

# USERS' GROUP



## WG Grid



04/10/2024  
13:00 – 16:00



# 1st WG Grid – reminder about the scope

Chairmen: Walter Geelen & Benjamin Genêt  
Secretary: Guillaume Valentin

• European Market :

- Forward, Day-Ahead, Intraday
- Design and implementation of congestion management and market coupling solutions
- Evolution of the regulatory framework

*2024: IDCC and IDA go-live, forward market impact assessment, 70% derogation*

• System Services Design:

- Scheduling Agent (SA)
- Outage Planning Agent (OPA)
- Voltage Service Provider (VSP)
- Restoration Service Provider (RSP)
- Flexible connection agreement
- Grid Losses
- Emergency services

*2024: start iCaros phase 2, evolution VSP and RSP, incentive CREG GUFlex, LFDD, blackout-proof phone*

• Operations:

- NCC yearly report
- Winter/Summer outlook and review
- Discussion on exceptional market situations

*2024: regular follow-up of above topics, incompressibility*

NEW

TF PEZ

Chair: B. Genêt  
Secretary: B. Hahati

TF Icaros

Chair: B. Genêt  
Secretary: V. Illegems

Workshops GUFlex

Chair: B. Genêt  
Secretary: A. Weynants



# Agenda

	Domain	Agenda topic	From - Till	Presenter	Time (min)
1	General	Welcome & intro	13:00 - 13:05	<i>Chairs</i>	5
2	General	Approval of MoM & status action points	13:05 - 13:10	<i>Secretary</i>	5
3	EM	Next steps in the forward market	13:10 - 13:40	<i>Steve Van Campenhout, Bruno De Wachter</i>	30
4	EM	Information about the new Central Europe CCR, and next steps	13:40 - 14:00	<i>Cyriac de Villenfagne</i>	20
5	EM	Agenda next Market Coupling Consultative Group (MCCG) and Core Consultative Group (CCG)	14:00 - 14:10	<i>Thomas Van Den Broucke, Steve Van Campenhout</i>	10
6	SSD	iCaros: presentation activities of the TF iCaros until end of year	14:10 - 14:30	<i>Viviane Illegems</i>	20
7	SSD	GUFlex: status of the process in the workshop GUFlex and agenda until end of year	14:30 - 14:50	<i>Antoine Weynants, Philippe Magnant</i>	20
8	SSD	Offshore: conclusion of the work in the TF Princess Elisabeth Zone	14:50 - 14:55	<i>Bilal Hahati</i>	5
9	SSD	Black start and MVar: Status on procurement process	14:55 - 15:05	<i>Carsten Bakker</i>	10
10	SSD	Mvar: start of implementation for new evolutions	15:05 - 15:15	<i>Carsten Bakker</i>	10
11	O	Summer review with a focus on incompressibility	15:15 - 15:45	<i>Silvio Ferreira</i>	30
12	General	AOB & conclusions	15:45 - 15:50	<i>Chairs/Secretary</i>	5
Total					<b>2:50</b>



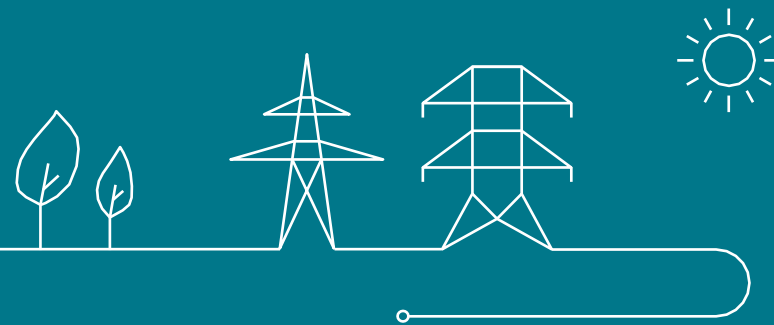
## Approval of Minutes & Action points

- Approval of the Minutes of WG EMD-SO 04/06/2024
- Status of Action points

/				
---	--	--	--	--



# European Market



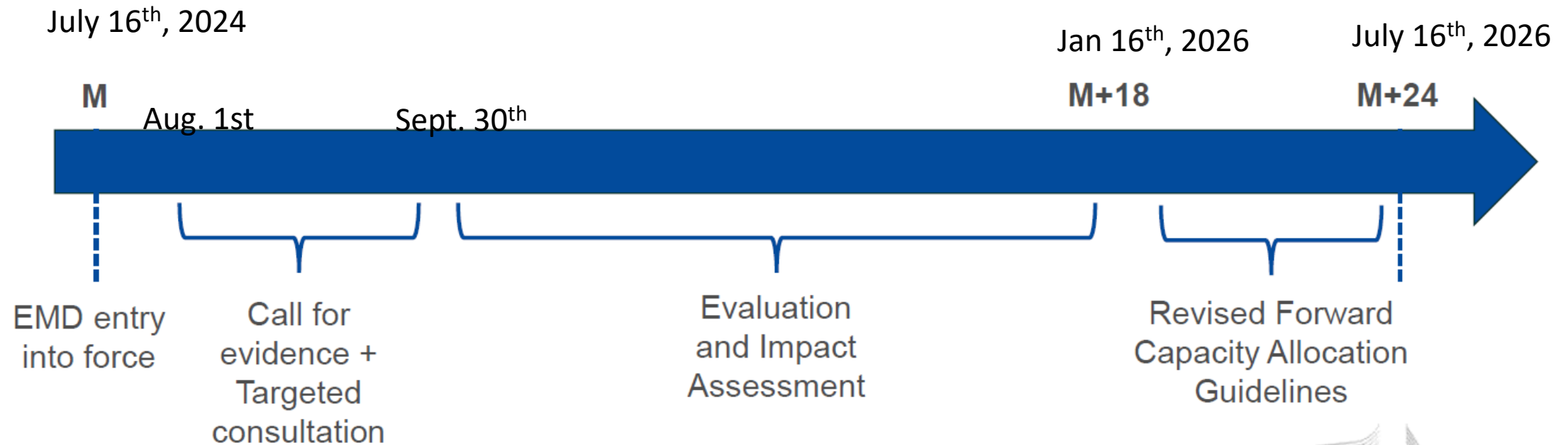
# Next steps in the forward market

European Market

Steve Van Campenhout, Bruno De Wachter



## Intro



The EC conducted a targeted consultation to capture stakeholders views on how to improve the current functioning of the electricity forward markets.

Elia Group provided an answer to the targeted consultation. The purpose today is to

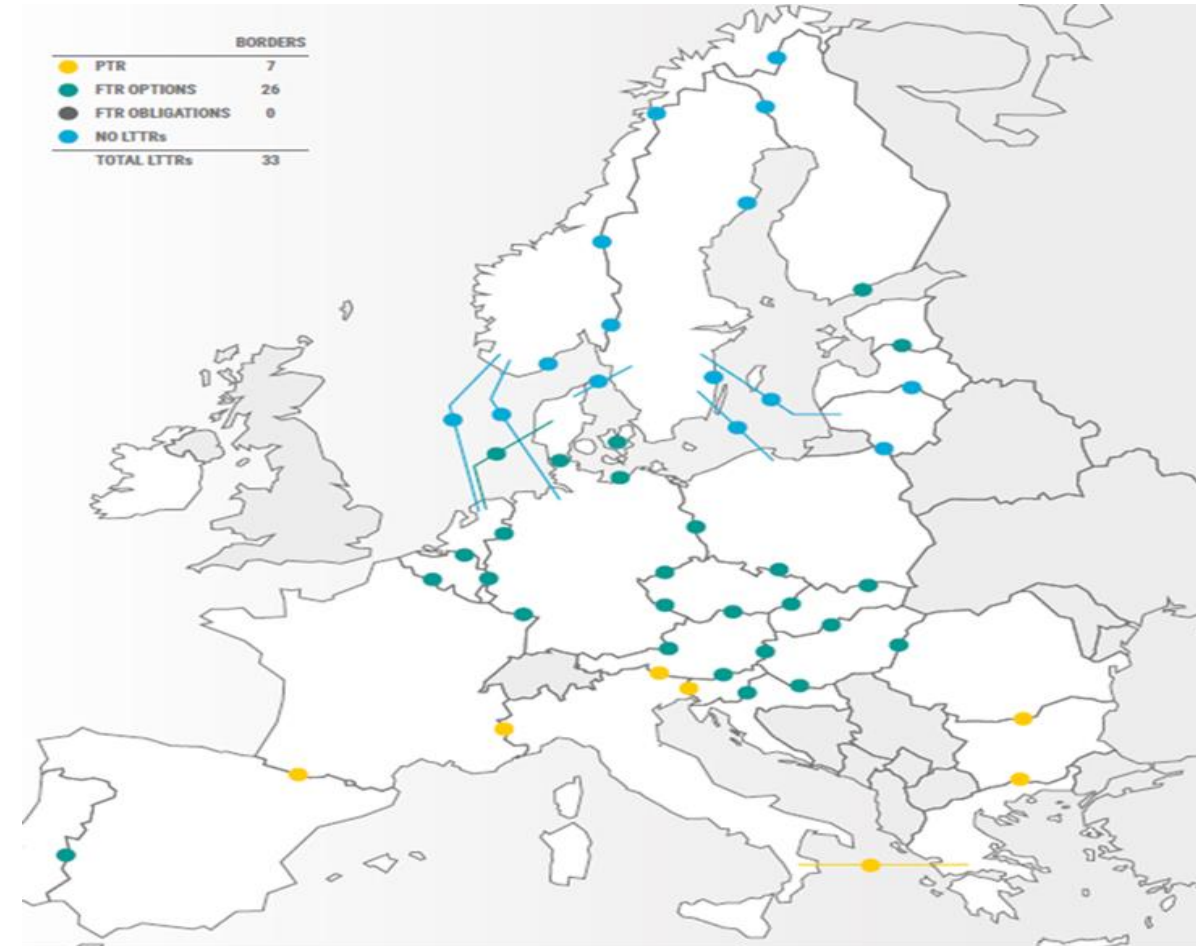
- Explain the Elia Group position on the future of forward markets
- Explain how this position relates to the ENTSO-E's position. Elia Group supports the overall conclusions laid down by ENTSO-E, yet on some features has a more pronounced position.

The goal of the presentation is to be transparent about Elia's position, as market facilitator. We are open to feedback. We do not ask this position to be endorsed.



## The Forward Markets & Long-Term Transmission Rights

- The forward market is a commodity market where market parties trade (financial) products among themselves without involvement of TSOs.
- However, the availability of hedging instruments for bidding zone price differences (basis risk) can play an important role in supporting the development of the Futures/Forward markets.
- **Border-by-border approach**
  - **TSOs can play a role as providers of hedging opportunities** across borders to the market parties by issuing Long-Term Transmission Rights (LTTRs) with characteristics that are in accordance with market parties' hedging needs
  - **On which borders LTTRs are to be issued:** illiquid domestic forward market + demand/need from market to have hedging on the border (depends on volatility of price delta between the two bidding zones)



Source: ENTSO-E Policy Paper EU's Electricity Forward Markets, December 2022

Elia Group position is in line with ENTSO-E's position



## LTTRs objective: providing efficient hedging <> organizing competition among borders

The objective of Long -Term Transmission Rights (LTTR) according to the Regulation is to offer efficient hedging opportunities to market participants.

**Flow-Based Allocation is not fulfilling this objective**, no matter if based on statistical or grid model-based approach. This is due to **low, or zero capacities allocated** to the borders with low price spreads, generated by the maximization of auction revenue and buyer's surplus. In addition, **higher collateral** needs are required for MPs, due to the simultaneous allocation of all borders.

### ➔ **Paradigm shift: from physically available capacities to the expected amount of LTTRs that will be allocated**

- Contrarily to the DA and ID markets **welfare from LTTRs** does not arise from maximizing quantity by organizing competition between borders, but from issuing adequate amount of LTTRs to **minimize market's risk exposure**

### ➔ **Removal of the process of Long -Term Allocation (LTA) Inclusion from the Day Ahead market**

- Historical practice in Core to maintain revenue adequacy
- Financial Transmission rights (FTR) are purely financial products and are not physical capacity to be "allocated". In that sense, there should be no link between financial markets and the operation of the short-term electricity markets
- Removing it will also decrease complexity of operational processes, benefitting the performance of the allocation

## Volume determination (long-term capacity calculation)

### 1. Take-aways from previous slide

- We need a border-by-border approach
- There is no reason to apply a scenario-based grid modeling approach - *anyhow not compatible with >1y maturity*

### 2. LTTR Volumes offered by TSO should depend on financial and market data such as the depth of the Futures price spread and the volatility of Futures/Forward markets and liquidity.

### 3. Upper limit is a design criterion to achieve revenue adequacy (i.e. day-ahead congestion income sufficient for LTTR payout)

- Volumes offered should **not surpass** the theoretical upper limit defined as **the natural hedge** or day-ahead congestion income that TSOs are holding via their assets (physical interconnectors)
- Maximum capacity should not be determined by the “expected available capacity” (as is the case today) but only by the “expected allocated capacity” in Day-Ahead. It is only this allocated capacity that generates an amount of Congestion Revenues to cover the payout of LTTRs

### 4. The exact volume of LTTRs at each auction should be determined by product type (options vs obligations) market fundamentals (forward market prices) and market participants willingness to pay. Technically this means using a price elastic supply curve at the auction.

Elia Group favors the model 2 developed by ENTSO-E

## Key features of the product

- **Market oriented = firm obligation**
  - Options reflect better TSO's positions in term of congestion income but do not fully match a market actor position to cover basis risk
  - Obligations allow to feed in liquidity into existing market products, and are a perfect hedge when combined with full firmness
- **Reflect existing traded products** at Power Exchanges (PXs)/Brokers, **being zonal Futures** in the Core Capacity Calculation Region (CCR Core) with **corresponding maturities**
  - Longer maturities first for 2 years ahead, then for 3 years ahead where appropriate.
- **Subject to financial and regulatory comfort – see next slide**

	Model 1	Model 2
<b>Description</b>	Improved auction design based on options	Improved auction design based on obligations (through existing commercial products)
<b>Volume determination</b>	Alternatives to flow-based such as statistical NTC and supply function to be assessed as well	Alternatives to flow-based such as statistical NTC and supply function to be assessed as well
<b>Increasing the frequency of LTTRs auctions</b>	Yes	Yes
<b>Increasing LTTRs' maturities to at least two years</b>	Yes	Yes
<b>Switching from options to obligations</b>	No	Yes
<b>Full financial firmness</b>	Optional	Yes
<b>Secondary markets</b>	Return in a subsequent auctions	Continuous market on exchanges (only primary auctions at JAO, no further involvement from TSOs)
<b>Collaterals imposed on TSOs</b>	No (under today's regulation)	No, if the position stays at JAO Yes, if the position is handed over
<b>LTA inclusion removal</b>	To be decided	To be decided
<b>Overall implementation effort</b>	Low	Medium

## Financial and regulatory comfort to cover for additional costs should be provided to TSOs

### Revenue adequacy

- The transition to a fully firm product including the removal of LTA inclusion impacts how revenue adequacy is achieved.
- No compelling need to guarantee revenue adequacy for each market time unit if regulatory certainty is granted i.e that periods of negative net CI can be recovered with periods of positive net CI
- The exact period should depend on the overall design of LTTRs (auction frequency, possibility to adapt the volume etc.). This needs to be assessed because too long periods could create unintended cash flow issues.

