



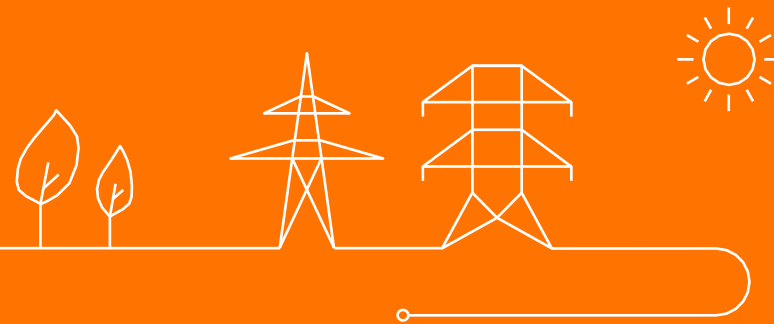
# aFRR evolutions / PICASSO Stakeholder workshop

19/09/2023

# Agenda

- Scope and planning
- Connection to the aFRR-Platform
  - Reminder of the context
  - Status of discussions at European level
  - Local mitigation measure
  - Way forward
- Real-Time baseline
- Baseline methodologies
- aFRR activation method
- 5' FAT
- Auction in D-1

# Scope and planning



## Scope & planning – implementation impact for BSPs

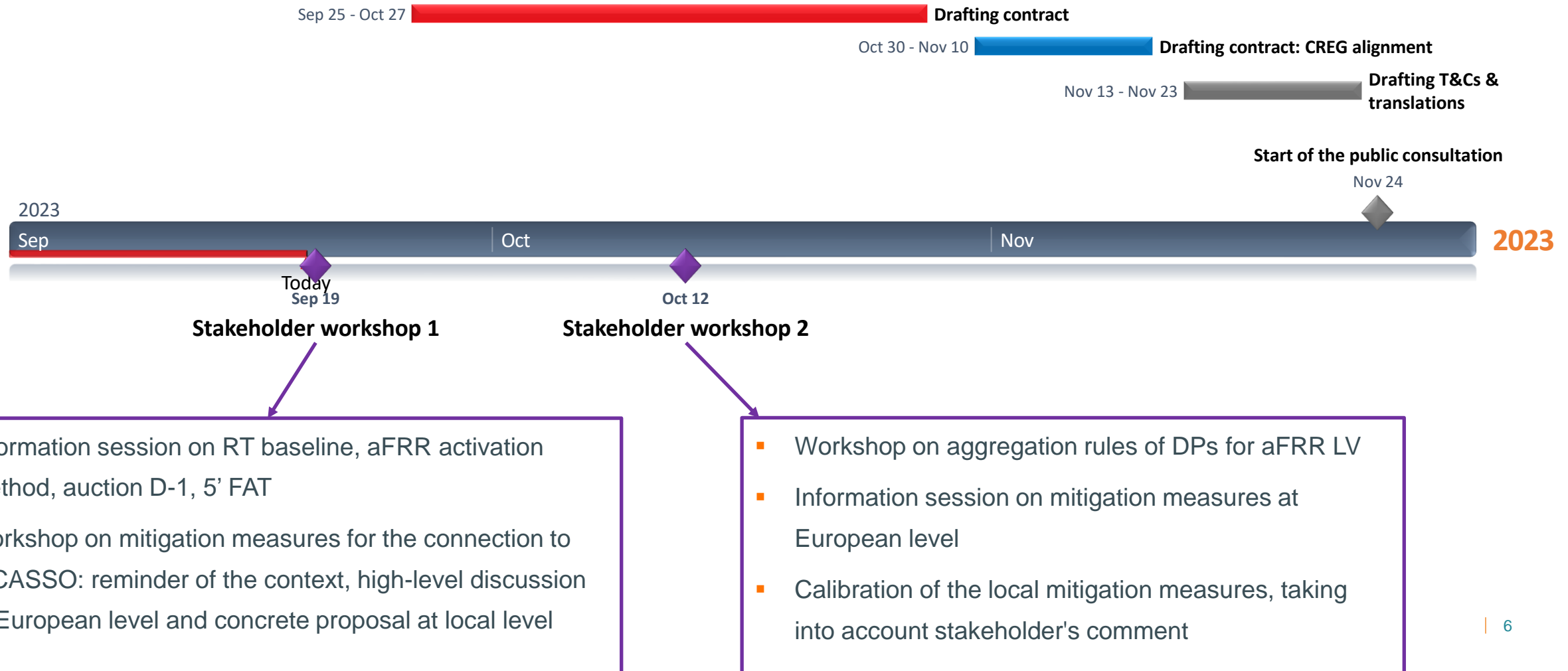
Design evolution	Implementation impact for the BSPs	Planning
Possible local mitigation measures for PICASSO	Will depend on the measures	12/06/2024
5' FAT (Full Activation Time)	Mandatory – possible impact on offered volumes	18/12/2024
Move aFRR capacity auction to D-1	Mandatory – operational impact	01/10/2024
Incentive 2021: RT baseline	Optional implementation	12/06/2024
Incentive 2022: activation method	Optional implementation	12/06/2024
CCMD: ind. correction model, opening LV	Optional implementation	12/06/2024

## Scope & planning – implementation impact for BSPs

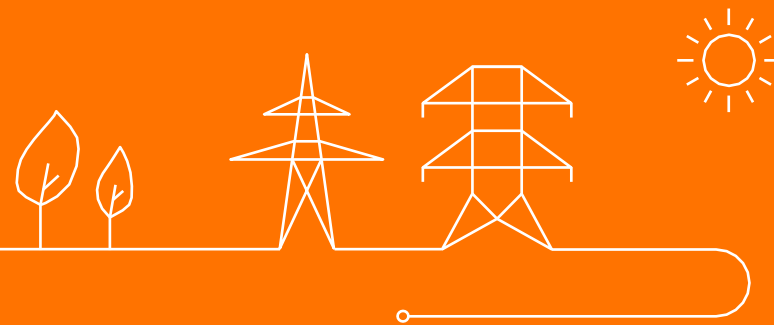
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Proposal to merge the go-lives in order to avoid 2 changes related to the aFRR capacity auctions in a short time. If the merging is agreed by market parties, the proposed date is **11/12/24**, which would delay the entry into force of aFRR dynamic dimensioning for ~2 months.

