USERS' GROUP

WG Grid

16/06/2025
13:00 – 17:00

WIFI:
Username: guillaume.valentin@elia.be
Password: QQvv4qk8

Agenda

-	Domain	Agenda topic	From - Till	Presenter	Time (min)
	General	Welcome & intro	13:00 - 13:05	***Chairs***	5
	General	Approval of MoM & new name for Grid WG	13:05 - 13:10	***Secretary***	5
1	European Markets	Summary ongoing project Core/CE CCR	13:10 - 13:20	***Steve Van Campenhout***	10
2	EM	LT: Short update on the first auction BE > FR	13:20 - 13:25	***Floris Vankrunkelsven***	5
3	EM	DA: 15' SDAC go-live	13:25 - 13:35	***Claire Jonet***	10
4	EM	DA: Update on UK arrangements	13:35 13:50	***Stefano Meneghello***	15
5	EM	ID: Core IDCC_c go-live	13:50 - 14:00	***François Herinckx***	10
6	EM	ID: Capacity improvement study	14:00 - 14:20	***François Herinckx***	20
7	EM	ID: 30min GCT consultation, preliminary feedback	14:20 - 14:40	***Floris Vankrunkelsven***	20
BREAK				**BREAK**	15
8	System Services Design	iCAROS: - LT OPA go-live - General communication regarding data quality and offering of flexibility	14:55 - 15:20	***iCAROS team***	25
9	SSD	GUFlex: Feedback from the workshop on 19/05 + initiation of TF Grid Flex	15:20 - 15:35	***Cécile Pellegrin***	15
10	SSD	Restoration of the grid: BESS and their role/obligation after a blackout	15:35 15:50	***Harold Guisset***	15
11	SSD	VSP: Start date of the new contract in 2027: 1st of Jan or 1st of Feb	15:50 - 16:00	***Alexandre Nève***	10
12	Operations	Final conclusions and recommendations on the Balkan blackout and first insights from the Spain-Portugal blackout	16:00 - 16:30	***Peter Van Meirhaeghe***	30
13	Operations	Feedback incompressibility events spring 2025	16:30 - 16:45	***Bregt Vanderveken***	15
14	Operations	Market suspension notification – External test debrief	16:45 - 16:50	***Floris Vankrunkelsven***	5
	General	AOB & conclusions	16:50 - 16:55	***Secretary***	5
				Total	**3:55**

Approval of Minutes & Action points

- Approval of the Minutes of Grid WG of 19/02/2025
- Status of Action points

Action	Responsible	Date Raised	Due date	Status
Elia to present topics on co-optimisation and decoupling for a next Grid WG.	Elia	04/10/2024	/	**Closed**

- New name for Grid WG -> **Market Integration, Grid & Operations WG – MIGO WG**

European Markets

Summary ongoing projects in Core and Central Europe

European Markets

Steve Van Campenhout

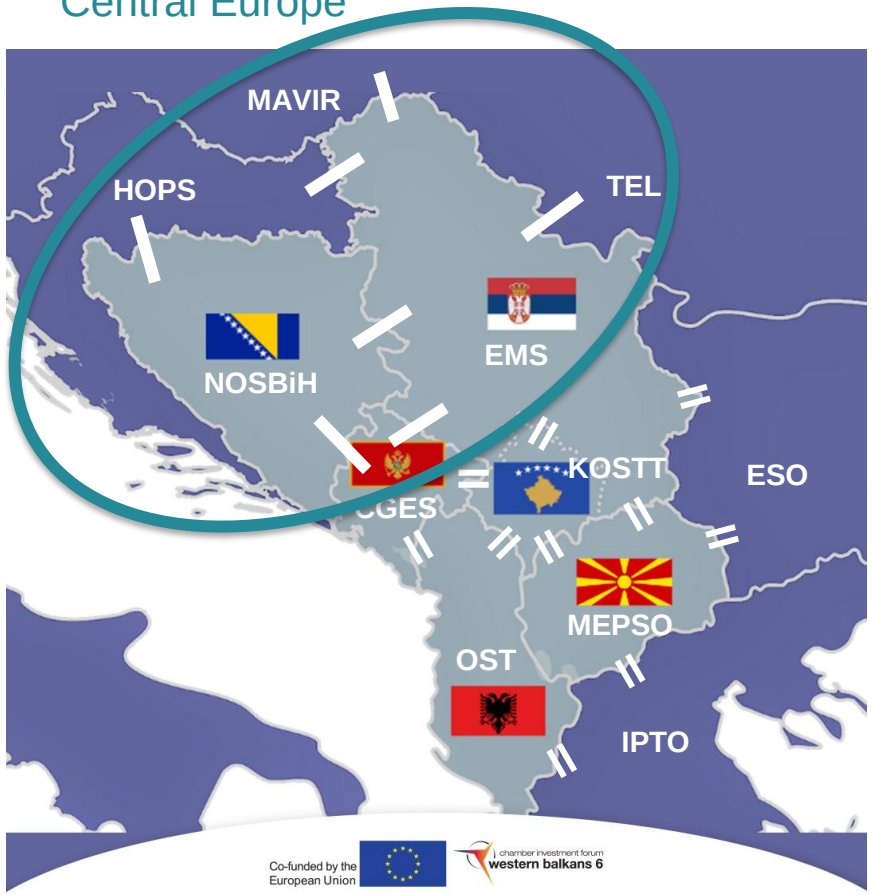
Expansion of CCR Central Europe

Implementation of day-ahead capacity calculation in Central Europe is ongoing. CE TSOs have submitted the methodology to the CE NRAs. Go-live earliest Sep 2027.

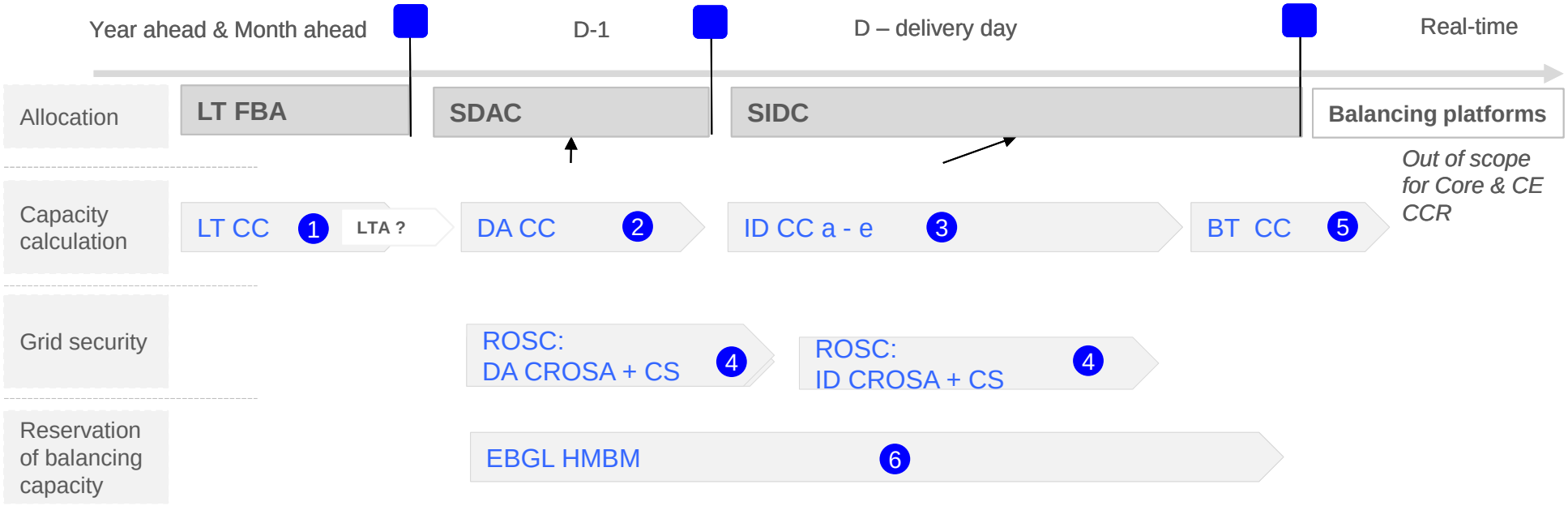
Further expansion is being prepared

- Transition from Core to Central Europe: Intraday, and ROSC with Cost-sharing
- Energy Community integration (West-Balkan 6)
  - Northern part
    - First, **Eastern-Central Europe (ECE) CCR** with limited Day-Ahead scope is proposed to be established
    - Accession to CE CCR triggered when: necessary legal transpositions has taken place, go-live of DA market coupling by the ECE TSOs, and go-live of CE DA CC
  - Southern part joins South-East Europe CCR
- Public consultation of CCR determination methodology amendment completed
- Next steps
  - Summer: submission of CCR determination amendment to ACER
  - Begin 2026: expected approval of CCR amendment proposal
  - Meanwhile CE TSOs start methodology work on Intraday, ROSC & cost sharing aiming to submit these methodologies by end 2026 to CE NRAs

