# Network Code Balancing

## 3rd Stakeholder Advisory Group Meeting
## 1st draft of EBNC

**February 26th, 2013**

**Disclaimer:**
Presentation based on DRAFT Version of the NC Balancing!
NC Balancing is work in progress.

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# Content

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- Reserves and Energy Products
- Procurement of Balancing Reserves
- Collateralisation of Reserves
- Use, Allocation & Reservation of Capacity
- Settlement

# Status Quo

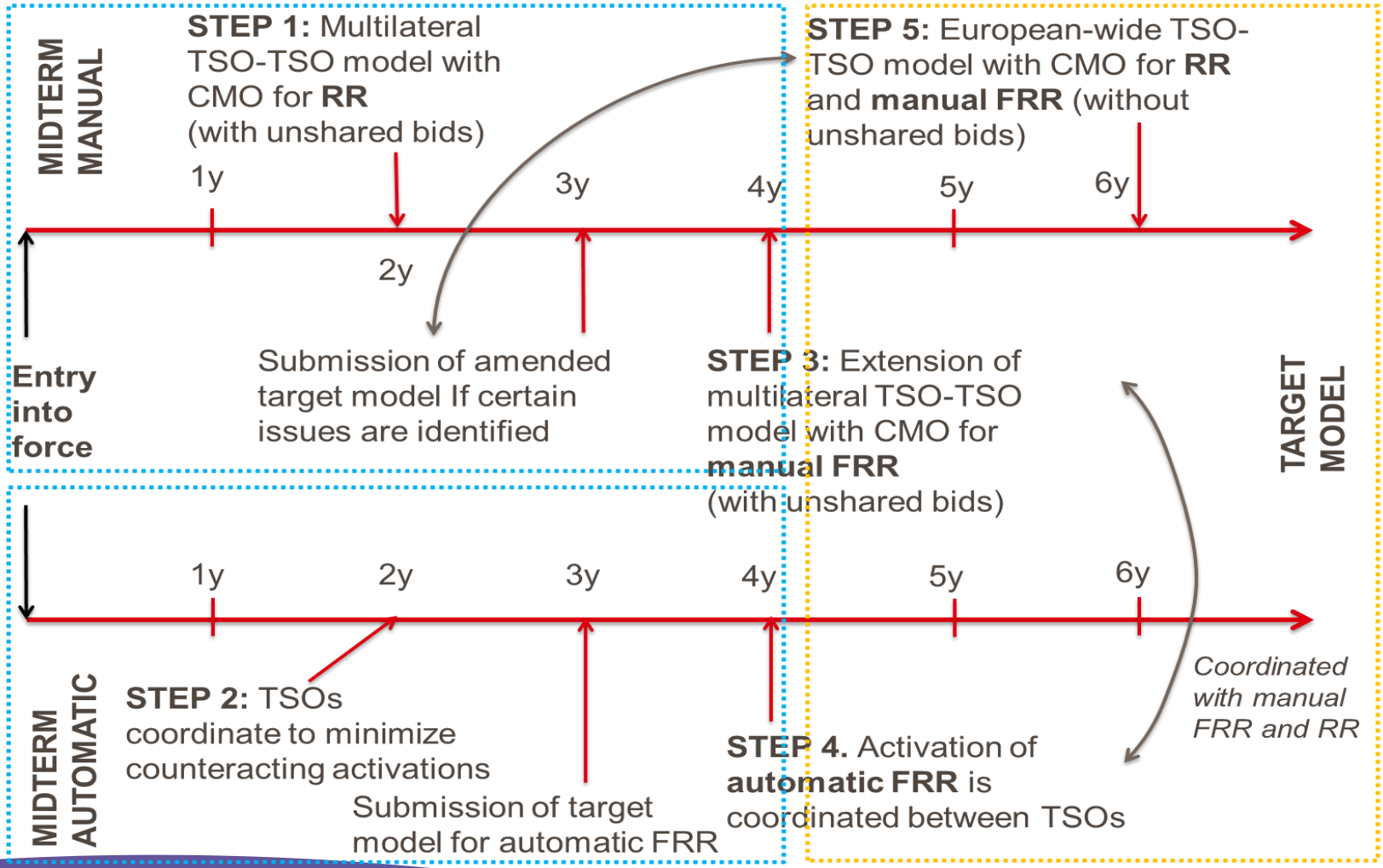
# What happened so far…

- Scoping phase of DT started in June 2012.
- After final FG EB was available (18.09.) drafting of EBNC started.
- First draft (half) was available beginning of December 2012 (which we shared immediately with EBSAG).
- Official start of EBNC development 01.01.2013.
- First “complete” draft was available middle of February 2012.

**→ Open and direct communication with stakeholders was and still is the guiding principle!**

# Targets

# FWGL Integration Targets for Balancing Cooperations (Article 57)



# How ENTSO-E and DT „ensure“ consistency with FG Balancing?

NC Drafting based on

- Understanding of the mechanisms established by the FWGL
- Sharing of the guiding principles

| | Table of Contents | Page | Article NC |
|---|---|---|---|
| 1 | **General provisions** | 5 | |
| 1.1 | **scope** | 5 | |
| | In particular the European Network of Transmission System Operators for Electricity (ENTSO-E) shall take into account the parallel existence of central dispatch and self-dispatch arrangements of European electricity markets when drafting the Network Code on Electricity Balancing in line with these Framework Guidelines. | | 1 |
| | The Network Code on Electricity Balancing shall set the minimum standards and requirements needed for a competitive, harmonised and effective EU-wide balancing market, concerning cross-border and market integration issues. | | 1 |
| | In particular, it shall define the necessary level of harmonisation of the varying national balancing regime design elements, in order to foster European balancing market integration. | | 1 |
| 1.2 | **links and dependencies** | 6 | |
| 1.3 | **definitions** | 7 | |
| 1.4 | **application** | 8 | |
| 1.5 | **derogations** | 10 | |
| | The Network Code on Electricity Balancing shall describe the process and criteria to apply for derogation. | | |
| | **gency involvement** | 11 | |
| | he Network Code on Electricity Balancing shall provide that ENTSO-E or NRA(s) or TSO(s) directly, as relevant, ubmit to the Agency, without delay, all the relevant information and documents related to the opening of any pproval or fixing procedure by NRAs, as provided for in Sections 1.5, 2.2, 3.2, 3.3.1, 3.3.2, 3.4.1, 4.2 and 4.3 of these ramework Guidelines | | |
| | **eneral principles** | 11 | |
| | **eneral principles pursued in the Network Code on Electricity Balancing** | 11 | 8 |
| | he specifications for national balancing reserve and balancing energy procurement and cross-border balancing xchanges shall pursue the following objectives: | | 8 |
| | afeguarding operational security; | | 8 |
| | ostering competition, non-discrimination and transparency in balancing markets; | | 8 |
| | acilitating wider participation of demand response and renewable sources of energy; | | 8 |
| | ncreasing overall social welfare and efficiency; | | 8 |
| | romoting cross-border balancing exchanges. | | |
| | addition, it shall be ensured that these specifications are consistent and take into account interactions with other arket timeframes (e.g. intraday, day-ahead). | | 8 |

