

ELECTRICITY BALANCING GUIDELINE AND IMPLEMENTATION

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Energy Community

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Journey so far..

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The Electricity Balancing
Guideline

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Implementation
Organisation

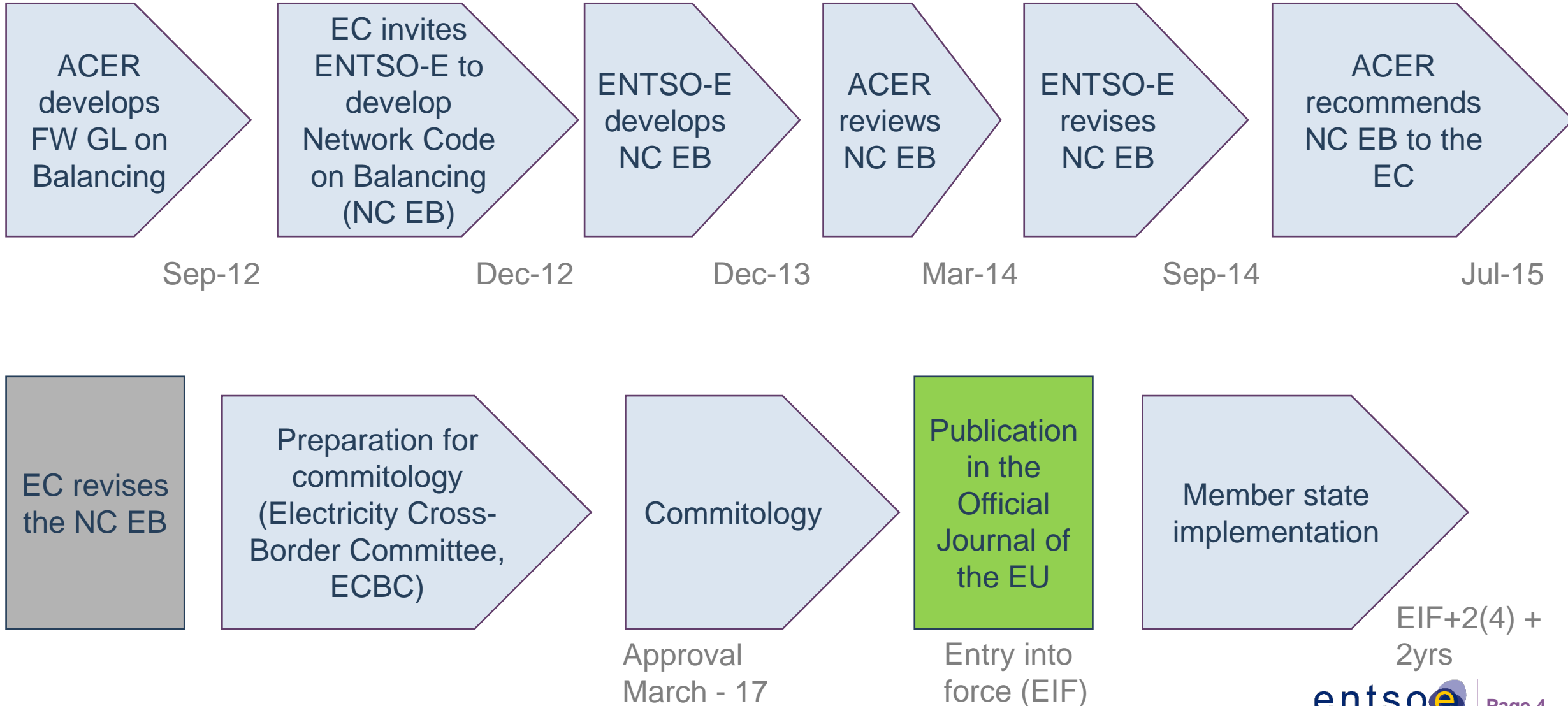
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Implementation



Journey so far..

Journey so far..



A photograph of a conference room, likely the European Parliament, with a large stack of papers on a desk in the foreground. The room features blue seating, microphones, and a large European Union flag on the wall. Other flags are visible in the background. A purple semi-transparent box is overlaid on the left side of the image, containing the title text.

The Electricity Balancing Guideline

The EB GL

Title 1
General Provisions

Title 2
Elec. Balancing
Market

Title 3
Procurement

Title 4
Cross Zonal
Capacity

Title 5
Settlement

Titles 6-10
Various

- **Scope**

- Applies in all system states
- Common principles for the procurement and the settlement of frequency containment reserves, frequency restoration reserves and replacement reserves and common methodology for the activation of frequency restoration reserves and replacement reserves

- **Definitions**

- **Consultation and regulatory approval requirements**

- **Publication of information**

- Detailed requirements for publication of information related to balancing

- **Delegation & Assignment**

- Delegation and assignment of TSO activities
- Settlement processes in several countries performed by a third party

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- **Roles and responsibilities**
 - BSPs, BRPs, TSOs
 - Balancing energy prices not to be predetermined in contracts for capacity
- **Terms and conditions related to balancing**
- **Target articles**
 - Replacement Reserves / Imbalance Netting
 - Manual / Automatic Frequency Restoration Reserves
 - Implementation, governance and operation of European Platforms
- **Requirements for standard and specific products**
 - TSOs jointly design standard products for balancing energy and balancing capacity
 - Specific products used locally or converted
- **Balancing Energy Gate Closure**
 - Must be after 60mins and be harmonised for standard products

