

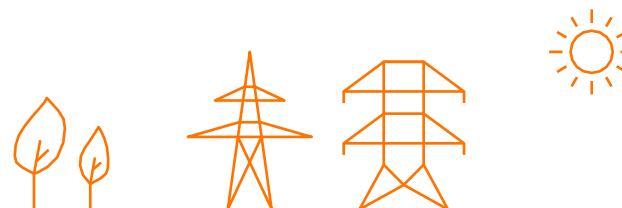
Workshop on connections with flexible access

Workshop 11/12/2024

11.12.2024 | Elia

Agenda

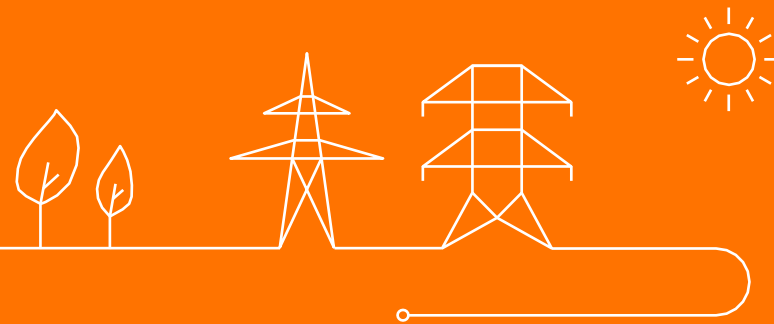
1. Introduction
2. CREG project decision on Code of Conduct – Elia first feedback
3. Impact on the BSP : status
4. Reporting & publication of flexibility activations
5. Placeholder : Technical report for Grid Connection Studies proposing a flexible access
6. Planning for 2025



Timeboxing

Topic	Presenter	Duration	Start time	End time
1 Introduction	Antoine/Benjamin	00:30	13:00	13:30
2 CREG Project decision on CoC	Philippe	00:40	13:30	14:10
3 Impact on the BSP : Status	Philippe	00:35	14:10	14:45
Break		00:15	14:45	15:00
Reporting & publication of flexibility 4 activations	Philippe	00:30	15:00	15:30
5 Technical report for grid connection studies	Jonathan	00:35	15:30	16:05
6 Planning for 2025	Anna	00:45	16:05	16:50
Total duration		03:50		

1. Introduction



Introduction

- Today is the last workshop dedicated to connection with flexible access in 2024
- The agenda can be divided into 3 main sections

Code of Conduct and design

- Elia will also provide a **first high-level feedback** on the **CREG' decision project** on the **Code of Conduct**
- A proposal of the principles that should be applied in case of **risk of simultaneous activation of Gflex and balancing** will also be given

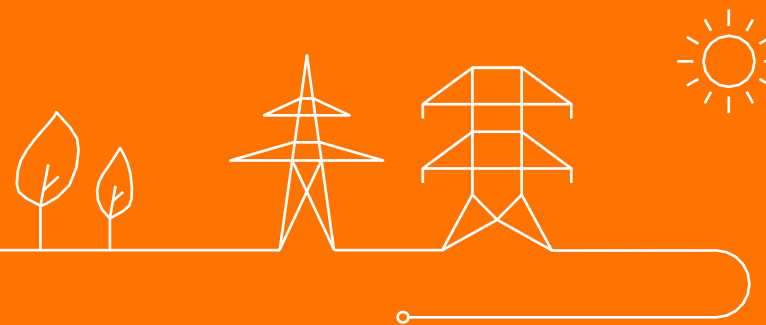
Incentive related content

- As described in the decision project of the CREG related to the 2024 balancing incentives, information are provided regarding the **reporting and publications on flexibility activations** for **congestion management** purpose
- The **conclusions** regarding the content of the **technical reports** for EOS/EDS proposing a flexible access are presented

Next steps for 2025

- Finally, Elia will present the planning for 2025 regarding the flexible access topic and the roadmap for Grid User flexibility

2. CREG decision project on Code of Conduct



CREG decision project on Code of Conduct

- The CREG has initiated the public consultation on the decision project on the Code of Conduct on the 5th of December
- Elia is still analyzing the project decision but can already share the following elements :
 - Elia welcomes that some core elements have been maintained.
 - Nevertheless, Elia identified significant risks on **operational security**, on the **harmonious development of the grid** and on the **tariffs**
 - Some wordings are ambiguous, which may lead to **legal uncertainty**
 - There is a significant impact on **implementation timeline**, as there are a lot of changes requiring additional analysis, with some design elements missing and significant complexities added
 - The timelines requested for the amendment of the regulated documents are not taking into account:
 - The stepwise process for the decision on the CoC: full decision on the CoC is needed before documents can be amended
 - The need to wait for the current amendment of the Connection contract to be approved by the regulators before the next amendments can publicly consulted
- To be transparent and to inform the market about the implications (sometimes not obvious) of different requirements, Elia will publish its own answer to the public consultation on January 9th, one week ahead of the end of the consultation.

CREG decision project on Code of Conduct

Example 1: Grid User's contribution to the congestion management costs

- Elia proposed to use the capped imbalance price, the CREG proposes to use the Day-ahead price
- The current design leaves all the risks to the grid user, which didn't prevent some projects to realize anyway. While the design proposed by Elia undisputedly decreases the risks, and hence the incentive to locate at a non-congested place of the grid, the proposal from the CREG goes much further in that direction
 - While this can be an advantage for an individual Grid User, it lacks to meet the common interest by approaching the question with a system view, allowing a **harmonious development of the grid**
- There is a **direct negative impact on the tariffs** with CREG's proposal, due to:
 - A possible evolution of the appetite of grid users to accept flexible connections, given the impact on the incentive described above, potentially with very high flexibility numbers, increasing the number of activations for which the costs are (partly) socialized;
 - A higher socialisation of costs linked to each activation
- While Elia's design is ready to be translated in the T&C BRP and implemented, the design from the CREG has not yet been discussed with market parties and, to Elia's knowledge, some design questions still need to be addressed. This will impact the implementation timeline

CREG decision project on Code of Conduct

Example 2: Activation in the permanent power

- The possibility to activate in the firm power, in case of congestion that can be solved with a curative remedial action or that was not identified in the prior operational analyses, has not been retained in CREG's proposal
- As a result:
 - Redispatching will need to be activated preventively, significantly increasing congestion management activations, where real-time activation would have allowed to have a curative approach
 - Margins will need to be taken in the volumes activated in Redispatching to cover forecasts errors, further increasing activated volumes
 - As Redispatching is activated before Gflex, Elia will also need to use Redispatching in the flexible power when an activation in the firm power is needed
- ➔ The approach seems less optimal from a system's perspective and will lead to significant increase of congestion management costs.
- ➔ The possibility to activate operationally within the permanent power in situation beyond grid development criteria was a basis assumption to relax the criteria towards a more balanced approach. If this assumption is not valid anymore, the grid study methodology will need to be adapted, and more conservatism will be needed to ensure operational security at all times (e.g. no consideration of growth potential in the opposite direction).
- ➔ In addition, it can't be extended to the regional grids, where alternative means are not (yet) available

CREG decision project on Code of Conduct

Example 2: Activation in the permanent power

Elia identified possible mitigation measures, to be further discussed with CREG and market parties

