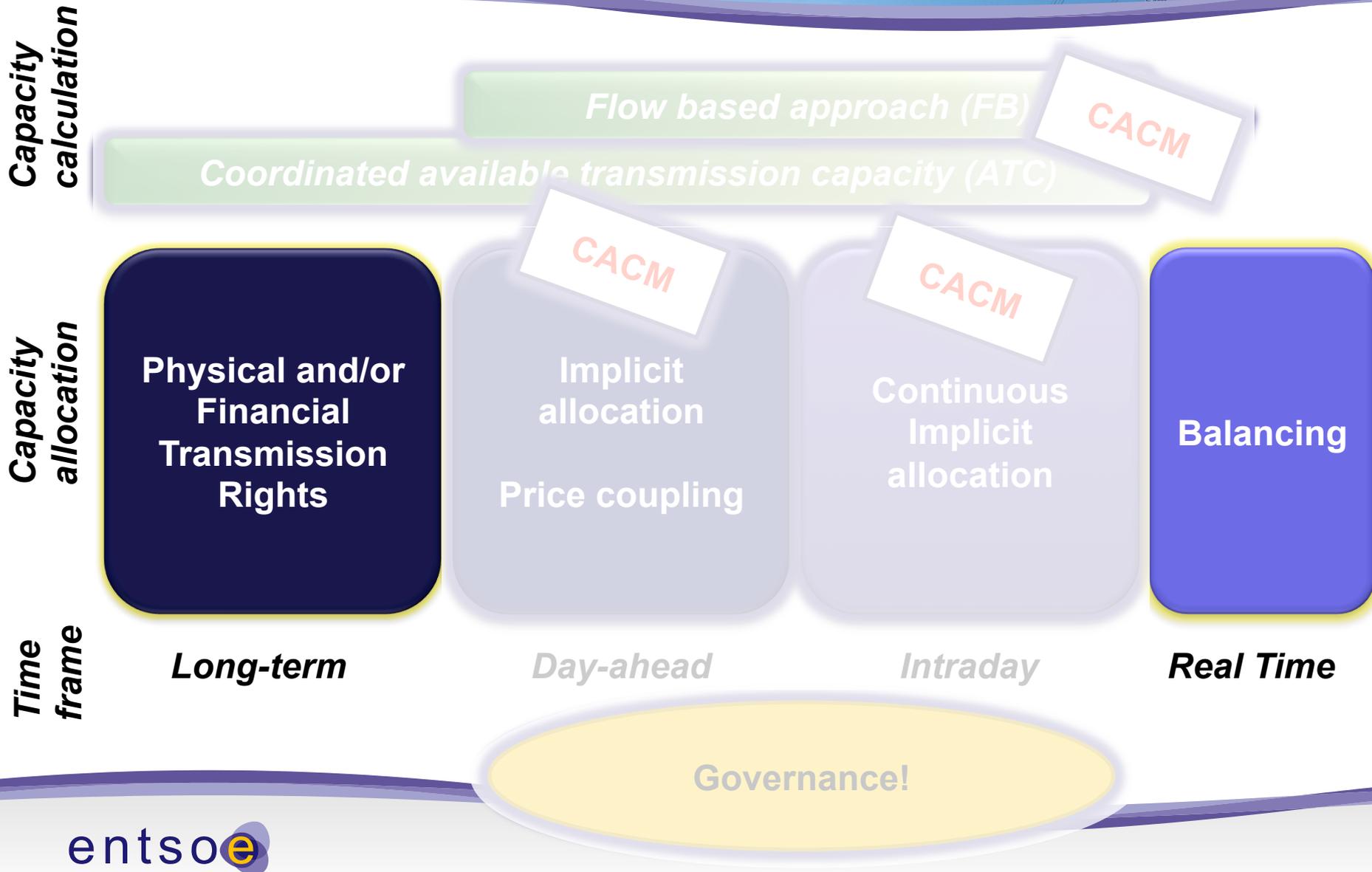
2013



2014?



