

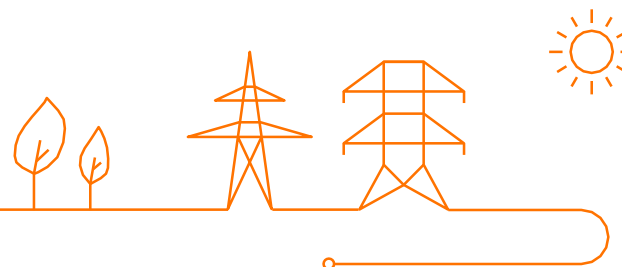
# WG Balancing of 20<sup>th</sup> March 2020

Teleconference

20/03/2020

# Agenda

- 09:00 - 09:10 - **Welcome and introduction**
- 09:10 - 09:50 - Go-Live approach for FCR and aFRR
- 09:50 - 10:05 - All TSOs results of CBA in accordance with SOGL
- 10:05 - 10:30 - MOG II Project: Status update on the on-going work
  
- 10:30 - 10:45 - **Coffee Break**
- 10:45 - 11:10 - Implementation plan ToE in DA/ID
- 11:10 - 11:30 - Daily tender mFRR: market results and operational experiences
- 11:30 - 11:50 - Overview AS market 2019
- 11:50 - 12:00 - Short RX Ciara storm management



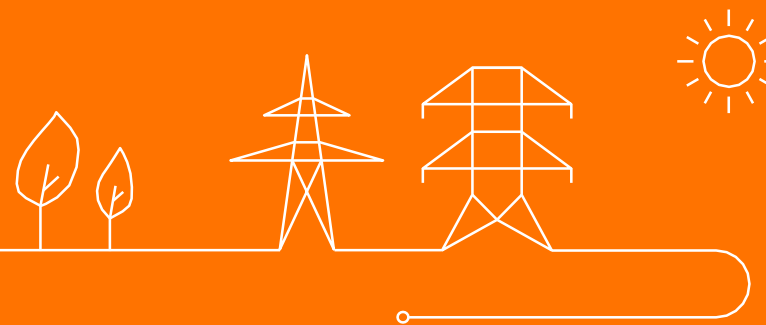
## For a smooth teleconference with 30+ people ... Some rules apply

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- 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 Skype 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.



# Go-Live approach for FCR and aFRR

Presented by Kristien Clement-Nyns





## Public consultations

### Planning:

T&C BSP aFRR	T&C BSP FCR	Balancing Rules
<b>Public consultation</b> ( <a href="#">link</a> ) 3 March – 3 April 2020	<b>Public consultation</b> ( <a href="#">link</a> ) 17 March – 17 April 2020	<b>Public consultation</b> (next week)
<b>Publication of T&amp;C expected</b> by 5 <sup>th</sup> of May	<b>Publication of T&amp;C expected</b> by 18 <sup>th</sup> of May 2020	<b>Publication of T&amp;C expected</b> by 19 <sup>th</sup> of June 2020
<b>Go-live new aFRR design and FCR evolutions</b> 1 July 2020		

# Timings for implementation of FCR & aFRR

- Implementation of aFRR and FCR is ongoing and Elia is doing its utmost to achieve the timely go-live of both projects but the implementation and approval tracks are both challenging
- Elia will analyze the feedback received during the public consultations and assess its impact on the implementation trajectory and the feasibility of the target go-live date of aFRR.
- The go-live of the FCR evolutions is linked to the developments on Regelleistung platform foreseen on the 1<sup>st</sup> of July and has priority.
- Therefore, Elia foresees a back-up plan for the Balancing Rules:
  - Version 1: Balancing Rules for a go-live of FCR **and** aFRR on the 1<sup>st</sup> of July
  - Version 2: Balancing Rules for a go-live of FCR **only** on the 1<sup>st</sup> of July
  - Both documents will be formally consulted.
- **Timings for prequalification for aFRR:**
  - Start prequalification: between the 1 and 15 of May
  - Elia asks interested BSPs to indicate by the end of March their possible participation to the aFRR services to coordinate on the practical aspects in the framework of the prequalification tests.



# Proposal T&C BSP aFRR under consultation

Main changes since version 1 (June 2018)

- Important evolutions in design:
  - the opening of market to non-CIPU units with an opt-out or pass-through agreement;
  - the evolution towards daily procurement of aFRR balancing capacity;
  - the evolution from pro-rata activation to merit order activation of aFRR balancing energy bids;
  - new data exchange requirements and baseline controls;
- Change T&C structure
- Update in terminology and alignment with all relevant European network codes



## Specific points: aFRR capacity tender

### Two step approach:

- Step 1 (“all CCTU” auction): procurement of a 24-hour block based on a total cost optimization for the upward and downward direction together.
- Step 2 (“per CCTU” auction): a merit order selection for the upward and downward direction separately.
- A volume allocation mechanism is put in place to determine the volume to be sourced in each step. The volume for each step is determined daily based on the volumes procured in each step **over a rolling window of 7 days** and the comparison of the prices of the capacity bids offered in the “all-CCTU” capacity auction and in the “per-CCTU” capacity auction **new**
- If proven that the “per CCTU” auction is competitive (a price premium of 20% is allowed to stimulate the development of the per-CCTU segment), the volume of the “per CCTU” auction will quickly increase according to volume allocation methodology. The volume of the “per CCTU” auction can increase (or decrease) with a **maximum of 2MW per day.** **new**
- Elia foresees to impose a minimum volume of 10MW in the “per CCTU” auction per direction.





# Specific points: Limitations of aFRR energy Bid prices

## Today:

- pro-rata activation
- the volume selected for possible activation is capped to 145MW
- price is limited to approximately 100€/MWh for a bid in the upward direction

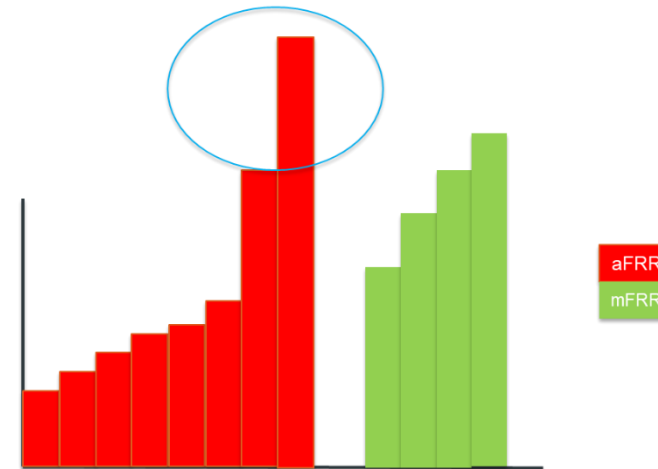
## New aFRR design:

- Merit order activation
- No volume cap
- Limitation of aFRR energy bids to 1000€/MWh



# Specific points: Limitations of aFRR energy bid prices

- aFRR is activated automatically, based on a 4 sec optimization cycle
- Several times a day, all aFRR capacity is activated
- Risk that more expensive aFRR is activated before mFRR
- The situation is linked to the limited liquidity of aFRR



Preventive activations of mFRR is not realistic. It is also not the balancing philosophy of Elia to activate balancing reserves proactively

- Requires a forecast of the system imbalances (which is more and more complex due to the impact of intermittent renewable energy sources)
  - Requires arbitrage rules for Elia
  - Preventive activation of mFRR bids would impact the activation of cheaper aFRR bids
- No waterproof solution since aFRR is an automatic product and activation of bids with large prices cannot be avoided in a situation with quickly changing imbalances.



# Specific points: Limitations of aFRR energy Bid prices

The only way to avoid the activation of aFRR bids with extreme activation prices is the introduction of a **technical price limitation** for the aFRR energy bid. This price limit together with an average weighted pricing mechanism mitigates the risk of having frequent, large impacts of aFRR price peaks on the imbalance tariff in absence of significant system imbalances.

Price of bid 1 [€/MWh]	activation time of bid 1 [sec]	activated volume of bid 1 [MW]	Price of bid 2 [€/MWh]	activation time of bid 2 [sec]	activated volume of bid 2 [MW]	Min Imbalance price [€/MWh]
1000	60	5	60	840	145	56
1000	60	20	60	840	130	57
1000	300	5	60	600	145	50
1000	600	10	60	300	140	63

Price of bid 1 [€/MWh]	activation time of bid 1 [sec]	activated volume of bid 1 [MW]	Price of bid 2 [€/MWh]	activation time of bid 2 [sec]	activated volume of bid 2 [MW]	Min Imbalance price [€/MWh]
13500	60	5	60	840	145	84
13500	60	20	60	840	130	169
13500	300	5	60	600	145	189
13500	600	10	60	300	140	619

## **Conclusion:**

A technical price limit of 13500€/MWh and an activation of 150MW of aFRR energy bids could lead to an imbalance price of 619€/MWh which is not giving the correct signal to the market. An imbalance price of more than 600€/MWh should reflect a large system imbalance and the activation of large volumes of aFRR (and mFRR).

Therefore, Elia will consider a limitation of aFRR energy bids of 1000€/MWh in order to give the correct signal to the balancing market. If technical price limitation is reached, it will be re-evaluated in coordination with CREG.

## Specific points: Settlement of balancing energy

The settlement of the balancing energy will be based on pay-as-bid mechanism. The prerequisites for having a pay-as-cleared settlement for aFRR are defined in the “*Study on pay-as-cleared settlement for aFRR and mFRR activated energy*” and are the following:

- A merit order activation
- Liquid aFRR market

A merit order activation will be implemented as part of the new aFRR design.

Currently the aFRR market is not liquid enough. More liquidity is expected by opening the market to non-CIPU assets and at least once the Belgian aFRR market will be integrated into a wider European aFRR market (PICASSO project).



# Technical information

- **General information:**

More information on the technical documentation on the balancing services can be found on [the website of Elia](#)

- **Specific information: requirements for the gateways**

- Final technical requirement: A local gateway must be connected directly to the real-time communication platform
- Introduction of a transition period related to the final technical requirement of maximum one year starting at the go-live of aFRR design foreseen on the 1<sup>st</sup> of July 2020. The transition period is foreseen until the 30<sup>th</sup> of June 2021 at the latest.
- Transition period is allowed and set based on feedback received of stakeholders  
Allowing a temporary deviation of the final technical requirement (acceptance of a degraded mode), i.e. the connection via centralized virtual gateways to the real-time communication platform. The data will still be send per delivery point to the communication platform.
- When the transition period ends, all participants need to comply with the final requirements, namely the local gateways must be connected directly to communication platform
- Elia and the DSOs will update the technical documents accordingly to include the acceptance of this temporary deviation of the final requirement at the first foreseen update of these documents.



# Proposal T&C BSP FCR under consultation

Main changes since version 1 (June 2018)

- Important design evolutions
  - Full merge of the procurement process into the regional platform Regelleistung
  - Procurement of symmetric 200mHz product only
  - Introduction of frequency bands
  - Evolution of providing groups and portfolio nominations
  - Optimization of the prequalification process.
  - Alignment of the penalties with mFRR balancing products.
- Change T&C structure
- Update in terminology and alignment with relevant European network codes.





# Specific points: procurement of 200mHz product on regional platform

## Evolution of providing groups

- Pool based prequalification (possibility to combine  $DP_{PG}$  and  $DP_{SU}$  together)
- An individual delivery point has to be capable of providing the FCR reaction for at least a one of the frequency bands.

Frequency Band [mHz]
-200 to -150
-150 to -100
-100 to -50
-50 to 0
0 to 50
50 to 100
100 to 150
150 to 200

## Penalties

- In the framework of the harmonization of the balancing products (FCR, aFRR & m FRR), the penalties for the compliancy with FCR Made available (FCR obligation) and for FCR missing MW (capacity availability test) are aligned with the corresponding penalties for aFRR and mFRR.
- For the penalty for FCR missing time (cf. energy availability test), the same approach is applied as for FCR missing MW



# Balancing rules: new structure



Proposal for version July 2020	Detailed information
<b>Title 1: General provisions</b>	Scope, publication and implementation information and list of definitions.
<b>Title 2: Balancing Resources</b>	The list of balancing resources available to Elia being FCR, imbalancing netting, aFRR and mFRR including mFRR sharing agreements.
<b>Title 3: The use of the balancing resources to maintain the balance of the Elia LFC Block</b>	Detailed modalities according to which Elia use the balancing resources to ensure the balance of the LFC Block: <ul style="list-style-type: none"><li>• Selection of energy bids</li><li>• The activation of aFRR and mFRR energy bids</li><li>• Activation of additional resources in exceptional circumstances</li></ul>
<b>Title 4: The impact of the use of the balancing resources on the imbalance tariffs</b>	The impact that the use of the balancing resources have on the components of the tariffs for the imbalances such as: <ul style="list-style-type: none"><li>• Marginal incremental/decremental price</li><li>• System Imbalance</li></ul>
<b>Title 5: Publication of information</b>	The modalities for the timely publication of the relevant information for the balancing of the LFC Block on ENTSO-e platform and on website of Elia
<b>Title 6: reporting and monitoring</b>	The modalities for monitoring the operation of the balancing market and the creation of the related reports for CREG.

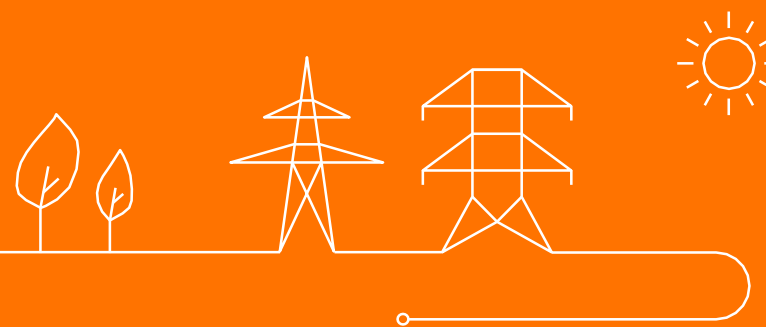
# Balancing Rules: changes

- Changes resulting from the introduction of the T&C BSP FCR & aFRR
  - Many paragraphs in the Balancing Rules have been deleted as the design aspects they described are now included in the T&C BSP FCR and in the T&C BSP aFRR
  - A description of the merit order activation has been added for aFRR
- Other changes
  - Update of the aFRR price in the upward and downward direction for the imbalance tariffs based on the weighted average price of the activated bids
  - Update of chapter on Publication of information, in line with article 12 of EBGL and article 17 of the Transparency Regulation



# All TSOs results of CBA in accordance with SOGL

Presented by Philippe Magnant



## Introduction

- The volumes of FCR delivered by units with Limited Energy Reservoir (LER) is increasing
- A critical depletion is defined as an event in which the following conditions are simultaneously verified:
  - LER are depleted (either “full” or “empty”);
  - The frequency deviation exceed the maximum steady state frequency deviation.
- During extreme events, the presence of LER could worsen the situation. If FCR delivering units with LER would deplete, the system would face a sudden loss of regulation proportional to LER share, which would increase even more the frequency deviation.

## SOGL requirements: extracts of Article 156

- **In normal state**: FCR from FCR providing units or groups with limited energy reservoirs (LER) must be **continuously available**.
- **In alert state**: All TSOs shall develop a proposal concerning the **minimum activation period** to be ensured by FCR providers. The period determined **shall not be greater than 30 or smaller than 15 minutes**. The proposal shall take full account of the results of the **cost-benefit analysis (CBA)** conducted pursuant to following principles:

- By 6 months after entry into force of SOGL, TSOs shall propose **assumptions and methodology for a CBA** to be conducted, in order to assess the time period required for FCR providing units or groups with LER to remain available during alert state.



Approved by NRAs (23<sup>rd</sup> of May 2019)

- By 12 months after approval of the assumptions and methodology by all regulatory authorities of the concerned region, the TSOs shall submit the **results of their CBA** to the concerned regulatory authorities, suggesting a time period which shall not be greater than 30 or smaller than 15 minutes.