### Collateral requirements

- Depending on the clearing setup, secondary trading, and product chosen, collateral requirements might be imposed to TSOs

## Other aspects

### Auction frequency

- Trade-off: increase based on market participants' feedback. At the same time the volume issued at each auction should not be too low
- The frequency of auction should be thought off together with the splitting between maturities. For example, if a given maturity gets a smaller share of the overall capacity, it might make sense not to have such a high frequency for this specific maturity in order to avoid too small volumes per auction. A stepwise increase in frequencies should be considered to let the market adjust, evolve and see if participation is satisfying.

### **No disruptive and imposed regional virtual hub should be implemented, bringing a risk of liquidity split, and which added value is not demonstrated.**

- The advantage of the virtual hub might be observed if - and only if - a significant reconfiguration of existing bidding zones into many small Bidding Zones would happen AND in the absence of a natural physical hub, which is not a given at this moment.
- Therefore, the decision of introducing a virtual hub should not be taken ahead of this step.

## Summary of the way “forward”

- 1. Long-Term Transmission Rights (LTTRs) purpose is to offer efficient hedging opportunities to market participants.** They are financial products. There should be no link with the physical operation of the short-term electricity markets, implying the removal of the process of Long -Term Allocation (LTA) inclusion from the Day Ahead market
- 2. Flow-Based Allocation is not fit for that purpose.**
- 3. Volume determination of LTTRs needs to be rethought, to be based on financial and market data, without surpassing the natural hedge that TSOs are holding via their assets.**
- 4. Products offered should be firm, market oriented (obligations) and match existing traded products in terms of maturity.**
- 5. No disruptive and imposed regional virtual hub should be implemented** without demonstration of its added value.
- 6. A stepwise implementation approach should be considered** to reap benefits at an early stage of the transition and gain experience
- 7. Financial aspects (revenue adequacy, collaterals, and TSO cost recovery) can be tackled on a regulatory basis.**





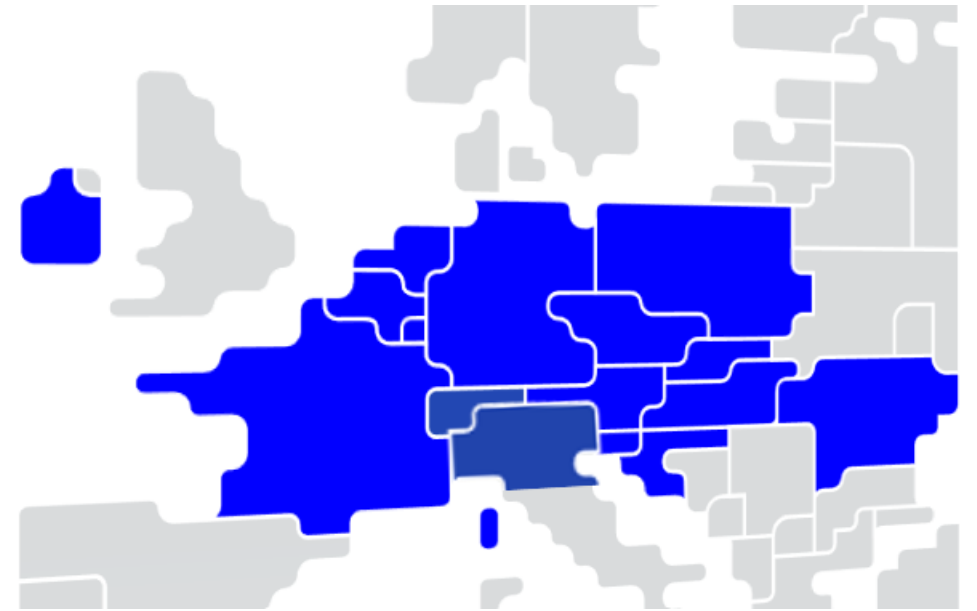
# Information about the new Central Europe CCR, and next steps

European Market

Cyriac de Villenfagne

## Central Europe (CE) CCR - Introduction

- Central Europe CCR was established following ACER's decision No 04/2024 on the amendment to the determination of capacity calculation regions (19/03/24)
- Currently: a partial merger only for the DA timeframe
  - Rationale: do not interfere with implementation of ongoing projects in Core (IDCC, ROSC, LTCC,...)
  - CE TSOs to deliver CE DA CCM to CE NRAs in Jan 2025
  - Public consultation ~Oct/Nov – *planning & scope will be communicated in Oct 11 Consultative Group*
- Target: full merger, Core and Italy North CCRs cease to exist
  - In 2025, CE TSOs in alignment with CE NRAs will develop a roadmap for a further step-wise merger
  - To be formalized with another amendment of the determination of CCRs



- Interfaces to manage for DA timeframe
- Solution for Swiss borders
  - Left-over capacities for IDA1



# Agenda next MCCG and CCG

European Market

Jean-Michel Reghem, Steve Van Campenhout



# Agenda CE + Core Consultative Group Oct 11, Brussels

#	Topic	WHO	TIMING
1	<b>Welcome and introduction</b> <ul style="list-style-type: none"> <li>Announcements</li> <li>Agenda for today</li> </ul>	R. OTTER / S. VAN CAMPENHOUT	09:00 – 09:15
<b>CCR Central</b>			
2	<b>CE CCR</b> <ul style="list-style-type: none"> <li>Impact of CE CCM (compared to Core) and next steps CE</li> </ul>	H.KÖHLER, L.WACHTER & F.CHIANESE	09:15 – 10:30
<b>CCR Core</b>			Break: 10:30 – 11:00
3	<b>Core CCR</b> <ul style="list-style-type: none"> <li>Overall program update</li> </ul>	STK managers	11:00 – 11:15
4	<b>Day-Ahead Capacity Calculation</b> <ul style="list-style-type: none"> <li>Update on 3<sup>rd</sup> amendment</li> <li>Default Flow-Based Parameters on BD 25/06/2024</li> <li>Input from MPs on individual validation</li> <li>Update on AHC implementation</li> <li>SPAICC update</li> </ul>	R.KAISNGER Z. GAUTIER P.BAUMANN	11:15 – 12:15
			Lunch: 12:15 – 13:15
5	<b>Long-Term Capacity Calculation</b> <ul style="list-style-type: none"> <li>LTCC implementation approach</li> </ul>	P. BRHLIKOVA	13:15 – 13:45
6	<b>Intraday Capacity Calculation</b> <ul style="list-style-type: none"> <li>Q&amp;A - follow-up CG 11/07</li> <li>Post-go-live results (incl. Pre-congested KPIs)</li> <li>Capacity improvement study update</li> <li>IDCC roadmap: IDCC(C)</li> </ul>	B.MALFLIET	13:45 – 14:30 Break: 14:30 – 15:00 15:00 – 15:45
#	<b>AOB &amp; closure</b> <ul style="list-style-type: none"> <li>Next Core CG meeting</li> <li>Update on Core CCR legal framework</li> </ul>	STK managers	15:45 – 16:00

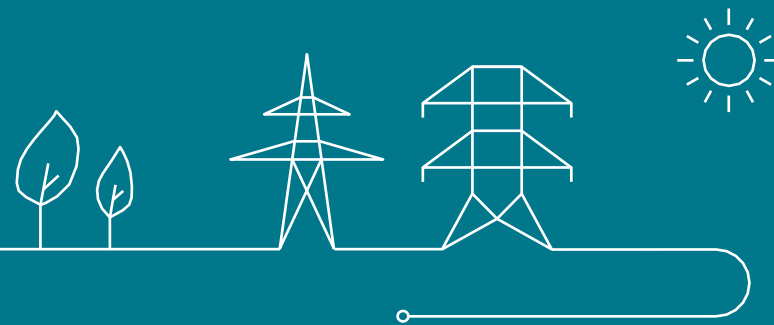
# Agenda MCCG

#	TIME	DURATION	SESSION	PRESENTER
1	09:00 – 09:10	10min	Welcome, review of the action points logged in the last meeting	Selim Boussetta, Thomas Van Den Broucke, Pierre Milon (MCCG Convenors)
2	09:10 – 10:20	1h 10min	<b>SDAC &amp; SIDC 15min Market Time Unit (MTU)</b>	
			- Update on the SDAC & SIDC 15minMTU implementation planning	Chris Kleinpenning & Lyubomir Grozdanov (SIDC 15ITP SPoCs) Adèle Roy & Benjamin Mossot (SDAC QARM Convenors)
			- SDAC rollback plan and corrective measures	Adèle Roy & Benjamin Mossot (SDAC QARM Convenors) Timo Suhonen & Marja Eronen (SDAC MSD Convenors)
			- Questions and feedback from MPs	Selim Boussetta (MCCG MPs Convenor)
3	10:20 – 10:50	30min	<b>SDAC decoupling events</b>	
			- MCSC reflection	Luiza Holban-Fediuc & Bálint Csuri (SDAC OPSCOM Chairs)
			- MPs feedback	Selim Boussetta (MCCG MPs Convenor)

	TIME	DURATION	SESSION	PRESENTER
4	11:00 – 11:30	30min	<b>SIDC Intraday Auctions (IDAs)</b>	
			- First months of IDA operations: MCSC	Dalila Garcia Notario & Martim Stilwell (SIDC OPSCOM Charis)
			- First months of IDA operations: MPs	Selim Boussetta (MCCG MPs Convenor)
5	11:30 – 11:40	10min	<b>Implementation of 30-minute IDGCT</b> (update from TSOs following the initial input provided on MCCG #6)	Thomas Van Den Broucke (MCCG Convenor)
6	11:40 – 11:55	15min	<b>Methodologies' updates and consultations</b>	Christoforos Zoumas & Chiara Vitelli (NEMO Tech TF Convenors)
			- SDAC Product methodology	
			- SIDC Product methodology	
			- Algorithm methodology	
			- HMMCP Methodology	
7	11:55 – 12:05	10min	<b>SDAC-SIDC Roadmap and key projects</b>	André Estermann, Cosimo Campidoglio, Ondřej Máca (MCSC Chairs)
8	12:05 – 12:15	10min	<b>Co-optimisation</b>	Timo Suhonen & Marja Eronen (SDAC MSD Convenors)
			- MCSC co-optimisation R&D & survey update	



# System Service Design





# iCAROS: presentation activities of the TF iCAROS until end of year

System Service Design

Viviane Illegems

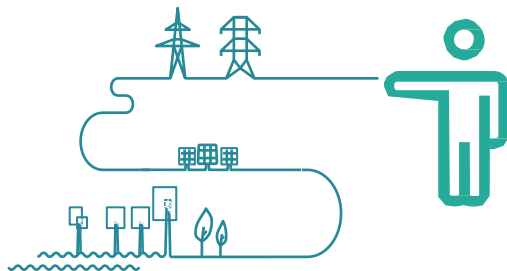


# iCAROS = Integrated Coordination of Assets for Redispatching and Operational Security

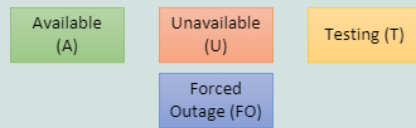
## Business Scope

Exchange of operational data [from LT to RT]

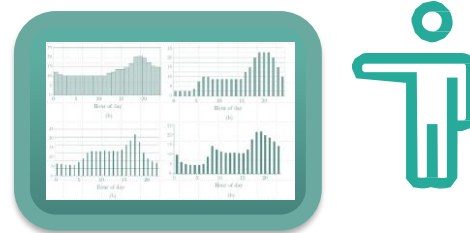
Outage Planning of grid users' assets



Provision of availability statuses and active power restrictions



Scheduling of grid users' assets



Provision of active power schedules

	00.00	00.15	.....	23.30	23.45
Schedule (MW)	-45,1	-42,2	.....	-45,1	-42,2

Congestion management – costly RD provided by grid users assets



Provision and activation of redispatching bids (active power upwards and downwards)

Delivery point(s)	DP1
ID	RD001
Direction	Upwards
Bid price	50 € / MWh
(max) Bid volume	100 MW



# iCAROS : what is it?

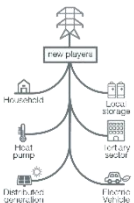
The Coordination and Congestion Management of system relevant assets of grid users, new way of working : the **iCAROS** project

Goal



Ensure an efficient and future proof coordination of system relevant assets and congestion management

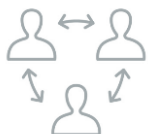
Why?



To expand the coordination of system relevant assets and congestion management to all system relevant asset types of grid users and to all relevant voltage levels



To be compliant with European legislation (SOGL, CEP, EBGL)

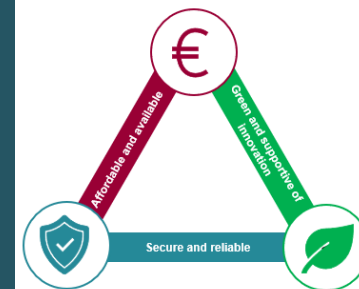


To split roles and responsibilities in the market

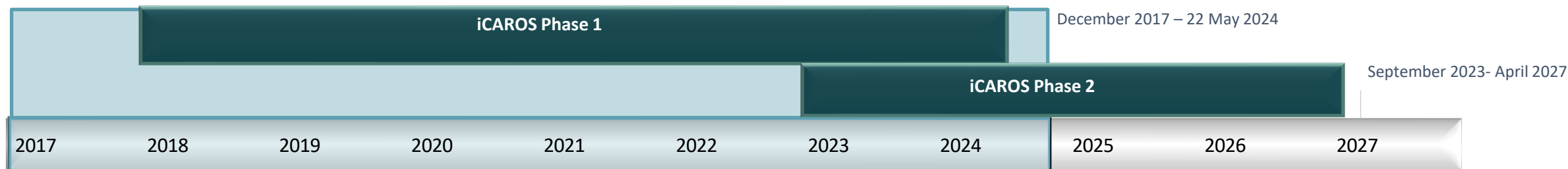
How?



