TERRE

Trans European Replacement Reserves Exchange



TERRE MARI PICASSO
French Stakeholders workshop

November 13th, 2017

--- Registration and Coffee ---

Agenda

Start	Intro and Agenda	09:00
Part 1:	TERRE – consultation feedbacks	09:00-09:45
	Questions and exchanges	09:45-10:00
Part 2:	MARI – project presentation	10:00-10:45
	Questions and exchanges	10:45-11:00
Part 3:	PICASSO – project presentation	11:00-11:45
	Questions and exchanges	11:45-12:00
End		

Consultation Paper

Structure of the consultation paper

Content and structure

	Topic	Content
1	Introduction	• TERRE project status • Purpose of the consultation document
2	TSO-TSO model	• Definition of LIBRA platform and processes • Complementary information first consultation phase
3	TSO-BSP & BRP model	• RR BEGCT • Complementary information first consultation phase
4	Transparency	• GLEB requirements and common and national publication
5	Governance	• Governance of the TERRE project
6	Local implementation and Market rules	• Description of the future implementation of the national market rules
7	Planning	• Implementation, harmonization and parallel run planning overview
8	Next steps	• Evolutions regarding reduction of Market Time Unit or ID GCT and introduction of new balancing products.

Consultation Link: CP

Structure of the consultation paper

Today's focus – Key Elements

	Topic	Content
1	LIBRA platform description	• **BSPs from non-TERRE countries** • **Local involvement of stakeholders** • **Concerns on ID timeframes**
2	Counter activations	• Feedback from stakeholders • Proposal from TSOs
3	UAB/URB	• Feedback from stakeholders • Proposal from TSOs
4	Elasticity and flexibility	• Feedback from stakeholders • Proposal from TSOs
5	BEGCT and TSO-TSO GCT	• Feedback from stakeholders • Proposal from TSOs
6	TSO-BSP settlement	• Feedback from stakeholders • Proposal from TSOs

1. LIBRA platform description

Main feedbacks

Many stakeholders have given a general feedback on TERRE Project during the consultation phase:

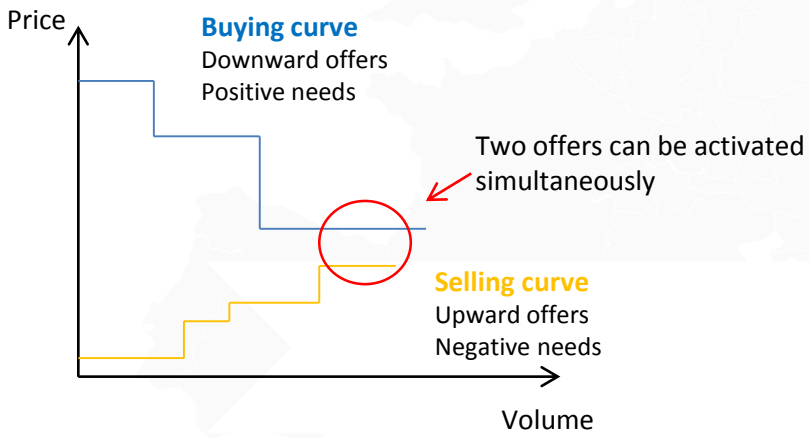
- **BSPs from non-TERRE countries:**
  - TSOs are currently discussing with other TSOs in order to include them.
- **Local involvement of stakeholders:**
  - French common workshops for TERRE, Picasso and MARI projects
- **Concerns on ID timeframe**:
  - XBID is the dedicated project and TERRE is integrating in its design the ID market constraints (as the CZIDGCT…). However, the governance of these projects are completely disconnected.

2. TSO-TSO model

Counter-activations definition

What is a counter-activation?

- A counter-activation is the simultaneous activation of an upward and a downward offer in order to increase the social welfare.



2. TSO-TSO model

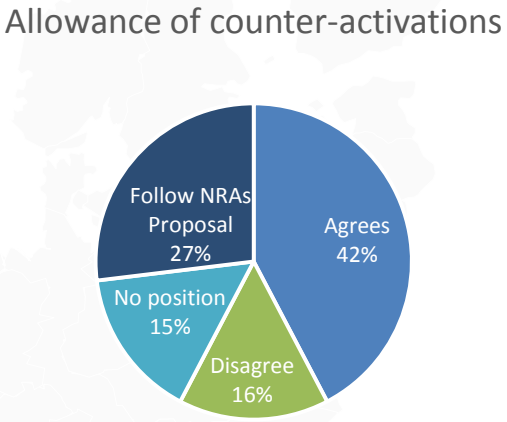
Counter-activations Stakeholders' feedback

Feedback from Market Participants by the TSOs

Main concerns:

- Provide to Stakeholders market opportunities
- Increase the efficiency of TERRE
- Highest social welfare
- Limited impact on the intraday market as long as the process takes place after the ID gate closure
- No distortion of the price signals
- The NRAs' suggested approach of separating acceptable and non-acceptable counter-activations could make the understanding of the LIBRA algorithm difficult, increase the complexity and the clearing time

- The process by which the TSOs or the TERRE algorithm will determine "acceptable" and "non-acceptable" counter-activations is not clear
- Counter-activations will affect the balancing price and in this way the imbalance price
- TERRE would offer market participants a way to trade cross-border closer to real-time than the XB ID allows
- Market participants will have to make mutually exclusive choice between participating to the last sessions of the XBID or submitting offers to TERRE
- TSOs exceed the boundaries of the balancing energy procurement process

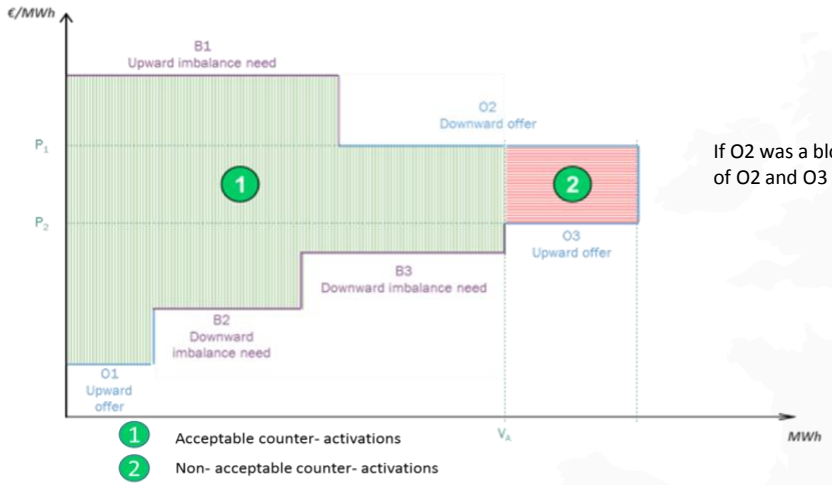


2. TSO-TSO model

Counter-activations

NRAs suggested approach

- Separation of acceptable and non-acceptable counter-activations



If O2 was a block, then the simultaneous activation of O2 and O3 would be accepted