| FG Article | Fulfillment by NC | NC Article Title | Paragraph |
|---|---|---|---|
| The Network Code on Electricity Balancing shall provide that ENTSO-E or NRA(s) or TSO(s) directly, as relevant, submit to the Agency, without delay, all the relevant information and documents related to the opening of any approval or fixing procedure by NRAs, as provided for in Sections 1.5, 2.2, 3.2, 3.3.1, 3.3.2, 3.4.1, 4.2 and 4.3 of these Framework Guidelines. The Network Code on Electricity Balancing shall also require relevant NRAs to inform the Agency of the outcome of any approval or fixing procedures. | | | |
| **2 General principles** | | | |
| **2.1 General principles pursued in the Network Code on Electricity Balancing** | | | |
| The specifications for national balancing reserve and balancing energy procurement and cross-border balancing exchanges shall pursue the following objectives: - safeguarding operational security; - fostering competition, non-discrimination and transparency in balancing markets; - facilitating wider participation of demand response and renewable sources of energy; - increasing overall social welfare and efficiency; - promoting cross-border balancing exchanges. | ✓ | **Article 9 - General Objectives of the Balancing Market** | 2 |
| In addition, it shall be ensured that these specifications are consistent and take into account interactions with other market timeframes (e.g. intraday, day-ahead). | | | |
| **2.2 Role of TSOs in balancing** | | | |
| The Network Code on Electricity Balancing shall clearly specify the roles and responsibilities of TSOs regarding electricity balancing. | ✓ | **Article 11, Role of TSOs** | 4,5 |
| TSOs are responsible for organising balancing markets and shall strive for their integration, keeping the system in balance in the most efficient manner and following the general objectives defined in Section 2.1 of these | ✓ | **Article 11, Role of TSOs** | 1 |
| The Network Code on Electricity Balancing shall require that each TSO is responsible for procuring the required balancing services from BSPs and is not allowed to offer the balancing services itself except, subject to NRA's approval, if system security is threatened due to insufficient bids from BSPs. | ✓ | **Article 11, Role of TSOs** | 2,3 |
| The Network Code on Electricity Balancing shall define common principles for the procurement of reserves and balancing energy in order to ensure that: - it is non-discriminatory, fair, objective, transparent and market based; - it is set to foster liquid balancing markets and avoid undue entry barrier for new entrants; - undue distortions within the internal market and in particular **between adjacent markets that use different procurement mechanisms are avoided.** | ✓ | **Article 9 - General Objectives of the Balancing Market, Article 11 refers to Article 9** | 2c |
| **2.3 Terms and conditions related to balancing** | | | |
| The Network Code on Electricity Balancing shall require that TSOs, or other responsible entity where relevant, define terms and conditions related to balancing in accordance with the Network Code on Electricity Balancing and European and national legislation. | ✓ | **Article 13, Terms and conditions for balancing** | 1 |
| The Network Code on Electricity Balancing shall require that these terms and conditions include reasonable and justified requirements for BSPs and BRPs. The Network Code on Electricity Balancing shall provide that TSOs are responsible for defining the modalities to be applied to BSPs, in the case of non-compliance with technical and contractual requirements, within the terms and conditions. | ✓ | **Article 13, Terms and conditions for balancing** | 4 |

→Continuous cross-checking ensures consistency & highlights potential deviation at an early stage

# Functions and Responsibilities / Governance

# Governing Responsibilities within the EBNC: TSOs

- FWGL gives a clear obligation to TSOs:

  *"TSOs are responsible for organising balancing markets and shall strive for their integration […]"*

  FWGL on Electricity Balancing, p.12 and Art.11, Draft EBNC

- FWGL: Obligation to cooperate in procurement of Balancing Energy, however, FGWL do neither stipulate by who and how this is done before the target model is implemented, nor how cooperation is established for the Exchange of Reserves

  → Proposed solution: Coordinated Balancing Area

# Introducing: the Coordinated Balancing Area

***Why do we need a new concept?***

- Create concrete obligations for cooperation on the way to the targets
- Have a vehicle for the enfolding of legal obligations for the TSOs involved
- Separate TSOs involved in cooperation from those not involved
- Accommodate existing initiatives
- Allow flexibility → foster cooperation → achieve integration

→ **Facilitate the ambitious targets of the FWGL Balancing**

# Roles within a Coordinated Balancing Area (Art. 10f)

## ***Governance amongst TSOs***

- Flexible obligation to cooperate in Coordinated Balancing Areas:
  - TSOs can chose the standard product(s) and partner TSO(s) for Exchanging Balancing Services (cp. Art. 10)
  - Terms & Conditions shall facilitate achievement of objectives (cp. Art. 13)
  - Procurement (of standard product(s)) is harmonised (cp. Chapter 3)
- Role of Transmission System Operators / Roles in Coordinated Balancing Areas
  - Responsibility for procuring Balancing Services and Balancing the system efficiently rests with each TSO, also in case of delegation (cp. Art. 11)
  - All TSOs cooperating in any Exchange or Sharing of Balancing Services or Netting of Imbalances have same rights and responsibilities (cp. Art. 11)
  - Where TSOs are commonly responsible for carrying out a task, TSOs exercise functions commonly, which can be further assigned (cp. Art. 12)

Flexibility is key to reach the FWGL targets and is ensured by not detailing which cooperation is to be done with which TSO