Northern part: first Eastern-Central Europe CCR, then integration into Central Europe



Key considerations and outlook (1/3)



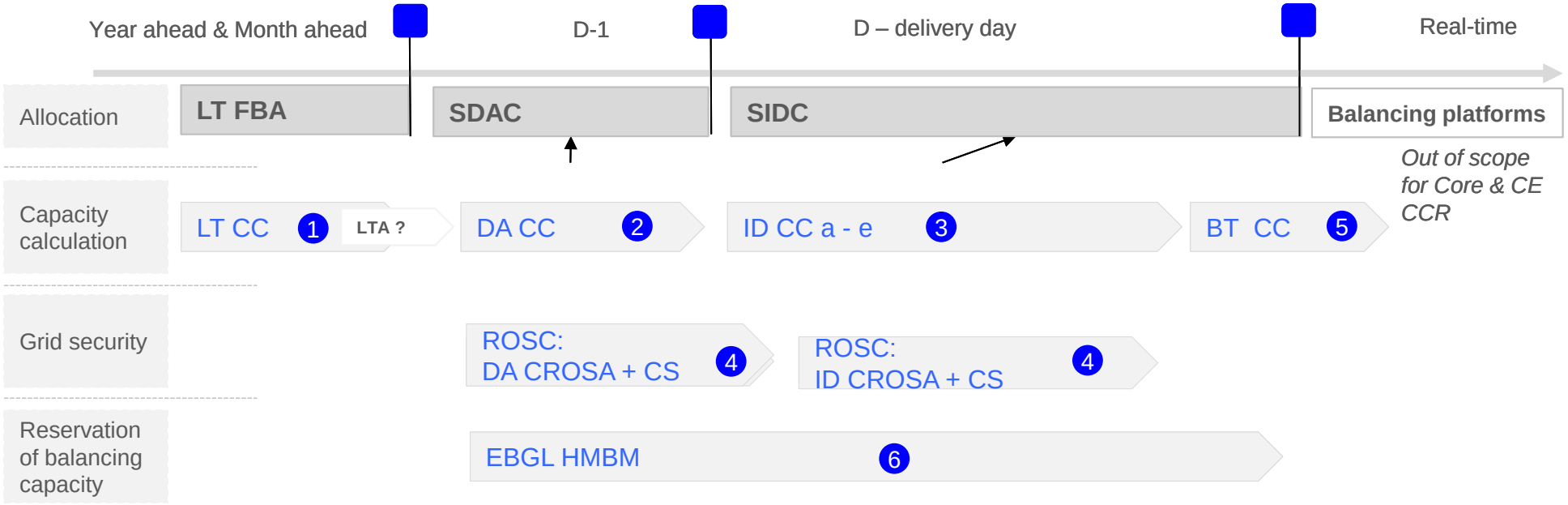
1 Long-Term CC

- Core TSOs are implementing a Flow-based coordinated capacity calculation by Nov 2026
- Core TSOs are investigating possible improvements to the FB domain including removal of LTA inclusion. If concluded positively, amendments to LT CCM, DA CCM, ID CCM will be triggered in 2025

2 Day-Ahead CC

- Advanced hybrid coupling (AHC): enables the single day-ahead market coupling to allocate Core capacities between Core and non-Core exchanges on EU borders in the most efficient manner. Go-live expected in 2026, earliest Mar/Apr.
- Coordinated validation (CV): stepwise implementation with first steps planned to go-live in Core in the course of 2026/2027. Completion of this implementation will be done in Central Europe. Go-live of ROSC is a pre-condition to fully enable the RA potential.
- Swiss integration: transitional solution for Swiss integration being developed to function until go-live of Central Europe DACC

Key considerations and outlook (2/3)



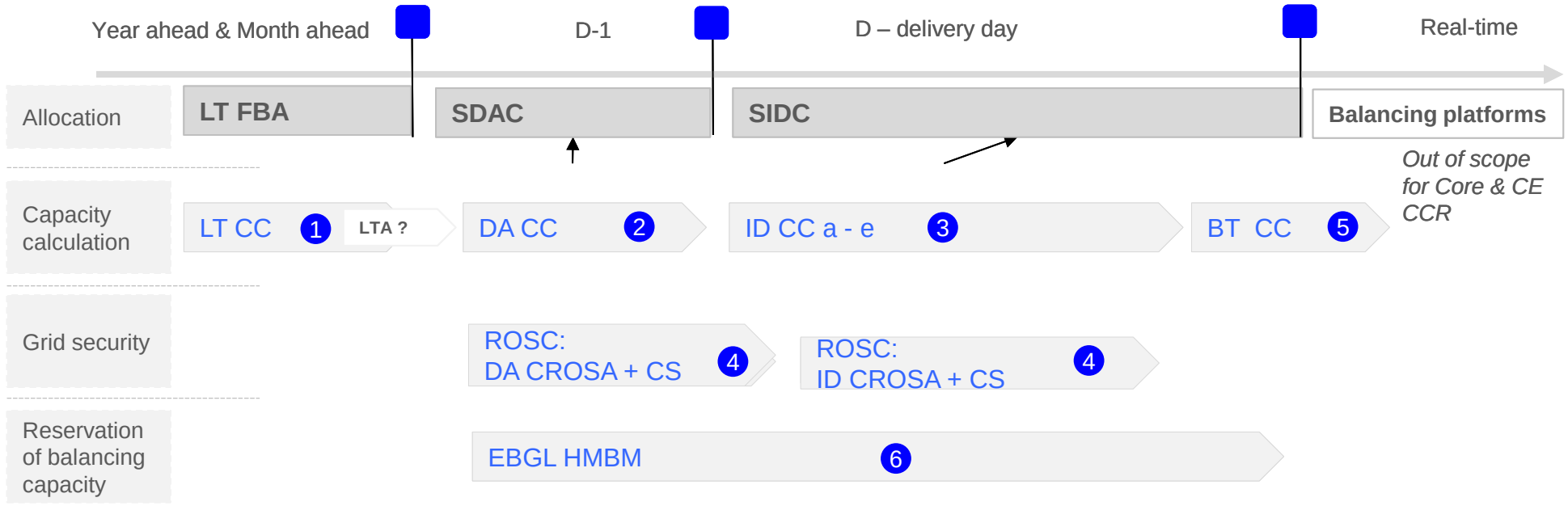
3 Intraday

- Completion of recalculations and capacity improvement study – *see separate presentations*
- Flow-based allocation of Intraday Auctions and Advanced Hybrid Coupling: under assessment
  - Facilitate transition to FB for IDA in Core in a first step. Timeline dependent on implementation in allocation (not before 2027).
  - And in a second step the implementation of AHC either still in Core or directly in Central Europe

4 ROSC and Cost Sharing

- On 25/9/2024 European court ruled on the appeals and annulled the cost sharing methodology. TSOs are working with NRAs/.ACER on the approach for the required loop flow threshold study
- Ambition is to go-live directly in CE with minimal delay. The fallback is a go-live in Core based on the current project timelines (go-live 2028/2029).
- Developments in Core will continue as planned, in parallel to drafting of the CE methodologies

Key considerations and outlook (3/3)



5 BT CC

- Methodology approved. Implementation expected after full ROSC implementation.
- Current Methodology design is not aligned with the change to 30 min Intraday gate closure time – impact under assessment.

6 Harmonized market-based methodology

- When triggered, will require to update DACC, IDCC, ROSC processes. Both the legal framework (methodologies), as well as IT tools and processes
- Core/CE TSOs are discussing a possible implementation window

LT: Short update on the first June yearly auction BE - FR

European Markets

Floris Vankrunkelsven

LT: Short update on the first auction BE – FR 10/6-17/6/2025

Regulatory parties and market parties are indicating the need to improve hedging possibilities by expanding the time horizon of LTTRs (earlier auctions, longer maturities) and introducing more frequent auctions.