The implementation of a new up scalable state of the art design & a new contractual framework in line with the digital transformation strategy



# iCAROS Phased Implementation : current focus phase 2



**Phase 1**  
**22 May 2024**

- large TSO production units ( $\geq 25$  MW) and inclusion of batteries

**Phase 2**  
**2025 -2027**  
**Multiple sprints**  
**TSO/DSOs co-creation**

- TSO production units ( $\geq 1$  MW)
- Voluntary for TSO load (except operational planning)
- Operational planning for production DSO units ( $\geq 1$  MW)

**Phase 3**  
**2027 -**  
**Multiple sprints**  
**TSO/DSOs co-creation**

- TSO & DSO production units ( $\geq 1$  MW)
- Voluntary for TSO load (except operational planning)



## Packages linked to extend coordination and congestion management to European regional design (ROSC) and Local & DSO grid (group A):

- Prerequisite 1 : Development of a local coordination and congestion management vision
- Package 1 : Extension of CRI to local (< 150 kV up to 36/30 kV) [and DSO grid]
- Package 2 : Local Remedial Action optimizer

## Packages linked to full design OPA (group B)

- Package 3 : Full design availability plan for  $\geq 25$  MW production units all timeframes and adding new features (status reservation & exchange of testing information)
- Prerequisite 2 :  $<25$  MW and  $\geq 1$  MW production units + demand facilities :  
Structural data and appointment of OPA/SA included in connection agreement & automatisisation of the linked data flows
- Package 4 : Enduring solution for the split of roles OPA and BRP
- Package 5 : Extension of Design availability plan for  $<25$  MW and  $\geq 1$  MW production units + demand facilities



## Packages Full design SA (including redispatching) (group C)

- Prerequisite 2 : <25 MW and  $\geq 1$  MW production units + demand facilities :  
Structural data and appointment of OPA/SA included in connection agreement & automatisisation of the linked data flows
- Prerequisite 3 : perform the necessary amendments to the nomination process and the BRP Contract to enable the Grid User (GU) to take up the role of SA
- Prerequisite 4 : Modification of legal framework national as well as local in order to allow the transfer of the schedule obligation for demand facilities connected to Elia Grid towards SA.
- Package 6 : Enduring solution for split of roles SA and BRP
- Package 7 : Extension of design scheduling & redispatching towards  $\geq 1$  MW and < 25 MW production units and for demand facilities connected to Elia grid

## Consideration for the sequence of the implementation of the different packages of iCAROS implementation phase 2

- The financial consequences for market parties: the implementation of the iCAROS design means getting market parties on board for a service for the benefit of society – ensuring operational safety of the grid - but triggering additional individual costs for those market parties providing this service. As such development for individual market parties will only be triggered if absolutely needed for the operational safety of the grid.
- The design extensions for the CRI (Group A -package 1) and OPA (Group B)
  - DSOs have indicated these designs as most important to them and an alignment is foreseen between the DSOs and Elia (in the framework of SYNERGRID)
  - These designs are the least complex
  - Limited financial impact for service providers
- Logical sequence of modifications in operational processes. The OPA design for small production units and demand facilities need to be in place in order to implement scheduling and RD bids. Scheduling and RD bids need to be in line with the information provided by the OPA (availability of assets).
- Extending the new data exchange relevant for OPA to all timeframes is viewed as beneficial for all impacted parties.
- Internal and external preference to avoid big bangs - Not too much in one go-live (after care after a go-live is needed to be included in the planning after each intermediate go-live)
- Limit the scope of regulatory reviews : by grouping amendments of T&C OPA on the one hand and amendments for T&C SA on the other hand

# Proposed release scenarios for packages of phase 2 assuming a sequential development based on public consultation summer 2023 in the framework of iCAROS phase 1

- STEP 1
  - **GROUP A1 (Extension of CRI to local (< 150 kV up to 36/30 kV) and DSO grid )+ Group B (Full design OPA)**
  - RELEASE 1 : Package 3 : Full design availability plan for  $\geq 25$  MW production units all timeframes and adding new features - Minimum Viable Product [target go-live end Q2 2025]
  - RELEASE 2 : Package 1 : Extension of CRI to local (< 150 kV up to 36/30 kV) [and DSO grid] [target go-live end Q4 2025]
  - RELEASE 3 : Package 3 : Full design availability plan for  $\geq 25$  MW production units all timeframes and adding new features (including status reservation, exchange of testing information, ...) + Package 4 : Enduring solution for the split of roles OPA and BRP + Package 5 : Extension of Design availability plan for  $<25$  MW and  $\geq 1$  MW production units + demand facilities [target go-live end S1 2026]
- STEP 2
  - **GROUP A2 (Local Remedial Action optimizer) + Group C (Full design SA (including redispatching))**

# Coming stakeholder management interactions in the framework of step 1 of iCAROS phase 2



- Next interactions
  - **21/10/24 9:30-14:00 : taskforce iCAROS** – Launch of iCAROS phase 2 design discussions – Availability Planning extension for large units [release 1] and introduction for small units /Demand facilities [release 3]
  - **11/12/24 9:00-12:00 : taskforce iCAROS** – Focus on intermediate learnings coming from go live iCAROS phase 1
  - **Janvier 2025 launch of public consultation** regarding T&C OPA for Availability Planning extension for large units [release 1]
  - **Q1 2025 Launch of informal consultation** design for small units /Demand facilities [release 3]
  - **Q1 2025: taskforce iCAROS** – presentation design extension of CRI to local (< 150 kV up to 36/30 kV) - no development needed from market parties



# Contact persons



## **KAM Energy**

Josephine Delmote/ François Jadoul/ Nicolas Koelman/ Sybille Mettens





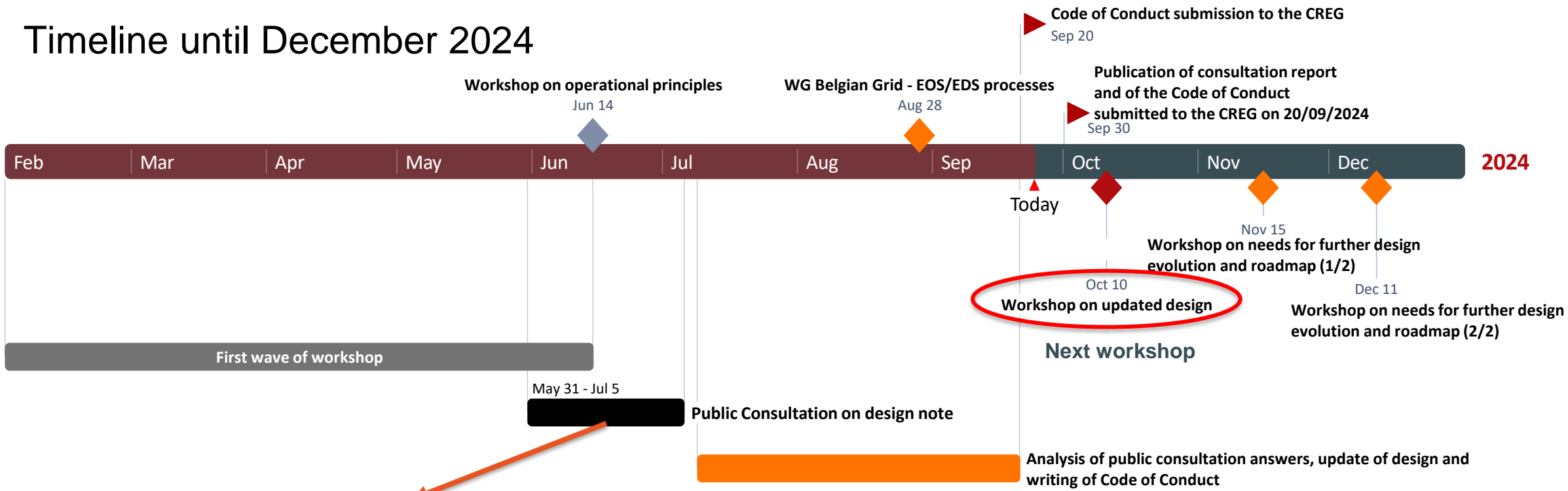
# GUFlex: status of the process in the workshop and agenda

System Service Design

Antoine Weynants, Philippe Magnant



# Timeline until December 2024



**11 received answers leading to ≈ 220 comments**

9 Non-confidential answers

2 Confidential answers

- ☐ Febeliec
- ☐ ODE/Edora
- ☐ COGEN Vlaanderen
- ☐ Yuso
- ☐ FEBEG
- ☐ BOP
- ☐ BSTOR
- ☐ Parkwind
- ☐ Continuum Industries\*

Focus of Q3 was to analyze stakeholder's comments and design alternative proposals when necessary / justified and to reflect the final design proposal in the Code of Conduct

\*Advertising – no answer included in the public consultation report



# Content of next workshop (10/10/2024) – NH Grand Sablon

→ During this workshop, we will **focus on the most commented and impacting topics**

## Agenda 10/10/2024

- ❖ Methodology for client connection studies
  - ❖ Operational processes and flexibility activations
  - ❖ Temporary period
  - ❖ Annual / multi-annual Cap
  - ❖ Impact on the BRP – 2 design proposals will be discussed
  - ❖ Impact on the BSP
  - ❖ Implementation plan principles and transitory measures
- With the **proposed updates**, Elia considers that the **most important concerns** in the scope of the design note are **addressed** while keeping the spirit of a **balanced proposal** towards all stakeholders
- **Slides** will be **shared in advance** so that stakeholders can prepare the workshop
- Your **feedback** related to the **2 design proposals** on the **BRP impact** is expected **during the workshop** to **feed** ongoing **discussion with the CREG** related to the Code of Conduct

## Content for 15/11 and 11/12 workshop

- ❖ Focus on stakeholders remaining design questions (e.g. mixed sites, impact on BSP) and needs for further design evolutions (e.g. specific products for demand, evolution of EU legislations)
- ❖ Definition of a roadmap



# Offshore: conclusion of the work in the TF Princess Elisabeth Zone

System Service Design

Bilal Hahati





## Elia communication process

2022-2024 ● **Step 1 - Task Forces TF PEZ and ad-hoc workshops**

**Elia organized couples of Task Force Princess Elisabeth Zone and ad-hoc workshop** to present, inform and engage stakeholders with call of feedbacks in the preparation of the tender for Princess Elisabeth Zone

Nov. 2023 – Jan 2024 ● **Step 2 – Public consultation Task Force PEZ**

**Public consultation of 2 months** was organized to collect feedback from stakeholders on all aspects presented in Task Force PEZ and ad-hoc workshops

16<sup>th</sup> of May ● **Step 3 – Last Task Force PEZ**

**Elia answers on public consultation TF PEZ:** presentation of key reactions received and answers & adaptations

Beg. July ● **Step 4 – Publication final outcomes report TF PEZ**

**Publication on Elia website of updated public consultation report** with non-confidential questions in appendix and reference to section adapted



▶ End Sep. ● **Step 5 – Submission final technical requirements**

**Submission of technical requirement to authorities** including adaptation communicated in TF PEZ following public consultation and publication on Elia website

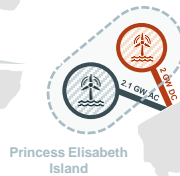


# TF Princess Elisabeth Zone

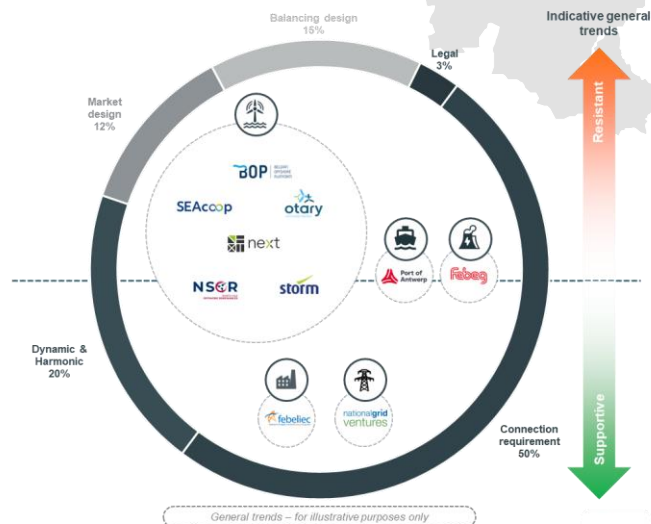
**AC** +0.7 GW offshore wind AC connected by 2029 – phase 1

**AC** +1.4 GW offshore wind AC connected by 2030 – phase 2

**DC** +1.4 GW offshore wind DC connected by 2029-2030 – phase 3



## Overview of reactions received



8

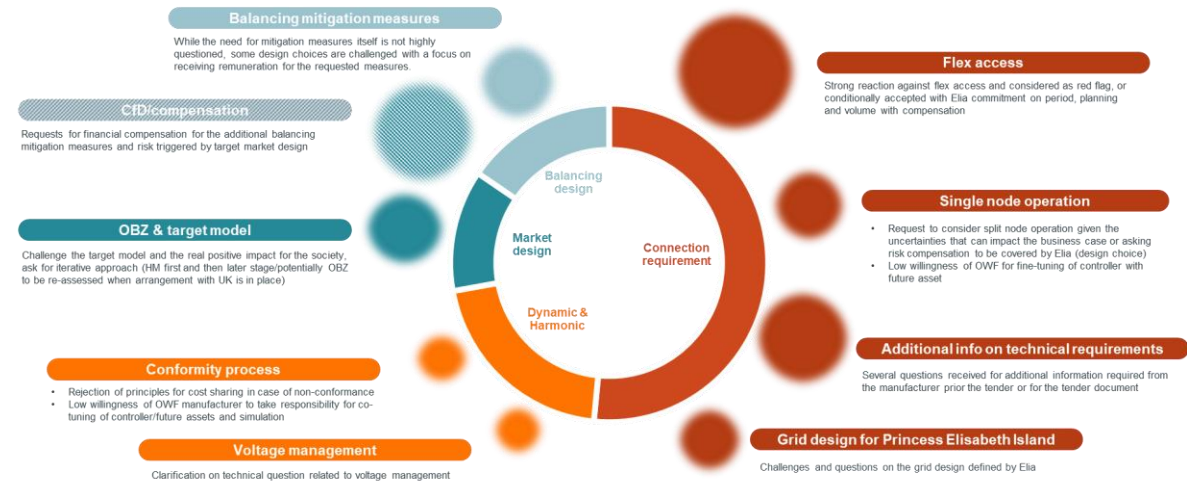


## Status

- Tender for first offshore wind 700 MW is foreseen to start in Dec 2024 and managed by the Belgian authorities
- Elia organized a public consultation on technical requirements that will be send and on market and balancing design foreseen for the Princess Elisabeth Zone
- 15 reactions were received from the public consultation on PEZ with ~380 questions/remarks
- Main attention points:
  - Flex access (flexible access provided to first 700MW until boucle du Hainaut): compensation requested
  - Compensation requested related to market & balancing design aspects
  - Single node: R&R and compensation requested on risk/uncertainties related to the single node and engineering to be mobilized (red flag)



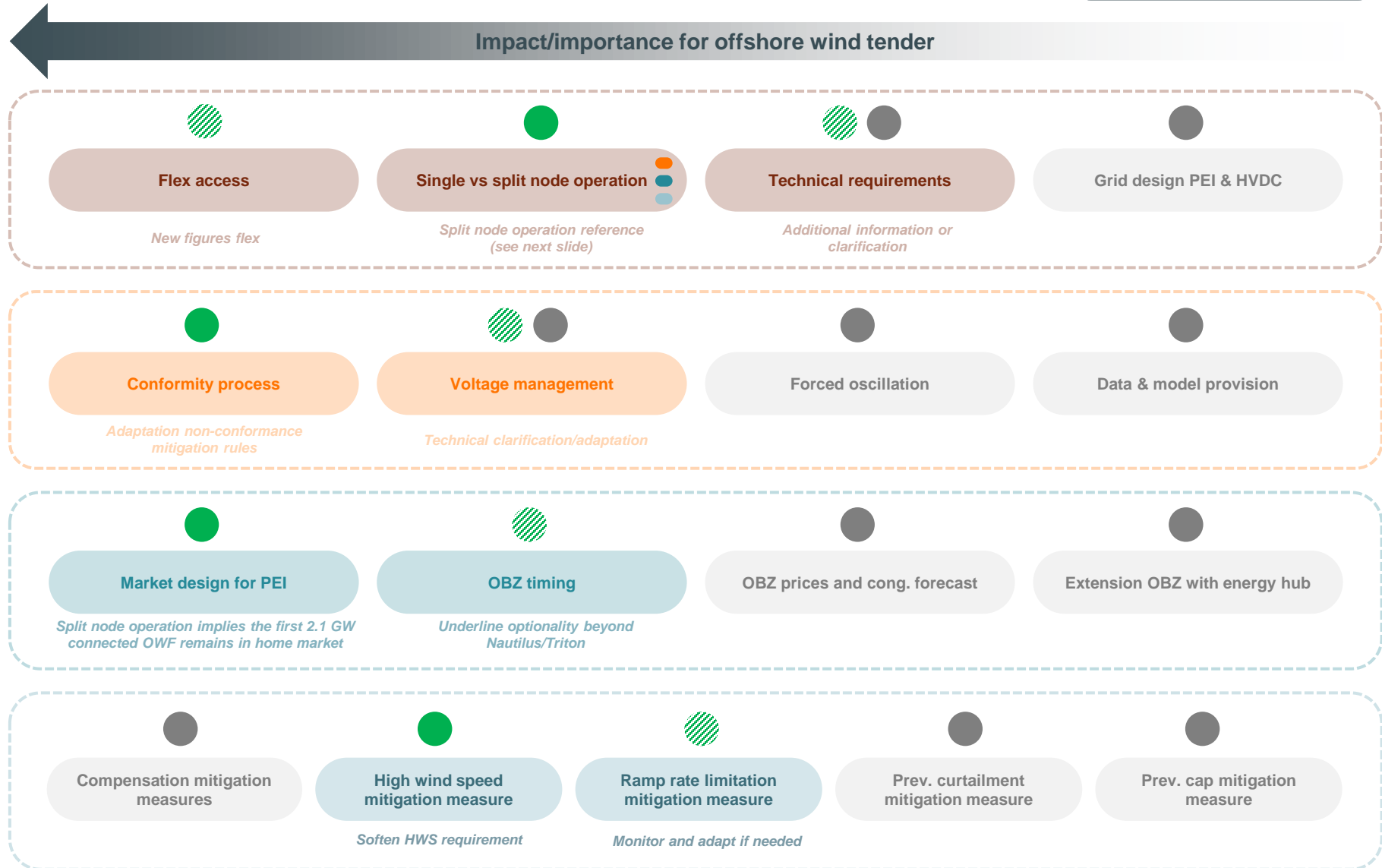
## Overview of attention points





# Overview of adaptations on key reactions received following public consultation Task Force Princess Elisabeth Zone

- Adaptation
- ▨ Clarification/additional info
- No change/additional justification