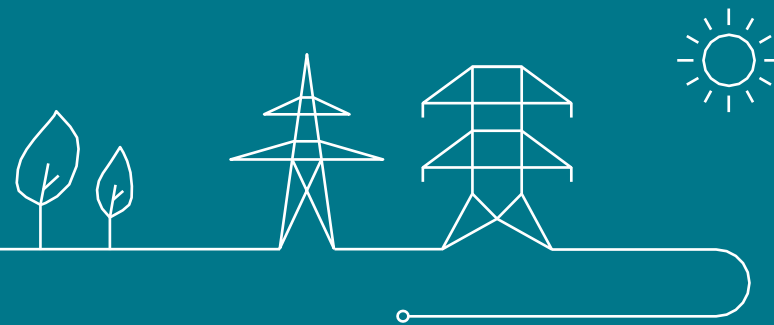
# Planning of coming weeks



# Connection to aFRR-Platform

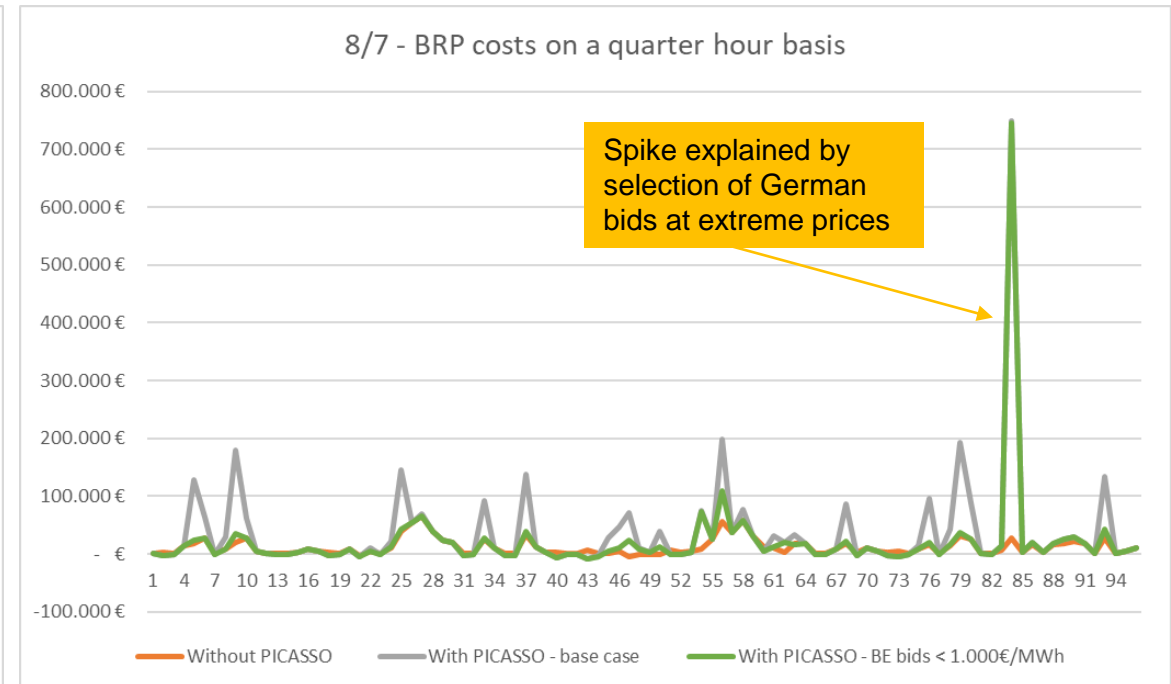
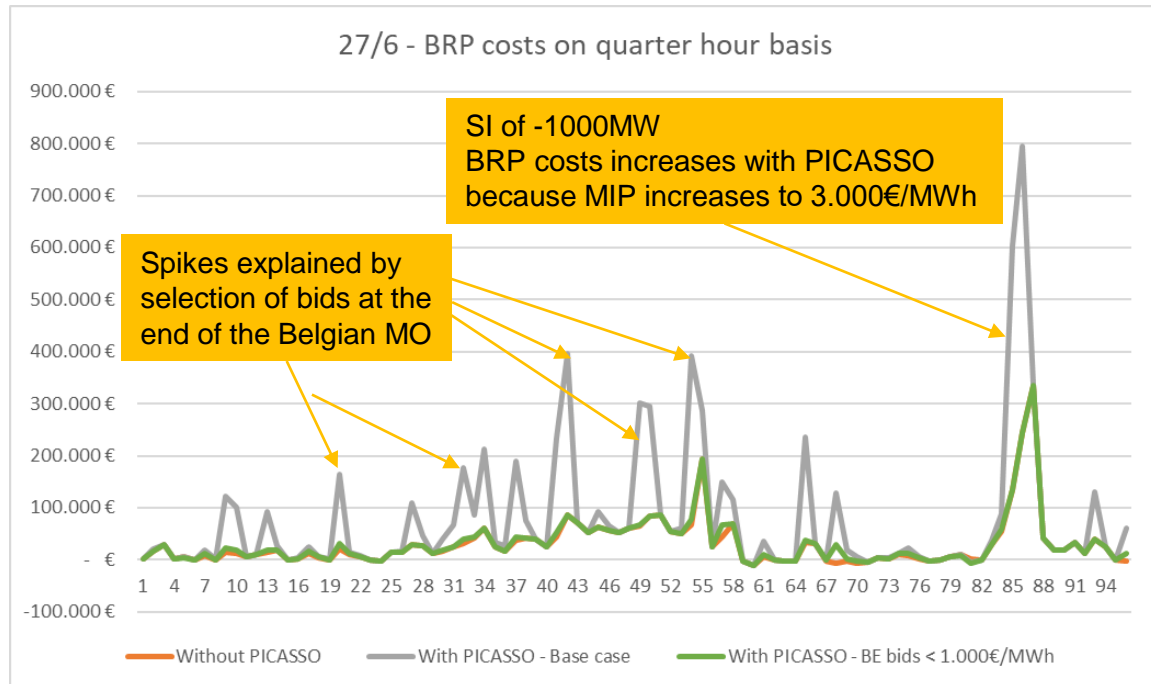


