Role of PXs in coupling the markets & NEMO function

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AGENDA

I. European Day-Ahead Market Coupling

1. Relevance of market coupling
2. How does day-ahead market coupling work?
3. Short history of day-ahead market coupling

II. Guideline on Capacity Allocation and Congestion Management (CACM)

1. What is CACM all about? What is its position in the EU regulatory framework?
2. How are power exchanges impacted by CACM?
3. Who are the main players under CACM? How do they interact?

III. The role of Nominated Electricity Market Operators (NEMOs) under CACM

1. The Market Coupling Operator (MCO) function vs. NEMO tasks
2. The MCO plan
3. NEMO terms and conditions or methodologies

IV. Regulated Competition or Self-Interested Cooperation?

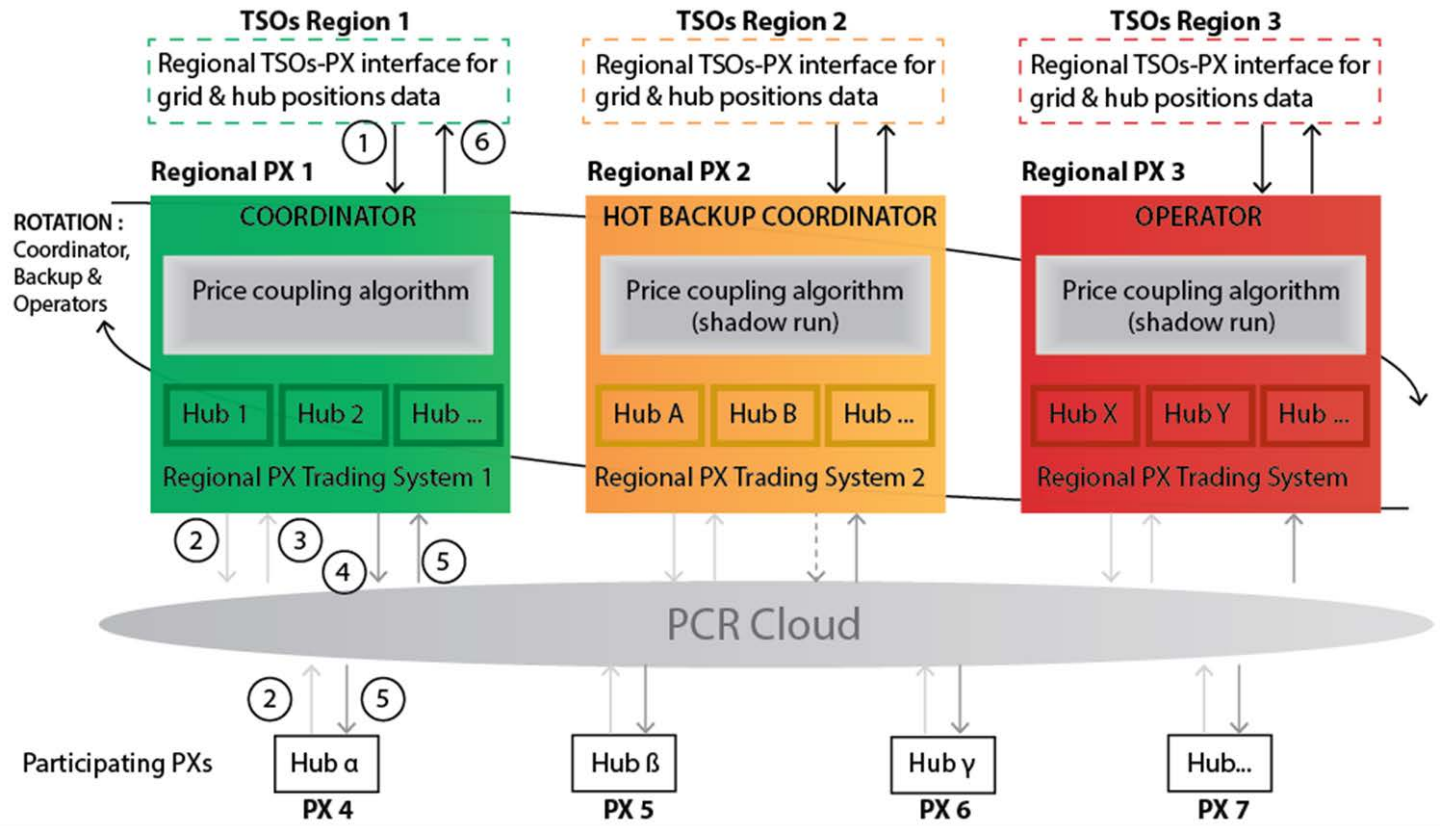
European Day-Ahead Market Coupling

Relevance of market coupling

- Optimal use of interconnectors facilitating congestion management
- Reduction of price volatility
- Price convergence of market areas in case of sufficient border capacity
- Smoothing effect on negative or positive price spikes
- Dissemination of signals of extreme weather conditions (i.e. cold wave, storm front) to other market areas
- Higher security of supply through market integration and no longer depending on the individual country

>> increase of overall welfare

How does DA market coupling work?