The other pieces in the market rules jigsaw



Forwards code – key areas

**Cross-border
hedging
products
(PTRs and
FTRs)**

**Harmonization
of Rules
(Allocation,
Nomination)**

**Single
Platform
& Secondary
Market**

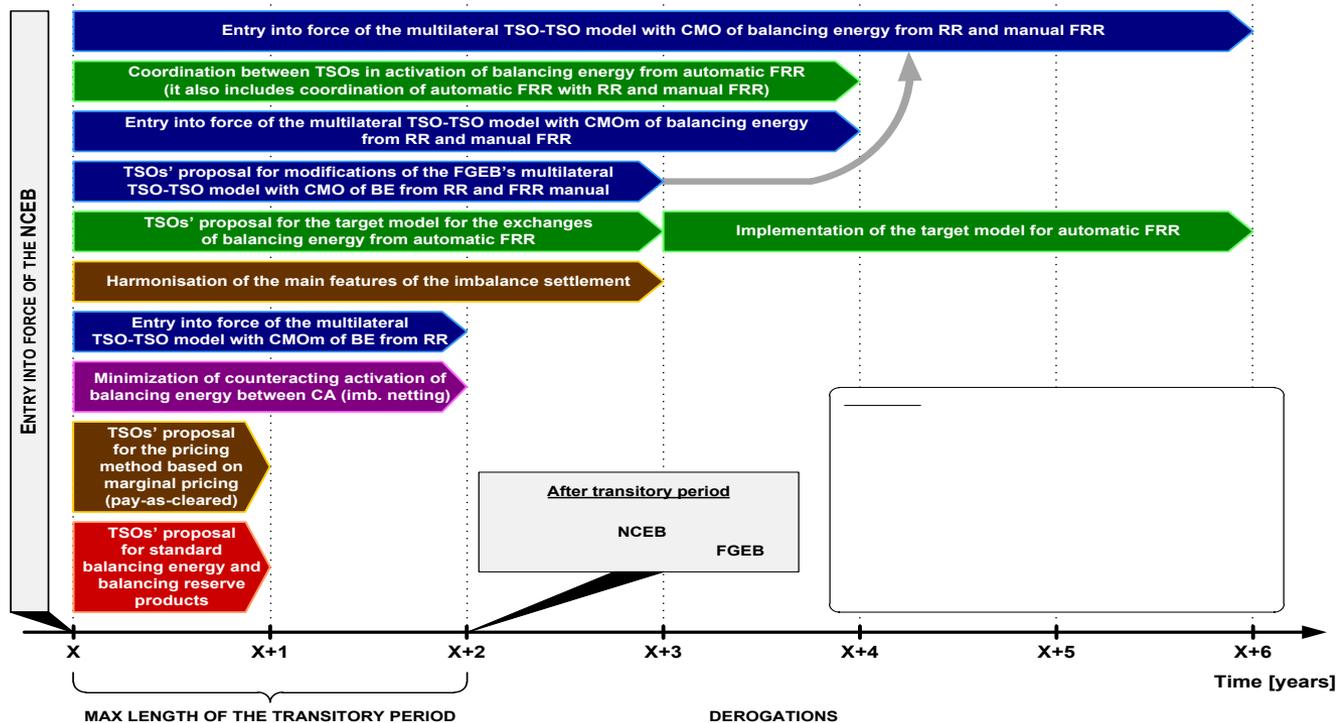
**Firmness
Regime**

