CACM IMPLEMENTATION

Status update

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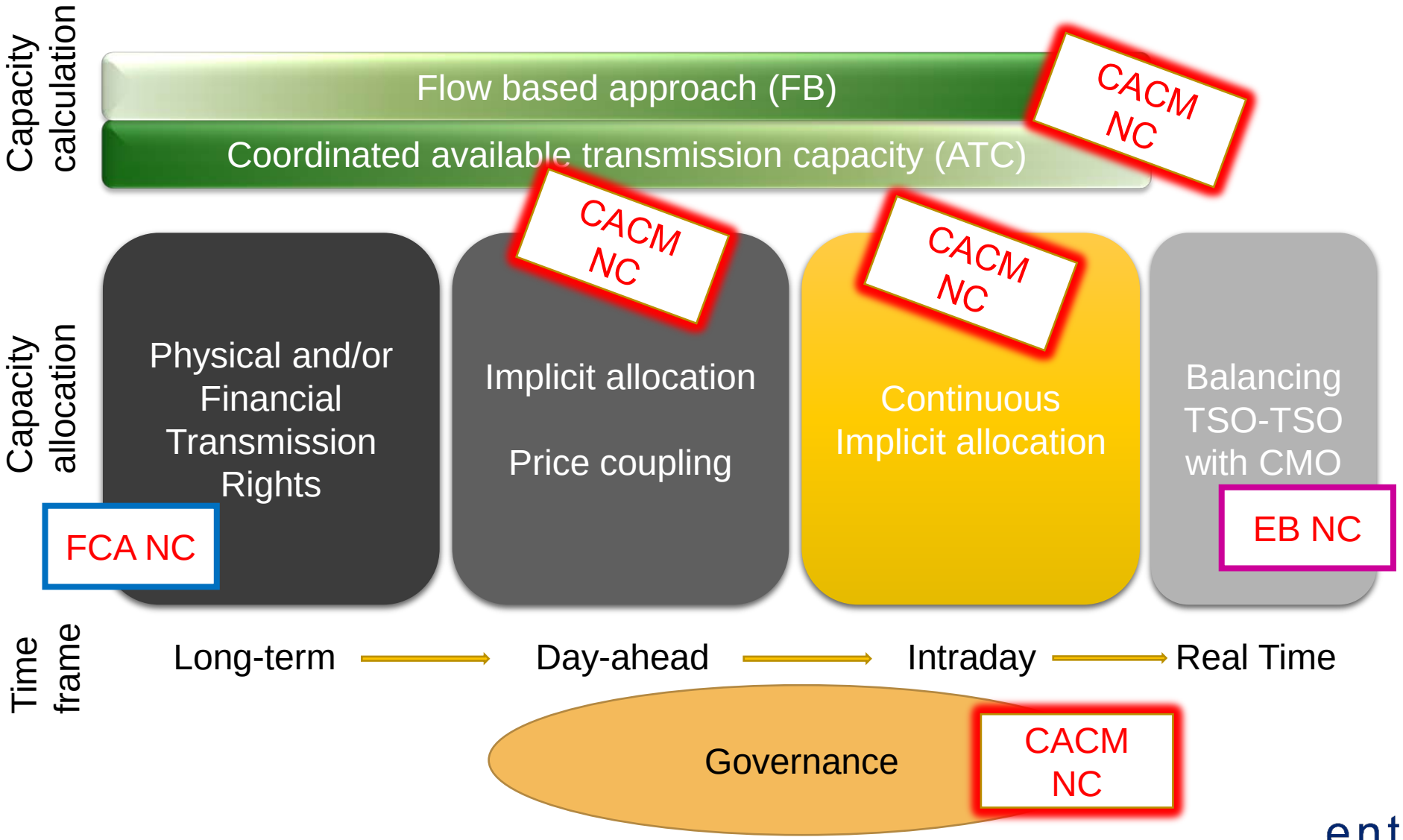
The basics: The EU Target Model