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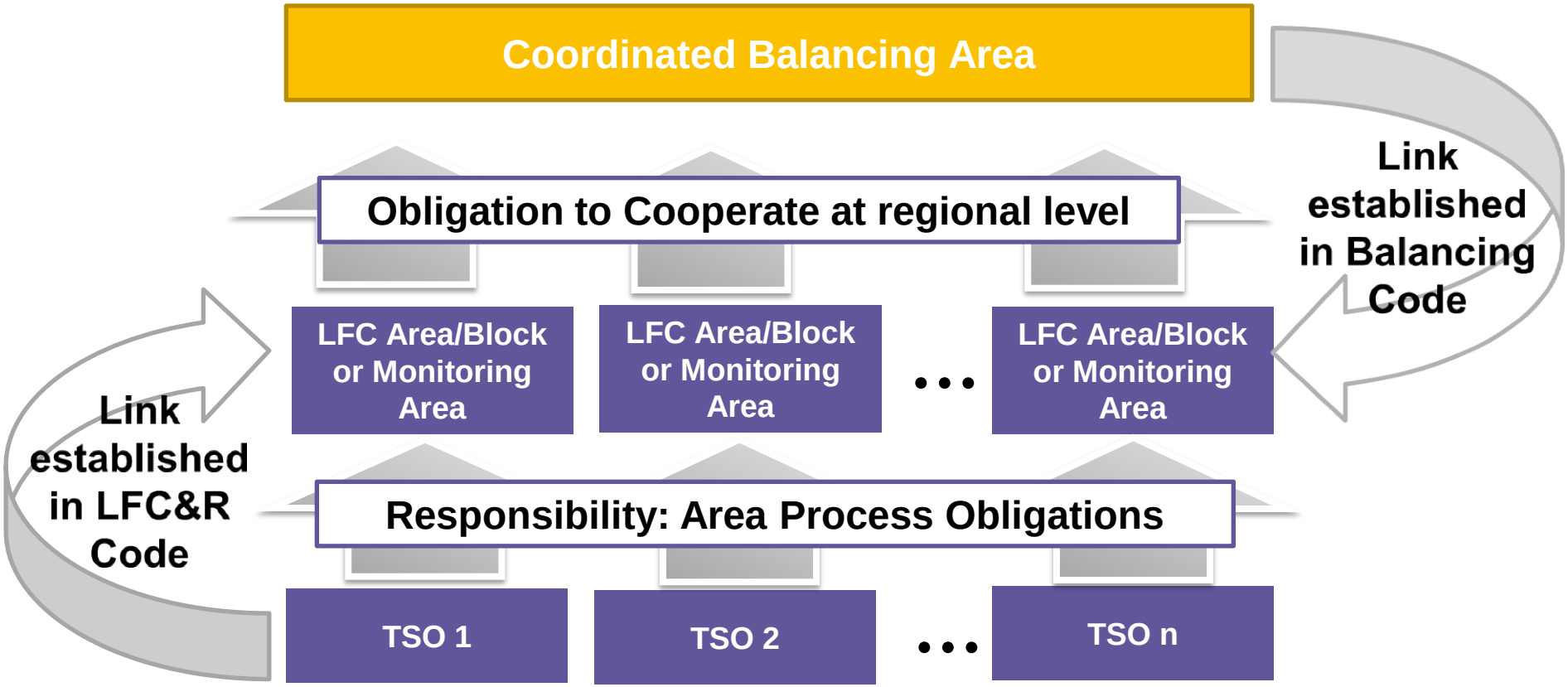
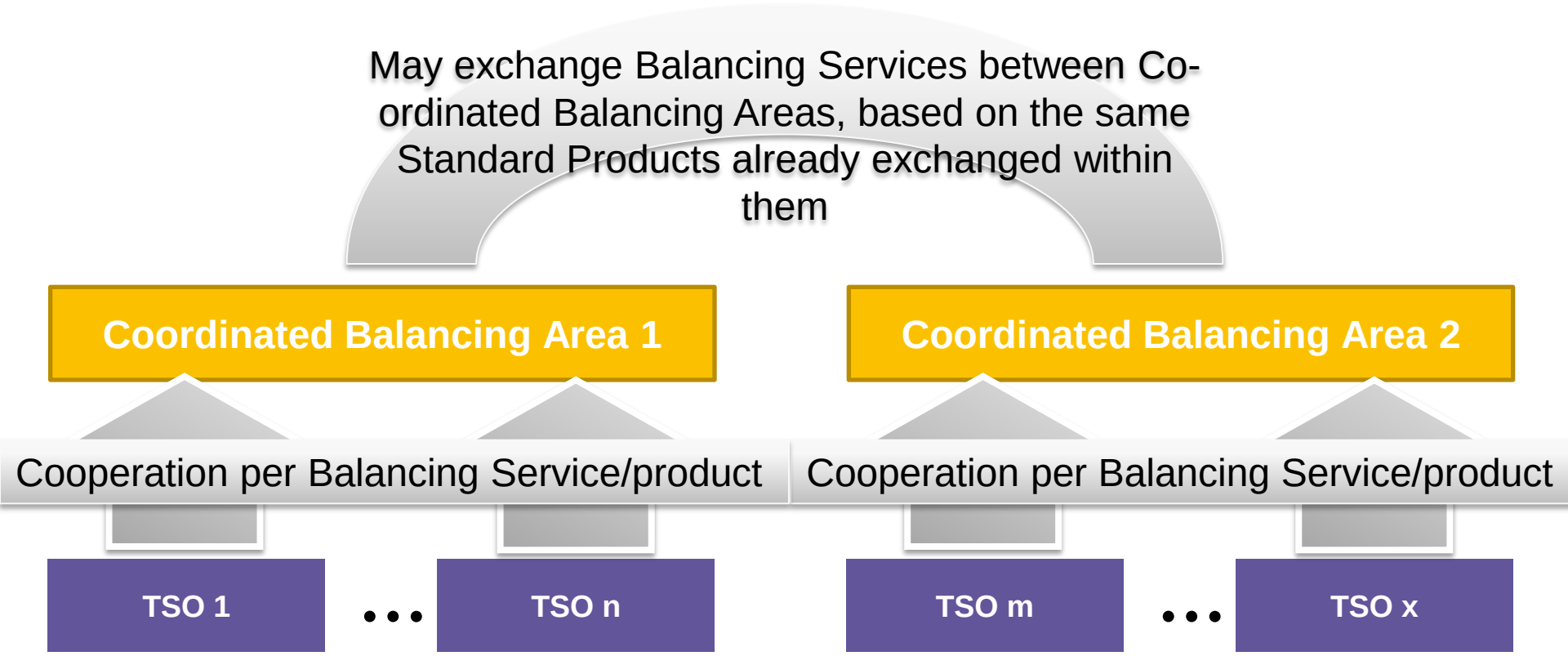
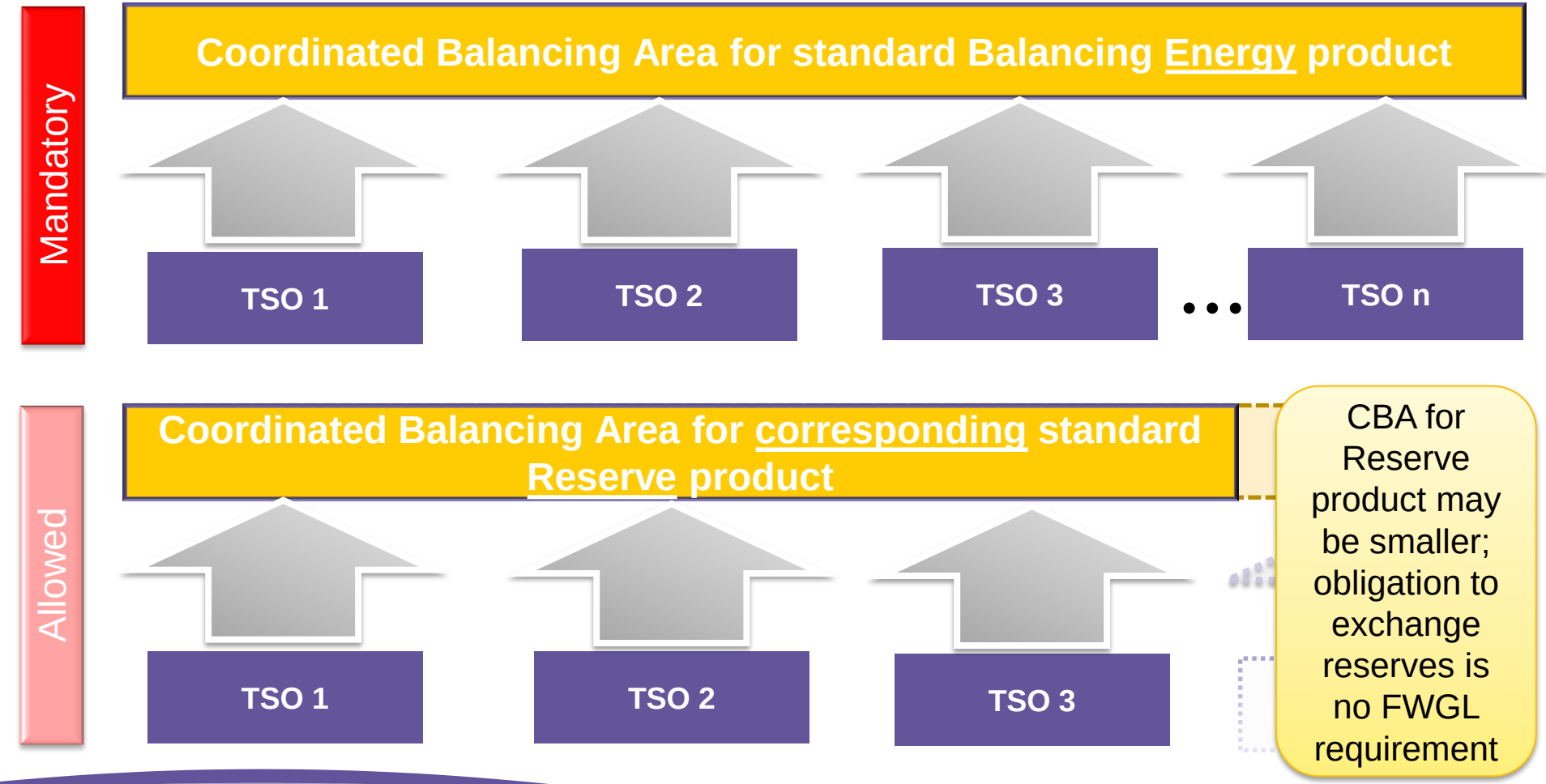
# Link between proposed Area Definitions