# Black-Start Service

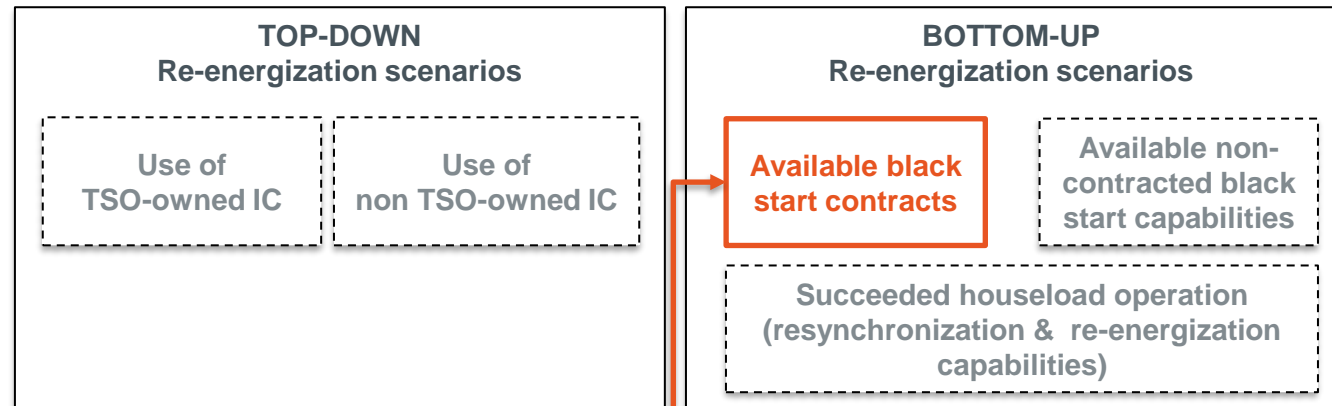
System Service Design

Carsten Bakker



## Purpose of the service

- Belgium's economy must be able to rely on **swift restoration of the power supply** from the grid when a **blackout** occurs.
- As a Transmission System Operator (TSO), Elia has set up a **Restoration Plan**, which it will execute at the time needed in coordination with crisis teams, neighbouring TSOs, Belgian DSOs (distribution system operators) and relevant grid users.
- Depending on the situation, Elia restores the system :
  - Using energy supplied by neighbouring TSO's (top-down approach)
  - If this is not available, by relying **on services supplied by market parties within the Belgian system** (bottom-up approach).



- ELIA procures a minimum amount of services for bottom-up re-energization using **black start capabilities**
- Elia procures Black-start service from the **Restoration Service Providers (RSP)**



## Who can participate to the service?

- ✓ The Grid User of technical units connected to the Elia grid or CDSO grid
- ✓ An aggregation of technical units is possible if they are connected to the same connection point

## Who can become a Restoration Service Provider?

- ✓ The Grid User himself
- ✓ A third party designated by the Grid User

## How to participate?

- ✓ Participation to black-start service starts with submitting an offer in the **multi-yearly tender** organized for the procurement of the service
- ✓ Relevant documents are published on the [Elia website](#)
- ✓ Submitted offers are subject to a **reasonability analysis of the price** by the regulator
- ✓ Selection of black-start units per restoration zone is made according to the bidding instructions available on the [Elia website](#)



## Objectives of the new design

- ✓ Extending the participation possibilities to the Black-start service
- ✓ Opening the participation to the service to more potential candidates
- ✓ Future proof solution considering the evolution of the market

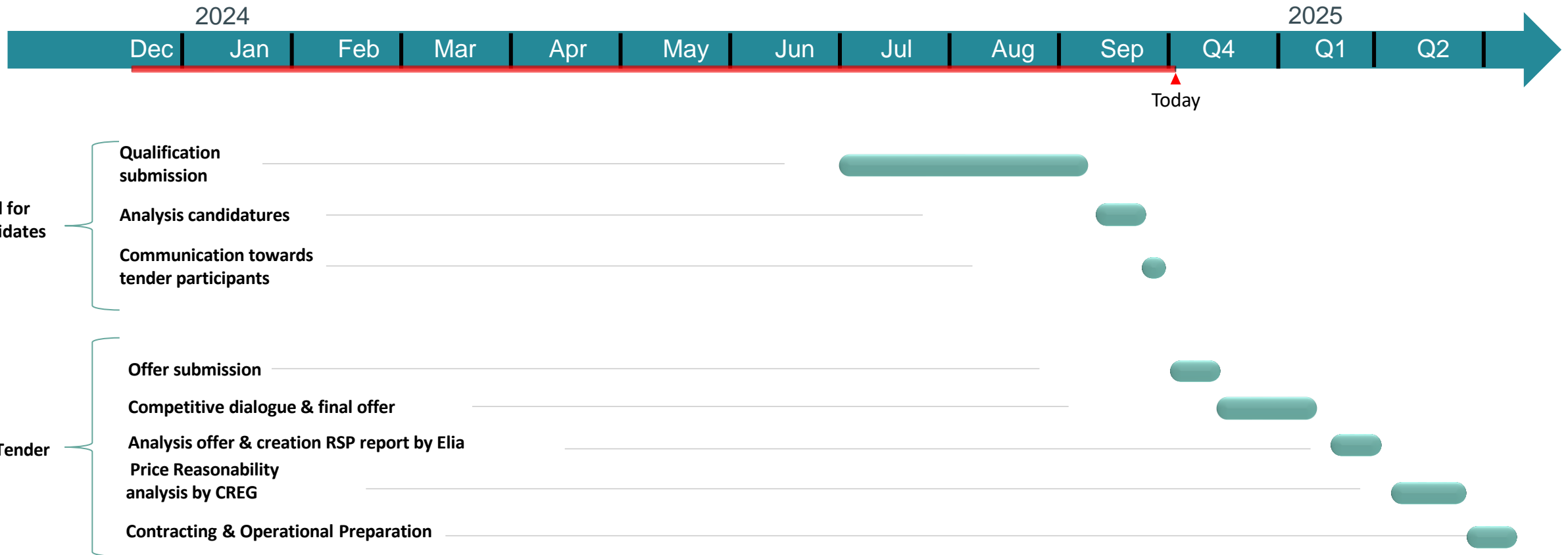
## Main changes introduced in the new version of the T&C RSP

1. **Extending the participation** to the Black-start service to more units (e.g. combination of small CHP with large thermal unit) via extended **aggregation possibilities**
2. Proposing a **new public procurement process (competitive dialogue)** for the Black-start service that will allow innovative solutions to be proposed by RSPs to deliver the service
3. Changing the **settlement** of the Black-start service via the introduction of a **capital cost component** for the remuneration of the service
  - Including relevant modalities related to the availability check and the settlement of Black-start tests
4. Updating the **procurement procedures** and **awarding criteria**
5. Updating the **structure of the contract** in line with the other contracts related to ancillary services



# Tender timing

## Indicative timeline





# Mvar: start of implementation for new evolutions

System Service Design

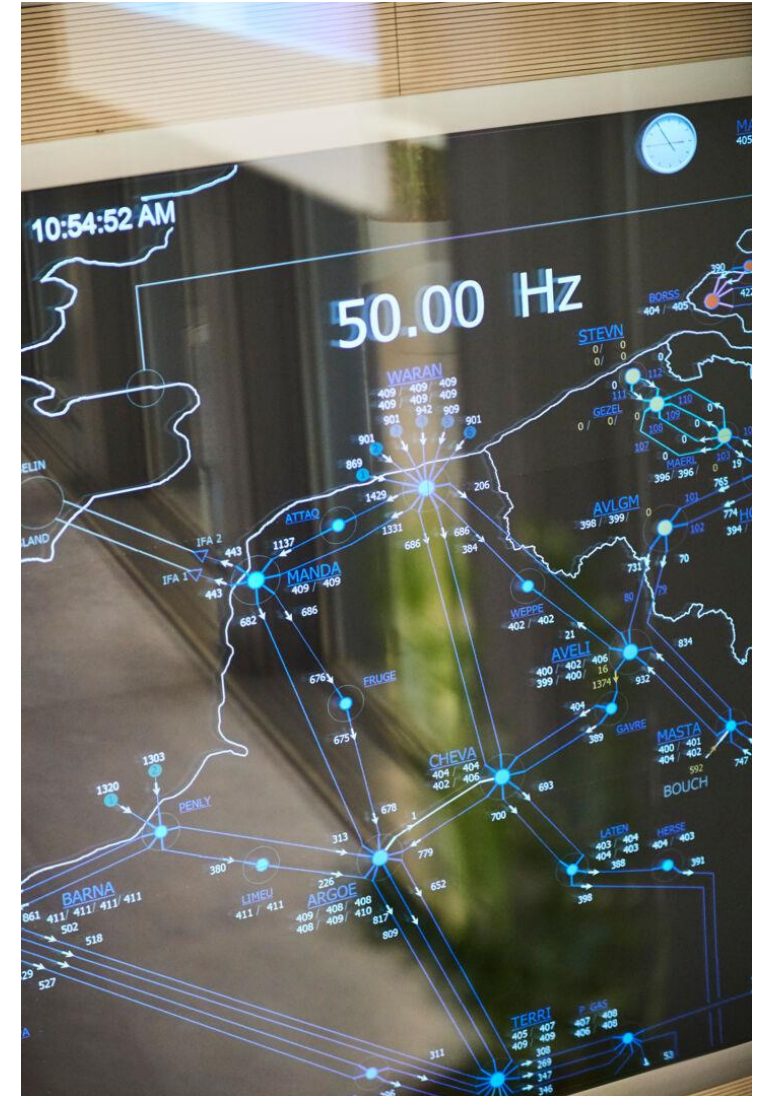
Carsten Bakker





# Purpose of the service

- Elia is responsible to **stabilize the voltage** in the event of an incident and **maintain it within limits** ensuring grid security
- To maintain grid voltages at a suitable and stable level, Elia relies on **reactive power supplied by grid-connected units** via the service provided by the **Voltage Service Providers (VSP)**



Allowed steady state voltages [in kV and in % of the target normal operating voltages]									
Voltage level (reference voltage in EU NCs) Unc			400	220	150	110	70	36	30
Maximum normal Limits	All conditions (N, N-1)	107.5% of U <sub>expl</sub> <sup>2</sup> (105% for 400kV)	420	242	167	118	75.3	38.7	32.3
		Target normal operating voltages (U <sub>expl</sub> )	400	225	155	110	70	36	30
Minimum normal Limits	All conditions (N, N-1)	92.5% <sup>3</sup> of U <sub>expl</sub>	370	208	143	102	64.8	33.3	27.8



# Participation to the service

## Who is obliged to participate to the service?

- ✓ The Grid User of technical units connected to the Elia grid as defined in the applicable legislation
- ✓ Following technical requirements defined in the applicable legislation
- ✓ If at least 1 MVA<sub>r</sub> can be provided

## Who can become a Voltage Service Provider?

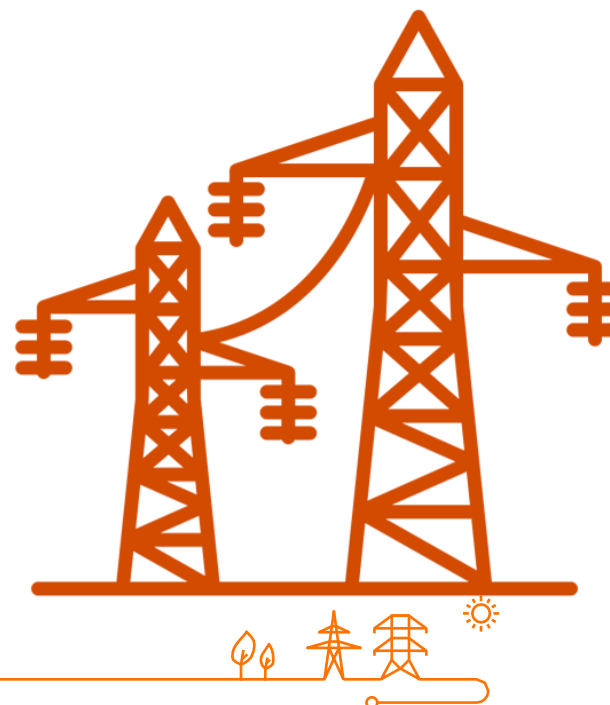
- ✓ The Grid User of a technical unit himself
- ✓ A third party\* designated by the Grid User

## How to participate?

- ✓ Participation to voltage services starts with submitting an offer in the **tender** organized for the procurement of the service
- ✓ Relevant documents are published on the [Elia website](#)
- ✓ Submitted offers are subject to a **reasonability analysis of the price** by the regulator