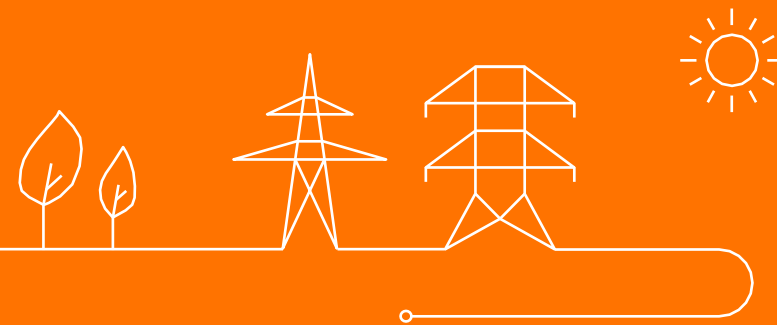
- Not considering firm power for grid users with a flexible connection
 - This would prevent a decreased probability to be activated in this “firm power” and would lead the Grid User to bear the financial consequences of those activations
- Taking N-1-1 situations into account in the grid connection study methodology
 - This would allow to include most cases of curative situations into account in the calculated flexibility needs...
 - ... but at the cost of much higher flexibility needs, which is obviously not in favor of the Grid Users
- Stepping back from the principle of real-time activations
 - Elia acknowledges a lot of complexities come from real-time activations: the impact on the BSP, the Grid User’s contribution to the congestion management costs, the activation within the permanent power, etc
 - Elia is nonetheless convinced that it allows to operate the grid in an optimal way, which eventually benefits to all GUs
 - If market parties and CREG don’t share this conclusion, non-remunerated Redispatching activations could be considered
 - It would lead to a fundamental revision of article 61 of the Code of Conduct with a much longer implementation timeline
 - It would lead to a revision of the grid study methodology, which currently assumes the possibility to solve congestions curatively
 - It could only be considered at the federal level as long as alternative means are not available on regional grids
- Note that the development of other products is part of the Target Model that was presented last time. It necessitates however several enablers with longer implementation time.

CREG decision project on Code of Conduct

Example 3: Impact on the BSP

- Elia's proposal is explained in the next section and a 1st identification of the risks in CREG's proposal is shared

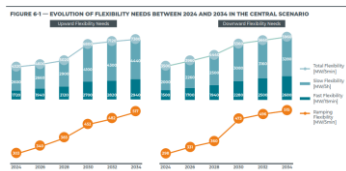
3. Impact on the BSP



Impact GFlex on BSP: Principles to be applied

Context

Balancing management



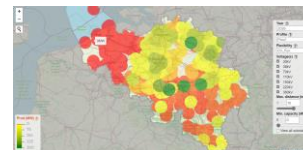
The balancing needs are expected to increase

European integration of Balancing markets lead to more competition and opportunities for Belgian BSPs



BSPs have the obligation to offer their residual flexibility to the balancing markets (> 25MW)

Congestion management



The **margins on the hosting capacity** are being used by electrification and installation of RES

With TOTEX optimization, **flexibility from grid users will be considered** in a global optimization together with CAPEX investments



A remunerated **real-time** congestion management product would deliver added value to mitigate the increase of activations for congestions

This context leads to a **paradox**:

Importance to pursue the removal of entry barriers for the balancing markets



To ensure system security, increased use of congestion management products is expected, in particular in real-time

Impact GFlex on BSP: Principles to be applied

Scope of the presentation

- Objective is to propose the principles that should be applied in case of risk of simultaneous activation of Gflex and balancing
 - Authorize participation to balancing markets in case of significant flexibility levels?
 - Distinguish energy markets and capacity markets?
 - Distinguish within and beyond the contractual limits?
 - Only waive *incentives*, or also waive remuneration?
 - Note: in the current balancing design, remuneration is based on the requested volumes, *incentives* amount to the remuneration + an incentivizing factor
- The principles should be established taking into account the risks identified in the design note
- In any case, for operational security reasons, the Gflex activation signal is always prevalent to any other signal
- The principles proposed assume solutions can be found to implement them. As explained in previous workshop, defining the impact of a Gflex activation on the discrepancy of the BSP, as well as the implementation of this logic, is a complex matter. Elia is making progress and will be able to share possible solutions with market parties beginning of next year (see slides on next steps)

Impact GFlex on BSP: Principles to be applied

Risks identified if the BSP is not exposed to *incentives* from balancing

- In the **activation process**: the BSP has no incentive to use other Delivery Points to deliver the service
- In the **auction process**:
 - The BSP doesn't need to take the Gflex activation risk into account in its balancing capacity bids. Hence, there is **no incentive to rely on Delivery Points at an adequate location on the grid**. For assets with high activation costs, there is even an incentive to be in a congested area in order to secure the incomes from the capacity market while limiting the activation probability.
 - There is a **risk of strategic bidding in case of predictable congestions**, as the BSP could get incomes from the capacity market for Delivery Points that will be constrained by a Gflex activation.
- In the **dimensioning process**:
 - Generally, the increase of redispatching and Gflex activations lead to a risk of unavailability of a part of the volume dimensioned.
 - However, as illustrated above, considering Gflex activations as a reason to not apply the *incentives* related to the balancing further increases the risk not to have the balancing volumes available when needed.
 - In particular, given the contracted volumes of aFRR, a single Gflex activation could lead to the unavailability of the full aFRR volume in a given direction.

Impact GFlex on BSP: Principles to be applied

Within the contractual limits – capacity

- Participation of Delivery Points behind a flexible access point leads to a risk of partial unavailability of the dimensioned reserves. From an operational security perspective, this can only be considered if the **incentives for the BSP to deliver the balancing service are sufficient** → the *incentives* foreseen in T&Cs BSP should remain adequate and applicable to cases of simultaneous activation of Gflex and balancing
- The BSP is aware of the risks, can take it into account in its business case if it's relying on FRR capacity market and should take it into account in its FRR capacity bids.

→ Within the contractual limits, the *incentives* for capacity should apply

- **Elia will monitor behaviour** of BSPs using DPs with a flexible access. If it appears that frequent unavailabilities occur due to Gflex activations and that the *incentives* are not sufficient to incentivize the BSP to have back-up solutions or to decrease offered volumes, Elia will consider:
 - A disqualification of the concerned DPs and/or
 - The introduction of a flexibility threshold beyond which a Delivery Point can't be included in a contracted energy bid

Impact GFlex on BSP: Principles to be applied

Within the contractual limits – energy

- The BSP should not be discouraged to offer free bids, even within the contractual limits
 - In theory, the unavailability of free bids can be managed from an operational security perspective. Having additional free bids is valuable to increase liquidity of the balancing markets and to improve regulation quality.
 - Contracted bids already have the *incentives* from the capacity market to deliver the service properly
- However, his opportunities should not be remunerated in case of Gflex activation preventing him to deliver the service while he's still within its contractual limits.
 - This means the BSP will have no costs and no revenues, losing opportunities
 - The BSP keeps an incentive to deliver the service: if he manages to do so, he keeps his remuneration

→ Within the contractual limits, there should be no remuneration and no *incentives* applied to energy

Impact GFlex on BSP: Principles to be applied

Within the contractual limits – energy

Additional analysis required to confirm this position

- **In aFRR**, the (partial) absence of activation will automatically lead to the activation of the following bid in the merit-order. However, there's an impact on regulation quality: the next bid will not be activated immediately, delaying the correction of the ACE → a detailed analysis can be performed by Q1 2025
- **In mFRR**, the (partial) absence of activation will lead to the need for a “direct activation mFRR”, to ACE and/or to aFRR activations.
 - Currently limited cases of technologies participating to mFRR and receiving potentially conflicting Gflex signals
 - However, it's important to keep the possibility to restrict participation of significant volumes if those appear to be at risk