RTE and Elia continue to move in this direction on the FR-BE border, within the boundaries of the regulatory framework. In 2023 and 2024, the **early auction in September** for the yearly products were a significant success in term of liquidity(1) and prices and demonstrates the great interest of the Market Participants in this approach.

- Splitting auctions and creating products with increased maturities is **beneficial for TSOs and for market participants**, and **demonstrates proactivity** in the context of EMDR and FCA 2.0
- Testing auction splitting and extended maturities enables TSOs to **anticipate probable regulatory change**

This approach is repeated in 2025 for the yearly 2026 product.

- This year will be probably the last auction in this ATC setup as LT FBA / Core LTCC would be in place for Y-1 2027
- In order to continue the tests of auction splitting before FCA 2.0, RTE requested Elia to have an earlier first auction in June instead of September.

(1): Y-1 24: 20.380MW FR-BE and 4.614MW BE-FR (sum of requested capacity for both auctions)
Y-1 25: 18.908MW FR-BE and 5.661 MW BE-FR → highest requested volumes since 2017 – source: jao.eu

LT: Short update on the first auction BE – FR 10/6-17/6/2025

	2 auctions for Yearly 2026 product		
	10th-17th June 25	December 25	Total
FR->BE	700 MW	TBC	TBC
BE->FR	125 MW	TBC	TBC

- The final value of Yearly NTC (and the volume to second auction in December) will be calculated in Q4 2025.
- Note: FR-DE LT Y-1 auction is also split in a similar way as BE-FR with a first auction in June 25

Auction specification of June published on JAO auction tool and announced on Elia IIP, RTE and JAO website [Split of the FRBE Annual 2026 auction | JAO S.A. Leading service provider for TSOs]

DA: 15' SDAC go-live

Status of testing, readiness and go live preparation

European Markets

Claire Jonet

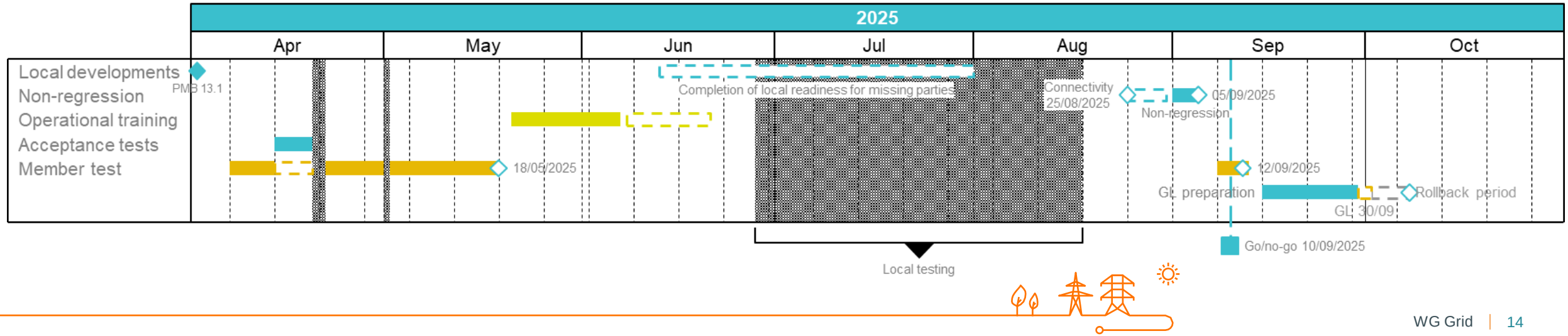
DA: 15' SDAC go-live

Go Live on 30/09/2025 (BD 01/10/2025)

• On 14/05, MCSC NEMOs and TSOs have confirmed that the SDAC 15 min MTU will go-live on 30/09/2025, with the first delivery date on 01/10.

•The final preparation phase for the go-live has been ongoing since the end of Joint End-to-End Member test phase (15/05) and will last until the go-live (30/09).

SDAC 15 MTU Timeline Update



DA: 15' SDAC Joint Member Testing

Background and Objectives

- SDAC NEMOs and TSOs have organized **joint member testing which took place on 07/04 – 15/05.**
- The scenarios included in the testing were covering changes newly introduced by the 15’ MTU implementation into the SDAC.
- Acknowledging the importance of transparency throughout this important phase of the project, and in line with MPs' request, **detailed reporting on member test progress**, planning, and readiness towards go-live has been made available to all market participants on a regular basis - Weekly reports are available on [ENTSO-E] website.
- More than **300 market participants** joined the member tests.
- All agreed tests were completed, allowing market participants to tests their systems in different market situations.

➢ **Additional member tests in September**, enabling testing by Market Participants up to two weeks before the go live.

DA: Update on UK arrangements

European Markets

Stefano Meneghello

What is MRLVC?

History of allocation regimes between EU and UK

Before Brexit

Implicit coupling
- Capacity is traded at the same time than energy
- Price and volume determined in the same step.

Transitory Period

Explicit coupling
- Capacity and electricity are traded in two different auctions

TCA

Multi-region loose volume coupling
- Allocation of cross-zonal volumes (only!)
- Price formation of the energy is undertaken in a subsequent step

19/05 "Reset"

Possible participation of UK into EU internal energy market? (or EU trading platforms)

Key constrains set by TCA

Data restriction:
- Only Bordering Bidding Zone (BBZ) and GB order books can be included in the MRLVC
- This requires EU TSOs to provide forecasts for the BBZ commercial flows within IEM
- The method and accuracy of this BBZ flow forecast is not known and it will be a critical feature of the MRLVC

Process restriction:
- Process/algorithm should be distinct from SDAC
- Rules out operationally integrating the MRLVC and SDAC matching processes
- Does not explicitly prohibit use of Euphemia software in MRLVC

The SCE has asked a last MRLVC analysis to EU-UK TSOs

- **Deliverable 1**: Define operation of MRLVC within the EU and UK market, fallbacks, operational timings
- **Deliverable 2**: Prepare tender documentation for BBZ forecaster
- **Deliverable 3**: Analyse offshore and hybrid compatibility of the MRLVC solution. Propose changes in existing market arrangements that would be compatible with offshore hybrid projects.

Status update

- Current progress envisions the draft of the TSO interim report by the start of July 2025.
- **This draft will be shared with regulators in July for comments till the end of August.**
- A final joint report for submission to the SCE, considering the comments received, is scheduled to be delivered in September 2025 to the SCE.

Annex C – UK-EU Electricity Trading Roadmap

The following Roadmap describes the progress expected to unfold in developing new day ahead trading arrangements (MRLVC) in line with the Trade and Cooperation Agreement (TCA). This Roadmap is without prejudice to the outcome of or conclusions on the technical analysis and development.

December 2024

- SCE to issue a Recommendation through written procedure that the Parties request their relevant TSOs to deliver an analysis supporting the concept-validation phase for MRLVC in which fundamental design issues, identified in the 2021 cost benefit analysis and in the additional information provided to the Parties in 2023, are addressed.

June 2025

- TSOs to update both Parties (at a dedicated meeting of the SCE) on progress regarding this concept-validation phase.
- Regular informal exchanges between both Parties at technical level to discuss progress and findings from TSOs and ensure regular oversight and input by the Parties.

At the latest October 2025

- TSOs to deliver a draft report for the requested supporting analysis to EU and UK regulators.

November 2025

- TSOs to deliver to the SCE the requested supporting analysis and summary presentations from the UK and EU TSOs on MRLVC, of the confidential and non-confidential version.

December 2025

- Regulators to submit their opinion on TSOs supporting analysis.
- Technical presentation by the UK and EU TSOs and by the UK and EU Regulators to the Parties.

First half of 2026

- SCE to take the necessary steps to ensure that TSOs develop arrangements setting out technical procedures in accordance with Annex 29 within a specific timeline.

