

The role of consumers in the market of regulation reserves

AFIGCEE

Associação Portuguesa dos Industriais Grandes Consumidores de Energia Eléctrica

Clean Energy for All Europeans – Challenges for the Electricity Intensive Industries

Setúbal,
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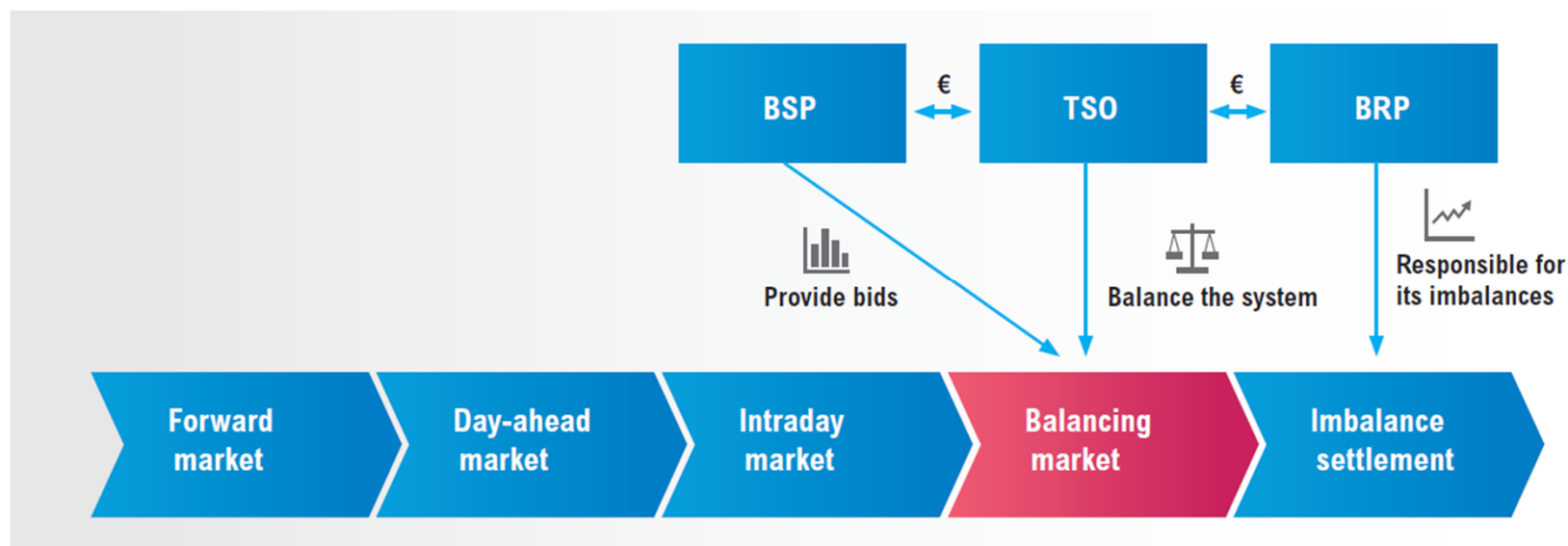
The role of consumers in the market of regulation reserves

1. Electricity Balancing markets: the standard products and the European platforms
2. Clean Energy for all Europeans and Flexibility
3. Demand participation at the Electricity Balancing markets: the Portuguese Pilot Project

European Regulation on Electricity Balancing



- The European power system is in a deep transformation to integrate **more renewables**, develop **flexibility** and enable **consumers** to play a more **central role**.
- The Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing (EBGL) defines detailed rules for the integration of balancing energy markets in Europe, with the objectives of fostering effective competition, non-discrimination, transparency and integration in **electricity balancing markets**.



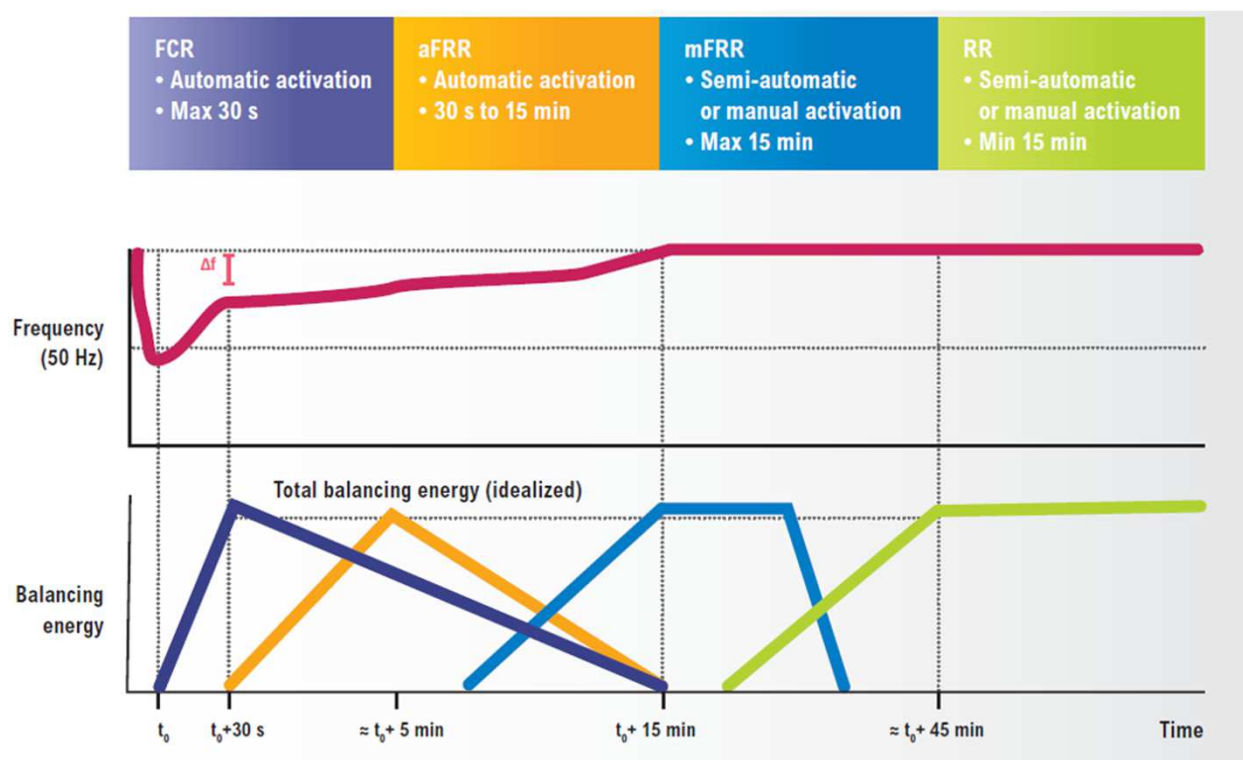
BSP – Balancing Service Provider
BRP – Balancing Responsible Party

