WG Balancing of 27th January 2022

Online meeting

27/01/2022

For a smooth teleconference with 30+ people …
Some rules apply

- Please put yourself on mute at any time that you are not speaking to avoid background noise.
- If you receive a call, please ensure that you do not put this meeting **on hold.**
  - You can quit and reconnect later on.
  - You will be muted or kicked out of the session, if necessary.
- You will be requested to hold your questions for the end of each presentation.
  - Should you have a question, please notify via Teams or speak out if you are only via phone.
  - Share your question (with slide number) in advance so all participants may follow
  - Before you share your question, please announce yourself.
- If you have a poor internet connection, please dial-in.
- Finally, please be courteous and let people finish their sentences.
  - It is practically impossible to follow when 2 people are speaking at the same time in a teleconference.

Agenda

09:00 – 09:10: Introduction and minutes

- Customers, Market & System: Change of organisation

09:10 – 09:40: EU Balancing Program update

- aFRR : status on public consultations
- MARI : status on derogation to the connection to MARI
- mFRR : design note status and next steps

09:40 – 10:40: Incentives: high level presentation of the scope, aim and ambition (Part 1)

- aFRR 5 min FAT – impact analysis and recommendations
- Study on procurement strategies for a dynamic calculation of FRR means: Follow-up study on the daily prediction of non-contracted balancing energy bids

Break (10 min)

- Analysis of possibilities for combined offers (Combo) of FCR/aFRR/mFRR and ToE DA/ID at DP pg delivery points
- Analysis and implementation of FCR evolutions pursuant art. 114(2) of SOGL

10:40 - 11:00: 2021 Year overview: Capacity Auction Results

11:00 – 11:15: Public Data Exposure

11:15 – 11:40: iCAROS: impact on data exchange, IT system and operations – focus on phase 1

Minutes of Meeting for approval

Minutes of Meeting of WG Balancing on 8th of December 2021:

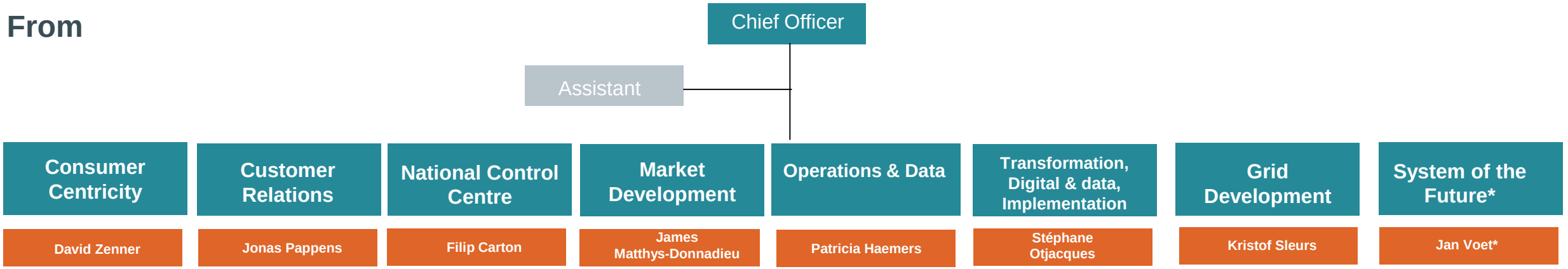
- No comments received from the stakeholders.

Customers, Market & System: Change of organisation

Presented by James Matthys-Donnadieu

Customers, Market & System – Change of organisation

From



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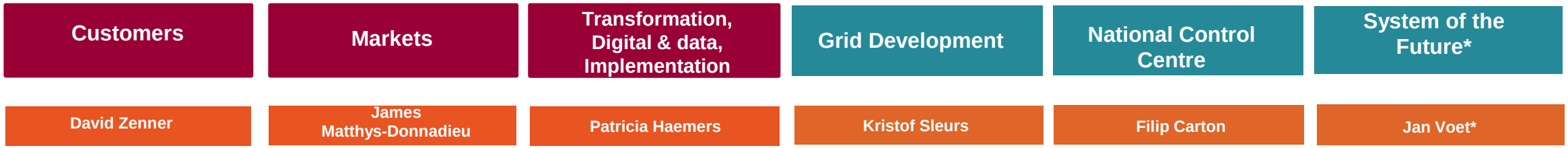


Aim

Well-being of CMS workforce — 01

Initiate the customer obsession journey — 02

Be ahead of the curve — 03

Accelerate integration of flexibility and time to market — 04

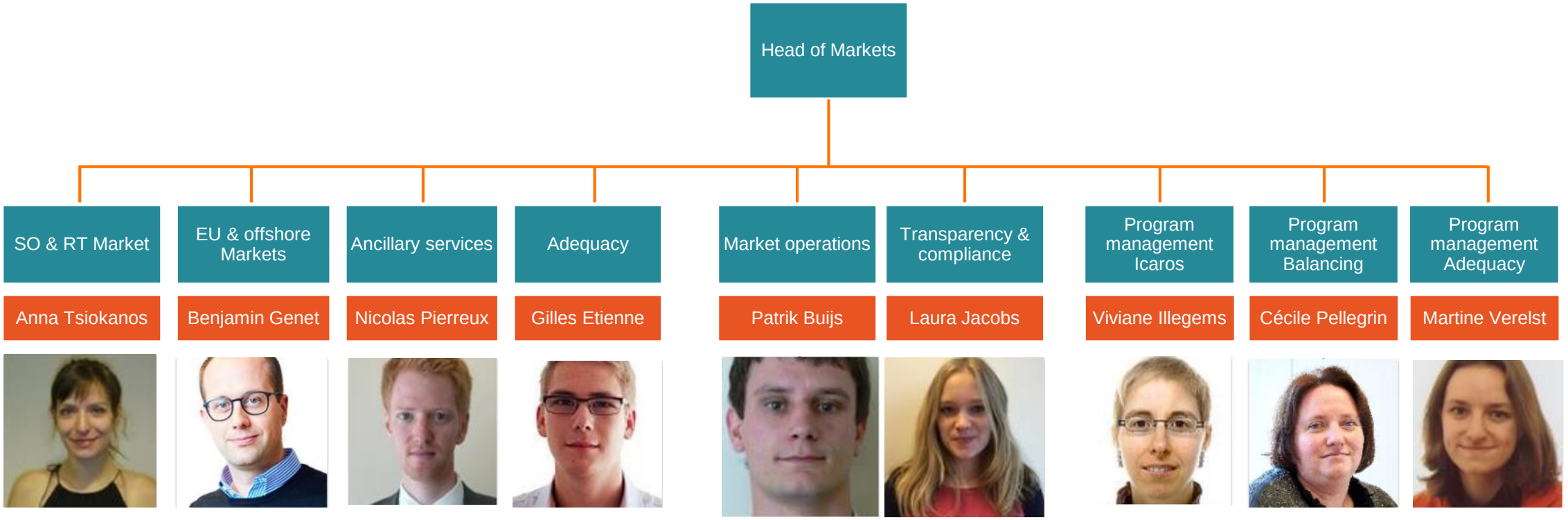
Ensure operational excellence & Security of Supply — 05

Master the transformation journey — 06

Efficiency gains & group synergies — 07

*SoF is een Groepsfunctie, rapporteert aan de Groep

Nieuwe organisatie – Markets



EU Balancing Program update

Presented by Cécile Pellegrin

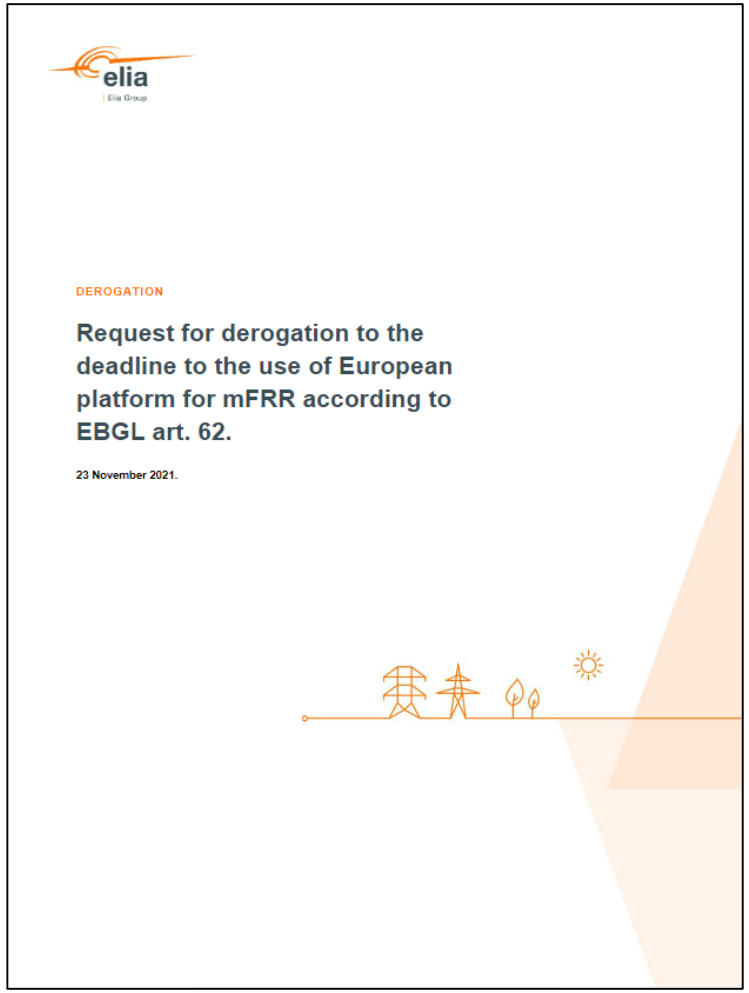
Stakeholder management interactions

- *Public Consultations*
  - *MARI derogation -> Consultation finalized and proposal submitted to CREG [**see here after**]*
  - *aFRR T&C -> Consultation finalized. Feedbacks are being analyzed*
  - *Balancing rules -> Consultation launched [23/12/21 – 02/02/22]*

- *Next planned interaction(s):*
  - *aFRR Energy Management Strategy (EMS) Requirements*

    ➔ *Stakeholder workshop proposed on 24th of February (13h-15h)*
  - *Public consultations on aFRR T&C and Balancing rules: answers on the feedbacks and possible resulting adaptations will be presented during next WG Balancing*
  - *Updated mFRR design note [**see here after**]*
  - *BSP Facilitations [**see here after**]*

MARI Derogation



- *Derogation request results of the market parties' feedbacks and interactions within WG Balancing on EU Balancing roadmap*
- *Elia organized a public consultation of the request for derogation from 23/11/21 until 10/12/21*
- *Elia received non-confidential answers from:*
  - *FEBEG*
  - *Febeliec*
- *Market parties support the request for derogation.*
- *The feedbacks received during the consultation did not result in modifications of Elia's request. The request for derogation was submitted for approval to CREG on 18/01/22*

High level results of the public consultation

Answers of FEBELIEC and FEBEG

FEBELIEC

- Febeliec **supports the request for derogation from Elia**.
- Febeliec insists that market parties receive sufficient time for a smooth and stable transition towards the new mFRR design. (…) A one year period after finalization of the mFRR design seems Febeliec a reasonable period.
- Preconditions include a.o. a timely finalization and provision of the mFRR design, complete technical guides, sufficient time for further discussions and consultations on some of the contractual documents.
- Febeliec agrees that aFRR capacity design modifications are indeed urgent and should be treated in priority as compared to the connection to the MARI platform
- Febeliec also welcomes and supports the non mandatory Bidding Assistance Services and [..] is ready to discuss these services with Elia

- ELIA takes care to interact regularly with the market participants regarding the implementation of mFRR design. (…) The one year period after finalization of mFRR design is based on market parties' feedback
- The 2-steps approach will also contribute to ensure a smooth and stable transition towards the new mFRR design as it will allow on one side the independence of the local go live towards the connection to the EU mFRR platform and on the other side a stepwise introduction of the major changes done in IT systems
- Elia is conscious that the important documents must be delivered on time, which is why early versions of the mFRR design note and technical guides have already been delivered.
- Elia will further work on the design of these "bidding assistance services" and will exchange with market parties to correctly define the scope of the functionalities.