Link to SCE recommendation
eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=COM:2024:539:FIN

EU-UK summit 19/05: electricity trading

The Starmer - Von der Leyen summit put the basis to reset Brexit agreement and enhance trade relationships between EU and UK. Electricity trading was part of the common understanding:

What do we know:

- MRLVC will probably be discontinued:
  - *Since we [UK] left the EU we have traded electricity inefficiently, adding costs and friction [1]*;
  - *The European Commission and the United Kingdom should explore in detail the necessary parameters for the United Kingdom's **possible participation** in the European Union's internal electricity market [2]*
- TCA energy chapter will be extended in a month
  - *We [EU-UK] will give clarity to industry to invest by putting the Trade and Cooperation Agreement's energy chapter on a permanent footing, meaning certainty for businesses in the long term [1];*
  - *Today the European Commission and the United Kingdom have reached a political agreement to continuously extend the application of the Trade and Cooperation Agreement's energy title and to proceed with the first of such extensions until 31 March 2027, and on an annual basis thereafter. The European Commission and the United Kingdom have committed to take the necessary steps to formalise this political agreement within a month [3]*

Sources:
[1] UK-EU Summit - Explainer (HTML) - GOV.UK
[2] A renewed agenda for European Union – United Kingdom cooperation Common Understanding
[3] Questions and answers: Questions and answers on the package agreed at EU-United Kingdom Summit | polit-x.de
[4] How the UK and EU thrashed out a post-Brexit reset in relations

EU-UK summit 19/05: electricity trading

What will come and it is still uncertain

It is not clear which level of integration in the IEM will be chosen by EU and UK. There are some determining factors:

- Interpretation of Articles 20 and 21 of the Common Understanding:
  - *20. Regarding its territorial scope, any agreement should be appropriately articulated with the provisions of the Windsor Framework. Any agreement should be based on a **balance of rights and obligations and ensure a level playing field**. In this context, it should define the relationship between the United Kingdom and European Union rules on the electricity market, as well as on State aid, the promotion of renewables and the protection of the environment, in so far as they relate to the electricity sector.*
  - *21. Accordingly, any agreement should include **dynamic alignment with European Union rules** where relevant, **giving due regard to the United Kingdom's constitutional and parliamentary procedures** and **respect the role of the Court of Justice of the European Union** within an arbitration-based dispute resolution mechanism, and an appropriate United Kingdom contribution to decision-shaping.*

- UK willingness to follow EU requirements to fully enter in the IEM (CACM 2.0 Article 1 § 6):

Proposal to amend CACM 2.0 and insert dynamic alignment of third countries' regulations with relevant EU rules

  - *TSOs and NEMOs from third countries may only be integrated into the single day-ahead and single intraday coupling in the Union provided that the third country **has concluded an agreement with the Union** and **has incorporated in its domestic legal system the Union's acquis organising the single electricity market, as well as the relevant terms, conditions and methodologies, the relevant rules on renewable energy, on system operation, on consumer participation and protection, and on environment and competition, as well as rules ensuring administrative enforcement and judicial oversight over its TSOs and NEMOs.** National regulatory authorities, TSOs, and NEMOs of the third country shall apply, and comply with, relevant Union acquis and the requirements set out in this Regulation, including with terms and conditions or methodologies adopted pursuant to Articles 4 and 5 of this Regulation.*

- UK internal political narrative:
  - *The UK press release of the summit does not speak about participation in IEM but rather "participation to EU platforms"*

In October 2024 a broad coalition of energy associations and TSOs urged governments to return to price coupling and proposed an alternative

The time is now to pave the way for efficient electricity exchanges between the EU and the UK

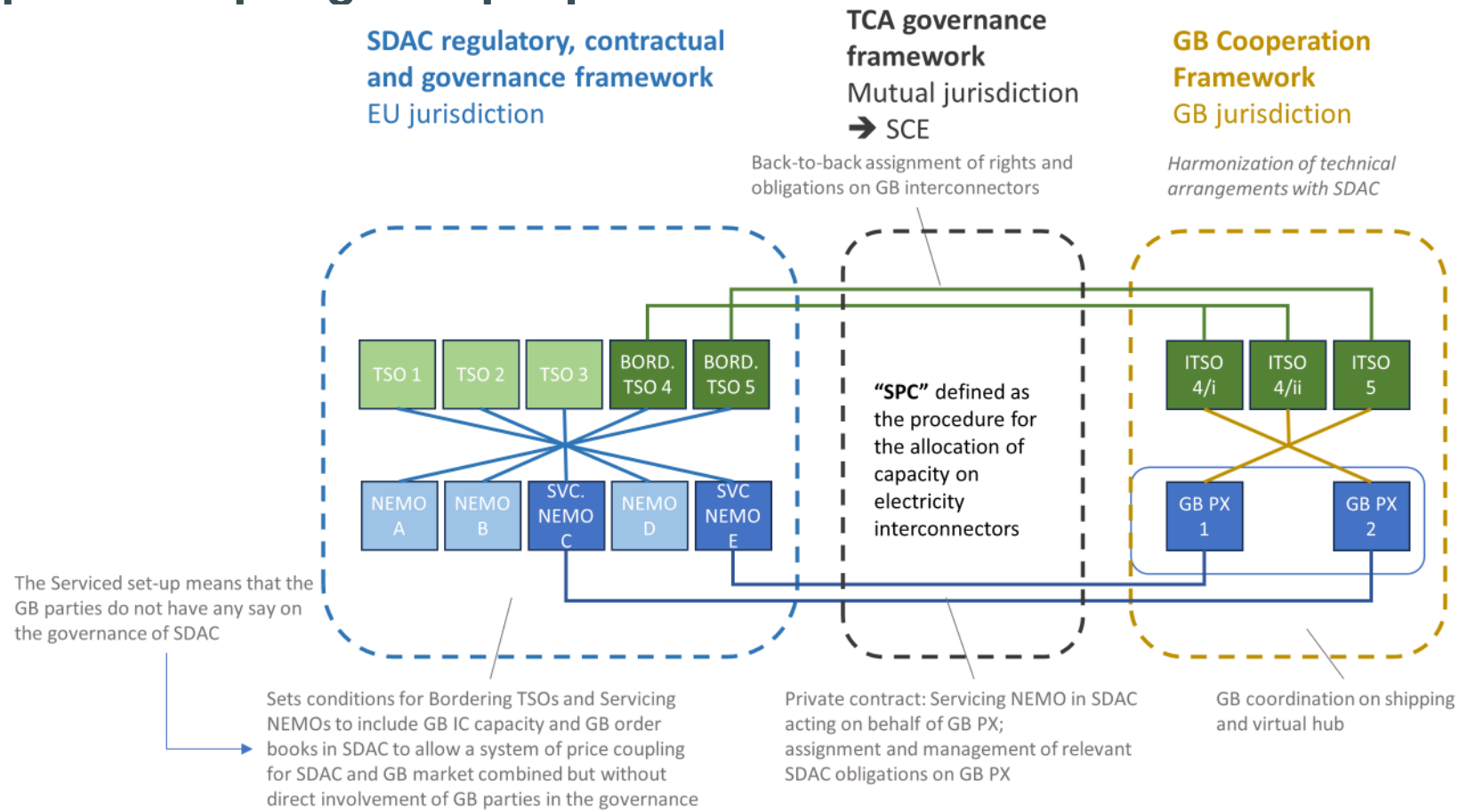
A joint letter from key associations and companies across the energy sector towards the European and UK governments

Reaching the EU's & UK's respective ambitions for a competitive green transition

Political leaders in the EU and the UK have reconfirmed their respective ambition for the Green Transition and for closer cooperation in the field of energy. This political willingness to commonly find solutions for the offshore developments of the North Seas was also recognised in the North Seas Energy Cooperation (NSEC) 2023-2024 Action Agenda. As companies and associations committed to deliver the energy transition in the UK and Europe, we strongly support this. In particular it provides an opportunity to resolve a number of crucial outstanding issues in the EU-UK energy relationship like inefficient market coupling or CBAM. If these issues are fixed, it would create massive benefits to both consumers and industry, as well as help the EU, EEA and UK meet their respective climate and energy targets. The issues around Carbon Border Adjustment Mechanism (CBAM) have already been highlighted by different studies, but the implementation of linking the EU and UK ETS is still pending and should be progressed as a matter of urgency. Another key element, which is the focus of this letter, is to establish more efficient electricity arrangements between the European Internal Energy Market (IEM, which includes Norway) and the GB market. This is of particular urgency to unlock investment in offshore generation and grid infrastructure required to achieve the goal of fully exploiting the renewable energy potential in the North Seas. Efficient cross-border trading arrangements would also provide huge gains in social welfare for both the EU and UK consumers, meaning that the costs of meeting the energy objectives can be significantly reduced.