ENTSO-E/All TSOs implementation tasks for 2015 and 2016

EUROPEAN TASKs lead by ENTSO-E and TSOs	Relevant article	Responsible in CACM GL	Estimated date for consultation with Stakeholders	Legal deadlines for submission
Determination of capacity calculation regions	15	All TSOs	September 2015	November 2015
Monitoring plan for Agency opinion	82(3)	ENTSO-E	Not required	February 2016
Requirements for the Price Coupling & Continuous Matching Algorithm for DA and ID	37(1)	All TSOs	Not required	April 2016
Generation and Load Data Provision Methodology	16(1)	All TSOs	February 2016	June 2016
Common Grid Model Methodology	17(1)	All TSOs	February 2016	June 2016
Congestion Income Distribution Methodology	73	All TSOs	Not required	August 2016
Methodology for scheduled exchanges	43(1), 56(1)	TSOs which will calculate SE	July 2016	December 2016
Day Ahead Firmness deadline	69	All TSOs	July 2016	December 2016
Intraday Cross Zonal Gate Opening and Closure time	59(1)	All TSOs	July 2016	December 2016

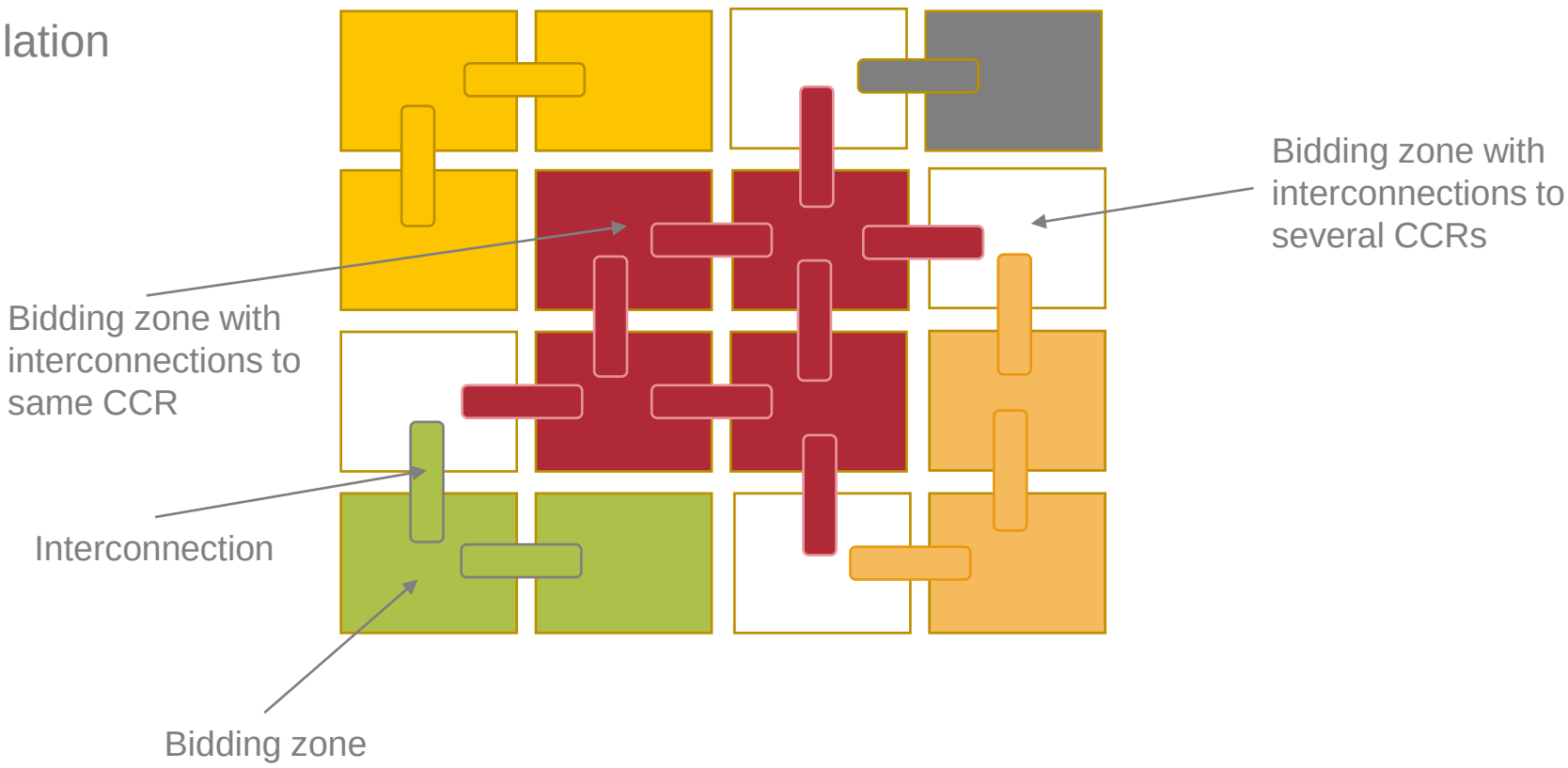
ENTSO-E/All TSOs implementation tasks for 2015 and 2016