Source: “Electricity Balancing in Europe”,
ENTSO-E webpage, November 2018

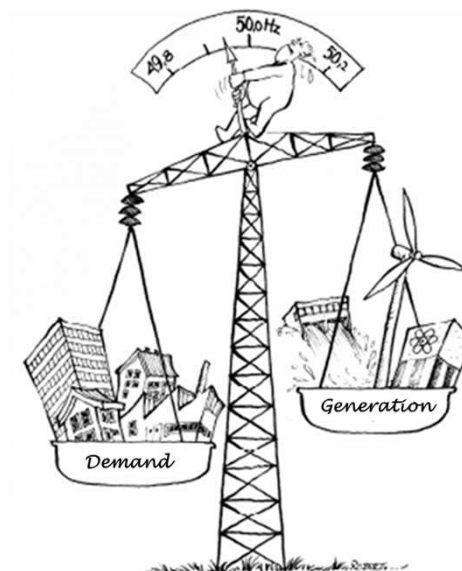
Electricity Balancing



- **Electricity Balancing (EB)** means all actions and processes through which transmission system operators (TSOs) continuously ensure the **maintenance of system frequency** within a predefined stability range, as well as compliance with the amount of reserves needed for the **quality required**.



Balancing market processes for frequency restoration



FCR - Frequency containment reserve (Primary Reserve)

aFRR - Frequency restoration reserves with automatic activation (Secondary Reserve)