A 2-month public consultation will be starting circa end of March

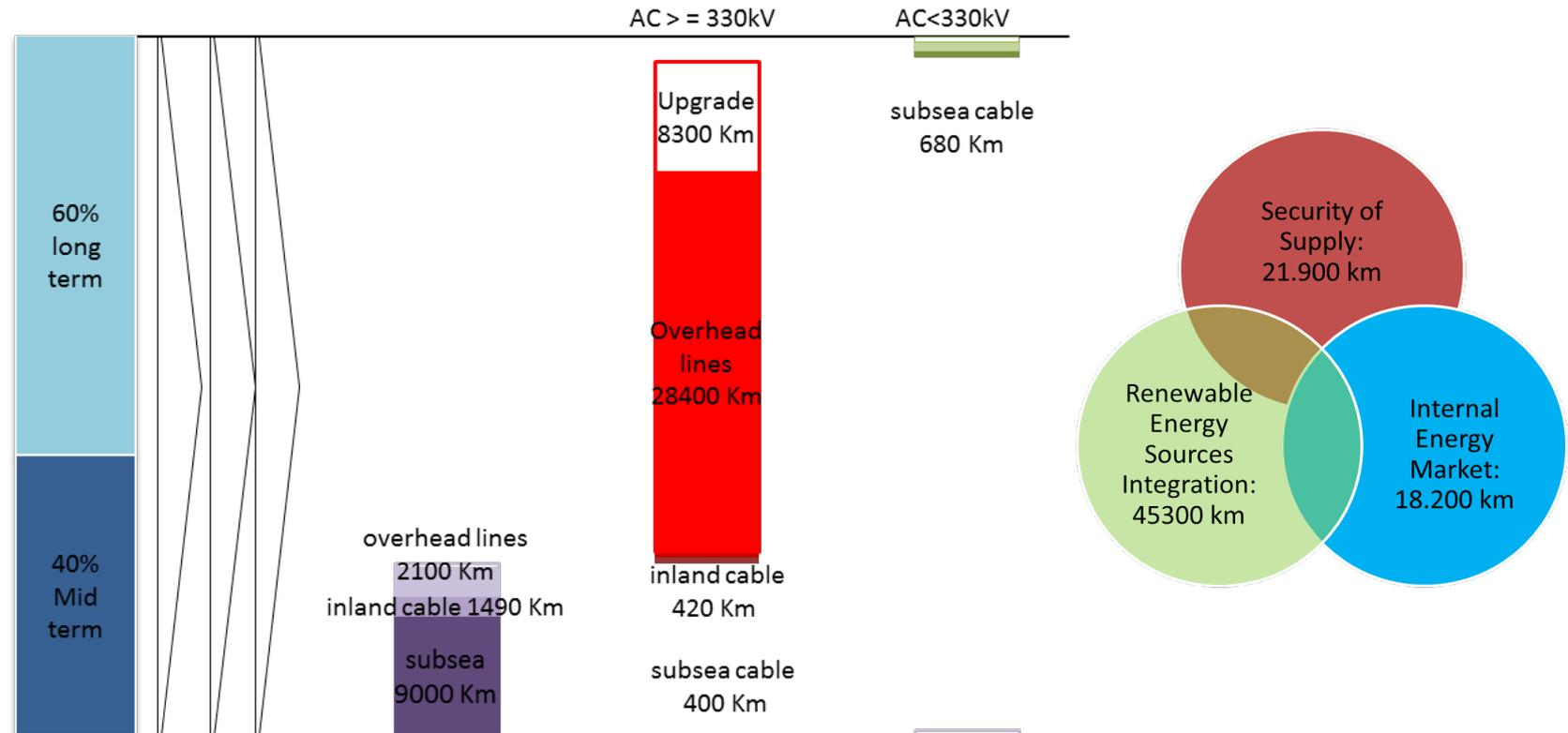
Balancing code – an ambitious challenge



- **Roadmap for integration of Electricity Balancing Markets from the Framework Guidelines on Electricity Balancing (FG EB)**