Impact GFlex on BSP: Principles to be applied Beyond the contractual limits

- Generally, covering the BSP's risks beyond the contractual limits is important for project financing
- For capacity: apply the current approach used in Redispatching (*incentives* don't apply, best-effort obligation to put the volume at disposal and the remuneration is granted)
 - The BSP should be incentivized to participate to the balancing markets
 - The risks identified in the design note are reduced beyond the contractual limits, as priority will be given to redispatching activations. This is particularly relevant for large units connected to the federal grid, for which the risks on reserve availability are the highest
- For energy: no *incentive* should apply and the opportunity costs should be covered by remunerating the activation at the maximum between the congestion price and the balancing price
 - This means we need to distinct volumes of Gflex and volumes of balancing and keep the balancing remuneration → analysis ongoing how to implement this in the short / medium term

→ Beyond the contractual limits: best-effort obligation, no *incentives* apply, remuneration granted

Note that these principles are also relevant for any congestion management product applied to a Grid User with a permanent access

Impact GFlex on BSP: Principles to be applied

Summary

	Within the contractual limits	Beyond the contractual limits
Capacity	<i>Incentives</i> apply	Best-effort obligation to put the volume at disposal (no <i>incentives</i> apply) Remuneration granted
Energy	No remuneration and no <i>incentives</i>	Best-effort obligation to deliver the service with other DPs (no <i>incentives</i> apply) Remuneration granted

Important note: in any case, activations and filtering for congestion management are expected to become more frequent, leading to an increased risk of unavailability of contracted reserves, which may have to be taken into account in the FRR dimensioning process

Impact GFlex on BSP: Principles to be applied

Summary

The BSP bears all the risks

Today

Slows down improvement of liquidity of the balancing markets, negatively impacting:

- Activation costs
- Capacity reservation costs
- Regulation quality

Decreases the possibility for Grid Users to count on revenues from balancing markets in their project financing



Need to find the right balance

	Within the contractual limits	Beyond the contractual limits
Capacity	Incentives apply	Best-effort obligation to put the volume at disposal (no incentives apply) Remuneration granted
Energy	No remuneration and no incentives	Best-effort obligation to deliver the service with other DPs (no incentives apply) Remuneration granted

Coping with the complexity of making the appropriate corrections to remuneration / incentives

The BSP bears no risk at all

Risks for the operational security of the system



Impacts reserves dimensioning, increasing capacity reservation costs

Increases activation costs by remunerating energy bids which are constrained by Gflex signals

Impact GFlex on BSP: Principles to be applied

Additional analysis on impact on global settlement balance with PICASSO

- Assuming a free bid is not reacting as a result of a Gflex constraint and the following bid in the merit-order is activated, what is the impact on global settlement balance **within the contractual limits**?
 - The CBMP will be set to the price of the next bid in the merit-order, which would have been the selected bid if the non-reacting bid had not been offered by the BSP. Case:
 - Bid 1 is a bid from Elia that does not react to the aFRR Requested because of a Gflex constraint
 - If Bid 1 had not been offered by the BSP, the next bid in the MO would have been activated, leading to a 120€/MWh CBMP
 - The table below analyses the TSO-BSP and TSO-TSO settlement when bid 1 is offered but not activated

Case	Demand	Bid 1 100€/MWh – 50MW	Bid 2 120€/MWh – 50MW	CBMP [€/MWh]	Elia-BSP [€] – positive means Elia pays	Elia-PICASSO [€] – positive means Elia pays
1	BE	BE	BE	120	120	0
2	BE	BE	EU	120	0	120
3	EU	BE	BE	120	120	-120
4	EU	BE	EU	120	0	0

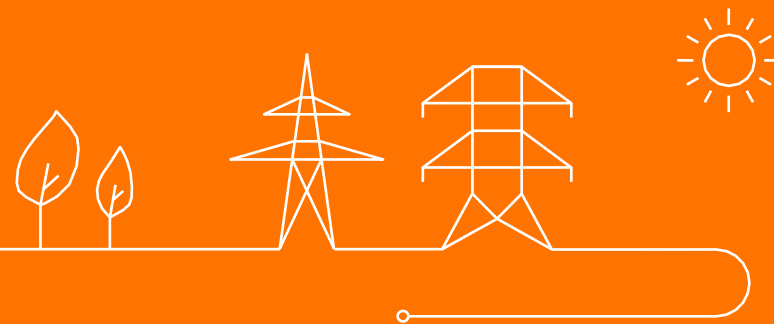
- Assuming no delay in the activation of the next bid in the MO, there is no impact on the global settlement balance within the contractual limits. This is of course not the case beyond the contractual limits, where Elia would pay for bid 1 even when it's not activated

Impact GFlex on BSP: Principles to be applied

Next steps

- Elia and CREG are looking in different ways at the impact on the BSP
- Elia is not comfortable with its first reading of the decision proposal of the CREG. According to our understanding:
 - **It reduces liquidity of the balancing energy markets**
 - The energy bids will need to be filtered each time a congestion risk is identified. Elia reminds a specific approach has been designed and implemented for CRI filtering of aFRR energy bids in order to secure as much volume as possible
 - Filtering the bids leads to the loss of the full bid volume, while a Gflex activation might only be needed for a part of this volume
 - **It entails a risk for system security**
 - Within the contractual limits, the BSP would have no incentive to take the risks into account in the capacity auctions
 - Unforeseen Gflex restrictions could lead to congestion issues if balancing requests are prevalent to Gflex signals
- Elia believes its proposal brings additional benefit to the balancing markets while ensuring system security by:
 - Putting all volumes which are not restricted by a Gflex constraint available to the balancing energy markets
 - Decrease risk of unavailability of dimensioned reserves and avoid congestion issues in case of conflicting signals
- Therefore, Elia will engage in discussion with the CREG and will put on hold the investigations on possible solutions to waive remuneration and/or *incentives* → planning will depend on those discussions, which means Q1 2025 can't be guaranteed anymore