Public consultation launched by ENTSO-E

- 27th of Feb → 27th of March
- [Link to the consultation](#)



## Major outcomes for the Continental Europe S.A.

- Minimum FCR values allowing to completely avoid critical depletion of LER along the 200 simulated years

TminLER	LER share										
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
15	3000	3000	3000	3000	3400	4100	4700	4800	4800	4800	4800
20	3000	3000	3000	3000	3400	3700	4200	4400	4400	4400	4400
25	3000	3000	3000	3000	3100	3500	3900	4100	4100	4100	4100
30	3000	3000	3000	3000	3000	3200	3500	3500	3500	3500	3500

- Total costs (in M€ per year)

TminLER	LER share										
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
15	110	89	70	53	77	125	168	188	206	231	264
20	110	89	70	55	85	110	151	181	200	227	259
25	110	89	71	62	75	108	148	179	200	227	259
30	110	89	71	71	78	103	138	156	177	203	232

Current LER share

Need to increase FCR

## Options considered for the Continental Europe S.A.

TminLER	LER share										
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
15	3000	3000	3000	3000	3400	4100	4700	4800	4800	4800	4800
20	3000	3000	3000	3000	3400	3700	4200	4400	4400	4400	4400
25	3000	3000	3000	3000	3100	3500	3900	4100	4100	4100	4100
30	3000	3000	3000	3000	3000	3200	3500	3500	3500	3500	3500

TminLER	LER share											Mean
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1	
15	110	89	70	53	77	125	168	188	206	231	264	144
20	110	89	70	55	85	110	151	181	200	227	259	140
25	110	89	71	62	75	108	148	179	200	227	259	139
30	110	89	71	71	78	103	138	156	177	203	232	130
Mean	110	89	70	60	79	112	151	176	196	222	253	

Current LER share
Need to increase FCR

The most suitable options have been assessed to be

**TminLER = 15 minutes** for all LER, limiting the LER share to 30%.

This technical solution assumes to maintain the current 3000 MW FCR dimensioning

**TminLER = 30 minutes** for all LER (excluding already existing LER prequalified for a time period less than 30 minutes).

This technical solution allows LER share to increase by mean of an FCR increase

**TminLER = 30 minutes** for all LER (including already existing LER).

This technical solution allows LER share to increase by mean of an FCR increase

## Options considered for the Continental Europe S.A.: Pros and Cons

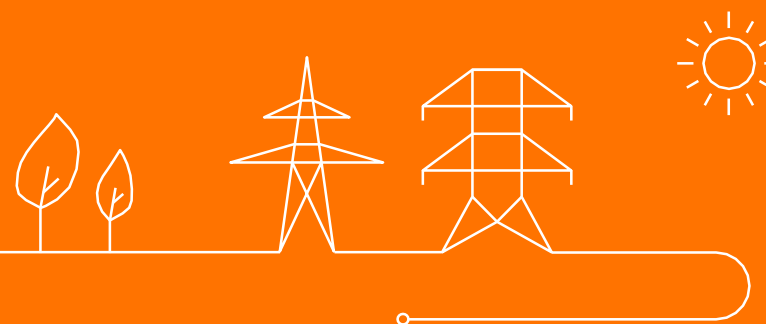
15 min (with LER share limitation)	30 min (without LER share limitation) + exemption for existing LER	30 min (without LER share limitation)
Limiting the LER share to 30% (reduction from current 32%) allows to keep the current FCR dimensioning (3000 MW).	Needs to increase FCR above 3000 MW (only as a consequence of the LER presence) if LER share is above 40%. Excluding the already installed LER having prequalified time period less than 30 minute	Needs to increase FCR above 3000 MW (only as a consequence of the LER presence) if LER share is above 40%.
With the current LER share is the most economical solution	With the current LER share is not the most economical solution	With the current LER share is not the most economical solution
Implies a reduction from current 32% to 30% LER share	Allows the increase of LER share	Allows the increase of LER share
Not permitted to have LER share larger than 30%: potential market distortion at LFC blocks with already different LER shares	As LER share increase, becomes the most economical solution	As LER share increase, becomes the most economical solution
Existing LER having 15' won't need to be retrofitted / to reduce their FCR qualification.	No impact on existing LER having 15'	Existing LER having 15' could be not able to fulfill the requirement
Considering the most relevant events, even with 30% limit, the imbalances are 45% bigger than with 30'. The corresponding corrective actions shall be put in place within 15'	Considering the most relevant events the imbalances are less than with 15' (45% with 30% LER share) but probably greater than 30' due to the presence of existing LER keeping 15'	Considering the most relevant events the imbalances are less than with 15' (45% with 30% LER share). The corresponding corrective actions shall be put in place within 30'
Homogeneous time period requirement	Coexistence of different time periods requirements	Homogeneous time period requirement

## Next steps

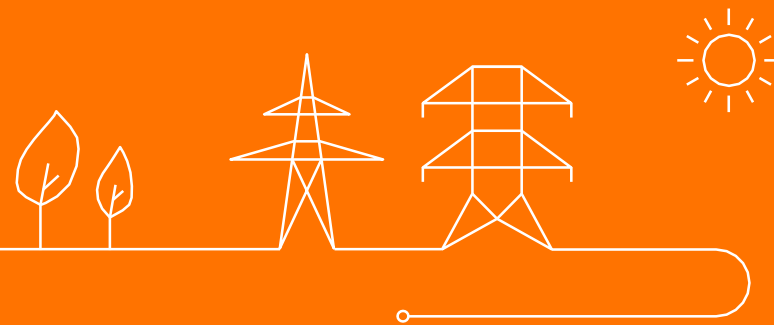
- On the basis of the feedback received from stakeholders during the public consultation, TSOs will submit a proposal to the NRAs for approval
- For any question on this topic, feel free to contact Philippe Magnant ([philippe.magnant@elia.be](mailto:philippe.magnant@elia.be))

# MOG II project: Status update on the on-going work

Presented by Philippe Magnant



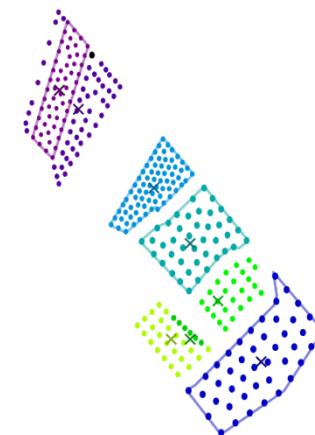
# System integration: Challenges and work plan





## Introduction

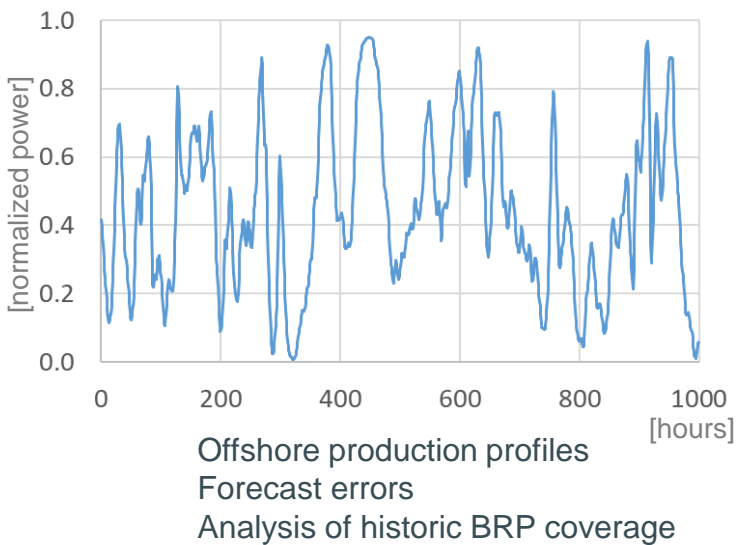
- The current wind offshore capacity is ~1,6 GW and is planned to increase to 2,3 GW by the end of 2020.
- A storm mitigation procedure went live on 15<sup>th</sup> of January 2020. It's valid until 2,3 GW.
- No mitigation measures had been defined to cope with ramping events.
- The Belgian Government has established a framework for an additional production zone, which will allow up to 2,1GW additional capacity
  - Commissioning of 700MW expected in 2026/27\*
  - Commissioning of 1400MW expected in 2027/28\*
- The MOGII offshore system integration study aims at formulating recommendations to cope with the intermittence of future offshore capacity
- Results of this study are expected by end 2020.



\*Dependent on permitting procedure Ventilus and Boucle du Hainaut

# Project approach

## Impact analysis



DTU

## Consequences for the grid

Normal conditions  
Consequences on  
reserve needs

Extreme conditions  
Ability to keep System  
Imbalance at an  
acceptable level

## Mitigation measures

Mitigation measures:

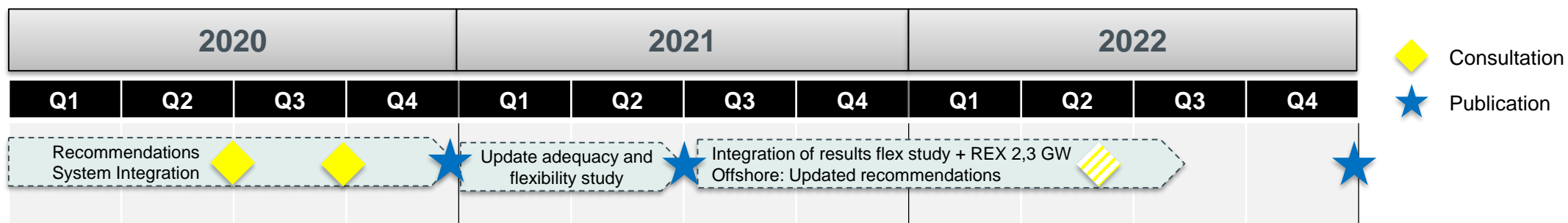
- Market design & incentives
- Technical & operational constraints for the wind parks

ELIA

- Scenarios on BRP's reaction to be considered (available flexibility and possibilities / incentives for the BRPs to use it)
- CBAs might be necessary to determine the most effective mitigation measures

## Public consultation

- 2 consultations planned
- Consultation 1: 1<sup>st</sup> of June: will focus on the impact analysis and the scenarios on BRP's expected reaction. A high-level description of possible mitigation measures will also be included, in order to get a 1<sup>st</sup> feedback from stakeholders
- Consultation 2: 1<sup>st</sup> of October: taking into account the feedback from the stakeholders, a set of mitigation measures will be selected and developed in more detail
- Final report end of 2020

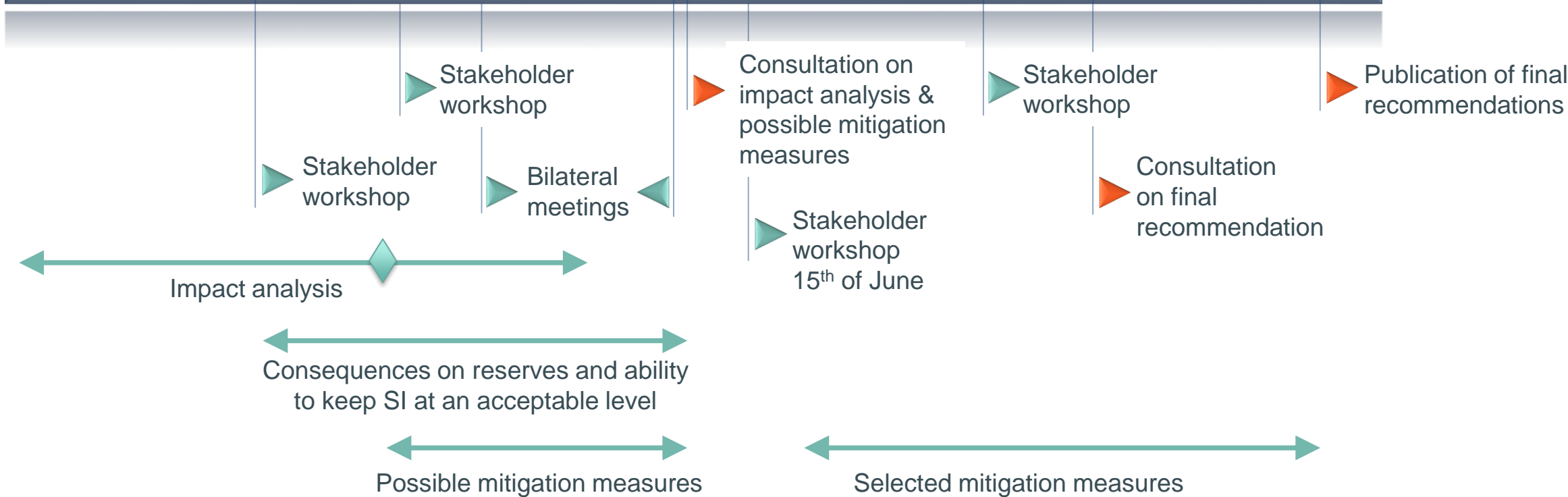


# General planning

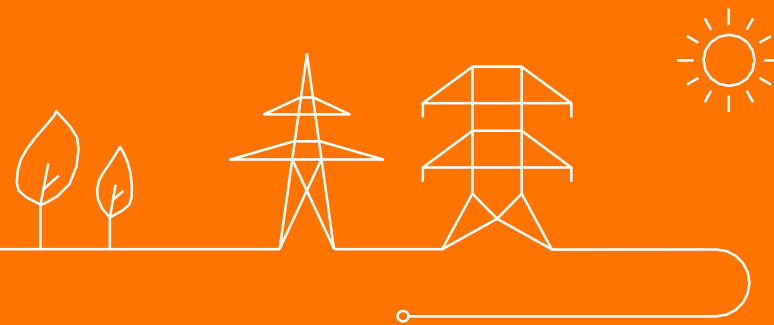
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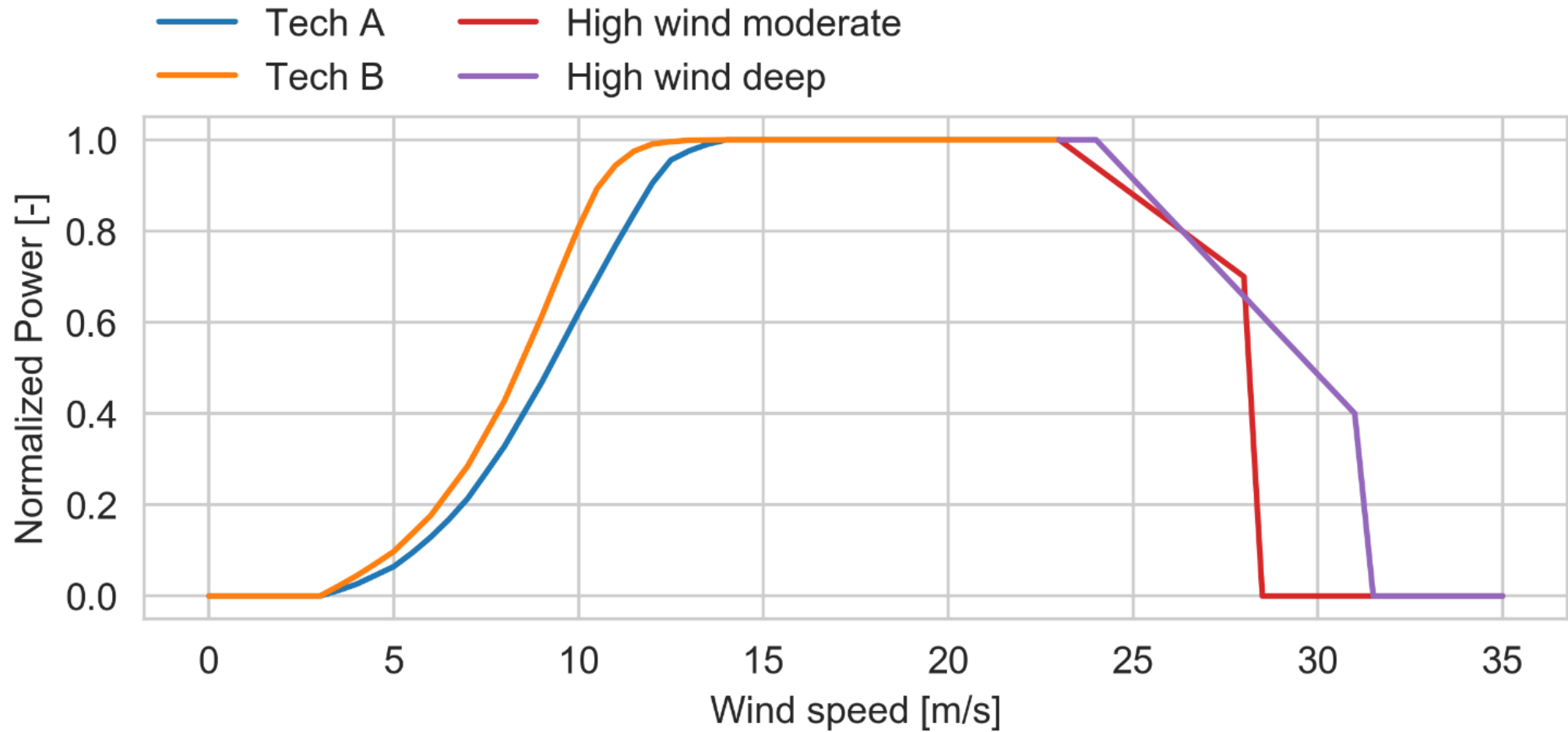
2020