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Various

- **Activation of balancing energy bids**
 - Activation for purposes other than balancing
- **Unavailable bids**
 - Requirements for unshared bids
 - Restricted bids allowed for internal congestion
- **Activation Optimisation Function**
 - Common Merit Order Lists
 - TSOs strive to balance system using CMOLs
- **Balancing Capacity**
 - Market based procurement
 - Exchanging balancing capacity in a TSO-TSO model
 - Transfer of balancing capacity between BSPs
 - TSO – BSP Model

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Various

- **Use, calculation and pricing of cross zonal capacity**
- **Exchange of balancing capacity and sharing of reserves**
 - Harmonised proposal for the allocation of cross zonal capacity
 - Allocation of cross zonal capacity for exchanging Frequency Containment Reserves
- **Cooptimised Allocation Process**
 - All TSO proposal
 - Actual market bids and actual balancing capacity bids
- **Market-Based Allocation Process**
 - Capacity Calculation Region Proposal
 - Forecasted market bids and actual balancing capacity bids
- **Allocation Based on economic efficiency analysis**
 - Bilateral basis for DC borders only
 - Forecasted market bids and forecasted balancing capacity bids

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- **Settlement principles**
 - Prices reflecting the real time value of energy
 - Proposals for scarcity pricing
 - Marginal pricing for balancing energy
 - Negative prices allowed
- **TSO-TSO and TSO-BSP Settlement**
- **TSO-BRP Settlement (i.e. Imbalance Settlement)**
 - Harmonisation of main features
 - Imbalance adjustment required for every activation
- **Harmonisation of ISP**
 - Exemption possible on a SA level

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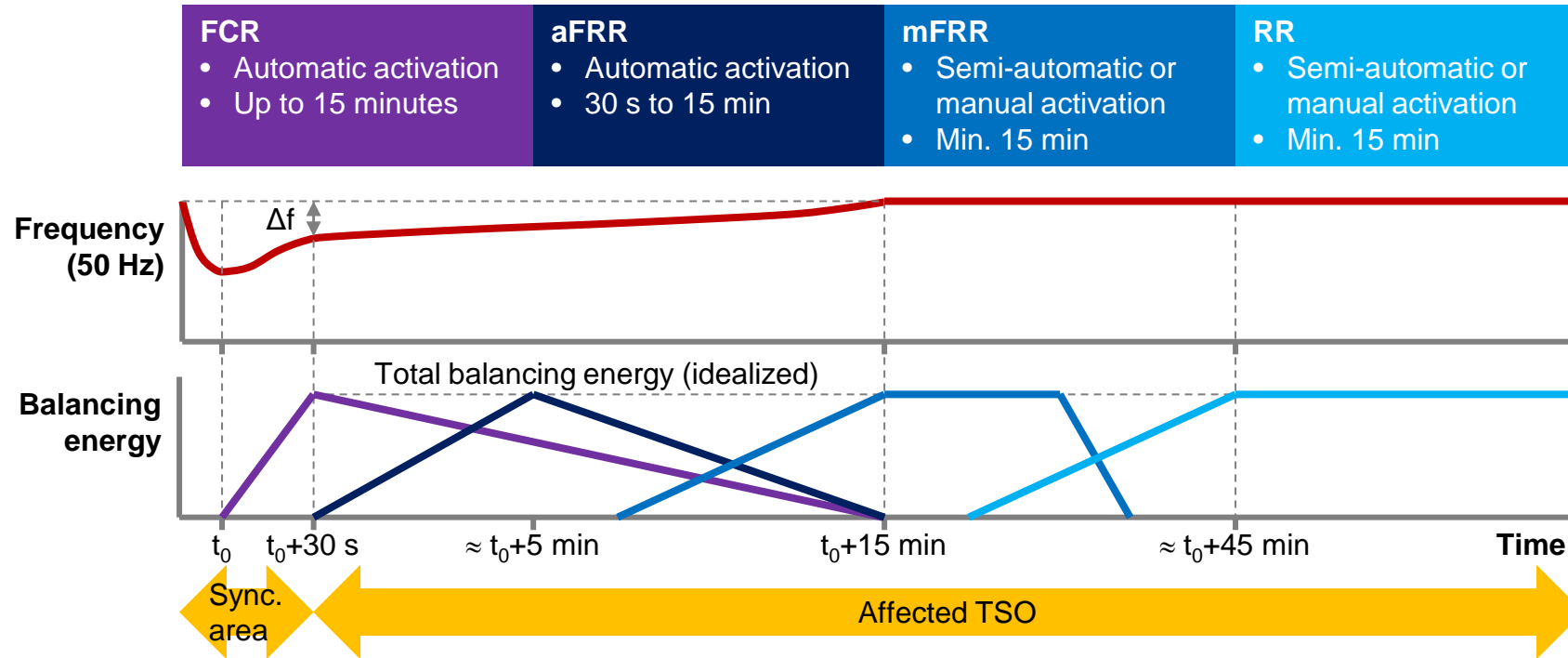
- **Algorithm Principals**
- **TSO reporting and monitoring**
- **Cost Benefit Analysis**
- **Derogations**
 - 2 year derogation can be requested from local NRA
 - Can only be requested once
 - Can be applied to:
 - Deadlines for joining EU platforms
 - Changing gate closure time for ISP process in Central Dispatch Systems
 - Changes associated with imbalance settlement (to avoid changing twice)
- **Transition Period**
 - 1 year transition period for articles without specific timescales