4. Reporting & publications of flexibility activations



Introduction

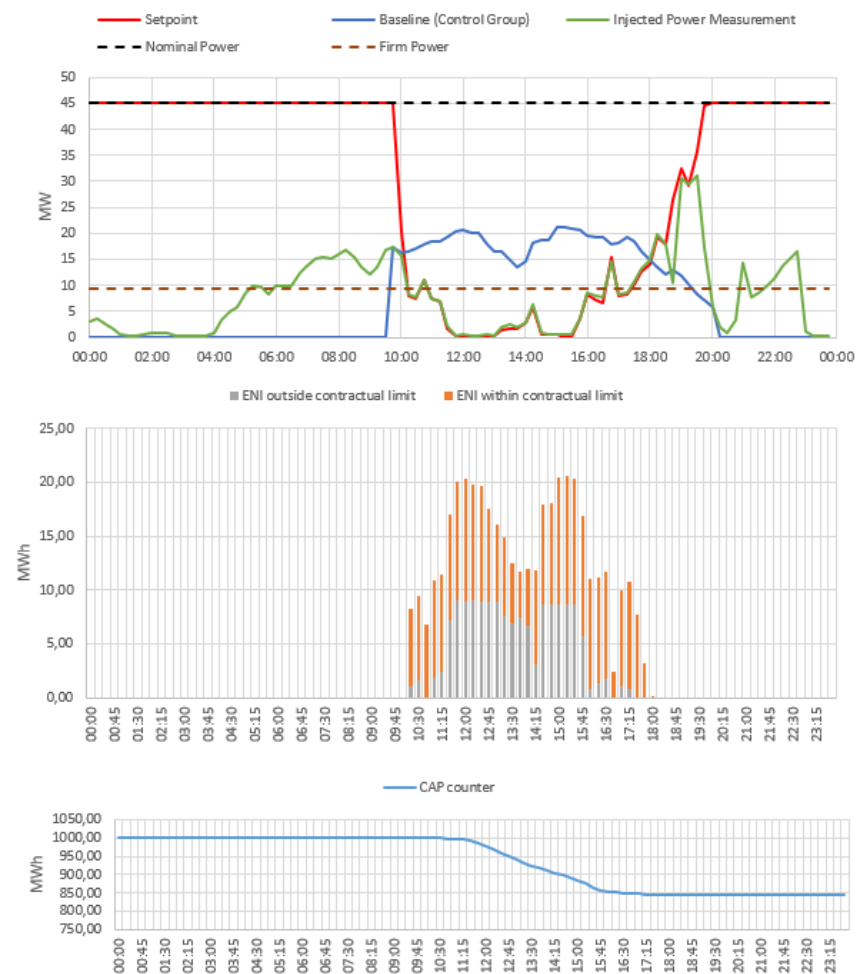
- The establishment of reports and publications on flexibility activations of Grid Users with a flexible access is one of the objectives of the incentive on flexibles access
- Elia has described a proposed content of those reports and publications in the design note
- During implementation, Elia identified improvements that simplify the content and allow a uniform application to all technologies, without losing information
- The reports and publications have been implemented and are ready to be sent / published by the end of the year
 - Given the limited amount of TSO-connected units with a flexible access, the reports will be sent to the concerned Grid Users and regulators but aggregation of data is currently insufficient to allow a publication which guarantees the necessary confidentiality
- Objective of the presentation:
 - Clarify the content of the reports
 - Present the results for distribution transformers



TSO-connected – Modulation Period and Baseline Definition

Baseline used in function of the technology

	Measurement of cap consumption	Volume determination
Wind and Solar	AAP or control group baseline Solar : Communal Level Wind : Regional Level	AAP or control group baseline Solar : Communal Level Wind : Regional Level
BESS	Flat profile baseline (Nominal Power)	Historical baseline (4 weeks)
Conventional production	Flat profile baseline (Nominal Power)	Last QH or High X of Y (similarly to the mFRR baseline)



Modulation period is defined when setpoints are below the baseline

Energy Not Injected is computed by doing the difference between the setpoint and the baseline

Baseline methods are recalled in the table above



TSO-connected – Fields included in the reporting

#	Name	Unit	Description	Computation Method
1	Start date & time	timestamp	Start date & time of the modulation period	<i>Modulation period starts when modulation setpoint is below the baseline</i>
2	End date & time	timestamp	End date & time of the modulation period	<i>Modulation period stops when modulation setpoint is above the baseline</i>
3	Substation		Substation where the unit with flexible access is connected	<i>Defined in the contractual information</i>
4	Type of the unit		Production Type (Wind, PV, BESS, conventional generation, ...)	<i>Defined in the contractual information</i>
5	Annual CAP	MWh	Annual CAP of the unit (Volume -> MWh)	<i>Defined based on the contractual information</i>
6	CAP COUNTER	MWh	Contractual volume CAP remaining before ENI compensation in the flexible power (Volume -> MWh)	<i>Decremental counter starting at Annual CAP each year</i> <i>Computed with method "Measurement of the CAP consumption ":</i> <ul style="list-style-type: none"> • <i>Wind and Solar -> AAP or Control Group Baseline</i> • <i>Electrical storage systems -> Flat Profile baseline</i> • <i>Conventional production -> Flat Profile baseline</i>
7	MINIMUM SETPOINT	MW	Minimum setpoint value during the global modulation period [in MW]. This allows to identify, in addition to the volumes listed below, how far the instantaneous setpoint went during the modulation period	
8	ENI WITHIN CONTRACTUAL LIMIT	MWh	Energy not injected that the GU remunerates to Elia in the Flexible Power: <ul style="list-style-type: none"> • Before CAP counter is equal to zero • In the temporary period 	<i>Computed with the method to determine the volume to compensate :</i> <ul style="list-style-type: none"> • <i>Wind and Solar -> AAP or Control Group Baseline</i> • <i>Electrical storage systems -> Historical baseline</i> • <i>Conventional production -> Last QH or High X of Y baseline (similarly to the mFRR baseline)</i>
9	ENI OUTSIDE CONTRACTUAL LIMIT	MWh	Volume that Elia remunerates to the GU : <ul style="list-style-type: none"> • ENI in the Firm power AND • ENI in the Flexible power if: <ul style="list-style-type: none"> ○ CAP counter is equal to zero (beyond the CAP) ○ Temporary period is reached 	<i>Computed with the method to determine the volume to compensate :</i> <ul style="list-style-type: none"> • <i>Wind and Solar -> AAP or Control Group Baseline</i> • <i>Electrical storage systems -> Historical baseline</i> • <i>Conventional production -> Last QH or High X of Y (similarly to the mFRR baseline)</i>
10	ENI TOTAL	MWh	Total Energy not injected during the modulation period. In the FLEX and the PERM band, within and outside the contractual limit	<i>Sum of ENI WITHIN CONTRACTUAL LIMIT (8) and ENI OUTSIDE CONTRACTUAL LIMIT (9)</i>