REGIONAL TASKs lead by ENTSO-E and TSOs	Relevant article	Responsible in CACM GL	Estimated date for consultation with Stakeholders	Legal deadlines for submission
Fall back	44	Each TSO in cooperation with all TSOs of the CCR	July 2016	December 2016
Common coordinated capacity calculation methodology for CCR	20 (2)	TSOs of the CCR	December 16	March 2017 (depends on CCRs approval- estimated in May 2016)
Common framework for coordination and compatibility of flow-based methodologies across regions	20 (2)	Some CCR (CWE, CEE, IT north borders, BG-RO-HR-GR)	December 16	March 2017 (depends on CCRs approval- estimated in May 2016)

Other TASKs for ENTSO-E and TSOs not lead by ENTSO-E or TSOs	Relevant article	Responsible in CACM GL	Estimated date for consultation with Stakeholders	Legal deadlines for submission
Common set of requirements for price coupling & continuous matching algorithm	37(3)	All NEMOs supported by all TSOs	May 2016	September 2016
List of information to be communicated by ENTSO-E to the Agency	82(4)	ACER in cooperation with ENTSO-E	Not required	February 2016

The basics: Definition of Capacity Calculation Region

Each Bidding Zone border shall be attributed to one Capacity Calculation Region according to CACM regulation



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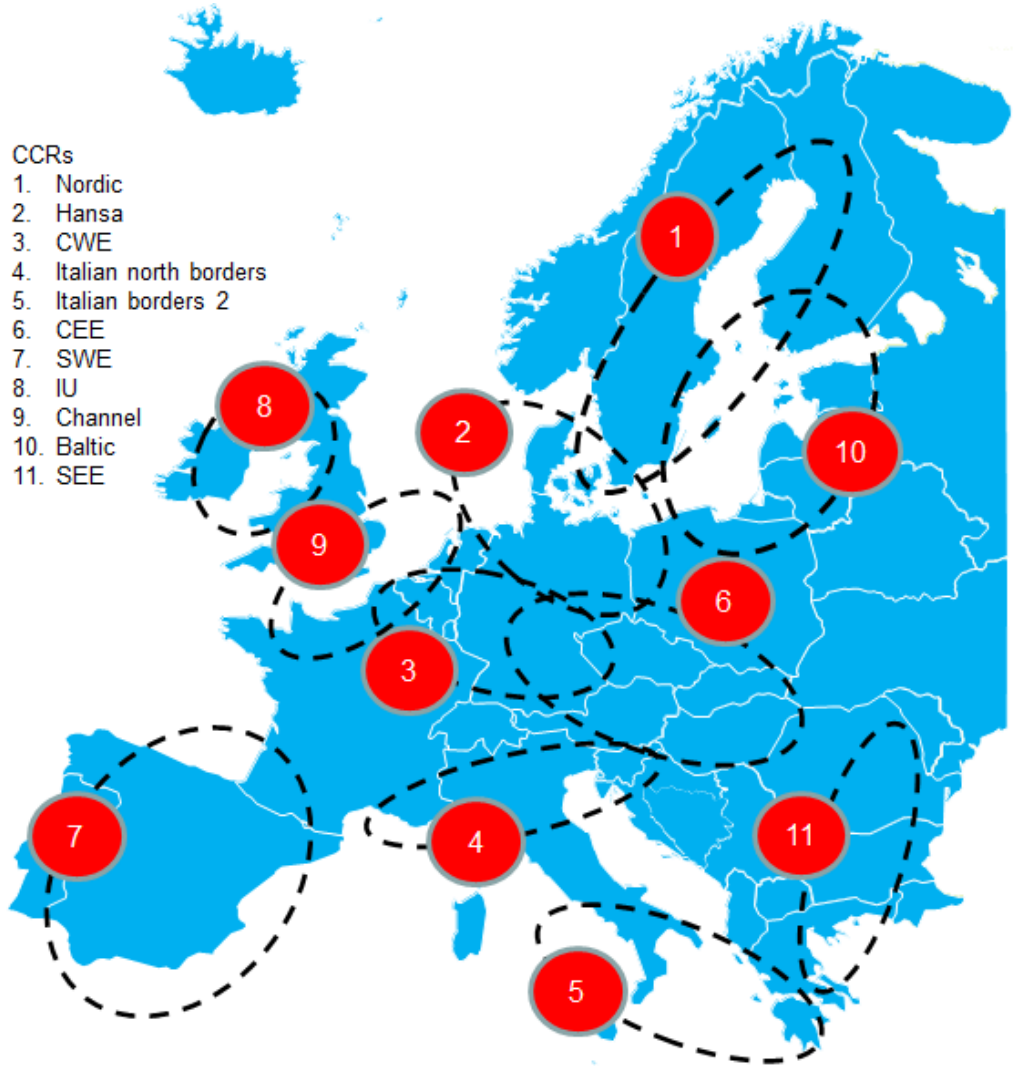
Capacity Calculation Regions (CCRs) – TSOs' Rationale