FEBEG

- FEBEG **supports fully this derogation** and thanks Elia for the collaborative spirit regarding the balancing roadmap
- FEBEG invites Elia to stay in touch with other TSO's as any change in their planning to connect to PICASSO (and later MARI) should trigger a review of Elia's roadmap accordingly
- FEBEG wants again to emphasize that the 12 months implementation of MARI and iCAROS shall start at the moment the associated designs are fully finalized and validated
- Even if Elia would ever decide to delay MARI go-live, it is critical for FEBEG's members to still have a sync local go-live mFRR/ iCAROS because it would be nearly impossible to handle explicit bidding (RD) and implicit bidding (mFRR) at the same moment

- Elia is actively involved in both European projects (PICASSO and MARI) and is through these EU projects informed about the progress of other TSOs and their respective accession roadmaps
- The period of 12 months was considered in setting the new go-live dates in Q1 2023 with the 2 steps approach
- Elia considered the interdependence and strong link between these 2 projects MARI/iCAROS.(…) Elia confirms that the simultaneous go-live of new mFRR design (local step) and iCAROS phase 1 will be maintained regardless of the date of the connection to the EU mFRR platform

mFRR design : Reminder of the steps realised in 2021

- First release of mFRR design Note (December 2020)
- Informal stakeholders' consultation (Q1 2021)
- 6 workshops organised with stakeholders (Q1 and Q2 2021)
- Second release of mFRR design Note (June 2021)
- **Q3-Q4 2021:**
    - Discussions with CREG on remaining open points
    - Clarifications and improvement of mFRR design
    - mFRR roadmap update and MARI derogation

Objective was to achieve a stable mFRR design by end of 2021

mFRR design : high level overview of changes

	Chapters
1	Introduction
2	Purpose and use of mFRR
3	mFRR Products
4	Contractual Framework
5	Participation to the mFRR Service
6	Balancing Service Provider (BSP)
7	Prequalification for the mFRR Service
8	Procurement by Elia of mFRR Capacity
9	mFRR Energy
10	Controls
11	Penalties
12	Local use of mFRR for purpose of system constraints

- Case of modifications after BE GCT (firmness)
- Exclusive group of energy bids
- Avoiding mFRR activation due to internal congestion risks
- Local selection of mFRR Energy Bids for balancing purposes

- General wording improvements and clarifications
- Activation control for contracted mFRR bid used for redispatching

- Penalty for contracted mFRR bid used for redispatching

- Local selection and activation for purpose of system constraints

mFRR design: way forward and next steps

Next steps

- *Recommendation to read the updated mFRR design*
- *Questions, if any, can be addressed to KAM Energy or Thomas Oldenhove (local mFRR design architect)*
- *Depending on the questions received from stakeholders, a workshop could be organized if needed*
- *Elia will start the drafting of the updated mFRR T&C*

Reminder

Bidding Assistance Services

- Local mFRR design is defined in line with mFRR Implementation Framework and EU design
- Switch to explicit bidding and to MARI standard products represents a fundamental change (including quite complex bidding functionalities)
- A “Manual on Energy Bidding for Redispatching & mFRR” was prepared by Elia to support the understanding and implementation of the new bidding.
- In order to support market parties, Elia looked further which functionalities could be possibly offered as optional non mandatory “Bidding Assistance Services”.
- On this basis, Elia proposes to further specify following optional pre-processes
    - Facilitating the definition of maximum activation time
    - Facilitating a simplified merged RD/mFRR Bid
- These 2 optional pre-processes could be then, after go live, completed by an optional pre-process facilitating neutralization time

Bidding Assistance Services – Next steps

- Elia proposes to organized an adhoc meeting in the period [Mid of March – Mid of May] in order to present and discuss the more detailed design of the proposed optional pre-processes
    - Sufficient understanding of the bidding properties by the participants is needed
    - This meeting will help to confirm that the proposed optional pre-processes are answering effective needs before establishing the detailed technical requirements
    - Participation to the meeting may different that usual Working Group Balancing

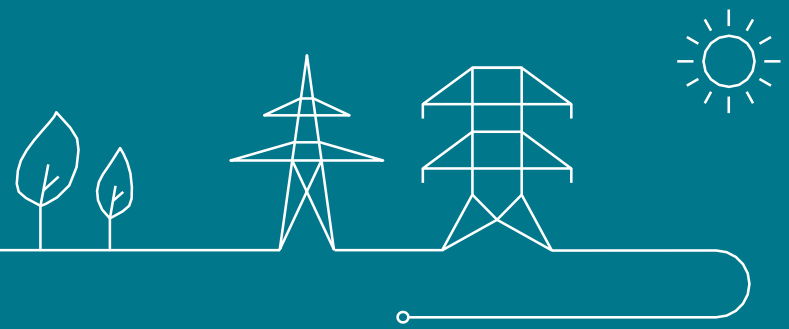
- Purpose is then to establish and share an adhoc technical guide before the summer

- Addendum of the bidding manual will be envisaged if useful

Incentives: high level presentation of the scope, aim and ambition (Part 1)

aFRR 5 min FAT:
impact analysis and recommendations

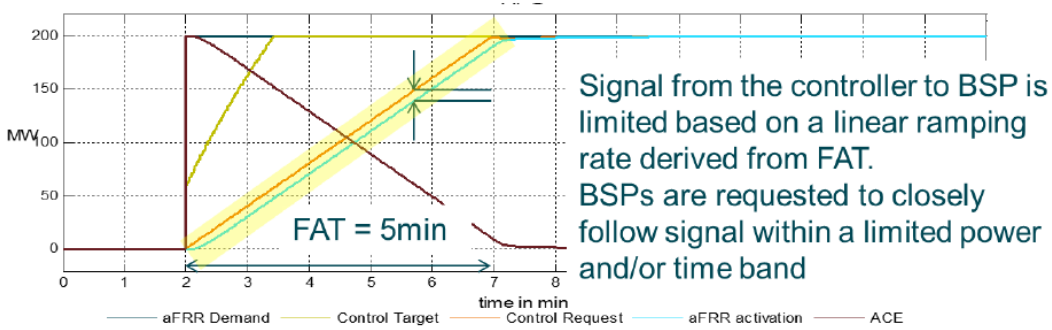
Presented by Philippe Magnant



Context of the incentive

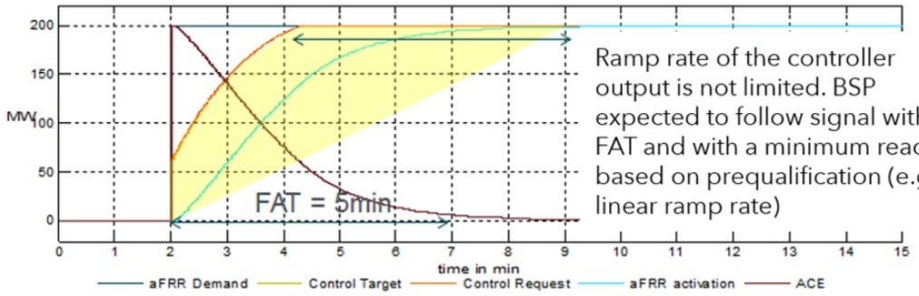
- In Belgium, a unit providing aFRR must be able to activate the entire activated volume within 7.5 minutes (= FAT)
- Current method: “control request”: signal sent to the BSP takes the FAT into account, by applying a filter to the controller output corresponding to the activation time. The BSP is expected to follow the signal within a tolerance band
- Alternative: “control target”: the BSP is asked to activate the volume determined by the Elia controller as quickly as possible, with a minimum requirement equal to the FAT

control request



Signal from the controller to BSP is limited based on a linear ramping rate derived from FAT.
BSPs are requested to closely follow signal within a limited power and/or time band

control target

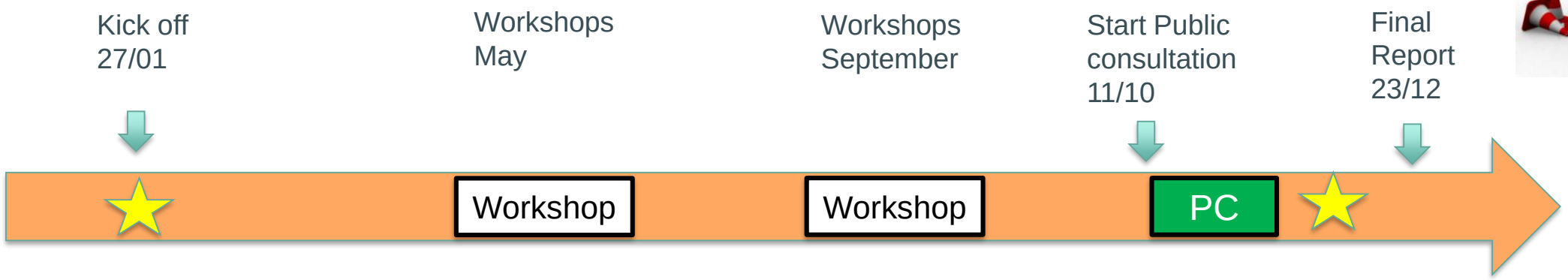


Ramp rate of the controller output is not limited. BSP expected to follow signal within FAT and with a minimum reaction based on prequalification (e.g. linear ramp rate)

High level scope

- Analyse the impacts of an activation based on the "control target" for Elia and for the BSPs
  - Exchanges of data
  - Implementation in Elia’s EMS
  - Implementation in BSP’s systems
- Define the conditions under which this modification could be carried out, in particular
  - Impact on remuneration ➔ which volume used for settlement
  - Impact on control
  - Impact on penalties
- In case of positive conclusions, propose an implementation plan

Planning and deliverables



Kick off

- Objective, High level scope and planning
- Collect first feedback

Workshops

- Identification of impact on design and on implementation
- Gathering inputs from stakeholders
- Analyse possible solutions

Intermediate Report and public consultation

- Design evolutions
- Implementation impact

Final Report and consultation report

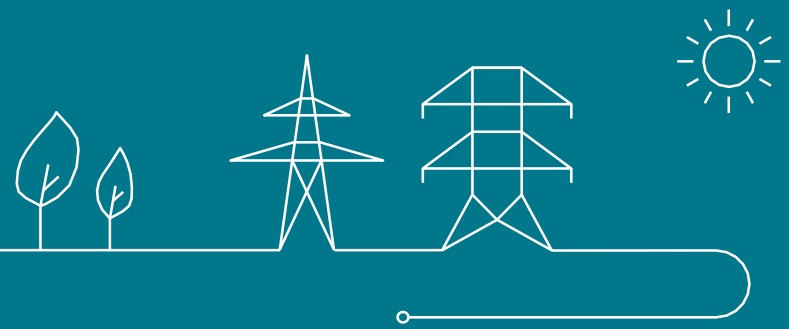
- Design evolutions
- Implementation impact
- Proposal for implementation plan
- Consultation report

WG balancing

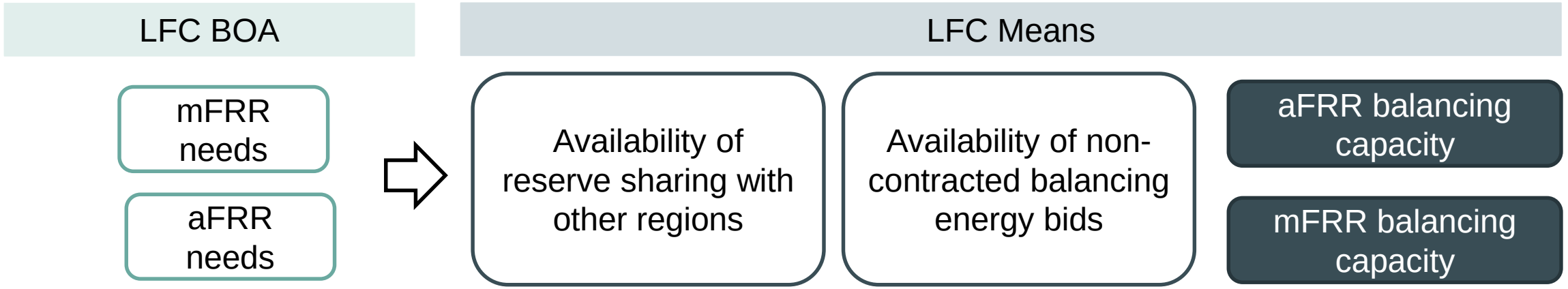
Study on procurement strategies for a dynamic calculation of FRR means:

Follow-up study on the daily prediction of non-contracted balancing energy bids

Presented by Kristof De Vos



Reserve dimensioning framework



- In line with Article 117 of the SOGL, Elia determines the FRR / aFRR / mFRR needs following a methodology specified in its LFC block operational agreement.
  - FRR / mFRR needs are already dimensioned dynamically, i.e. on a daily basis based on expected system conditions
  - Elia presented in 2020 an implementation plan for a dynamic dimensioning of aFRR needs.

- In line with Article 32 of the EBGL, Elia determines in its LFC Means the optimal provision of reserve capacity taking into account sharing of reserves, the volumes of non-contracted balancing energy bids and the procurement of balancing capacity. This is currently still based on a 'static' approach.
  - Elia calculates on a periodic basis the availability of non-contracted capacity balancing energy bids and the availability of shared FRR capacity.
  - Potential 'firm' capacity is subtracted from the required mFRR / aFRR needs in order to determine Elia's balancing capacity (to be procured)

In 2021, Elia published its study on the daily prediction of non-contracted balancing energy bids

Question : can Elia's available non-contracted balancing energy bids for the next day be predicted in order to be used in the calculation of FRR balancing capacity (to be procured)?

- **Step 1** : collection of data on all relevant system conditions known day-ahead and investigate potential correlations with the non-contracted balancing energy bids.

- **Step 2** : study several advanced statistical methods (cf. machine learning) and put forward a few methodologies to be tested

- **Step 3 :** analysis of the results of the quantitative comparison of the selected methods for the proposed features.

- **Step 4 :** put forward recommendations and an implementation planning

Scope

- The balancing energy exchange platforms for aFRR and mFRR were to be implemented after 2021. It was therefore not possible to determine the quantitative impact on the results in the study
- Recent (new aFRR design in 2020) and foreseen (explicit bidding and 12.5' FAT foreseen in 2023) product developments were not (fully) represented yet in the available observations and results are subject to market evolutions.

Although Elia conducted is best efforts to make the methods as robust as possible, the methods and results will need to be updated after a return on experience on these evolutions

- This study focused only on the 'predictability' of the volumes, and not on market implications and procurement aspects of taking into account a dynamic calculation of the available FRR means.

Depending on the results of this study, follow-up analyses will further investigate these aspects.

The study confirmed the prediction potential and proposed a multi-year roadmap to understand the full potential and implications of a dynamic means allocation before pursuing implementation

	2021 : predictability	2022 : value generation	2023-24 : robustness
Scope	**Investigate if available non-contracted FRR means can be predicted before the capacity tender (in view of balancing capacity reductions)**	**Investigate the procurement aspects of replacing (part of) the upward mFRR balancing capacity with non-contracted balancing energy bids**	**Confirm the robustness after implementation of EU balancing platforms, explicit bidding, shorter full activation time for mFRR)** **Re-calibrate machine learning for implementation**
(Expected) results	1. **The available data and current state of the aFRR market does not allow to confirm the potential at this moment** 2. **Results confirm that available downward continue to almost always cover the FRR needs** 3. **Results demonstrate availability upward equals 500 MW on average (including up to 312 MW of reserve sharing).** *Disclaimers - results are subject to uncertainty following expected market evolutions : explicit bidding, full activation time reductions for mFRR and EU balancing energy platforms !*	• **Potential procurement solutions for accounting non-contracted in the allocation of balancing means** • **Identify risks and potential risk mitigation for market stability** • **Update (where possible) the results and conclusions based on additional data).**	• **Confirm the potential value of accounting non-contracted balancing energy bids.** • **Propose a planning for implementation.**

Objective and scope of the study

The purpose of the study is to qualitatively examine possible solutions for the consideration of non-contracted balancing energy bids in the allocation of balancing means and to identify, for each approach, the benefits and risks for the parties involved, as well as the possible impact on market functioning.