Implementation Organisation

Balancing Qualities

- Balancing qualities according to activation time (without imbalance netting)



- » Balancing is organized in up to five steps (FCR, IN, aFRR, mFRR and optional RR) in Europe
- » Platforms coordinating the (complex) processes of each balancing quality required

Timelines

Obligations	2017				2018				2019				2020				2021				2022				2023			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
RR					Impl Framework EIF+6m						RR EU Platform EIF+2yrs								TSO Join Derogation +2yrs									
Imbalance Netting					Impl Framework EIF+6m						IN EU Platform EIF+2yrs								TSO Join Derogation +2yrs									
mFRR / aFRR								Impl Framework EIF+1yr											FRR EU Platform EIF+4yrs								TSO Join Derogation +2yrs	
Imbalance Settlement								Harmonised Proposal EIF+1yrs						ISP & Proposal Impl EIF+3yrs										ISP Derogation +2yrs-4yrs				
TSO Proposals								Pricing EIF+1yr			CZC Allocation EIF+2yrs																CZC Harm EIF+5yrs	
General Compliance								General Compliance EIF+1yr			Pub Info EIF+2yr																	

Entry into Force

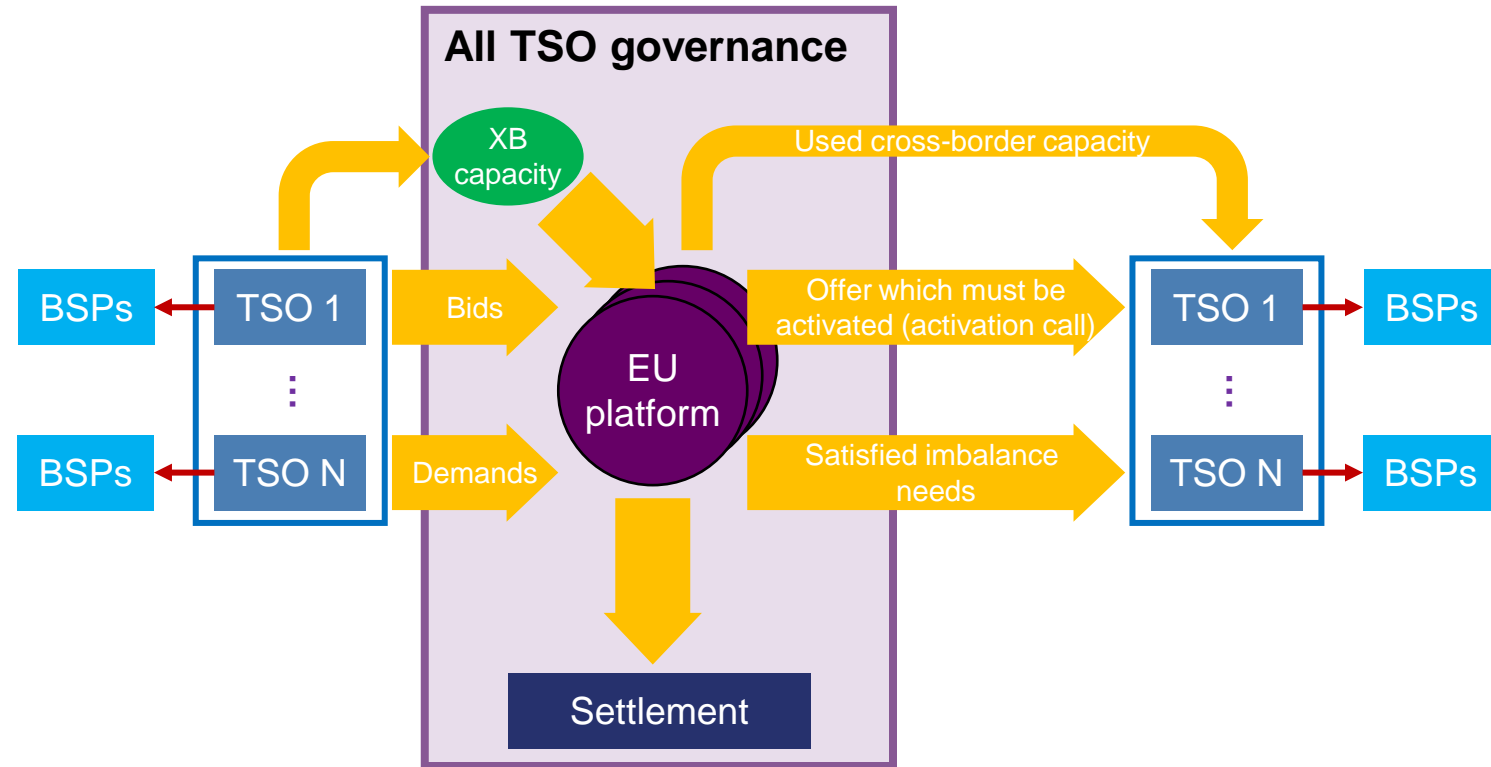
Transition Period

Key Proposal Deadline Derogation

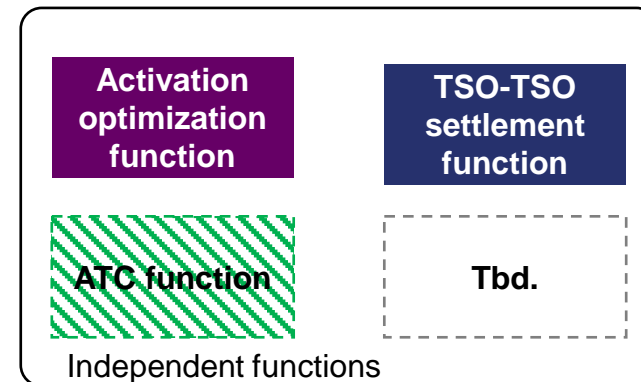