# Reminder of the context



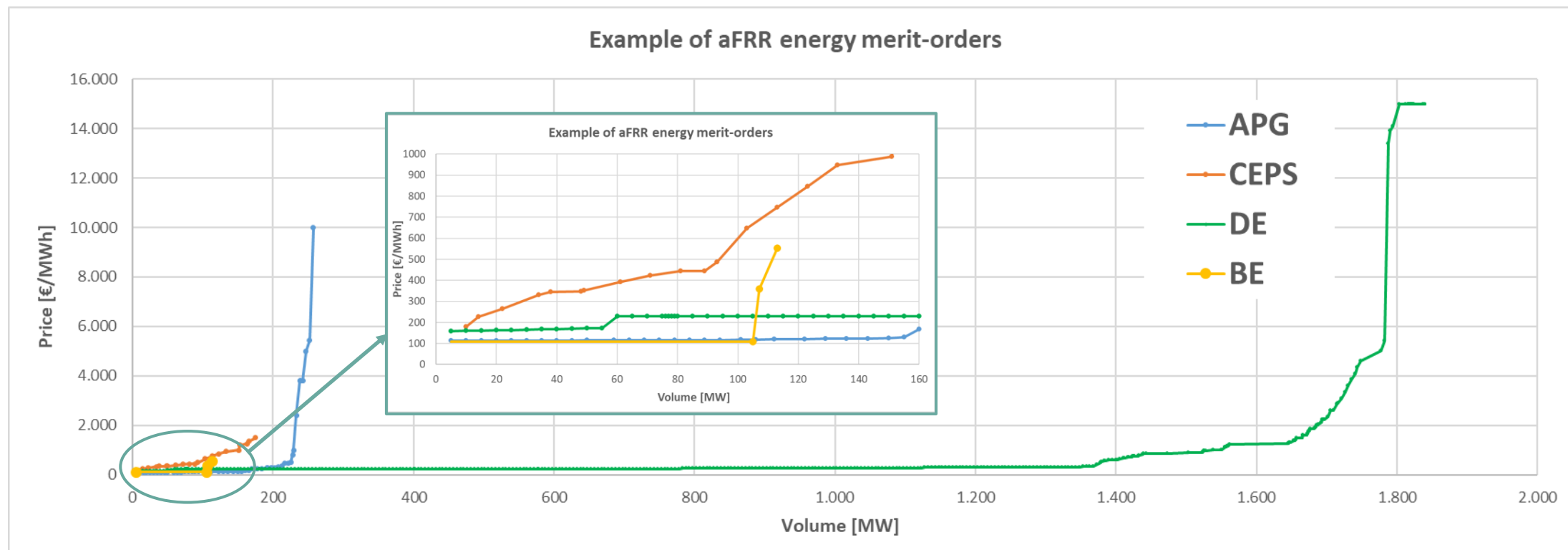


## Analysis from 2022 showed a high risk of cost increase in Belgium



- Analyses done in the summer 2022 showed a high risk of cost increase in Belgium
- Mainly explained by the fact that marginal pricing, combined with high price caps and applied to a TSO with a limited merit-order is likely to cause high prices, in particular in case of limited ATCs
- Risk is strongly mitigated if aFRR bid prices in Belgium remain within the current price cap (+-1.000€/MWh)

# Very different market situations in different countries



	DE	AT	BE
Ratio contracted aFRR / FRR needs (up + down)	79%	45%	12%

*Indicated values are orders of magnitude*

Avg FRR capacity prices in BE	2022	2023*
mFRR up	13 €/MW/h	10 €/MW/h
aFRR up	89 €/MW/h	51 €/MW/h
mFRR down	0 €/MW/h	0 €/MW/h
aFRR down	60 €/MW/h	18 €/MW/h

\* Prices 2023 until 31/08

## Conclusions, recommendation and NRA's decision in 2022

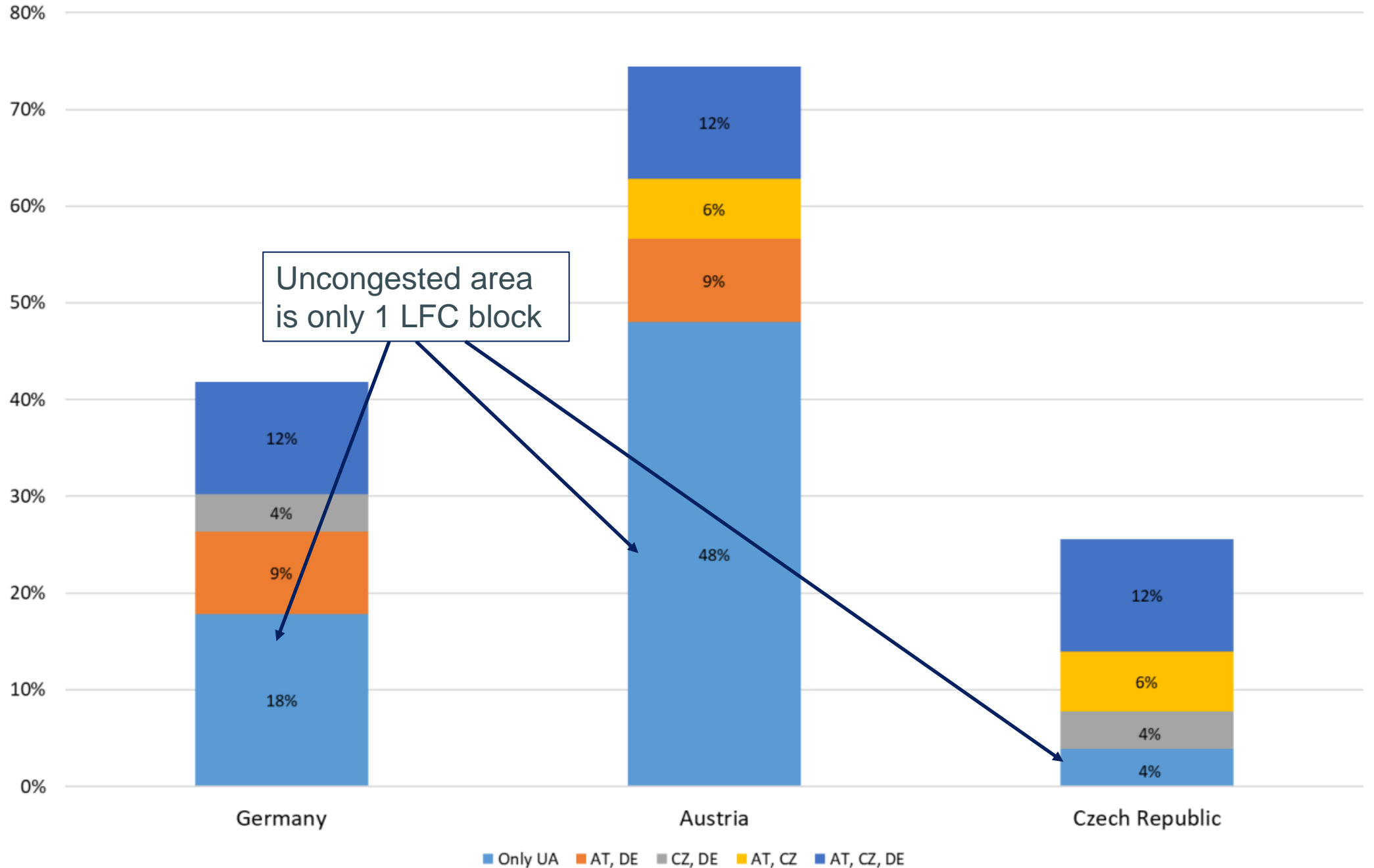
- The analyses highlight that the impact of a connection to the aFRR-Platform on the Belgian balancing market entails a significant risk of increase of costs for the end consumer, mainly due to following reasons:
  - When connecting to the aFRR-Platform, the application of the EU pricing methodology requires, by default, design evolutions of the aFRR energy market, in particular the **switch from a paid-as-bid to a paid-as-cleared** remuneration and the **release of the current price cap of +-1.000€/MWh to +-15.000€/MWh**;
  - The **limited size of the aFRR energy merit-order**, combined with **frequent occurrences of limited or no ATCs**.
- Based on the findings, the Belgian market parties proposed to connect to the aFRR-Platform provided that following conditions are satisfied:
  - A **temporary price cap on the Belgian aFRR Energy bids** is implemented. The price cap is considered as an appropriate, proportionate and temporary measure, as an answer to the market failure resulting from the combination of the factors listed above
  - A **development of liquidity of the Belgian aFRR energy market is observed**
- CREG decided to extend the derogation