# Area Definition in Balancing: Coordinated Balancing Area



# Area Definition in Balancing: Coordinated Balancing Area

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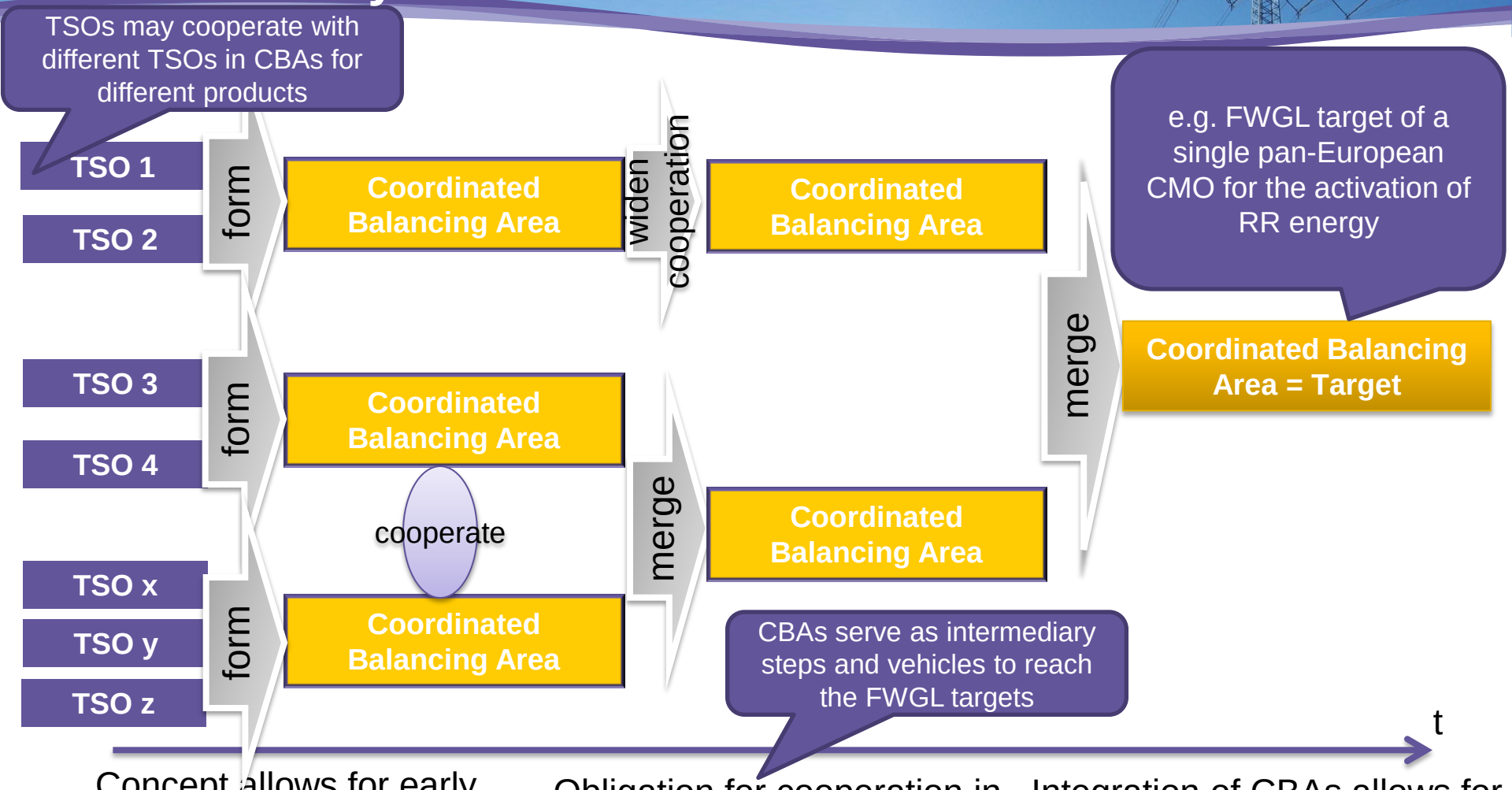
# Coordinated Balancing Areas: Promoting Integration & Flexibility




Concept allows for early cooperation due to its flexibility

Obligation for cooperation in CBAs fosters integration

Integration of CBAs allows for reaching the FWGL targets

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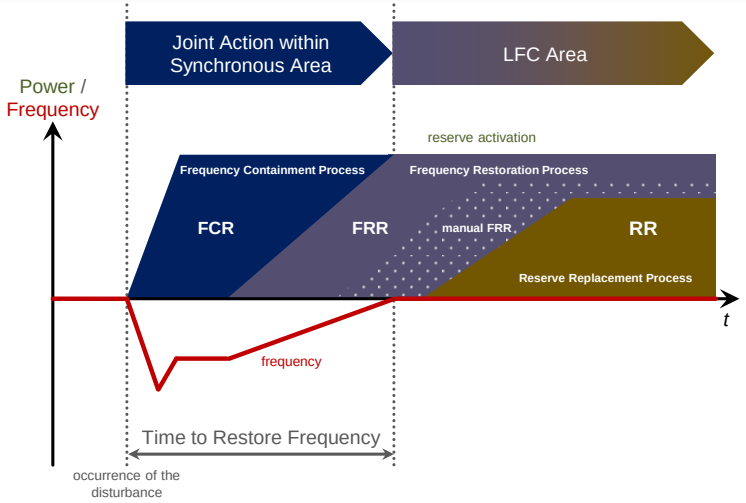
# Reserves and Energy Products

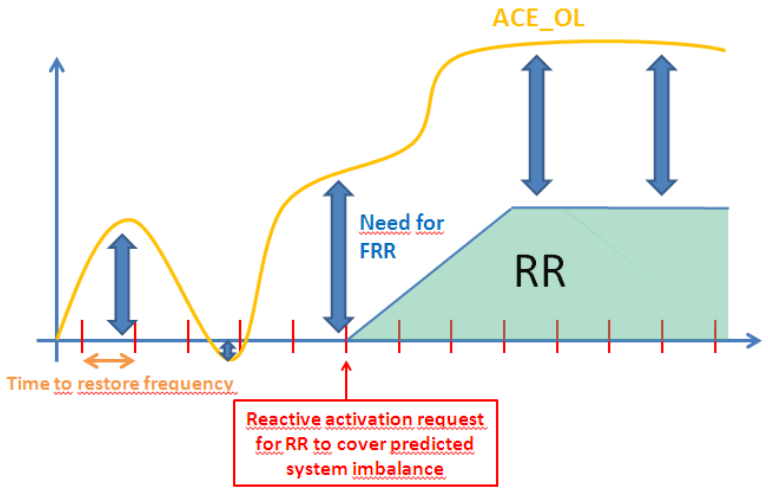
# Reserves and Energy products

## What for?

### Restore the system balance




### Anticipate potential imbalances




## Deal with

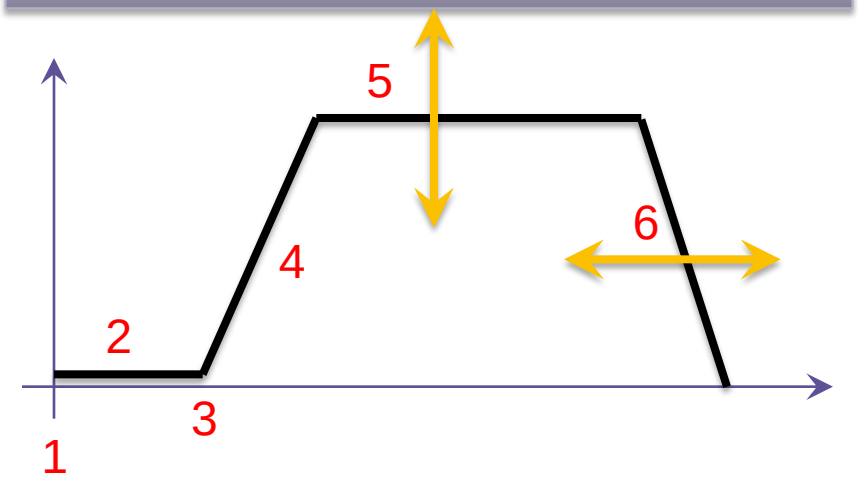
FCR | FRRm | FRRa | RR

# Reserves and Energy products

## Standards products

- **1- Request time**
- **2- Preparation time**
- **3- Starting time**
- **4- Ramping period**
- **5- Min & max bid size**
- **6- Min & max delivery time**

Common at synchronous area level




## Specific products

- **Additional or other caracteristics**

LFC Area level

# Procurement of Balancing Reserves

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# What is the approach prescribed in the NC?