mFRR - Frequency restoration reserves with manual activation

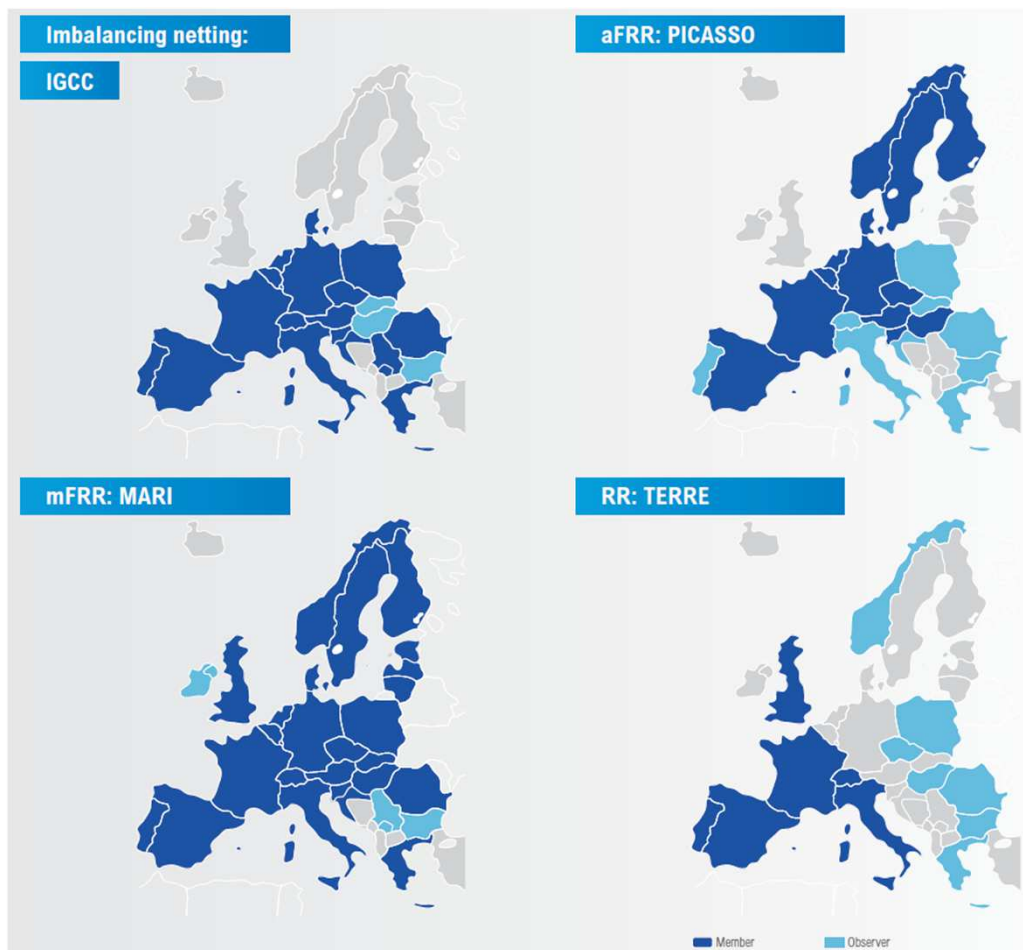
RR - Replacement reserves

Source: "Electricity Balancing in Europe", ENTSO-E webpage, November 2018

European Electricity Balancing Platforms



- The EBGL foresees the **harmonisation of the European balancing market** processes through the implementation of **common European platforms** for negotiating the needed amount of RR, aFRR and mFRR and assuring the optimisation of the process all over Europe (IGCC).



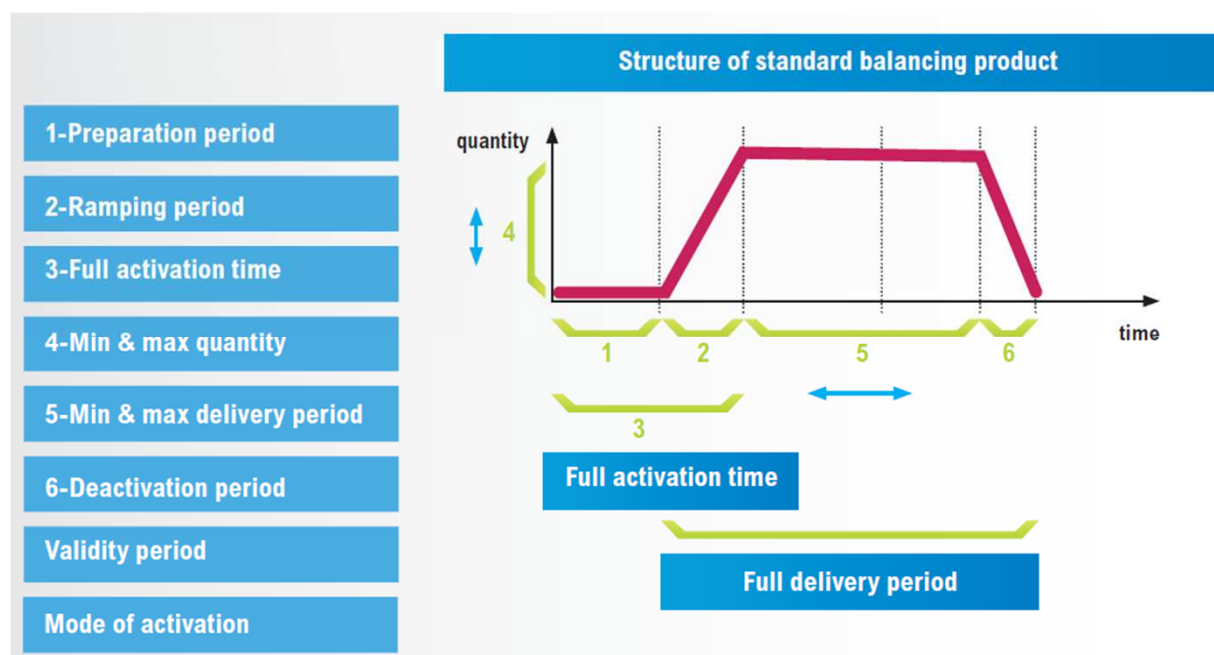
European balancing implementation projects and their TSO members (as of November 2018)

Source: "ENTSO-E Electricity Balancing in Europe", www.entsoe.eu, November 2018

Electricity Balancing Standard Products



- In order to facilitate the exchange of balancing energy across borders, the EBGL requires the definition of a set of **standard products** for RR, aFRR and mFRR (for direct and scheduled activation) **to be exchanged using pan-European platforms.**
- A set of requirements for the technical parameters of standard products is defined.