## In the meanwhile...

- The context has (partly) evolved
  - Energy prices have decreased
  - RTE's connection has been postponed, Terna is connected but with limited impact on prices given the weak ATCs with Austria
  - The local merit-order of CEPS has progressively evolved towards a “hockey stick shaped” local merit-order
  - The prices on the aFRR Platform have been monitored and analyzed and, confirming and reinforcing the risks identified by Elia → see next slides
  - Evolution of ATCs and risks related to IDCC → see next slides
- Elia and CREG have been advocating for the definition of mitigation measures at European level
- Discussions have taken place with the CREG on the need for possible complementary local mitigation measures

# Participation in the affected uncongested area [%]

2023 Q2



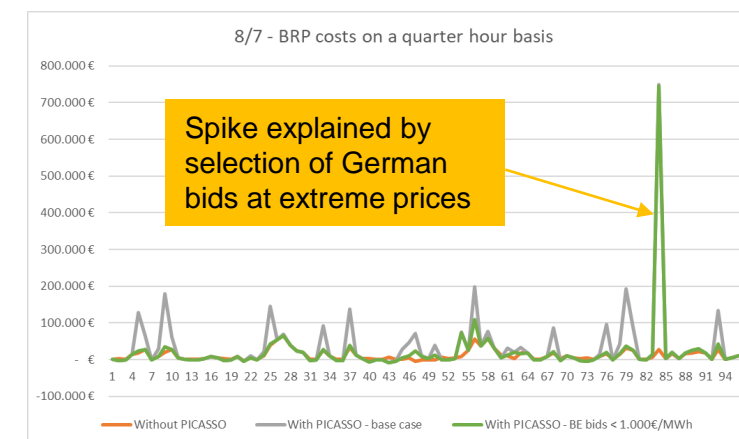
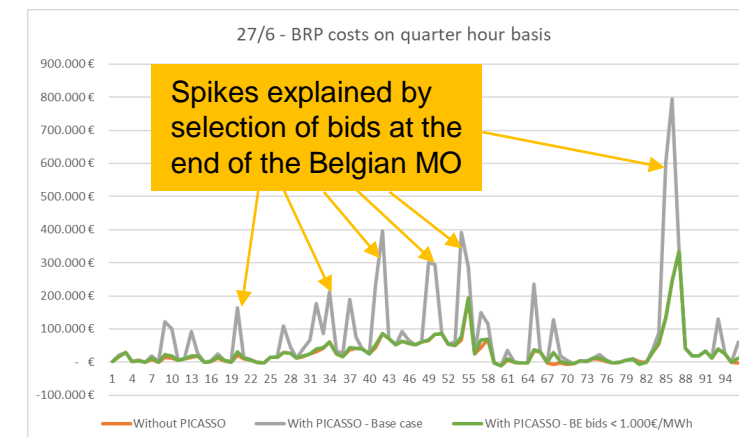
## Analysis of ATCs

Occurrences of ATC values between 01/22 and 08/22 [%]	Import to BE		Export from BE	
	ATC < 25MW	ATC < 100MW	ATC < 25MW	ATC < 100MW
DE only	52	60	39	46
DE + ATC sharing NL	43	51	31	38
DE + ATC sharing NL + FR	21	25	20	22
DE + NL + FR	10	12	8	11

- Risk of decrease of ATCs in the future (IDCC)
- In any case, mitigation measures need to be designed in the assumption that there will be occurrences of limited or no ATCs

## Mapping the risks

- High prices generated by the activation of the end of our local merit-order
  - Expected to occur when there is limited or no ATC, even in situations where there is no critical balancing situation
  
- High prices generated by high demands from other Participating TSOs
  - Considering the merit-orders of our neighboring countries, the occurrences are expected to be less frequent and more in line with the grid situation



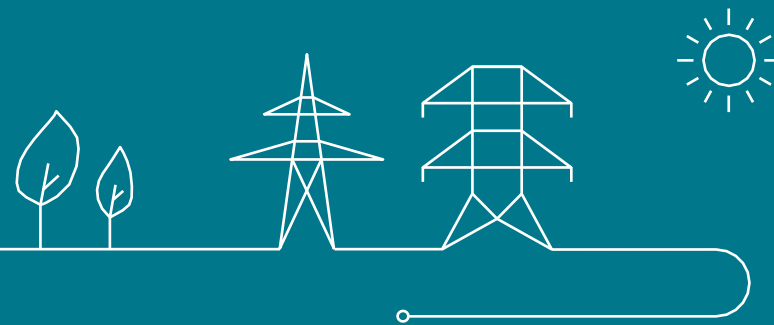
## What about MARI?