The CCR Proposal is based on interdependencies of power flows.

TSOs had also to consider externalities:

- Legal/political conditions (e.g. Switzerland)
- Need for smooth transition
  - from existing arrangements
  - into next step(s)
  - and ultimately into target
- Uncertainties that will be resolved by experience (learning by doing: e.g. Hansa, Chanel, Baltic)



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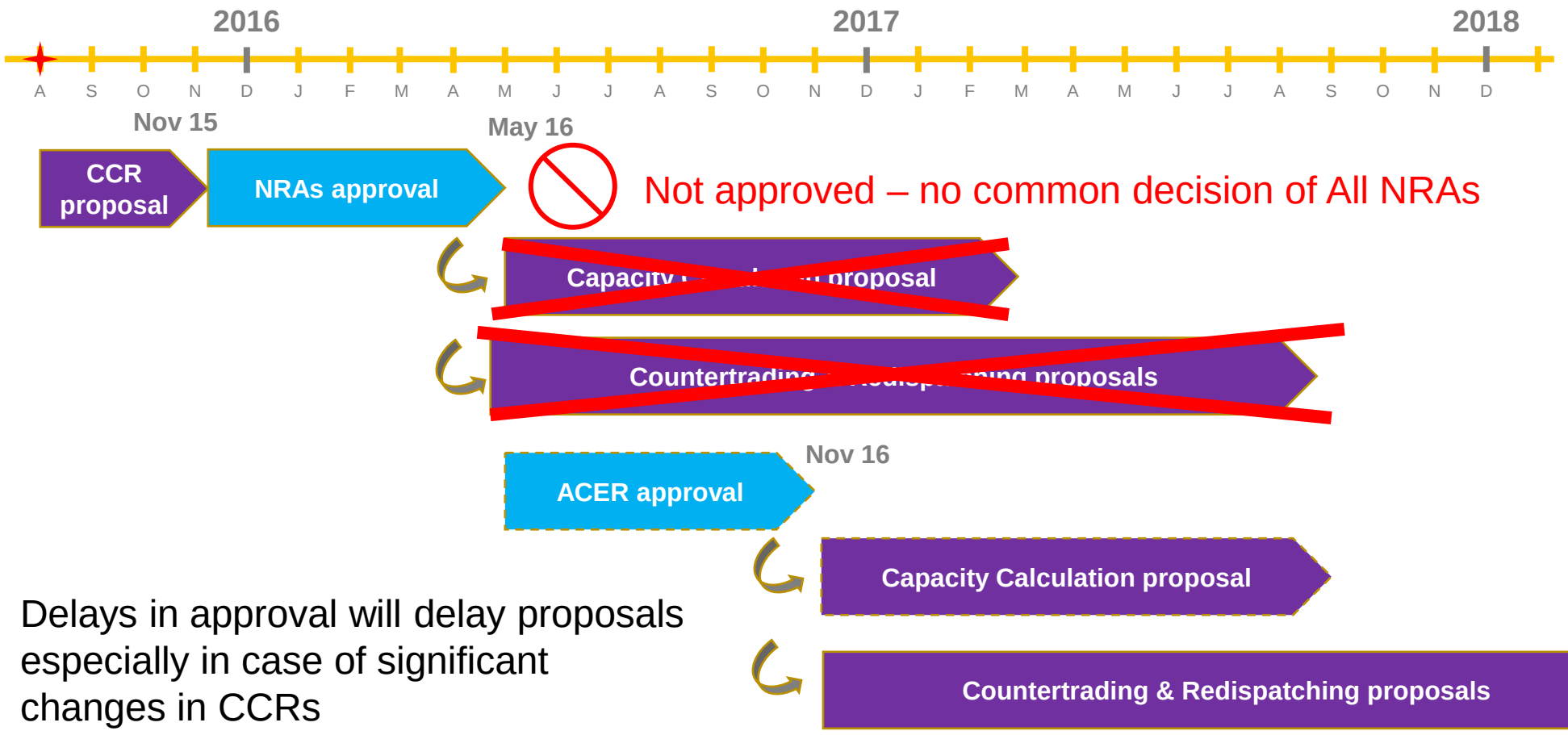
Capacity Calculation Regions (CCRs) – TSOs' Rationale