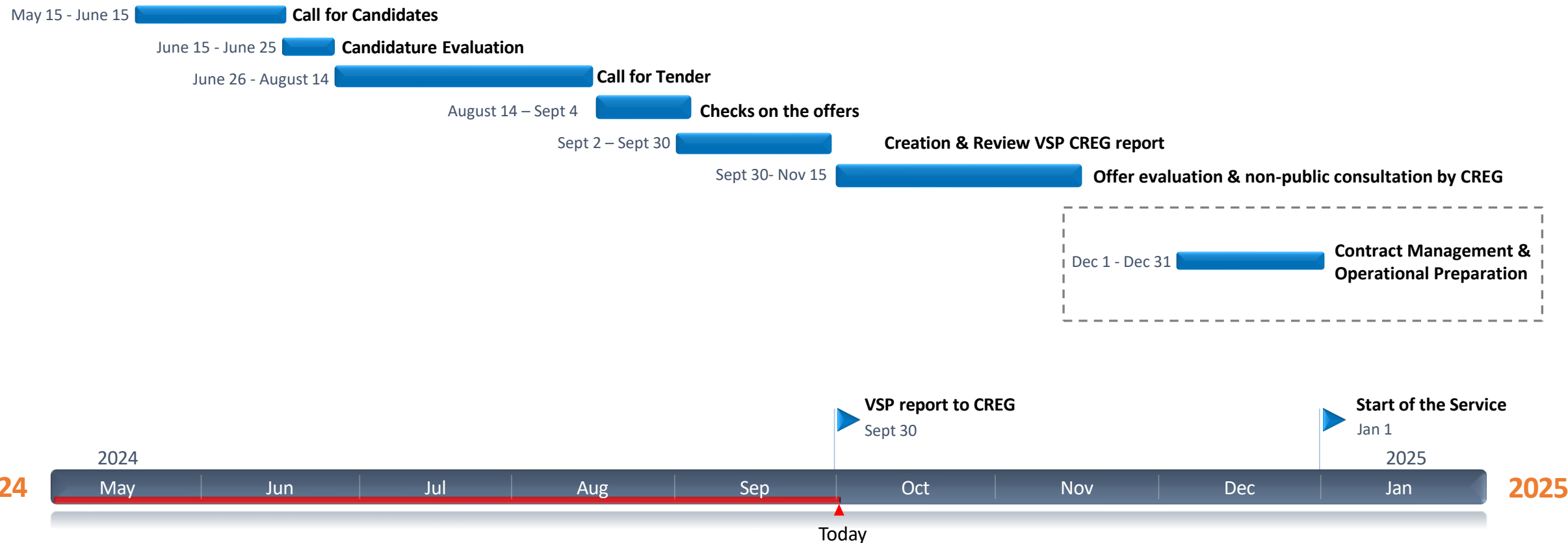
## Regulatory changes

- ✓ Delivery period is 2 years instead of 1 year
  - ✓ The tender will span both 2025 and 2026
- ✓ Introduction of variable pricing
  - ✓ Elia allowed market parties to also offer prices indexed on the ICE endex and EPEX spot prices



\* In case of participation of a unit connected to a public distribution grid or closed distribution grid, the DSO/CDSO is the VSP

# Tender Process: Process & timings in 2024





# Voltage service – Implementation of design changes

System Service Design

Carsten Bakker

## Context and goals of the incentive

- Following entry into force of the new design in 2020, some **return of experience** is available
- This study intends to analyze **further possible design improvements** for the voltage and reactive power control service in order to:
  - Optimize the efficiency of the service and the remuneration
  - Increase participation to the service

## Content of the study

- Identification of **design improvements** together with market parties and the CREG and proposal of solutions
    - Based on **return of experience** from the current design
    - Including at least a review of the modalities for the penalties
  - Realization of a **EU benchmark** concerning the components (fixed or variable) for an **ideal remuneration** of the service
  - Specific analysis of the potential improvements that **might facilitate the participation of non mandatory units** (such as demand response) to the service
    - Identification of **evolutions of the market design** to facilitate the participation of non-mandatory units
    - Adequate procurement mechanism for the participation of non-mandatory units
    - Other aspects: type of service allowed/recommended (automatic, manual or other), simplified prequalification/communication process/tools for non mandatory units...
- ➔ This analysis will consider a **ratio between the potential** that represent these units for the voltage and reactive power regulation as well as their added value for the service **compared to the additional costs and complexity**





# MVAR service incentive – Review and recommendations for design optimisations

1. **Continuous** activation control for manual and automatic activation
2. **Penalties** need to be in line with the continuous activation control.
3. **Communication** with Elia
  1. The current communication is done via Revolt and is limited in the type of messages that can be sent.
  2. Option for additional interactions in order to sent more complex messages
4. Indication of the **need for MVAR service**
  1. In order to be able to better estimate the number of activations for a certain unit, the need in a certain area will be better clarified
5. **Price setting** during the tendering process
  1. Introduce the possibility of offering a formula instead of a fixed price
6. Participation of **non active power related assets**
7. Adding an additional bandwidth to compensator mode
8. **Update the Terms and conditions** of the MVAR service in order to be written more technology-neutral.
9. Simplification of the participation for non-mandatory units

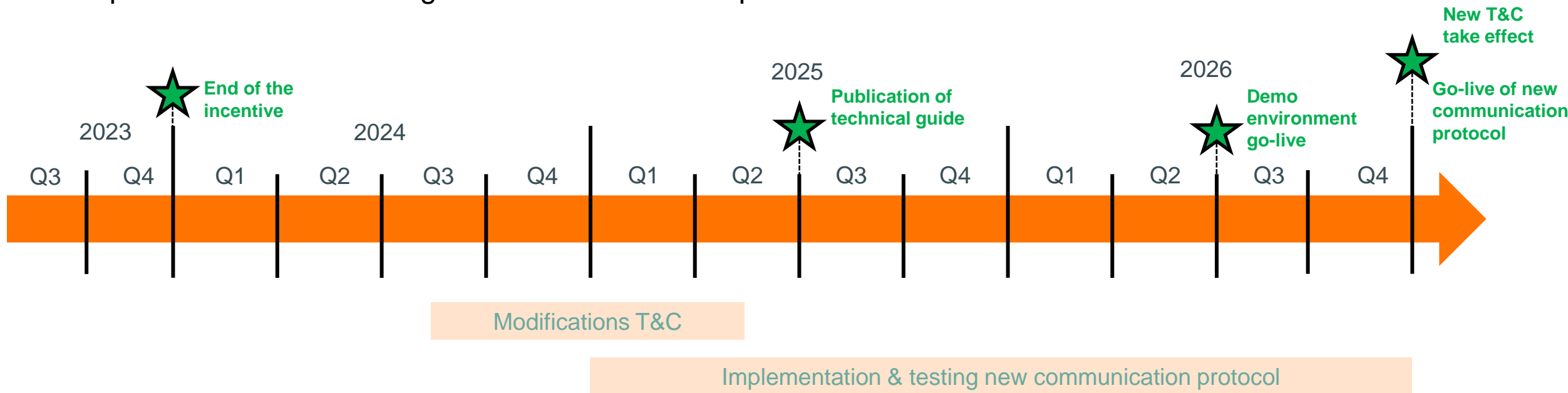


# Implementation plan - description

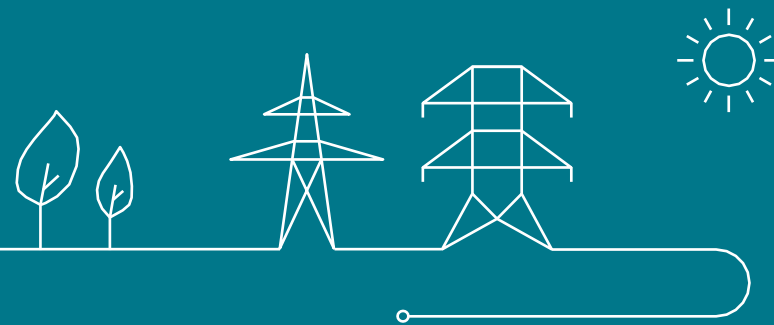
The timings presented here are estimations and subject to change

## Implementation plan in the incentive:

- Implementation of modifications to the MVAR T&C *mid Q3 2024 – mid Q2 2025*
- Implementation and testing of the communication protocol for the MVAR service *Q1 2025 – Q4 2026*



# Operations





# Summer review with a focus on incompressibility

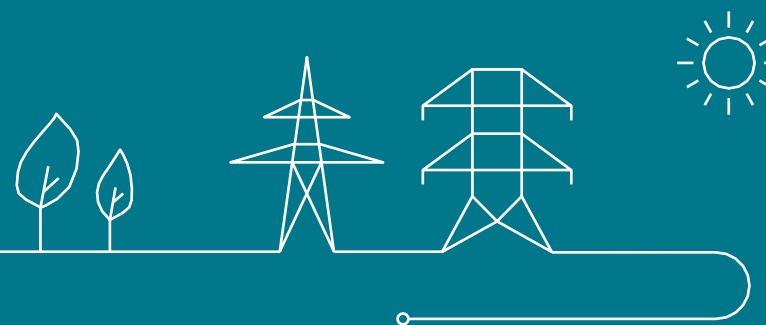
Operations

Silvio Ferreira



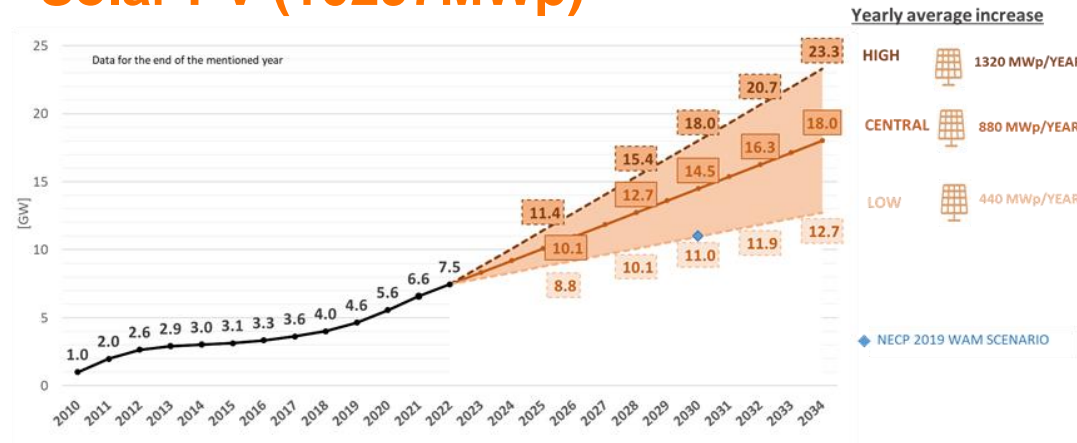
# Action plan: Incompressibility summer 2024

short recap



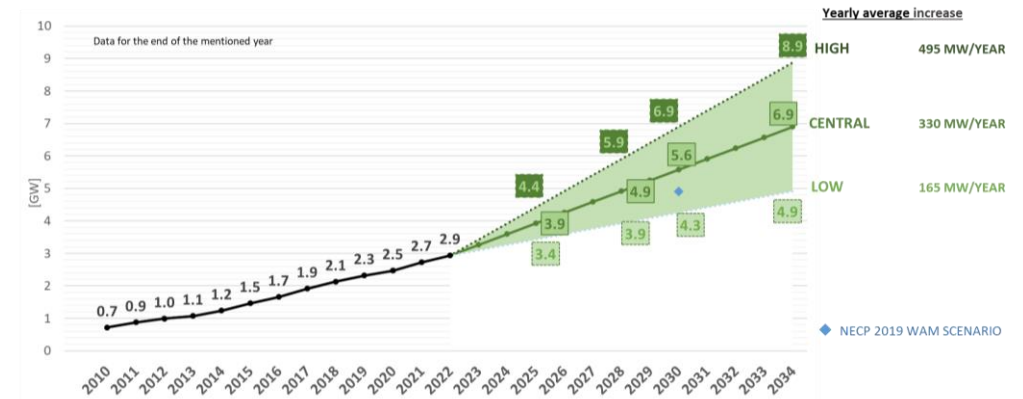
# Incompressibility Risk – What are the different types of RES flex?

## Solar PV (10297MWp)



- ✓ Large PV site: Flexible
- ✓ Residential PV: Not flexible & Not Exposed to price signal

## Wind onshore (3177MW) & offshore (2262MW)



- ✓ Offshore Wind: Flexible
- ✓ Onshore Wind: (Technically) Flexible but should be more flexibilized (WIP); even more important with the REPOWERING of former wind parks

*Residential PV must become flexible as soon as possible. This requires data, robust price signal, dynamic contract and being technically Flex Ready.*



## Incompressibility Risk – Executive Summary

The concern about incompressibility follows a combination of two separate **challenges**:

- A. Ability of the market to manage well ‘predicted’ situations of high renewable generation. It is related to the ability of market parties to maintain a balanced portfolio during high renewable energy conditions (DA/ID demand side shifting & RES flexibility)**
- B. Ability of the system to maintain sufficient flexibility to manage unexpected outages or forecasting errors. It is related to available downward flexibility in the system (ID/RT demand side shifting & RES flexibility)**

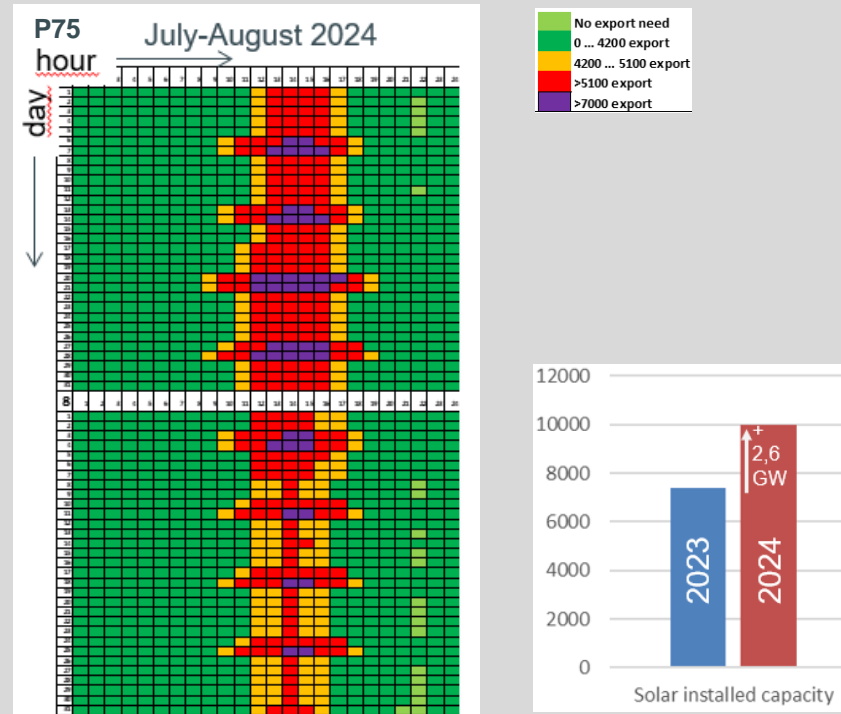
Elia’s key belief is that challenge A needs to be solved within the market (through dynamic price contracts, supply split, submeter, explicit flex, RTP, flex ready assets). . If not, reduction/modulation of renewable generation will grow every year linearly with increase of PV and wind generation. Solving challenge A will also resolve challenge B by liberating flexibility for the balancing time frame, at least from renewable generation.

Based on the 7/4 events as well as the Summer Outlook, Elia was of the opinion that, in certain circumstances (i.e. high RES generation and low load), there may be an insufficient amount of flexibility available in the market to keep ensure safe system operations (i.e. frequency deviations with large & persistent imbalance from Elia).

For this reason, we developed the “technical flexibility” available on TSO- DSO level as well a nuclear power reduction.