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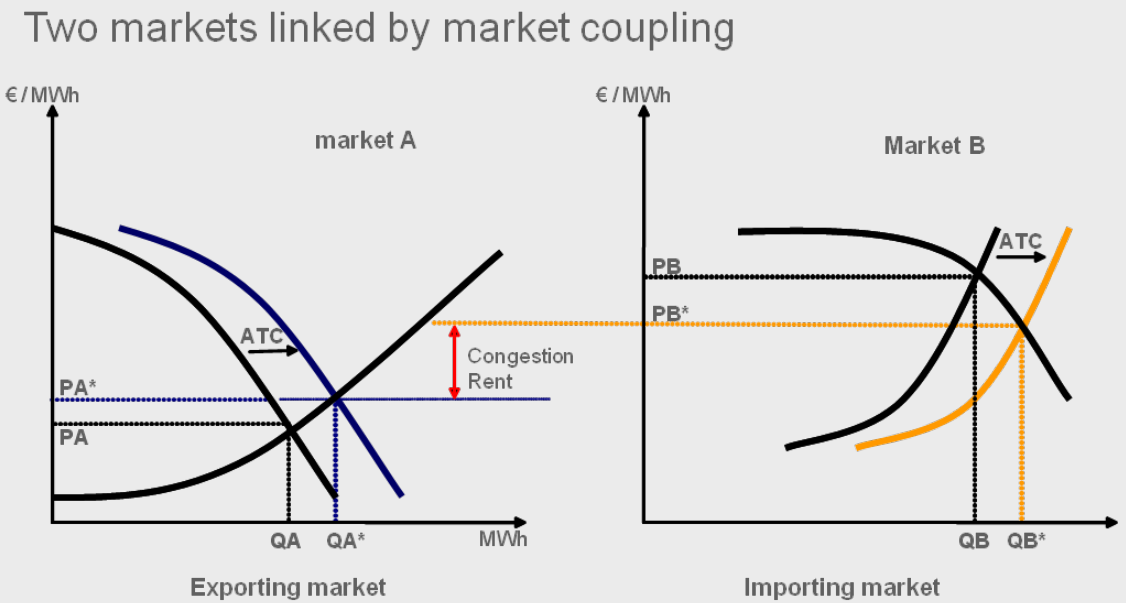
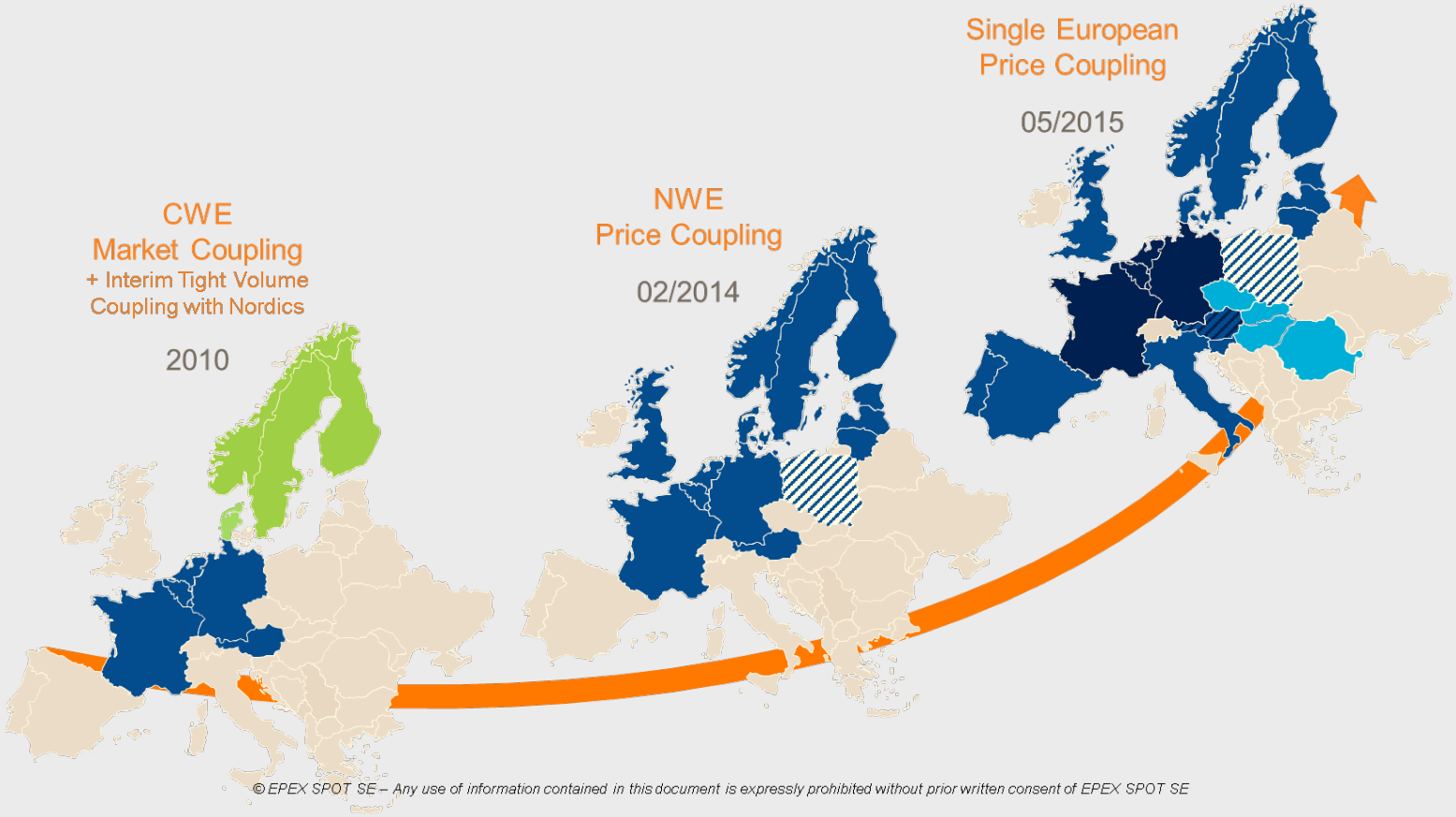