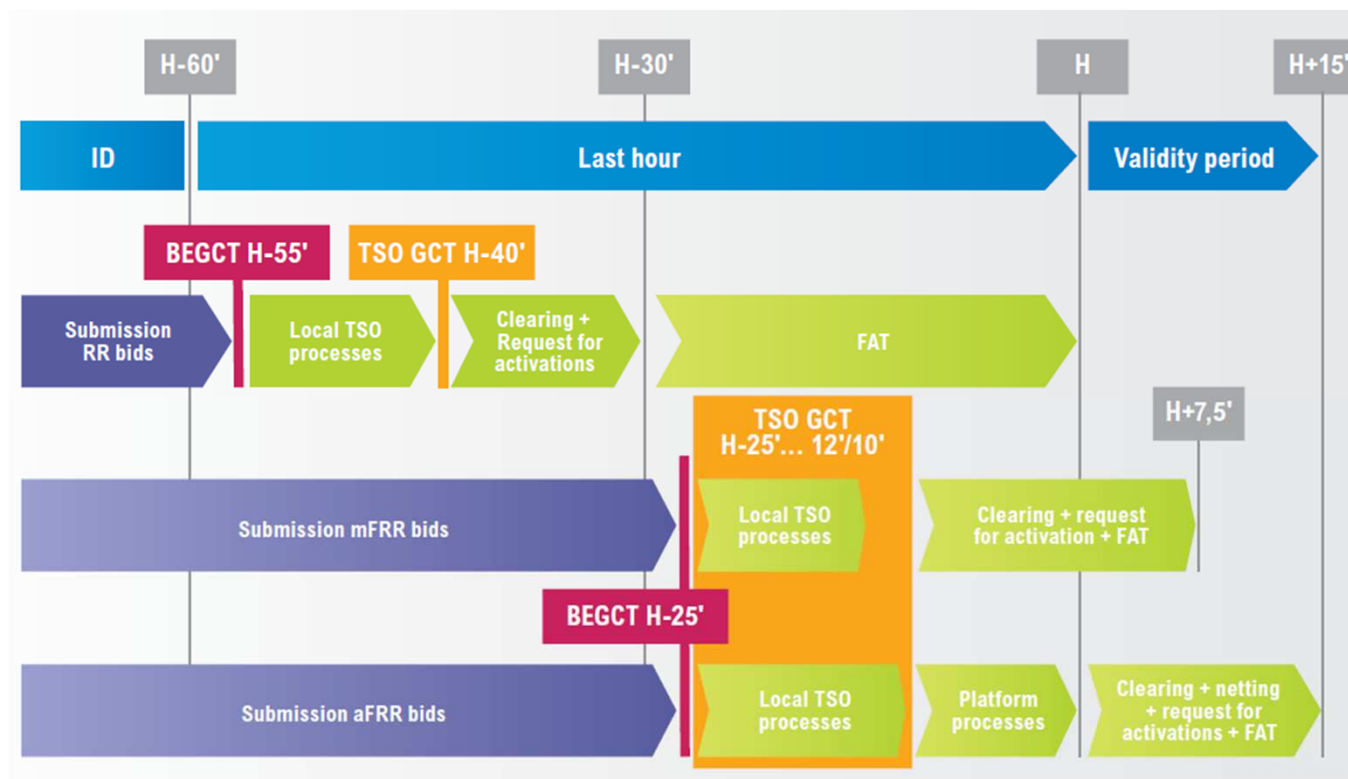
Characteristics of a EB standard product

Source: “ENTSO-E Electricity Balancing in Europe”,
www.entsoe.eu,
November 2018

Gate Closure Times of Balancing Markets



- For each one of the different balancing products, the **gate closure time (GCT)** is the point in time at which BSPs are no longer permitted to submit or update a balancing energy bid to their connecting TSO.



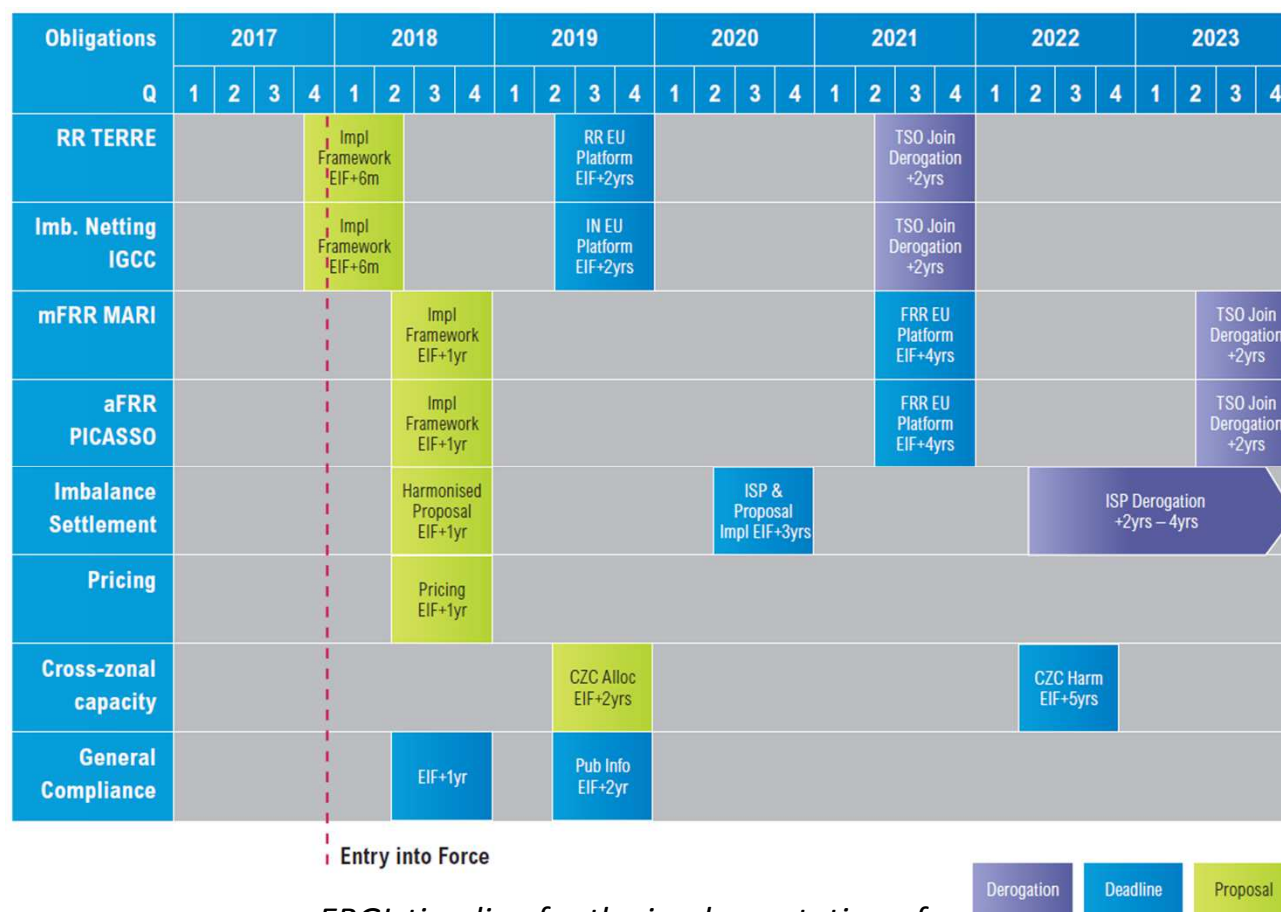
GCT for the different EB standard products