# System integration: Results of the impact analysis

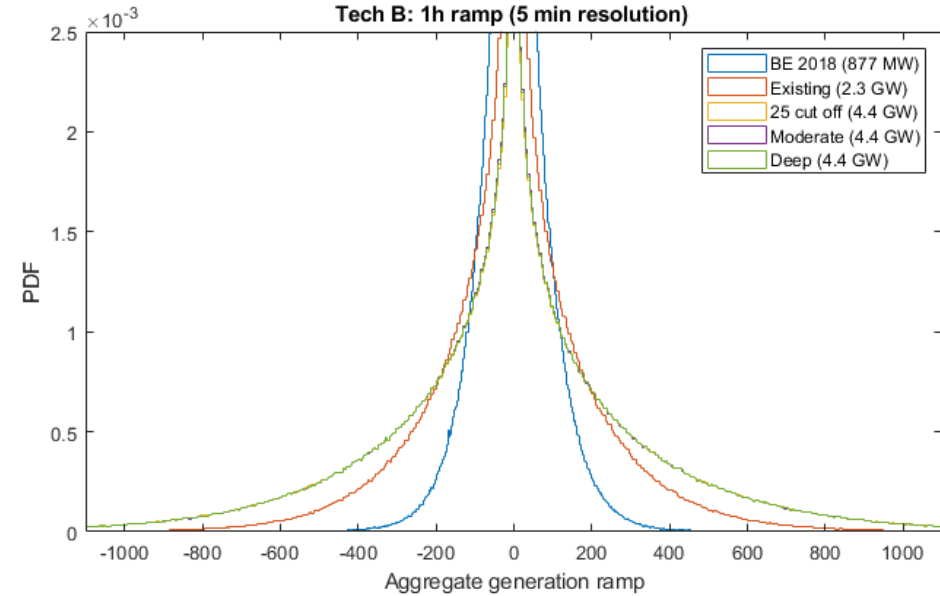
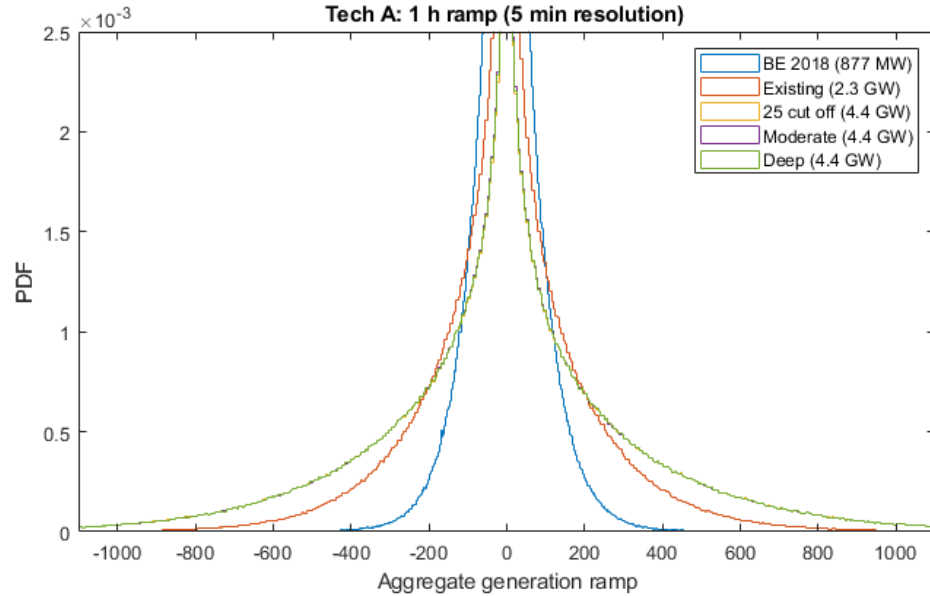


# Technology development – power curves





# 1 h ramps (5 min resolution): In MW



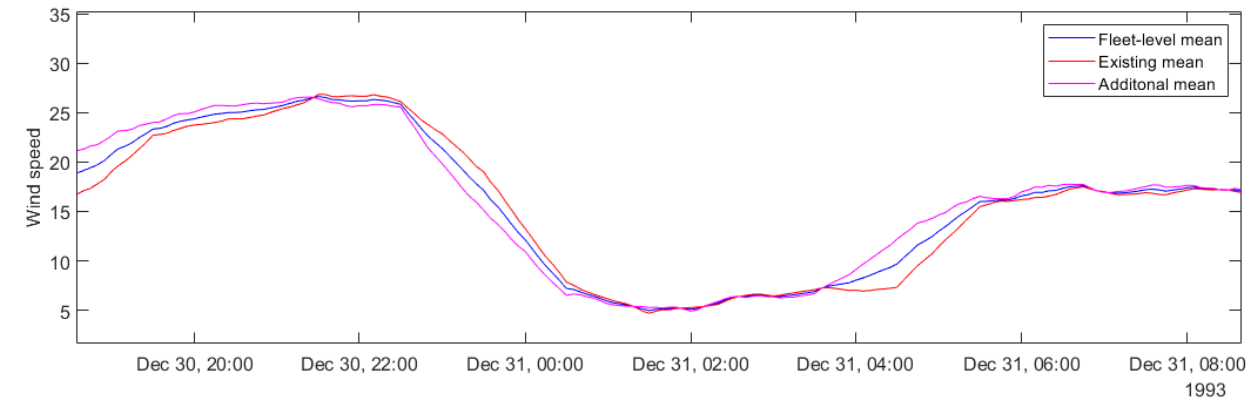
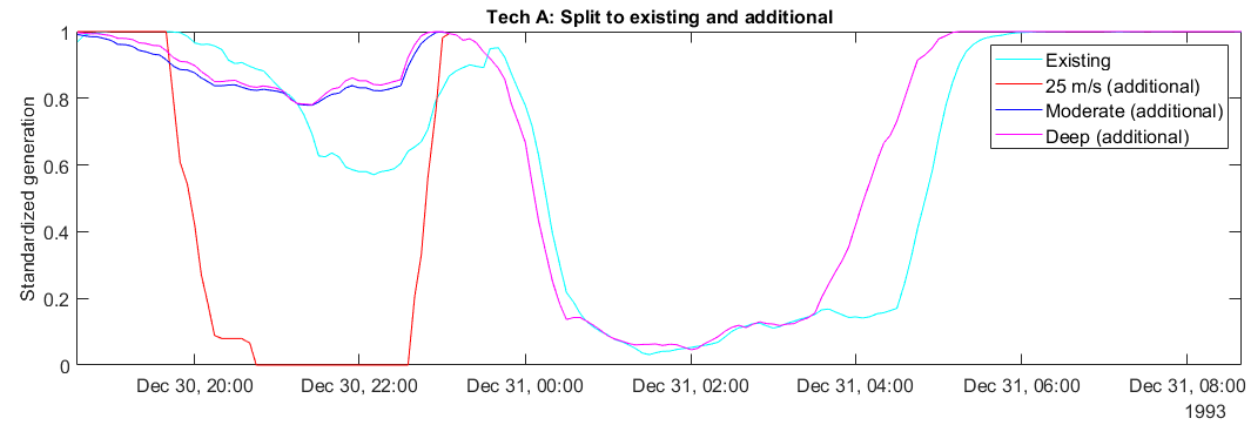
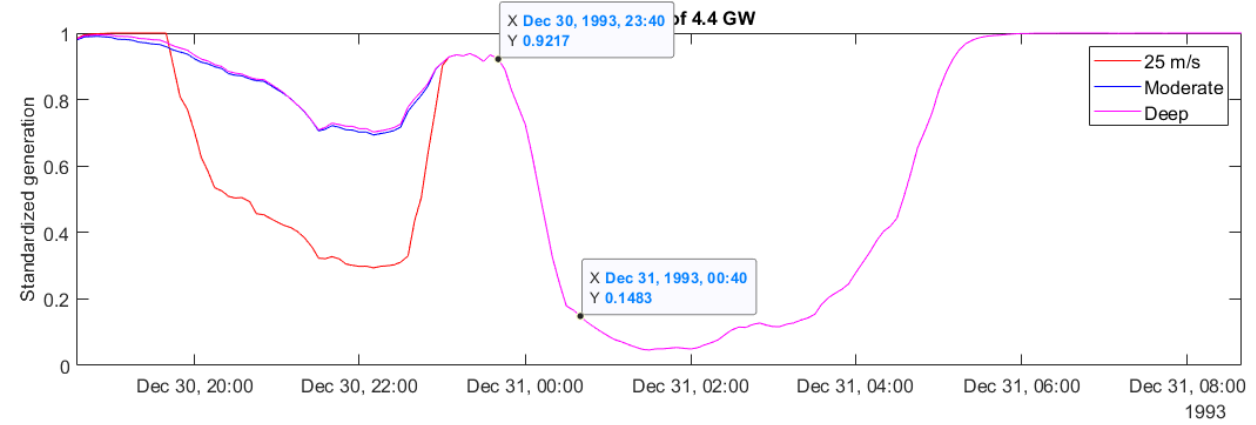
Ramp (MW)	BE 2018 (877 MW)	Existing (2.3 GW)	Extended capacity (4.4 GW)
Below -4000	0.0	0.0	0.0
Below -3000	0.0	0.0	0.2
Below -2000	0.0	0.1	4.1
Below -1000	0.0	12.8	108.3
Below -500	4.2	176.5	282.4
Below -300	57.2	286.6	328.5
Above 300	65.3	285.9	327.4
Above 500	7.5	182.8	284.1
Above 1000	0.0	19.0	116.1
Above 2000	0.0	0.2	5.7
Above 3000	0.0	0.0	0.5
Above 4000	0.0	0.0	0.1

Average number of days per year where an event (1h ramp in 5 min resolution) is expected

Note: installed technologies have an impact on those results. For the sake of clarity, we selected one specific technology in this table (other results available in the slides of the workshop)

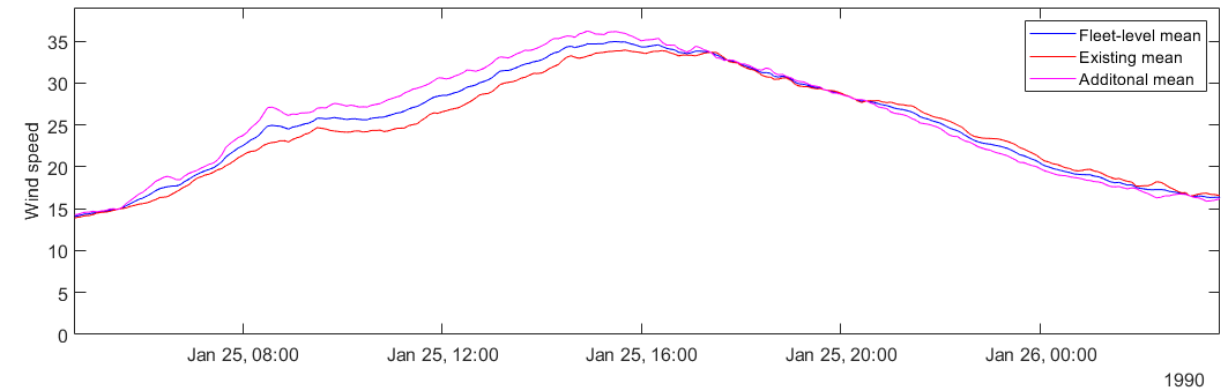
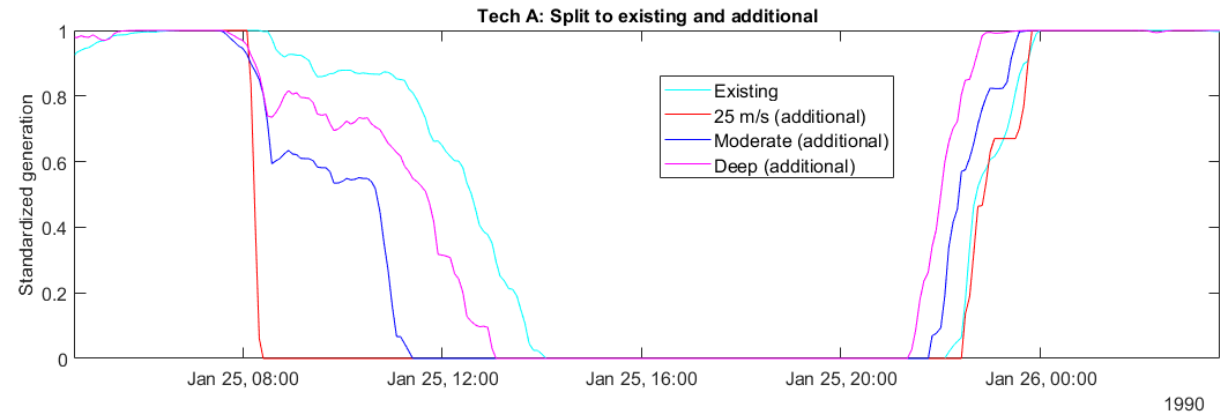
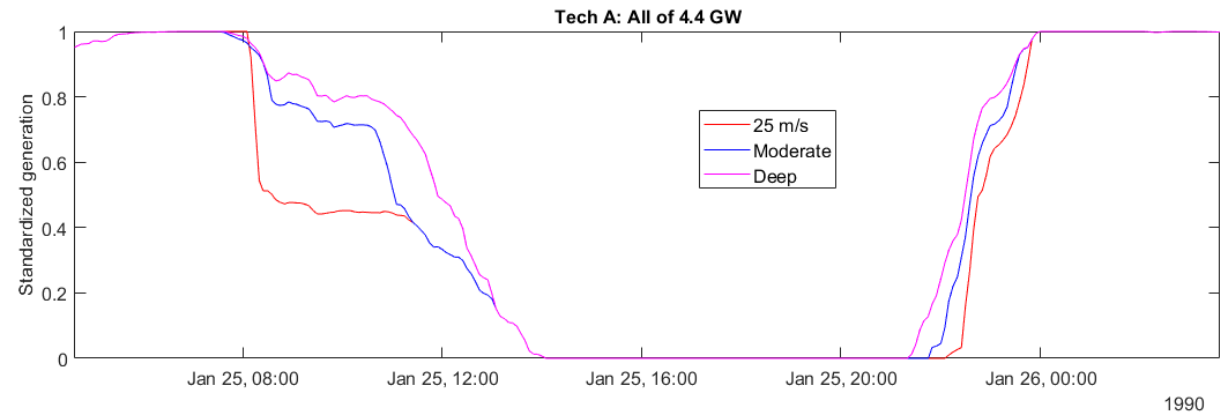
# Extreme 1h (5 min resolution) ramp event example

- This extreme ramp is not caused by a storm.
- Thus, the storm behaviour type does not have an impact on the time series during the highest ramp.