European Platforms

- European platform coordinates balancing energy activation requests of TSOs.
- As a TSO-TSO model is applied, activation requests and communication with national BSPs remains local.
- European platform comprises independent functions closely interacting with different (local) IT systems.

» Platform describes business processes on European level supported by different functions potentially performed by different IT systems.



European processes



ENTSO-E Project Teams and TSOs implementation projects

All TSOs via ENTSO-E Project Teams

- Implementation Frameworks for
 - Imbalance Netting
 - aFRR
 - mFRR
 - RR
- Settlement TSO TSO, TSO BSP, TSO BRP
- Cross Border Capacity Allocation
- Reporting
- Activation purposes
- CBA

TSOs implementation projects

- Implementation Projects for
- Imbalance Netting - IGCC
 - aFRR - ?
 - mFRR - ?
 - RR - TERRE

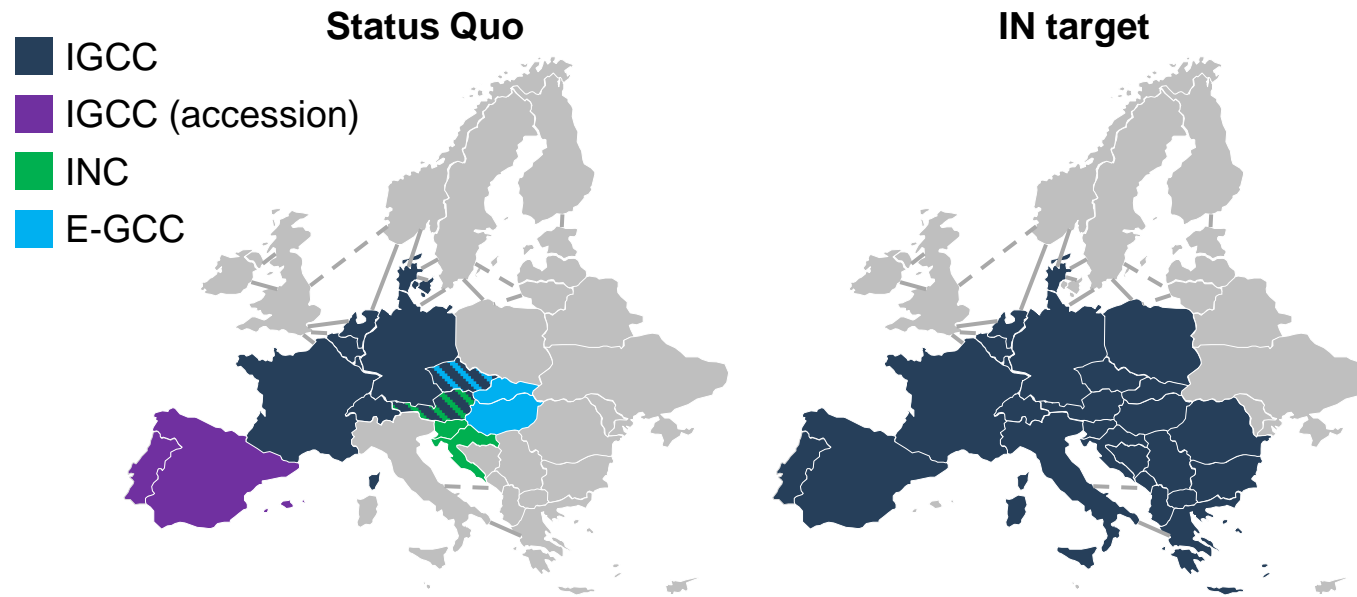
» EnC TSOs are invited to take active part in ENTSO-E project teams



Implementation

Imbalance Netting (i)

- GL EB requires a single Imbalance Netting (IN) in Central Europe.
- International Grid Control Cooperation (IGCC) has been formally identified as implementation project for IN.