Short history of DA market coupling



Guideline on Capacity Allocation and Congestion Management

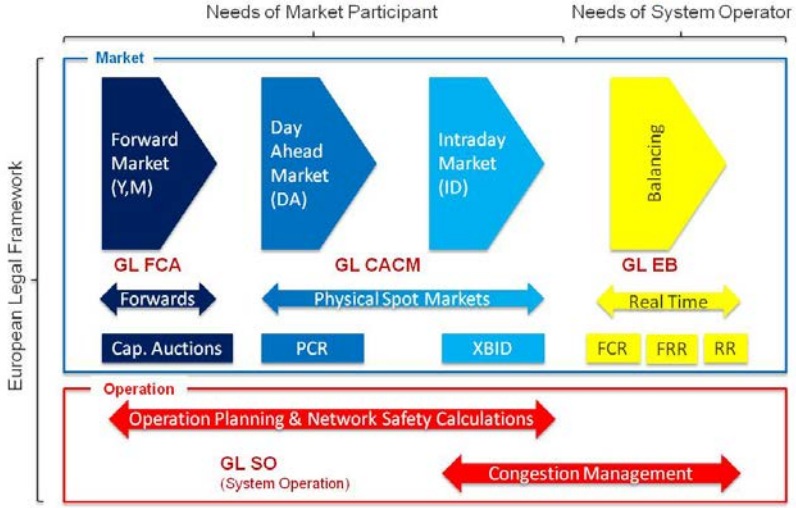
What is CACM all about?

Overview Network Codes/Guidelines

System Operation related Guidelines	• Operational Security • Operational Planning & Scheduling • Load Frequency Control & Reserves • Emergency & Restoration
Grid Connection related Guidelines	• Requirements for Generators • Demand Connection Code • HVDC Connection Code
Market related Guidelines	• Capacity Allocation & Congestion Management • Forward Capacity Allocation • Balancing Network Code