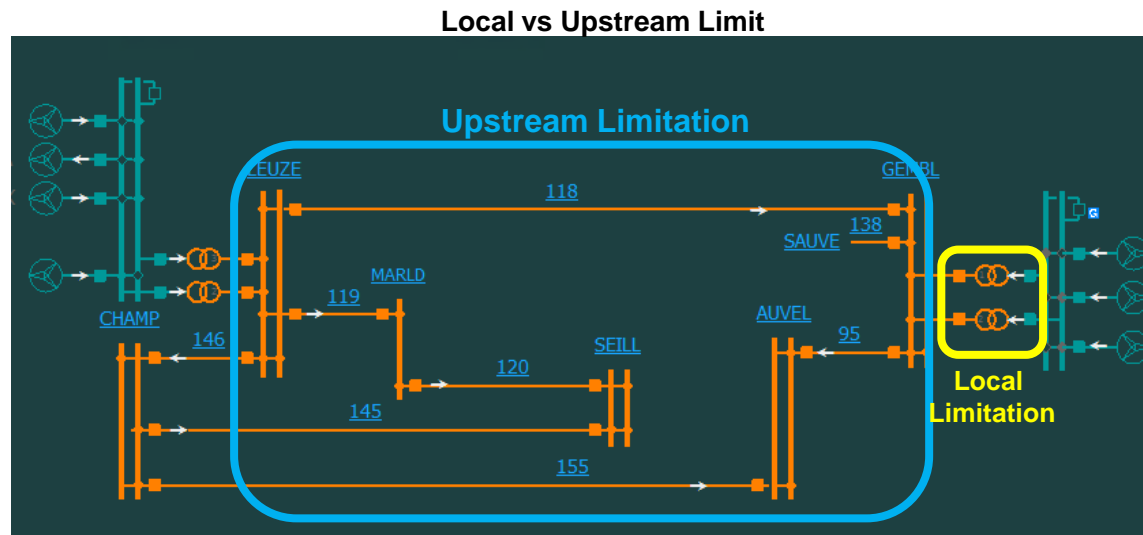


DSO-connected – Delta MWh – Methodology

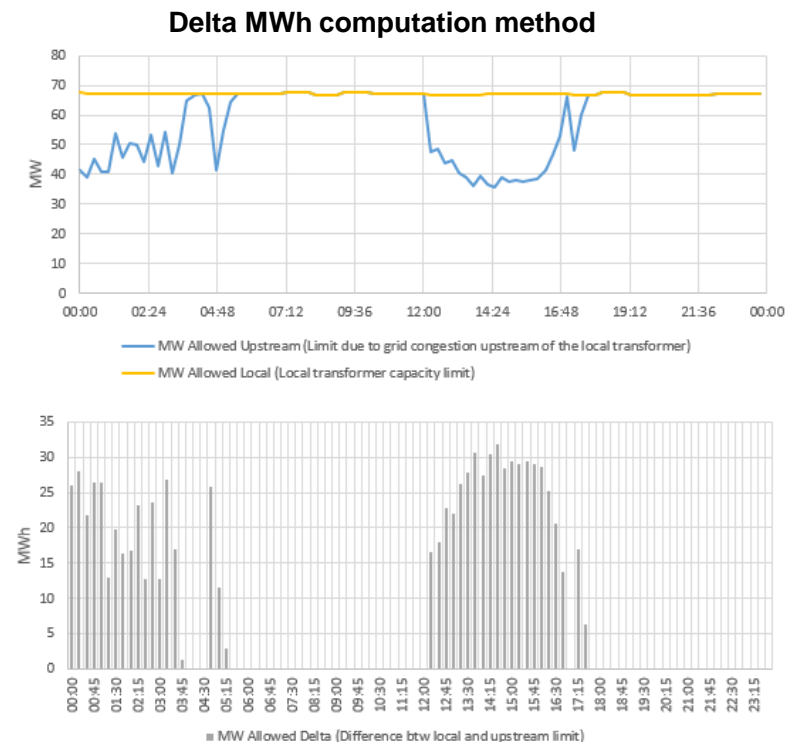
At DSO side, it is not possible for Elia to report for energy not injected for each production unit as

- Elia does not have direct production measurement of the DSO-connected production unit
- Elia sends the setpoint to the DSO, which activates the production unit (no direct link Elia ↔ production unit)

As a result and in accordance with the incentive, at the DSO-level, Elia will report the **Delta MWh** per substation. This value indicates how often the congestions upstream are more constraining than the limits of the transformer



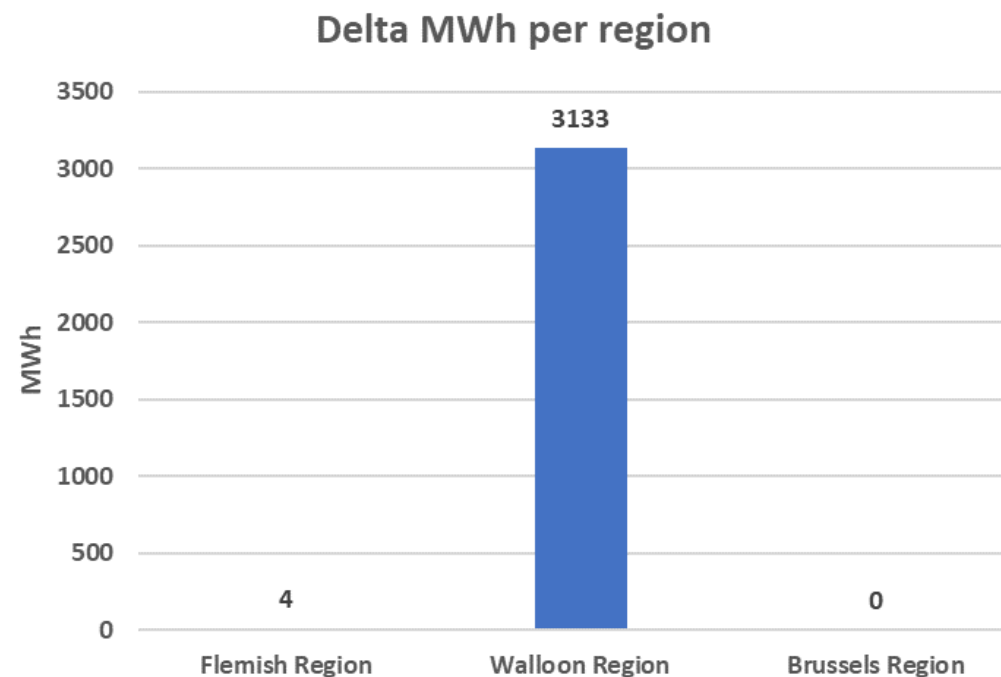
$$\text{Delta MWh} = \int \max(0, \text{Local Limitation} - \text{Upstream Limitation})$$



DSO-connected – Delta MWh – Result

DSO-substations where upstream modulation is active

Substation Name	P-code	Substation inside the congested zone
Croix-Chabot	CROIX	CROIX-ALLEU
Alleu	ALLEU	CROIX-ALLEU
Gembloux	GEMBL	GEMBL-LEUZE
Leuze (Namur)	LEUZE	GEMBL-LEUZE
Harmignies	HARMI	HARMI-CIPLY
Ciply	CIPLY	HARMI-CIPLY
Elouges	ELOUG	ELOUG-QUEVA
Quevaucamps	QUEVA	ELOUG-QUEVA
Ertveld	ERTVE	ERTVE-RIEME
Rieme	RIEME	ERTVE-RIEME



Distribution of the reports & Publication

Regulators

- Full monthly detailed report for DSO and TSO connected units : for all the modulation activation and all the production units

Concerned Grid Users

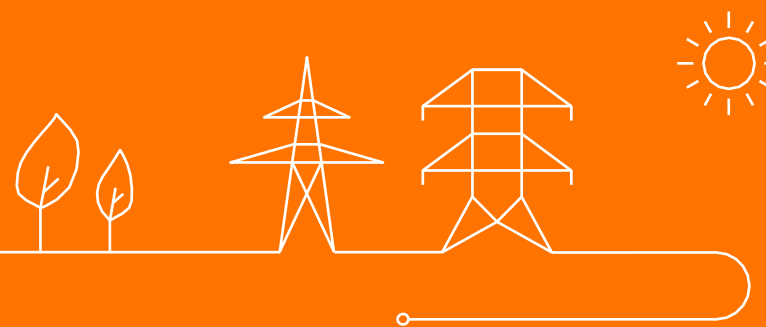
- For all the modulation activation of the production unit of the concerned GU

Elia Website

- TSO-connected: given the limited amount of TSO-connected units with a flexible access, the reports will be sent to the concerned Grid Users and regulators but aggregation of data is currently insufficient to allow a publication which guarantees the necessary confidentiality
- DSO-connected: Delta MWh per substation



5. Technical report for grid connections studies proposing a flexible access



Note on technical report : feedback from Market Parties (1/4)

Elia received **three feedbacks**. The goal is to **discuss the most relevant comments** (i.e focusing on the content of the technical reports) today

❑ *“The **CNEs** should be shared with the Grid Users”*

→ As explained in the note, **sharing the CNEs with the Grid Users would be problematic** given that:

- *The **Grid User would receive privileged information**. As an example, with such information at its disposal for 2 sequential connection study results of a similar connection request (e.g. an EOS and later an EDS, two sequential EOS, an EDS and a re-computation of flexibility volume, ...) the (candidate) Grid User could deduce at which location (relatively to the CNEC, of which type (demand, production or storage) and for how many MW, another connection capacity has been reserved or released in the meantime, which could give him a **strategic advantage**, possibly with respect to a competitor, and which would not be in line with the Belgian legislative context*
- *This could lead to **strategic bidding behavior** after the connection of the unit to the grid due to an increasing possibility for the (candidate) Grid User to anticipate the occurrence of a congestion. The (candidate) Grid User could adapt its bidding behavior in the (day-ahead/intraday) market i.e. selling more energy at a lower price (even lower than its marginal price) to make sure it is selected in the market as it anticipates this energy will anyway not be produced due to the expected downward activation to solve the expected congestion. This behavior leads to market distortion.*

❑ *“Additional information should be provided on as to **whether request falls within potential** underlying the federal grid development plan”*

→ **Transparency** with relation to **geographical distribution of load**, and the foreseen **potential** will be **part of the scope of the Taskforce scenarios**. As the preparations for the next Federal Development Plan will start in 2025, this will be clarified next year. The public consultation on the scenarios takes place in Q3 2025. The main bulk of the stakeholder interactions will take place in Q2.