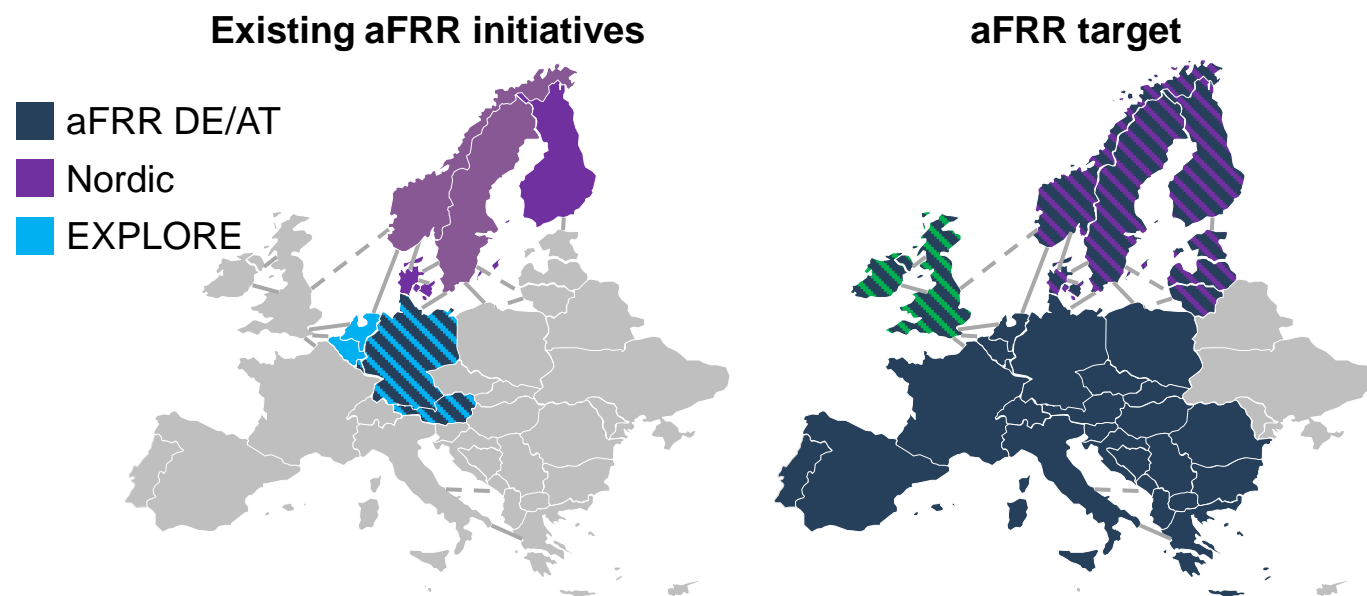


» Different existing cooperations will merge in the future.



Frequency Restoration Reserve with automatic Activation (i)

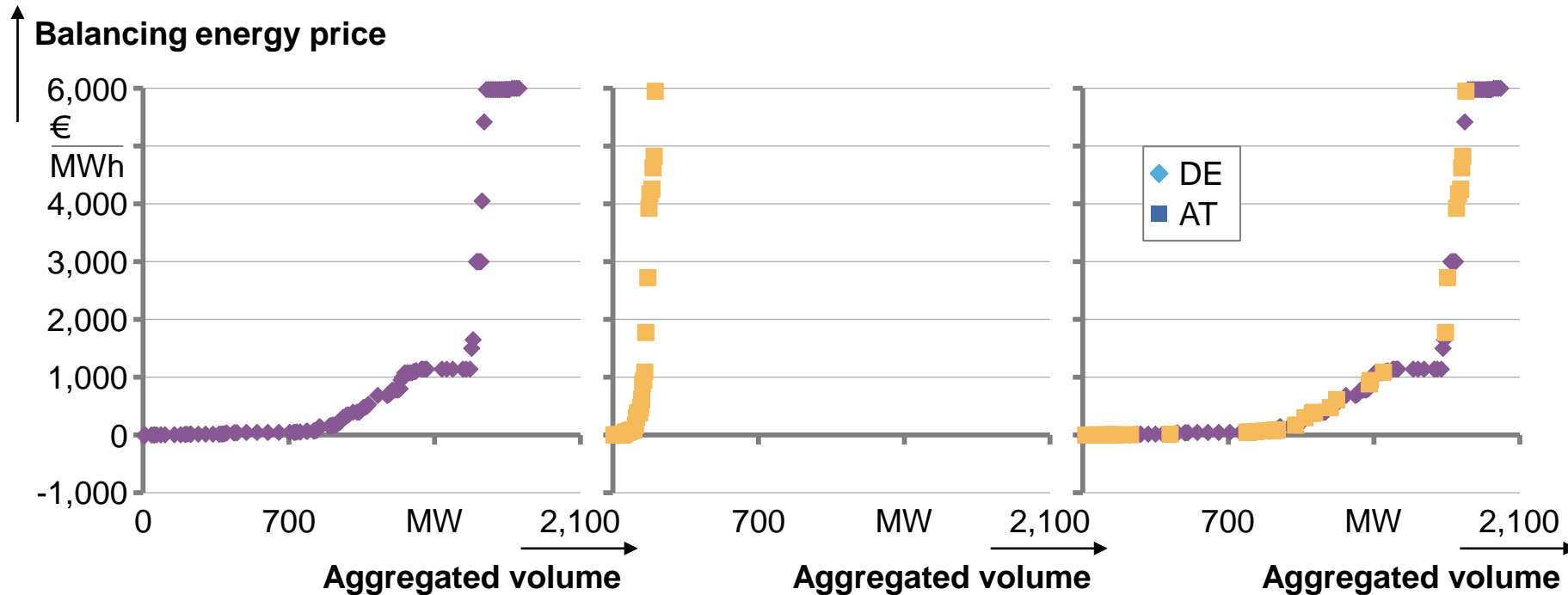
- Currently, different European aFRR initiatives (not all mutual exclusive)
 - aFRR cooperation DE/AT (in operation)
 - Nordic
 - EXPLORE study (report finalized, next steps discussed)



