Deliverable I.4
Cross-border balancing model among TSOs

Madrid, November 3rd 2011

Update on progress towards interim solution

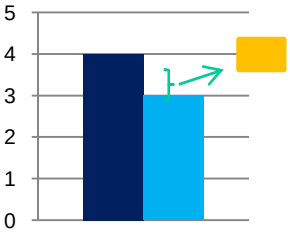
- Analyses are ongoing for the implementation of two bilateral mechanisms:
  - A bilateral mechanism between REE and RTE
  - A bilateral mechanism between REE and REN in the framework of the MIBEL "Road-map for the implementation of a balancing exchanges mechanism between TSOs"
- It is foreseen to use RTE IT platform (BALIT) for both mechanisms
  - Platform already used between RTE and National Grid since December 2010
- The implementation work of both interim solutions is coordinated
  - (common work plan, common legal, operational and technical work)

Other Neighbouring TSO

1. Building of the Tenders that would be submitted to the neighboring countries

IT Platform

3. Presentation of the Tenders to the Neighboring TSOs



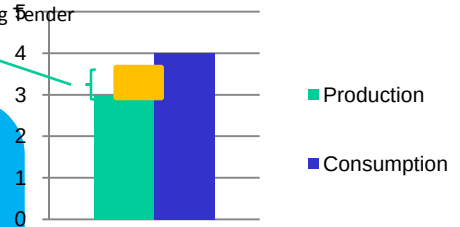
For example (Portugal & Spain in the Phase II of the Roadmap): Forecast of a curtailment of renewable energy/halt of thermal powerplants

4. Technical and Economic analysis of the Tender

2. Submission to IT Platform of a Tender

5. Activation request from one TSO

REE Balancing Tender



Example: Excess of consumption in Portugal is foreseen and REE bids are economically attractive to cover the imbalance

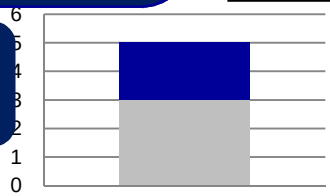
6. Validation by the offering TSO (possible refusal under certain conditions, in particular if no free interconnection capacity)