Developing the offshore grid as an essential enabler

Efficient, fair and open energy markets are absolutely critical to achieving the aims of optimal operation and investment. In order to secure the required investments to transform the North Seas into the Green Power Plant of Europe, which could run into the billions, investors need confidence that their assets will be operated in the most optimal and efficient way – based on trusted market principles. These are investments with long lead-times, in particular for offshore hybrid interconnectors (combining offshore renewable integration and interconnection between countries). Clarity on an evolution towards an improved market framework is urgently needed in order for generation and transmission infrastructure to be developed on time to reach the declared political ambitions. The Draghi report also highlights the importance of investment in grid infrastructure to reinvigorate EU competitiveness and the Letta report specifically mentions the need for finding a balanced and mutually beneficial framework to strengthen the ties with the UK.



- **SPC could be an alternative if reintegration negotiations do not evolve**
- **A subgroup of TSOs and NEMOs in MCSC is planning to further work on the concept**

[Broad coalition of energy associations and TSOs calls upon political leaders to prioritise enhanced electricity trade between UK and EU to fully develop the offshore potential of the North Seas]

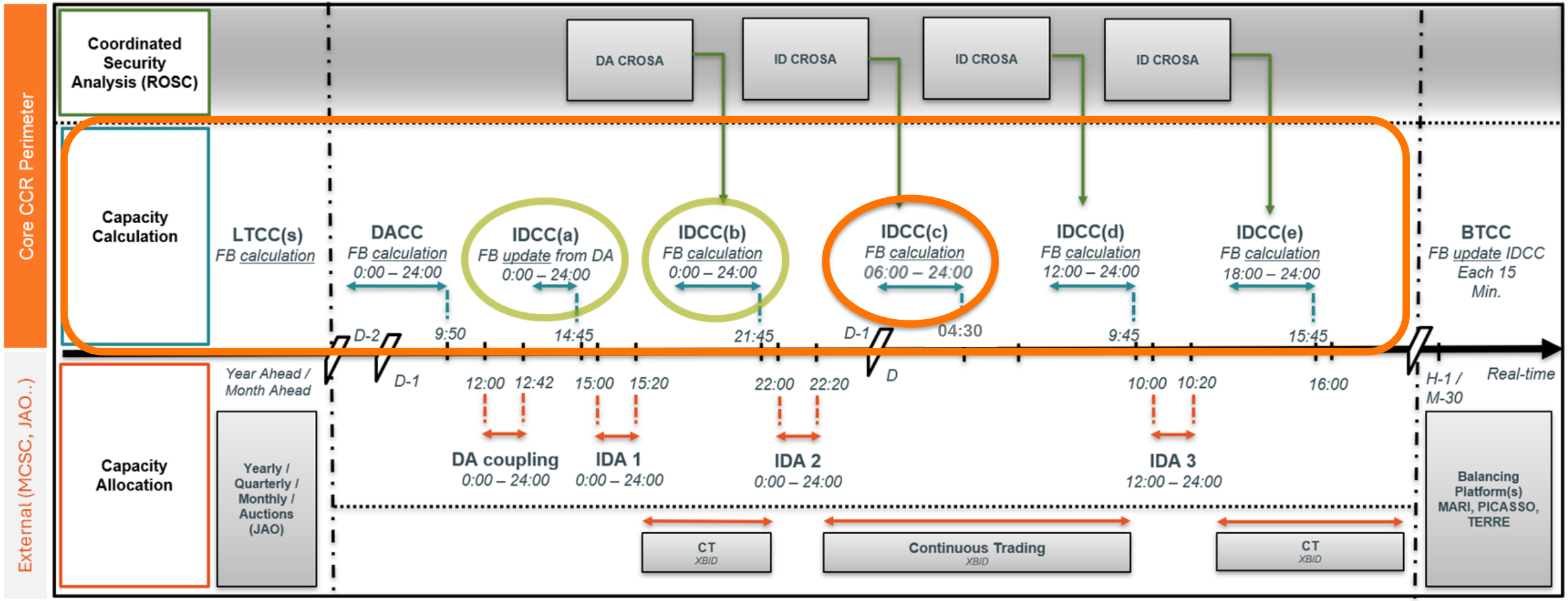
ID: Core IDCC(c) go-live

European Markets

François Herinckx

Introduction & Reminder: Target Model for Core region – IDCC(c)

Starting from day-ahead timeframe, a repetitive loop from Capacity Calculation, to Allocation and afterwards Security Analysis starts



Introduction & Reminder: Core IDCC runs characteristics

IDCC step	CGM used	Capacity used by	TET for capacity provision to SIDC (XBID)	Capacity can be used for markets from... to... (Delivery period)	Go-live (foreseen) date
IDCC (a)	D2CF	IDA1 + CT	D-1 14:45	0-24	June 2024
IDCC (b)	DACF	IDA2 + CT	D-1 21:45	0-24	May 2024
IDCC (c)	**IDCF (02:15)**	**CT**	**04:30**	**6-24**	**25 June 2025**
IDCC (d)	IDCF (07:15*)	IDA3 + CT	09:45	12-24	(March 2026)
IDCC (e)	IDCF (13:15*)	CT	15:45	18-24	(Q4 2026)

IDCC: Intraday Capacity Calculation
SIDC : Single Intraday Coupling
IDA : Intraday Allocation
CT : Continuous Trading
CGM : Common grid model
D2CF : D-2 Congestion forecast
DACF : Day Ahead Congestion Forecast
IDCF : Intraday Congestion Forecast
TET: Target End Time

*yet to be confirmed

Core TSOs are preparing the IDCC(c) go-live on 25th June 2025

The external parallel run started on 17th December 2024. All go-live indicators are on green status including results representativeness. No significant impact is thus expected from the (recent) deployment of individual validation tools.

- Market parties can monitor capacities and validation reductions on the JAO publication tool
  - EXT // run: https://parallelrun-publicationtool.jao.eu/coreID/home
  - Go-live: https://publicationtool.jao.eu/coreID/
- Reminder: Elia does not apply individual validation in IDCC as per the current methodology the capacities are considered operationally secure

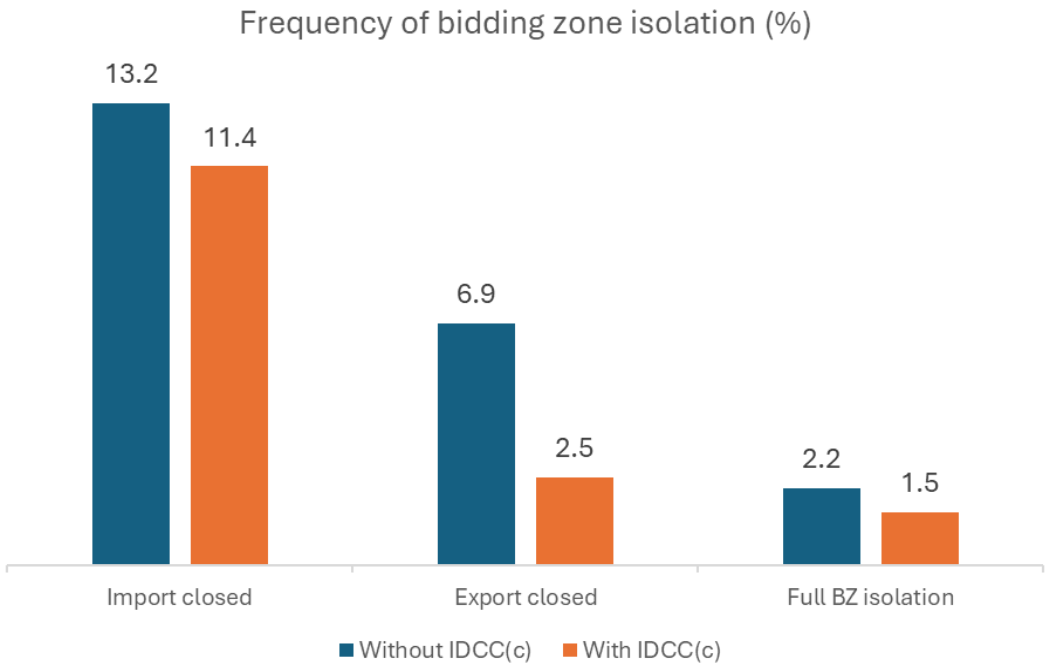
This capacity calculation step will allow to use a more recent grid model (IDCF 02:15 instead of DACF), including more remedial actions. Hence, **reducing the level of pre-congestions** and consequently the **bidding zone isolation in Belgium**.