- » Exact layout of EU target model depending on applicability of aFRR (UK, Baltics) and/or technical feasibility of cross-synchronous area exchange of aFRR (Nordics)
- » Discussions regarding aFRR implementation project ongoing

Frequency Restoration Reserve with automatic Activation (ii)

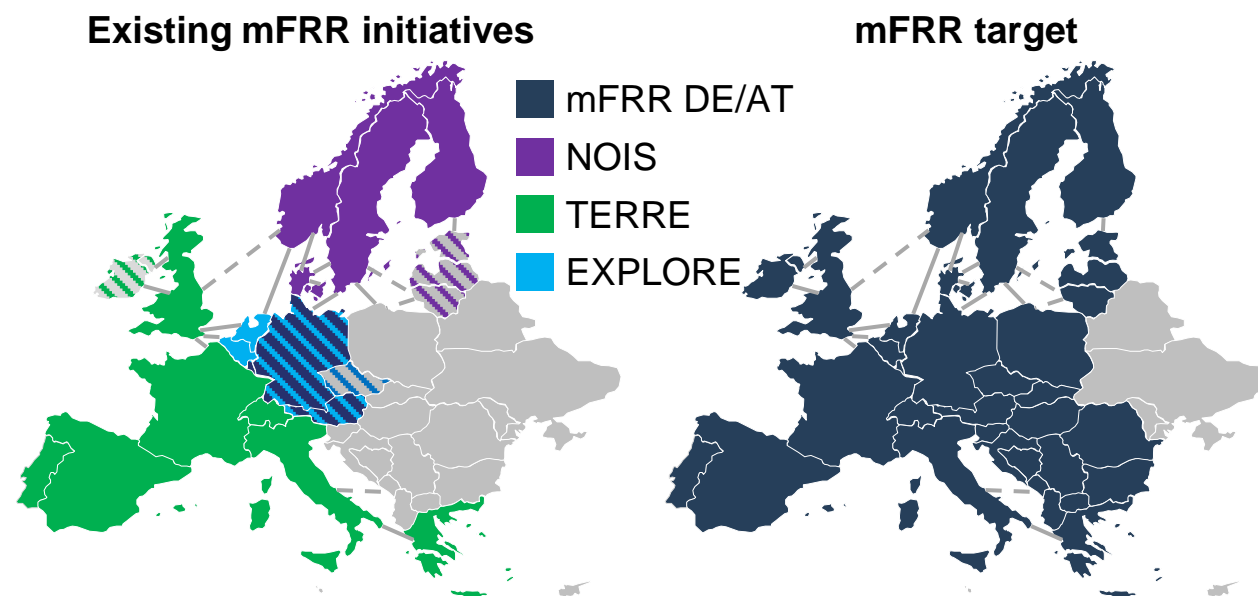
- Exemplary Common Merit Order List (CMOL) for negative aFRR in DE and AT (calendar week 2 of 2017, “off-peak”, pay-as-bid pricing)



- » CMOL extends merit order and avoids high balancing energy prices.
- » Also smaller countries can have a positive impact.

Frequency Restoration Reserve with manual Activation (i)

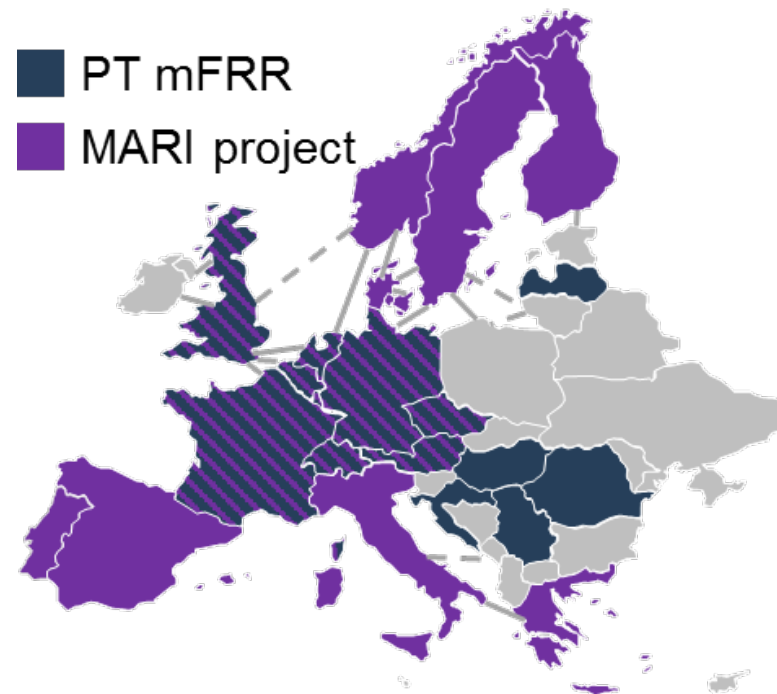
- Various existing/discussed initiatives
 - mFRR cooperation DE/AT (under development, go-live in next months)
 - EXPLORE study (report finalized, next steps under development)
 - TERRE
 - NOIS
 - Amprion/RTE study
- Attempt of European TSOs to combine efforts on mFRR