- ❑ *“Elia should define **the infrastructure measures** that are likely to (fully/partly) **relieve the congestions** on the CNEs and why they can’t be realized before the end of the temporary period and if there are **no “quick wins”** that can be achieved within the framework of approved Federal Grid Development.*
- ➔ This question falls within the scope of “methodology for connection studies” and not within the scope of the report. An extract of this report is recalled here:
 - “- Connection variants to the electricity grid are being considered. Variants that are technically not feasible or not economically justified, in discussion with the customer, are not retained. The list of all variants considered whether or not they have been selected, shall be communicated to the applicant.
 - Realistic adaptations to the timing or phasing of planned infrastructure projects and/or changes in the way the network is operated will be proposed.”
- ➔ Elia does not propose network reinforcements as part of connection studies. This approach makes it possible to respect the timing of the EDS and ensure that Grid development is performed is an **holistic point** of view, **taking into account a wide range of drivers** (which includes client connection requests). It would be sub-optimal to propose investments on a case-by-case basis.
- ➔ It is part of the network development process to take into account all contracted needs (incl. EDS) and growth potential in order to define a future network that meets the new reference context. It should be noted that, with the possibility of recalculating flex volumes after EDS, the network user could also benefit, in his contract, from an update of the network infrastructure and therefore of the reinforcements needed to resolve congestion.

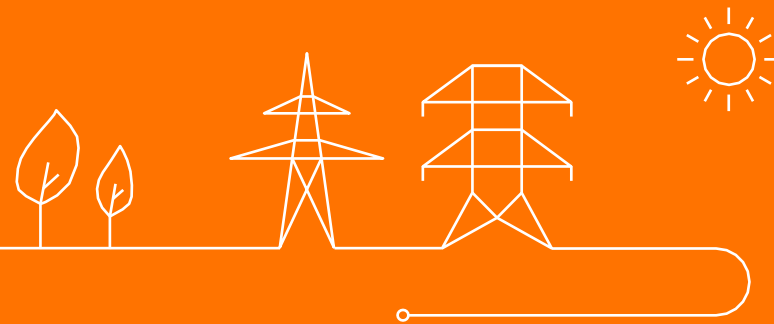
Note on technical report : feedback from Market Parties (3/4)

- ❑ “How does **congestion** from a **Day-Ahead** perspective align with **GUFlex** activation? Specifically, what exactly correlates **GUFlex** with offshore wind production?”
 - ❑ “Are we talking about **deviations from forecasts**, such as higher-than-expected production or lower-than-expected production?”
 - ❑ Do we model the congestion probability in line with **total wind production** (which correlates to Day-Ahead price level more or less), or to **deviations** from forecasted production (which correlates more closely to Imbalance prices)?
 - ❑ While exact congestion curves might be too much to ask, providing input data or **more detailed explanations of the market conditions** would enable us to develop scenarios and evaluate best- and worst-case impacts more effectively.
- | | |
|----------------------------------|---|
| Description of Market conditions | Congestion occurs and needed modulation in case of offshore wind production, and import from UK |
|----------------------------------|---|
- Based on an **average climate year** (with average temperature, average onshore/offshore wind production...), Elia runs a **Market simulation** to define the (most economic) **dispatch** of the different **type of units**.
 - The load flow calculations are then performed on Point-in-Times that reflects a **Day-Ahead price level** in case there are **no forecast errors** (no information regarding potential imbalance are available)
 - In above example, the **congestion** therefore relates to the **total wind production**, not to deviations from forecasts
 - As explained in the note, providing the market conditions to the Grid User would **accentuate the risk of strategic bidding behavior** and **market distortion**. Additionally, the fact that such information would be only available to a given Grid User would be a **discrimination concern**

Note on technical report : feedback from Market Parties (4/4)

- *In general, the grid user needs **as much information as possible** in order to be able to assess the grid and market situation when curtailments are to be expected in order to be able to **properly prepare their business cases**. For transparency reasons, it is also crucial for the **grid user to be able to verify the proposed annual volumes and duration of curtailments** (or situations with congestions) as well as the **permanent band**. In this perspective the grid users requires **more details on the considered scenarios, timeframes and grid topologies**, as well as the **grid load and market situations** under which congestions are expected”*
- *Based on the feedback received during the last workshops, Elia has provided the expected monotone of the time for usage the flexible power and has provided a description of the market conditions during which most of the flexibility activation is expected.*
- *Elia believes that the technical report will never be enough to satisfy the wish to verify everything, because there are confidentiality concerns, it would be extremely heavy from a data perspective, and it is unlikely that all grid users develop a capability to run grid simulations.*
- *Therefore as alternative Elia has proposed:*
 - *to be transparent on the grid methodology - publication planned before EoY*
 - *to be transparent on the scenarios - planned for next year in the TF scenarios*
 - *to have CREG checking the correct application of the methodology (systematically as proposed by Elia in the CoC, on request of the GU as proposed by CREG in its decision project)*

6. Planning for 2025



What we have done so far

- We provided increased **transparency** regarding the **methodology** for **client connection studies** and flexibility **activations**
- We proposed a design with a **balanced approach between risks for grid users and harmonious development of the grid** :
 - **right incentives** by letting the GU with flex access bear the costs up to the applicable caps in order to avoid unharmonious development of the grid
 - **firm guarantees** (cap in volume, duration and price) allowing GU with flexible access to take appropriate decisions for their business case
- Key limitation is the RT character of the flex access activations: more appropriate for **RES, production& storage** than **demand**
- Still design elements that need to be further finetuned



We foresee **2 main track** for evolutions in the **future**



Continue evolution of the ST target
Industrialized flex access for customers waiting for grid reinforcement

- ✓ *for all technologies*
- ✓ *For all regions*

This will include, amongst others:

- The **impact** on the **BSP** and **CRM** in case of flexibility activations
- The management of **mixed sites** (baselining, how to treat the signal amongst the different Delivery Points)
- The exploration of products activated before RT (preceded by POCs)...
- The **extension of design** in regional grids with (where necessary) a harmonization of all regulations
- ...