Source: "ENTSO-E Electricity Balancing in Europe", www.entsoe.eu, November 2018

European Platforms for Electricity Balancing



- The EBGL foresees the **harmonisation of the European balancing market** processes through the implementation of common European platforms **with a very ambitious timeline**.



EBGL timeline for the implementation of European balancing platforms

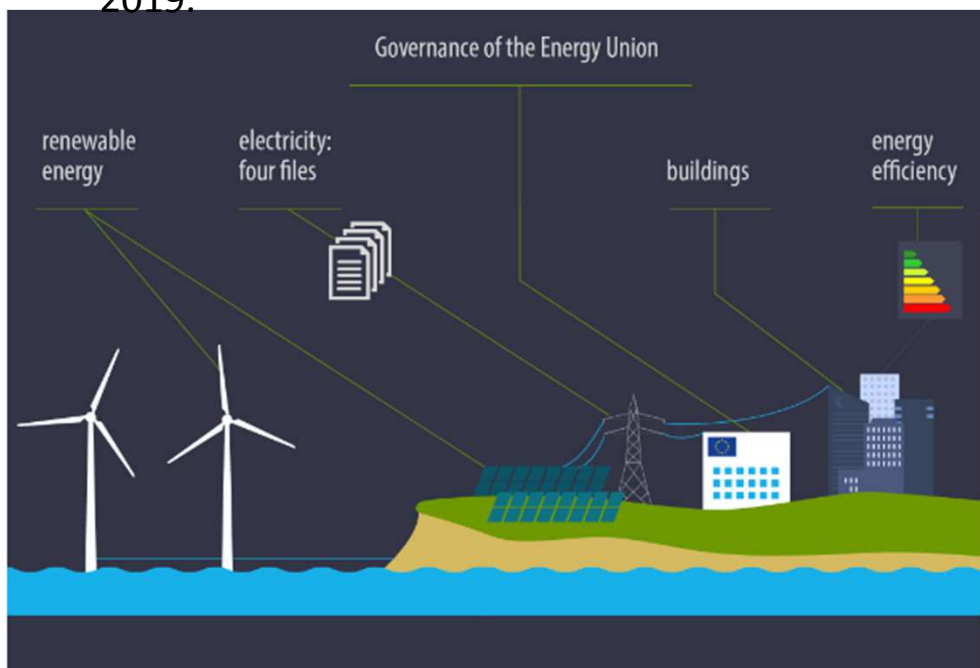
Source: “ENTSO-E Electricity Balancing in Europe”, www.entsoe.eu, November 2018

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Clean Energy for all Europeans



- The EU “Clean Energy for all Europeans” Package includes eight different legislative documents, four of them already published and the others with publication scheduled in May 2019.