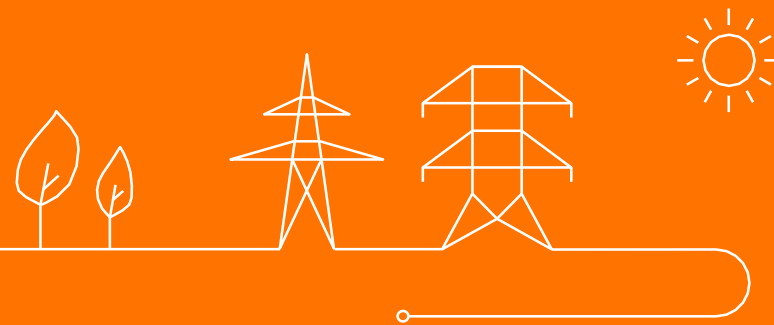


# Example storm shutdown case

- The differences between the storm behaviour types affect mainly the shutdown part
  - The up-ramping after a storm happens quickly for all types (but at different restart wind speed)



# System integration: Conclusions and next steps

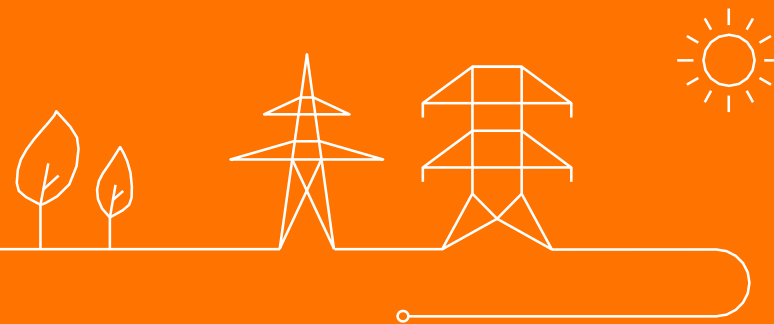


## Conclusions and next steps

- The assumptions used for the impact analysis have been validated with the stakeholders. The results of the impact analysis have been performed and presented in the workshop from the 9<sup>th</sup> of March
- The methodology to investigate the consequences for the grid in normal and extreme conditions is defined and Elia is starting to run the calculations
- Bilateral meetings can be organized before the consultation of June to exchange views
- The next stakeholder workshop will be organized on Monday the 15<sup>th</sup> of June at 2pm
  - System Integration: main conclusions of the report consulted will be explained as a basis for a discussion with the stakeholders
  - MOG II project: status

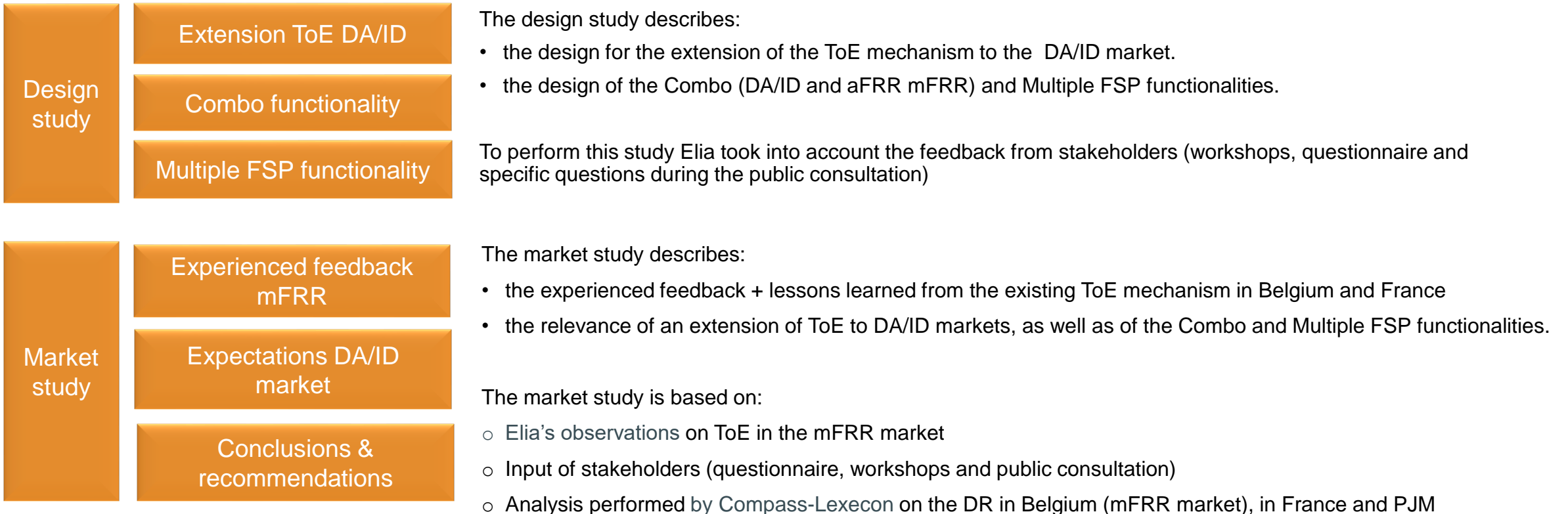
# Implementation plan ToE in DA/ID

Presented by Anna Tsiokanos



# Context: Study on ToE in DA/ID in 2019

- Elia performed in 2019 a study relative to application of the ToE mechanism to the DA/ID markets
- Final results after public consultation were published in October 2019



# Recap conclusions of study

## Extension ToE DA/ID

- ✓ ToE facilitates the DR participation in DA/ID (positive effects as provides several options for the GU to valorize his flexibility although no direct impact on volumes)
- ✓ ToE in DA/ID is in line with the Elaw and with the CEP
- ✓ ToE facilitates a technology neutral CRM
- ✓ Design relatively close to the existing design for mFRR

rem: study also concluded that the removal of AIA in all ToE markets was advisable

⇒ **Elia recommends the implementation of the ToE in DA/ID.**

⇒ **An implementation approach was proposed to the CREG in December 2019 after alignment with DSOs**

## Simultaneous combo

- Although the combo functionality has advantages as it allows a market player to valorize all its flexibility to several market segments, there is a important uncertainty relative to its effective usage.

⇒ **Elia is open to develop this feature when a better view can be built on the volumes effectively participating in the DA/ID and the eventual needs of the stakeholders for a simultaneous combo.**

⇒ **In the meantime Elia proposes to allow the contractual combo (see further)**

## Multiple FSP

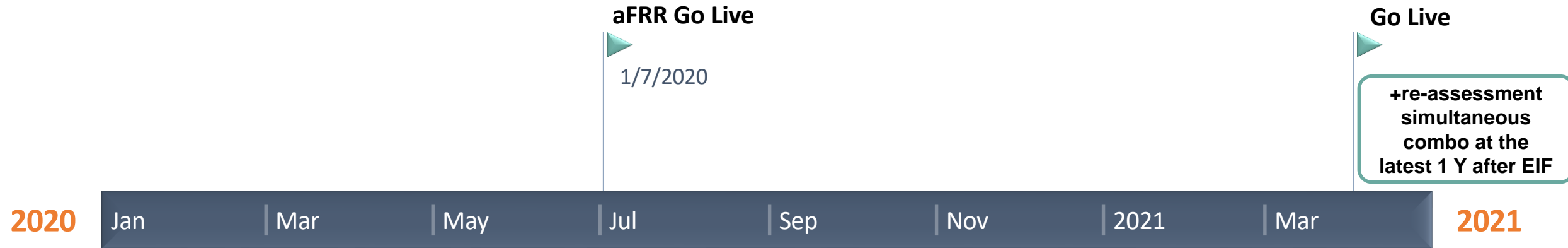
- CBA de facto negative as high implementation efforts (and therefore costs) and very uncertain usage.

⇒ **Recommendation: no implementation**





# ToE in DA/ID - Implementation plan



EIF ToE Rules –  
Pass-Through regime

9 months implementation

implementations ToE  
DA/ID

- ToE rules for DA/ID
- FSP-agreement
- Other T&Cs if necessary

- BRP contract



# ToE in DA/ID overview principle design elements



- |  |  |   |   |
|--|--|---|---|
| <ul style="list-style-type: none"> <li>➤ FSP designates BRPfsp</li> <li>➤ Elia-FSP agreement</li> <li>➤ Registration of FSP and pool of DP</li> <li>➤ <b>Contractual combo implemented as from the beginning</b><br/>(simultaneous combo re-assessed at the latest 1 Y after EIF)</li> </ul> | <ul style="list-style-type: none"> <li>➤ Exchange of energy between BRPs</li> <li>➤ Flex nomination by BRPfsp</li> </ul> | <ul style="list-style-type: none"> <li>➤ Activation of flex by FSP</li> <li>➤ Notifications FSP→Elia</li> <li>➤ Notifications Elia→BRPsource</li> </ul> | <ul style="list-style-type: none"> <li>➤ Baseline High X of Y* with possible adjustment</li> <li>➤ Perimeter correction with Edel</li> <li>➤ <b>NO Asymmetric Imbalance Adjustment</b></li> </ul> |
|--|--|---|---|



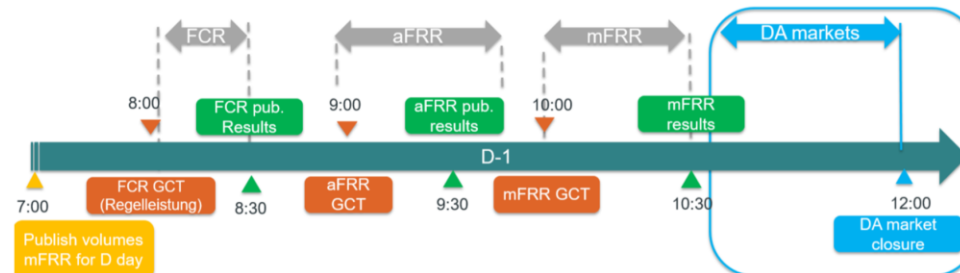
# Simultaneous combo vs Contractual Combo

- A. **“Contractual Combo”**: the same delivery point can participate in multiple products (ID, DA, mFRR,...) over different quarter-hours, but cannot perform a simultaneous delivery in multiple different services on the same moment.
- B. **“Simultaneous combo”** a simultaneous activation of multiple services (ID, DA, aFRR,...) on one delivery point on the same moment.

## Advantages of a combo:

- A. **“Contractual Combo”**: offer players multiple ways to valorize their flexibility (ex. Offer in DA when not chosen in mFRR auction).

*ELIA's vision on organization of daily procurement in day-ahead*



- B. **“Simultaneous Activation”**: Allow market parties to valorize their flexibility during the same moment in multiple markets.



- During workshops the application of AIA system was questioned by stakeholders:
  - As the direction of activation decided in DA/ID is not correlated with the SI of the zone , AIA in case of overdelivery could also have a negative impact on the BRPsource
  - Some stakeholders proposed to analyse whether AIA is relevant
- ⇒ Based on this CREG asked Elia to analyse the relevance of AIA on the DA/ID markets and on the other existing markets.
- **In public consultation market parties were rather neutral for no AIA (Elia asked explicit reaction)**
  - Either no preference but want to avoid any additional barriers
  - Or No opinion
- **AIA was historically implemented for balancing markets:**
  - To avoid marker bids and associated risk of over-reaction (e.g. a BSP bids 1 MW gets remunerated pay-as-bid and perform an over-delivery of 10 MW which is remunerated paid-as-cleared).
  - REM: overdelivered energy would go in the perimeter of BRPsource (but not an issue as in right direction)
- **Dynamics in DA/ID markets are different:**
  - Marker bids are irrelevant
  - Activation direction in DA/ID not correlated to Elia zone ⇒ overdelivery possibly disadvantageous for a BRPsource.
  - Note: in such a situation, reactive balancing would be with underdelivery
- **Evolutions in balancing market make AIA less relevant for balancing as well:**
  - After EU market integration, activation of balancing products independent from the position of the Elia zone
  - FSP is no longer incentivized to make marker bids (pay as cleared)

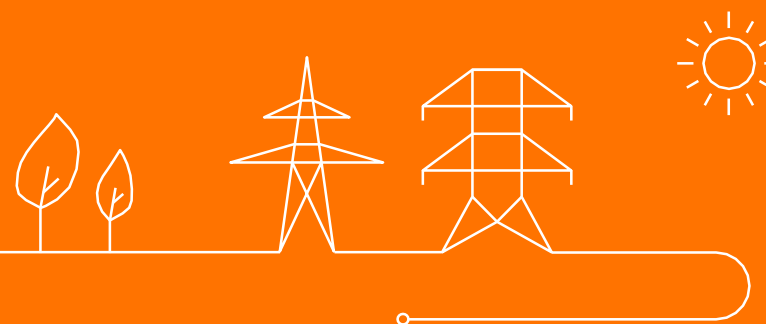


**Given the above elements Elia will implement ToE in DA/ID without AIA and remove it from existing mechanisms in parallel.**



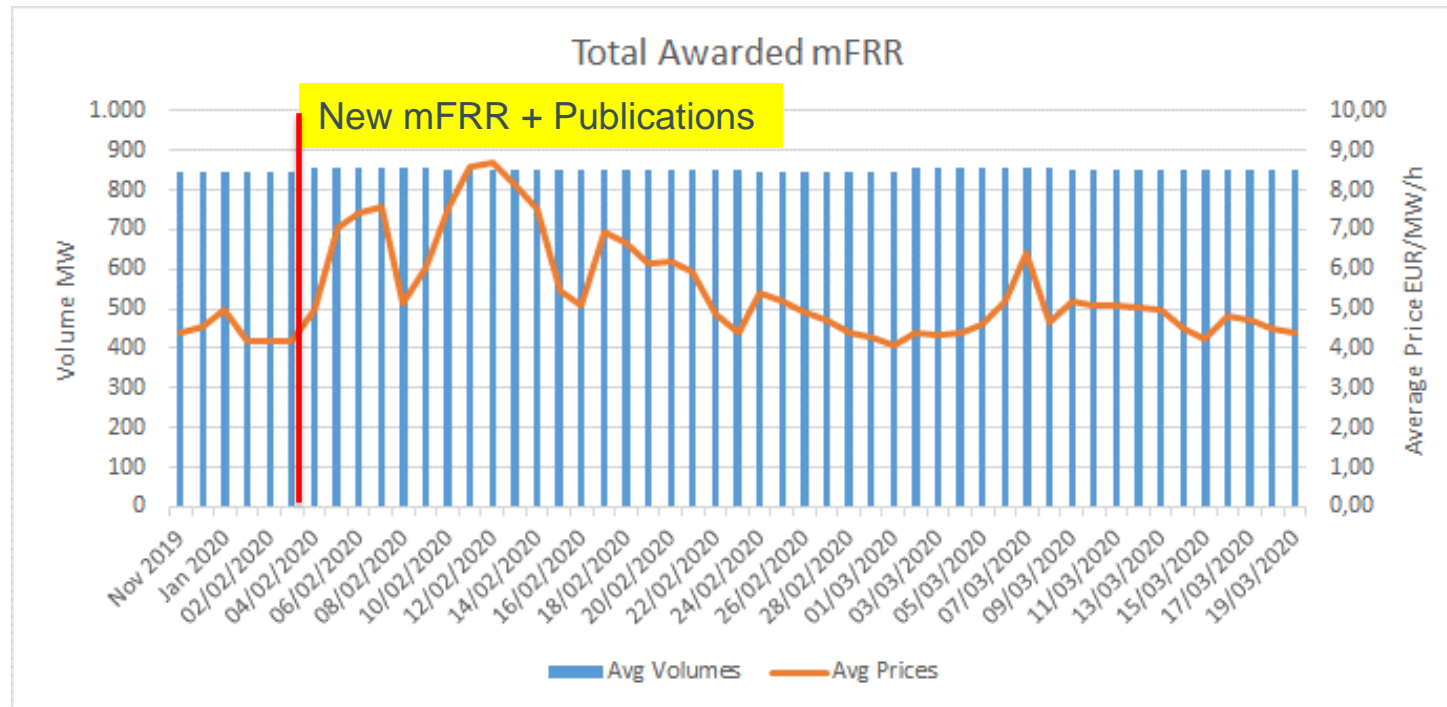
# Daily tender mFRR: market results and operational experiences