- To describe general Balancing Reserve procurement preconditions applicable both for a single TSO (one area) and for several commonly procuring TSOs (more than one area)
- To use standard Balancing Reserve products even if a TSO procures alone
- Not to bind any TSO to commonly procure with other TSO(s), just to give him a possibility
- To bind TSOs to harmonise Balancing Reserve procurement rules if they commonly procure

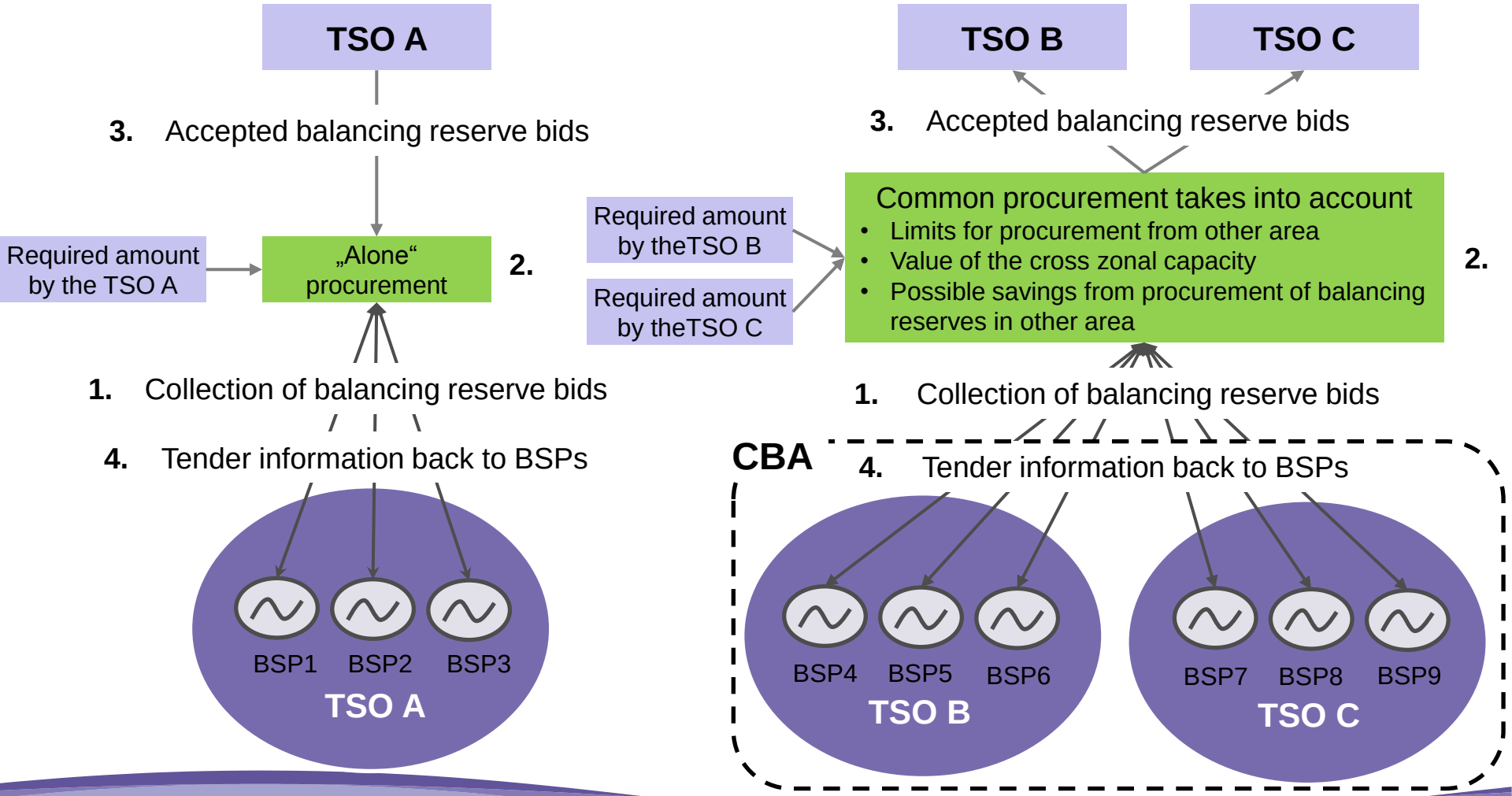
# General preconditions applicable in both cases…

- Contract for a longer period than 12 months is subject to NRA approval
- Except FCR the procurement is done separately for upward and downward reserves
- BSP's counterparty is a TSO in its area
- BSP has the possibility to forward its obligation to deliver a Balancing Reserve to other BSP(s)
- Secondary market with Balancing Reserves is possible

# Common procurement of at least two TSOs

- TSOs create the Coordinated Balancing Area
- Certain amount of Balancing Reserves can be procured in the area of the other TSO
  - Amount for Exchange and Sharing of Balancing Reserves is defined outside this NC in the NC on Load Frequency Control and Reserves
- Sharing is preferred before exchange
  - Contrary to exchange it leads on lower amount of procured Balancing Reserves thus decreasing costs for reservation
- Consideration of cross zonal capacity value between areas during selection of the bids
  - Approaches are listed in Chapter 4 of the NC

# The two approaches can exist alongside each other because they are similar

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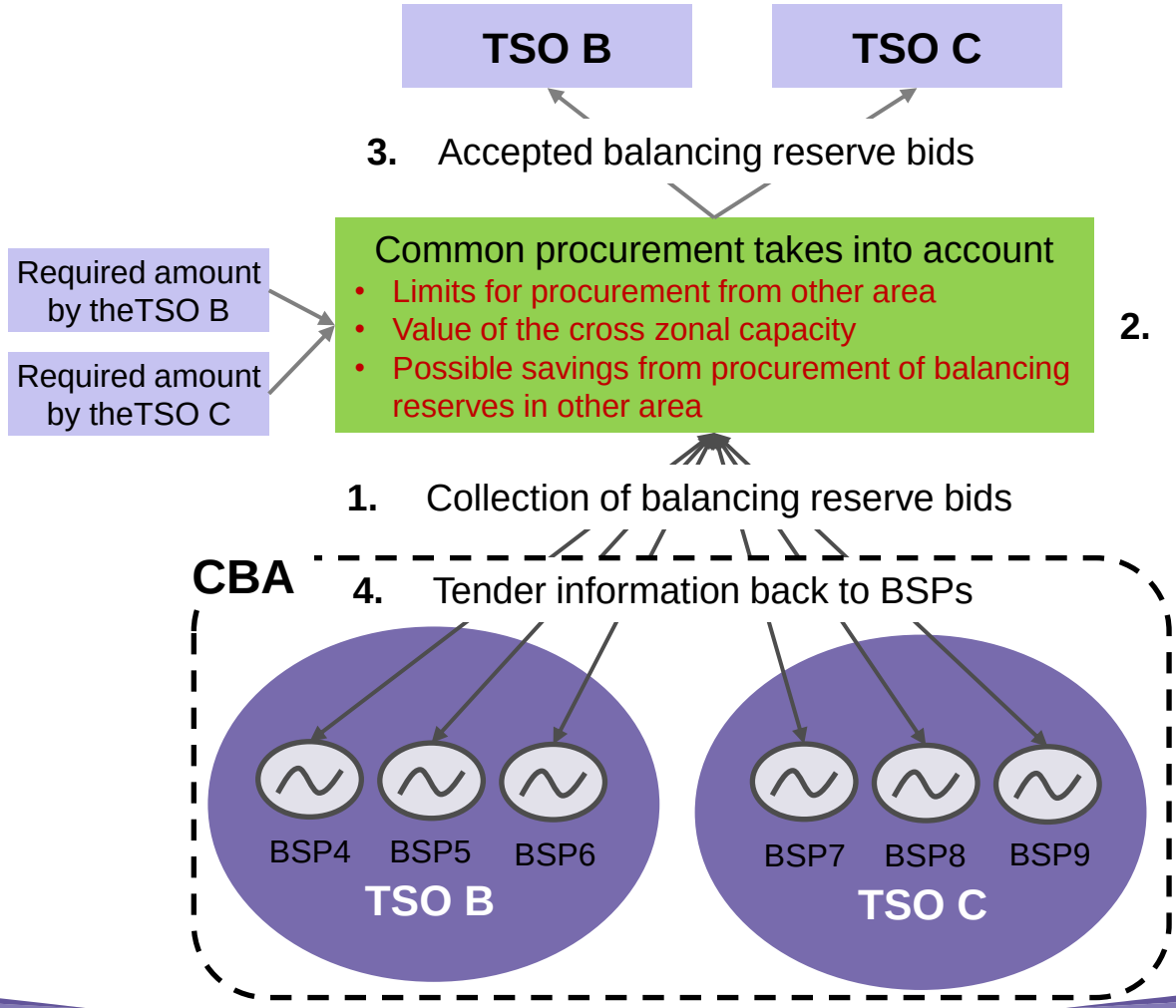
# Collateralisation of Reserves