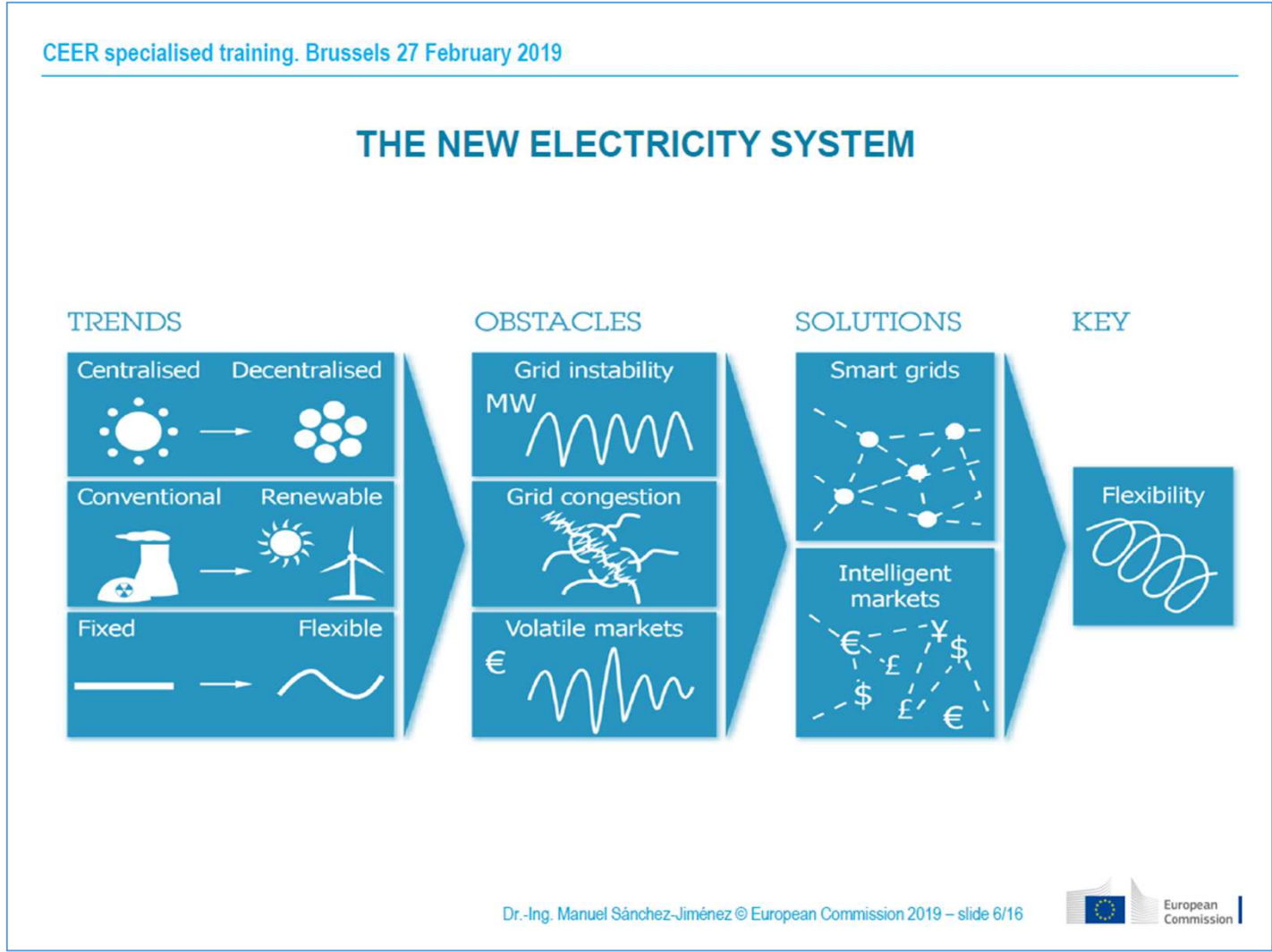


Clean energy for all Europeans package - state of play (27 March 2019)

	European Commission Proposal	EU Inter-institutional Negotiations	European Parliament Adoption	Council Adoption	Official Journal Publication
Energy Performance in Buildings	30/11/2016	Political Agreement	17/04/2018	14/05/2018	19/06/2018 - Directive (EU) 2018/844
Renewable Energy	30/11/2016	Political Agreement	13/11/2018	04/12/2008	21/12/2018 - Directive (EU) 2018/2001
Energy Efficiency	30/11/2016	Political Agreement	13/11/2018	04/12/2018	21/12/2018 - Directive (EU) 2018/2002
Governance of the Energy Union	30/11/2016	Political Agreement	13/11/2018	04/12/2018	21/12/2018 - Regulation (EU) 2018/1999
Electricity Regulation	30/11/2016	Political Agreement	26/03/2019	Scheduled in May 2019	-
Electricity Directive	30/11/2016	Political Agreement	26/03/2019	Scheduled in May 2019	-
Risk Preparedness	30/11/2016	Political Agreement	26/03/2019	Scheduled in May 2019	-
ACER	30/11/2016	Political Agreement	26/03/2019	Scheduled in May 2019	-