In scope

- *Investigation of different procurement strategies, including 'partial procurement' and 'intermittent procurement'*
- *Analysis on potential interactions with reserve sharing and implementation of the EU balancing energy platforms*
- *Evolution of offered non-contracted balancing energy volumes and impact of new market evolutions to the extent possible (including 'go live' Picasso in June 2022)**
- *An update of the implementation roadmap based on the presented conclusions*

Out of scope

- *Impact of mFRR market design evolutions (Go Live Mari, 12.5' FAT and explicit bidding) ➔ Latest planning assumes implementation in 2023.*
- *Update of the machine learning algorithms ➔ Considering implementation planning of EU balancing energy platforms no sufficient data will be available [scope of follow-up study foreseen in 2023]*
- *Detailed implementation planning ➔ Part of scope of follow-up study foreseen in 2023*

Planning

Kick off

- Present objective, scope and planning
- Collect potential feedback / expectations from market parties

Workshops

- Workshop 1 to discuss possible solutions for a dynamic procurement and market impact
- Workshop 2 for in depth discussion of feedback of the market parties

Preliminary report and public consultation

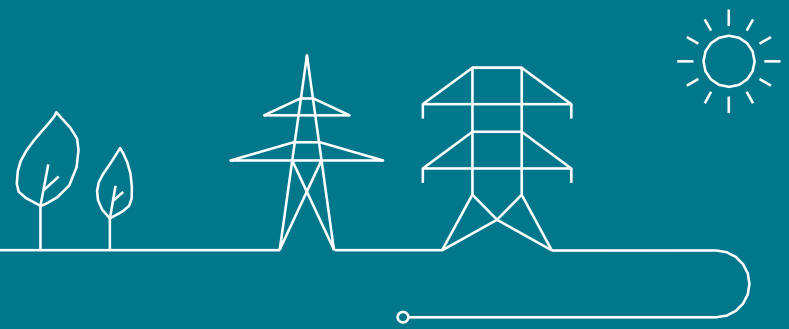
- Analysis of the consequences for the procurement strategy and recommendations
- Analysis of the evolution of local and cross-border volumes (to the extent possible)

Final report

- Update of the study
- Update of the implementation roadmap (if needed)
- Consultation report

Analysis of possibilities for combined offers (Combo) of FCR/aFRR/mFRR and ToE DA/ID at DP pg delivery points

Presented by Thomas Oldenhove



Description of incentive 2022

Analysis of the possibility to offer different types of balancing products and/or to combine the offer of balancing products (FCR/aFRR/mFRR) with the supply of energy in the DA/ID market through ToE for DP pg delivery points.

High level scope for 2022

- Transversal study to assess the opportunity and technical feasibility of offering a combo on DP pg, based on existing baseline methodologies
- Assessment of the potential liquidity that these changes would bring
  - Experience feedback on delivery points participating in the different products
  - Survey of market participants
- Benchmarking with other European TSOs to identify if such possibilities are offered by these TSOs and their possible contribution to the liquidity of balancing markets (comparison to be made with similar market organization (pooling))
- Impact analysis on existing methodologies and required modifications to be made
- Implementation plan or explanations if changes are not desirable
- Comparison of the Belgian concepts "DPsu" and "DPpg" (defined in the T&C BSP) with the European concepts of "reserve providing unit" and "reserve providing group" (defined in the SOGL).

Planning and deliverables

Kich off

- Objective, High level scope and planning
- Collect first feedback

Survey and workshop

- Analysis of use cases and possible combo
- Workshop for discussions of feedback from market parties

Intermediate Report and public consultation

- Transversal study;
- Changes to be made to the market rules;

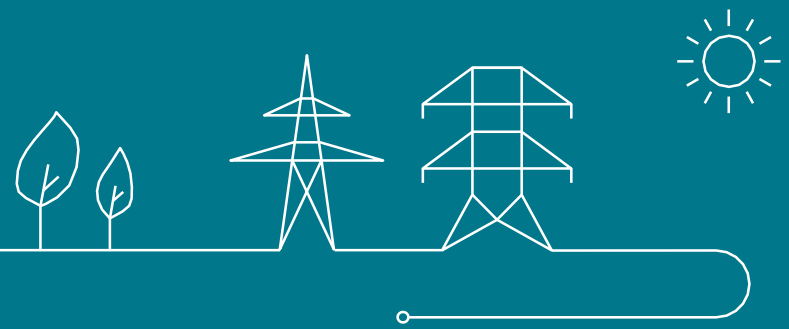
Final Report and consultation report

- Transversal study;
- Changes to be made to the market rules;
- Proposal for implementation plan.
- Consultation report

WG balancing

Analysis and implementation of FCR evolutions pursuant art. 114(2) of SOGL

Presented by Didier Chim



Objectives of the incentive

- Analyze and propose designs deviating from the proposed standard solution in order to **remove entry barriers for BSP** as long as the **minimum needs of Elia are satisfied**, given the specific context of Elia's LFC Block. The proposal of design shall **not necessarily be limited by choices** made by other TSOs of the FCR Cooperation

La CREG fait remarquer qu'il est justifié de déroger aux solutions standard si cela permet de réduire ou d'éliminer les obstacles à la participation au marché et tant que les besoins minimaux de chaque GRT sont satisfaits, compte tenu du contexte spécifique du bloc RFP concerné. La proposition faite dans le cadre de l'article 154(2) du SOGL prévoit une dérogation aux solutions standard proposées par les GRT en Europe continentale et énumère les besoins minimums qui doivent être satisfaits. Par conséquent, la CREG estime qu'Elia ne doit pas nécessairement être freinée dans le développement de solutions innovantes en raison des choix faits par d'autres GRT dans la région concernée. La proposition faite conformément à l'article 154(2) du SOGL cadre en effet avec la liberté nationale d'appliquer de meilleures solutions que la solution standard. La CREG adapte donc la proposition en ce sens.

Scope of the incentive

- The proposal of design shall be **limited to design evolutions** related to article 114(2) of SOGL.
- The proposal of design shall **analyze the impact** of those evolutions on the development of a **competitive national FCR market**, on the **participation of end-consumers on low voltage, Demand Side Response (DSM) and storage.**

Etude consistant à analyser et proposer des évolutions de design FCR adéquates, dans le cadre de l'implémentation des règles européennes établies conformément à l'article 154(2) du SOGL. Plus particulièrement, Elia étudiera les possibilités de déviation au niveau national par rapport aux règles européennes établies par défaut et proposera plusieurs solutions alternatives après concertation avec la CREG et les stakeholders. L'analyse tiendra compte des besoins d'Elia et des possibilités des BSPs, ainsi que de l'impact des exigences établies au niveau national sur le développement d'un marché de la FCR compétitif, y inclus sur la participation à ce marché d'unités ou clients finaux raccordés en basse tension, de la gestion de la demande et du stockage. Les propositions d'Elia seront effectuées en concertation avec les acteurs de marché.

Content of the incentive

Concrètement, dans le cadre de cet incitant :

- les raisons techniques qui pourraient justifier une dérogation aux exigences de l'article 3(2) des propriétés complémentaires FCR sont examinées ;
- une solution de rechange est élaborée, le cas échéant, en ce qui concerne l'exigence énoncée au troisième point de l'article 3(5) ;
- l'application du « mode réserve » tel qu'il est défini à l'article 4(4) et à l'annexe I des propriétés complémentaires FCR est examinée et, si nécessaire, d'autres critères pertinents seront élaborés ;
- la solution de rechange visée au point c) de l'article 3(7) et à l'article 3(9) est examinée et développée ;
- l'application des exigences de l'article 3(8) est étudiée et développée ;

Prequalification of non-compliant units

Derogation of to the rated to pre-qualified power ratio

Obligation and conditions on the provision of Reserve Mode

Obligation and conditions on the use of Centralized Controller

Timeline of the incentive

	Incentive	Year	2022																													
		Month	1					2				3				4				5					6				7			
		Week	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	WG BAL	Day	03	10	17	24	31	07	14	21	28	07	14	21	28	04	11	18	25	02	09	16	23	30	06	13	20	27	04	11	18	25
Stakehold	WG Balancing					Intro Incentives														Reporting WS							Reporting WS				
	Stakeholder workshop															WS 1		2								WS		3				
	Public Consultation																		Consultation													

- 31 mars 2022: Concertation avec la CREG sur le projet d'étude et les solutions alternatives envisagées ;
- 2 31 avril 2022: Date limite pour le lancement de la consultation publique;
- 3 30 juin 2022 : Date limite pour l'organisation d'un workshop pour discuter et motiver de l'intégration (ou non) des retours des *stakeholders*;
- 31 octobre 2022: Date limite pour la soumission d'un rapport de consultation avec des recommandations et un plan d'implémentation pour la modification des T&C BSP FCR.

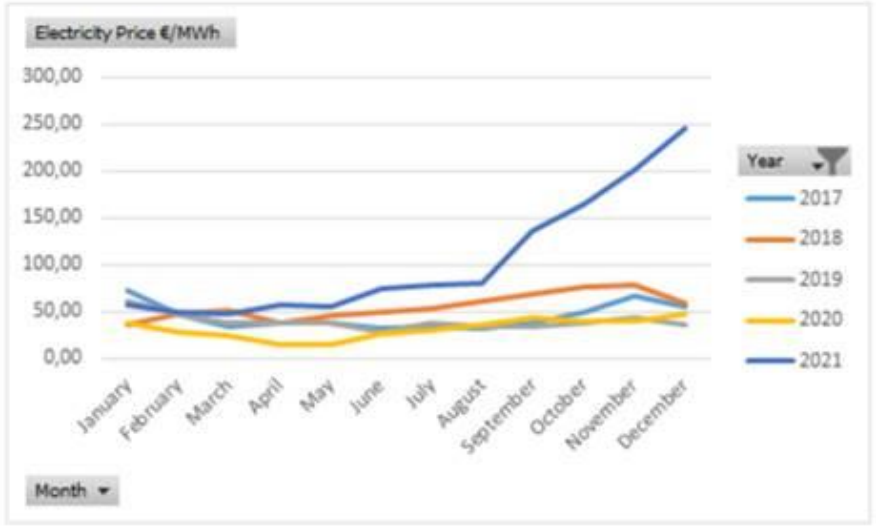
Year overview: Capacity Auction Results

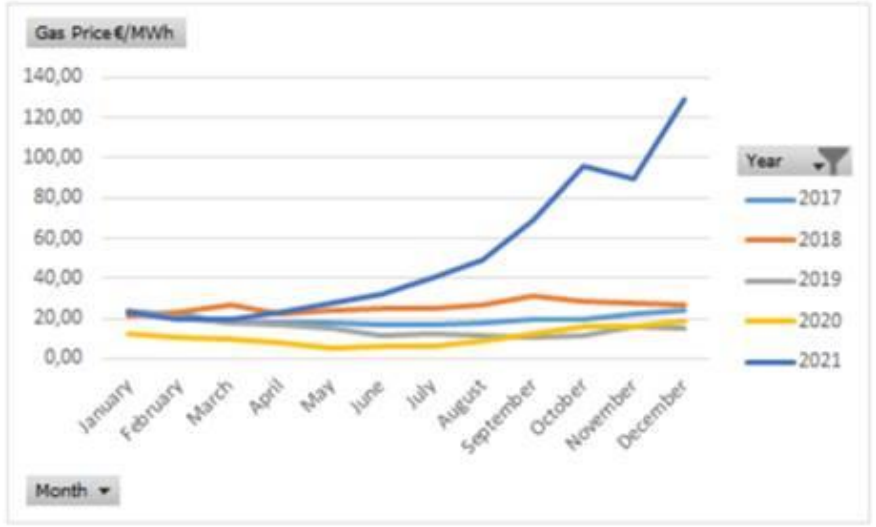
Presented by Amandine Leroux

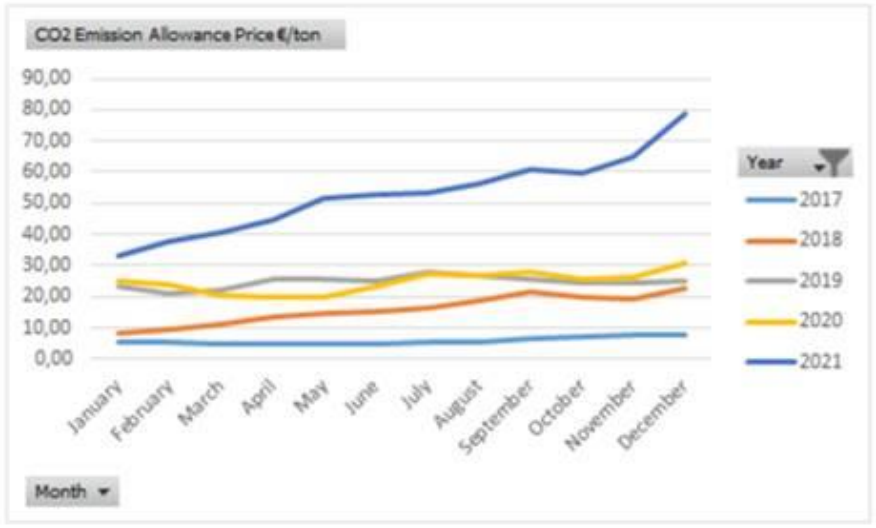
1. Market prices

Historical high market prices in 2021

Average monthly prices last 5 years







Levels never seen before 2021 for:

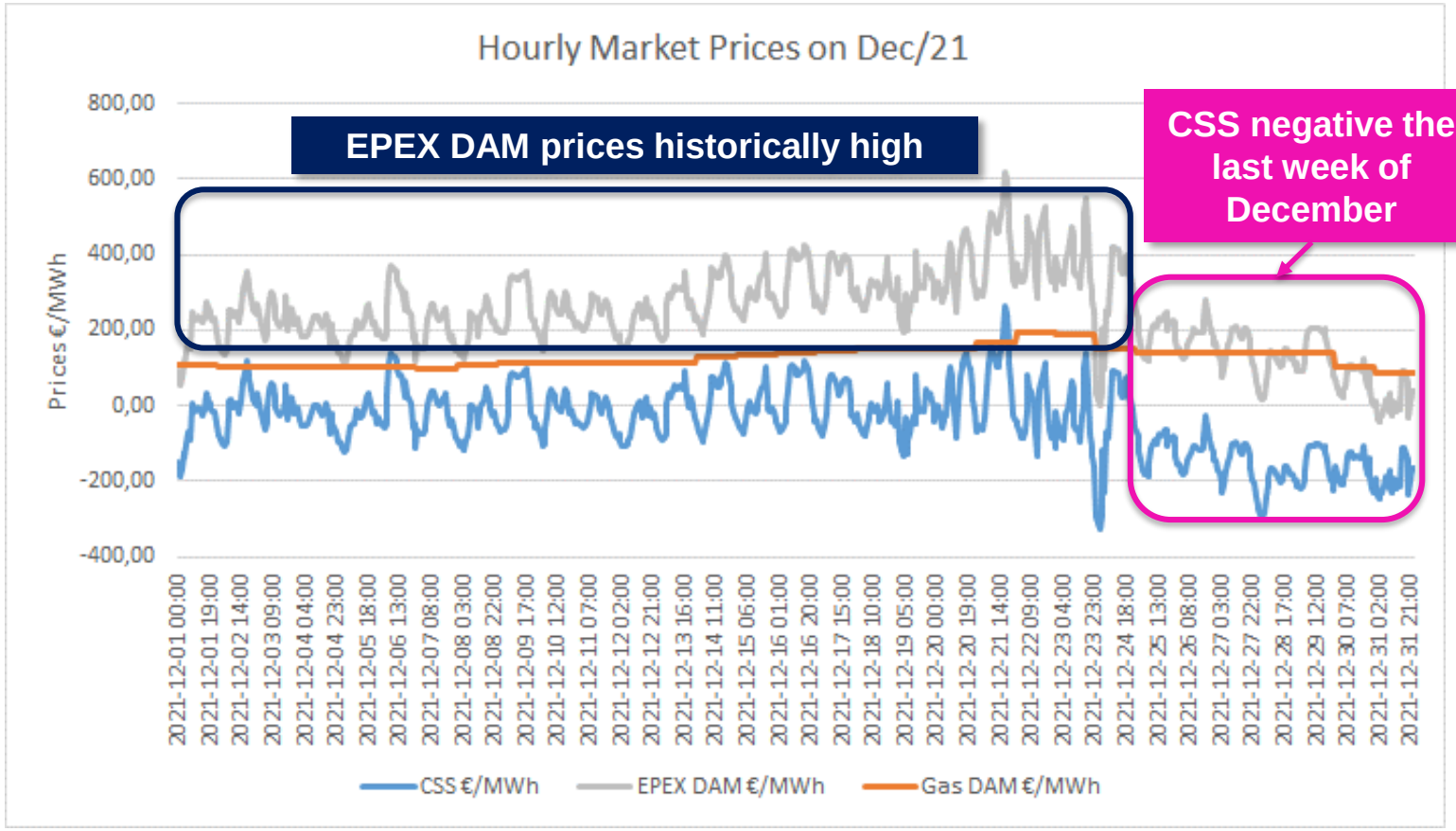
- ❑ Electricity prices
- ❑ Gas prices
- ❑ CO2 prices
- ❑ CSS

⇒ **Stress test for balancing capacity costs as**

- ➢ CSS drives aFRR capacity prices
- ➢ EPEX DAM prices drive mFRR capacity prices

Extreme market prices and volatility

Example December 2021



- **EPEX DAM prices** historically high until 24/12 (average 280€/MWh)

  => impact on mFRR capacity costs

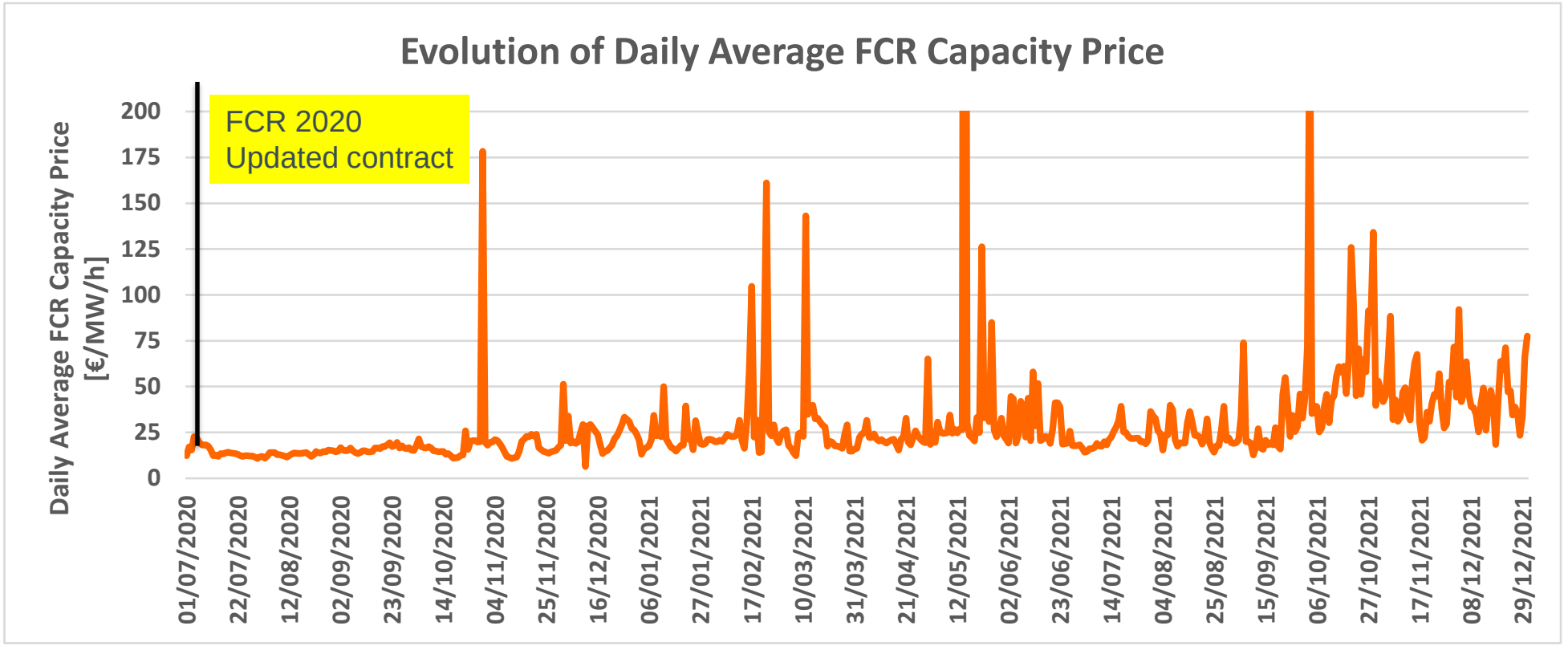
- After 24/12 drop of price due to low load and more wind production

  => very negative **CSS** (in average -156€/MWh)

  => impact on aFRR capacity costs

2. FCR capacity prices

FCR Capacity Prices

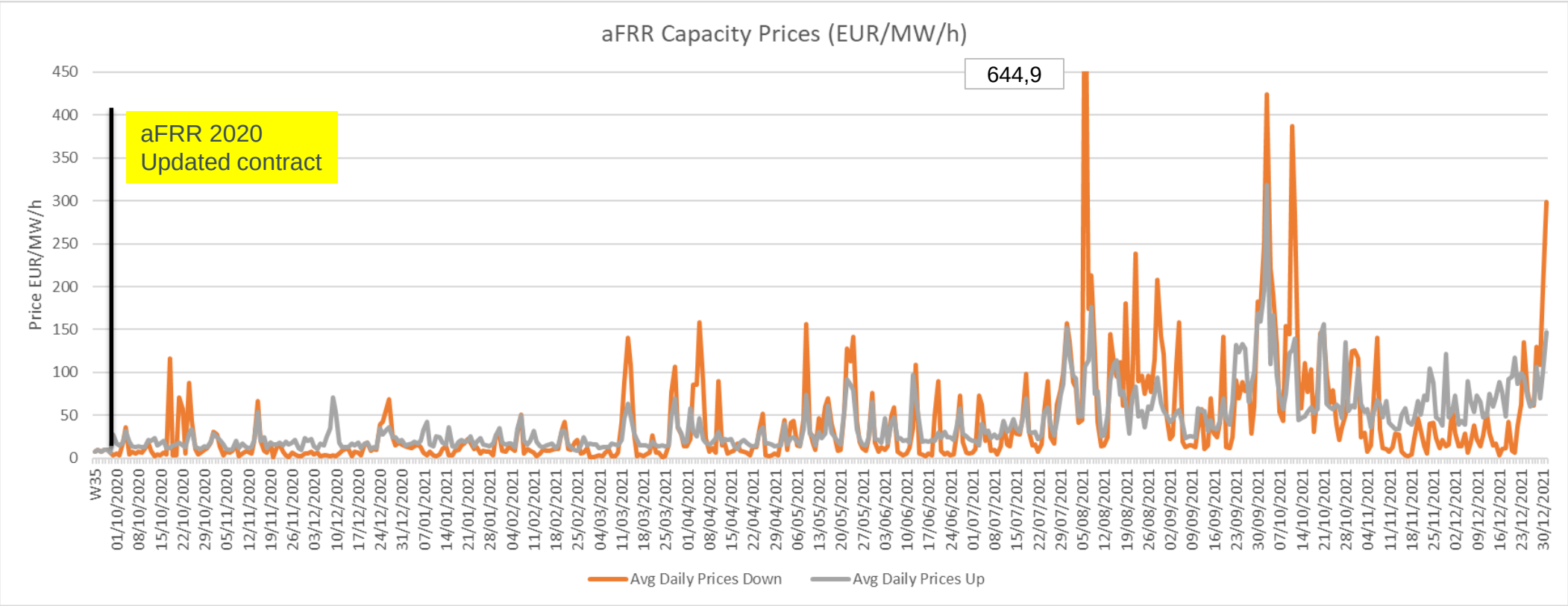


Year	FCR to procure (BE)	Core share (BE)
2020	**78 MW**	**24 MW**
2021	**87 MW**	**27 MW**

- FCR capacity prices **remain under control**: FCR, mainly provided by batteries and X-border capacity (Regelleistung) proved to resist to market conditions
- As of January 2021, some BSPs optimize their capacity bids between FCR & aFRR. This has led to an increase of procurement cost at the end of the year (increase of gas prices).
- Average FCR X-border capacity price for 2021: **18 €/MW/h**