# Collateralisation of Balancing Reserves

## 1- Procurement

- Market based
- Non discriminatory
- Competition



# Collateralisation of Balancing Reserves

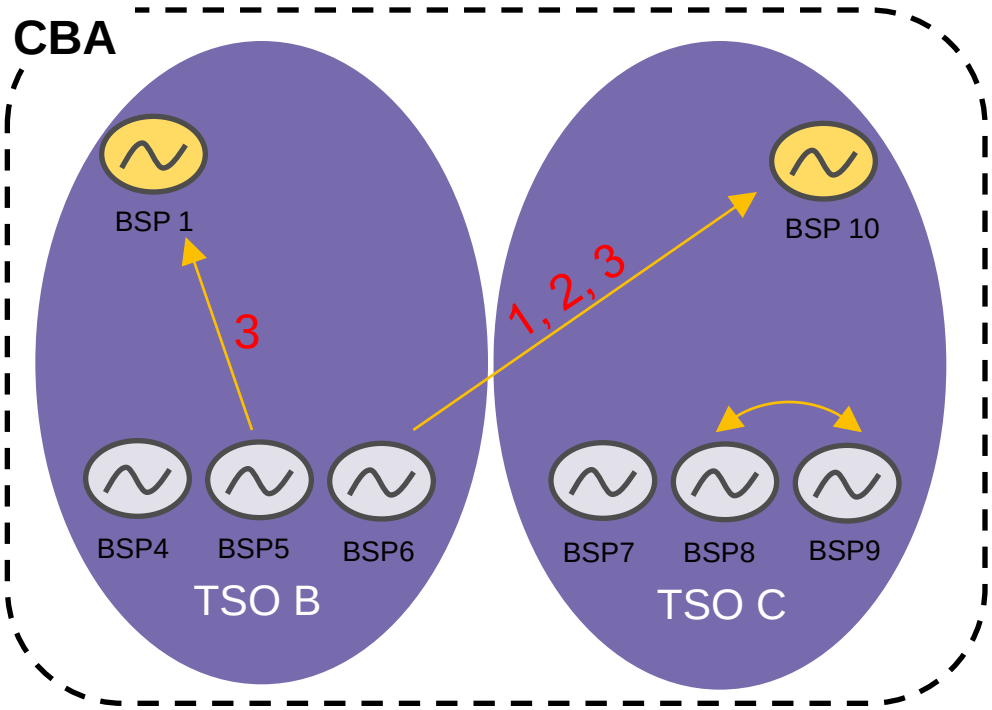
1- Procurement

2- Collateralisation

- Competition
- Non discriminatory
- Shorter timeframes
- TSOs shall be informed

Collateralisation of reserves takes into account

1. Limits for procurement from other area
2. Value of the cross-zonal capacity
3. Fulfilment with qualification process




Selected BSP after procurement of reserves by TSO

BSP of a CBA which fullfill with prequalifaction

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# Use, Allocation and Reservation of Cross Zonal Capacity

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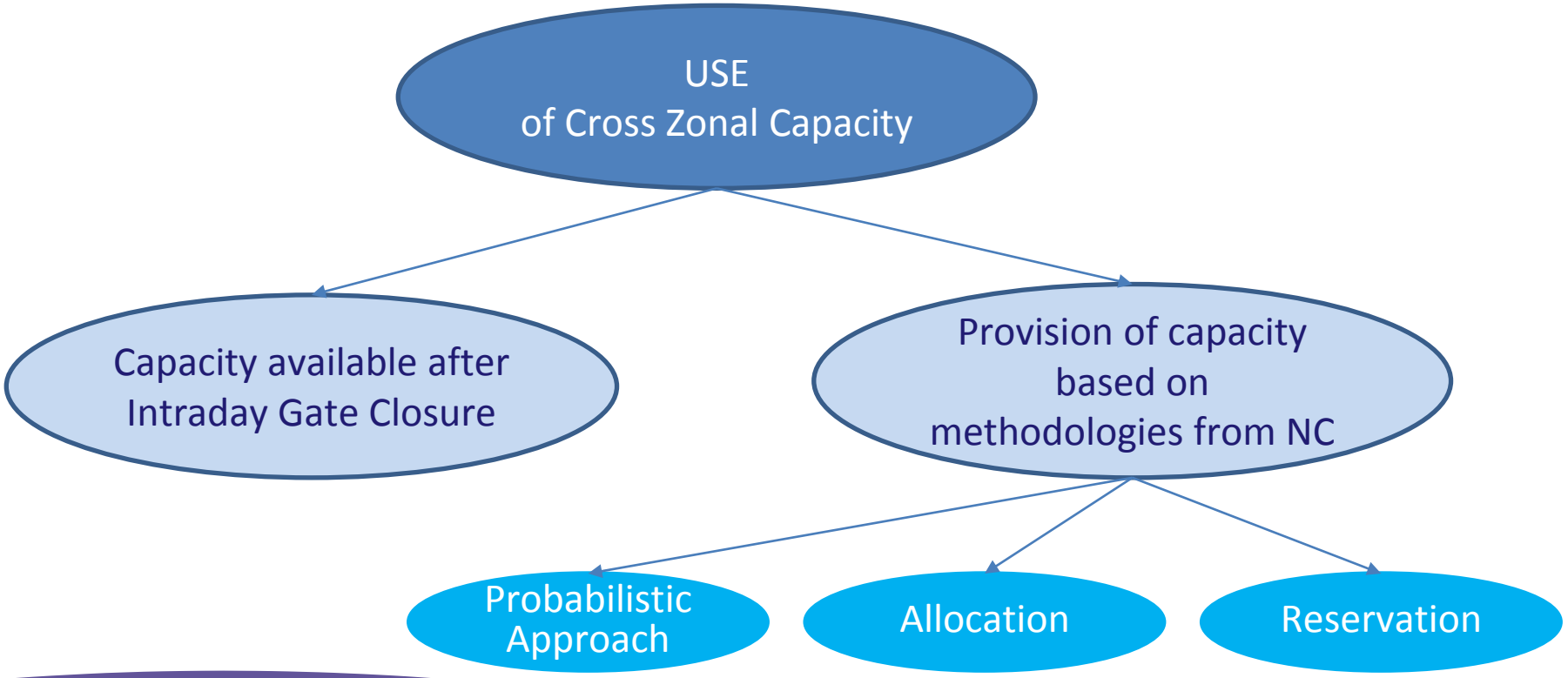
# Use, Allocation and Reservation of Capacity (Article 27-32)