TSO A

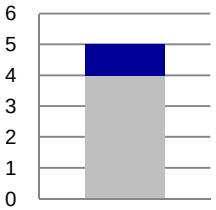
TSO B

Internal Upwards and Downwards Regulation / Balancing Bids

7. Schedule the Exchange of Balancing Energy (Interconnection Program=< NTC $_{A+B}$)



System A --> System B



System A --> System B

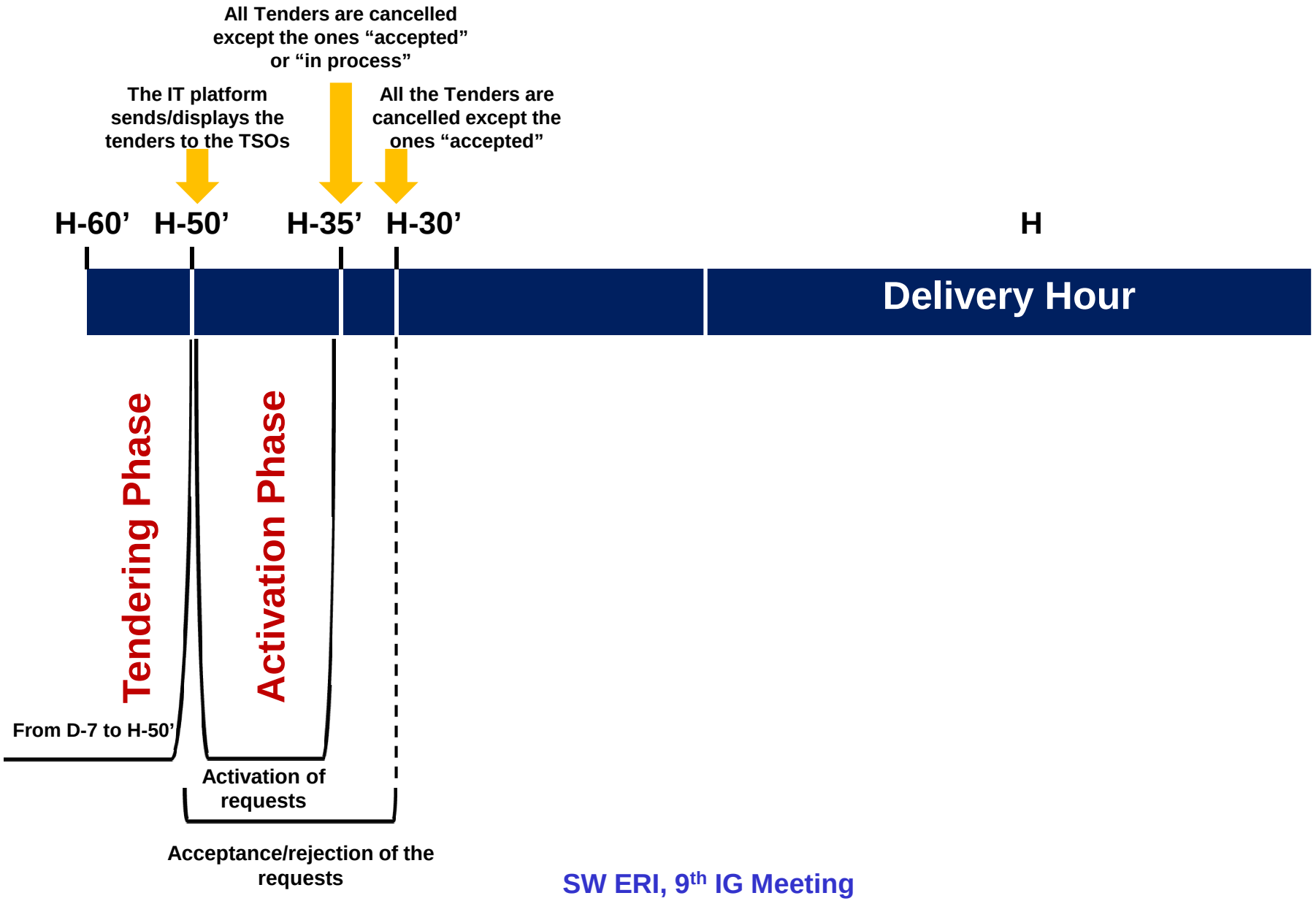
Availabe Capacity

Comercial Flow after TSO-TSO Balancing Energy Exchange

H-60’ H-50’ H-35’ H-30’ H

1 2 3 4 5 6 7

Delivery Hour


All Tenders are cancelled except the ones “accepted” or “in process”
The IT platform sends/displays the tenders to the TSOs
All the Tenders are cancelled except the ones “accepted”
H-60’
H-50’
H-35’
H-30’
H
Delivery Hour
Tendering Phase
Activation Phase
From D-7 to H-50’
Activation of requests
Acceptance/rejection of the requests

Progress on legal work

- **Contractual agreements:**
  - **Preparation of bilateral Cross-Border Balancing Agreements between REE and RTE / REE and REN:**
    - **Establishing the rights and obligations of each TSO for the bilateral exchange of balancing energy**
    - **2 bilateral contracts but joint work between the 3 TSOs to keep consistency**
  - **Preparation of bilateral Service Provision Agreements between RTE as IT service provider and each TSO as BALIT user:**
    - **Establishing the conditions for provision of the BALIT platform by RTE to each user TSO**
    - **At the moment it is foreseen to have 3 bilateral agreements (RTE-REE, RTE-REN, RTE-NG)**
    - **Joint work between the 3 TSOs of SWE to keep consistency**

Progress on technical work

- **IT impacts:**
  - **RTE, REE and REN are currently working on updating Implementation Guides (IG) to define the IT flows and mapping of the files:**
    - **BALIT IG for the exchange of balancing energy between TSOs**
    - **ECAN IG for the transmission of the ATC for TSO-TSO balancing exchanges, i.e. the XB capacity available after the last XB intraday nominations**
    - **SO-SO matching IG for scheduling of XB balancing programs**
  - **Internal IT teams of each TSO have started working on internal IT system impacts**