» Discussions regarding mFRR implementation project ongoing

Frequency Restoration Reserve with manual Activation (ii)

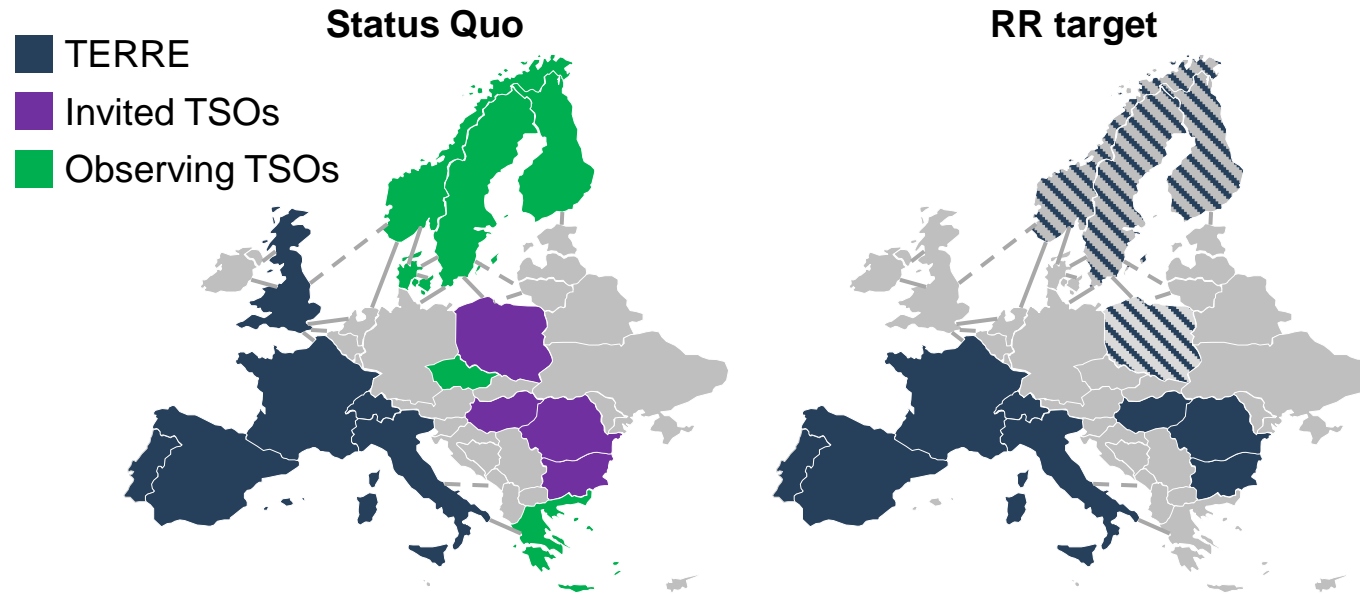
PT mFRR and MARI project



- » Overall approach foreseen in PID seems to work as TSOs active in PT mFRR are not 100 % identical to TSOs active in Mari project
- » Official interaction between PT mFRR and MARI project can only start as soon as MARI project has applied to be the implementation project (IP) according to GL EB.

Replacement Reserve (i)

- Usage of Replacement Reserve (RR) is not compulsory for TSOs.
- Several TSOs performing RR started the project Trans-European Replacement Reserve Exchange (TERRE) before entry into force of GL EB.



- » European TSOs endorsed TERRE as implementation project for RR.
- » Balancing Responsible Parties from countries not performing RR can still offer this balancing quality (via the connecting TSO).