The following graphs illustrate the added value of IDCC(c)

Frequency of bidding zone isolation in import, export and both directions	Compare the available cross-zonal capacities at ~4:30 with and without IDCC(c).
Top pre-congested CNEs	Compare which grid elements are pre-congesting the Belgian borders and how frequent this happens: the situation at ~21:45 thus the end of IDCC(b) is compared with the situation at ~4:30 thus the end of IDCC(c)

IDCC(c) Go-live reduces the pre-congestion and bidding zone isolation in Belgium

Data period:
17/12/2024 (start of external //run) - 19/05/2025



Bidding zone isolation reflects the impossibility from the BZ to trade in either import, export or both directions

- Less bidding zone isolation occurs after IDCC(c) run takes place.
- BE border directions account for a decrease of ~10% of the negative and zero ATCs, mainly for the export direction with a decrease of limited flow exchanges towards FR, DE and NL bidding zones.

IDCC(c) Go-live reduces the pre-congestion and bidding zone isolation

Data period: 17/12/2024 (start of external //run) - 31/03/2025

Outcome of IDCC(b)

NE_Name	TSO	BE>DE	BE>FR	BE>NL	DE>BE	FR>BE	NL>BE	Across borders
ALEGRO	ELIA - AMP - AL	18.9%			16.3%			35.2%
Creys - Saint-Vulbas 1	RTE					29.0%		29.0%
MEE DRT2	TTN			19.3%	19.3%	3.4%		19.3%
MEE DRT3	TTN			19.2%	19.2%	3.4%		19.2%
Daxlanden - Maximiliansau GOLDGR O	AMP-TNG	14.4%	14.4%					14.4%
Creys - Saint-Vulbas 2	RTE					14.2%		14.2%
Meppen - Y Niederlangen	AMP-TTG						12.4%	12.4%
Doerpen West - Meppen EMSLD WB	AMP-TTG						11.1%	11.1%
Doerpen West - Y Rhede	TTG	0.1%	0.1%				9.9%	9.9%
Ensdorf - Vigy VIGY2 S	AMP-RTE	0.1%		9.6%		9.6%		9.6%
Diele - Rhede	TTG	0.1%	0.1%				8.8%	8.8%
Gronau - Gronau TR 441 E	AMP	1.2%	1.2%	4.0%	4.6%	4.6%	1.2%	5.9%
Diele - Doerpen West	TTG						5.2%	5.2%
Grafenrheinfeld - Stalldorf 416	TNG-TTG		2.4%					2.4%

Outcome of IDCC(c)

NE_Name	TSO	BE>DE	BE>FR	BE>NL	DE>BE	FR>BE	NL>BE	Across borders
ALEGRO	ELIA - AMP - AL	15.9%			11.3%			27.2%
Creys - Saint-Vulbas 1	RTE					13.9%		13.9%
MEE DRT2	TTN			13.4%	13.4%	13.4%		13.4%
Creys - Saint-Vulbas 2	RTE					11.8%		11.8%
Gronau - Gronau TR 441 E	AMP	1.4%	1.4%	3.7%	4.3%	4.3%	1.4%	5.7%
Grafenrheinfeld - Stalldorf 416	TNG-TTG		5.2%					5.2%
Doerpen West - Y Rhede	TTG						4.6%	4.6%
Diele - Doerpen West	TTG						3.8%	3.8%
Ensdorf - Vigy VIGY2 S	AMP-RTE			2.0%	2.7%	3.6%		3.6%
Diele - Rhede	TTG						3.6%	3.6%
Daxlanden - Maximiliansau GOLDGR O	AMP-TNG	2.9%	2.9%					2.9%
Meppen - Y Niederlangen	AMP-TTG				0.1%		2.2%	2.3%
Doerpen West - Meppen EMSLD WB	AMP-TTG						1.9%	1.9%

Disclaimer: For ALEGrO it means that capacity on the ALEGrO interconnector has been fully used by the market previously. The ALEGrO interconnector itself does not create a pre-congestion for the other borders

The measure considered to indicate pre-congestions is the frequency the CNE is congesting a border direction.

Example: PST 2 at substation Meeden (MEE DRT2) is congesting the FR-BE border 3.4% of the time over the full period assessed, 19.3% of the time the BE-NL and DE-BE border directions. The overall frequency of congestion of this CNE on the BE borders is 19.3%, i.e. the timestamps of congestion for the 3 borders occur at the same time.

The quality of the grid model used in IDCC(c) is higher than in IDCC(b). It contains less pre-congestions **impacting the BE borders**:

- One CNE, PST 3 at substation Meeden (MEE DRT 3) in the Netherlands, no longer limits the exchanges;
- The remaining CNEs congest the borders less often after the IDCC(c) run, except the tieline "Grafenrheinfeld – Stalldorf 416" between Transnet and Tennet Germany

ID: Capacity Improvement Study

European Markets

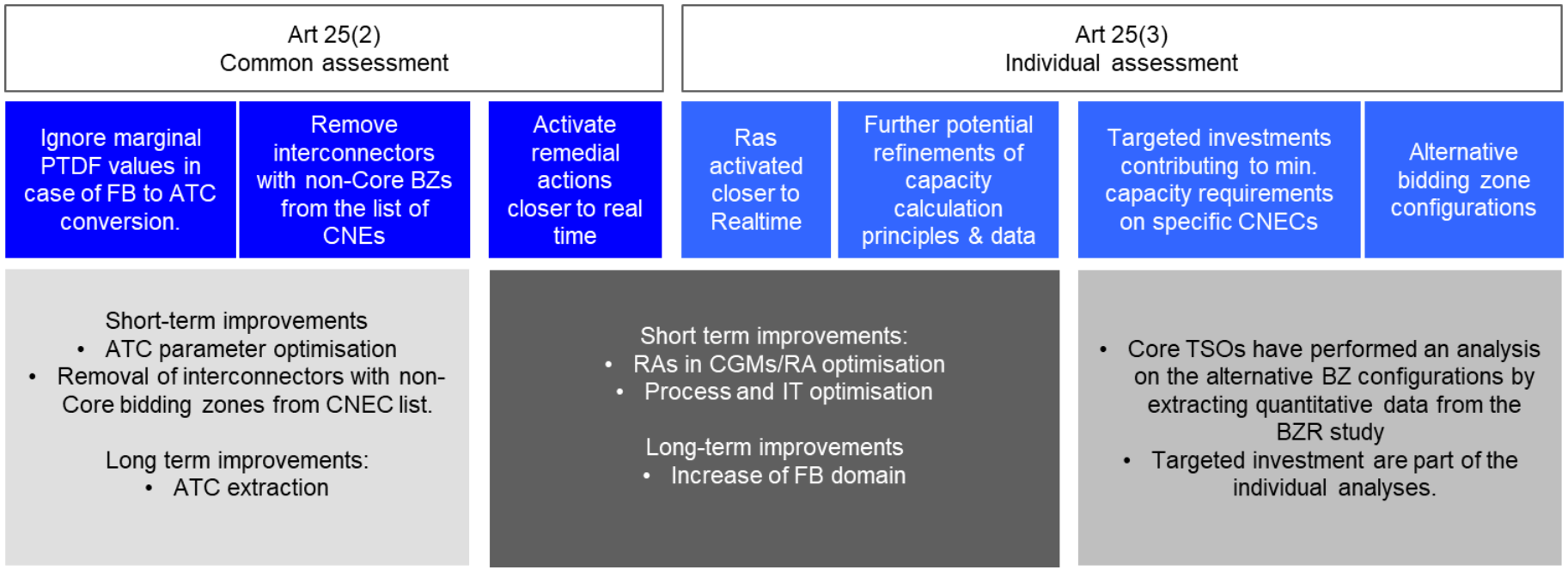
François Herinckx

ID Capacity Improvement Study: Context

ACER decision 03/2024 amended the ID CCM and introduced requirements to:

- Analyze possible measures to increase cross-zonal capacities in the intraday timeframe, and over time, to reach the minimum capacity threshold of 70% pursuant to Article 16(8) of the Regulation (EU) 2019/943
- Submit the related amendment proposals by 1 October 2025

High-level organization of the study topics complying with the requirements. These are divided into **short- and long-term improvements**, which respectively would not require and would require an ID CCM amendment.