Next steps

- **Contractual Framework:**
  - **Finalisation expected end of 2011**
- **Implementation Guides:**
  - **Finalisation expected end of 2011**
- **Indicative date for the " go-live" is foreseen at the end of September 2012**

Progress towards multi-TSO enduring solution (I)

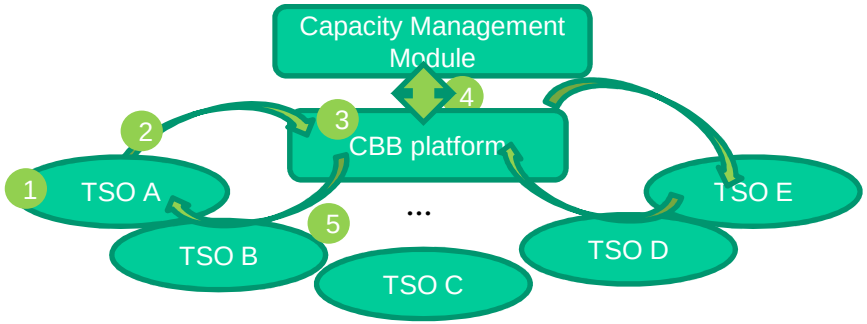
- Project launched by the 3 TSOs on 5th July 2010 for the design of a regional enduring solution for cross border balancing
- General principles:
  - Use of free interconnection capacity after intraday market, respecting NTC values
  - No reservation of interconnection capacity
  - No transmission capacity payment
  - Preserving security of supply
  - Common, transparent and non-discriminatory mechanism
- Main improvements regarding interim bilateral mechanisms
  - Multi – TSO mechanism, extensible to other areas
  - Coordinated automatic control of NTC values during allocation process

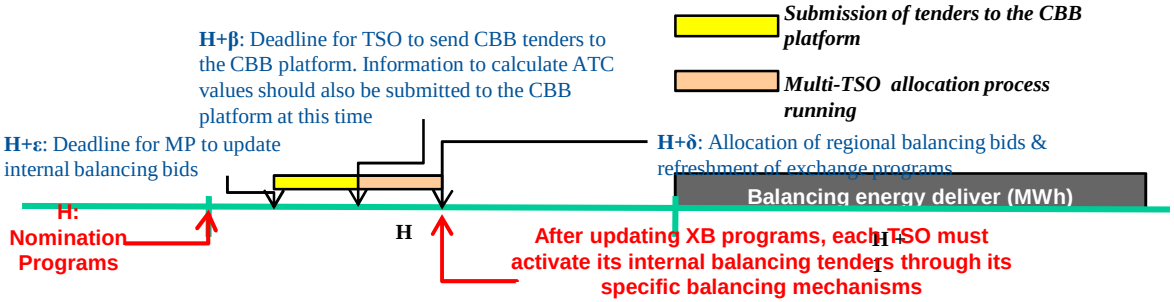
Progress towards multi-TSO enduring solution (II)

- 3 options are investigated
  - 1- Global optimisation matching algorithm
  - 2 - Sequential optimisation matching algorithm
  - 3 - First Come First Served allocation

Progress towards multi-TSO enduring solution (III)

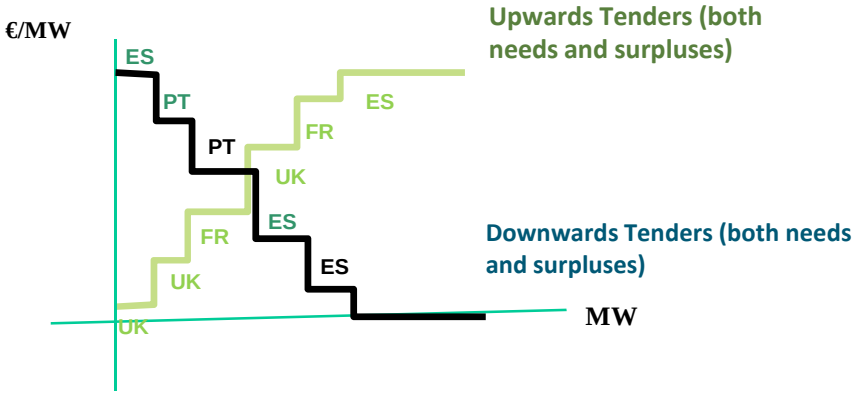
- 3 options are investigated
  - **1- Global optimisation matching algorithm**
  - **2 - Sequential optimisation matching algorithm**
  - 3 - First Come First Served allocation