Presented by Amandine Leroux



# mFRR Capacity Prices Evolution

## New daily mFRR capacity auctions



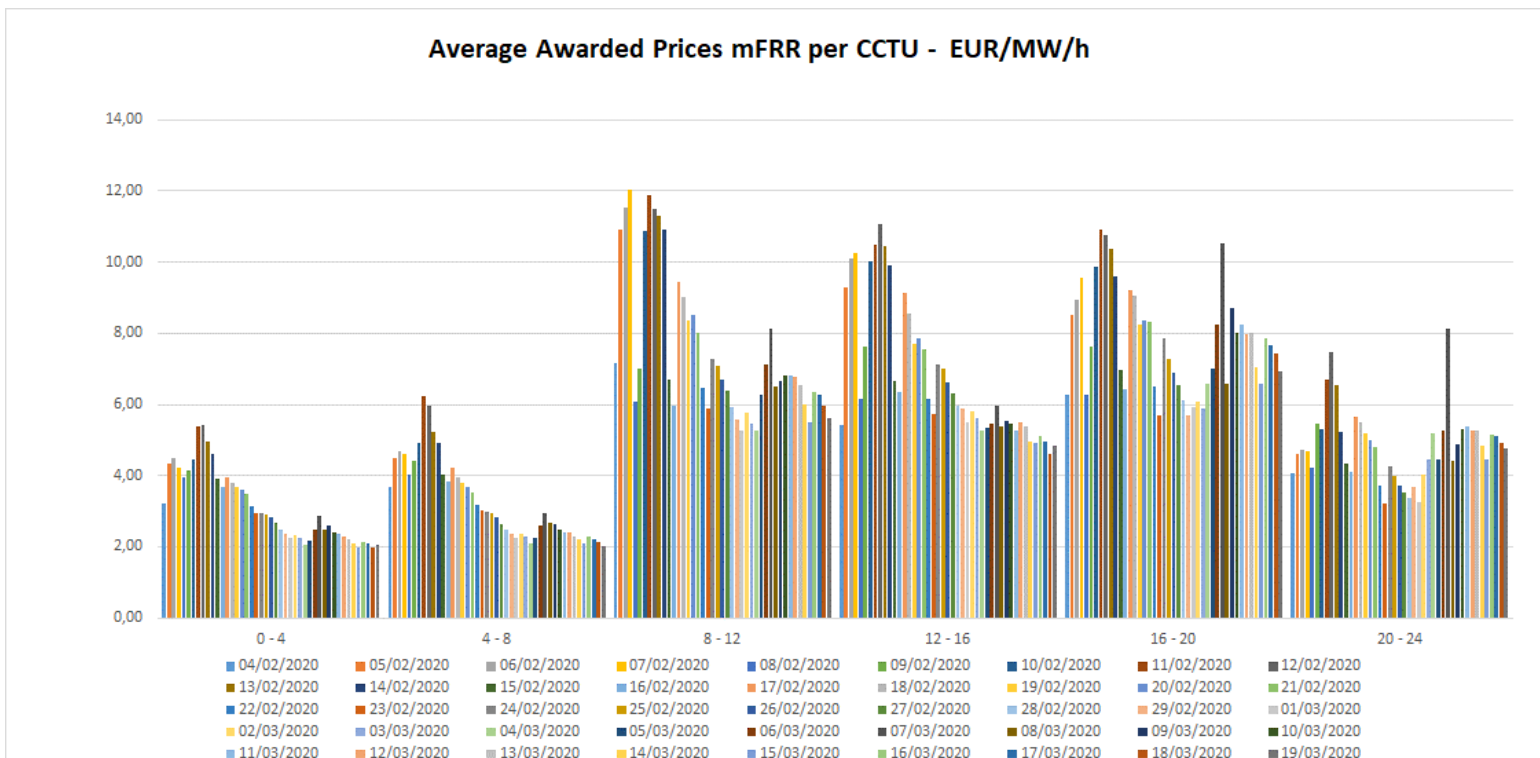
Delivery Date	Avg Volumes	Avg Prices
Nov 2019	844	4,38
Dec 2019	844	4,54
Jan 2020	844	5,00
01/02/2020	844	4,16
02/02/2020	844	4,16
03/02/2020	844	4,16
04/02/2020	855	4,98
05/02/2020	855	7,03
06/02/2020	855	7,42
07/02/2020	855	7,56
08/02/2020	855	5,11
09/02/2020	855	6,05
10/02/2020	853	7,58
11/02/2020	853	8,60
12/02/2020	853	8,70
13/02/2020	853	8,14
14/02/2020	853	7,54
15/02/2020	853	5,44
16/02/2020	853	5,07
17/02/2020	853	6,94
18/02/2020	853	6,65
19/02/2020	853	6,16
20/02/2020	853	6,18
21/02/2020	853	5,95
22/02/2020	853	4,86
23/02/2020	853	4,41
24/02/2020	845	5,41
25/02/2020	845	5,20
26/02/2020	845	4,93
27/02/2020	845	4,69
28/02/2020	845	4,38
29/02/2020	845	4,26

Delivery Date	Avg Volumes	Avg Prices
01/03/2020	845	4,08
02/03/2020	855	4,40
03/03/2020	855	4,32
04/03/2020	855	4,41
05/03/2020	855	4,58
06/03/2020	855	5,19
07/03/2020	855	6,42
08/03/2020	855	4,67
09/03/2020	853	5,17
10/03/2020	853	5,07
11/03/2020	853	5,07
12/03/2020	853	5,03
13/03/2020	853	4,96
14/03/2020	853	4,52
15/03/2020	853	4,25
16/03/2020	853	4,82
17/03/2020	853	4,72
18/03/2020	853	4,51
19/03/2020	853	4,37

**1. After one month with high fluctuations where prices doubled. Prices are back to prior level around 4€/MW/h.**

# Average Awarded mFRR Capacity Prices per CCTU

## New daily mFRR capacity auctions



Each day 6 auctions take place for periods of 4 hours (or CCTU)

Average Awarded mFRR Capacity Prices per day and CCTU are shown in the graph

Peak periods of CCTUs (between 8h and 20h) present the highest prices structurally, doubling almost off-peak periods

**1. Capacity prices during peak periods almost double the off-peak periods**

# Publication of mFRR individual capacity bids

## Art 12 EBGL

	A	B	C	D	E	F	G
1	Delivery Date	Delivery Period	mFRR/R3 Offered Volume (MW)	mFRR/R3 Standard Awarded Volume (MW)	mFRR/R3 Standard Price (€/MW/h)	mFRR/R3 Flex Awarded Volume (MW)	mFRR/R3 Flex Price (€/MW/h)
2	04/02/2020	0 - 4	16	16	1,75		
3	04/02/2020	0 - 4	16	16	2,11		
4	04/02/2020	0 - 4	32	32	2,38		
5	04/02/2020	0 - 4	16	16	2,92		
6	04/02/2020	0 - 4	16	16	3,19		
7	04/02/2020	0 - 4	16	16	3,46		
8	04/02/2020	0 - 4	16	16	3,73		
9	04/02/2020	0 - 4	1	1	3,8		2,85
10	04/02/2020	0 - 4	1	1	3,8		2,85
11	04/02/2020	0 - 4	1	1	3,8		2,85
12	04/02/2020	0 - 4	1	1	3,8		2,85
13	04/02/2020	0 - 4	1	1	3,8		2,85
14	04/02/2020	0 - 4	1	1	3,8		2,85
15	04/02/2020	0 - 4	1	1	3,8		2,85
16	04/02/2020	0 - 4	1	1	3,8		2,85
17	04/02/2020	0 - 4	1	1	3,8		2,85
18	04/02/2020	0 - 4	1	1	3,8		2,85

Publication of anonymized individual capacity bids is an EBGL requirement

Since 03/02/2020, Elia publishes anonymized list of individual mFRR capacity bids offered and awarded.

All capacity bids are sorted per price and publication presents the volume and Std / Flex prices per date and delivery period of 4 hours (or CCTU)

There are around 3000 capacity bids per day

**1. Higher transparency on capacity prices as of the launch of the new mFRR**





# New publication of individual mFRR capacity bids

## Tertiary Reserve – Daily Procurement

From  To

Tendering Period	CCTU	mFRR Product Type	Total Awarded Volume (MW)	Average Price (€/Mw/h)	Marginal Price (€/Mw/h)	Total Offered Volume	Individual Capacity Bids
18/03/2020	19/03/2020 00:00 - 04:00	mFRR Flex	363	1.15	1.22	892	
18/03/2020	19/03/2020 00:00 - 04:00	mFRR Standard	490	2.74	3.21	903	
18/03/2020	19/03/2020 00:00 - 04:00	mFRR Total	853	2.06	3.21	1440	Individual bids
18/03/2020	19/03/2020 04:00 - 08:00	mFRR Flex	363	1.42	1.5	884	
18/03/2020	19/03/2020 04:00 - 08:00	mFRR Standard	490	2.46	2.63	903	
18/03/2020	19/03/2020 04:00 - 08:00	mFRR Total	853	2.01	2.63	1432	Individual bids
18/03/2020	19/03/2020 08:00 - 12:00	mFRR Flex	363	4.81	5.08	886	
18/03/2020	19/03/2020 08:00 - 12:00	mFRR Standard	490	6.19	6.55	902	
18/03/2020	19/03/2020 08:00 - 12:00	mFRR Total	853	5.6	6.55	1433	Individual bids
18/03/2020	19/03/2020 12:00 - 16:00	mFRR Flex	363	3.27	3.47	811	
18/03/2020	19/03/2020 12:00 - 16:00	mFRR Standard	490	6.02	7.17	962	
18/03/2020	19/03/2020 12:00 - 16:00	mFRR Total	853	4.85	7.17	1418	Individual bids
18/03/2020	19/03/2020 16:00 - 20:00	mFRR Flex	363	5.9	7	797	
18/03/2020	19/03/2020 16:00 - 20:00	mFRR Standard	490	7.67	8.5	956	
18/03/2020	19/03/2020 16:00 - 20:00	mFRR Total	853	6.92	8.5	1398	Individual bids
18/03/2020	19/03/2020 20:00 - 00:00	mFRR Flex	355	3.12	3.64	807	
18/03/2020	19/03/2020 20:00 - 00:00	mFRR Standard	498	5.94	6.02	961	
18/03/2020	19/03/2020 20:00 - 00:00	mFRR Total	853	4.77	6.02	1413	Individual bids

Individual Capacity Bid Report						
Delivery date	Delivery period	mFRR/R3 Offered Volume (MW)	mFRR/R3 Standard Awarded Volume (MW)	mFRR/R3 Standard Price (Euro/MW/h)	mFRR/R3 Flex Awarded Volume (MW)	mFRR/R3 Flex Price (Euro/MW/h)
19/03/2020	4 - 8	8	8	2.20		
19/03/2020	4 - 8	1	1	2.40		1.56
19/03/2020	4 - 8	1	1	2.40		1.56
19/03/2020	4 - 8	1	1	2.40		1.56
19/03/2020	4 - 8	1	1	2.40		1.56
19/03/2020	4 - 8	1	1	2.40		1.56
19/03/2020	4 - 8	1	1	2.40		1.56
19/03/2020	4 - 8	1	1	2.40		1.56
19/03/2020	4 - 8	1	1	2.40		1.56
19/03/2020	4 - 8	1	1	2.40		1.56
19/03/2020	4 - 8	1	1	2.40		1.56
19/03/2020	4 - 8	1	1	2.40		1.56

Publication of individual bids has been automated and it is available on the table of Auction Results:

<https://www.elia.be/en/grid-data/balancing/capacity-auction-results>

Historical data is available in new publication and current manual publication in data download will be stopped.

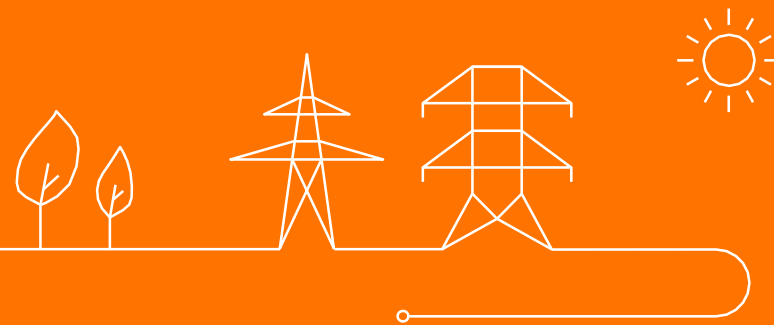
## Wrap-up of first daily mFRR capacity auctions

- Daily mFRR capacity auctions started on 03/02/2020 (delivery date 04/02/2020)
- Publication of individual mFRR capacity bids (EBGL requirements) started together with new daily mFRR capacity auctions :
  - Immediately after the first publication of individual mFRR capacity bids there was a strong increase of prices from almost all BSPs
  - This publication is being used by BSPs for their bid strategy and granularity is very high
- After one month with high fluctuations where prices doubled. Prices are back to prior level around 4€/MW/h.
- In terms of mFRR capacity prices per CCTU (periods of 4 hours): the peak periods (CCTUs between 8h-20h) present average capacity prices that almost double the off-peak periods



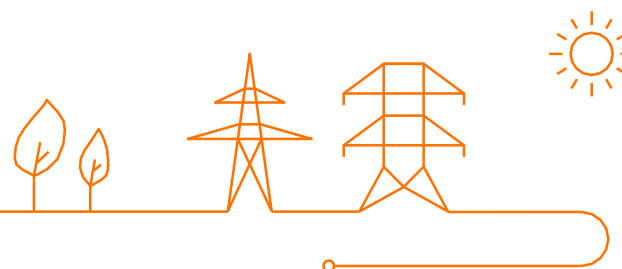
# Overview AS market 2019

Presented by Amandine Leroux



# Agenda

1. Newities
2. Reservation
3. Activation
4. Quality



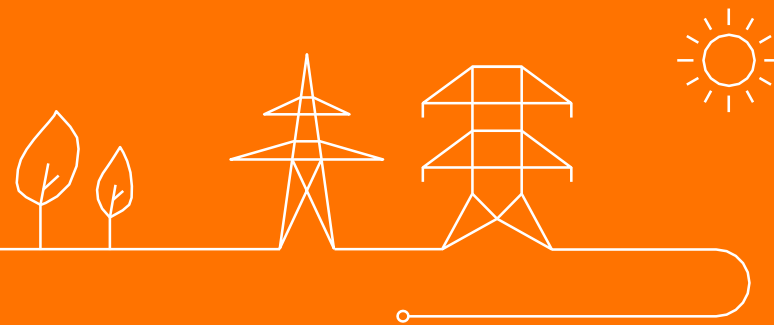
## Newities 2019

- ❑ First year with full ToE including prices for R3 energy bids for Non-CIPU
- ❑ Regelleistung went to FCR daily auctions during working days as of July 2019