- Difficulties in the implementation are expected by the TSOs (especially with URB restriction)

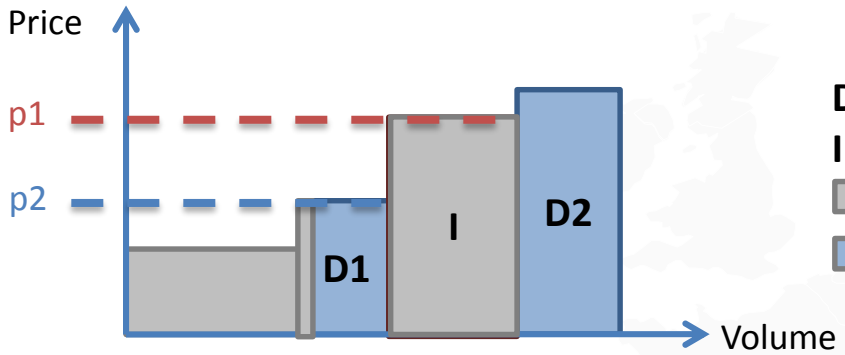
TSO's proposal

- Counter-activations will be allowed during parallel run phase and at a first stage of the project, and TSOs will investigate the respective frequency and volumes.
- Based on this study, the NRAs will approve or not the allowance of counter-activations.

2. TSO-TSO model

UAB/URB Treatment

- **TERRE algorithm handles different complex formats (block, exclusive offers).**
- **A pricing method associated with those different formats is then difficult as UAB/URB appears..**



D: divisible bid
I: indivisible bid
accepted part
not accepted part

a bid with a price lower than the marginal price is not accepted
for example p(D1)< p1

Unforeseeably rejected bid

a bid with a price higher than the marginal price is accepted
For example p(I)>p2

Unforeseeably accepted bid

2. TSO-TSO model

UAB/URB Treatment

Stakeholder's feedback:

- It seems that option 1 or 2 are identically acceptable for stakeholders, as long as UAB are not accepted in the platform.

Main Stakeholder concerns
For Option 1: the sake of same level playing field and higher welfare
For Option 2: incentivize divisibility
General comment: Many market participants have also ask for transparency by publishing the number and impact of URB (divisible and indivisible).

2. TSO-TSO model

UAB/URB Treatment

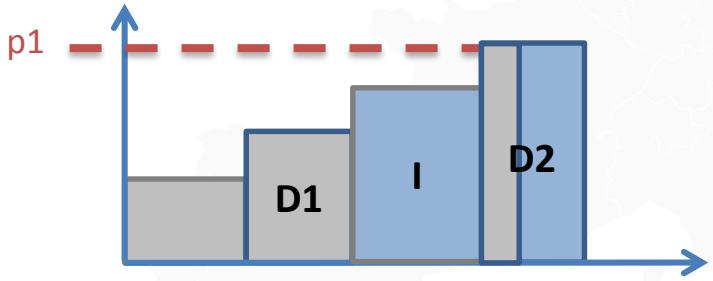
- **TSO's proposal**

In order to treat this problem, special constraints will be included in the clearing algorithm so as not to allow unforeseeably accepted bids

For **unforeseeably rejected bids,** two possible options are possible:

1. Unforeseeably rejected bids will be **allowed all type of bids**
2. Unforeseeably rejected bids will be **allowed only for complex** bids

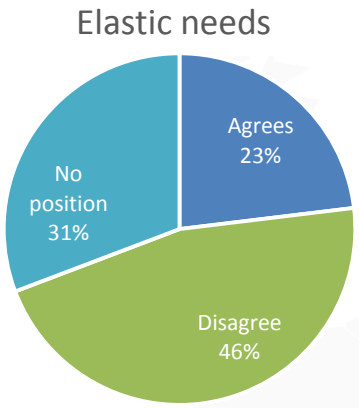
and not for divisible bids with introduction of either extra constraints or iterations



2. TSO-TSO model

Need elasticity

- **Feedback from stakeholders:**
  - Many market participants disagree with the use of elastic need by TSO, as they consider that TSO should be only concerned about balancing the system and not be marketing the energy from their imbalances.



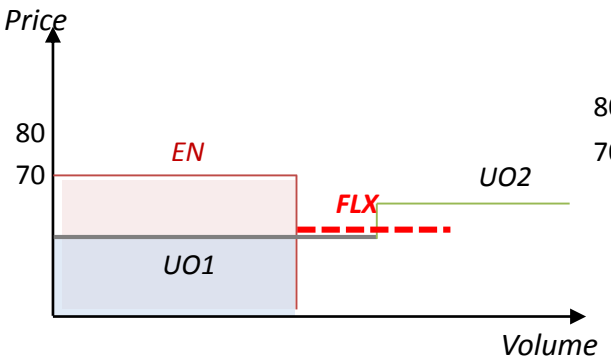
- **TSO's position:**
  - TSO are willing to maintain their position on elasticity, as they don't think TSO would abuse of their position.
  - TSO are not market player but responsible for balancing the system in an efficient way, which is why they are building European balancing platforms.
  - **Having the opportunity to put a price on the need helps the TSO to optimize the system on an economical scale across time.**
  - The TSOs will coordinate the transparency level with the NRAs on the elasticity principle.

2. TSO-TSO model

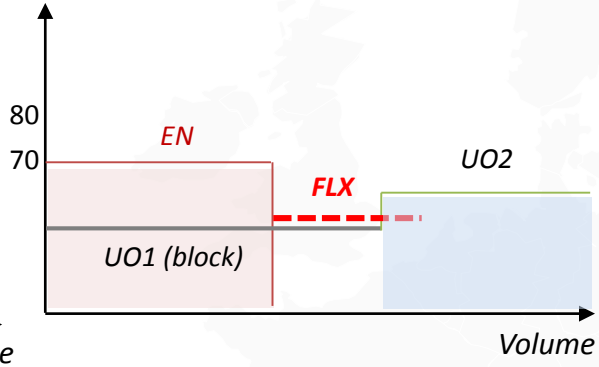
Need flexibility

The need flexibility represents the volume of extra need that can be accepted by a TSO in order to benefit from cheaper bids.