Delays in approval will delay proposals especially in case of significant changes in CCRs

Further legal uncertainty:
TSOs of CCRs have to consult proposal before CCRs have been approved
- How to proceed with this?

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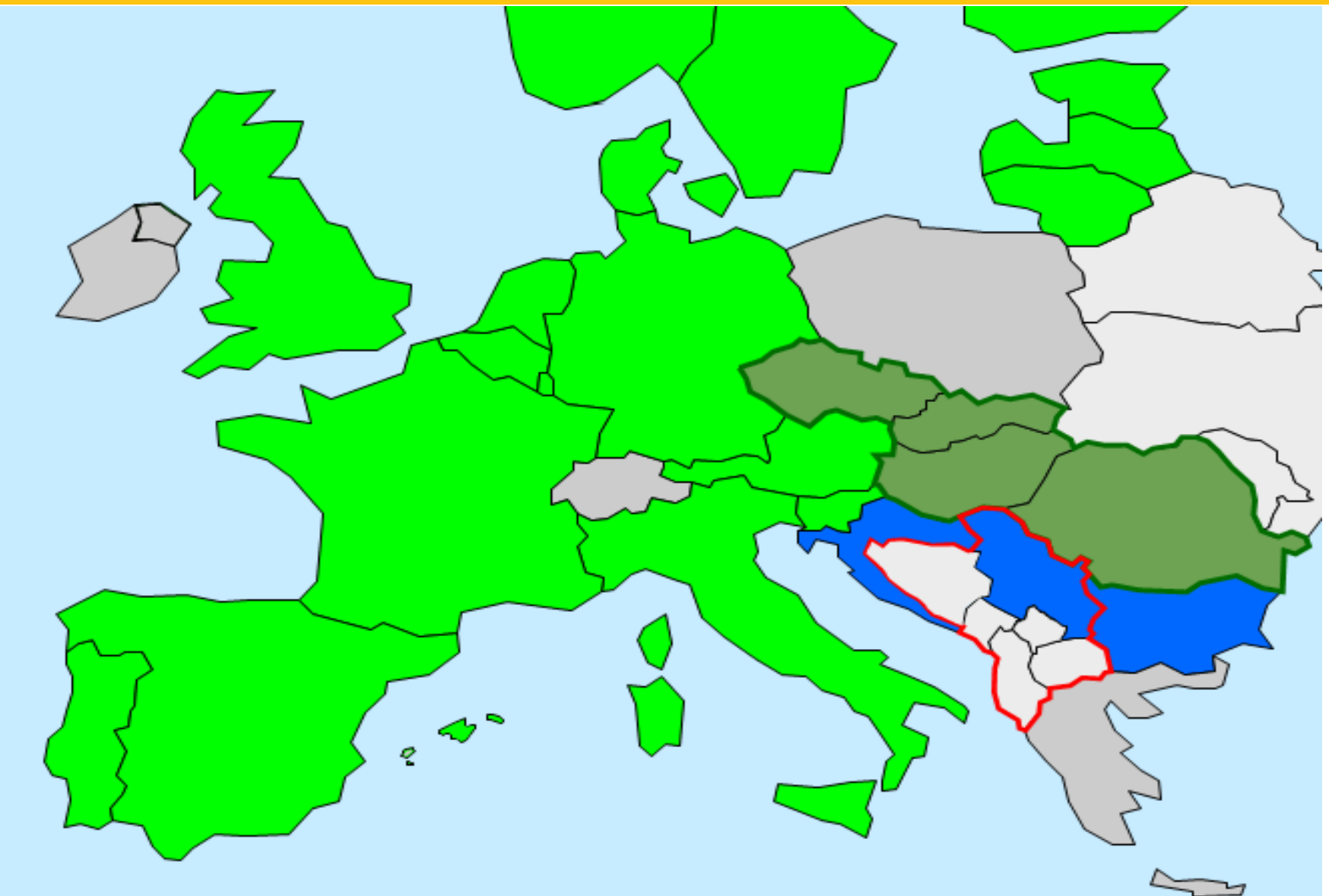
Benefits of Implementing the CACM GL