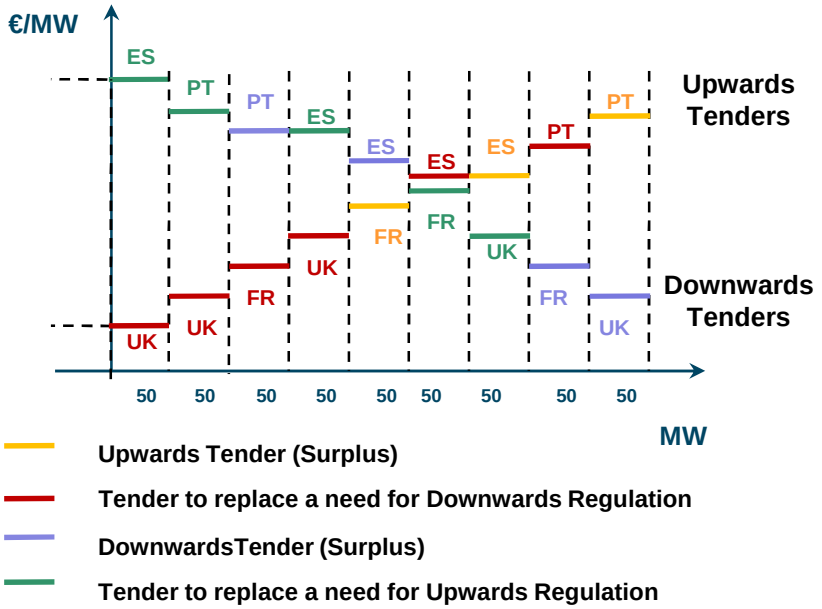




1. Preparation of CBB tenders reflecting balancing surpluses and needs of the TSO
2. Submission of CBB tenders to the CBB platform
3. ATCs are sent by the CMM to the CBB platform
4. Taking into account CBB tenders and ATCs, the CBB platform identifies the possible XB exchanges of balancing energy (matching algorithm running);
5. The multi-TSO platform informs the TSOs if their tenders have been matched and notifies all the TSO that have their XB schedules changed due to the CBB exchanges

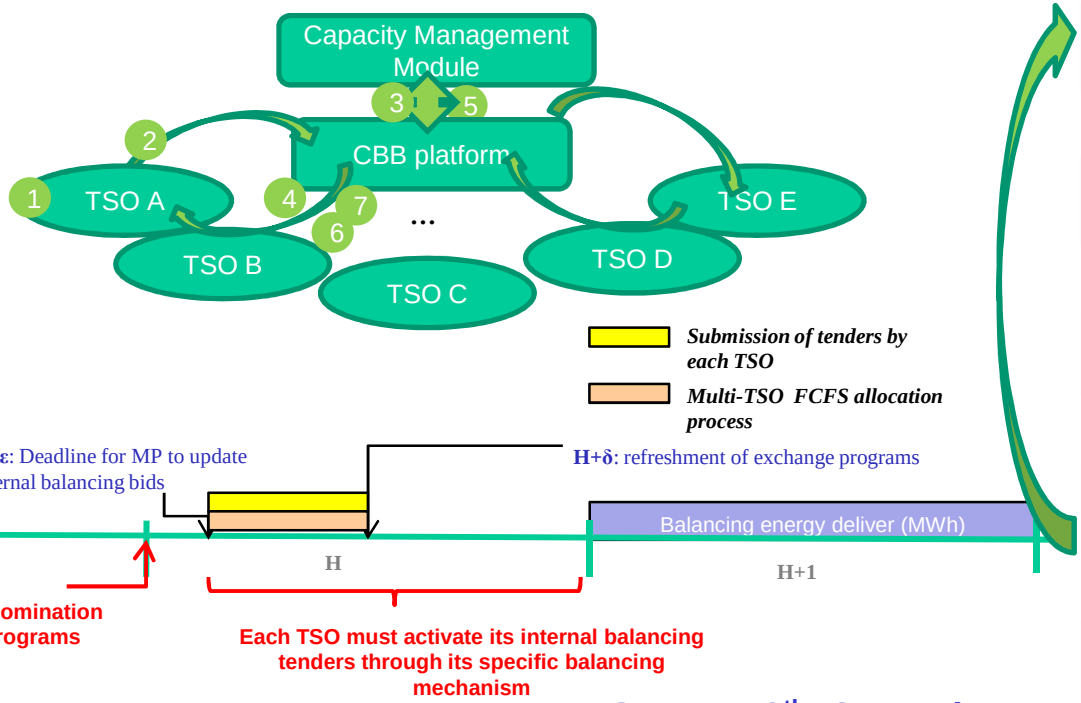
Progress towards multi-TSO enduring solution (IV)