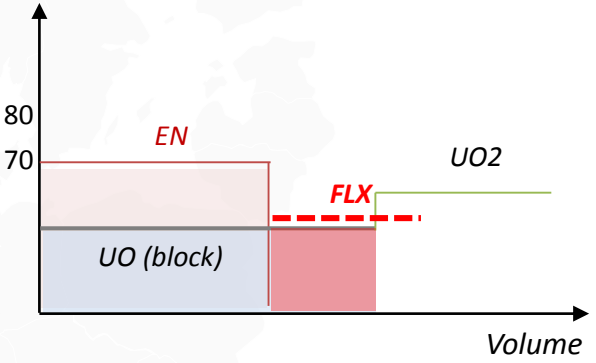
Case 1: Need flexibility & divisible offer



Case 2: No flexibility & block offer



Case 3: Need flexibility & block offer



	Acceptance ratio			
Cases	EN	UO1	UO2	FLX
Case 1	100%	75%	0%	0%
Case 2	100%	0%	100%	0%
Case 3	100%	100%	0%	75%

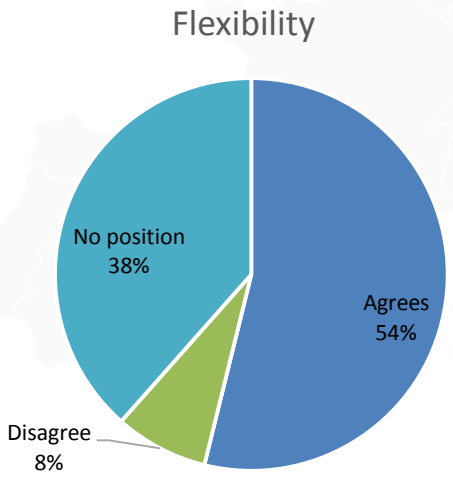
The Need flexibility is only accepted if it leads to greater social welfare. It helps reducing number of UAB/URB. .

2. TSO-TSO model

Need flexibility

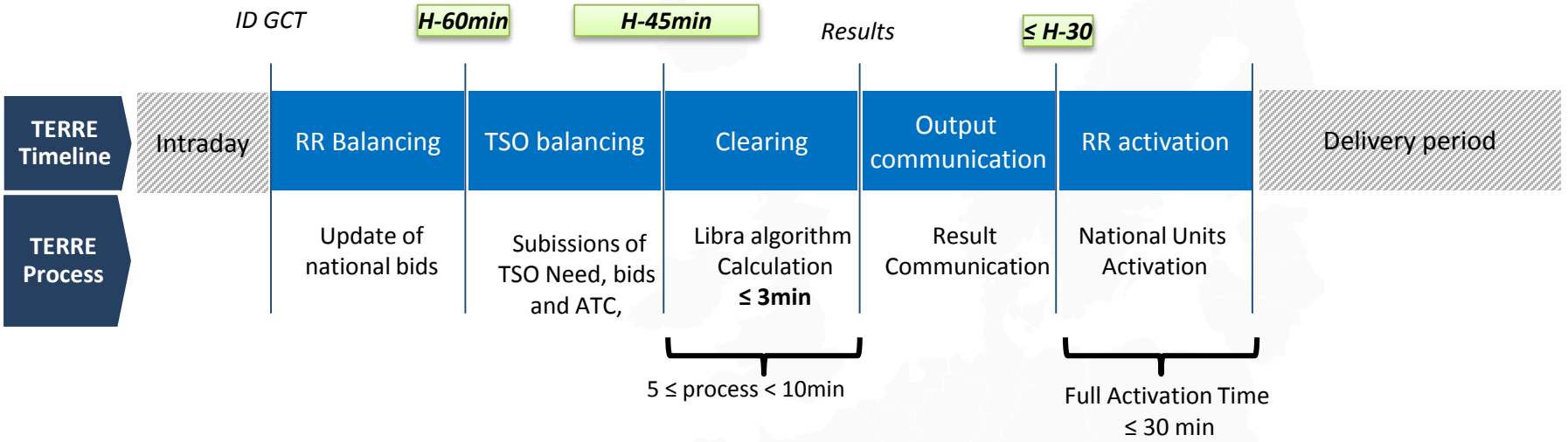
Stakeholders' feedback:

The Majority of Stakeholders agree with the TSOs flexibility proposal.
The Flexibility can help reducing the number of URB
Some stakeholders disagree because should not be a mean to solve a block issues.
All market participants are wishing to have transparency on this value.



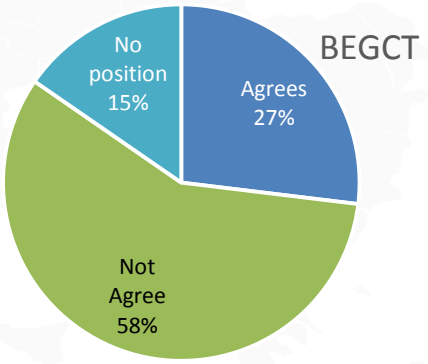
2. TSO-BSP model

Libra Timings, BEGCT and TSO-TSO GCT



Stakeholder's positions:

Main Stakeholder concerns
BSP constraints should be considered
Loss of liquidity in ID
CACM compatibility
Not same playing field between Unit Based and Portfolio



2. TSO-BSP model

Libra Timings, BEGCT and TSO-TSO GCT

TSO's positions:

TSO-TSO GCT = H-45min

The TSOs propose to stick to the BEGCT at H-60min pending further quantitative information from the projects : XBID / clearing algorithm performance

H = Start of the next rounding hour

TSO's Full RR process at local level:

On RTE side, we have discussed with the local implementation projects, and we have figured out in less than 20 min the following actions:

- Reception, treatment, filtering and sending the offers to the platform, calculation of total offered volume
- Calculation of margins
- Reception, validation of XB schedules, calculation of new schedules, calculation and sending remaining ATC
- Reception, integration of specific schedules
- Calculation of imbalance based of XB schedules, generation schedules
- Calculation of imbalance need and its associated price
- Manual review of the need and sending to the platform

3. TSO-BSP & TSO-BRP harmonized rules

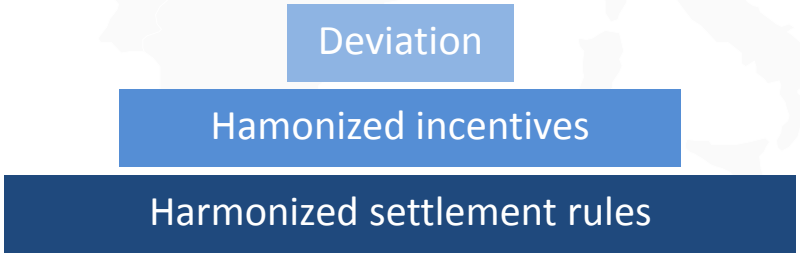
Objective and approach

Goal and introduction

- Following articles 18 and 44 of the GL EB, the TSOs will set out terms and conditions for balancing activities to ensure adequate competition and a level playing field between market participants.
  - ➢ Certain level of **TSO-BSP settlement harmonization** will be necessary

Approach

- Define **harmonized settlement rules**
- Define **harmonized incentives** that should be given to market parties
- Identify **deviations amongst TSOs**