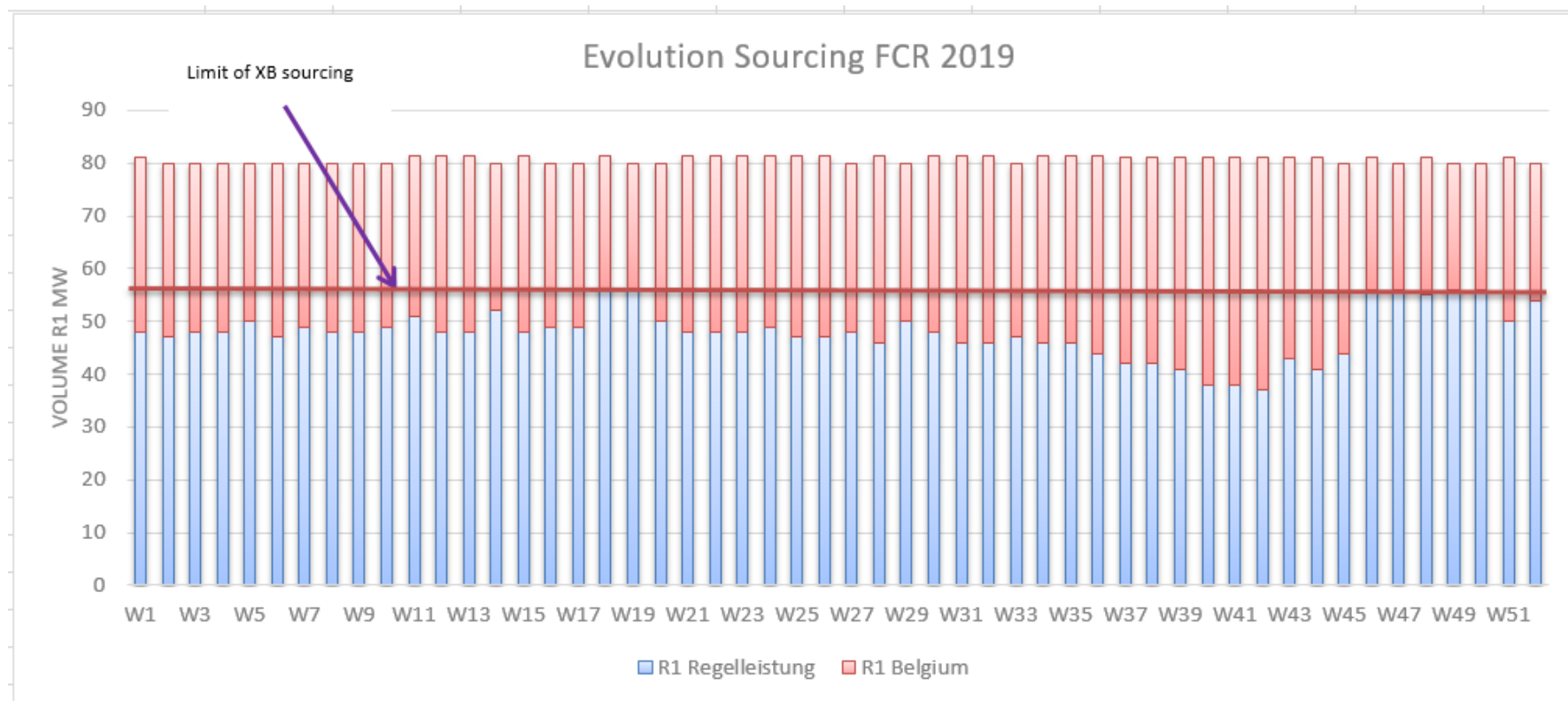


# Reservation

Statistics 2019



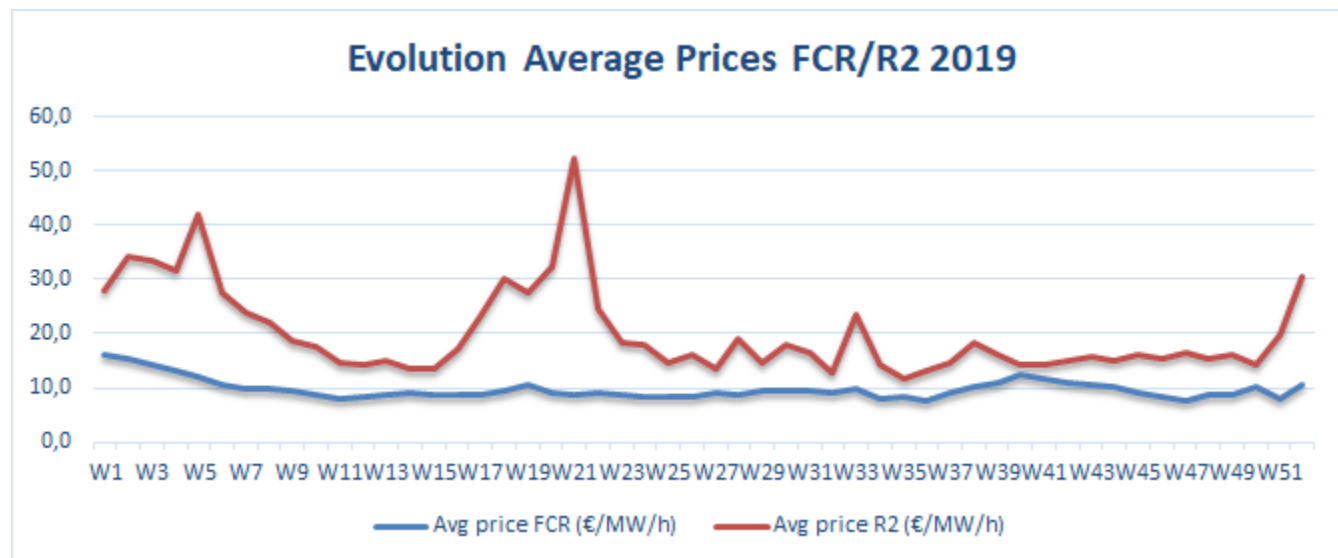
# FCR / R2 Capacity Auctions



**FCR 2019 sourcing coming principally from regional platform and non-CIPU**



## FCR / R2 Capacity Auctions



Peak of prices of R2:

- At the beginning of the year due to nuclear crisis
- In April/May due to maintenance of various CCGTs

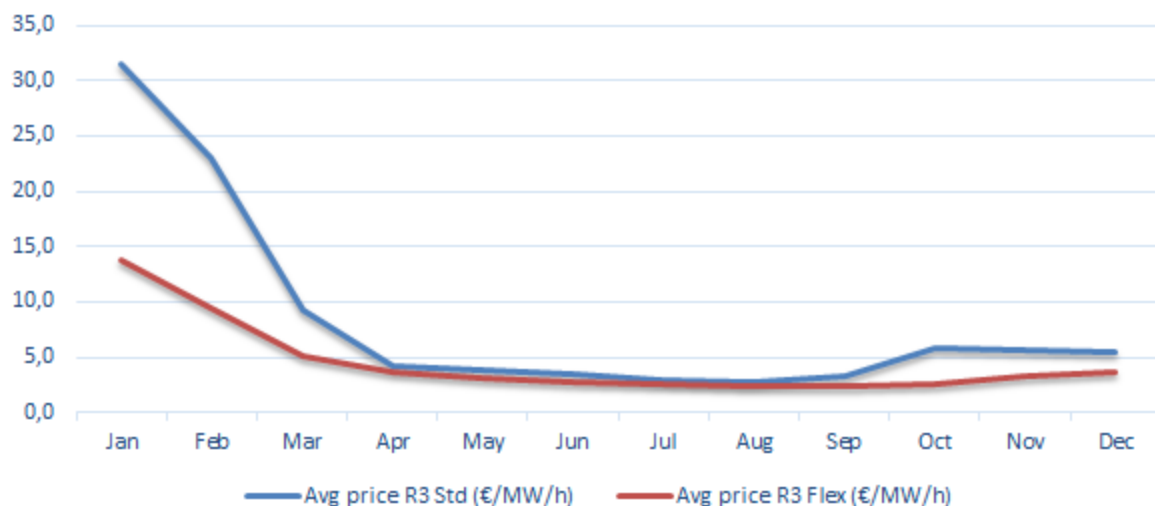
**Prices R2 only provided by CCGTs and highly dependant on CSS and liquidity**  
**Prices FCR rather stable**



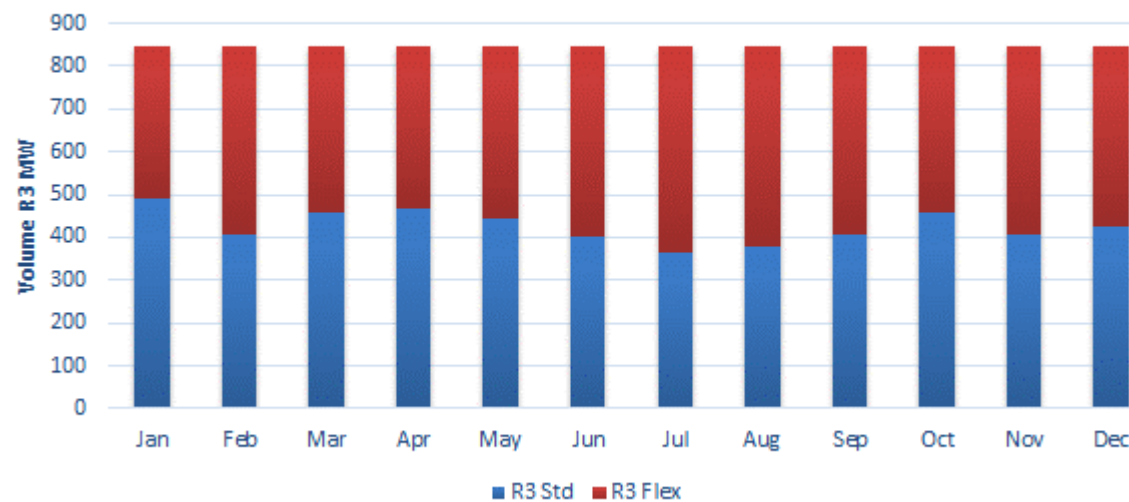


# R3 Capacity Auctions

### Evolution prices auctions R3 2019



### Evolution Sourcing Volume R3 2019



**After nuclear crisis, prices of R3 stabilized to prior levels**  
**Sourcing R3 Std and R3 Flex rather 50/50**

## R3 Non-CIPU – ToE statistics

Situation Dec/19:

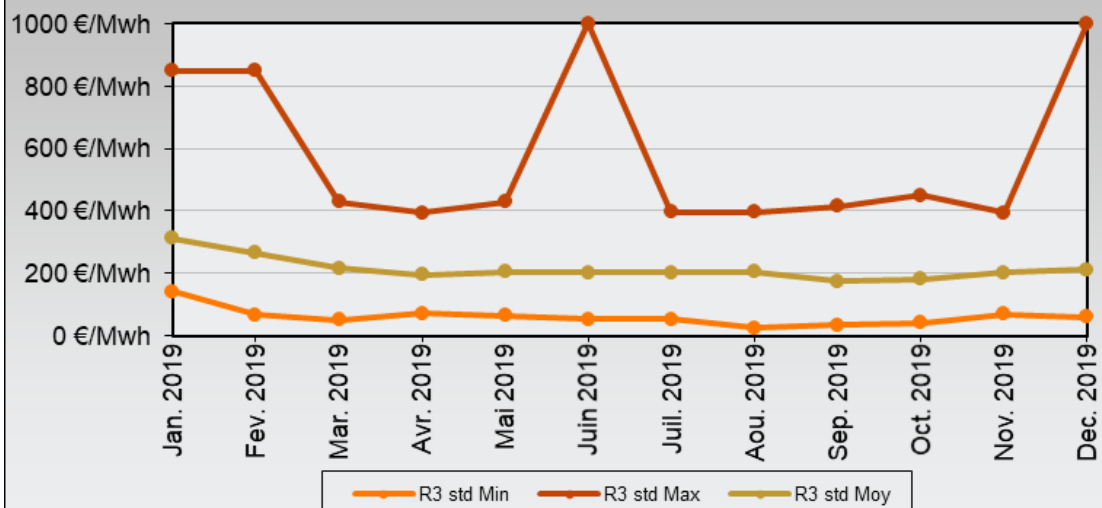
- Number of BSPs: **8**
- Number of Suppliers: **18**
- Sum of R3 max: **545 MW** Flex (90MW Std)

	ToE	Opt-Out	Total
# Delivery Points	112	146	258
Sum DP_R3max_up (MW)	952	545	1497
%Sum DP_R3max_up	64 %	36 %	100 %

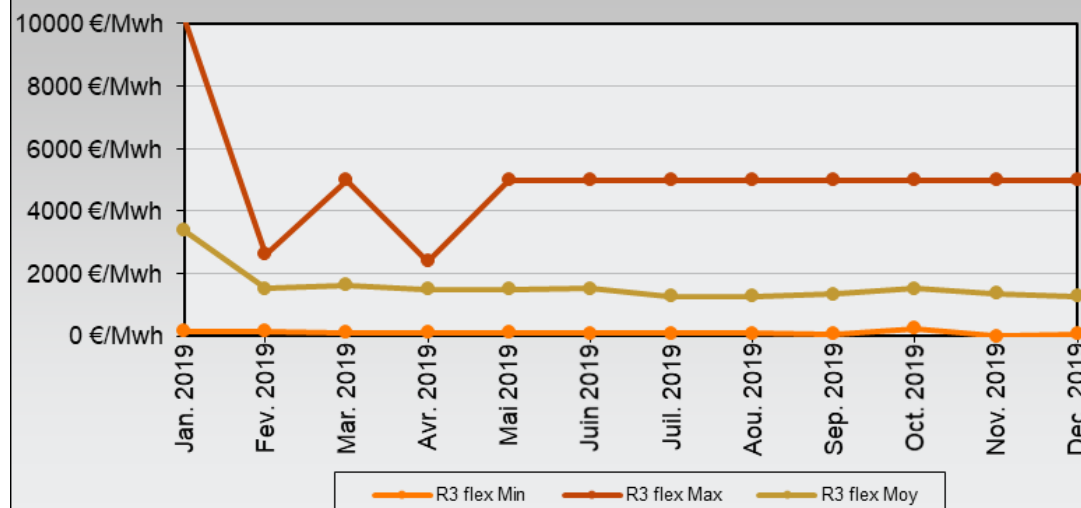


# R3 Std / R3 Flex Energy Bids

Prix des offres de réglage tertiaire standard



Prix des offres de réglage tertiaire flex



**First full year with prices for R3 Non-CIPU (mainly to R3 Flex)**

**R3 Std average prices around 200€/MWh with a peak of 1000€/MWh**

**R3 Flex average prices around 1500€/MWh with a peak of 10000€/MWh**

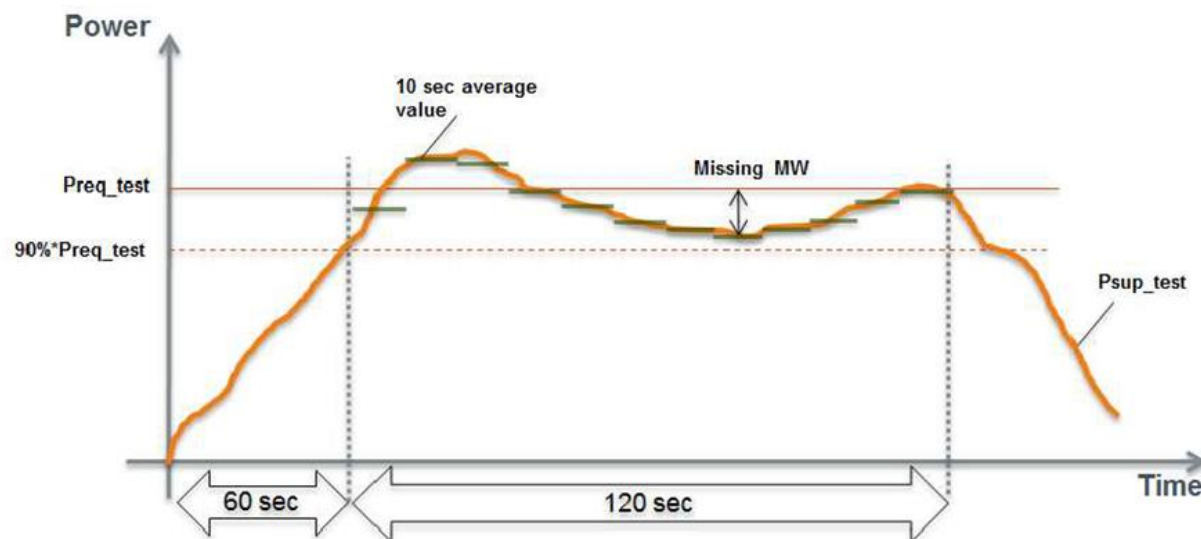
## R3 Non-Reserved Non-CIPU Energy Bids (“bidladder”)