The scale of the challenge – additional 52300 km lines TYNDP 2012



The IEM will not be a reality without the necessary infrastructure investment

About €100 billion in the coming 10 years



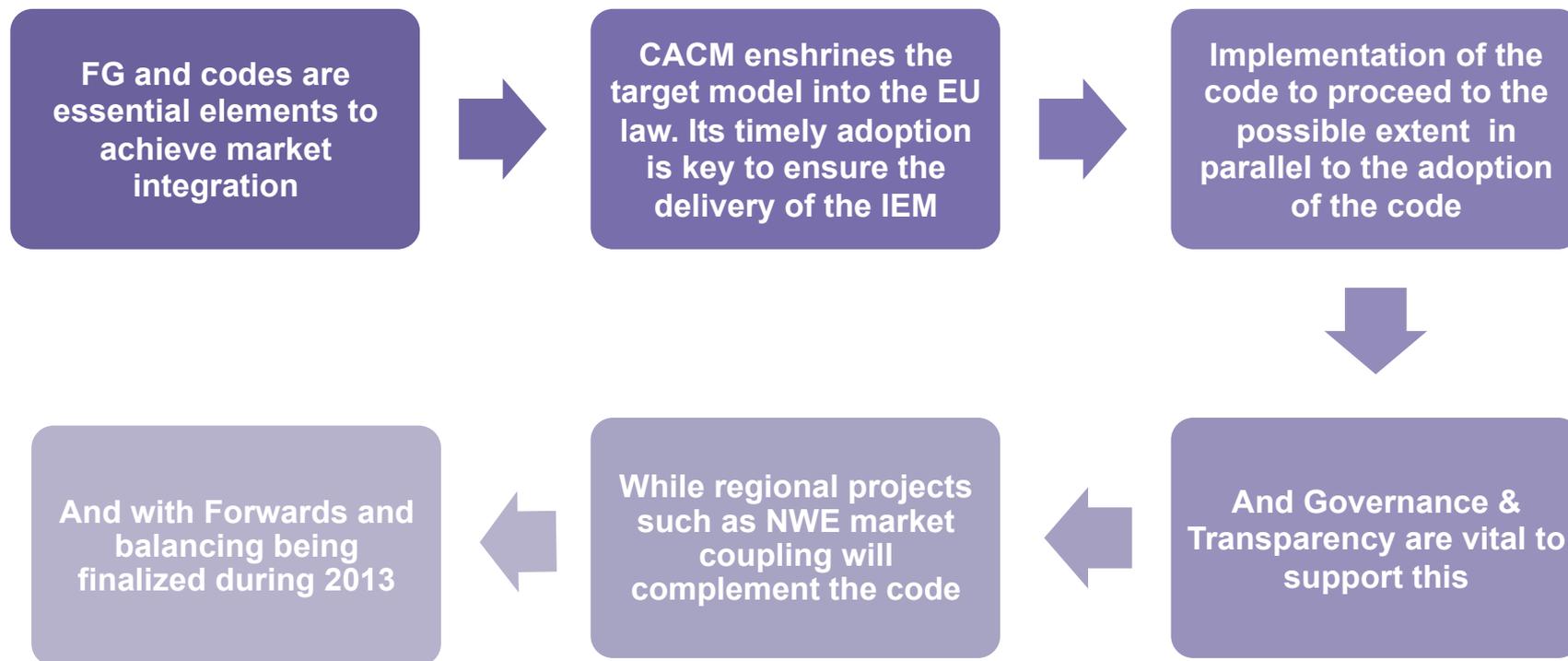
- **€100 billion investment on grids...**
- **≈ 1.5-2 €/MWh in Europe over the 10-year period,**
- **≈ 2% of the bulk power prices,**
- **≈ less than 1% of the total end-users' electricity bill**

	<i>billion €</i>		<i>billion €</i>
<i>Austria</i>	1.1	<i>Ireland</i>	3.9
<i>Belgium</i>	1.9	<i>Latvia</i>	0.4
<i>Bosnia-Herzegovina</i>	0.0	<i>Lithuania</i>	0.7
<i>Bulgaria</i>	0.2	<i>Luxembourg</i>	0.3
<i>Croatia</i>	0.2	<i>Montenegro</i>	0.4
<i>Czech Republic</i>	1.7	<i>Netherlands</i>	3.3
<i>Cyprus</i>	0.0	<i>Norway</i>	6.5
<i>Denmark</i>	1.4	<i>Poland</i>	2.9
<i>Estonia</i>	0.3	<i>Portugal</i>	1.5
<i>Finland</i>	0.8	<i>Romania</i>	0.7
<i>France</i>	8.8	<i>Serbia</i>	0.2
<i>FYROM</i>	0.1	<i>Slovakia</i>	0.3
<i>Germany</i>	30.1	<i>Slovenia</i>	0.3
<i>Greece</i>	0.3	<i>Spain</i>	4.8
<i>Hungary</i>	0.1	<i>Sweden</i>	2.0
<i>Iceland</i>	0.0	<i>Switzerland</i>	1.7
<i>Italy</i>	7.1	<i>United Kingdom</i>	19.0

<i>Total ENTSOEperimeter</i>	104
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The timely financing of new investment identified in the TYNDP 2012 would need a regulatory framework which creates conditions providing adequate returns in light of the risks

Concluding remarks



Thank you !

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