3. TSO-BSP & TSO-BRP harmonized rules

Set a common base of settlement rules

Settlement rules to be harmonized by TERRE TSOs before the go live of the LIBRA platform:

To ensure consistency between TSO-TSO and TSO-BSP settlement :

	Implementing TSOs					
	nationalgrid	RED ELECTRICA DE ESPAÑA	REN	Rte	swissgrid	Terna
• BSPs should be settled with pay-as-clear (XBMP)	✓	✓	✓	✓	✓	✓
• BSPs will be settled for the requested balancing energy (instead of metered physical delivery)	✓	✓	✓	✓	✓	✓

The BSP's remuneration basis is Requested Volume x XBMP

3. TSO-BSP & TSO-BRP harmonized rules

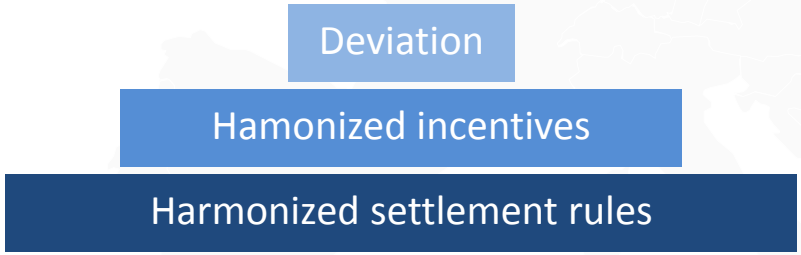
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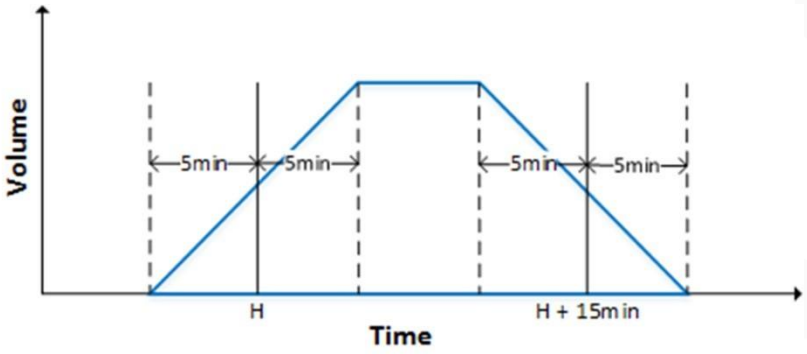
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- Identify **deviations amongst TSOs**



3. TSO-BSP & TSO-BRP harmonized rules

Align market parties' incentives

Physical delivery as close as possible to the XB exchange schedule



➢ If the physical delivery of the BSP providing RR deviates from the cross-border exchange schedule, the RR exchange can result in a increased ACE within the area that this BSP is connected to

- BSPs should be incentivized to physically deliver as close as possible to the XB exchange schedule

Implementing TSOs					
nationalgrid	RED ELECTRICA DE ESPAÑA	REN	Rte	swissgrid	Terna
✓	✓	✗	✓	✓	✓

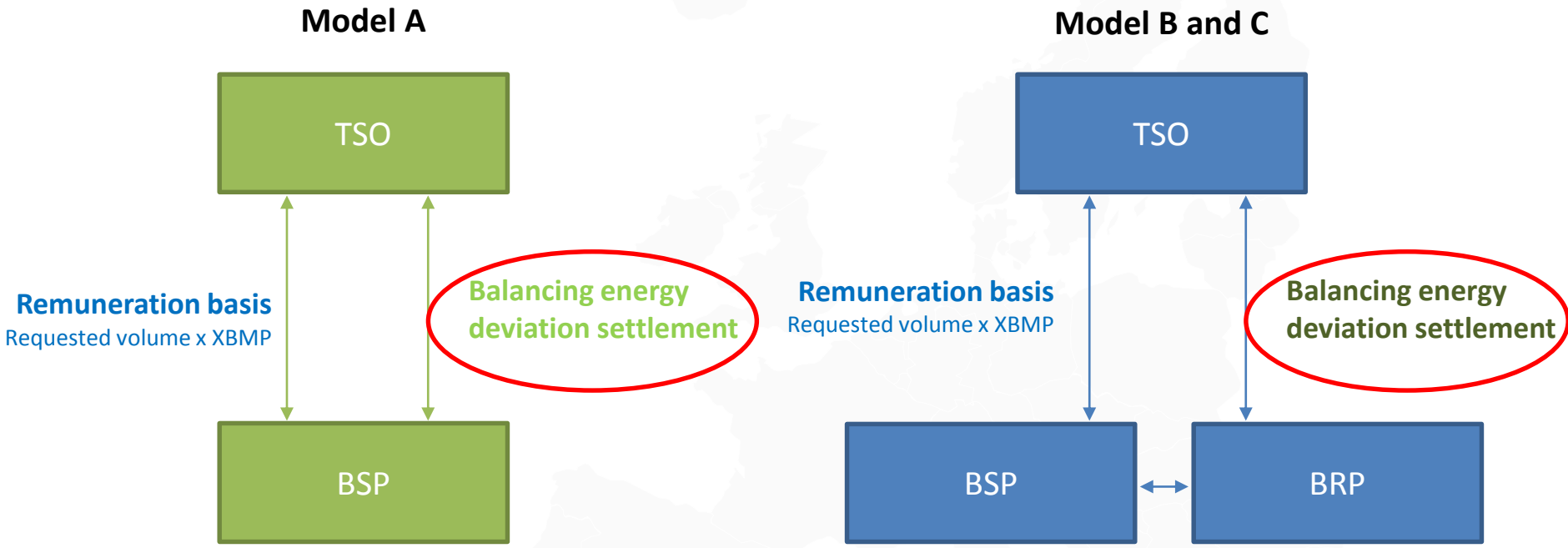
Incentive to deliver the requested volume

- BSPs should **not be incentivized to deliberately provide an under or over delivery** compared to the requested balancing energy

3. TSO-BSP & TSO-BRP harmonised rules

Align market parties' incentives

- These two incentives could be achieved by different settlement schemes :

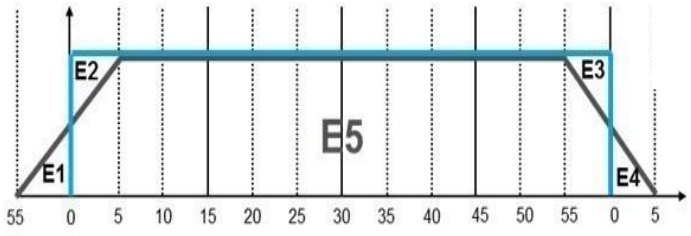


Model A and B can provide the same incentives. The choice between these two models should be made at national level (depending on the roles of BSPs and BRPs).

