

Implementation of the Electricity Balancing Guideline

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ENTSO-E

MESC, 8 June 2018

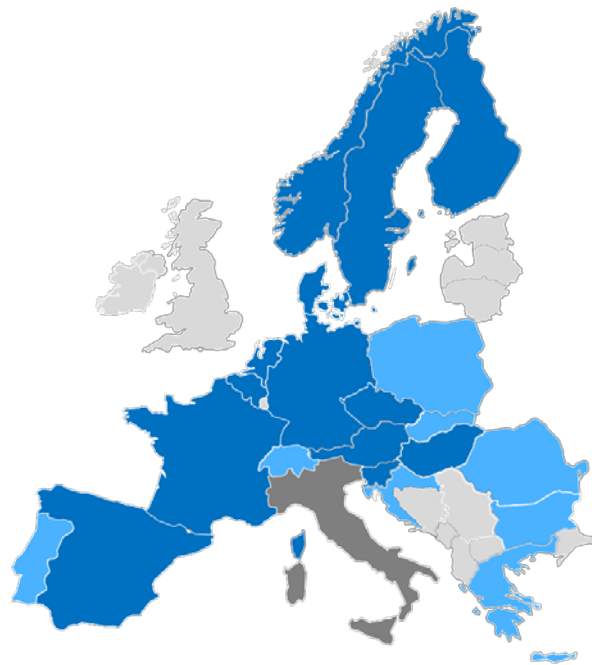
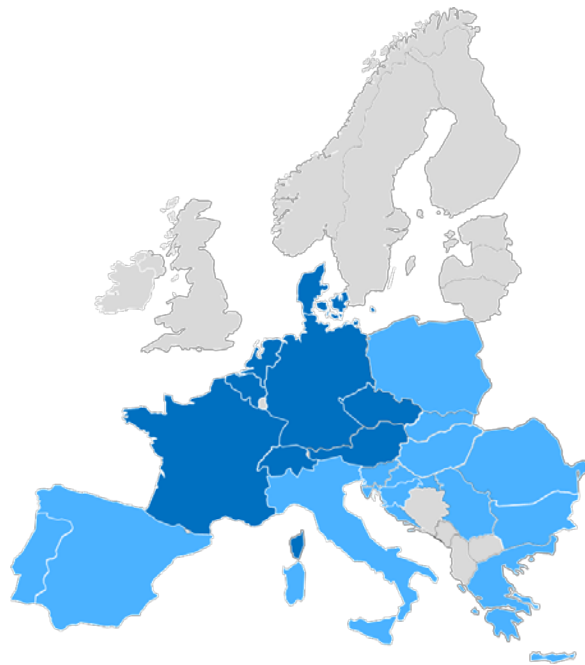
Balancing implementation projects - status