## Different ways which TSOs can use capacity for exchange of Balancing Services

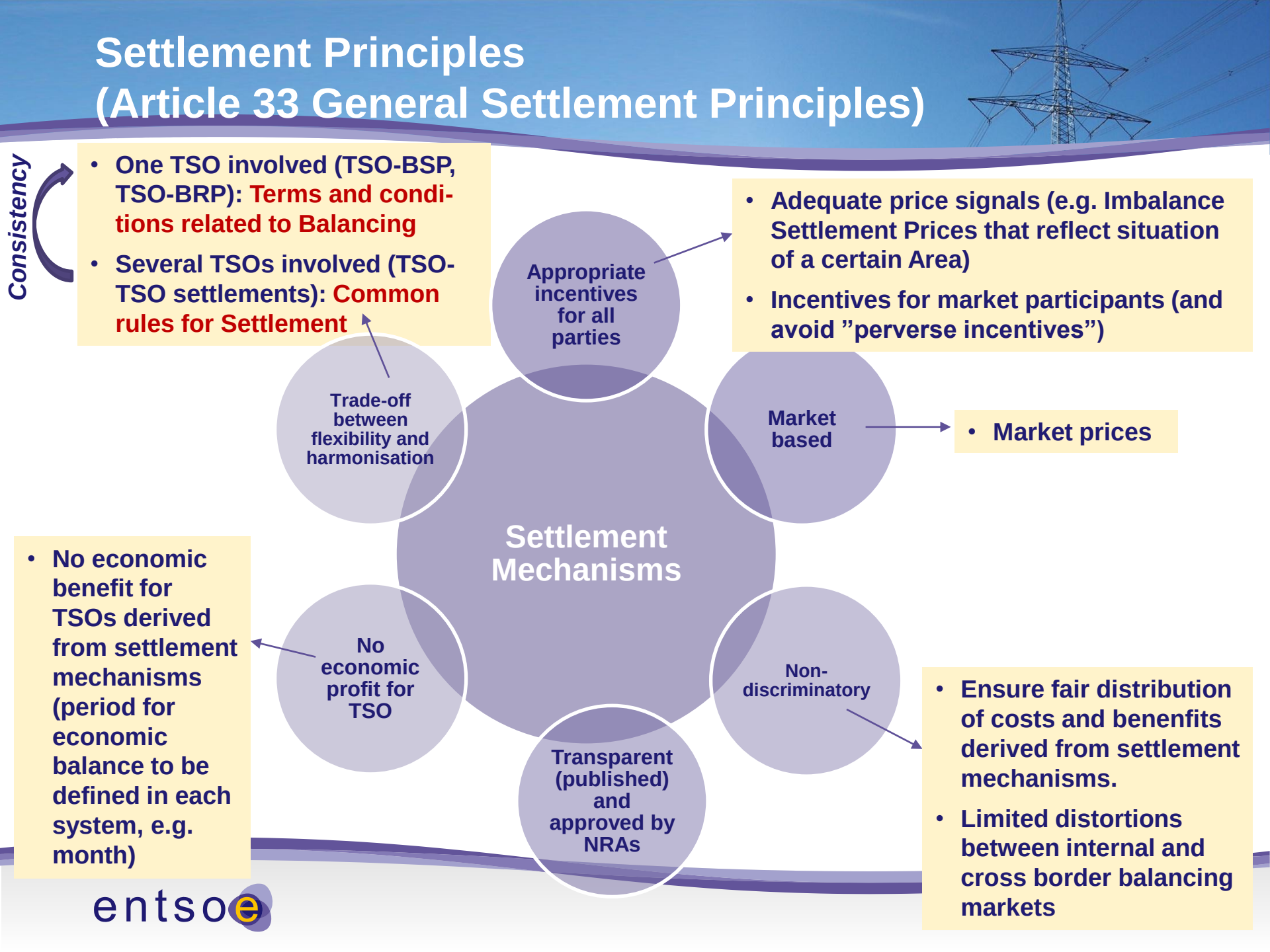


# Use, Allocation and Reservation of Capacity (Article 31)

- **For all Capacity provision methodologies:**
  - Pricing of capacity consistent with other time frames and products
  - Capacity is provided to the product where it yields the largest welfare
- **Reservation and co-optimisation can be arranged in multiple ways**
  - Normally based on real or assumed price differences between standard energy and balancing products

# Settlement

# Settlement Principles (Article 33 General Settlement Principles)




- One TSO involved (TSO-BSP, TSO-BRP): Terms and conditions related to Balancing
- Several TSOs involved (TSO-TSO settlements): Common rules for Settlement

- Adequate price signals (e.g. Imbalance Settlement Prices that reflect situation of a certain Area)
- Incentives for market participants (and avoid ”perverse incentives”)

- Market prices

- No economic benefit for TSOs derived from settlement mechanisms (period for economic balance to be defined in each system, e.g. month)

- Ensure fair distribution of costs and benenfits derived from settlement mechanisms.
- Limited distortions between internal and cross border balancing markets

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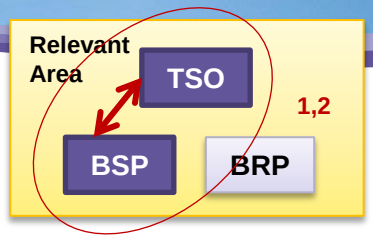
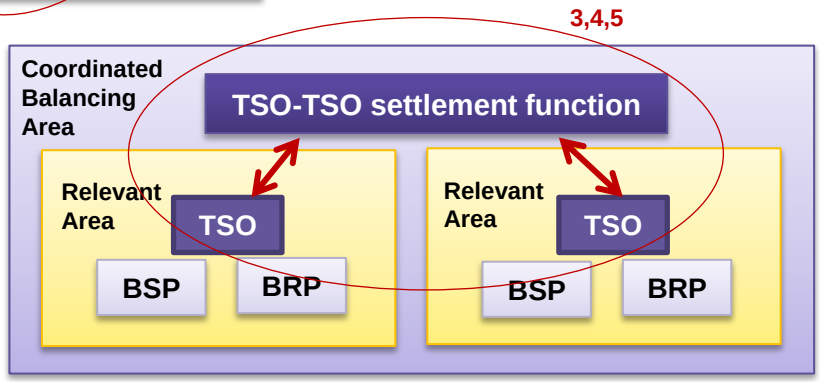
# Settlement Processes (Chapter 5)

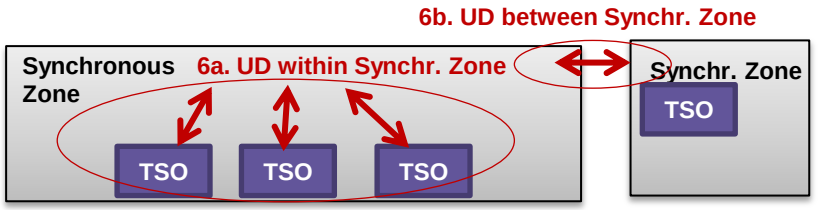
- **TSO to BSP (within a Relevant Area)**
  - *Activated balancing energy (1)*
  - *Contracted reserves (2)*




- **TSO to TSO (within a CBA or outside a CBA)**
  - **Related to a CBA (<u>TSO-TSO Settlement Function</u>)**
    - *Intended exchange of FRR (activation on CMO) (3)*
    - *Intended exchange of RR (activation on CMO) (4)*
    - *Imbalance netting (5)*

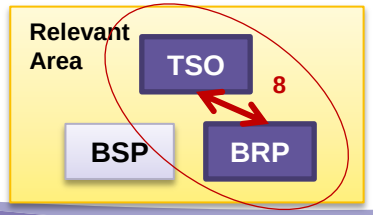



  - **Not directly related to a CBA:**
    - *Unintentional deviations (6a, 6b)*
      - *(within or between Synchr. Zones → Rules may be different)*




    - *Agreed Ramping process (7)*


- **TSO to BRP (within a Relevant Area)**
  - *Imbalance Settlement (8)*




***Relationship between different settlement processes (e.g. energy products activated on CMO and settlement TSO-BSP of balancing energy product activated)***

# Settlement of Balancing Energy TSO-BSP (Energy)

- Energy from LFC&R processes (FCR, FRR, RR). Optional (not necessary) to use the same price for all the processes.
- Settlement price for FRR and RR **consistent with the pricing method in the CMO** (tbd 1year after e.i.f)
- Settlement of FCR volume left optional
- Settlement volume:
  - Separated per direction (no netted volumes)
  - Based on the requested (not delivered) volumes

# Settlement of Balancing Energy TSO-BRP (Imbalance Settlement)

- Flexibility: (Single / dual pricing, portfolio 1volume / 2volumes)
- [Balance Area] – exact term to be defined:
  - Area where Imbalance Volume (thus Imbalance Price) is calculated → defines the geographical scope of a BRP
  - To be defined by each TSO
  - Take into account Control Area, Monitoring Area, Bidding Zone
- **Imbalance Volume** takes into account notified position (schedule) of the BRP, as well as allocated volume (metered values/profiling) and adjustment of associated BSPs (*)
- **Imbalance price** is based on the marginal price of activated balancing energy for the [Balance Area]
- **Imbalance Settlement Period** (see back-up slides):
  - Harmonization subject to Cost-Benefit carried out by ENTSO-E and decision by all NRAs
  - Exemptions could be allowed

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***(*) Association BSP-BRP(s) declared to Connection TSO.***
***In case of activation of a balancing bids from the BSP, this volume will be adjusted to the "Imbalance Volume"(associated) BRP***