3. TSO-BSP & TSO-BRP harmonised rules

Align market parties' incentives: Example

- The TSO asks for E_5 (MWh)



- In all 3 models BSPs will receive E_5 x MP
- For any deviations from the expected delivery:
  - Model A will directly settle the BSPs
  - Models B and C will settle the BRPs

3. TSO-BSP & TSO-BRP harmonised rules

Summary

Harmonized settlement rules

The BSP's remuneration basis is Requested Volume x XBMP

Harmonized BSP's incentives

Provide a physical delivery consistent with the XB exchange

Not to deliberately provide an under or over delivery

Deliver the balancing energy with the assets corresponding to the offer (unit and aggregate based systems)

Report any defect as soon as it is known

Deviation

Time step for the monitoring/control

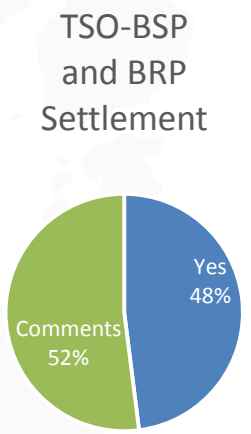
Relationship between the BSP and the BRP

Balancing energy deviation settlement prices

3. TSO-BSP & TSO-BRP harmonized rules

Stakeholders' position

All proposed incentive models should exclusively focus on the delivery of the requested energy
All three models will create real time additional imbalances
Disagree with Trapezoid because: 1. asymmetry between delivery and imbalance price 2. not every plant can deliver ramps with FAT of 10'
Double incentive is not consistent with those attached to model B or C. Therefore, such difference would result in discrimination between BSPs belonging to different models.
Fair playing field to be assured for all technologies
Discrimination notable between Model A and B and C
Frequency of settlement in GB: Invoicing and settlement is, for most BRPs and for BSPs active in our GB Balancing Mechanism, done on a daily basis. Payments are made daily approximately a month in arrears. Only if the amount owing is small (currently less than £500 (British Pounds)) are invoicing and payments done less frequently.
Harmonization relatively low considering that the incentivized delivery shape is not the same for all TSOs and the settlement schemes are not based on the same principles
Imbalance volume definition: in GB it is the difference between the metered volume and contracted volume for that BRP (i.e. the difference between the sum of metered volumes and the sum of commercial trade schedules for that BRP).
Market distortion due to various rules of control of activations and penalties
Need for a more precise vision of future local rules harmonization steps, in order to plan the needed arrangement for the next years
Not agree with different treatments applied for ramping rates by different TSOs
Other regulatory arrangements may have impact on competition between BSPs in different areas
Request a narrative gap analysis in order to highlight key points
The criteria used to characterize the settlement procedures should foster harmonization.
We do not agree with harmonizing only BSP-TSO settlement rules, leaving not harmonized BRP-TSO settlement rules to local implementation rules



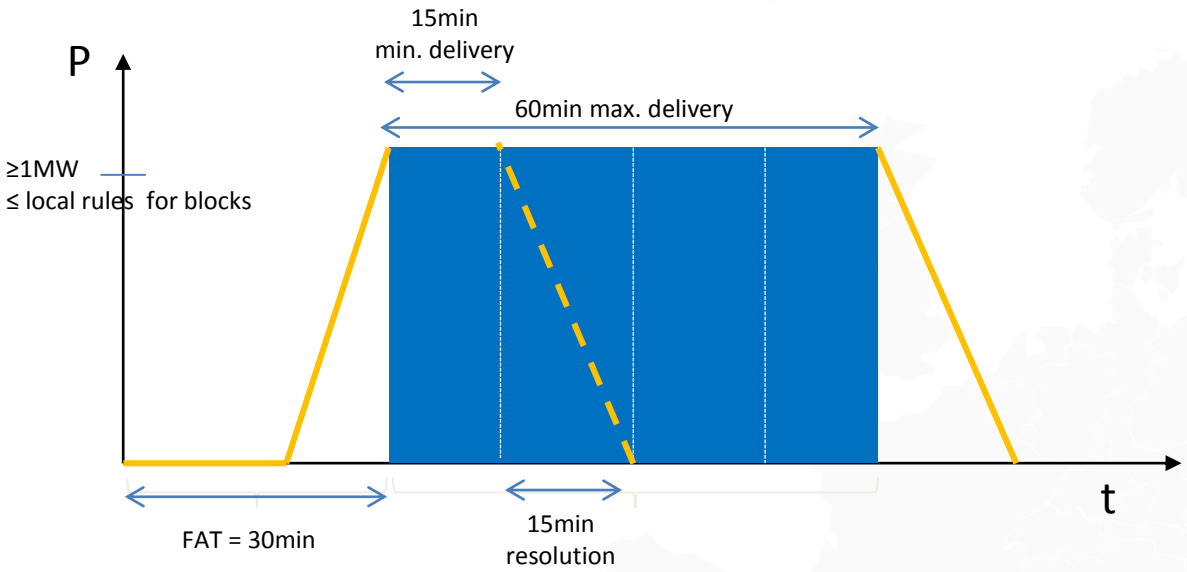
Thanks for your attention

Appendix

3. TSO-BSP & TSO-BRP harmonised rules

RR balancing product

Accepted RR balancing product



- Scheduled activation
- FAT = Preparation + Ramping period
- Validity period is defined by BSP
- Recovery period is defined by BSP
- Local rules for caps and floors

Incentivised RR balancing product

- **Incentivised delivered product is described in slides 31**

1. Introduction to TERRE project

The TERRE project Mission and Participants

Develop a XB platform for RR products

- TERRE project will involve the design, development, implementation and operation on a cross-border platform for the balancing products (RR)
- The first phase of the design finalized with a consultation proposal, and has been validated by the NRAs and the market participants (stakeholder)

Toward efficient cooperation in balancing in Europe

- The proposed RR product together with the project governance should be aligned with Guidelines on Electricity Balancing.
- The established platform should support the future European balancing vision to assure the security of the energy supply
- The RR is not the only balancing product which is in development and should therefore be aligned with the ongoing projects (mFRR balancing regions), mainly to assure liquidity of balancing
- The TERRE platform is a suitable candidate for other balancing products such as mFRR.