Based upon: APG, 2017

The new Market Design for Electricity



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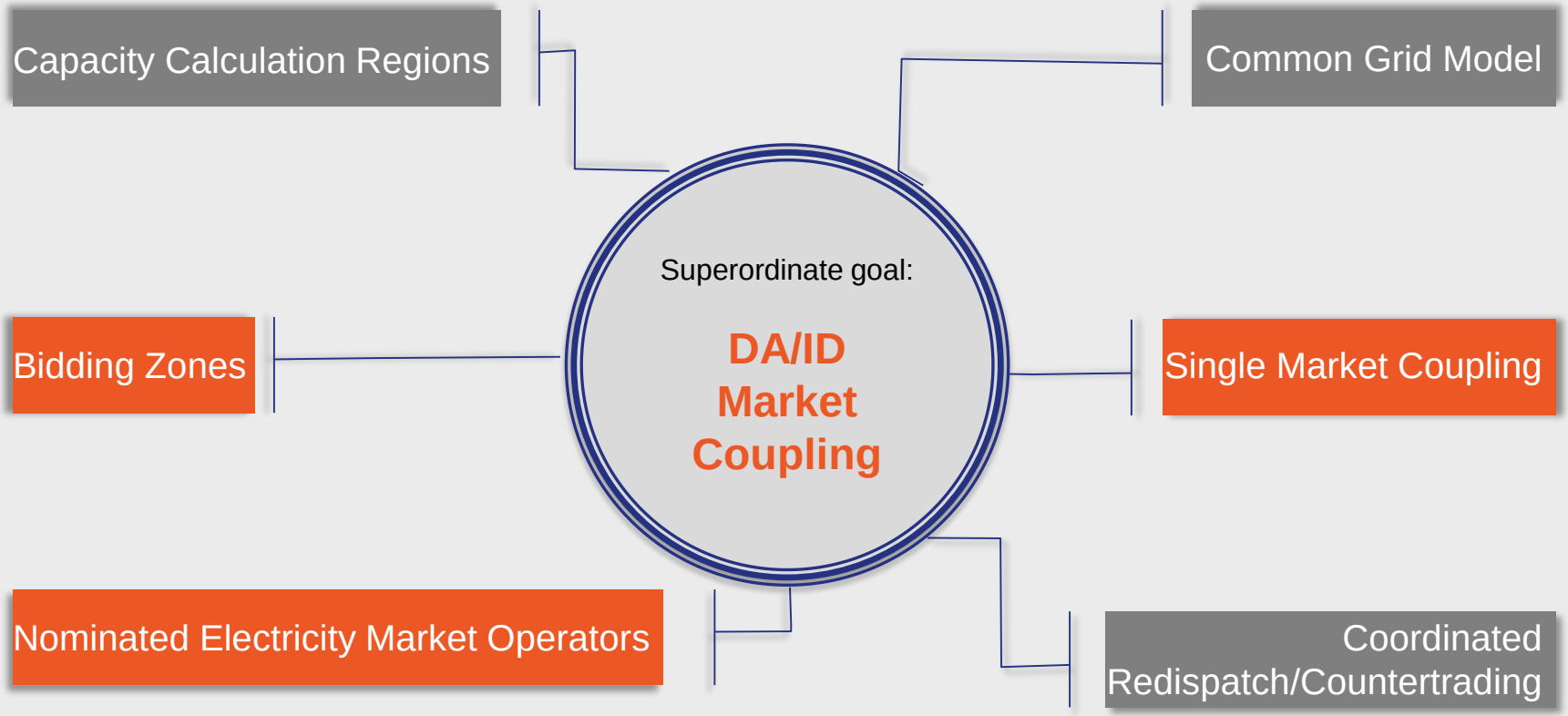
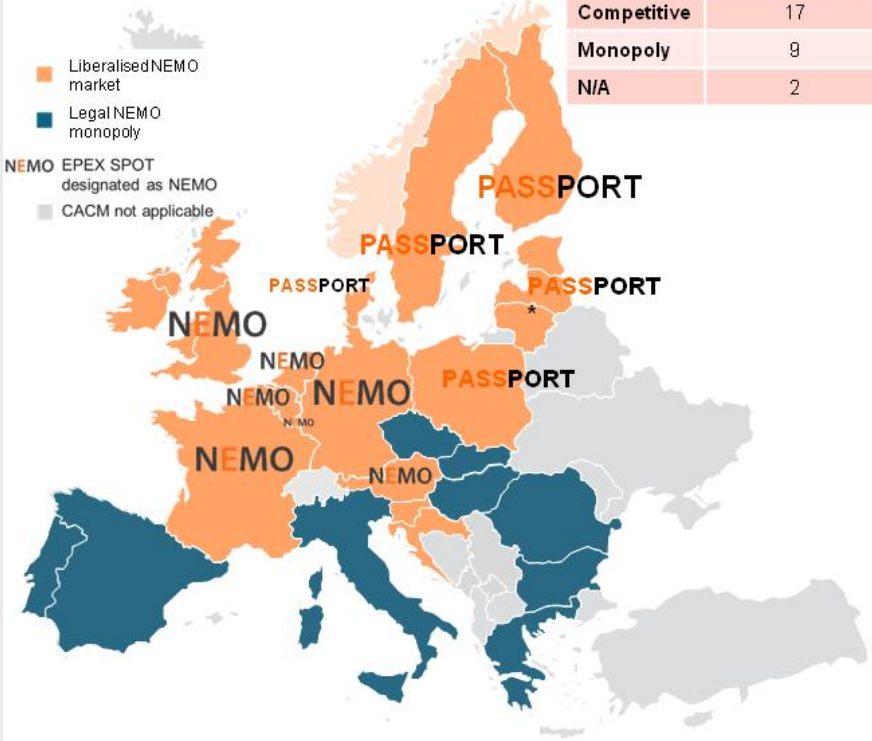


How are power exchanges impacted?



	Member States	% Production
Competitive	17	70.3%
Monopoly	9	29.4%
N/A	2	0.2%

NEMO (D-A / ID)	Country
EPEX SPOT	LU, DE, FR, GB, NL, AT, BE, DK, SE, PL, FI, EE, LV, LT
NORD POOL	DK, EE, FI, LV, LT, SE, AT, FR, GB, NL, DE, BE, PL, IRL
EXAA	Austria
POLPX	Poland
EIRGRID, SONI	Ireland, Northern Ireland
BSP	Slovenia
CROPEX	Croatia
OMIE	Spain*, Portugal*
GME	Italy*
HUPX	Hungary*
OTE	Czech Republic*
OKTE	Slovakia*
OPCOM	Romania*
LAGIE	Greece*
IBEX	Bulgaria*

* Legal monopoly

http://www.acer.europa.eu/en/electricity/fg_and_network_codes/cacm/pages/nemo%20list.pdf

How are power exchanges impacted?