- Similar risks have not been identified for Belgium for the connection to the mFRR-Platform
  - Current price cap at 13.500€/MWh
  - Marginal price is already applied in Belgium
  - End of the merit-order activations are unfrequent and correspond to critical situations, for which high prices are justified and lead to appropriate price signals
- Occurrences of price incidents ( $|CBMP| > 7.500\text{€/MWh}$ ) on the mFRR-Platform are all related to insufficient ATC
- ➔ Mitigation measures considered (see next slides) are focused on aFRR





# Measures at European level



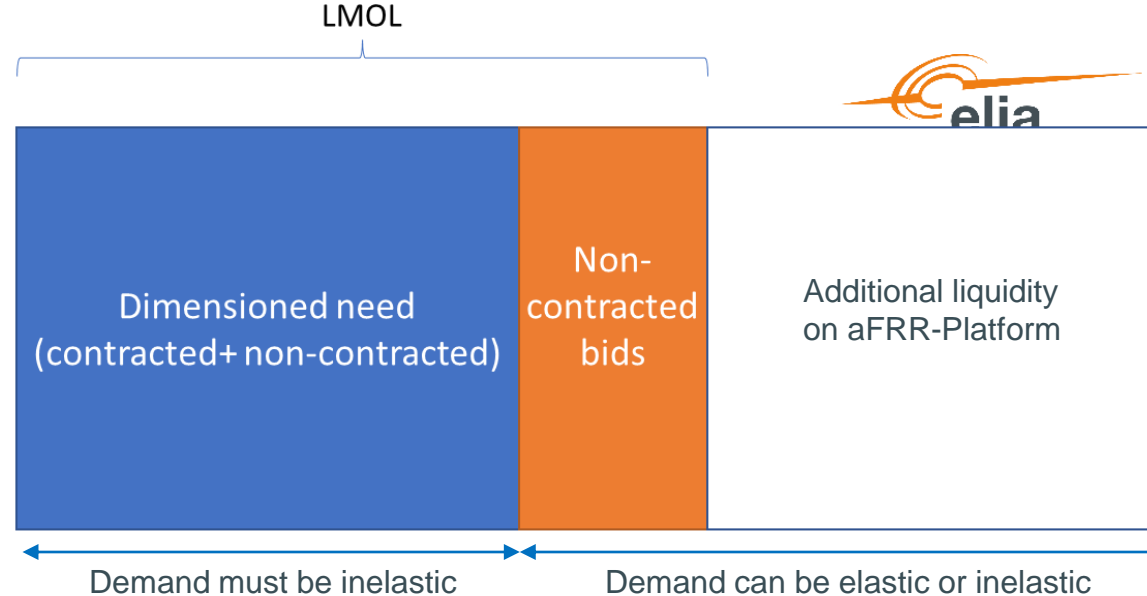


## Measures at European level

- Under CREG's and Elia's impulse, the dynamics of the discussions at European level have evolved in a good direction and efficient measures are expected to be proposed by TSOs
- However:
  - The measures discussed are not sufficient to cover the risks identified for the Belgian balancing market
  - The processes of demonstrating the technical feasibility of the measures and of agreeing on the measures among TSOs are still ongoing. In addition, most of the measures require ACER's approval as well as additional implementation on Platform and TSO side. Therefore, the implementation of most of those measures are not expected to be completed by the EBGL deadline for the connection of the TSOs to the aFRR-Platform
- More information will be provided to stakeholders during the 2<sup>nd</sup> stakeholder workshop and / or during dedicated workshops organized at European level

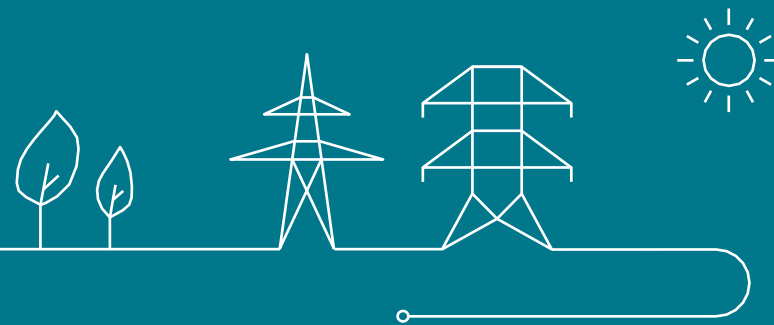


## Elastic demand



- Among the measures, the possibility to implement elastic demand in aFRR is being considered
- Idea: allow each TSO, on a voluntary basis, to define an elastic aFRR demand beyond its dimensioned volume
- It guarantees that we have at least access to our dimensioned volume and allows to benefit from the liquidity on the PICASSO platform, with the exception of cases where selected bids have a price beyond a given threshold
- The expected impact on aFRR activation costs for Belgium is significant. However:
  - It does not cover the risk of having high bid prices in our LMOL within our dimensioned volume
  - It requires an amendment of the European methodologies (aFRR IF) and implementation in the aFRR-Platform
- ➔ The implementation of elastic demand might to be completed by the EBGL deadline for the connection of the TSOs to the Platform

# Local mitigation measure



## Local mitigation measure

- As expected, while some evolution of the context since 2022 are to be noted, **mitigation measures** to address the risk of cost increase when connecting to the aFRR-Platform **are still** considered to be **necessary**
  - The dynamics of the discussions at **European level** have evolved in a good direction and **efficient measures** are expected to be proposed by TSOs. The implementation of most of those measures are however not expected to be completed by the EBGL deadline for the connection of the TSOs to the Platform
- Elia and the CREG have been looking for a local mitigation measure to allow to connect to the aFRR-Platform in the best possible conditions

## Local mitigation measure

- After discussion with the CREG, Elia proposes to define a local price cap on the Contracted aFRR Energy Bids
- The price cap would have a temporary character. The need to maintain a price cap would have to be periodically re-justified, based on evolution of connected TSOs, ATCs, prices observed in Belgium and in other countries, development of free bids, the implementation of mitigation measures at European level,...
- The price cap would be set at the current value of +/-1.000 €/MWh
- Reminder: the BSP would still be remunerated to the CBMP, which can be above the price cap