Source: <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans>

The new Electricity System

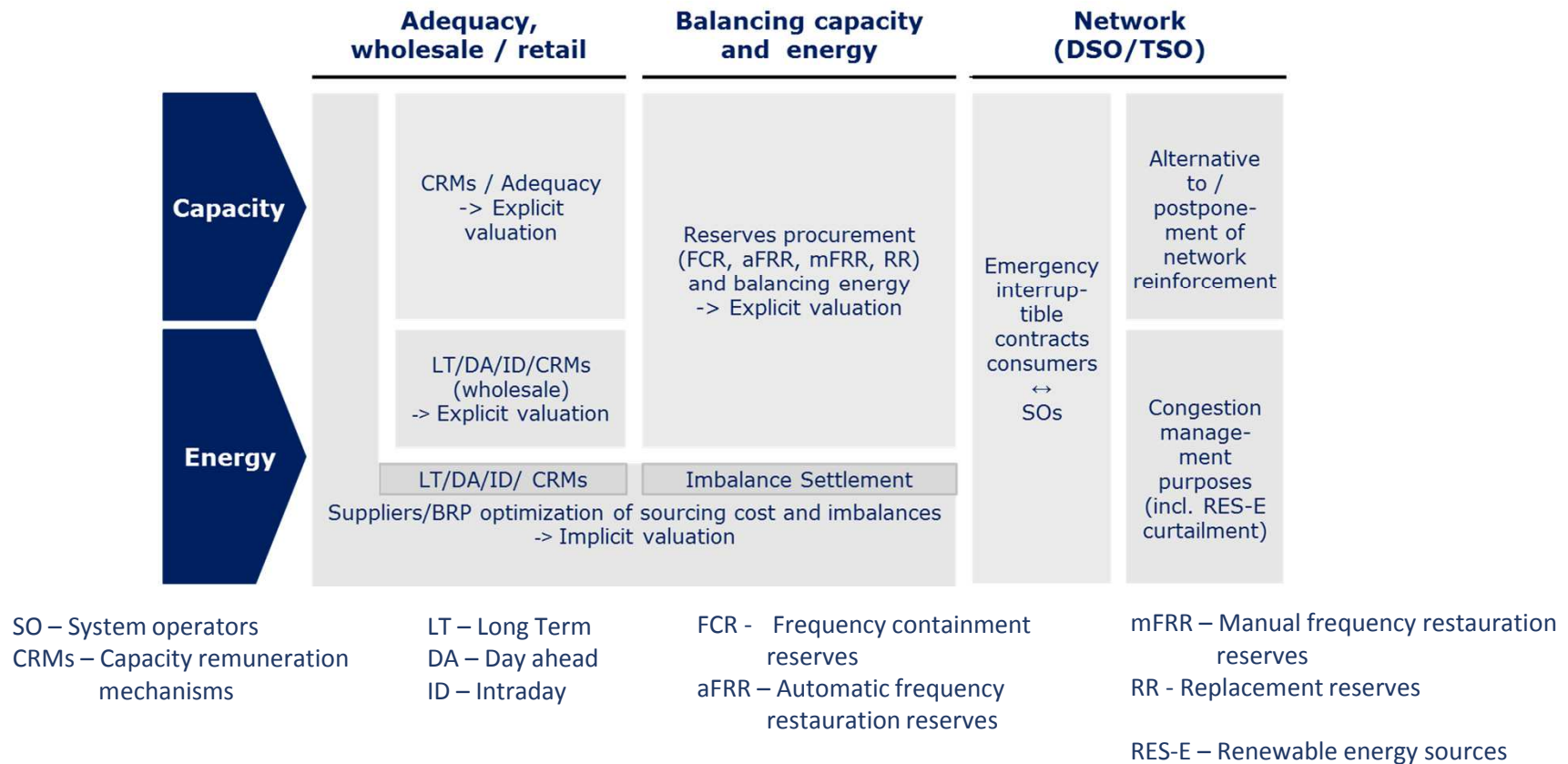


Source: “The new retail market design places consumers in the centre”, CEER Specialised Training on Wholesale and Retail Market Monitoring, Manuel Sánchez-Jiménez, DG ENER, European Commission, February 2019

Flexibility in the different electricity market segments



- Flexibility can be referred as the **capability to change power supply/demand** of the system as a whole or a particular unit (e.g. a power plant or a factory).
- EURELECTRIC presents flexibility as "the **modification of generation injection and/or consumption patterns** in reaction to an external signal (price signal or activation) in order to **provide a service** within the energy system".



Source: CEER Scoping of flexible response, www.ceer.eu, May 2016

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European Balancing Markets overview: some stakeholders vision



- A recent study, presented by a group of stakeholders about the implementation of the EBGL, shows the different national realities and implementation levels all over Europe.
- This group of stakeholders appeals to the Electricity Balancing markets be opened quicker to new technologies and innovative solutions offered by independent market parties and the Demand Response participation.
- In their opinion, while flexibility provided by the Demand Response participation is already in place in the most advanced balancing markets, **changes in market design often tends to be slow in several other European countries.**



Source: "The smartEn Map: European Balancing Markets Edition 2018", www.smarten.eu

The EBGL implementation in Portugal



- The ambitious goals for renewable energy penetration assumed by Portugal makes **balancing mechanisms extremely important for assuring grid stability**.
- In parallel to the Portuguese participation at the several European Balancing platforms, the **main national regulatory developments are programmed according to the established at the EBGL and at the other European Network Codes** defined at the 3rd European Energy Legislative Package of 2009.
- As an example, the EBGL presents the timeline for 34 regulatory decisions to be taken at European, regional or national level, after TSOs develop their specific proposals. Combined with the other Network Codes, more than a hundred regulatory decisions will be agreed and approved.
- Under this framework, the Portuguese TSO launched in May 2018 a public consultation on its proposal for the Terms and Conditions for BSPs and BRPs, which includes the Demand Response and the Distributed Energy Resources as potential providers of balancing services.
- When necessary or as conclusion of the all case by case decisions process to be taken by national regulatory authorities, detailed at the EBGL and other network codes, ERSE will **recast the “Regulamento de Operação das Redes” and the “Manual de Procedimentos da Gestão Global do Sistema”**, the national regulatory documents defining the Balancing markets rules.

The Pilot project for the participation of consumers in the Portuguese “regulation reserve” market