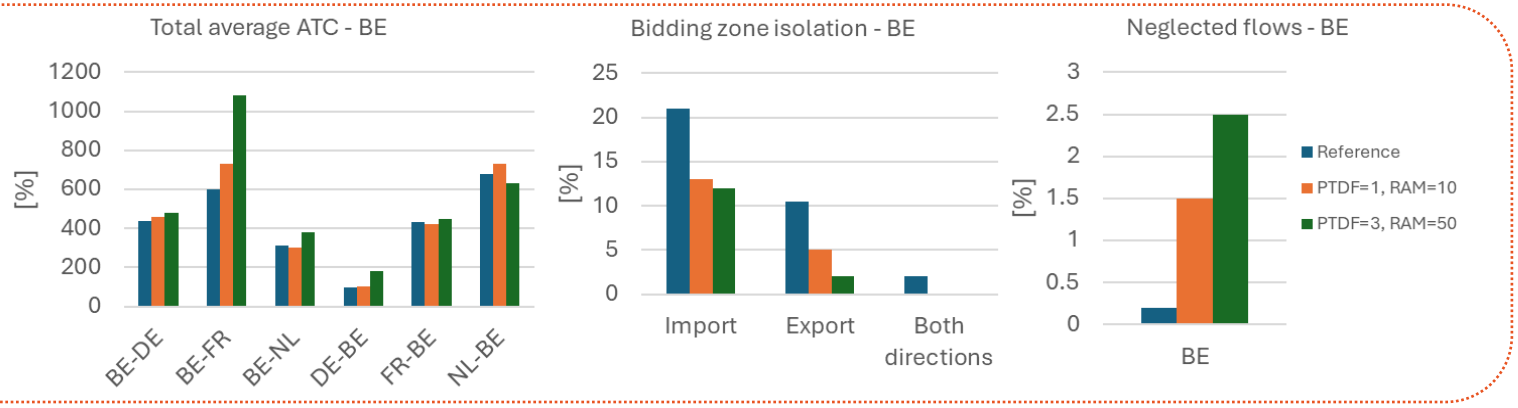
ID CCM: Intraday Capacity Calculation Methodology
CNEC: Critical Network Element and Contingency
PTDF: Power Transfer Distribution Factor
CGM : Common grid model
IGM: Individual grid model
CNE : Critical Network Element
BZ: Bidding Zone
BZR: Bidding Zone Reconfiguration
RA: Remedial Action

ID Capacity Improvement Study: measures agreed to implement

		Study topic	Conclusions on Core level
Measures agreed to implement	Short -term	Optimization of ATC extraction parameters: IDCC(a) PTDF threshold increase from 0.5% to 1%	Positive impact on bidding zone isolation. The increase in neglected flows (proxy to measure impact on operational security) is deemed acceptable.
		Improved IT and process timings	12 to 24 minutes can be gained in the process, allowing to use a DACF at a later moment leading for some days the usage of a more recent version of TSCNet security analysis results and for some days an update of the Terna IGM. Both lead to a potential increase of intraday capacity for IDCC(b).

Elia view on IDCC (a) relaxation of PTDF threshold to 1%: strong support as it reduces the BE bidding zone isolation of Belgium. The 1% is a compromise, a further relaxation is acceptable in our grid but not Core-wide.

BE view on effect of relaxing ID ATC extraction parameter for IDCC(a)



Elia view on IDCC(b) improved IT and process timings brings improvements in Core: strong support as it in general improves the quality of the grid model. The improvement is rather limited, and insufficient to address the pre-congestions / BZ isolation in IDCC(b).

ID Capacity Improvement Study: measures discarded

		Study topic	Conclusion on Core level
Measures discarded	Short-term	**Removal of interconnectors with non-Core bidding zones from IDCC CNEC list**	Discarded for grid security reasons. Even if certain CNECs appear redundant under normal operational conditions, their inclusion in the capacity calculation helps to account for contingencies, ensuring that outages are properly considered
	Long-term	**Remedial Actions anticipation (grid model quality improvement): (N)RAO approaches**	Limited improvement. Implementing a RAO step within the current IDCC(b) timings is not feasible. The implementation effort to create an operational process is not compatible with the aim to improve ID capacities in the short term. Core TSOs prefer to focus on the ROSC implementation and the interaction with IDCC processes.
		Remedial Actions anticipation: Improvement of the IGMs	TSOs decided to leave this up the appreciation of individual TSOs, hence it is not considered as a common measure for improvement
		Increase of FB domain: minATC approach	Non-preferred redistribution effects

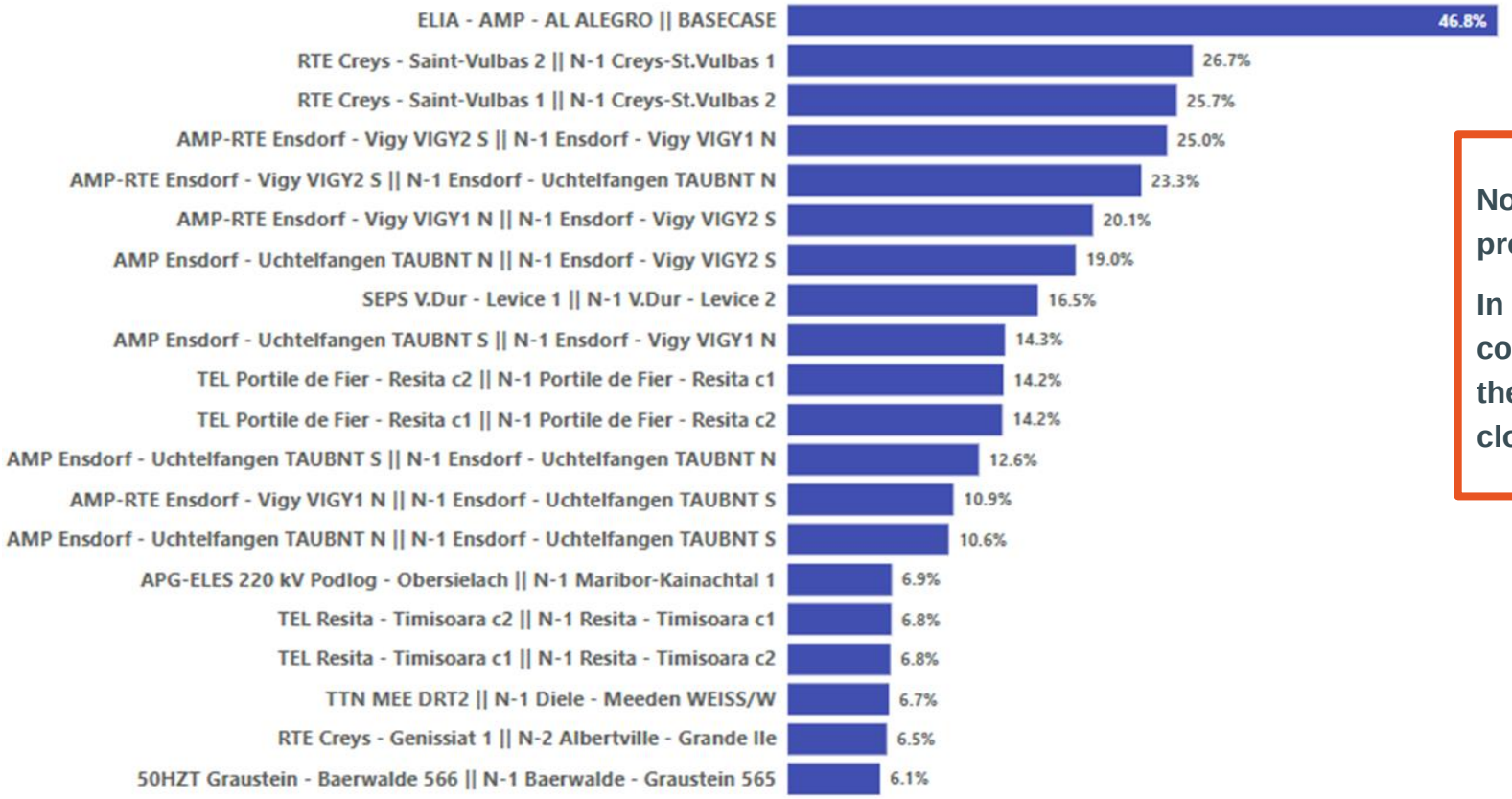
Elia agrees with the conclusion on common measures discarded. Additional arguments to discard a central (N)RAO:

- The use of cross-border redispatch requires to have proper cost sharing rules i.e. polluter pays
- In the proof-of-concept a regression of BE bidding zone isolation and BE ATCs is observed

Improvement of the IGM: Elia already implemented measures prior to the study. Elia observes there are no further initiatives taken by TSOs individually, which underscores the important of alternative solutions to mitigate pre-congestions in the grid model.