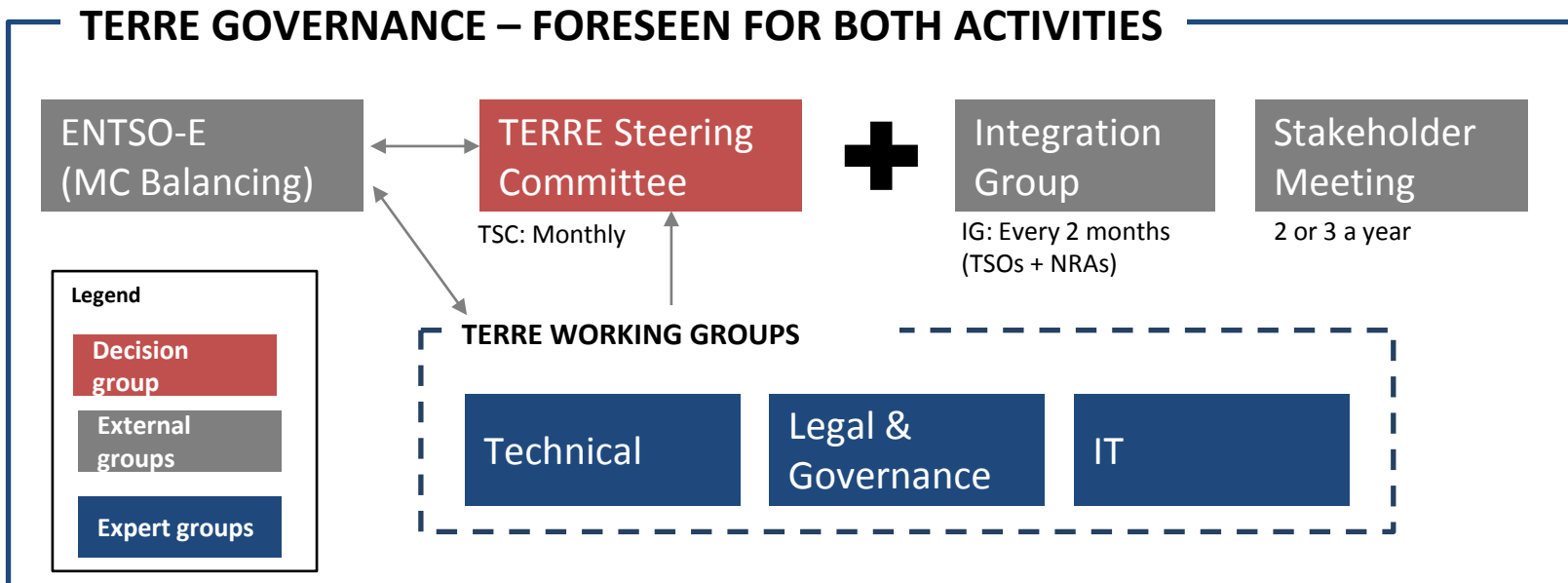
Replacement Reserve (ii) Governance

In order to ease the implementation of the TERRE platform, it has been **agreed by TERRE Steering Committee to consider 2 different types of activities.**



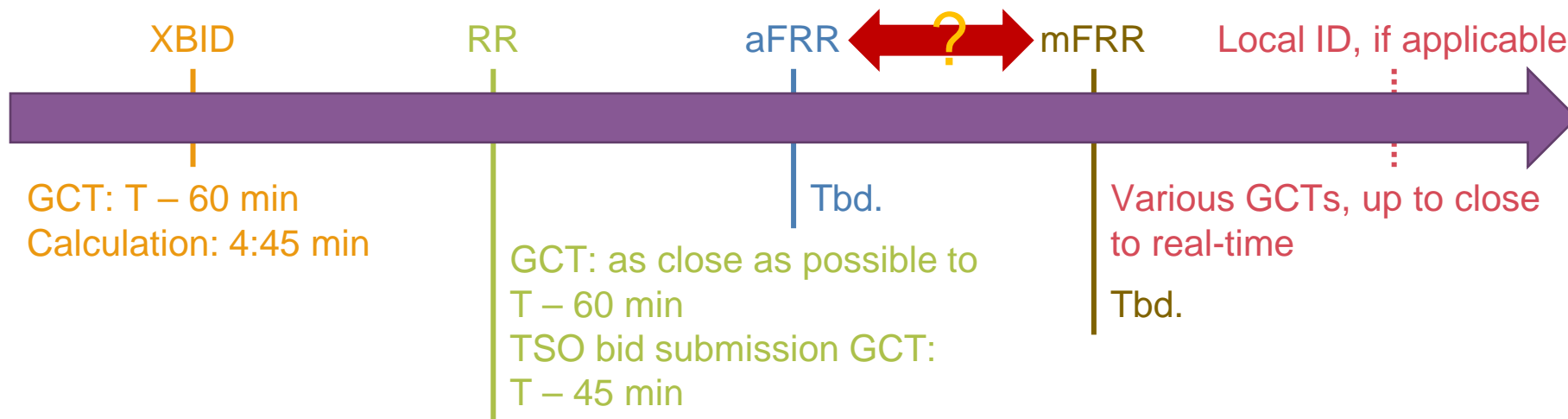
- Centralized Platform Implementation**
- RR CoBA impl. (or equivalent)**

- Clearing Module
- ATC and CMOL data management
- Settlement Module
- Harmonization of local features
- Discussions with the NRAs



Coordination between different Gate Closure Times

- Gate Closure Times (GCTs) of short-term markets for scheduled energy and balancing energy have to be coordinated.



Potential approach

- GCTs aFRR and GCT mFRR after GCT RR
- Interrelation between GCT aFRR and GCT mFRR currently investigated by EXPLORE TSOs
- Local ID GCT seems not to be a backstop for GCT aFRR and GCT mFRR
- However, the frequency of changes in merit order (especially for aFRR) might be a backstop for GCT aFRR.
- » Further technical evaluation required.

Frequency Containment Reserve

- Existing FCR initiative started in 2011 as CH/DE project and has been extended continuously.
- Common demand of 855 MW (more than ¼ of entire European FCR demand)

Current FCR initiative



- » Further extension within a synchronous area (using TRM) is possible.

Conclusion

- Platforms coordinating the (complex) processes of each balancing quality required
 - Trade-off between full harmonization and early starting points for cooperation
 - Current status on implementation project in Europe
 - Different existing IN cooperations will merge with IGCC in the future.
 - European TSOs endorsed TERRE as implementation project for RR.
 - Discussions regarding aFRR and mFRR implementation projects ongoing
 - Further extension of existing FCR cooperation within a synchronous area (using TRM) is possible.
 - Upcoming challenges on aligning GCTs of short-term markets for scheduled energy and balancing energy
- EnC TSOs are invited to take active part in ENTSO-E project teams

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