Potential participants to TERRE project

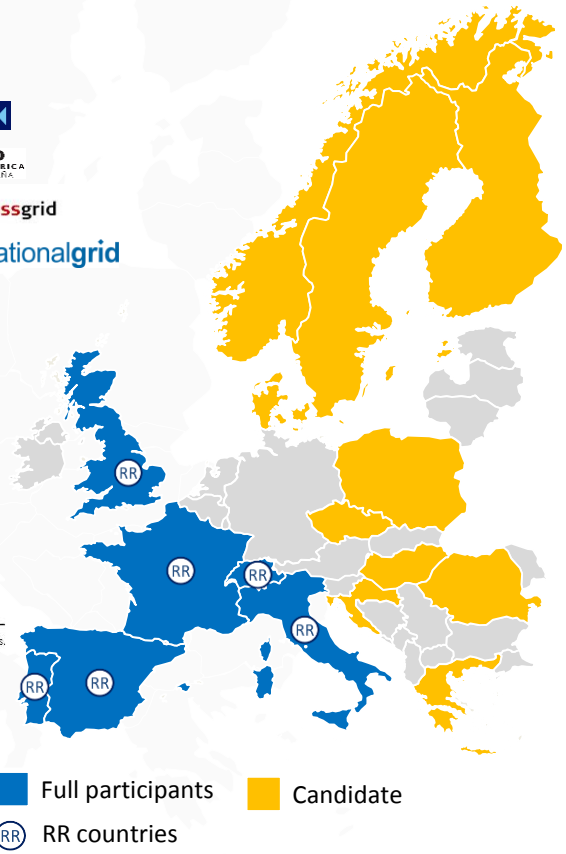
Following TSOs were included in the cooperation

Full Participants:

- France (Rte)
- Italy (Terna)
- Portugal (REN)
- Espagne (RED)
- Suisse (Swissgrid)
- GB (National Grid)

Candidates :

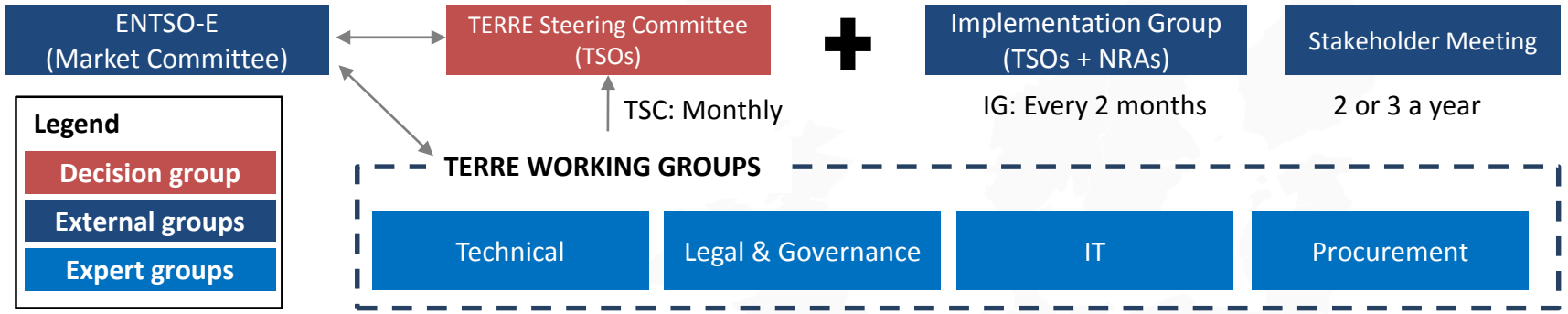
- Greece
- Norway
- Sweden
- Finland
- Denmark
- Czech Republic
- Romania
- Poland
- Hungary
- Croatia



1. Introduction to TERRE project

TERRE governance and project scope

Governance structure



Project scope

- The TERRE project composes **2 main steps**:
  - the TSO-TSO (Platform) **design** and
  - the Local Features **harmonization**

- The TERRE project showed significant progress in 2016 by closing the TSO-TSO Design, going through the NRAs' approval and **entering the Implementation Phase** with the current RFP (Request For Proposal) period as the major cornerstone.

Design phase

Design "platform" TSO-TSO
- ✓ RR balancing offers
- ✓ TSO Imbalance Need
- ✓ CMO and algorithmic optimization
- ✓ Settlement
- ✓ CBA
- ✓ Timing & Scheduling
- ✓ Handling AC and DC borders

NRAs Approval
- ✓ Public Consultation
- ✓ NRA approval process
- ✓ RFP preparation

Implementation phase

LIBRA Implementation
- ✓ Contract notice on OJEU
- ✓ Candidates pre-selection
- ✓ RFP documentation prepared
- ➢ Tendering phase launching
- ➢ Implementation, Integration and Hosting of the Clearing Module
- ➢ Implementation Accounting Services

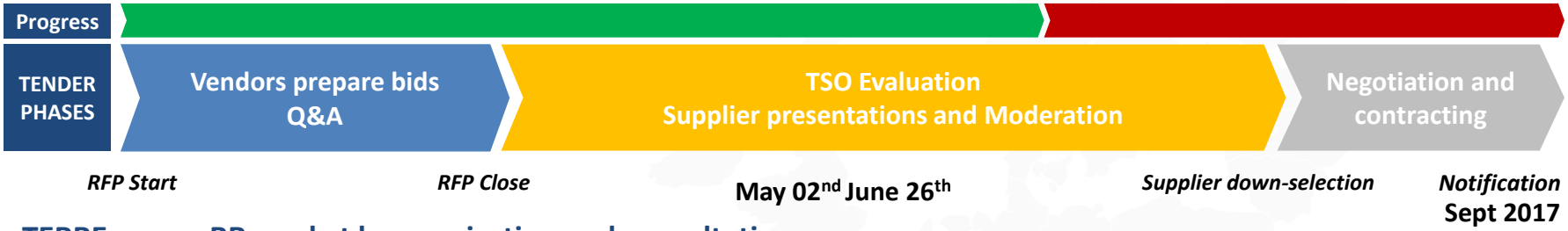
RR market Implementation
- ➢ Harmonization of local features
- ➢ Discussions with the NRAs
- ➢ Consultation
- ➢ Implementation Framework