Launch LT Target: *optimal use of flexibility from Grid Users*

- ✓ *from grid planning* (trade off between flexibility & infrastructure)
- ✓ *to operations* (optimal merit order)
- ✓ *with a consistent set of products* (RT → <DA for flex & firm access)

- Allows to avoid over-building the grid, cutting the tail of the grid-investment need uncertainties thanks to flexibility
- Societal optimum in operations by using the cheapest flexibility
- ⚠ Requires an important paradigm shift with, several design challenges and a high implementation impact

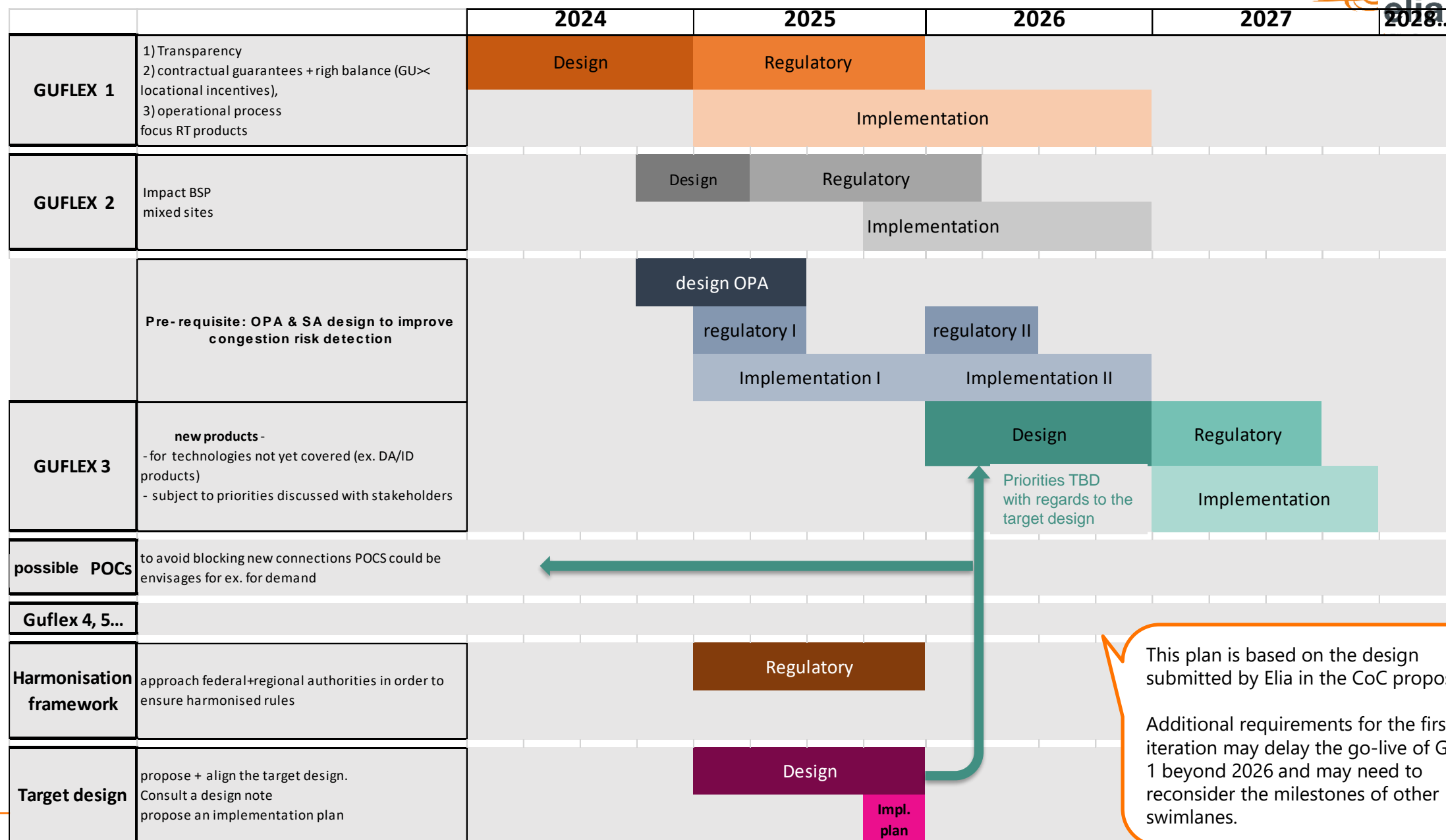
Recap workshop of 15/11 : Roadmap towards ST and LT vision



ST



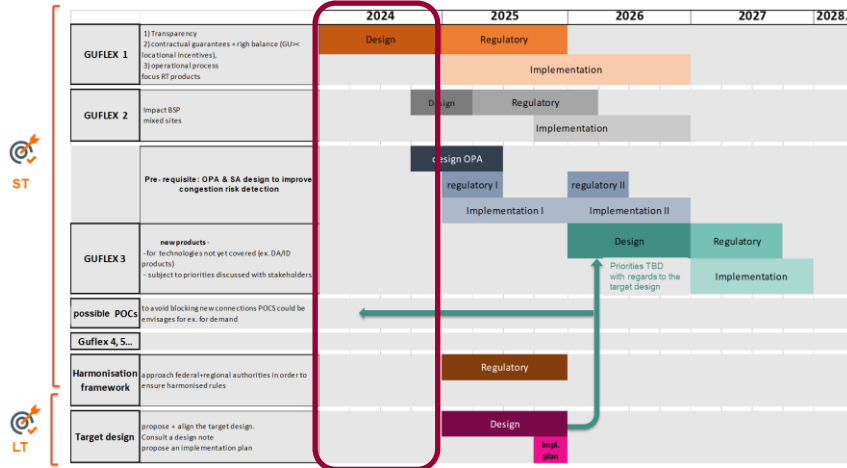
LT



This plan is based on the design submitted by Elia in the CoC proposal.

Additional requirements for the first next iteration may delay the go-live of GUFlex 1 beyond 2026 and may need to reconsider the milestones of other swimlanes.

What has been done in 2024



GUFlex 1

- Grid Study Methodology
 - ✓ Transparency and improvements on methodology
 - ✓ Template of study results
 - ✓ Grid Study Methodology will be published by end of 2024

- Improved EOS/EDS & capacity reservation process

- Definition of contractual guarantees for the GU
 - ✓ cap on volume, duration and imbalance price exposure
 - ✓ Definition of settlement principles (baseline...)

- Operational principles

- Reporting and Monitoring

⇒ **Design Note + Proposal for a CoC**

GUFlex 2

- First design elements on mixed sites
- First design elements on BSP

Harmonization

- Initiation of discussions with Regional Authorities

LT Target

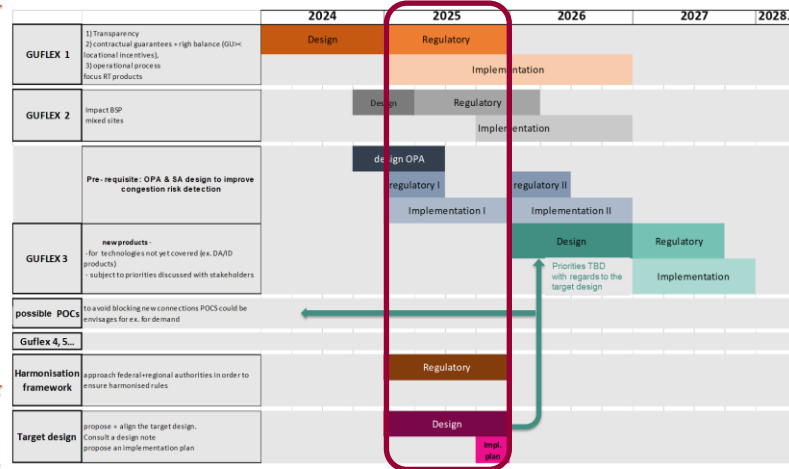
- HL Vision
- Identification of necessary prerequisites & analyses