# Back up slides –

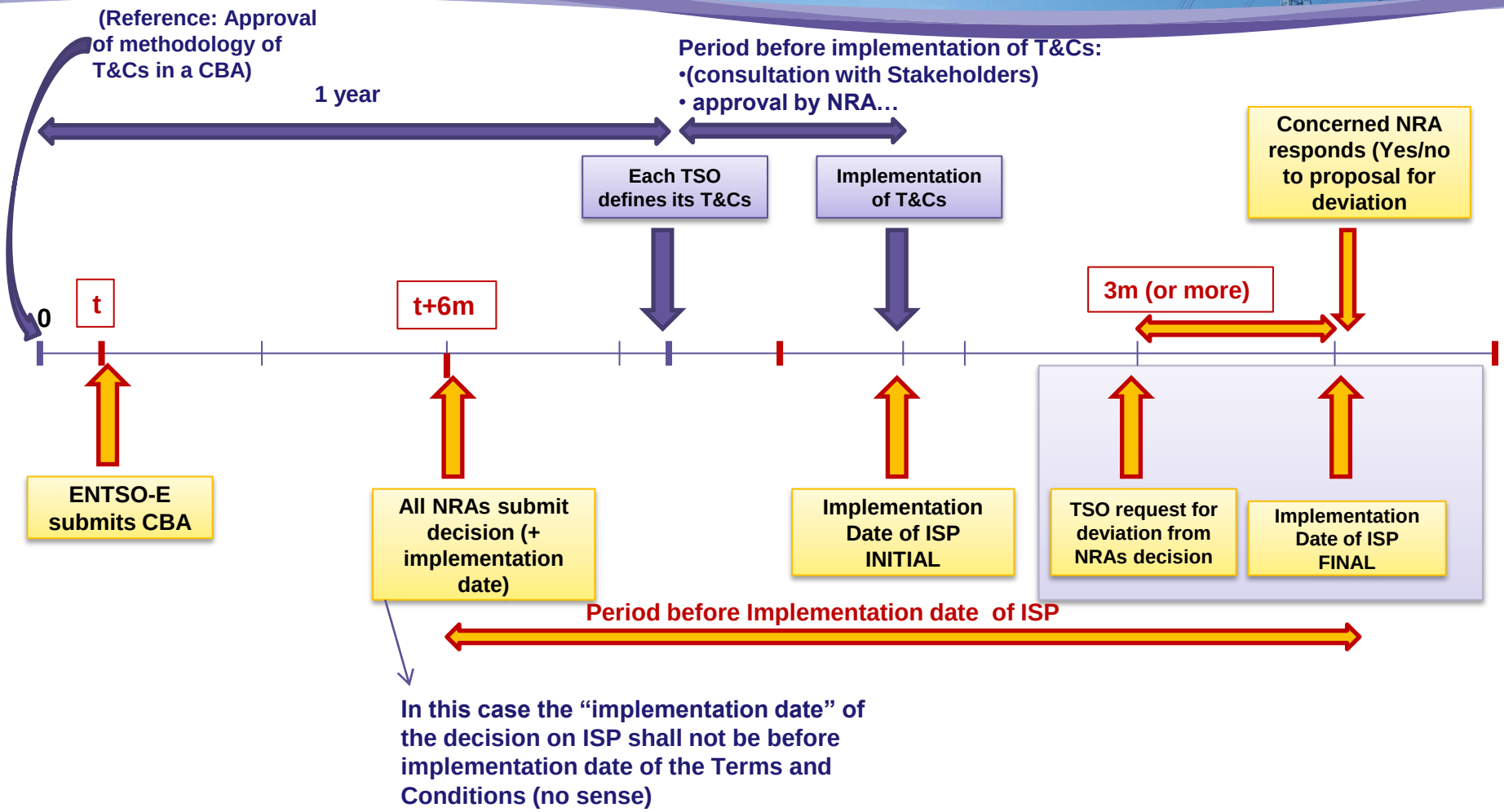
# Harmonisation of Imbalance Settlement Period

# (ISP)

# (Explanation of Article 46)

# If decision on Harmonisation of ISP = YES

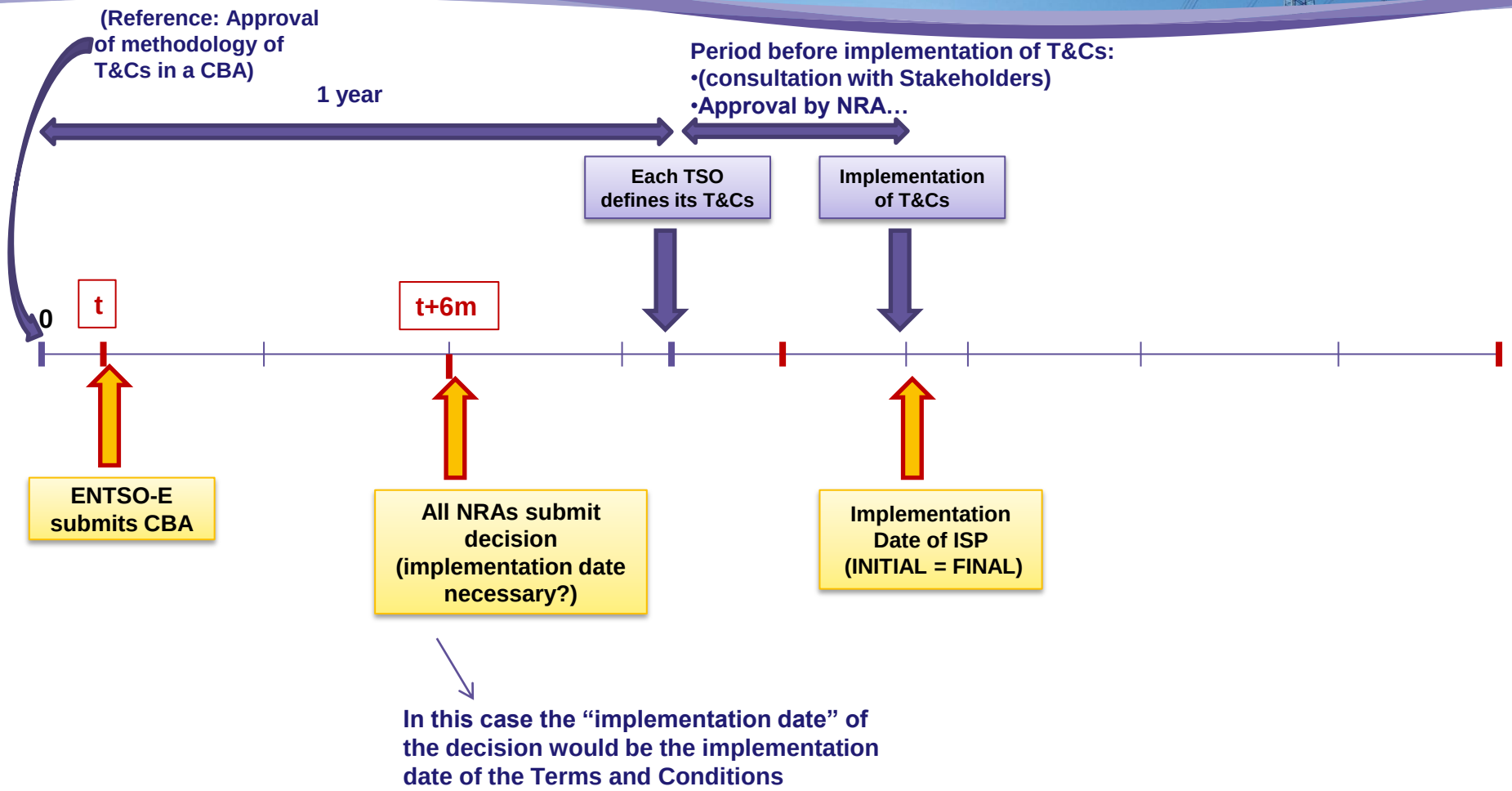





- ***CASE DECISION = YES***
- *ISP initial could be <> or = ISP final (depending on appliance for different ISP)*
- *Implementation date of ISP initial = Implementation date of T&Cs (< Implementation date of ISP final)*
- *Implementation date of ISP final = Implementation date of decision by all NRAs*

# If decision on Harmonisation of ISP = NO






**In this case the "implementation date" of the decision would be the implementation date of the Terms and Conditions**

***CASE DECISION = NO***

- ***ISP initial = ISP final***
- ***Implementation date of ISP = Implementation date of T&Cs***

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