2. TERRE progress and planning

Passed and future project milestones

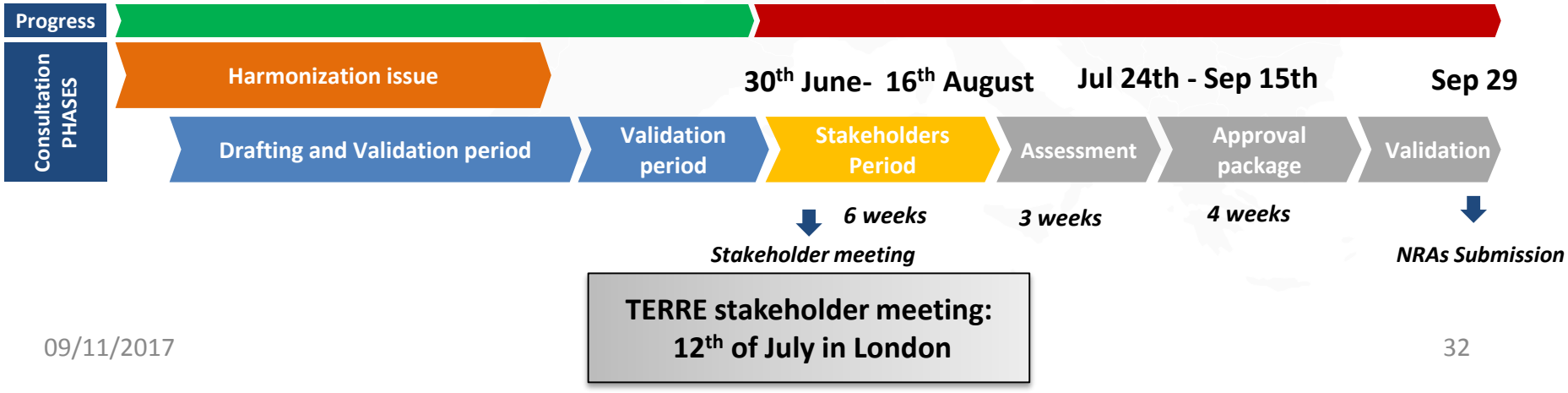
Libra platform development

- The RFP process is the corner stone to establish the algorithmic optimization solution and the technical design of the Libra Platform. The TERRE projects will conclude the first phase of the main RFP Lot by end of July, followed by functional design of the platform.



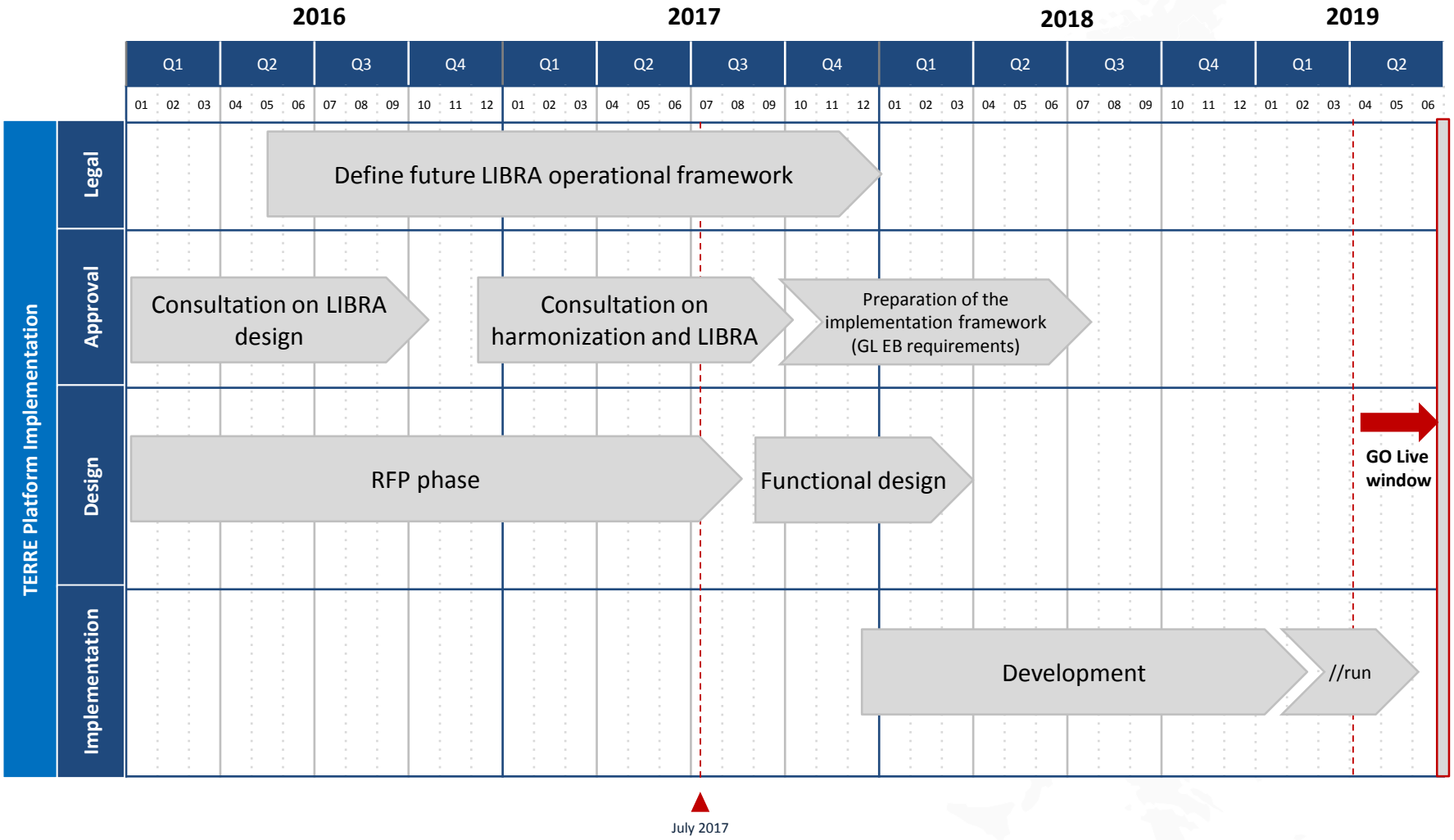
TERRE scope: RR market harmonization and consultation

- Next to the technical implementation of the platform, the harmonization of the RR balancing market will be handled by a public consultation. The stakeholders will be involved to provide their feedback on the proposed design. Followed by the publication under the EBGL scope with participation of all European RR TSOs.