ACER/CEER estimate that "'social welfare losses' in Europe due to the lack of market coupling amount to more than €400 mil/y. This would mean an annual "social welfare gain" of around €12.5 mil/GW of available cross-border capacity,

Day-ahead Market Integration, Current state



New power exchanges

4MMC

MRC (PCR)

Non coupled

WB6

DA MC Algorithm

- Algorithm methodology is a NEMO responsibility under CACM, in coordination with TSOs → need to comply with CACM requirements
- Next step according to CACM is for NEMOs to propose a first draft of the Algorithm Methodology to TSOs in July
- Algorithms such as **Euphemia** are subject to continuous development as requirements evolve and geographic expansion/demand-driven complexity increases. The key issue is not which algorithms are proposed by NEMOs at this specific point in time, but rather how the ongoing process of development is governed.
- Such developments should be subject to appropriate change management controls, but this should not necessarily imply a formal modification to the Methodology.

Governance objectives

Several key objectives can be identified for the effective governance of the algorithm:

1. Stakeholder assurance
   a) Measuring algorithm performance
   b) Transparency (e.g., performance; explanation of Euphemia)
   c) Accountability (e.g., how stakeholder considerations are recognised; review process)

2. Ability to develop Euphemia to meet evolving requirements; resolving conflicting requirements/priorities (including NEMO vs TSO; NEMO vs NEMO)
   a) Process (decision-making; consultation)
   b) Guiding principles/criteria

Indicative Plan for pan-European extension of MRC

Borders	Target time	Remarks
ELES – APG, ELES – Terna	July 2016	
50 Hertz – CEPS, APG – CEPS, APG – Mavir, CEPS – Tennet (DE), ELES – HOPS, HOPS – Mavir	July 2017	NTC-based for 4MMC if CBA verified, else July 2018 - verification or correction of CBA needed by June 2016
Eirgrid – NG/SONI – NG	Oct. 2017	Part of I-SEM project
IPTO – Terna	Dec. 2017	Greek legal and regulatory reforms for DA market foreseen in Q2 2016
50 Hertz – PSE, CEPS – PSE, SEPS – PSE, swissgrid – APG/DE-TSOs/RTE/Terna	July 2018	Flow-based coupling with merger CWE and CEE CCRs, s.t. development+testing going well; swissgrid coupling s.t. EU political agreement, could also be earlier with NTC once politically solved
EMS – HOPS, EMS – Mavir, EMS – NOS BiH, EMS – Transelectrica, HOPS – NOS BiH	July 2020	Possibly faster if fewer new PXs are founded (see above)
CGES – NOS BiH, CGES – OST, EMS – ESO, EMS – KOSTT, EMS – MEPSO, ESO – IPTO, ESO – Transelectrica, IPTO – MEPSO, KOSTT – MEPSO, KOSTT – OST	?	Possibly faster if fewer new PXs are founded (see above)

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