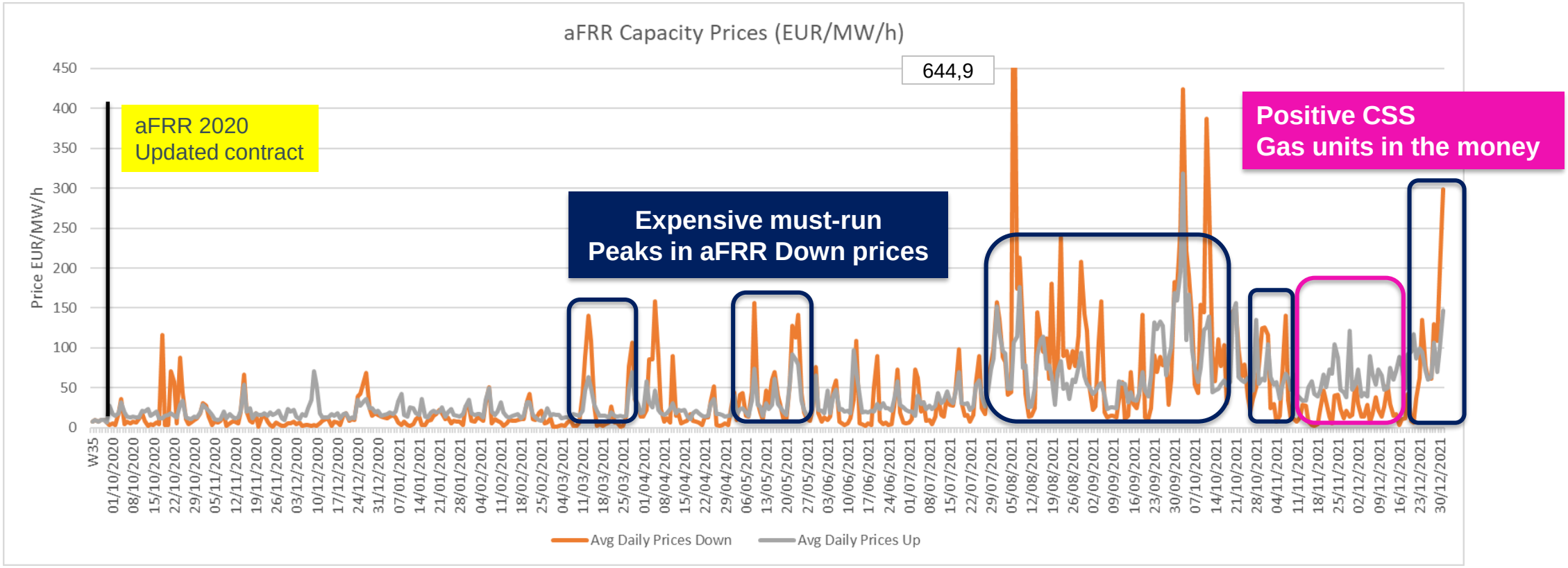
3. aFRR capacity prices

aFRR Capacity Prices



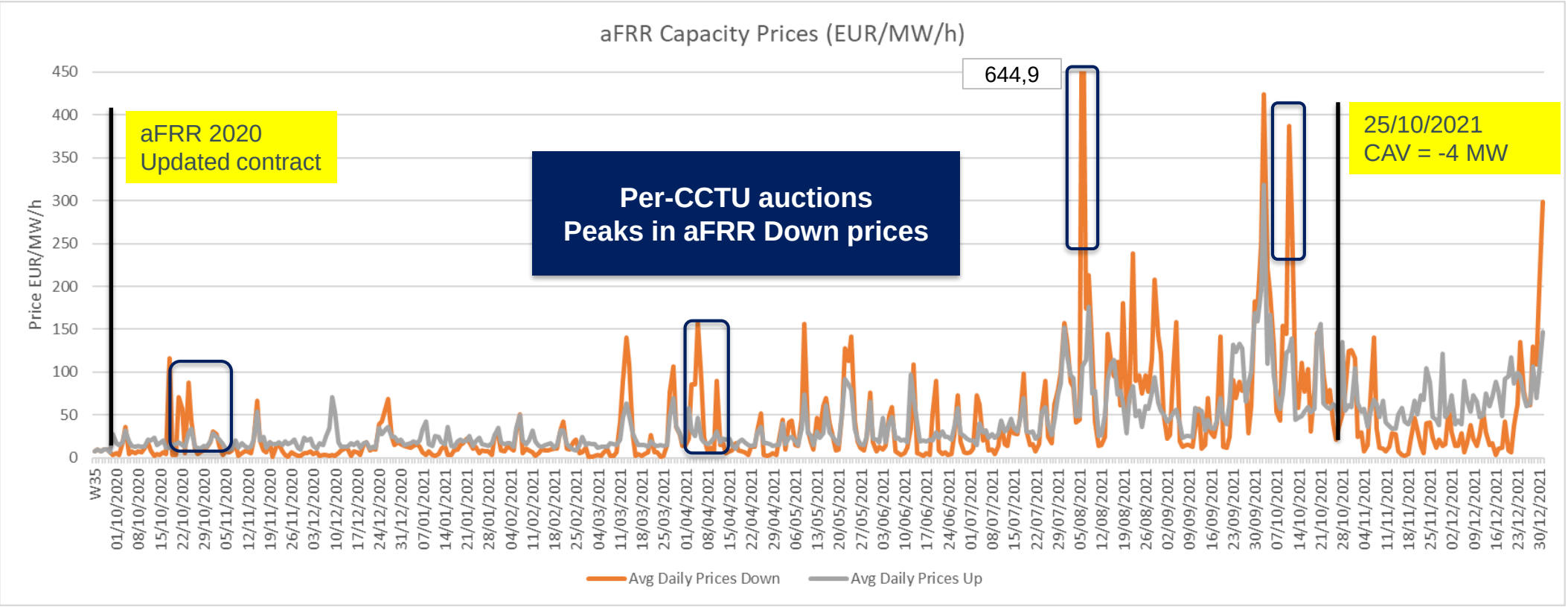
- Peaks in aFRR capacity prices are caused by various situations
- Main reason remains correlation with the CSS (important part of aFRR capacity still provided by gas units)

aFRR Capacity Prices



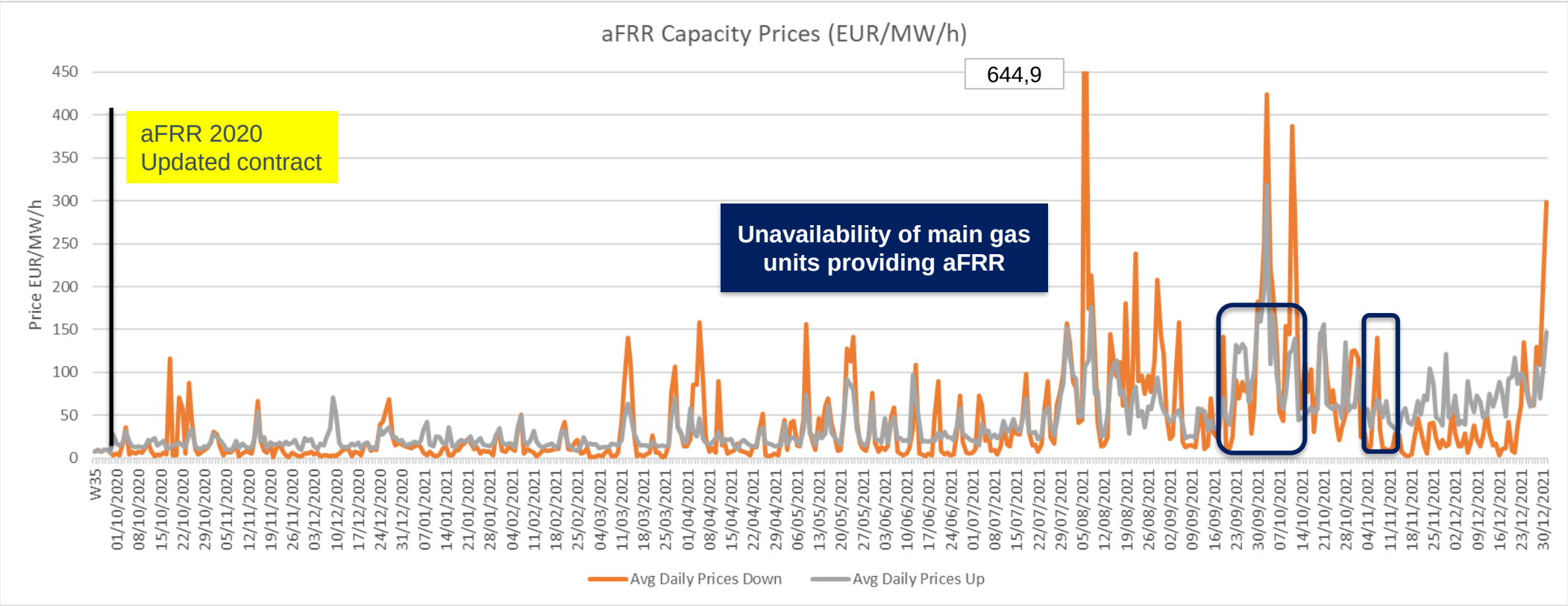
- High aFRR Down capacity prices driven by must-run costs (negative CSS)
- Negative CSS 70% of the time during 2021

aFRR Capacity Prices



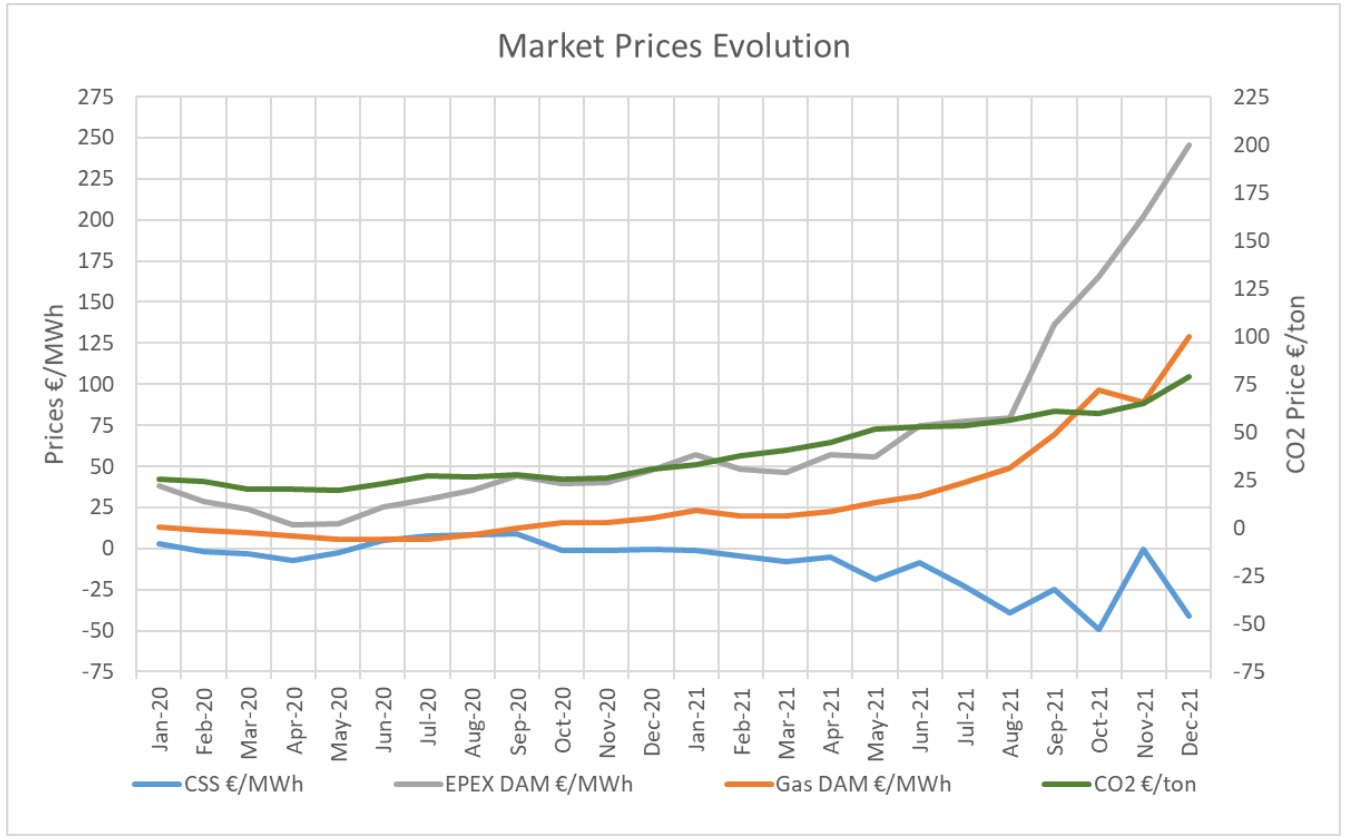
- Unavailability of aFRR capacity provided by DPpg in Per-CCTU (4-hour block) auctions
  - ➡ Selection of aFRR capacity provided by gas units in the Per-CCTU auctions (= worst case as must-run costs are covered by a few MW)

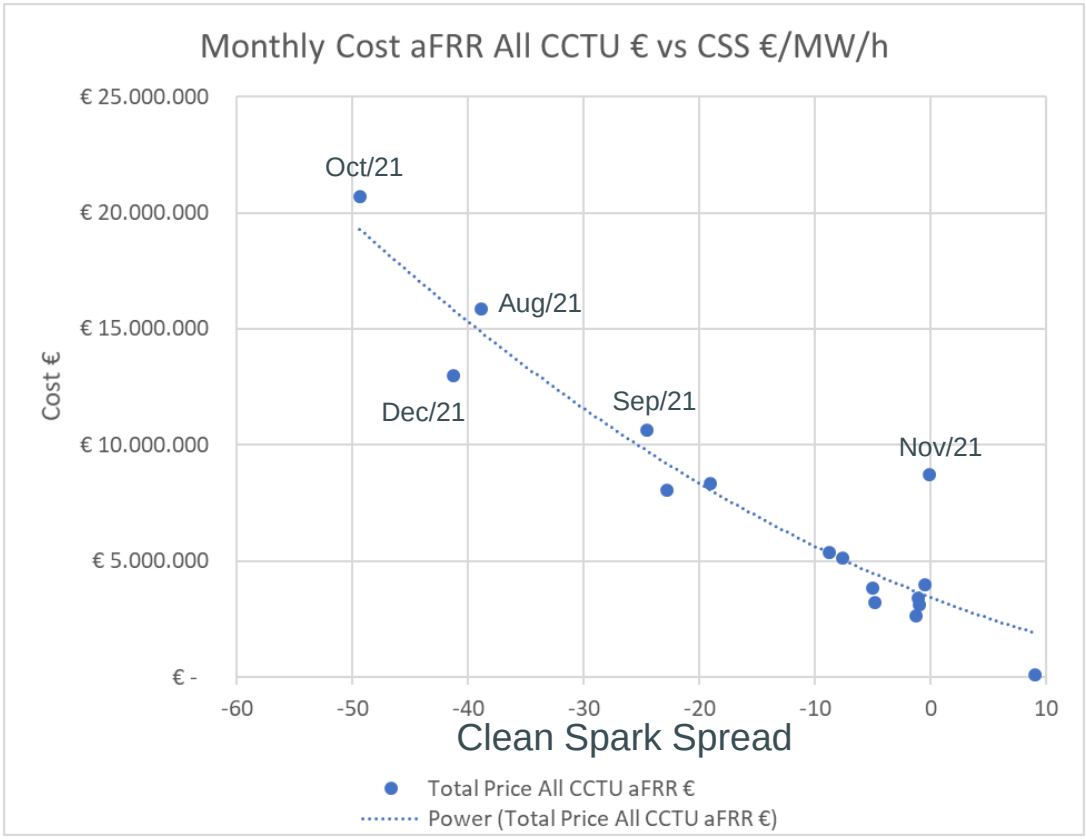
aFRR Capacity Prices



- Unavailabily of main gas units providing aFRR capacity
- aFRR capacity provided by more expensive delivery points