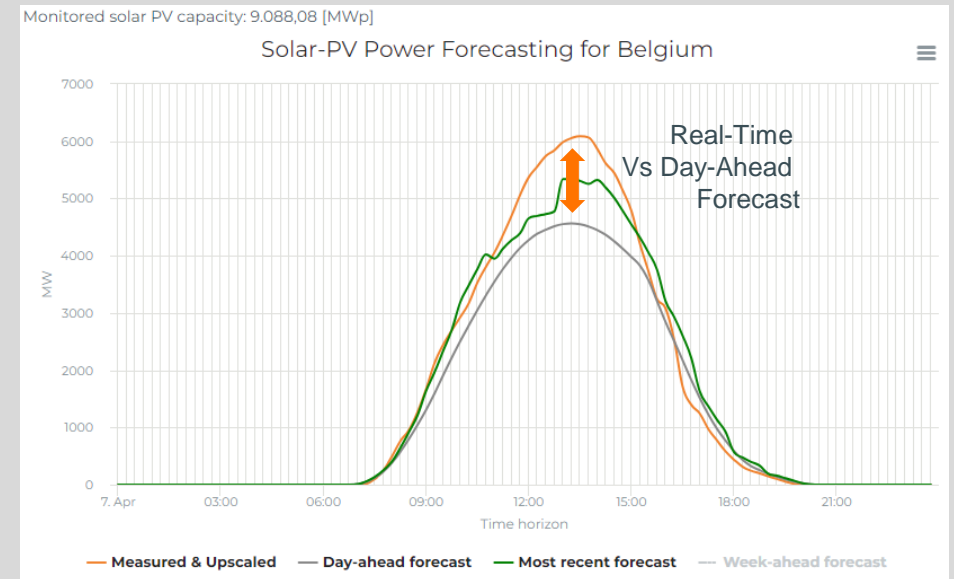
# Incompressibility Risk - Needs

## Challenge A High Renewables generation – Export Need



Summer Outlook

## Challenge B Forecasting Error – Balancing Flexibility Need



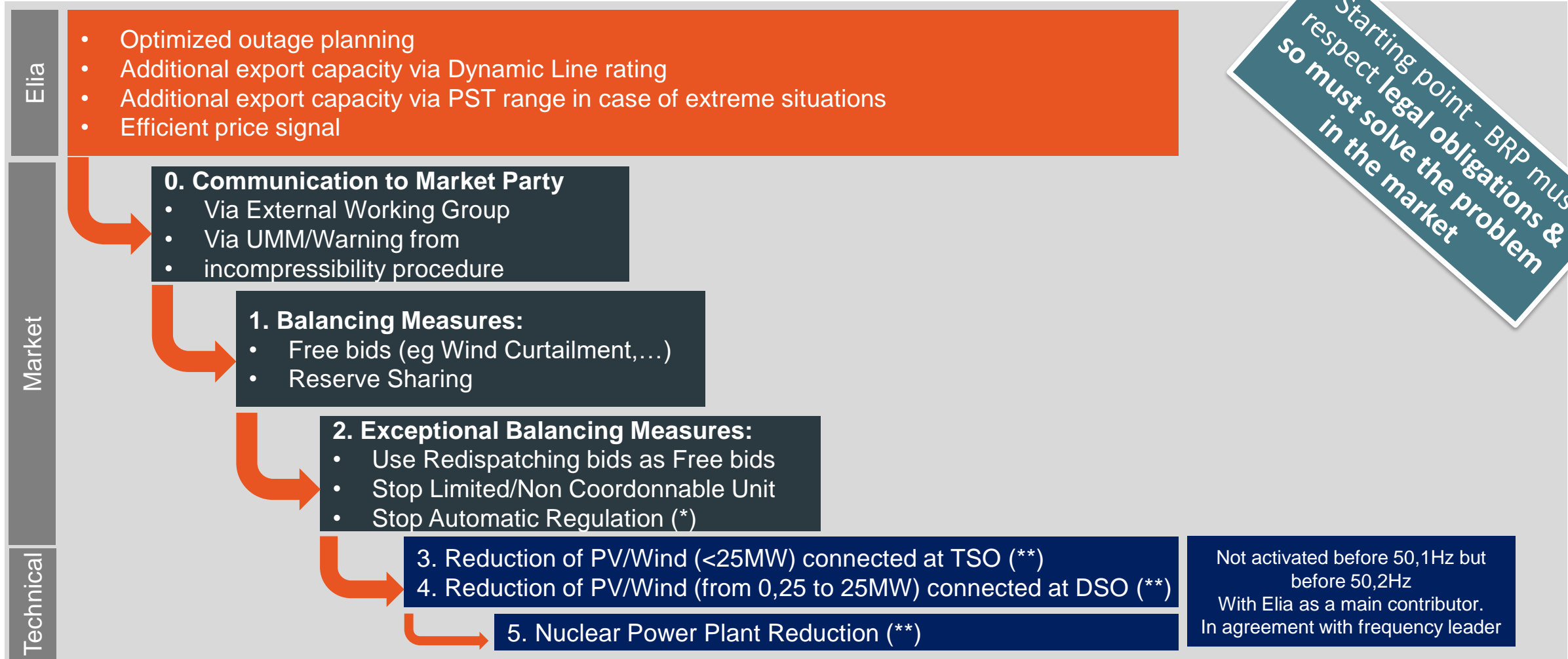
Or unexpected outage like Nemo Link Ltd in export

On the 7/4 event

1 out of 4 week-end (P75), Belgium would theoretically need to export more than 7GW which is nearly 2GW more than in 2023. For the same forecasting quality, the growth of the PV installed made the balancing flexibility need much higher than in 2023.



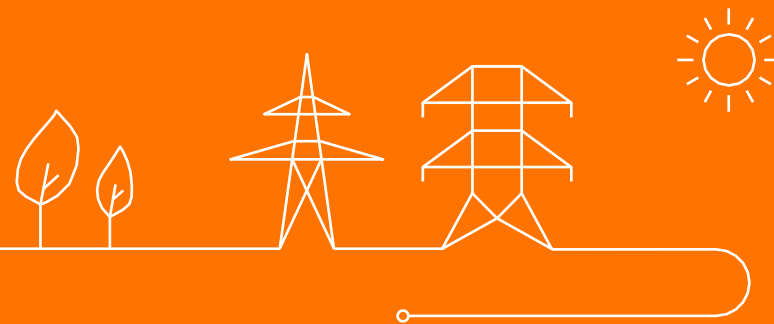
# Incompressibility Risk : Where is Technical Flexibility Process located?



**Technical Flexibility will be used in last resort in Belgium before losing the old Belgian PV + > 11GW in the Rest of Europe and before frequency drop and restabilize**

(\*): Automatic Regulation Stop means no aFRR anymore for gaining Pmin of the machine – Impact on quality regulation for several hours.  
 (\*\*): Triggered by Exceptional Balancing Measures. (4): No Residential reduction/modulation!

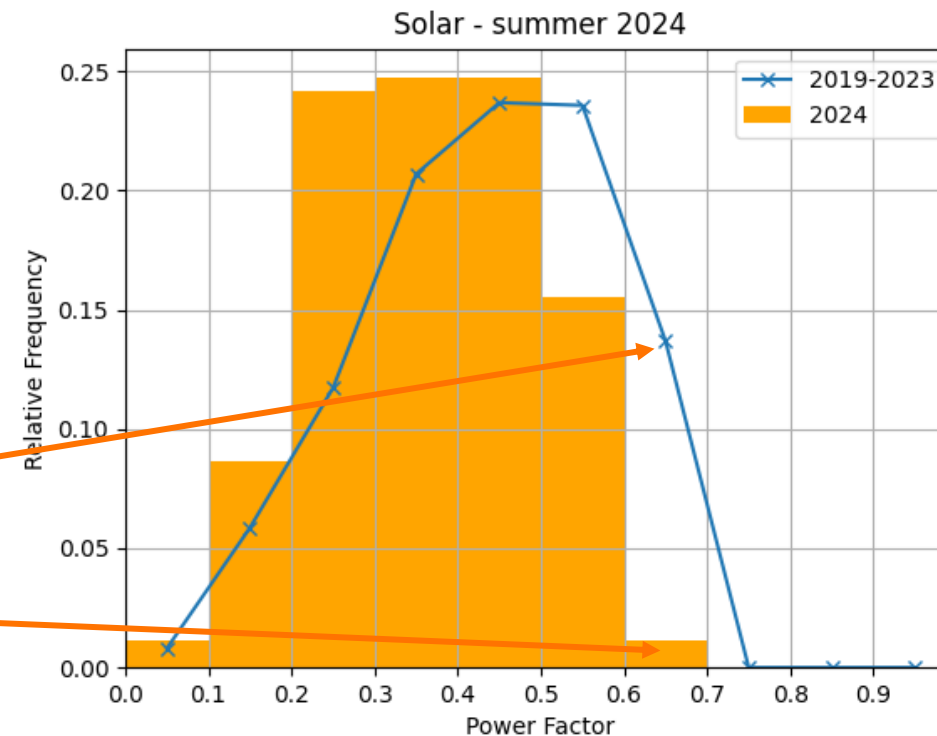
# Solar, Wind, Total Load, DA Open Position...



## Solar production

From April till September 21<sup>st</sup>

- Power factor(\*) distribution lower than previous years
  - Due to bad weather from April to July
- Approximately same distribution in WE & holidays
- Power factor 60%-70%
- **Expected 14% >< Realized 1,20% of days**



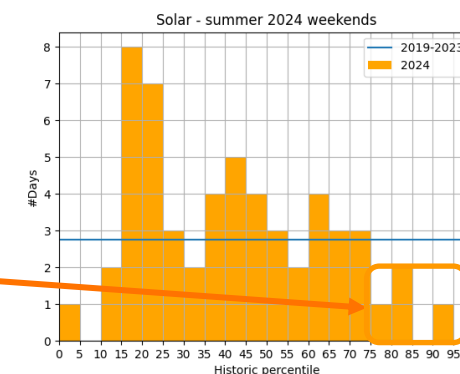
**Solar production during summer was, relative to installed capacity, far less than previous years...**

**Power factor(\*) = Realized Production / Installed capacity**

# Solar production

Weekends & holidays from April till September 21<sup>st</sup>

# Days with production...	Stat. expected (2019-2023)	2024
> P0 (all)	55	55
> P25	42	37
> P50	28	19
> P75	19	4
> P85	8.3	1
> P90	5.5	0

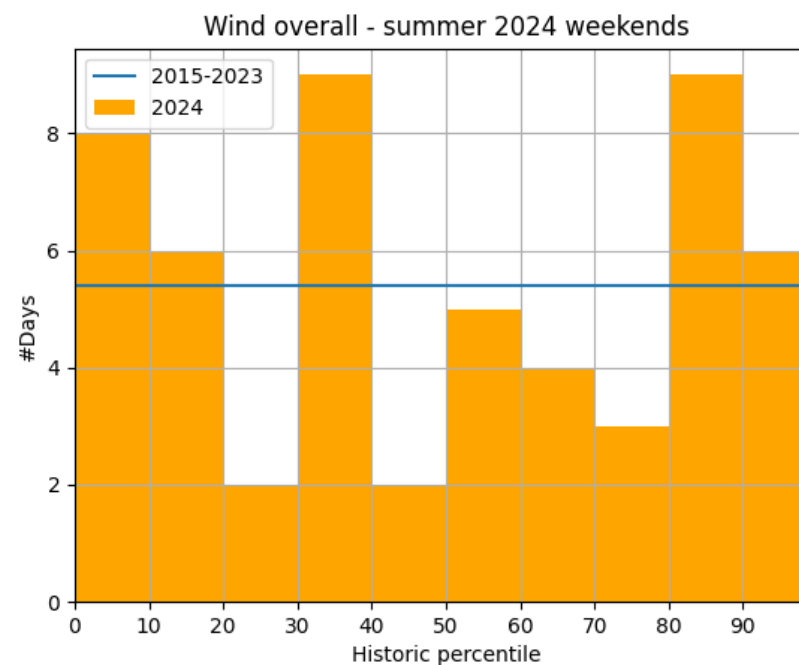
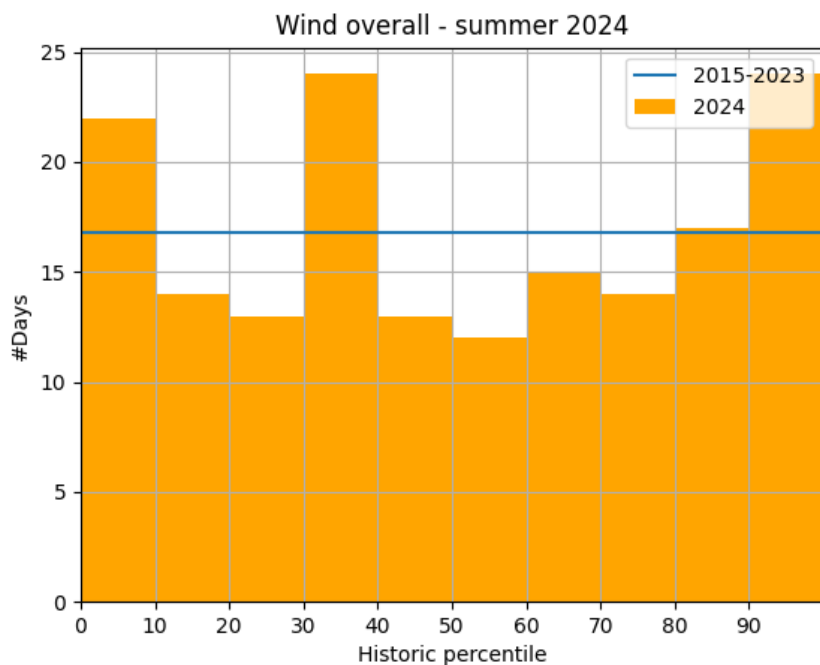


...with, especially during weekends, far less sunny (>P75) days than statistically expected



# Wind production

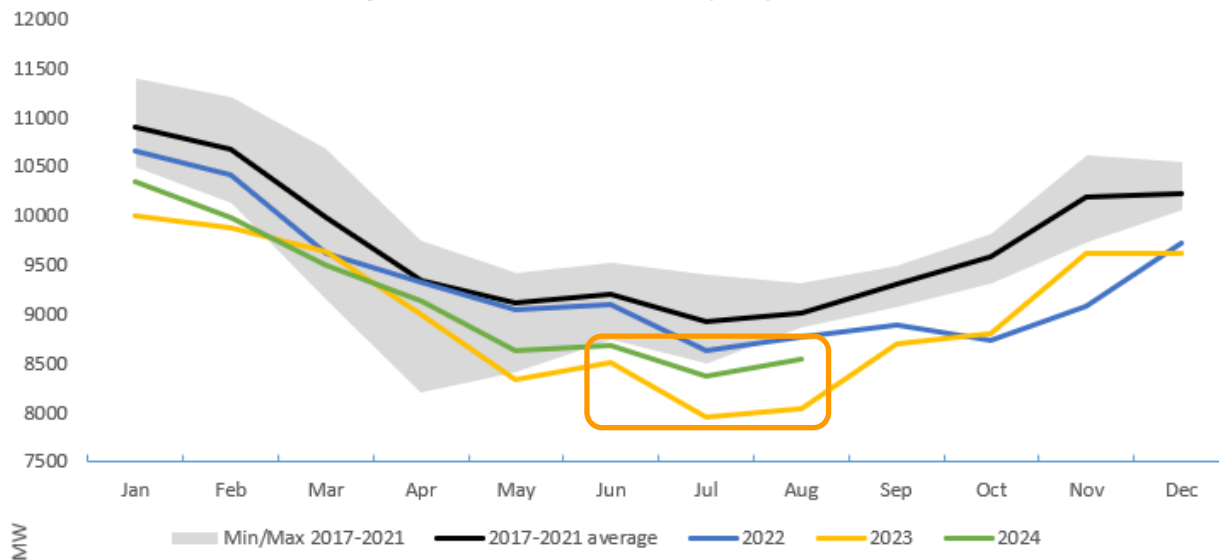
From April till September 21<sup>st</sup>