Imbalance netting:
IGCC

aFRR: **PICASSO**

mFRR: **MARI**

RR: **TERRE**



Member

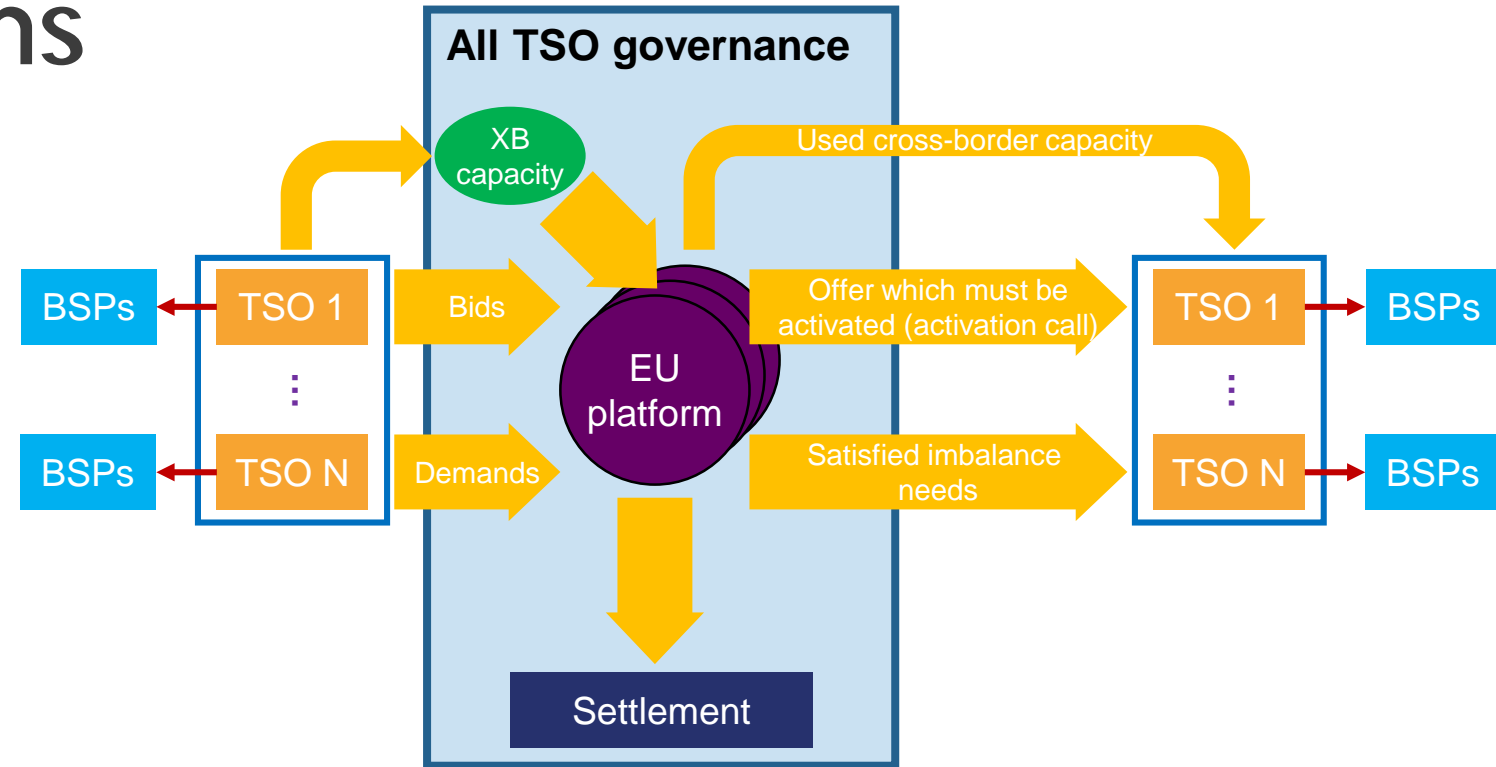
Observer

Potential interest

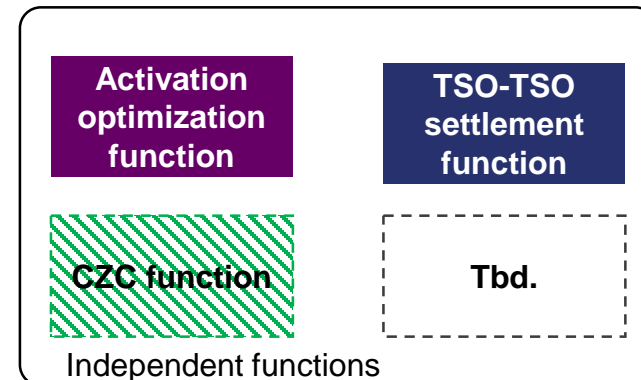
Missing

European platforms

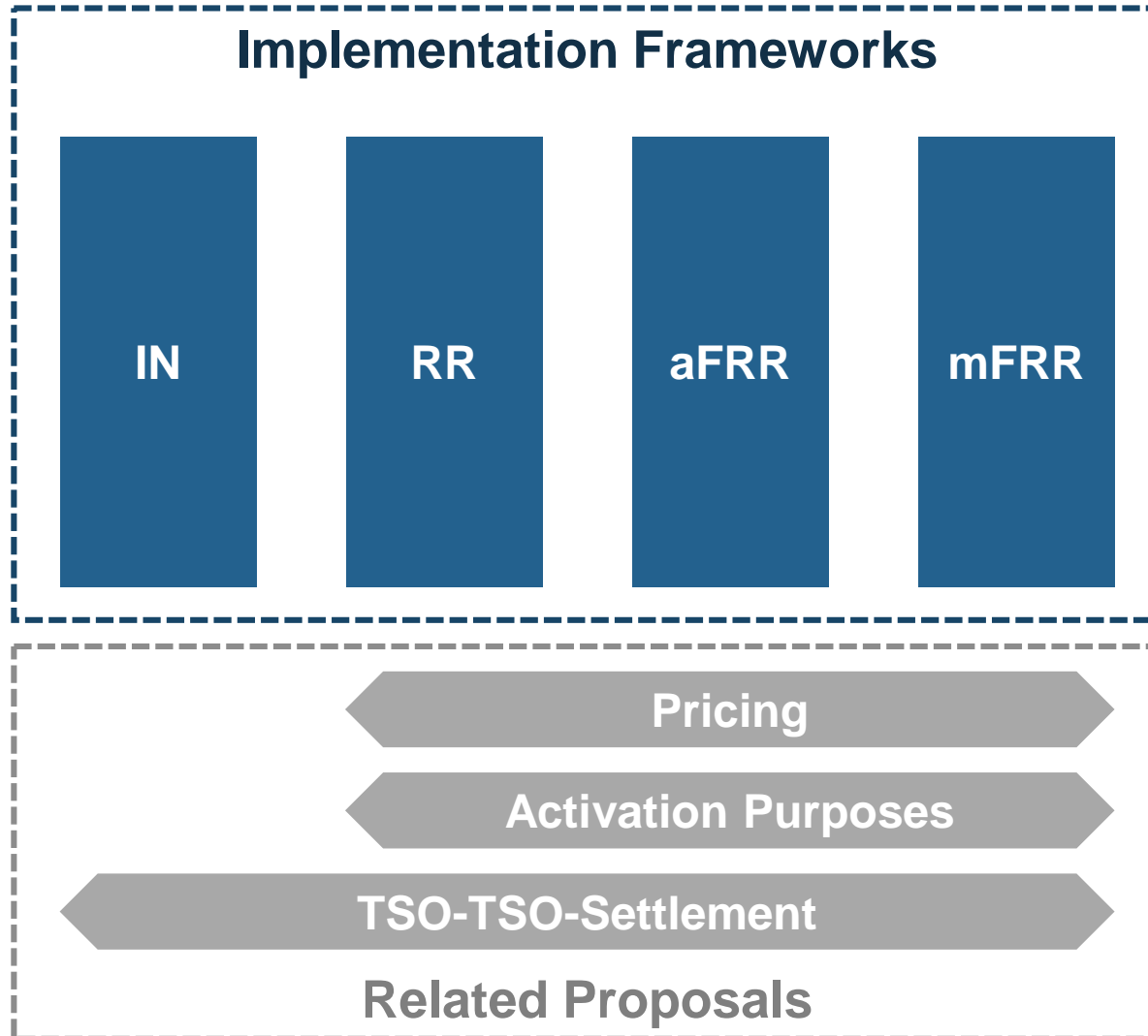
- European platform coordinates balancing energy activation requests of TSOs.
- As a TSO-TSO model is applied, activation requests and communication with national BSPs remains local.
- European platform comprises independent functions closely interacting with different (local) IT systems.



European processes



General Overview of Implementation Frameworks



Main Content of the Implementation Frameworks

- High-level description of functions
- Standard products (n/a for IN)
- Balancing Energy gate closure time (n/a for IN)
- TSO gate closure time (n/a for IN)
- High-level description of optimization algorithms
- Categorization of costs
- Decision making and governance
- Harmonization framework

Out of Scope

- Pricing of standard products and pricing of cross-zonal capacity
- TSO-TSO-Settlement
- Activation purposes and their consideration for settlement

mFRR and aFRR Implementation Frameworks

	mFRR	aFRR
High level Market design	<ul style="list-style-type: none">• Cross border marginal pricing• 96 daily scheduled clearings (4 per hour)• Gate closure for BSPs: 25 mins before the relevant quarter hour (Art. 7.1)• Gate closure for TSOs: 25 to 10 mins before the relevant quarter hour (Art. 8.1)	<ul style="list-style-type: none">• Cross border marginal pricing• 96 daily clearings (4 per hour)• Gate closure for BSPs: 25 minutes before the validity period (Art. 7.1)• Gate closure for TSOs: between 20 and 10 minutes before the validity period (Art. 8.1)
Functions and Entities	<ul style="list-style-type: none">• Two main functions (Art. 5.1):<ol style="list-style-type: none">1. Activation Optimization function2. TSO-TSO settlement function• All TSOs shall appoint one or more TSOs or one or more companies owned by TSOs for operating the functions (Art. 11)	<ul style="list-style-type: none">• Two main functions (Art. 5.1):<ol style="list-style-type: none">1. Activation Optimization function2. TSO-TSO settlement function• All TSOs shall appoint one or more TSOs or a company owned by TSOs for operating the functions (Art. 11)