aFRR capacity prices
Market prices impact on CSS and aFRR costs

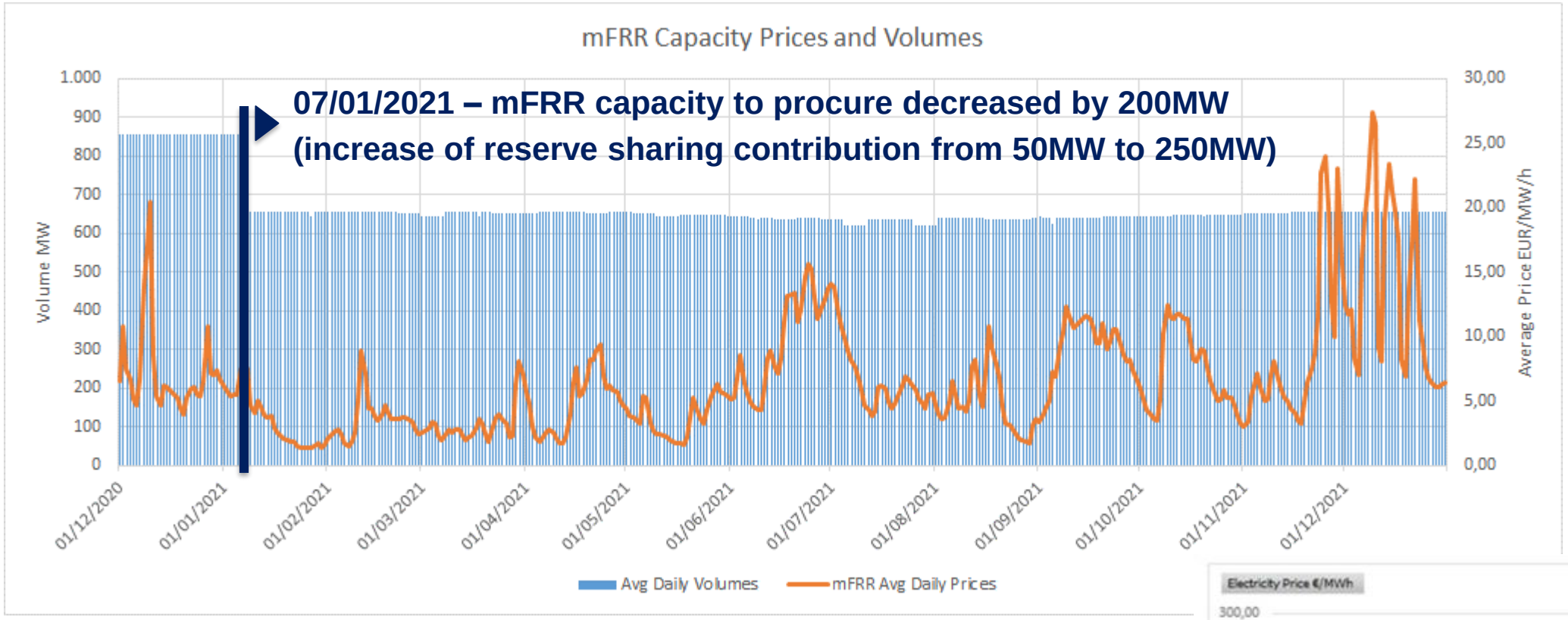


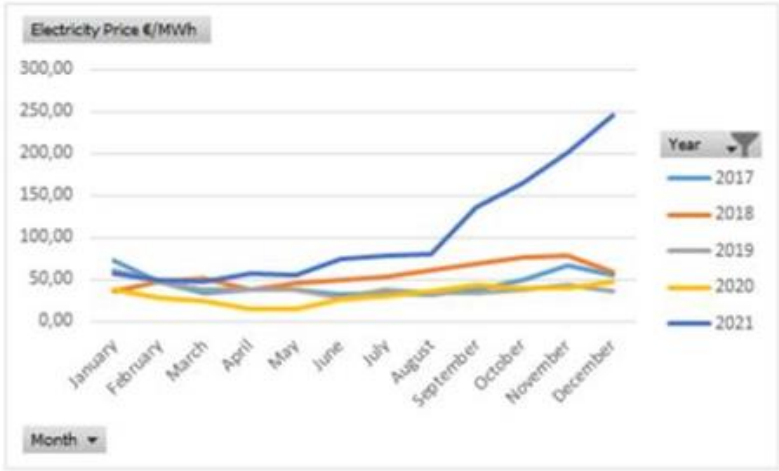


Strong correlation between CSS and aFRR costs in the all CCTU auctions

4. mFRR capacity prices

mFRR capacity prices

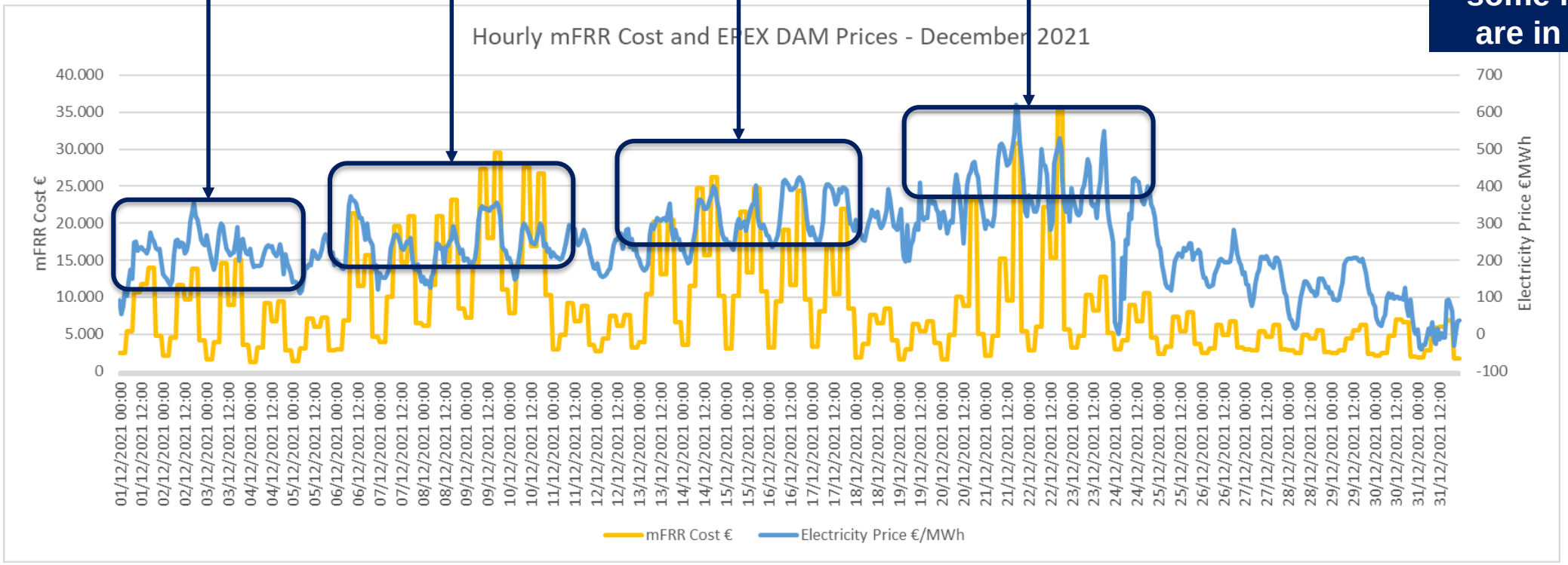




High mFRR capacity prices observed in December 2021

mFRR capacity prices: December 2021 - impact of high electricity prices during peak hours

Periods for which some mFRR units are in the money

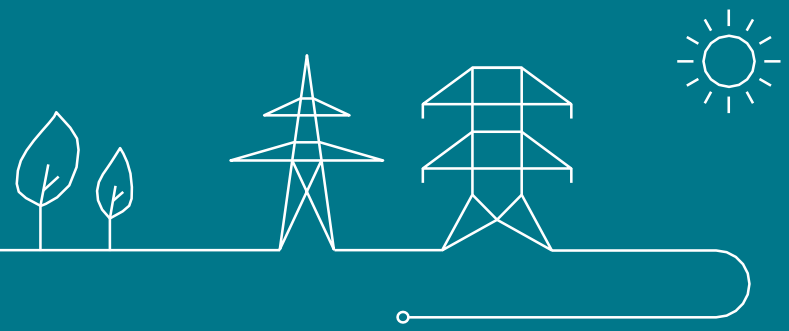


High electricity prices (>200€/MWh)

=> some mFRR units are in the money

=> strong increase of mFRR prices for concerned CCTUs (opportunity cost)

5. Wrap-up



Wrap-up

- 2021 is the first complete year under fully regulated contractual framework (including updated design) for all balancing services (FCR, aFRR and mFRR)
- Electricity, gas, CO2 prices and CSS all reached levels and volatility never seen before

→ **Stress test for balancing capacity cost that more than doubled in 2021**

Year	Total Cost of balancing capacity	Total Cost of aFRR
2020	78 M€	
2021	182 M€	121 M€

Increase mainly driven by aFRR
Historical high gas prices leading to high must-run costs (CSS extremely negative)

Costs could have been higher without:

- **efforts to diversify technologies participating to balancing capacities in the last years (in particular for FCR)**
- **decrease of 200MW volume to procure in mFRR**

- At the end of 2021, **18MW aFRR Up and 34 MW aFRR Down** can be provided by other technologies than CCGTs

Public Data Exposure

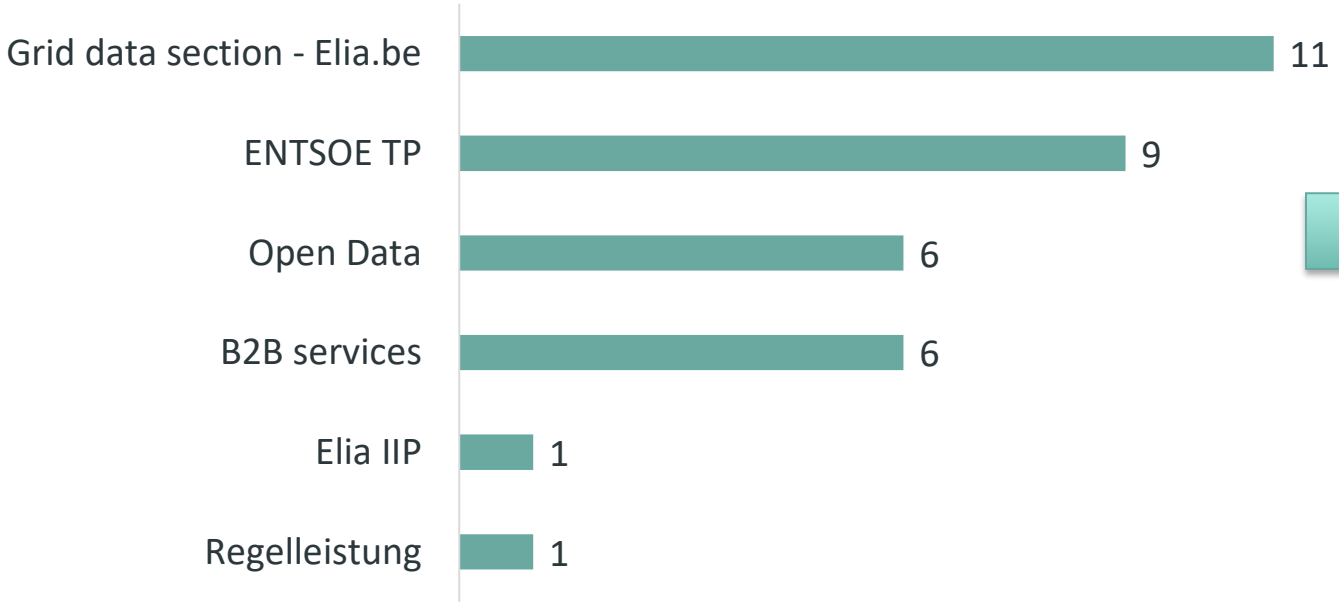
Presented by Laura Jacobs

Questionnaire results

Participation

- Questionnaire sent to Belgian Grid working group and Balancing working group mailing lists
- 12 participants
- All important roles represented (BRP, Trader, Consumer, Producer, Federation)

Which Elia data publication channels do you use ?

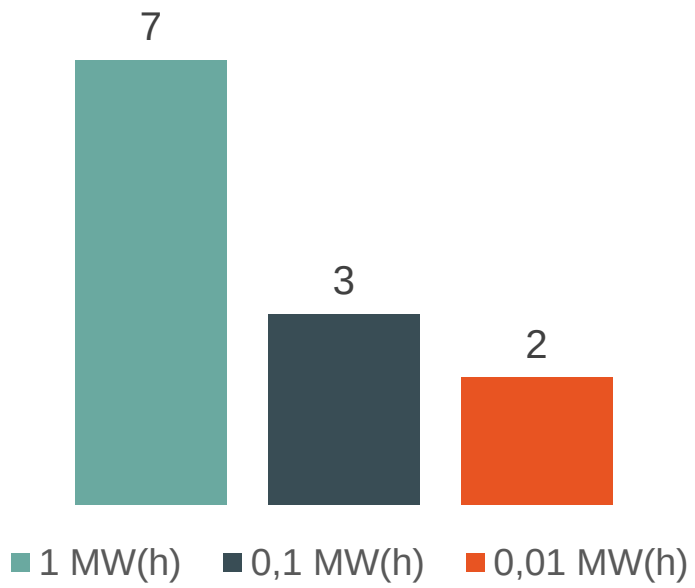


Grid data section of Elia.be and ENTSOE TP are the most used platforms with respectively 92% and 75% of participants using them.

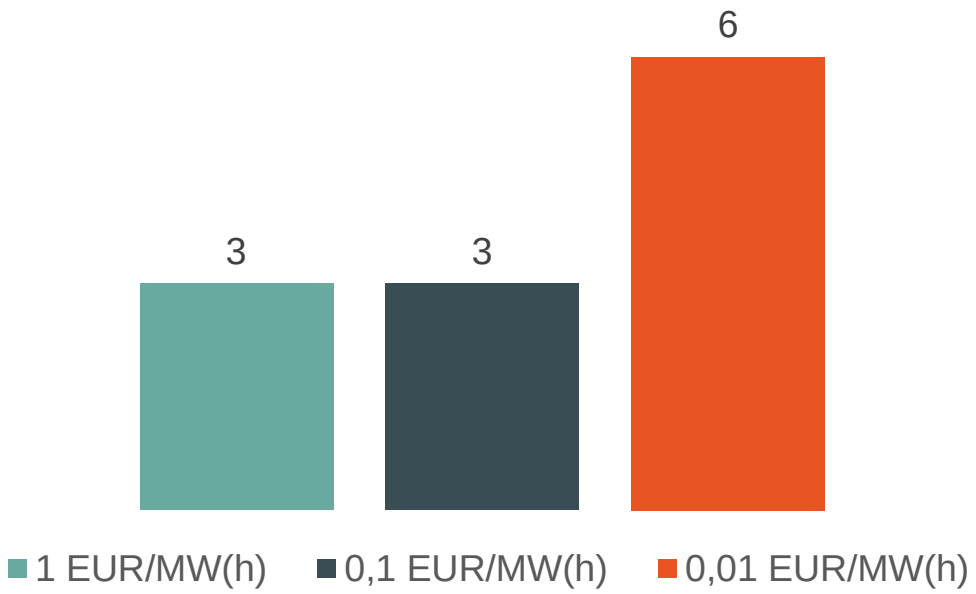
Open Data is already used by 50% of participants 6 months after its launch

Questionnaire results – Relevant granularity

Which granularity is relevant for volume data type ?



Which granularity is relevant for price data type ?