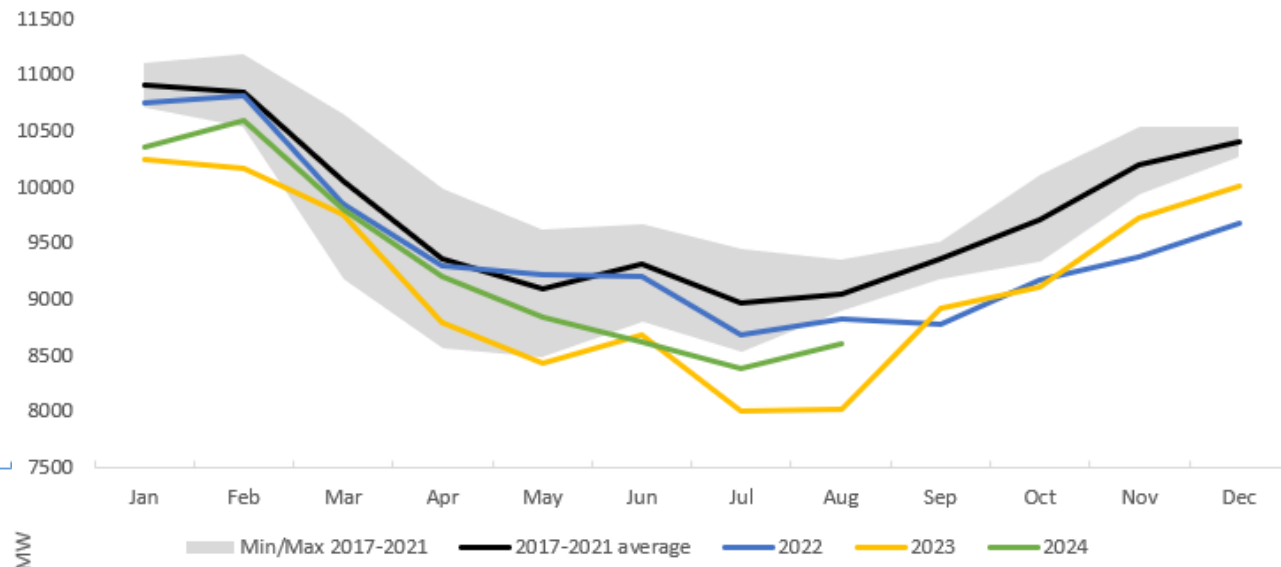
**Wind production in line with previous summers, also during weekends**

# Total Load

Maandelijks totaal elektrisch verbruik (MW) - Elia



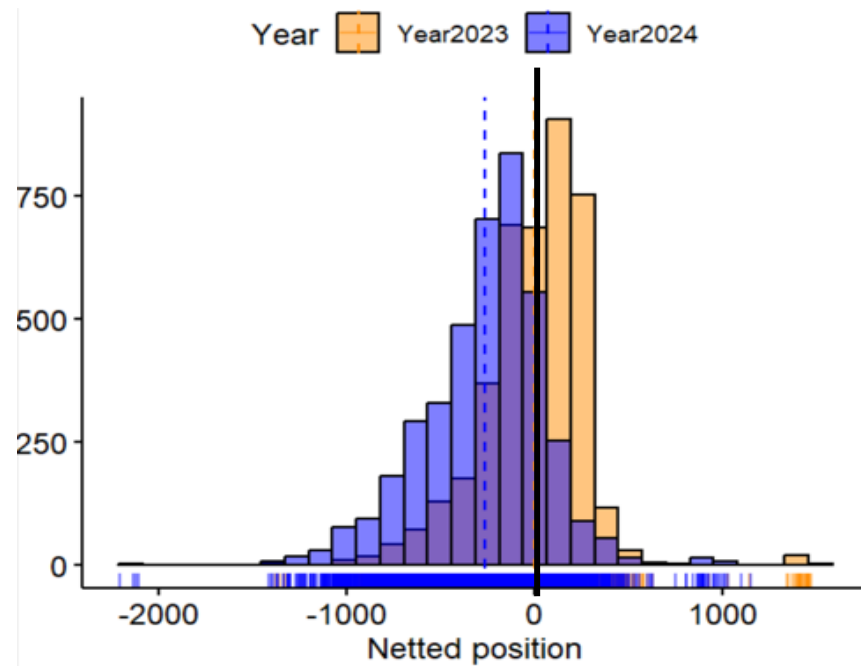
Maandelijks genormaliseerd totaal elektrisch verbruik (MW) - Elia



**Total load still below values before energy crisis but... we identify an increase compared to summer 2023 which means up to 500 MW more.**

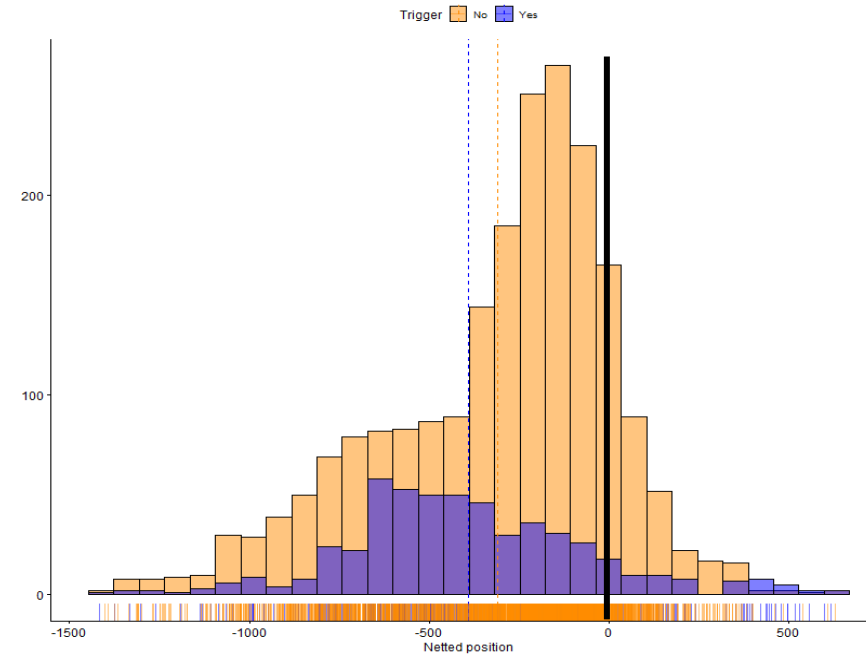
# Global DA BRP Open Position

2023 vs 2024



The more negative, the more, BRPs have a short position.

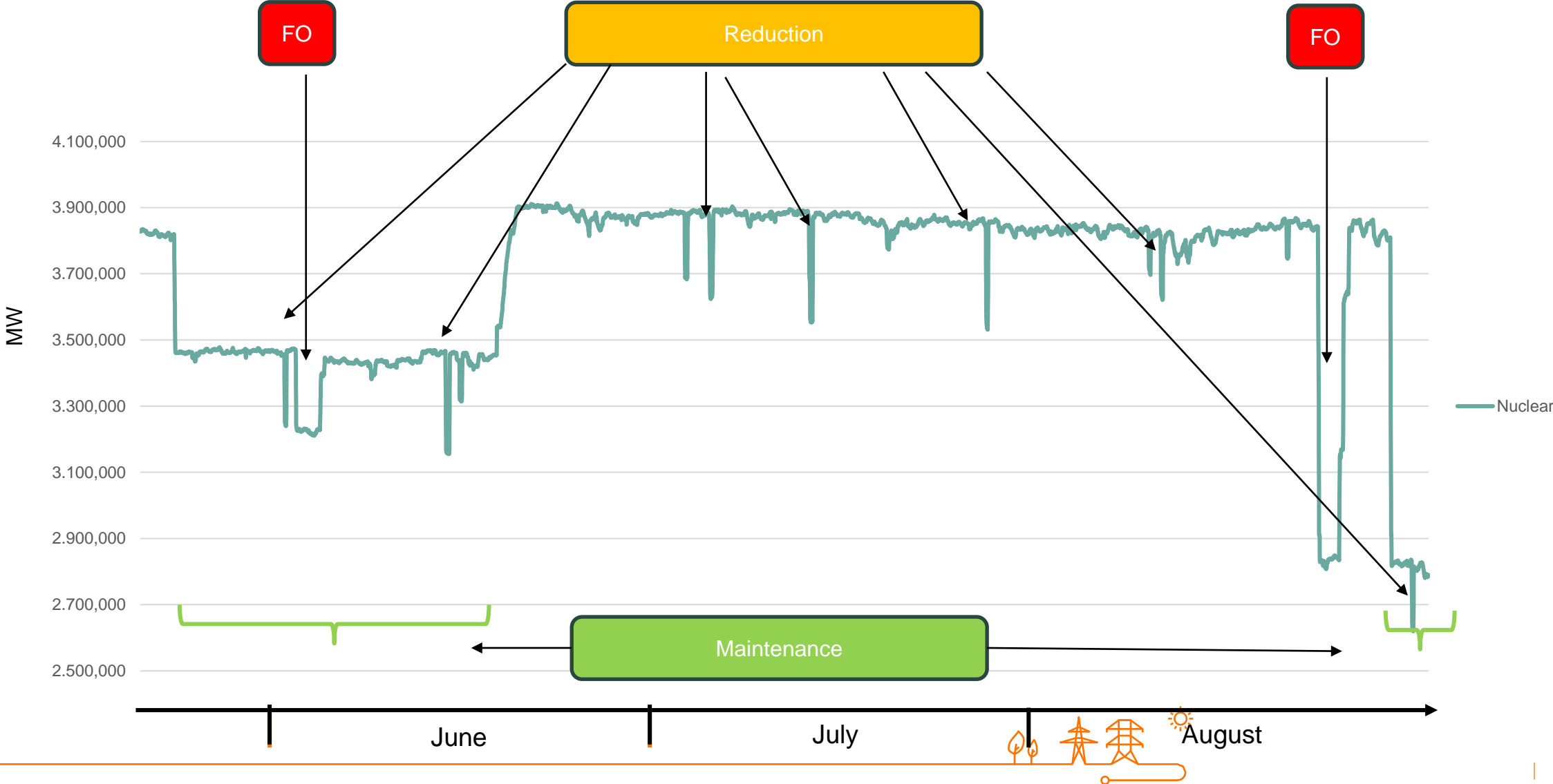
2024 vs 2024 when D-1 high Risk of Incompressibility is triggered



	W-1	D-1	W-1 & D-1	No W-1 & D-1
#	21	23	14	9

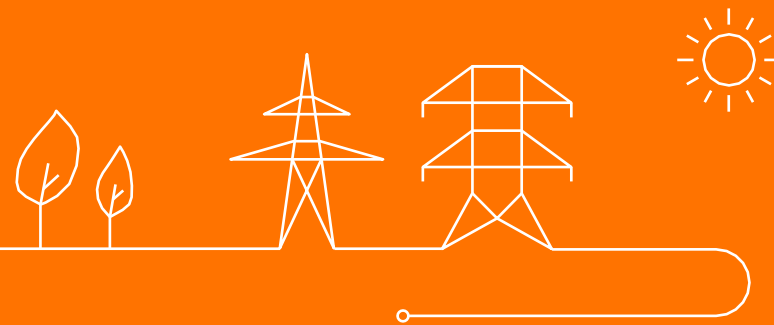
**Large different behavior between 2023 and 2024 in terms of Global DA BRP Open Position and this effect is even stronger when a D-1 high Risk of Incompressibility is covered.**