2. TERRE progress and planning

High level planning

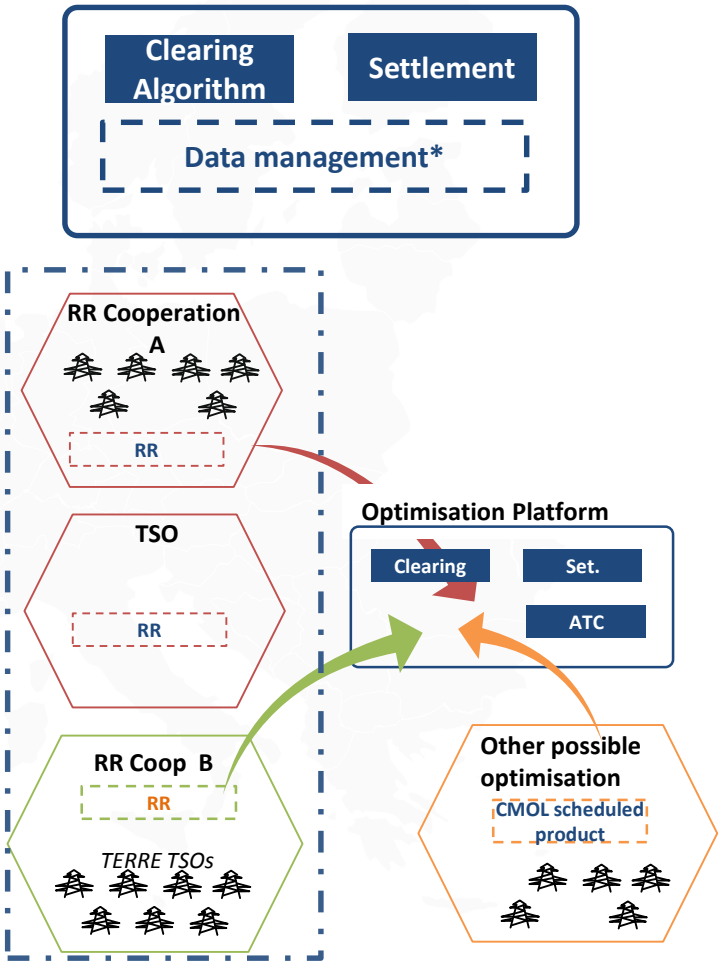


3. Libra European Platform

Platform ambition

TSOs involved in TERRE project are developing a modular solution that aims to be **the reference for the optimisation RR products in Europe**

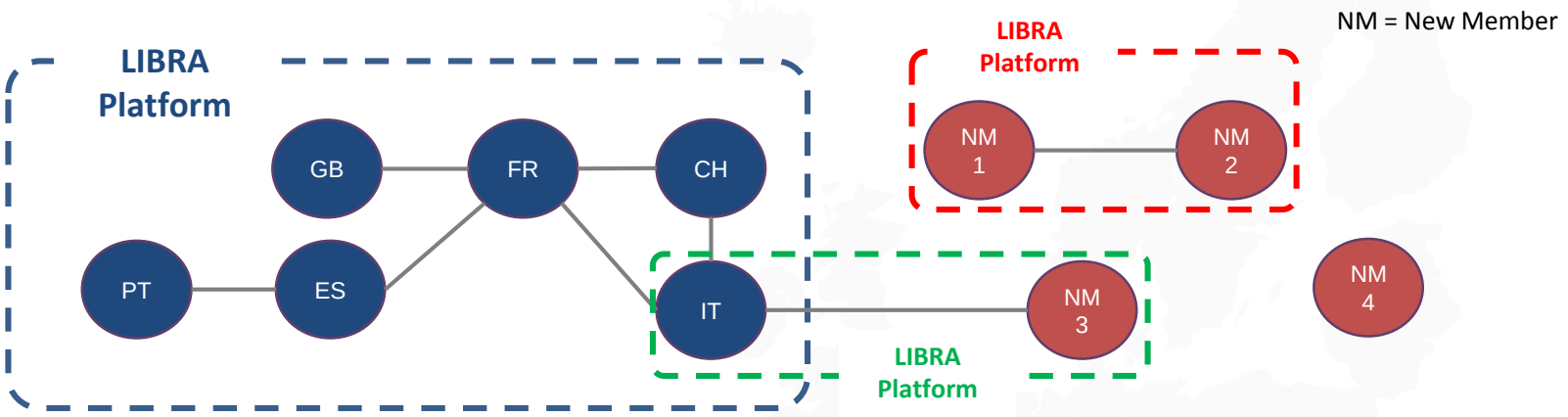
- **LIBRA** will be composed of 3 **independent lots**
- **Different zones using the same and/or different types of product** can be optimised by the platform using different CMOL
- It is also **possible to have one single Merged CMOL** for the same type of product, **for TSOs from different Cooperation**
- **LIBRA aimed to optimize balancing energy activation ➔ Other scheduled balancing product can be optimised by the platform in different processes and timelines**



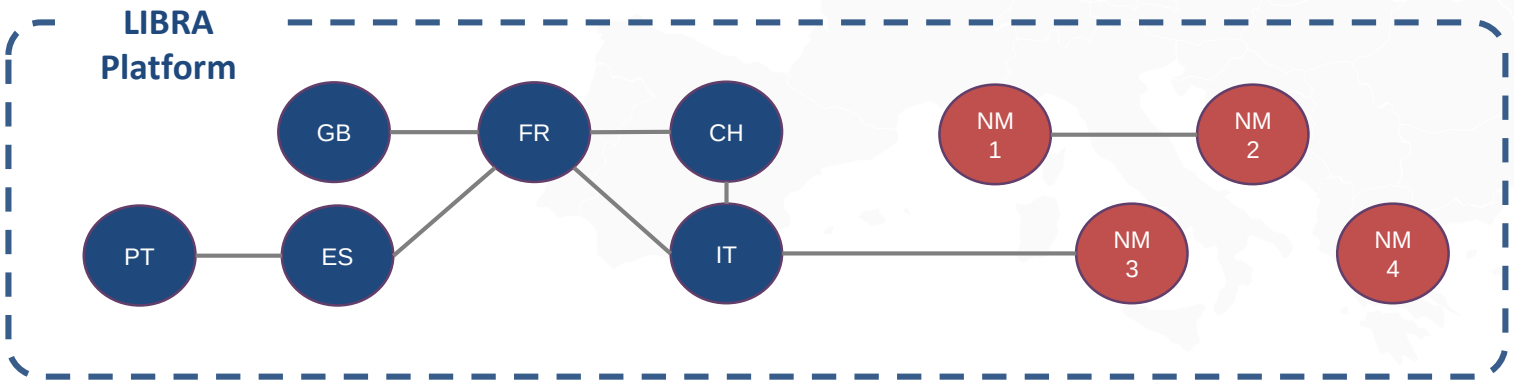
3. Libra European Platform

Platform ambition

1 - First Stage



2 – Potential second step



3. Libra European Platform

Platform and main features

- **Processing data from ≈ 50 countries**
- **Algorithmic performance less than 3min (for 500 000 offers treated by clearing)**
- **15min resolution**
- **Common or local optimisation**
- **Allowing or blocking counter activation**
- **Allowing XB countertrading**
- **Treatment of UAB/URB (PAB/PRB)**
- **Intellectual propriety requested**
- **…**

1. TSO-TSO model

Definition of imbalance needs

Imbalance Need Characteristics	
Anticipation Time	Only needs anticipated 45 min or more before real time can be satisfied by TERRE
Minimum size	0 MW
Minimum delivery period	15 min
Max delivery period	60 min
Location	Bidding Zones
Maximum Size	The maximum size of the Imbalance Need should be less or equal to the sum of the shared offers made in the same direction. Under certain conditions, a TSO can apply exceptions
Divisible Volume	Under the responsibility of TSO to a resolution of 1MW
Price	For inelastic needs TSOs will not price their needs. For elastic needs a price will be submitted, which will set a min/max price each TSO is willing to receive/pay to satisfy its needs. Its resolution is 0.01€/MWh.
Time Resolution	15 min
Firmness	Yes
Direction	Positive (System short) / Negative (System long)