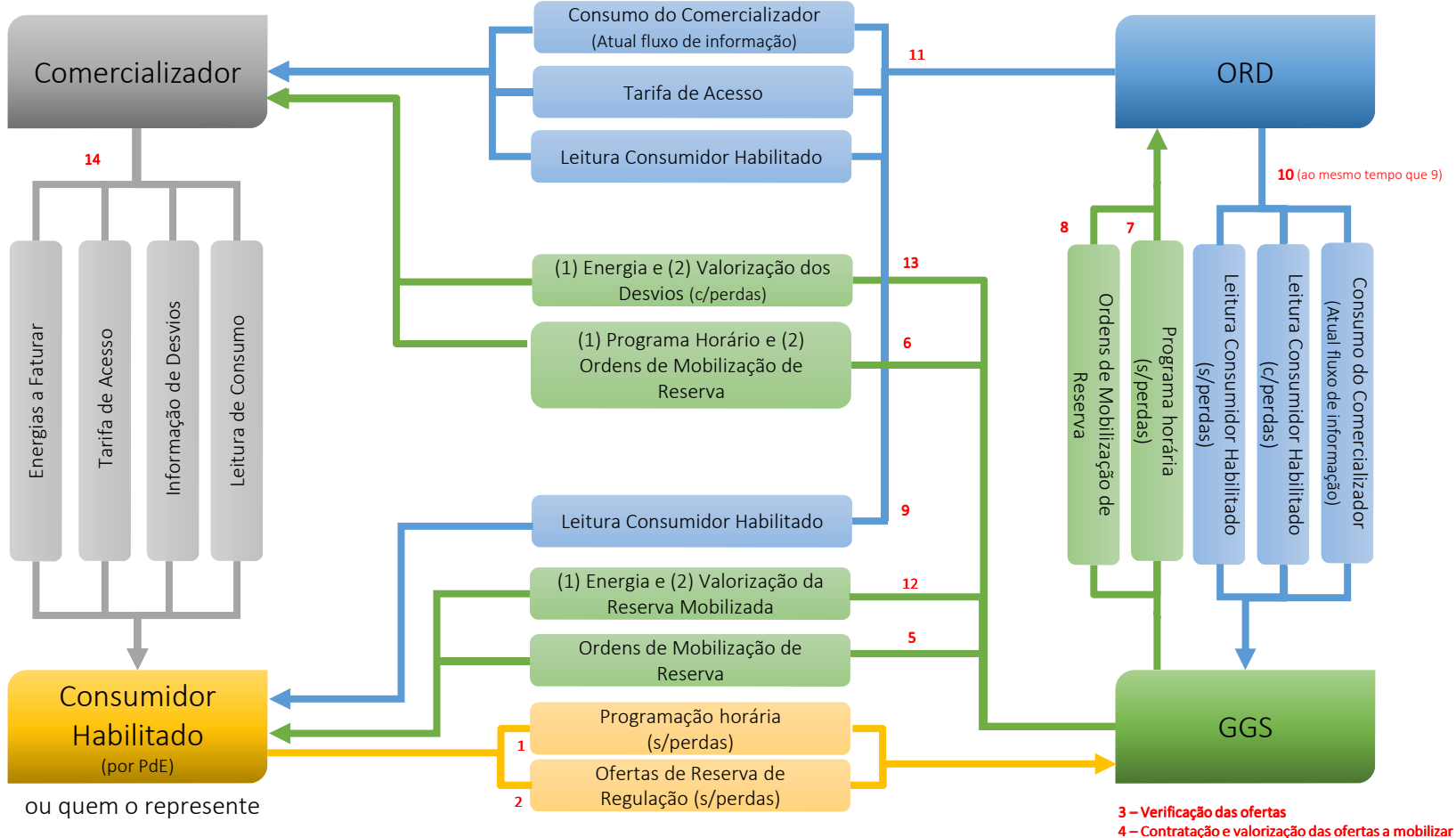
- Furthermore, ERSE approved in December 2018 the implementation of a **pilot project for the participation of consumers in the “regulation reserve” market**, after a Public Consultation to all the stakeholders.
- **Till now**, “regulation reserve” is provided by **balancing areas which only include conventional generators and pumped storage consumption units** under the same BRP.
- These balancing areas are required to present **price bids for the whole available upwards and downwards capacity**. As resulted from a merit order scheme, all the activated regulation reserves are remunerated at the attained marginal price.
- **During** the phase of the new **pilot project, individual consumers** that can offer more than 1 MW of “regulation reserves” and pass prequalification procedures **are allowed to participate on equal conditions with current players**. The obligation of presenting offers to the market is not applied to the demand.
- For this service remuneration, consumers will be entitled to the same payments as generators (i.e. the marginal price of regulation reserves activation).

Some conclusions from the Public Consultation on the Pilot Project



- It is clear the importance of **ensuring consumption participation on equal conditions with current players in the balancing market.**
- **Agreement** with the option of starting **with** the process as a **Pilot Project**. This option assures the minimum impact on the "systems" and allows to verify and to surpass all the first difficulties that will be found, in an **easier way and without excessive additional costs**. Allows also "gaining" experience of this new market share by all the stakeholders.
- Agreement with the creation of the “Grupo de Acompanhamento do Projeto Piloto” (Pilot Project Monitoring Group), involving all interested parties, to **benefit from the experience of the pilot project to those who are not yet directly involved.**
- Identification of the importance of the **direct involvement of the DSO** in the whole process. Coordination between TSO and DSO is an important topic to be assured.
- **Suppliers' interest** in being involved at the Pilot Project and in analysing how aggregation of consumers' facilities may also contribute to this market.
- **Suppliers' concern**, as Balancing Responsible Parties (BRP), to be not affected by the participation of their consumers actuating as Balancing Service Providers (BSP).
- Identified the need for **better clarification** of issues associated with the **qualification process of participating facilities** and extra equipment needed.

Pilot Project information and communications flows



Portuguese market of “regulation reserve” turnover during 2018



National consumption (MWh)	50 898 000
Day ahead market price (€/MWh)	57,5

Upward regulation energy (MWh)	623 000
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1,22 % national consumption

Price (€/MWh)	71,9
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~ 125 % day ahead market price

Upward reserve turnover (€)	44 793 700
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Downward regulation energy (MWh)	1 403 000
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2,76 % national consumption

Price (€/MWh)	37,5
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~ 65 % day ahead market price

Downward reserve turnover (€)	52 612 500
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Total mobilized energy (MWh)	2 026 000
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3,98 % national consumption

Market turnover (€)	97 406 200
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Thank you!

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