**No energy bids R3 NR submitted in 2019**

## FCR Availability Control – Capacity Tests

### Capacity Test:

- Maximum 2 per delivery period
- Requested volume has to be supplied during 2 minutes
- Missing MW is penalized in proportion of monthly remuneration, % of failure and quality of historical tests delivery



### Situation Dec/19:

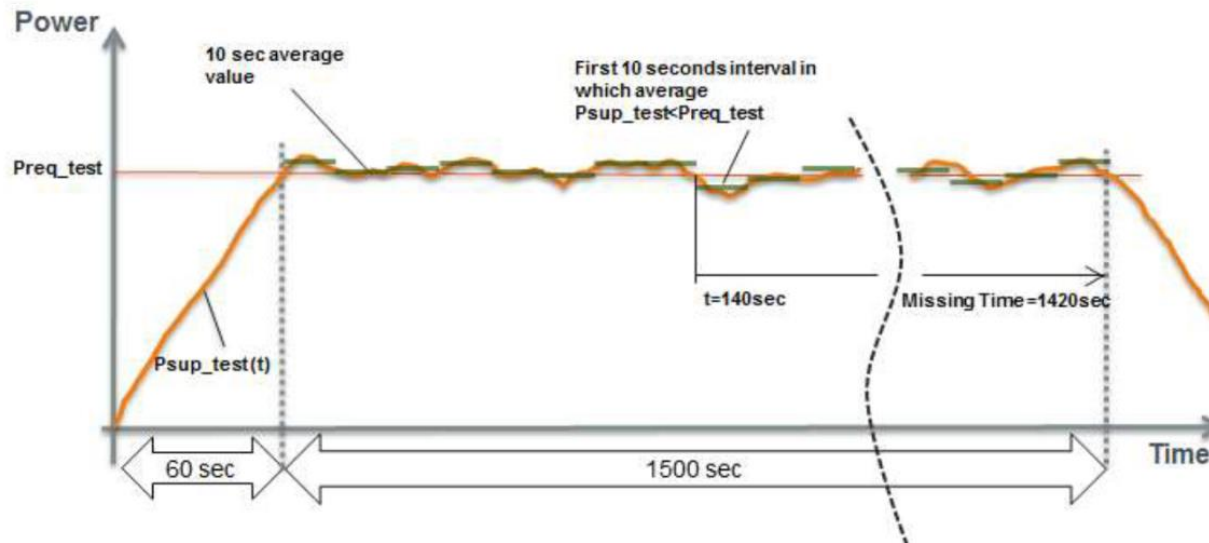
- 42 tests / 5 suppliers
  - 30 successful
  - 5 lightly failed
  - 7 failed



## FCR Availability Control – Energy Tests

Energy Test:

- Requested volume has to be supplied during 25 minutes
- Missing Time is penalized in proportion of monthly remuneration, % of failure and quality of historical tests delivery



### Situation Dec/19

- Three parks of batteries tested on Dec/19
- All tests failed

**A test is considered as failed in both following cases:**

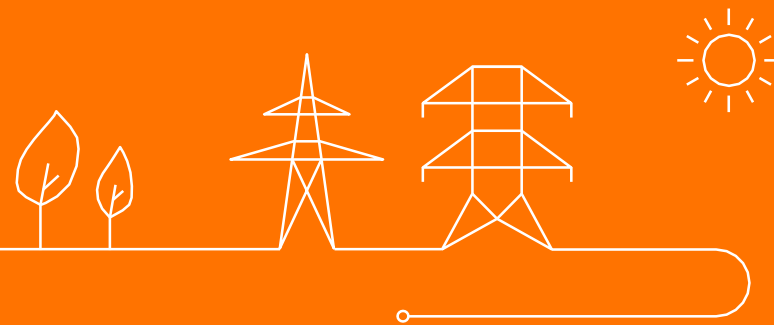
- A very small amount of missing volume (e.g. 1 MW) is missing for part (or entire) duration a the test
- Almost the whole requested volume is missing

**→ Two energy tests belong to first category, one energy test to second one.**



# Activation

Statistics 2019



# Activations Volumes

		2019				2018				Delta TOTAL
		MWh hausse	MWh baisse	TOTAL	% Activation	MWh hausse	MWh baisse	TOTAL	% Activation	
Activation automatiques	R2	242.393	266.573	508.965	46%	267.149	235.076	502.225	45%	1%
	IGCC	194.977	216.614	411.591	38%	142.543	258.319	400.861	36%	3%
Activation manuelles	R3 Standard	20.664	N/A	20.664	2%	15.555	N/A	15.555	1%	33%
	R3 Flex	524	N/A	524	0%	606	N/A	606	0%	-14%
	R3 NR non-CIPU incrémentaux/ decrementaux	0	0	0	0%	5	0	5	0%	#DIV/0!
	Bids incrémentaux/ decrementaux	76.376	75.651	152.026	14%	97.595	86.637	184.231	17%	-17%
	Réserve Inter-TSO	300	850	1.150	0%	0	500	500	0%	130%
	<b>TOTAL</b>	<b>535.232</b>	<b>559.687</b>	<b>1.094.920</b>	<b>100%</b>	<b>523.451</b>	<b>580.532</b>	<b>1.103.982</b>	<b>100%</b>	<b>-1%</b>

**Activation volume at a similar level than previous year**



## FCR Activation Controls

FCR Activation Control:

- Maximum 6 controls per month
- $\Delta = (\text{MW requested} - \text{MW supplied}) / \text{MW requested}$
- Criteria of classification:
  - If  $\Delta \leq 0\%$  Sufficient
  - If  $0\% < \Delta \leq 30\%$  ; Lightly insufficient
  - If  $\Delta > 30\%$  Strongly insufficient

Situation Dec/19:

- Most of the controls are from Non-Cipu suppliers
- Level of performance similar to the one of prior year

	Réaction suffisante		Réaction légèrement insuffisante		Réaction fortement insuffisante		Total	
	2019	2018	2019	2018	2019	2018	2019	2018
Year	2019	2018	2019	2018	2019	2018	2019	2018
<b>FCR controls</b>	<b>216</b>	<b>217</b>	<b>7</b>	<b>27</b>	<b>15</b>	<b>18</b>	<b>238</b>	<b>262</b>
<b>%</b>	<b>91%</b>	<b>83%</b>	<b>3%</b>	<b>10%</b>	<b>6%</b>	<b>7%</b>	<b>100%</b>	<b>100%</b>



## R2 Activation Controls

R2 Activation Control:

- Continuous control based on telemeasures
- Penalised energy equals the difference between the R2 supplied and R2 requested taking into account a tolerance of 15% of energy bid volume

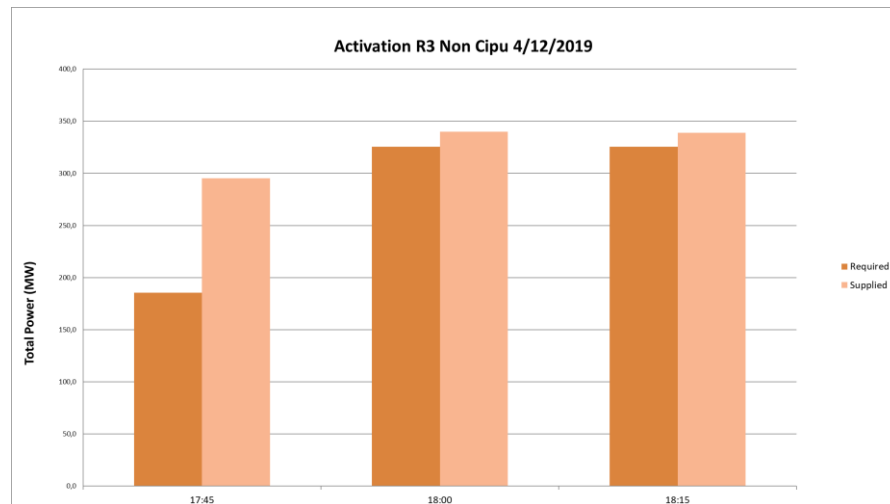
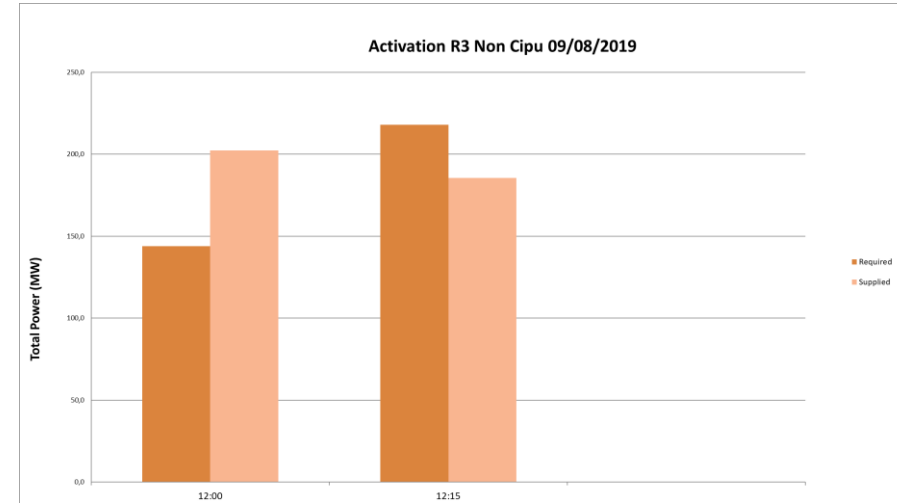
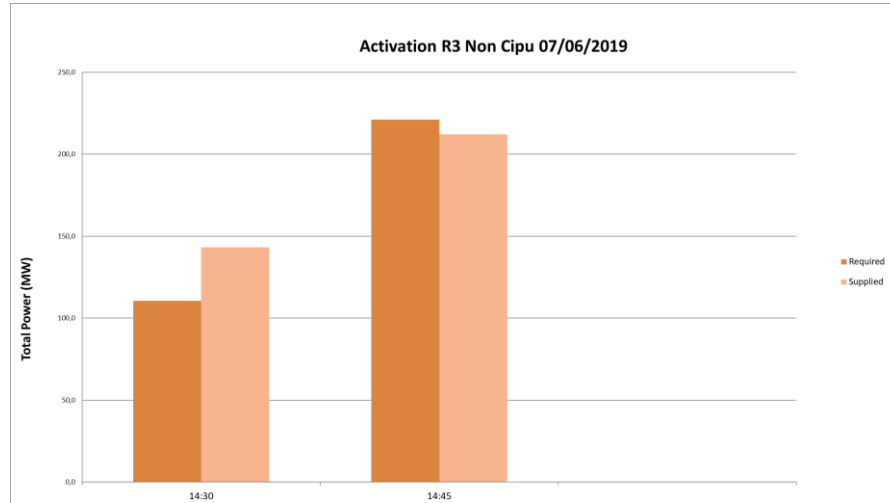
Energie pénalisante MWh		Total
2019	Energie pénalisante MWh	6.544
	Energie R2 activée MWh	508.965
	% Energie pénalisante / énergie activée	1,3%
2018	Energie pénalisante MWh	6.936
	Energie R2 activée MWh	502.248
	% Energie pénalisante / énergie activée	1,4%

Situation Dec/19:

- Like for prior years the penalised energy is around 1,3% of the activated energy



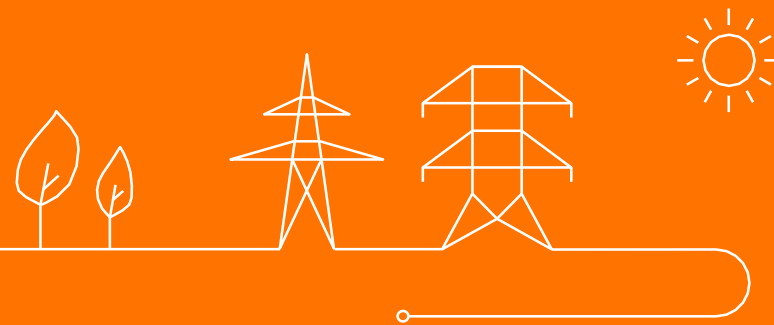
# R3 Non-CIPU Activation Controls



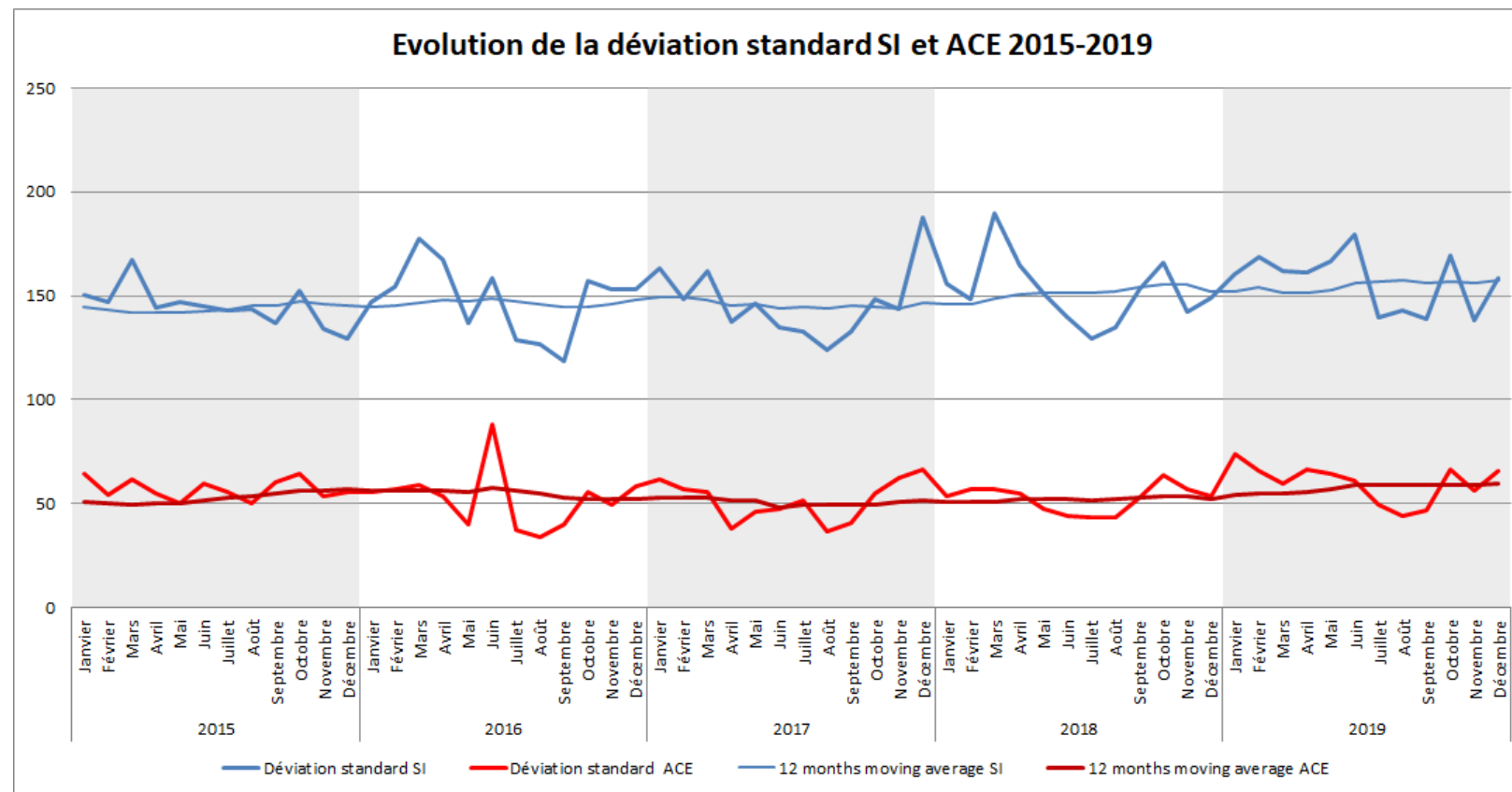
- R3 Flex activated three times in 2019
- On 04/12 almost all Flex activated, good reactions.