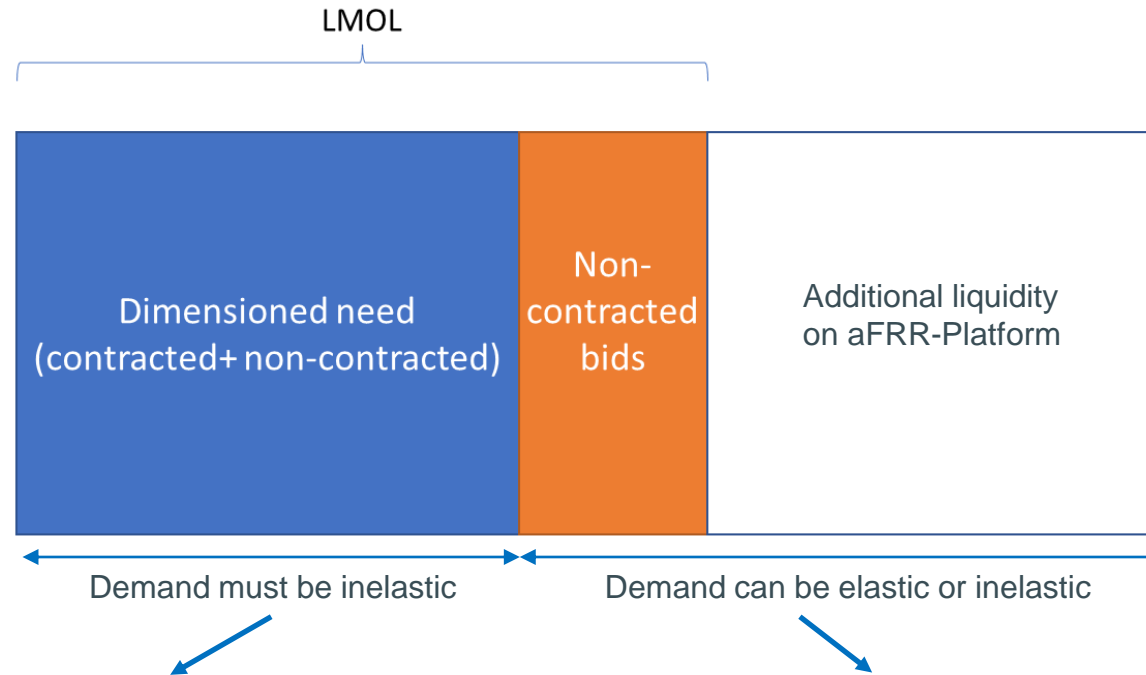
## Local mitigation measure

- The price cap would:
  - Secure at least the contracted (=dimensioned) volume
  - Mitigate the risk of inefficient dispatch where assets with low reservation costs and high activation costs are activated several times a day, without excluding those assets from the aFRR (energy) market
  - Provide a safeguard against strategic bidding (until the level of the contracted volume)
- As a result, it would strongly mitigate the risk of cost increase. High prices would remain in following situations:
  1. Import of high prices from other PICASSO TSOs. This risk was already present in 2022 and accepted as part of the compromise agreed on in the WG Balancing
  2. Non contracted bids beyond the price cap are submitted by BSPs and are activated by Elia  
→ new risk compared to the compromise solution from the WG Balancing in 2022





# Combination of local price cap on contracted bids and elastic demand



As Elia's contracted volume currently corresponds to the dimensioned need, sufficient aFRR energy bids at a price below the local price cap are available to cover the inelastic part of our demand

Free bids in Belgium can have a price above the local price cap, but in that case they will only be activated in case of high demands from other TSOs

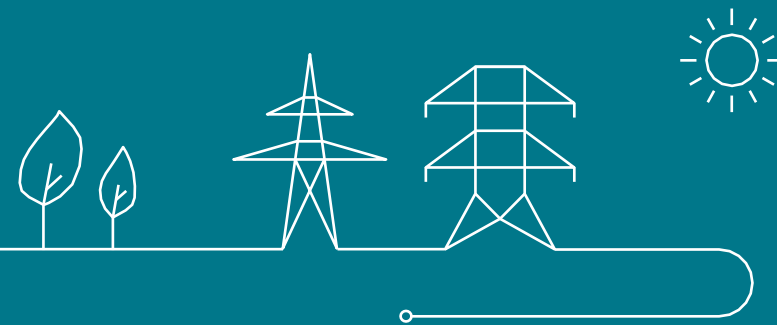
- ➔ Very high prices limited to situations of high demands from other Participating TSOs
- ➔ Free bids > price cap have a much low activation frequency than in the current setup



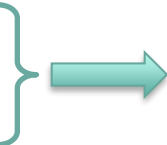
## How to bridge the gap?

- Elia and the CREG are putting a lot of efforts in the mitigation measures at European level and will push to have elastic demand proposed, approved and implemented as soon as possible
- In the meanwhile, Elia proposes to temporarily extend the price cap on all aFRR Energy Bids
- The local price cap on non-contracted aFRR Energy Bids will be automatically removed as soon as the elastic demand is implemented in the aFRR-Platform and in Elia's tools
- Elia has received several spontaneous reactions in the public consultation on the T&C BRP requesting the implementation of a local price cap on the aFRR Energy Bids at the connection to the aFRR-Platform
- Note: different options on how to bridge the gap are still under discussion with the CREG

# Way forward



# Proposal

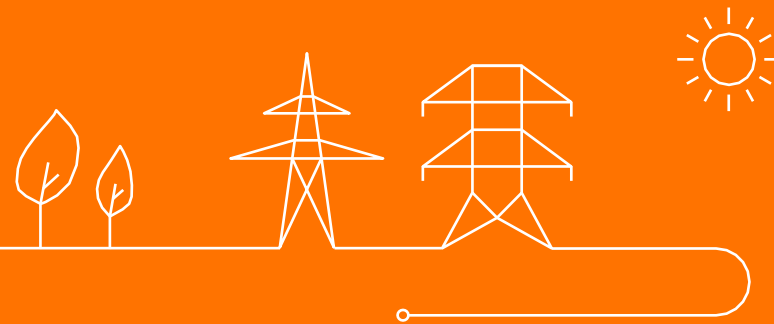
- Elia confirms willingness to connect in June 2024, and this independently of
  - The evolution of the discussions on the European mitigation measures
  - The connection of RTE
  - The ATC sharing by TenneTNL

Even though those are planned close to our connection, the objective is to remove as much uncertainties as possible for our go-live date
- Elia plans to include a local price cap on Contracted aFRR Energy Bids in the Proposal for Amendment of the T&C BSP aFRR
  - Price level → use of the current price cap of +-1.000€/MWh
  - Temporary character → the price cap would be applied for given period, extendable on the basis of analyses
- Elia will continue advocating for the implementation of mitigation measures at European level, with a particular emphasis on elastic demand
- For the period between Elia's connection and the implementation of elastic demand, Elia plans to propose to maintain the current price cap on all aFRR Energy Bids

## Discussion and next steps



# Real-Time Baseline



## Recap conclusions of the 2021 study on baseline methodologies ([link full report](#))

- The current declarative baseline methodology, in which the BSP needs to submit the baseline for each 4-second interval one minute before real time, could be insufficiently accurate for certain assets (e.g., wind parks).
- To overcome these challenges, Elia recommended to enable BSPs -under certain conditions- to calculate and submit the baseline in real-time.
- Stakeholders supported Elia's recommendation.
- The implementation of this functionality was originally foreseen following the connection to PICASSO.