Progress towards multi-TSO enduring solution (V)

- 3 options are investigated
  - 1- Global optimisation matching algorithm
  - 2 - Sequential optimisation matching algorithm
  - **3 - First Come First Served allocation**



1. Preparation of CBB tenders reflecting balancing surpluses of the TSO
2. Submission of CBB surplus tenders to the CBB platform
3. ATCs are sent by the CMM to the CBB platform
4. CBB surplus tenders will automatically be shared by the CBB platform to the TSOs for which there is enough XB Capacity
5. The CBB platform exchanges information with the CMM in order to update the XB Capacity in the borders affected by the trades as soon as a tender is activated
6. The CBB platform informs the TSOs when their tenders have been activated
7. The CBB platform notifies all the TSO that have their XB schedules changed due to the CBB exchanges

Progress towards multi-TSO enduring solution (VI)

- **General Characteristics of the Cross Border Balancing product:**
  - **Fixed size non-divisible blocks (e.g. 50 MW)**
  - **Each block associated to a price in €/MWh**
  - **Design and activation: Each hour for the next hour**
  - **Price of tenders: CBB Tenders Pricing Methodology must be transparent**
  - **Direction: upwards or downwards**
  - **Volume of tenders: Limitations on shared CBB volume could be agreed between systems**
- **Specific Characteristics:**

Optimisation algorithm allocation	FCFS allocation
Tenders submitted to the CBB Platform are firm after the CBB Gate Closure This kind of allocation requires the submission of the following tenders (which can be upward or downward) to the CBB platform: - Tenders which represent surplus of reserve sent by an offering TSO, - Tenders of a requesting TSO that reflect the needs of the electric system, - Tenders of a requesting TSO due to a lack of reserve.	Tenders submitted by an offering TSO to the CBB Platform are firm once activated by a requesting TSO This kind of allocation requires only the submission of tenders which represent surplus of reserve sent by offering TSOs to the CBB platform The CBB tender will also be characterized by its activation deadline which represents the time after which it can no more be activated by the other TSOs. The offering TSO is allowed to submit tenders with different activation deadlines.

Next steps and work plan

- Preparation of a common paper describing the 3 options for a regional model
- Pending issues:
  - Pros and cons of the 3 options
  - Governance issues for the management of the common platform and interaction with the CMM
- Link with the forthcoming ACER consultation on Balancing Trade (According 3 years Work Plan EC/ACER/ENTSO):
  - The document will be sent to the ENTSO-E working group Ancillary Services in December 2011
  - This will be used as basis for ENTSO-E to send comments on ACER Framework Guidelines draft on Balancing at the beginning of 2012
  - Afterwards, ENTSO-E will develop the corresponding Network Code (in 2013)
  - Implementation on the Enduring Solution should take into account the preparation of Balancing Network Code drafting