# Quality

Statistics 2019



# Evolution System Imbalance (last 5 years)



**System Imbalance and ACE rather stable in the last years**

## Quality Results

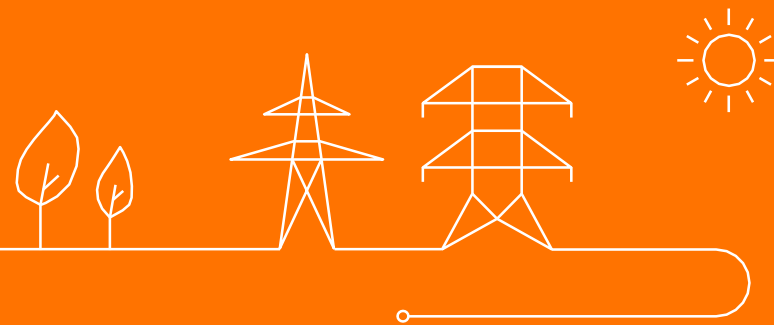
<b>Monitoring FRCE Levels L1 and L2</b>		Level 1 FRCE Range (MW)				87,89	Level 2 FRCE Range			166,21
		Limit %QH above Level 1 FRCE Range				30%	Limit %QH above Level 1 FRCE Range			5%
Period	#QH Period	#QH above Level 1 FRCE Range				#QH above Level 2 FRCE Range				
		FRCE Positive	FRCE Negative	FRCE Total	% QH	FRCE Positive	FRCE Negative	FRCE Total		
Jan-19	2976	62	183	245	8,23%	15	58	73	2,45%	
Fev-19	2688	125	122	247	9,19%	33	29	62	2,31%	
Mar-19	2972	145	118	263	8,85%	36	22	58	1,95%	
Avr-19	2880	93	94	187	6,49%	17	27	44	1,53%	
Mai-19	2976	82	75	157	5,28%	20	20	40	1,34%	
Juin-19	2880	89	121	210	7,29%	31	33	64	2,22%	
Juil-19	2976	63	71	134	4,50%	11	10	21	0,71%	
Août-19	2976	81	62	143	4,81%	14	9	23	0,77%	
Sep-19	2880	88	46	134	4,65%	21	9	30	1,04%	
Oct-19	2980	124	121	245	8,22%	26	37	63	2,11%	
Nov-19	2880	103	110	213	7,40%	27	34	61	2,12%	
Dec-19	2976	156	127	283	9,51%	49	57	106	3,56%	
<b>Total</b>	<b>35040</b>	<b>1211</b>	<b>1250</b>	<b>2461</b>	<b>7,02%</b>	<b>300</b>	<b>345</b>	<b>645</b>	<b>1,84%</b>	

- New limits established in SOGL for FRCE (or ACE)
- Level 1 is similar to prior ACE Std Deviation indicator
- Level 2 is used for the extreme values (prior sigma 90, 99)
- For 2019, we are below the 30% and 5% required for Level 1 and Level 2 respectively

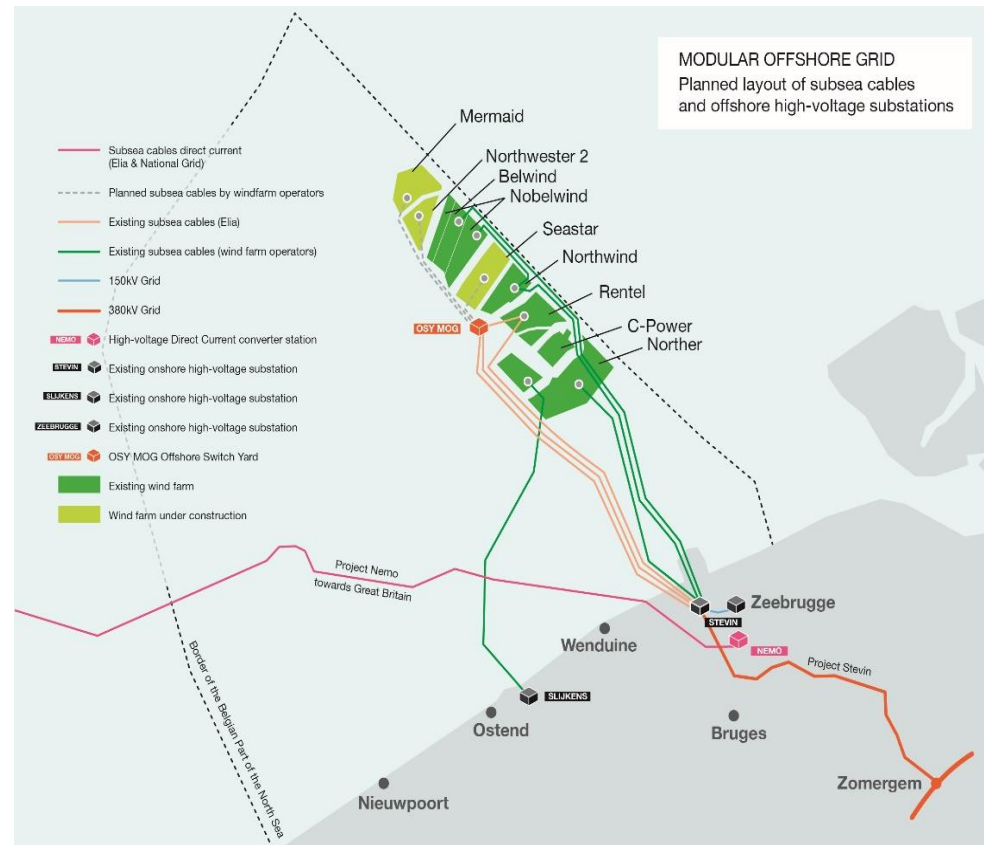
**Respect in 2019 of limits of SOGL requirement for FRCE levels 1 and 2**

# Short RX Ciara storm management

Presented by James Matthys-Donnadieu



# Context - Storm risk in North Sea



## Context

- By Q3 2020, 2300 MW offshore production is expected to be installed;
- Windparks are located in **same geographical area** and therefore subject to weather phenomenon such as storm events at same moment;
- Storm events are characterized by a fast decrease of the wind power production (cut-out phase) followed by a fast return of this production (cut-in phase) after the storm leading to a possible high impact on the balance of the zone;
- Following ELIA and 3E's study on the problematic, the following offshore integration design has been developed:
  - Increase event's predictability by developing a dedicated **Storm Forecasting Tool** in collaboration with **the Royal Meteorological Institute (RMI)**;
  - Elaborate specific operational processes with responsible market parties to coordinate needed actions to mitigate the identified risk (**Storm Management Procedure**).

- The Storm Forecast Tool and the Storm Management Procedure entered into force on January 15<sup>th</sup> 2020
- The procedure and tool were used for the first time to manage the storm event of February 9<sup>th</sup> 2020





## Offshore Integration

### *Reminder of key principles*



Set up of information exchange (ELIA – BRP – SA – OPA) in context of storm (as soon as storm is forecasted) to anticipate the storm and take measures to mitigate the potential storm impact (cut-out)



Offshore BRPs are requested to:

- Communicate to Elia if and how mitigation measures are foreseen to cover identified storm impact
- Decide which mitigation measure suits them the most
- Coordinate with OPA / SA (if different parties)



- Monitor and run periodical risk assessment (based on the forecasted storm impact and measures communicated by the BRP's impacted by the storm)
- Trigger the **fallback mechanism** if the residual risk is higher than Elia's available balancing means (not used during the storm of 09/02/2020)

#### Reminder

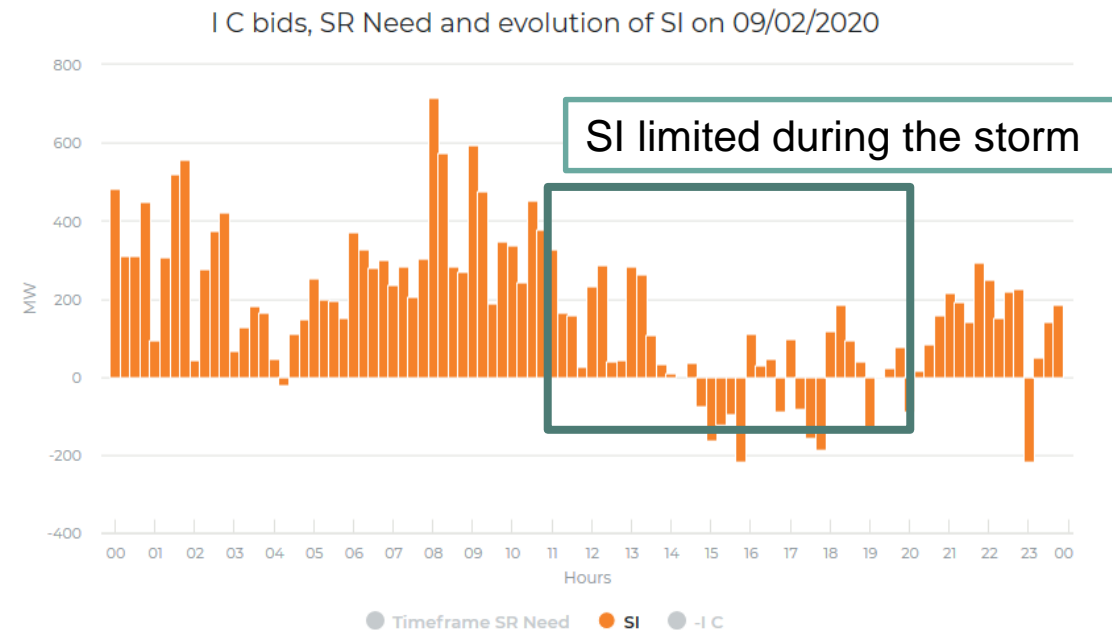
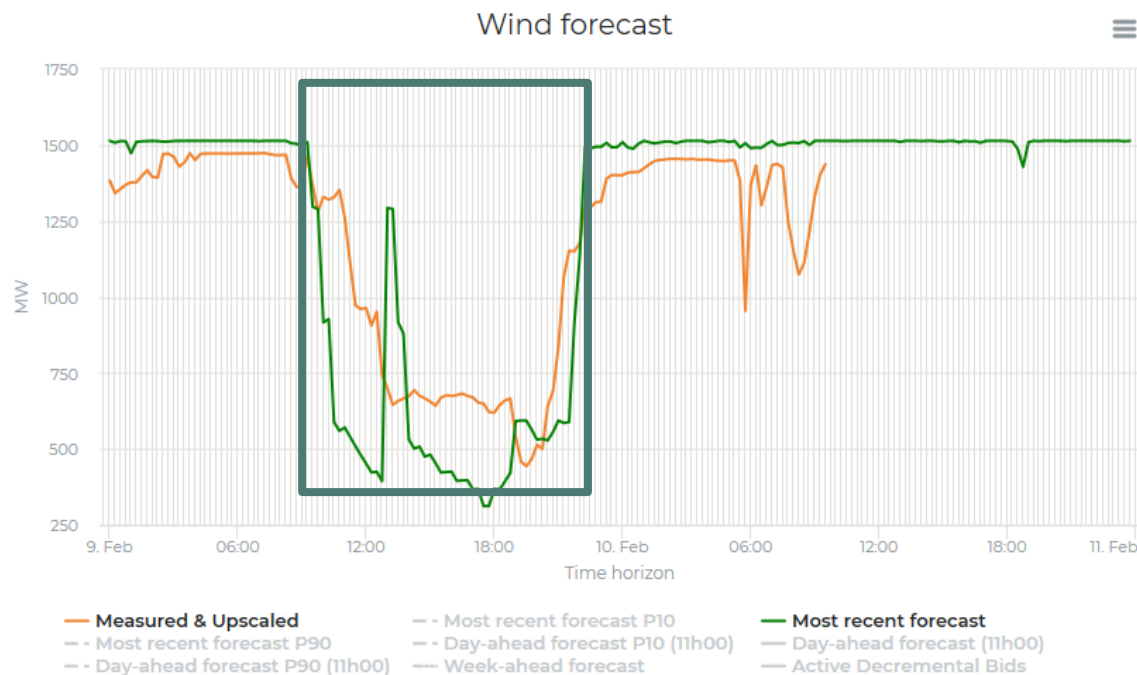
As long as ICAROs is not implemented, BRP =  
SA = OPA



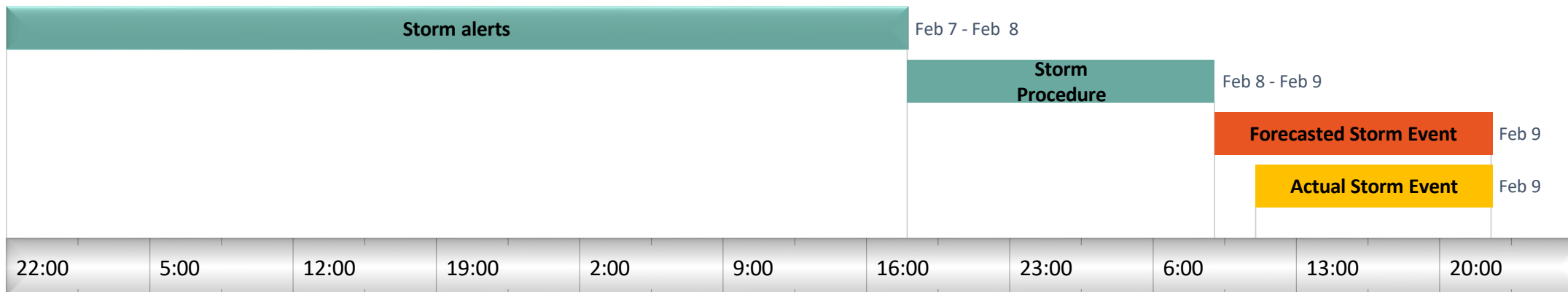
## Storm of 09/02/2020 – Impact and timings

### Storm event characteristics:

- A storm event occurred on Sunday 9<sup>th</sup> February 2020 between ~10:45 (cut-out) and 20:00 (cut-in)
- The storm **was detected more than 36 hours in advance** allowing starting the storm management procedure:
- The offshore wind power production finally drops **from 1400MW to a bit less than 500 MW** at 19:00 (1000 MW maximum drop)
- The market has efficiently anticipated the storm event and no activation of the fallback process was required
- The **impact was limited on the System Imbalance** during the storm period (with a maximum negative SI of 200MW)



# Storm of 09/02/2020 – Storm Procedure



## 1. Storm alerts

- Publication of the storm impact and timings on the Elia website (and via RSS feeds) from Friday 22:00 (about 36h before the storm event)
- Individual impacts of the storm were communicated to impacted offshore BRP's
- Regular updates of the storm event in terms of impact and timings were provided

## 2. Storm procedure

- Elia initiated the call for mitigation measures on the 8<sup>th</sup> of February at 4pm as the storm was confirmed with a forecasted impact larger than contracted mFRR reserves (888 MW)
- Offshore BRP's shared information and communicated their mitigation measures to Elia via the storm tool
- As the forecasted volume not covered by the BRP's ( = forecasted drop – communicated mitigation measures) was lower than the total available volume of reserve, Elia did not launch the fallback process.

## 3. Storm event

- Due to the efficient anticipation of the storm and the mitigation measures taken by the impacted offshore BRPs, the impact of the storm was limited as we can see on the Elia System Imbalance.



## Storm of 09/02/2020 – Return of experience

- The main goal is achieved as the **storm impact was well mitigated** due to:
  - Efficient prevision and anticipation of the storm;
  - Efficient communication between impacted offshore BRP's and Elia;
  - Adequate mitigation measures taken by the BRP's to anticipate the storm.
- Some improvements are planned following the return of experience of this first storm:
  - **Storm Forecasting Tool:** calibration of the model in **collaboration with the RMI** ;
  - **Storm Tool and process:** efficiency into the data exchange and user friendliness of the tool in **collaboration with the market parties**