## Criteria for use of the real-time baseline

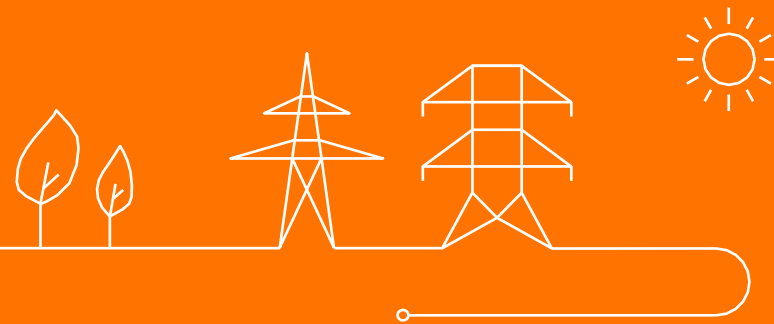
- **By default, the baseline remains to be submitted one minute in advance.**
- However, **BSPs can request the possibility to submit the baseline in real time** instead of one minute in advance, and this **per Delivery Point**. The request to submit the baseline in real-time is directed to the TSO, and can be approved by the TSO based on, among others, the **following criteria**:
  - The **BSP provides a sound justification** indicating why there is no viable way to submit a baseline one minute in advance while meeting the accuracy requirements and why submission of the baseline in real time would allow achieving a sufficient accuracy.
  - The **BSP provides an accurate description of the method and inputs used by the BSP to calculate the baseline.**
  - The calculated baseline should be traceable to these different inputs.
  - The BSP can make the inputs used for the calculation of the baseline available to Elia upon request.
  - The **BSP provides evidence that the baseline is independent from the aFRR set point and the operating conditions** (e.g., curtailed or non-curtailed conditions).
  - Elia reserves the right to perform an audit to check that the calculation of the baseline is performed as described by the BSP

## Illustration of certain criteria for applying the real-time baseline for a wind park

- **Justification:** The short-term fluctuations of the power output cannot be predicted one minute in advance. As a result, the baseline quality factor cannot be reached. In real-time, the “Available Active Power” (AAP) signal provided by the manufacturer could be used as baseline.
- **Accurate description of the methods and inputs used by the BSP:**
  - Example:  $Baseline(ts) = \sum_{turbines} AAP_{turbine}(ts) + correction\ grid\ losses(ts) + correction\ wake\ effects(ts)$
  - Note: if the AAP signal is provided by the manufacturer, this could be one of the inputs used by the BSP (i.e., it would be sufficient that the BSP describes that the AAP signal as provided by the manufacturer is used).
- **Evidence that the baseline is independent from the aFRR setpoint and the operating conditions**
  - The BSP is free to determine the format of this evidence at this point (e.g., correlation between baseline and down-regulated volumes, average deviations between the baseline and the measured injections just before/after the downward regulation)
  - Elia will monitor the baseline during periods of activations and has the right to refuse/withdraw the possibility to submit the baseline in real-time (e.g., in case it is observed that the baseline tends to increase during periods of downward activation).



# Baseline methodologies



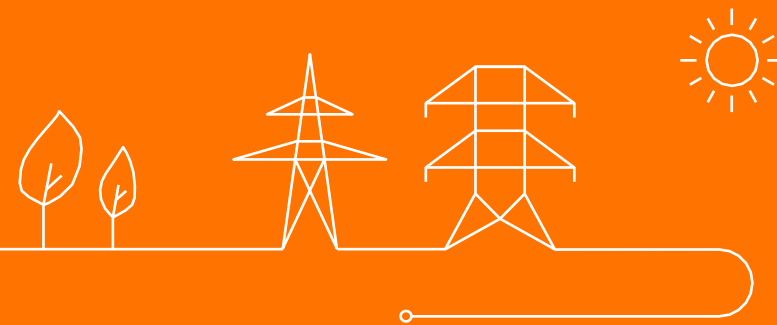
## Baseline methodologies

- The following requirement was proposed in the 2021 study on baseline methodologies as one of the criteria for the use of the real-time baseline but is considered equally relevant for the default baseline methodology

### **The submitted baseline must be calculated independently from the aFRR reference set point**

- A single calculation method is to be used regardless of whether the DP is used to supply aFRR or not
  - The aFRR reference set point cannot be used as one of the inputs for calculating the aFRR baseline
- Therefore, this requirements will be applicable to the baseline submitted in real-time and to the default baseline

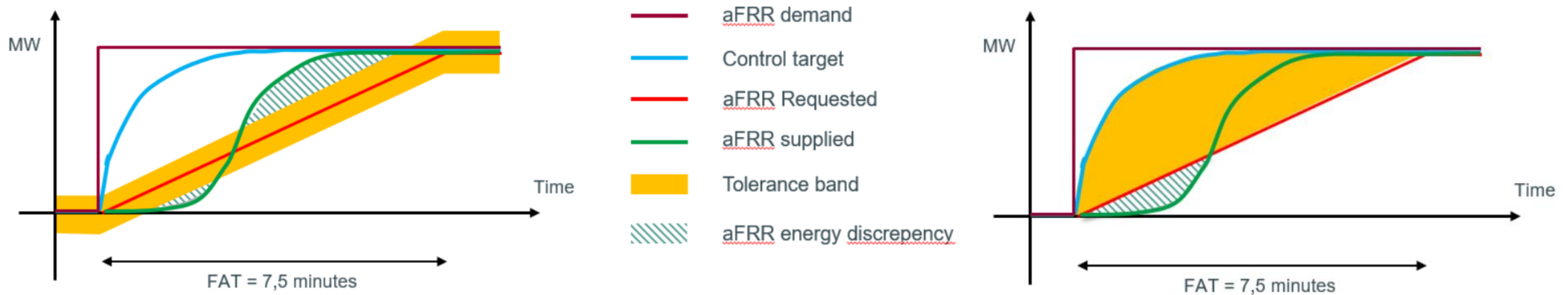
# aFRR activation method



## aFRR activation method

### Reminder of the scope

- Incentive study in 2022 on aFRR activation methods ([link full report](#))
- The study consisted of analysing the impacts for Elia and for the BSPs of an activation based on the "control target", defining the conditions under which this modification could be carried out and, in case of positive conclusions, proposing an implementation plan



*Activation method based on control request*

*Activation method based on control target*

## aFRR activation method

### Conclusion of the incentive

- Applying a control target activation method would allow more flexibility to the BSPs in the reaction of its pool. However:
  - While it would improve incentives in some situations, the evaluation highlights that this is not always the case. At this stage, it's not possible to conclude it would have a global positive impact on regulation quality
  - It would imply a significant design and implementation impact, for Elia and for the BSPs
- Based on those findings, an alternative approach has been defined, which combines:
  - The expected advantages of the control target approach in terms of incentive for the BSP to react faster; and
  - The advantages of the ramping approach in terms of simplicity of the design. The alternative approach has the advantage also to be relatively simple to implement on BSP and Elia side.