# Nuclear Production

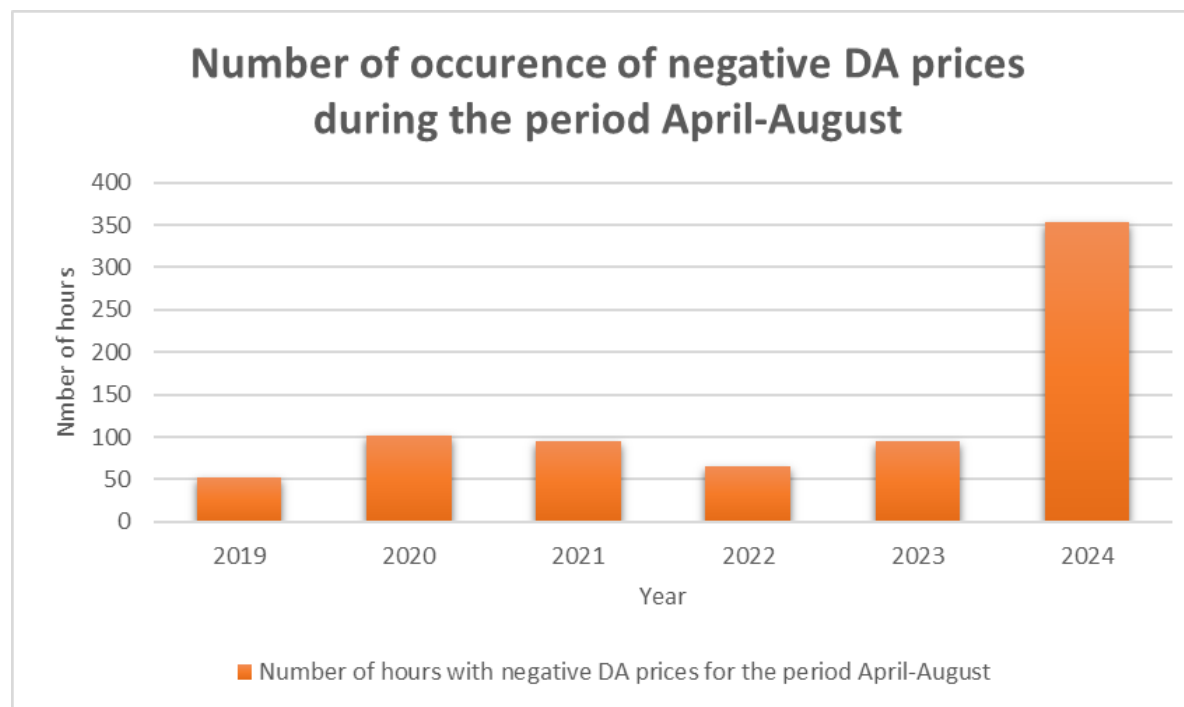




# Day-ahead market analysis



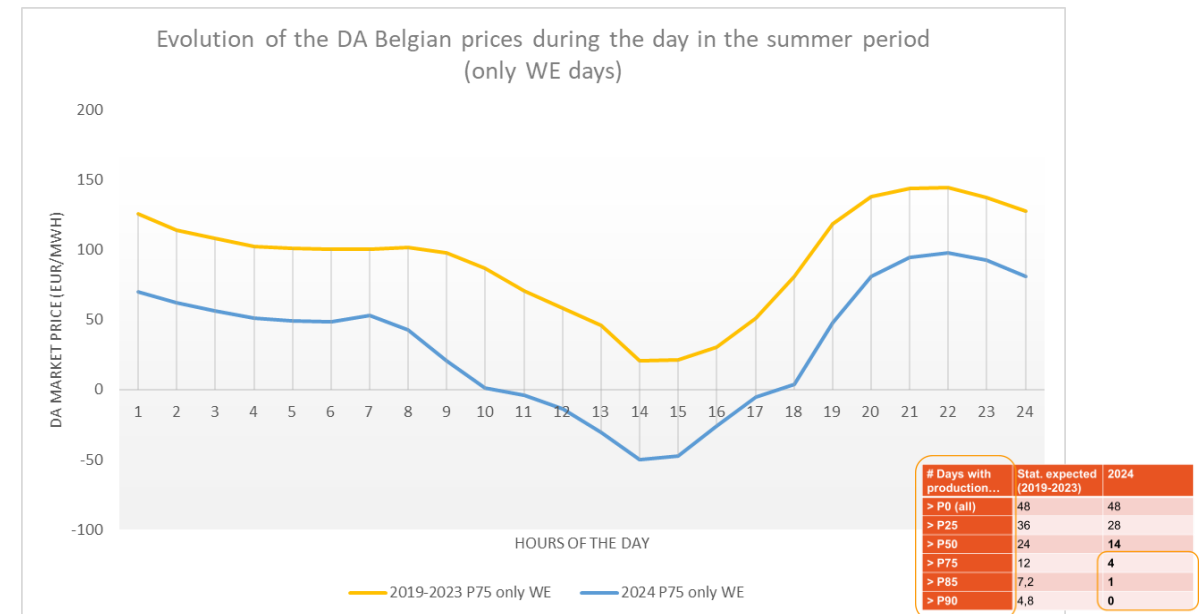
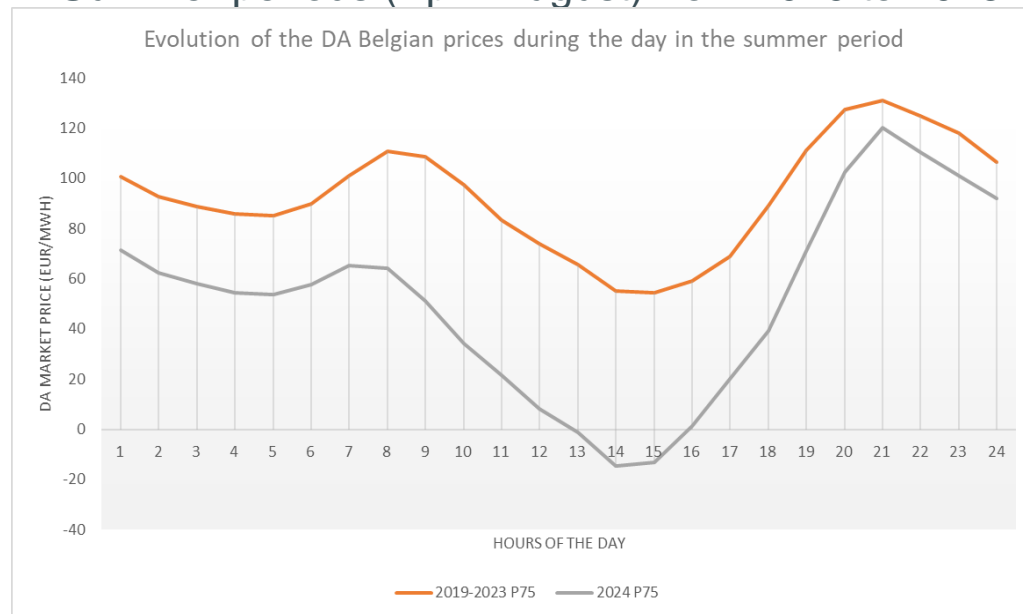
## Analysis of the number of hours concerned by Negative Day-Ahead market prices in Belgium



**The number of hours with DA negative price is significantly higher in 2024 compared to the previous years during the same summer period.**

# Analysis of the evolution of the Day-Ahead market prices during the summer period

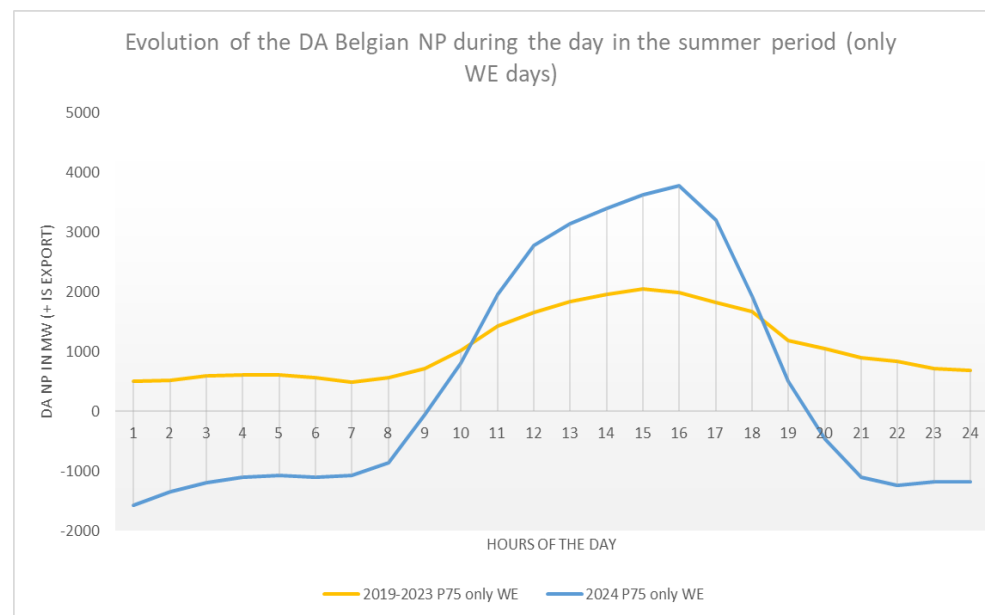
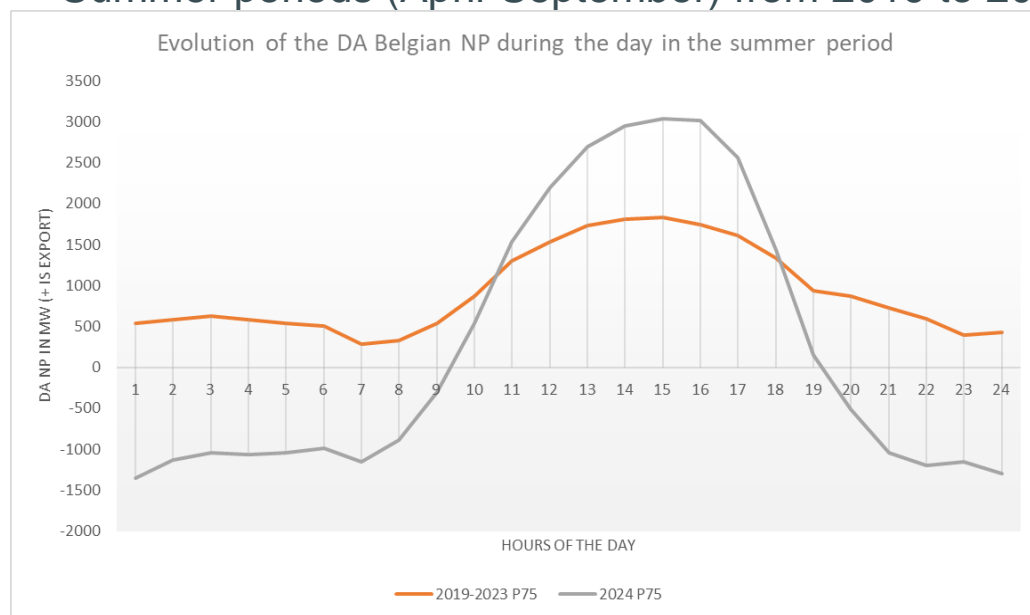
For this analysis, the dataset contains only the days that falls above a P75 solar production factor based on the Summer periods (April-August) from 2019 to 2023.



**Lower DA prices were obtained for 2024 compared to the period 2019-2023. During the solar production peak, negative prices are observed, especially during the week-end days.**

# Analysis of the evolution of the Day-Ahead Net Position during the summer period

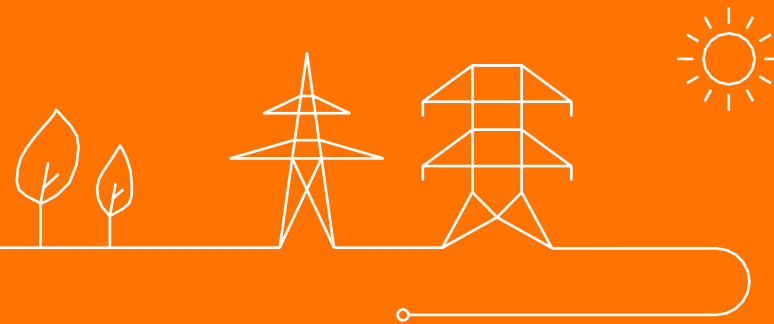
For this analysis, the dataset contains only the days that falls above a P75 solar production factor based on the Summer periods (April-September) from 2019 to 2023.



**During the solar production peak, Belgium was exporting more in Day-Ahead compared to the previous years, especially during the week-end.**

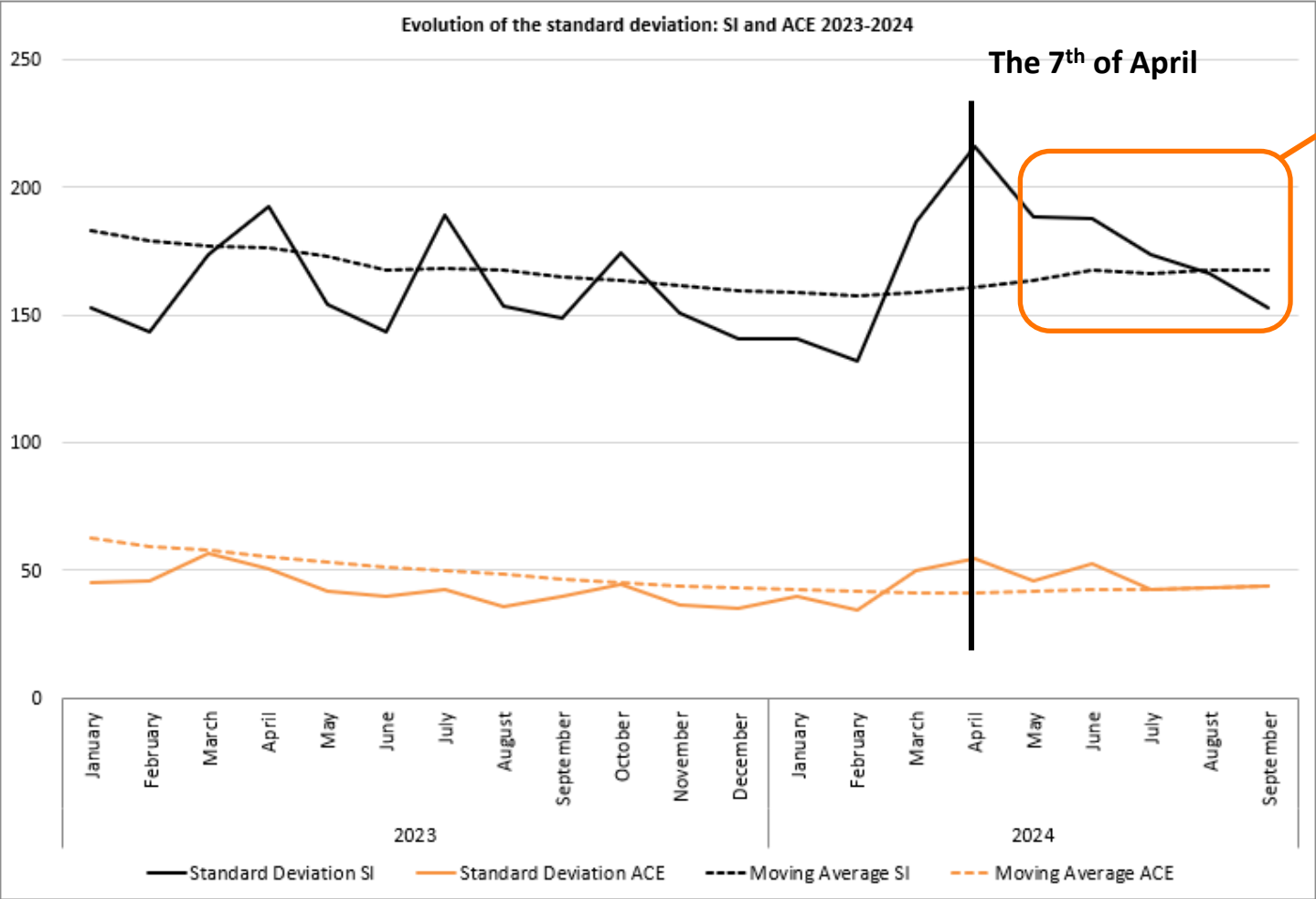
# System Imbalance

Summer 2024





# System Imbalance & ACE



Significant improvement/changes of the largest contributors in case of positive balance

+  
In combination with the Elia awareness plan, the weather conditions, the larger DA open position, the Total Load Increase

Note: More used of International support by other TSOs

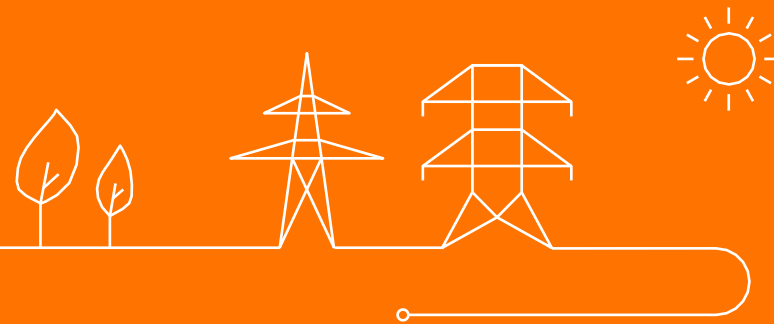
Datum	MWh	Duration	TSOs	Datum	MWh	Duration	TSOs	Datum	MWh	Duration	TSOs
03-Jun	82,75	30min	TenneT	19-Jul	320	60min	TenneT	04-Aug	270	60min	RTE
06-Jun	112,5	30min	TenneT					30-Aug	275	75min	TenneT
07-Jun	150	60min	TenneT								
09-Jun	300	30min	RTE								
23-Jun	350	60min	RTE								
29-Jun	300	45min	RTE								
	1295,25	255min			320	60min			545	135min	

Datum	MWh	Duration	TSO
19-Sep	262,5	45min	RTE
	262,5	45min	



# Take Aways

Summer 2024



## Take-aways

- Summer 2024 was a **statistical advantageous scenario compared to period 2019-2023** with
  - Very few (very) sunny days, especially on weekend days & holidays
  - Wind production at par
- Slight increase of the total load
- More often & larger short open position
  
- ... giving market parties and Elia **more room than expected** to balance inflexible with more flexible production assets
- ... yielding lower and less frequent export needs than anticipated



# Workshop on shaping the future of Elia forecasting tools

13/11 from 9h until 13h at Elia bd de l'Empereur, room 0.20 (physical + online)

## Agenda

- Presentation from Elia
  - What is behind our published forecasts of load, solar & wind generation?
  - KPIs and feedback loops towards providers.
  - Ongoing evolutions.
- Open discussion with external stakeholders
  - What data are you using and to what purpose?
  - How can Elia improve your user experience?
  - How do you use UMMs linked to incompressibility/adequacy and forecasting uncertainty?
  - Where those UMMs last Summer appropriate?
  - Do you use other data sources?
  - Suggestions to improve Elia forecasts (data and communication)



## AOB

- Workshop GUFlex on October 10
- Workshop TF iCAROS on October 21
- Workshop on shaping the future of Elia forecasting tools on November 13
- Next Grid WG on December 12





# ANNEX