Work ahead of us - part 1

ST

LT



GUFlex 1

- ❑ Impact analysis CoC & design adaptations
- ❑ Design fine-tunings & Public documents
 - ✓ Bank Deposit (in WG grid)
 - ✓ Baseline Note
 - ✓ Revision process related to grid study methodology
- ❑ **3 to 6 Regulated documents**
 - ✓ Connection Contract
 - ✓ Coordination Rules
 - ✓ T&C BRP
 - ✓ Other (e.g. T&C BSP)

GUFlex 2

- ❑ Design for mixed sites
- ❑ Mitigation principles BSP
- ❑ Mitigation principles CRM

GUFlex 3

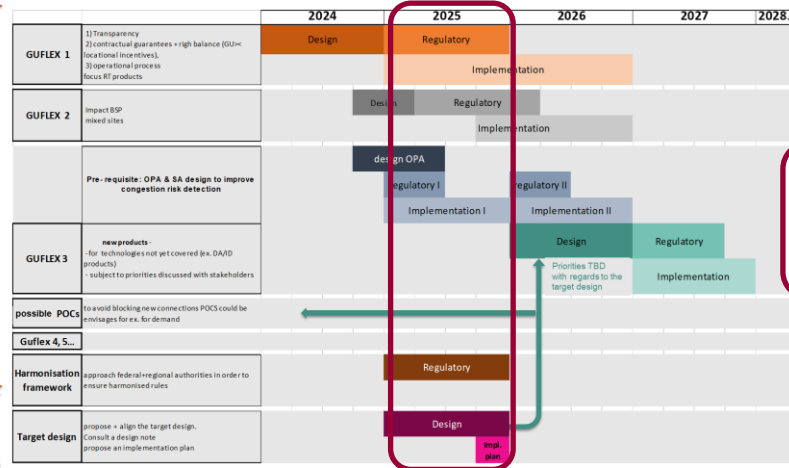
- ❑ Possible POCs (exact number of cases and complexity can vary)

Harmonization

- ❑ Transposition of EMDR in regional legislation
- ❑ Collaboration with DSOs and regional regulators



Work ahead of us - part 2



Optimal usage of flex in Grid planning

Optimal usage of flex in operations

Consistent set of products able to use all existing flexibility

LT Target

- ❑ Methodology flex vs grid reinforcements
 - ❑ Boundaries
 - ❑ Definition future scenarios

Market Design considerations:

- ❑ Reconsider remuneration modalities for a future where there is “INC-DEC gaming” paradox
- ❑ Costs reallocation methodology

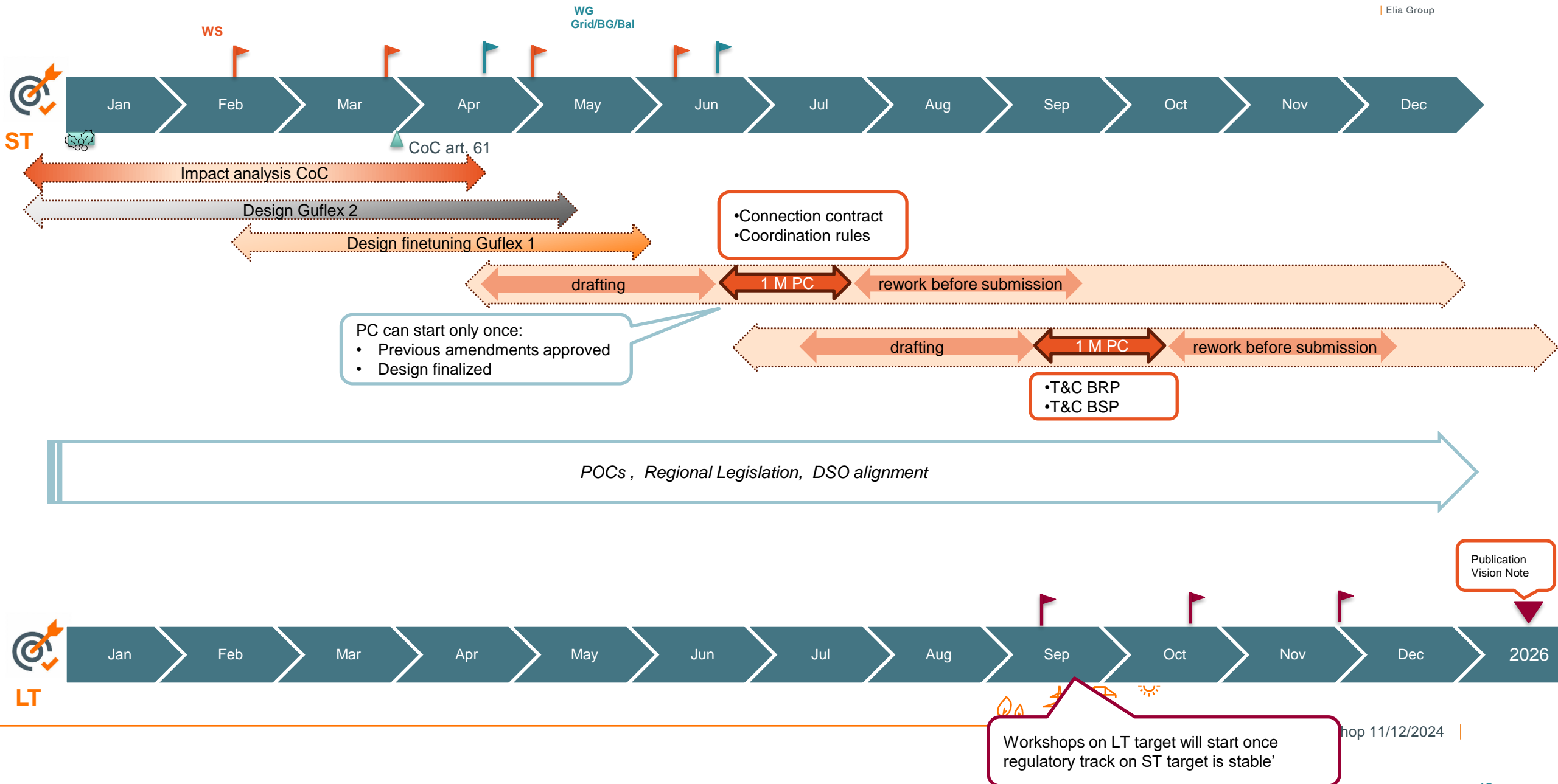
Operational prerequisites

- ❑ RAO & operational processes
- ❑ OPA SA data improvement (iCAROS)

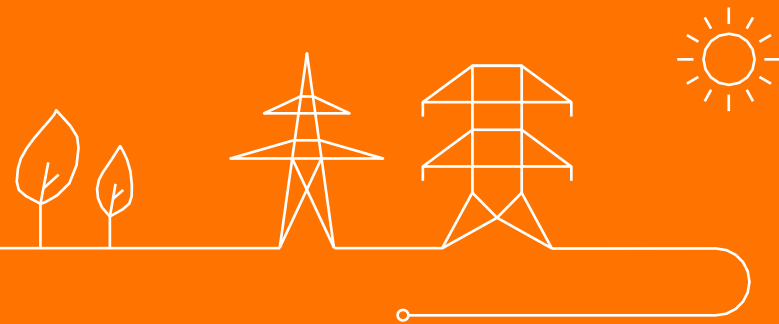
Product design

- ❑ Separate financial & technical modalities of flex. access
- ❑ Define new congestion products (link with iCAROS)
 - ❑ all timeframes
 - ❑ all technologies

Indicative Planning 2025



AOB



AoB

- Placeholder for first workshop of 2025 : 12/02/2024



Thank you.