## aFRR activation method




### Conclusion of the incentive

- The BSP has the possibility to specify an alternative FAT for an energy bid →  $(FAT_{\text{energy bid}}) < 7.5$  minutes FAT.
- The information is provided in **each aFRR energy bid individually**. The BSP may decide on a quarter hourly basis what the  $FAT_{\text{energy bid}}$  of the aFRR energy bid is and this may vary each quarter hour.
- **No additional prequalification test** is needed to define a  $FAT_{\text{energy bid}}$  shorter than 7.5 minutes.
- It's an **optional** possibility. A BSP who doesn't use the opportunity of a shorter  $FAT_{\text{energy bid}}$  bid doesn't have to change anything compared to the current energy bid submission process.
- The activation method is still based on a ramping approach, however:
  - The specified  $FAT_{\text{energy bid}}$  is taken into account by Elia when calculating the aFRR Requested, leading to a faster regulation
  - The tolerance band is computed around the calculated aFRR Requested. Note that the permitted deviation is unaffected
- In practice, an additional field will be added for energy bid submission in BIPLE. When no value is specified, the standard 7.5 minutes FAT will be used.

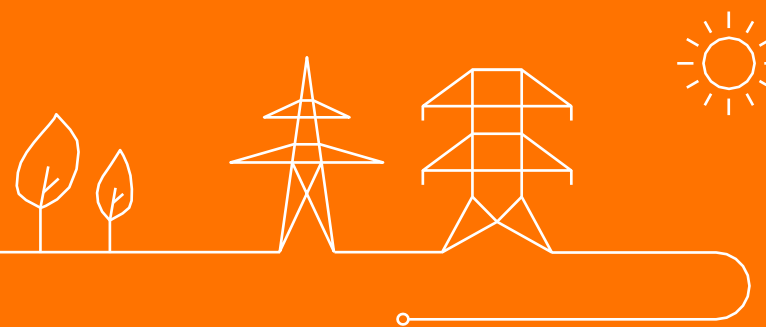
## aFRR activation method

### Conclusion of the incentive

- A distinction can be made between the  $FAT_{energy\ bid}$  in the activation phase and in the deactivation phase.
- The advantage for the BSP is to provide additional flexibility for assets with Limited Energy Reservoir (LER) to manage their State of Charge (SoC).
- However, as it cannot be the objective that an artificial volume of aFRR is delivered and remunerated in the deactivation phase, the  $FAT_{energy\ bid}$  in the deactivation phase shall be at least as short as the  $FAT_{energy\ bid}$  in the activation phase.
- Examples of combinations which would be allowed and not allowed

$FAT_{energy\ bid}$ activation phase	$FAT_{energy\ bid}$ deactivation phase	Allowed?
7.5 minutes	2 minutes	
2 minutes	2 minutes	
2 minutes	7.5 minutes	

# FAT 5'

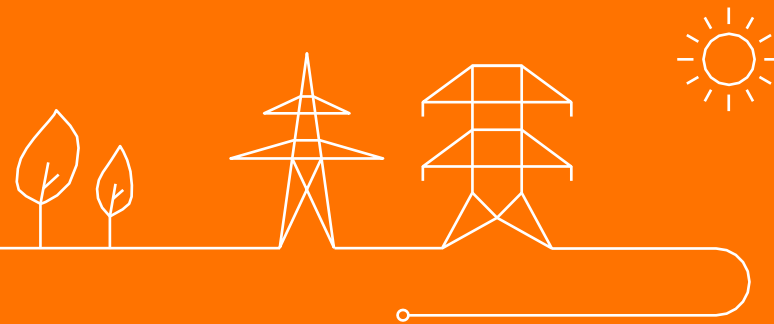




## FAT 5'

- Article 7(3) of the Implementation Framework for aFRR
  3. Each TSO shall define the full activation time of the standard aFRR balancing energy product for the time period until 17<sup>th</sup> December 2024 in their terms and conditions for BSPs in accordance with Article 18 of the EB Regulation, respecting the FRR dimensioning rules pursuant to Article 157(3) of the SO Regulation. The full activation time of the standard aFRR balancing energy product shall be 5 minutes starting from 18<sup>th</sup> December 2024. By one year after the approval of this aFRRIF each TSO shall publish on its website a timeline with the milestones for reaching this target.
- Given the fast development of the aFRR market, the expected impact on the aFRR auction costs is strongly mitigated since the initial discussions on the FAT
- There are however market situations where the FAT reduction will have an impact. Therefore, while it's needed to include it in the next Proposal for Amendment, the go-live will take place close to the legal deadline of 18/12/2024
- Impact for BSPs:
  - There will still be 1 *aFRR Requested* signal
  - The ramping will be faster. This can have an impact on the volumes that can be offered
  - All other bidding rules remain unchanged

# Auction in D-1



## Auction in D-1

### Reminder of the scope

- During the discussions on the aFRR capacity design in 2021, it was decided to merge the 2 auctions (all-CCTU in D-2 @ 4pm and per-CCTU in D-1 @ 9am) to a single auction
- The timing of D-2 @ 4pm was chosen based on the following bases
  - ✓ 2 risks were identified and evaluated
    1. aFRR auction before FCR auction → non-thermal units might be selected in aFRR and would hence not be available anymore in FCR
    2. aFRR auction after FCR auction → thermal units might have to cover their fixed costs in the FCR auction, which is less efficient
  - ✓ Based on market data we had in 2021, risk n°2 was considered higher than risk n°1
  - ✓ Elia committed to continue monitoring how the liquidity develops in the FCR auction, with the target to move the auction in D-1 @ 9am when the risk on the FCR auction is considered to be sufficiently mitigated
- Given the development of the markets, it's considered suitable to **move the auction to D-1 @ 9am**
  - ✓ Allows BSPs to have a **better forecast** when bidding in the aFRR capacity auctions
  - ✓ Is a **prerequisite for aFRR dynamic dimensioning** → the go-lives will be aligned as described in the LFCBOA

**Thank you.**

