The Electricity Balancing Guideline (‘EBGL’) requests to the establish an European platform for Replacement Reserves pursuant to its Article 19(1) and develop a proposal under an implementation framework:

• This proposal was submitted 6 months, after the guideline entered into force

• The platform is expected to Go-Live by end of 2019

**Main points from the RR – Implementation framework:**

• The TSOs that are part of this methodology are: National Grid, Swissgrid, REE, REN, TERNA, Transelectrica, RTE, PSE and CEPS

• Definition of the RR Standard Product characteristics

• BSP and TSO Gate closure time

• Types of the bids accepted and formation of the CMOL

• Functions that will cover the platform

**The final proposal was approved on 4th December 2018 by the relevant NRAs**
RR Platform – timeline

**Phase I**
Pre-tendering
- BSPs submit offers to TSOs

**Phase II**
Tendering
- submit imbalance needs
- submit offers
- submit ATC
- submit HVDC constraints and schedules (optional)

**Phase III**
Clearing
- allocate offers to needs
- determine prices
- calculate XB schedules

**Phase IV**
Result communication and verification
- send accepted offers & satisfied needs
- send XB schedules
- send clearing prices
- send remaining ATC
- send net positions

**Phase V**
Activation period
- Activate offers

**Phase VI**
Delivery Period
Submit data to Transparency Platform

**H-70min**
> TSO responsibility

**H-60min**
> Common platform responsibility

**H-40min**
> TSO responsibility

**H-35min**
> Common platform responsibility

**H-30min**
> TSO responsibility

**H**

**H+60 min**

Adjusted to H-55 end of 2020

**RR Balancing Energy Gate Closure Time**

**TSO Energy Bid Submission Gate Closure Time**
RR Platform – types of bids

1. Full divisible bids
2. Divisible bids
3. Indivisible bids
4. Linked bids in time
5. Exclusive bids in volume
6. Exclusive bids in time
7. Multi part bids

- Increasing or decreasing only prices
- They can be either fully divisible, or divisible or indivisible bids
- A multi-part bid can be defined with a starting and an ending time and can last from 15 to 60 minutes. The same volume will be accepted for the whole defined delivery period

The accepted volume is less or equal to the maximum volume and greater or equal to 0

The bid is rejected when the accepted volume is equal to 0

They correspond to single time steps, i.e. to 15 minute time steps

The accepted volume is less or equal to the minimum quantity

The bid is rejected when the accepted quantity is equal to zero

They correspond to single time steps, i.e. to 15 minute time steps

They can be either fully divisible, or divisible or indivisible bids

They can offer different quantities/prices per time step

The explicit links can only link bids (including curve) corresponding to different time steps

The same percentage ratio $\alpha$ will be accepted: $\alpha = \frac{\text{Accepted volume of each bid}}{\text{Maximum volume of each bid}}$

They can be either fully divisible, or divisible or indivisible bids

Bids corresponding to single time steps only can be exclusive in volume

Maximum one exclusive bid can be accepted

Increasing or decreasing only prices

They can be either fully divisible, or divisible or indivisible bids

A multi-part bid can be defined with a starting and an ending time and can last from 15 to 60 minutes.. The same volume will be accepted for the whole defined delivery period
RR Platform – Algorithm optimisation

Objectives:
- Maximize Social welfare
- Maximize inelastic need satisfaction
- Minimize tolerance band use
- Maximize desired flow range satisfaction

Optimization model construction

Maximize Social welfare
- Constraints: Fix bids and need selections
- Fix social welfare

Maximize inelastic need satisfaction
- Constraints: Fix XB flows

Minimize tolerance band use
- Constraint: Fix XB price differences

Maximize desired flow range satisfaction

Processing Input data

1. TSO receive bids from BSPs from their local balancing area/bidding zone.
2. TSOs put the valid RR bids on the LIBRA platform.
3. TSOs send their needs and ATC values to the platform.
4. Calculation of bilateral exchanges between balancing areas and TSO- TSO settlement.
5. Communication of accepted offers, satisfied needs and marginal prices
6. Residual ATC and net positions are communicated to TSOs.
RR Platform – LIBRA

Lot B
- Optimization/Clearing algorithm
  - Optimization of the bids using CMOL
  - Optimization of the available CZ interconnections

Lot B2
- IT interface/data management
  - Interface scalable up to 50 TSOs

Lot C
- Hosting
  - Unicorn are contracted for hosting the LIBRA activities (cloud based)
  - Flexibility on changing the hosting party towards other suppliers or TSOs
  - Flexibility on upgrading the hardware following future demand

Lot D
- IT monitoring service
  - Monitoring of the Optimization module
  - Monitoring of the IT interface
  - SLAs and contracting in case of failure
  - Liaison with TSO operations

Lot E
- Financial Settlement
  - Financial settlement to be externally contracted
  - Monthly billing system between TSOs through a centralized clearing house
  - Flexibility to add new TSOs

Lot F - Testing