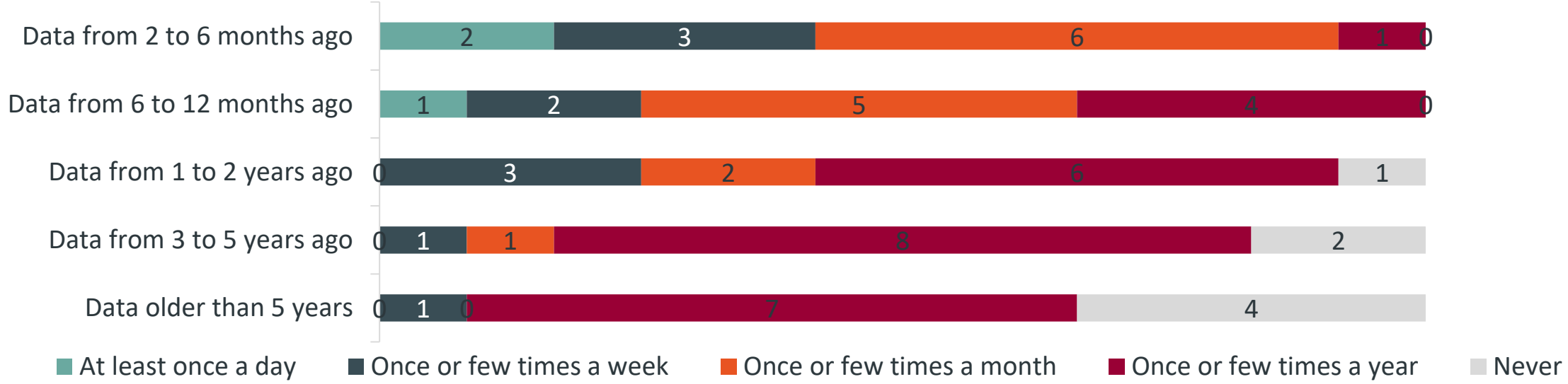


For the majority of participants, the relevant granularity is 1MW(h) for volume data type and 0.01 EUR/MW(h) for price data type

Questionnaire results – Frequency of data use

How often do you use data published by Elia (including automatic data recovery by a machine)?

How often do you use historical data ?



As expected, the older the data, the less frequently it is used by participant

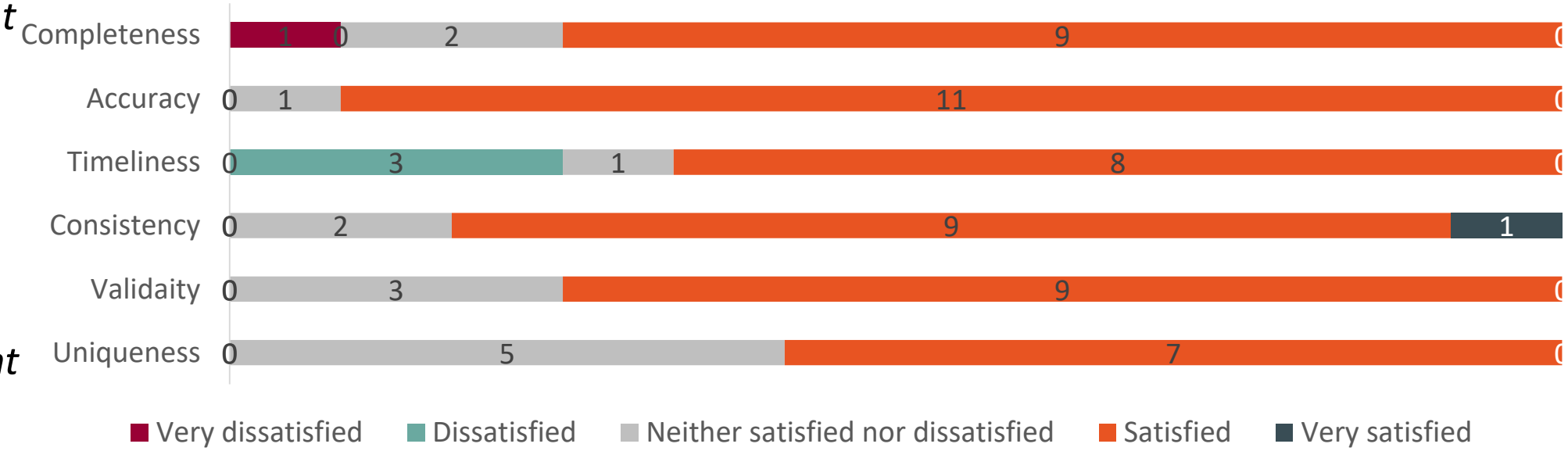
- 75% of the participants responded that they use Elia data at least once a day.
- This number decreases to less than 20% of participants for data from 2 to 6 months ago and
- To 0% for data older than 1 year.

Questionnaire results – Data Quality

Which dimensions of data quality are the most important for you and are you satisfied with data quality level of Elia publications by dimension?

Most important dimension

Least important dimension



Completeness: 75% of the participants are satisfied.
Accuracy: 92% of the participants are satisfied.
Timeliness: 67% of the participants are satisfied and 25% unsatisfied. It will be taken into account in our roadmap and future improvements regarding data quality.

Questionnaire results – Improvements & highlights

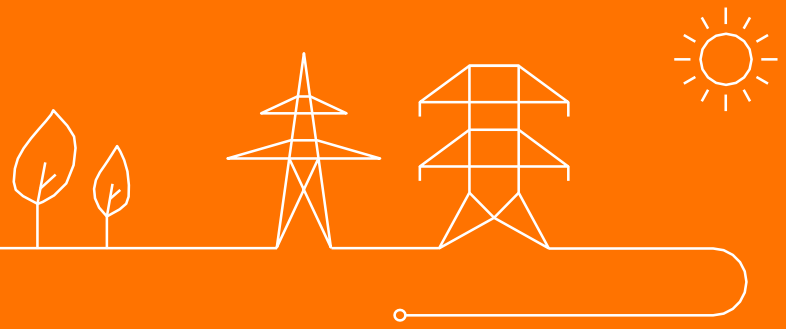
Valuable feedback received.
We will respond to each participant regarding their proposal for improvement

Highlights

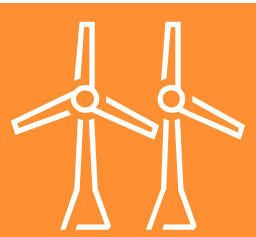
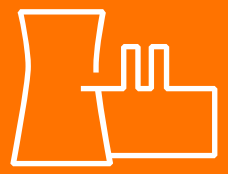
- Grid data section of Elia.be and ENTSOE TP are the most used platforms with respectively 92% and 75% of participants using them
- Open Data is already used by 50% of participants 6 months after its launch
- For the majority of participants, the relevant granularity is 1MW(h) for volume data type and 0.01 EUR/MW(h) for price data type
- As expected, the older the data, the less frequently it is used by participant
- For data quality on completeness dimension: 75% of the participants are satisfied.
- For data quality on accuracy dimension: 92% of the participants are satisfied.
- For data quality on timeliness dimension: 67% of the participants are satisfied and 25% unsatisfied. It will be taken into account in our roadmap and future improvements regarding data quality.

iCAROS: impact on data exchange, IT system and operations – focus on phase 1

Presented by Viviane Illegems



Agenda

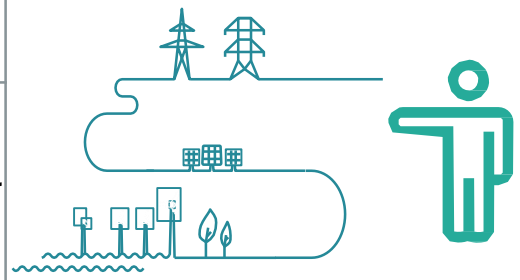
1. Context
2.  Implementation clarification of target design in phase 1
3.  New dynamic continuous data exchanges and IT system for implementation clarification of target design in phase 1

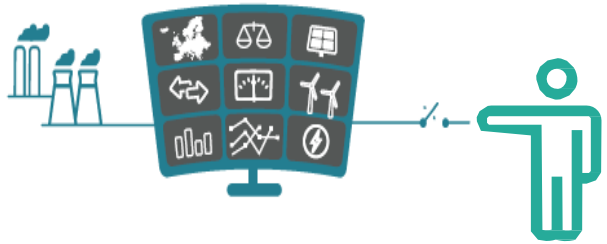
Context

iCAROS = Integrated Coordination of Assets for Redispatching and Operational Security

Business Scope

Exchange of operational data [from LT to realtime]





1
Outage Planning

2
DA & ID scheduling

3
Congestion management

Coordination and Congestion Management is part of a broader exercise aiming at ensuring grid security

The **coordination of system relevant assets connected through grid users and congestion management** serves to provide Elia with the **data and means** necessary to:

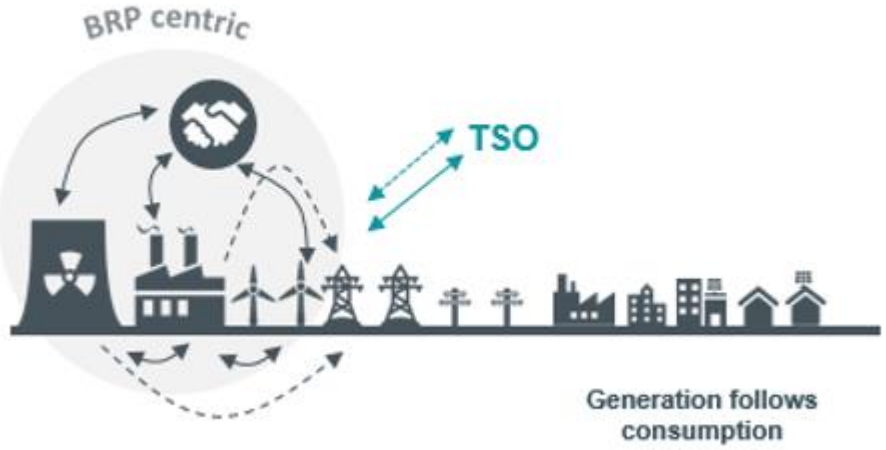
- manage congestions on the grid
- ensure the availability of ancillary services
- monitor the availability of production to satisfy demand

with the aim of providing a secure grid.

Data and means provided by assets connected through grid users

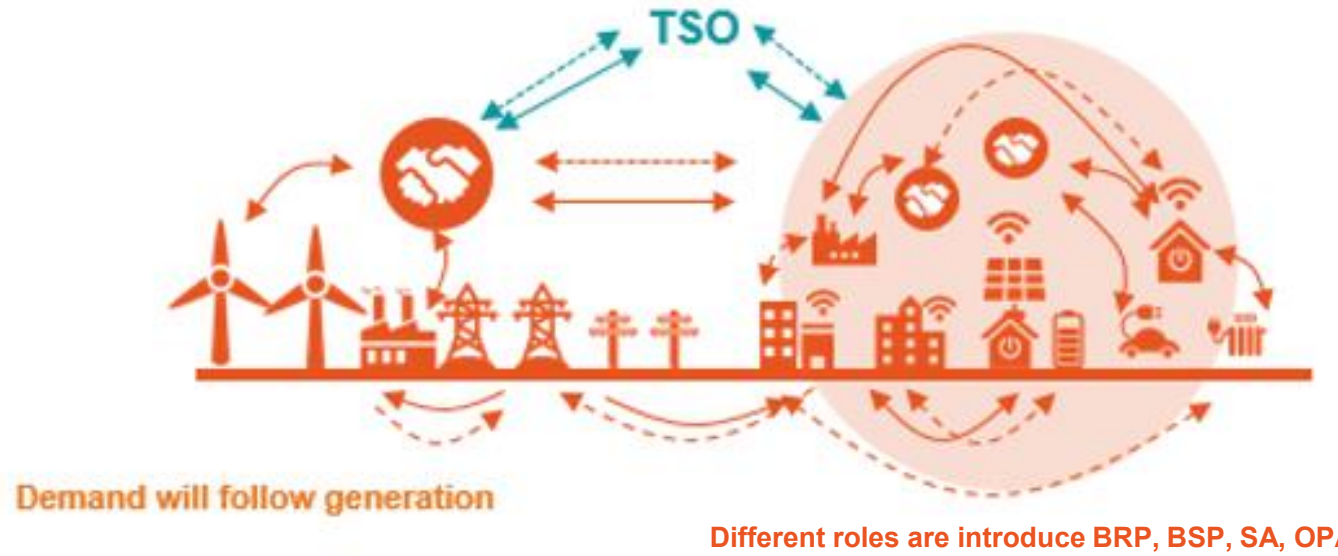
- Availability plans of system relevant assets [outage planning]
- Schedules of active power in day-ahead (DA) and intraday (ID) of system relevant assets
- Up- and down bids of active power of system relevant assets (redispatching bids)

Coordination and Congestion management design TODAY …



- OPA & SA passive role
- OLD tools and static limited data exchanges at certain gates – not future proof and not up scalable
- Generation follows demand
- Focus on production units with installed capacity of 25 MW and more

…towards a new technology neutral design for coordination and congestion management open for all system relevant assets



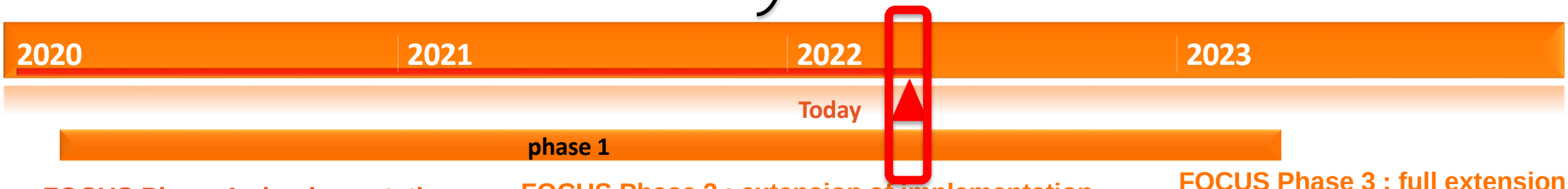
Different roles are introduce BRP, BSP, SA, OPA, …

iCAROS project

- OPA & SA active role
- NEW tools and dynamic continuous data exchanges that reflect evolving technical and operational reality and that are up scalable
- Focus on all system relevant assets
  - including small units (≥ 1MW)
  - including all technologies (batteries)
- Demand will follow generation => congestion management is open for demand

iCAROS phased implementation

→ Phasing reflects operational prioritization and is cocreated with SGUs & DSOs
→ no big bang but safeguarding operational robustness