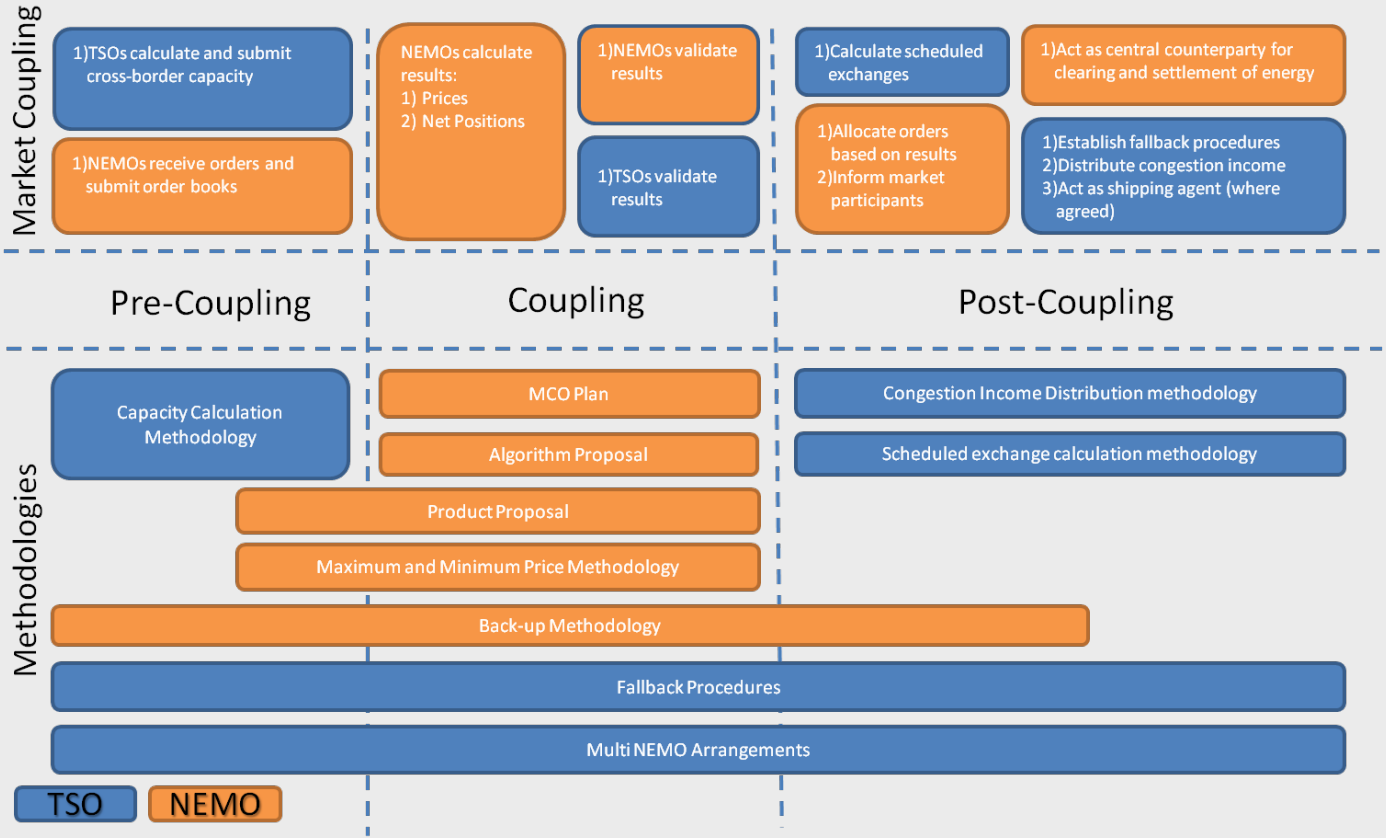
- **Power Exchanges are formally recognized in the third energy package for the first time**
- **Market coupling is formally recognized and becomes subject to European regulation**
- **The terms Nominated Electricity Market Operator and Market Coupling Operator (Function) are created – they are not fully consistent with the concept of a power exchange**
- **A new form of cooperation between NEMOs at European level needs to be established**

Who are the main players under CACM?