mFRR and aFRR Implementation Frameworks

	mFRR	aFRR
Cross-zonal capacity	<ul style="list-style-type: none">• Remaining capacity after intraday and other balancing processes	<ul style="list-style-type: none">• Remaining capacity after intraday and other balancing processes
Algorithm	<ul style="list-style-type: none">• Input (Art. 10.1):<ul style="list-style-type: none">• Common Merit Order List• Cross-zonal capacity• Objective function (Art. 10.2):<ul style="list-style-type: none">• 1st Maximise social welfare,• 2nd Minimize amount of mFRR power exchange on each border between bidding zones or LFC areas	<ul style="list-style-type: none">• Input (Art. 10.1):<ul style="list-style-type: none">• Common Merit Order List• Cross-zonal capacity• Objective function (Art. 10.2) :<ul style="list-style-type: none">• 1st Maximise social welfare,• 2nd Minimize amount of power exchange on each border between LFC areas

mFRR Implementation Framework

	mFRR	aFRR
High level Roadmap (Accession Roadmap)	<p>The accession roadmap shall foresee (Art. 4.3.d):</p> <ol style="list-style-type: none">national implementation and adaption of national terms and conditions for BSPs;the development of the functions;interoperability tests between each TSO and the mFRR-Platform;operational tests;go-live;public consultation, publication and NRA approval in accordance with the national legislation	<p>The accession roadmap shall foresee (Art. 4.3.d):</p> <ol style="list-style-type: none">national implementation and adaption of national terms and conditions for BSPs;the development of the functions;interoperability tests between each TSO and the mFRR-Platform;operational tests;go-live;public consultation, publication and NRA approval in accordance with the national legislation
Status of Implementation Framework	<ul style="list-style-type: none">• Consultation ongoing• SH workshop 20/21 June• Legal deadline for submission 18 December 2018	<ul style="list-style-type: none">• Consultation ongoing• SH workshop 20/21 June• Legal deadline for submission 18 December 2018

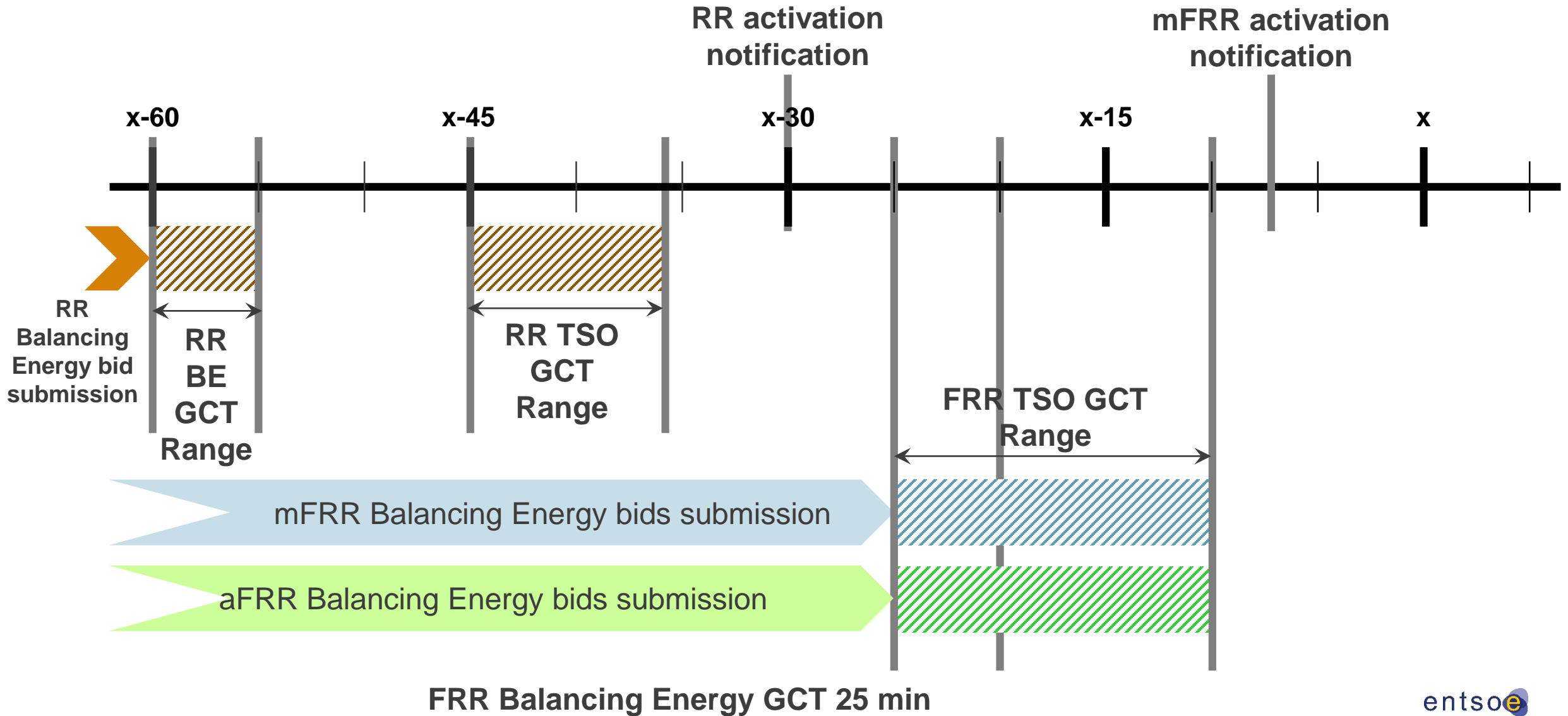
FRR IFs - Standard Product (Art. 6.3)