FOCUS Phase 1 : implementation clarification of target design for system relevant assets ≥ 25 MW BRP = OPA = SA

FOCUS Phase 2 : extension of implementation clarification of target design to all system relevant assets ≥ 1 MW (only availability plans for DSO-connected) & demand facilities (only TSO-connected)

FOCUS Phase 3 : full extension of implementation clarification of target design to all system relevant assets ≥ 1 MW & demand facilities (only TSO-connected)

Phase 1

**TSO/SGUs*
COCREATION**

Phase 2

**TSO/SGUs*/DSOs
COCREATION**

Phase 3

**TSO/SGUs*/DSOs
COCREATION**

Target go-live Q1 2023

Not before Q2 2024

iCAROS

Timing Alignment with MARI-project/focus on relevant assets ≥ 25 MW and features needed for splitting mFRR free bids from redispatching bids

* CDSOs are included in cocreation for SGUs connected to their grid

Implementation clarification of target design in phase 1

Main elements of iCAROS target design already included in phase 1 – focus on implementation clarification of design for system relevant assets ≥ 25 MW

- New terminology reflecting technical and operational reality while providing necessary information for operational security
- Availability plan (including SOGL terminology from D-7 on after Ready-to-Run procedure) – automatic translation foreseen (OPA implementation facilitation)
- Package deal : cost-based redispatching in all timeframes and freedom of dispatch up to 45 min before RT
- Introduction of a structural methodology to calculate Congestion Risk Indicator (CRI) replacing Red Zones [at the latest at go-live of iCAROS phase 1]
  - At go live of iCAROS phase 1 only used for filtering of balancing activations.
  - Allows an increase of the number of assessments of the congestion risk in the Belgian zone
- Moving from implicit computation of the redispatching volume by Elia towards explicit redispatching (RD) bids provided by the SA
  - Alignment of technical characteristics and delivery profiles to facilitate delivery by market parties and coherency between different services delivered by these market parties

Main elements of iCAROS target design already included in phase 1 – focus on implementation clarification of design for system relevant assets ≥ 25 MW

- Return to schedule principle:
  - Provide mean to ensure operational security
  - increase quality of data for adequate detection of congestion

- Introduction of activation control, activation remuneration and correction of BRP perimeter in line with new design of the redispatching process

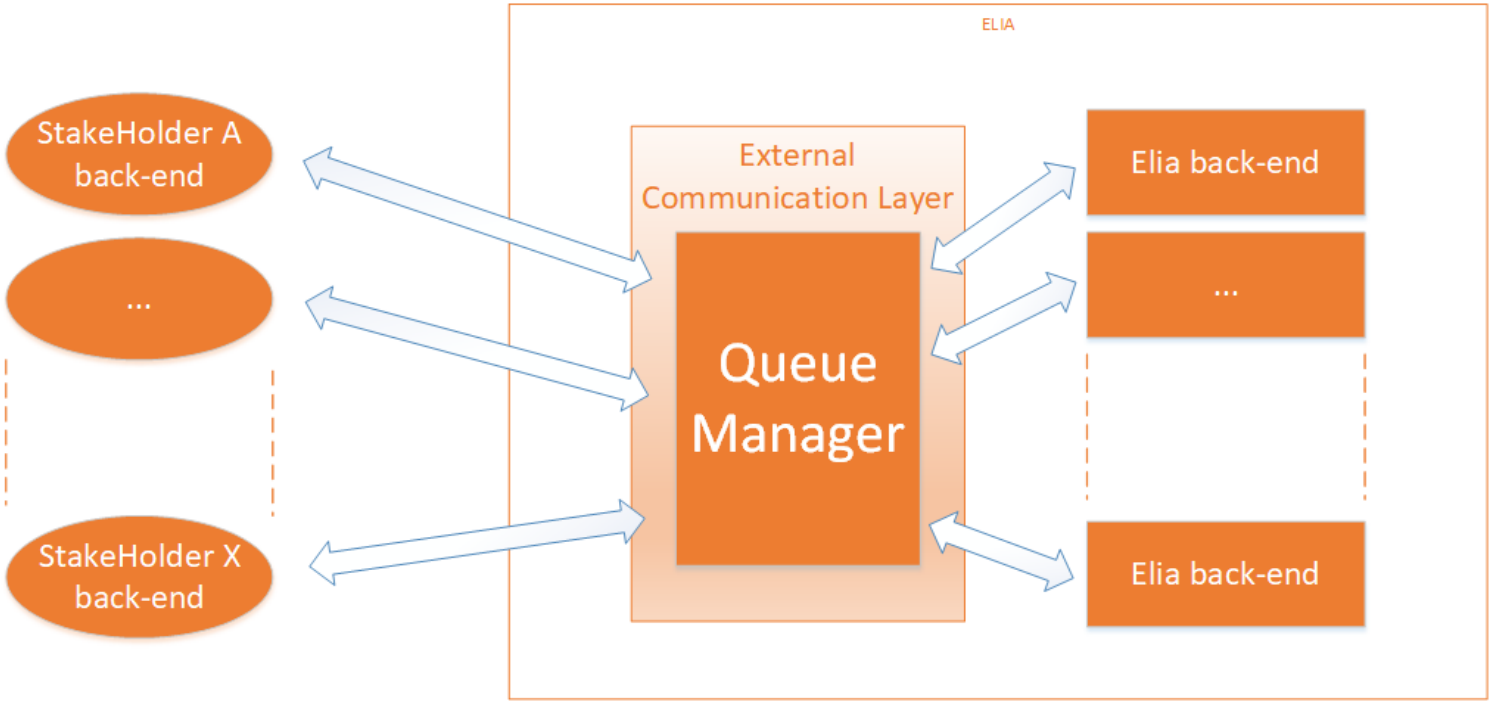
- Use of explicit RD bids for other uses such as XB congestion management and LFCBOA procedures

- Introduction of data quality checks – facilitating learning at market parties side to facilitate splitting of OPA and SA responsibilities:

New dynamic continuous data exchanges and IT system for implementation clarification of target design in phase 1

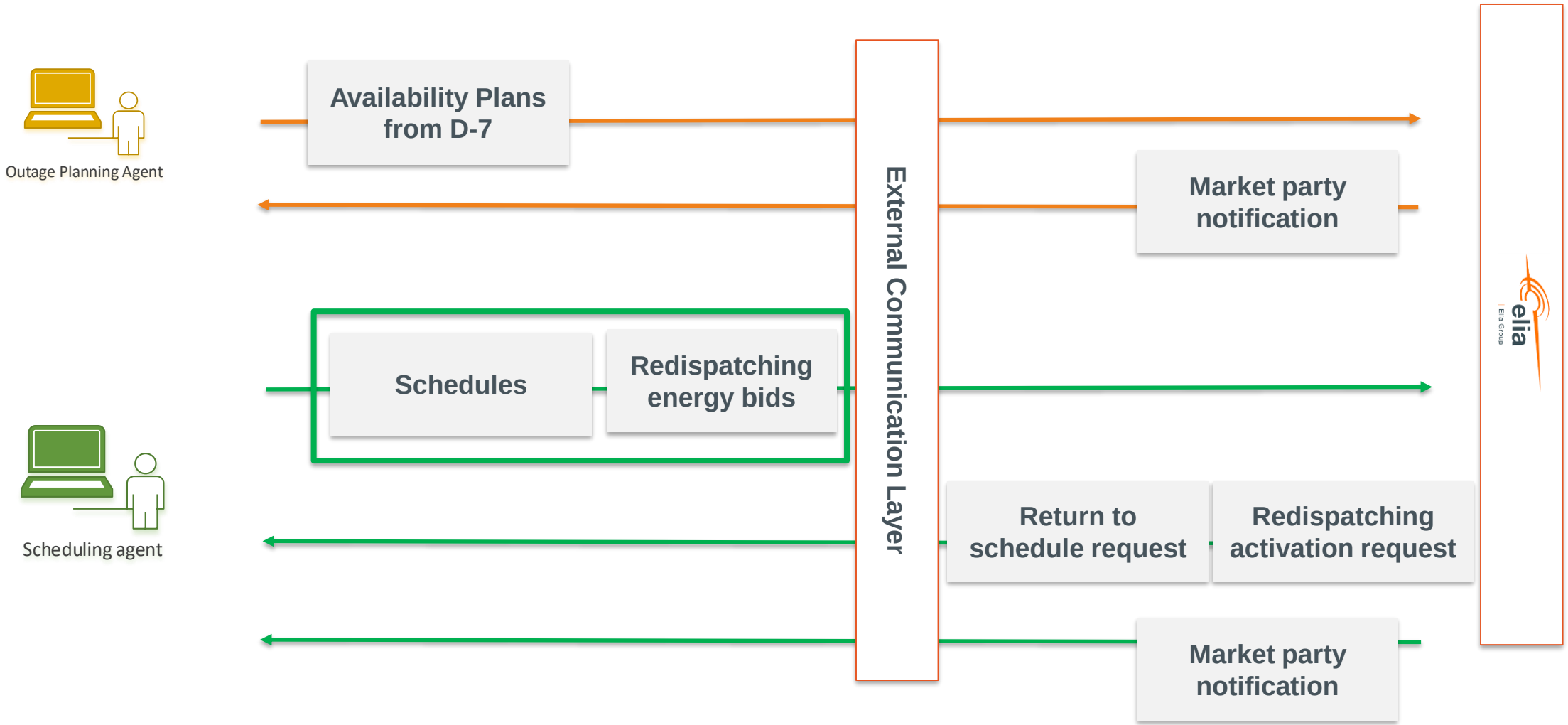
NEW External Communication Layer for dynamic continuous data exchanges between OPA/SA and Elia

- The External Communication Layer will be realized by a queue manager located at Elia. No hosting required by the External Stakeholders
- International standards are used for communication protocol (ENTSOe CIM) and security protocol (AMQP)
- Detailed information can be found in technical guide



New external communication layer also used for exchanges in the framework of Picasso and MARI project

All new dynamic continuous data exchanges in scope of iCAROS phase 1



NEW RD Bidding Characteristics – except Bid price

Scheduling Agents (SA) submit energy bids to Elia using specific bid characteristics that reflect the conditions in which an activation of the bid is acceptable.

The **main redispatching energy bids characteristics are aligned with the mFRR bid characteristics** that serve as a basis for Redispatching Energy Bids.

Two additional bid characteristics are available for the Scheduling Agent to better reflect the specificities of flexibility that is available for redispatching but not for balancing.

- **Full Activation Time (FAT)** that allows bidding flexibility with an activation time longer than 12,5 min
- **Maximum Activation Time (MAT)** that allows bidding flexibility that can only be activated during a limited period of time. This characteristic is particularly useful for energy limited units.

	Energy bid characteristics
Characteristics aligned with mFRR design	Bid ID
	List of DP
	Direction: Upward or Downward activation
	Bid price (€/MWh)
	Bid volume (MW)
	Minimum bid volume (indivisible volume) (MW)
	Part of exclusive group: exclusive group ID
	Part of parent/child relation (“multipart bids”): Parent/child group ID
	Quarter-hour linking (Conditional linking): ID(s) of linked bids in qh(t-1) or qh(t-2)
Redispatching only	Full Activation Time (min)
	Maximum Activation Time (min)

Facilitation of significant change management for OPA and SA

- Introduction of elements of iCAROS target design already included in phase 1 – focus on implementation clarification of design for system relevant assets ≥ 25 MW, result in …

  ⇒ significant review of existing operational procedures between OPA/SA and ELIA and adjacent internal procedures of OPA/SA and ELIA
  ⇒ data exchanges between OPA & SA and Elia evolve from limited and static towards continuous and dynamic (outage, scheduling and redispatching bid information)
  ⇒ Coherence between outage, scheduling and redispatch bid information must be ensured at every data exchange by OPA & SA
  ⇒ introduction of data coherency checks to facilitate this change management for OPA & SA

  - To support the SA, OPA to give coherent data to ensure a correct assessment of grid security by Elia
  - To make sure that Elia has solutions for grid security issues up to real-time

NEW Elia tools supporting the significant reviewed operational data exchange processes between OPA/SA and ELIA and adjacent internal procedures of ELIA

From AS IS

Phase 1 – target date Q2 2023

Phase 2 – To be finetuned with market parties : first deliverables at the earliest Q2 2024

Phase 3 – TBD with DSOs when operational needed

Tools & Technologies

supported by tools & technologies that are not future proof and upscalable

- Review of the contractual model
- New Outage Planning tool DA & ID
- New scheduling tool
- New RD bidding module – explicit
- NEW CRI calculation module – no automated system today

More than 30 tools of Elia are impacted

New design for all TF >= 25 MW

- Update : Outage Planning tool LT + extension for smaller units & demand facilities
- Update : scheduling tool for for smaller units & demand facilities
- Update RD bidding module for smaller units & demand facilities
- Update CRI calculation module
- NEW : JOINT Outage Planning Agent module (TSO & DSO)
- NEW : JOINT CRI calculation module (TSO & DSO)

New design for all TF >= 1 MW
& demand facilities (only OPA obligations)

- NEW JOINT Scheduling module (TSO & DSO)
- NEW JOINT Redispatch (RD) bidding module (TSO& DSO)

AOB

AOB – Next WG Balancing

Presented by Didier Chim

Next WG Balancing

- WG Balancing 22/03/2022 9:00 – 09:00
- WG Balancing 05/05/2022 9:00 – 09:00
- WG Balancing 22/06/2022 9:00 – 09:00
- WG Balancing 11/09/2022 9:00 – 09:00
- WG Balancing 27/10/2022 9:00 – 09:00
- WG Balancing 07/12/2022 9:00 – 09:00

Dates will be upload into the agenda of the WG Balancing page and usergroups.