	Authorities	System Operators	Marketplaces
European	EU COM, ACER	ENTSO-E	INC
Regional			NEMOs
National	NRAs	TSOs	NEMOs

- **Who is foreseen to be in charge of the main deliverables?**
- **Who is considered the approving body/authority?**
- **What kind of escalation route is provided in the various cases?**
- **What are the first experiences with CACM?**

Who are the main players under CACM?



The Role of Nominated Energy Market Operators under CACM

The NEMO tasks

- Implementing the Market Coupling Operator (MCO) functions
- Establishing collectively all requirements for the single intraday and single day-ahead coupling and the respective algorithms
- Determining maximum and minimum prices
- Making anonymous and sharing the received orders
- Assessing and validating the result calculated by the MCO function
- Publishing results and informing market participants
- Acting as central counterparty for clearing and settlement
- Establishing jointly back-up procedures for national or regional markets
- Providing jointly cost forecasts and cost information the NRAs and TSOs

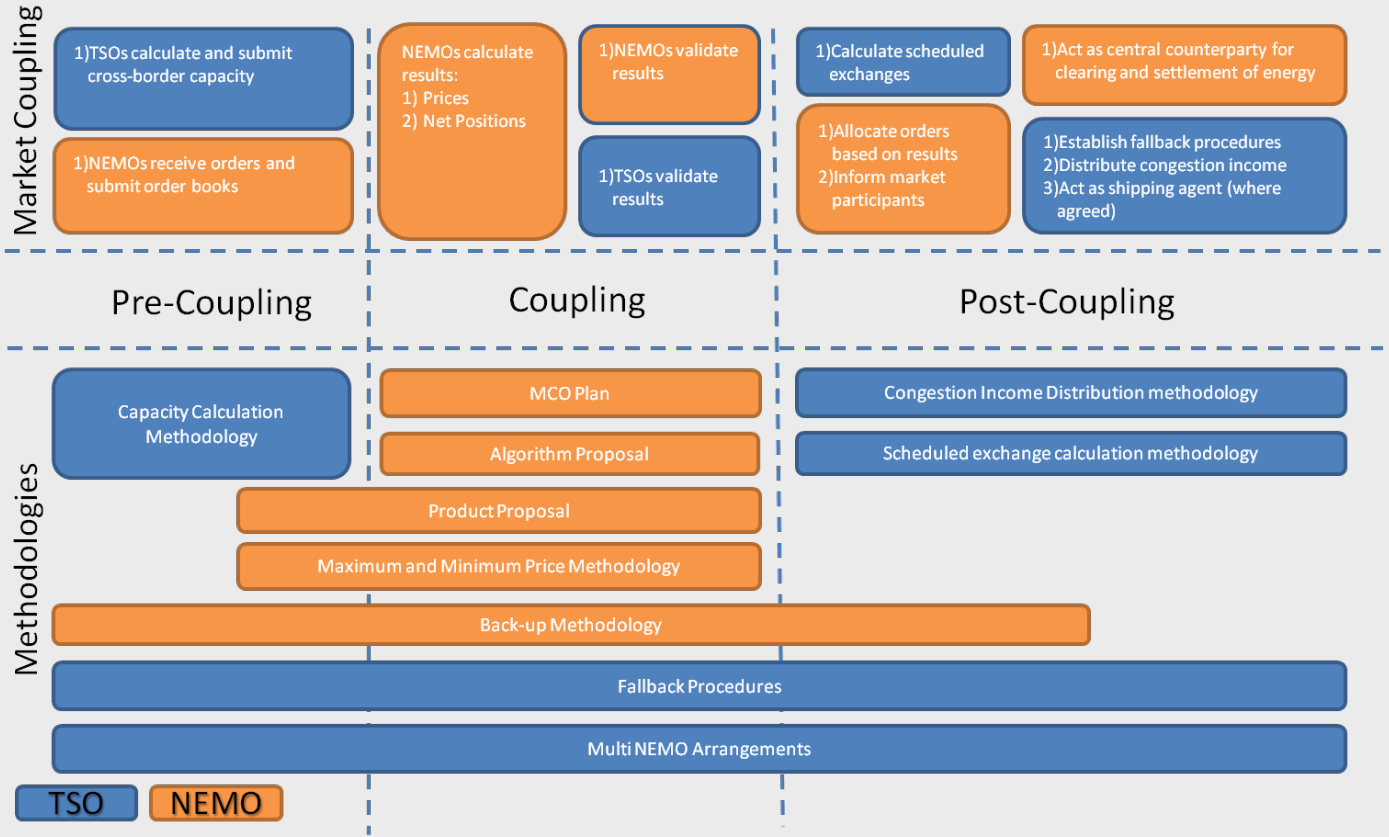
The MCO function

- Develop and maintain algorithms, systems and procedures for single day-ahead and intraday coupling
- Process input data on cross-zonal capacity and allocation constraints
- Operate price coupling and continuous trading matching algorithm
- Validate and send single day-ahead and intraday coupling results to the NEMOs

The MCO plan

- Introduction
- Definitions
- **General principles for NEMO cooperation**
- **All NEMO Committee** (All NEMO Cooperation Agreement: cooperation, escalation & decision-making)
- **Implementation timeline** (milestones and go-live dates)
- **Day Ahead cooperation** (different options and roles, daily sequences)
- **Intraday cooperation** (matching process and daily sequences)
- **Expected Impact of CACM methodologies on MCO plan**

NEMO Methodologies



NEMO Methodologies

Methodology	1st proposal	2nd proposal	NRA decision	ACER escalation