Standard product bid characteristics	mFRR	aFRR
Mode of activation	Manual	automatic
Activation type	Direct or Scheduled	can be activated and deactivated at any moment within the validity period.
Full Activation Time	12.5mins	5 mins as of 18 December 2025
Minimum quantity	1 MW	1 MW
Bid granularity	1 MW	1 MW
Maximum quantity	9,999MW	/
Minimum duration of delivery period	5 minutes	No minimum delivery time shall be permitted.
Validity period	<p>A scheduled activation can take place at the point of scheduled activation only.</p> <p>A direct activation can take place anytime during the 15 minutes after the point of scheduled activation.</p>	15 mins

FRR IFs - Standard Product (Art. 6.5)

Variable product bid characteristics	mFRR	aFRR
Price	€/MWh	€/MWh
Price resolution	0.01 €/MWh	/
Location	At least the smallest of LFC area or bidding zone. More detailed locational information under national responsibility	Scheduling area and connecting TSO
Divisibility	The BSPs are allowed to submit divisible as well as indivisible bids. divisible bids have an activation granularity of 1 MW	activation request can be lower than the minimum quantity and minimum granularity
Technical links between bids	Due to the existence of direct activations, BSPs are required to provide information on mutual exclusivity of bids submitted in consecutive quarter hours.	no
Economical link	Child with parent and exclusive group orders will be allowed, unless these features add decisively for the complexity of the algorithm	no

Overview of the Proposed Gate Closure Times








GLEB
All/relevant TSOs and ENTSO-E tasks

2018

2019

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
ENTSO-E to update manual of procedures of Transparency Regulation																								
Proposal for activation purposes						w			w															
Each TSO to propose T&Cs for BSPs and BRPs																								
Proposal for pricing method for all products						w			w															
Proposal for TSO-TSO settlement of intended exchanges of energy																								
Proposal for TSO-TSO settlement of settlement of ramps and FCR and unintended exchanges within and between SA																								
Proposal for harmonisation of certain features of imbalance calculation & pricing			w			w																		
CZC Allocation - Proposal for list of Standard Balancing Capacity Products																						w		
CZC Allocation - Methodology for calculating CZC for balancing																								
CZC Allocation - Harmonise allocation of CZC within CCR																								
CZC Allocation - Methodology for cooptimised CZC allocation																						w		
CZC Allocation - Methodology for market based CZC allocation																						w		
ENTSO-E monitoring plan																								
Proposal for implementation framework for European platform for replacement reserves			w																					
Proposal for implementation framework for European platform for frequency restoration reserves with manual activation			w			w																		
Proposal for implementation framework for European platform for frequency restoration reserves with automatic activation			w			w																		
Proposal for implementation framework for European platform for imbalance netting																								

	ENTSO-E Drafting Proposal		NRAs Approval preparation
	Consultation		NRAs Approval publication
w	Workshop		
	ENTSO-E Proposal submission		

Imbalance settlement harmonization

Number of prices – If one portfolio

EBGL requires:

- Harmonisation of the imbalance settlement period to 15 minutes by December 2020
- Harmonisation of the main components used for the calculation of the imbalance price for all imbalances
- The use of single imbalance pricing for all imbalances
- The definition of conditions and methodology for applying dual imbalance pricing for all imbalances
 - TSO may propose to its relevant regulatory authority the application of dual pricing