Backup	☒	☑	☑	
Products	☒	☑	☑	
Min/Max Prices	☒	☒	☒	☑
Algorithm	☒	☒/?	☒	↯

NEMO Backup Methodology

- **General rules (stress tests, avoidance etc.)**
- **Communication systems: at least one alternative connection for file exchange mechanism & different alternative mechanisms to exchange anonymous input/output**
- **Datacentres: minimum performance requirements and secondary centres on voluntary basis**
- **Backup Coordinator**
- **Algorithm computation process: pre-tested alternative configurations**
- **Results confirmation: commonly agreed procedures to address rejections**
- **Timings**

NEMO Products Methodology

- **Agreement on market time unit**
- **Complex orders:**
  - economic conditions addressing a minimum income or a maximum payment condition
- **Block orders:**
  - linked block orders
  - exclusive groups of block order
- **Other order types (merit orders, PUN orders)**

NEMO Min/Max Prices Methodology

DA prices

+3000/-500 EUR/MWh as starting point and automatic adjustment of price cap by + 1000 EUR/MWh in case 60% of max price has been reached once

Implementation timeline for increased cap: next day, but implementation in bidding zones 5 weeks after trigger event; further increase by +1000 EUR/MWh in case 60% of the new max price cap has been reached in the meantime.

ID prices: +/- 9999 EUR/MWh: increase in case the DA price reaches the ID level

Regulated Competition or Self-Interested Cooperation?

Competition or cooperation?

Which changes have been introduced by CACM?

- No voluntary cooperation anymore
- New regulatory layer
- New form of competition introduced by the concept of shared liquidity

In which regard are PXs/NEMOs forced to cooperate?

- Operation and implementation
- Methodologies
- NEMO committee

What about competition?

- Different situation across Europe (monopolies, market evolution)
- Prices/Service quality/additional products and services

What are the effects of this piece of regulation?