ID Capacity Improvement Study: deeper-dive
KPI on pre-congested CNECs: top 20 CNECs over the Core region

Period assessed (used for the CIS): since IDCC(b) go-live until 13/12/2024



No Belgium CNECs identified in the top 20 pre-congested CNECs.

In other words, Elia is already providing congestion-free DACF IGMs, meaning that the Core IDCC(b) ATCs are practically never closed because of Belgian pre-congestions.

Disclaimer: For ALEGrO it means that capacity on the interconnector has been fully used by the market previously. The ALEGrO interconnector itself does not create a pre-congestion for the other borders.

ID Capacity Improvement Study: measures to further study

		Study topic	Conclusions on Core level
Measures to further study for IDCC(b)	Short-term	Optimization of ATC extraction parameters: IDCC(b)	Core TSOs see a need to further reduce pre-congestions and bidding zone isolation for IDCC(b) TSOs could not yet conclude a further relaxation of the ATC extraction parameters due to already high level of neglected flows. An additional factor is the interdependency with a potential implementation of virtual capacities. The number of BDs was too limited to conclude on the impact of introducing virtual capacities in ID on grid security. Therefore, the results of the study do not allow for a final conclusion regarding specific concepts of minRAM in ID (e.g. lower levels of minRAM).
	Long-term	Increase of FB domain (with virtual capacity): minRAM approach	

Elia strongly supports to further study both relaxation of ATC extraction for IDCC(b) and a low level of minRAM

- Both measures have been studied in isolation and show their potential. Their combined effect is to be further assessed
- Relaxation of ATC extraction is a powerful measure and quick to implement. At the same time, it does not address the root cause of pre-congestions hence a low level of minRAM as proxy measure

The study also assessed a minRAM70% scenario. It reveals a structural reliance on virtual capacity which will come along with limitations in validation and subsequent capacity reductions

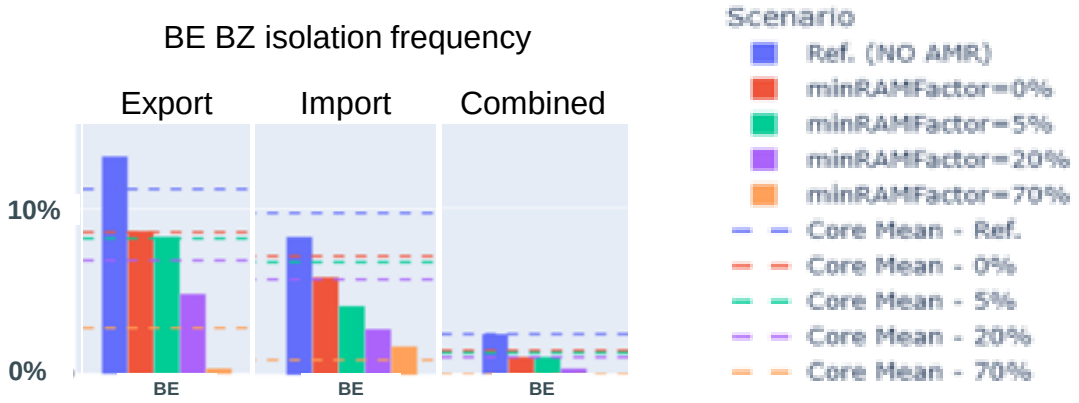
- Use of RAs close-to-real time <=> limitation: no coordination process after the closure of the ID market
- A robust validation set-up would be needed <=> limitation: 40 minutes to perform validation

Provision of sufficient cross-zonal capacity for the ID timeframe is crucial to a well-functioning ID market. As demonstrated with IDCC(c) a feasible solution relies on aligning markets with physics i.e. improving the quality of the grid model. Relying on virtual capacity and/or rejection of internal CNECs is not a silver bullet.

ID Capacity Improvement Study: deeper-dive
Measures to be further studied – low level of minRAM in IDCC(b)

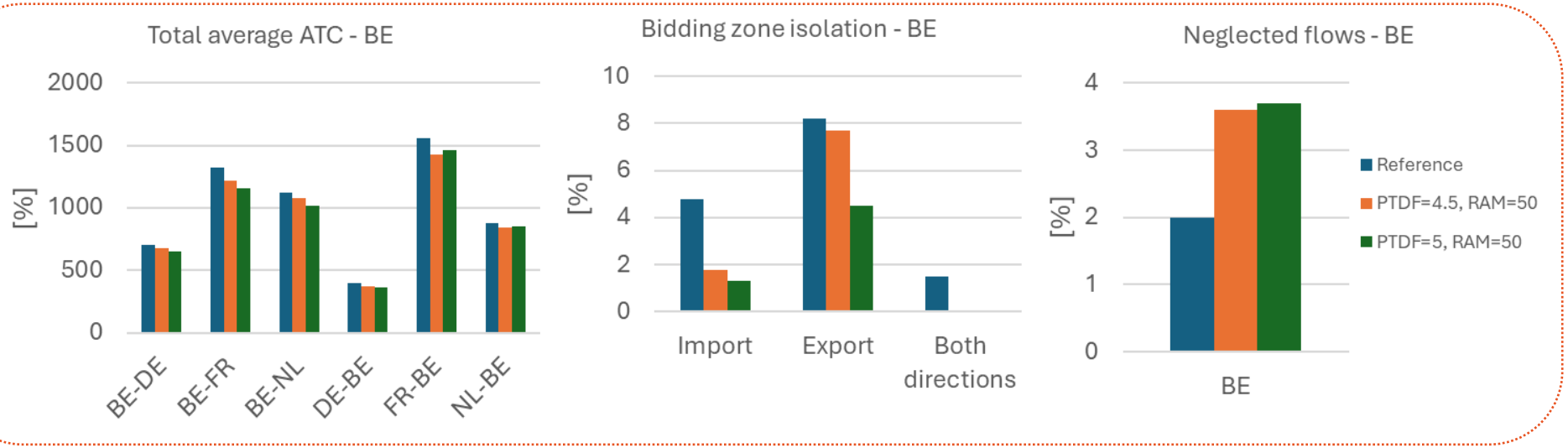
ID minRAM 20% at zero-balanced shows potential for improving the capacities – a proxy to fix the quality of the grid model

- Capacities: positive impact on BZ isolation and ATCs
- Grid security: positive experience in the past (CWE time) with 20% minRAM in DA leftovers
- An ID local validation tool would become needed and require development. The following points are observed:
  - Rare application of virtual capacity on BE elements: At 20% minRAMfactor, about 10% of BE CNEs required adjustment with a mean level of virtual capacity around 5%
  - Vertex selection around the market coupling point remains a sensible strategy
  - No RA coordination is a limitation to ID local validation, resulting in a limited RA potential compared to DACC



ID Capacity Improvement Study: deeper-dive
Measures to be further studied – relaxing ID ATC extraction parameters for IDCC(b)

IDCC(b)



The relaxation of ATC extraction parameters is beneficial in terms of BE BZ isolation without causing excessive neglected flows in the Elia grid. Therefore, Elia greatly supports ambitious relaxations

Increasing the PTDF threshold to 4% or even 5% would reduce BE borders closures by removing the impact of Dutch, German and French pre-congestions.

Long-term perspective: its effect will cease to exist when flow-based allocation is implemented in intraday, at least for the IDAs.

ID: 30min GCT consultation, preliminary feedback

European Markets

Floris Vankrunkelsven

ID: 30min GCT consultation, preliminary feedback

Quick recap

1. The Intraday cross-zonal Gate Closure Time should move to 30 minutes before real time as of 01/01/2026 (Regulation (EU) 2024/1747)
2. Elia will request additional time to make sure this change can be implemented safely → Derogation will be requested for Elia readiness on 31/3/2027. Effective go live per border will be dependent of other TSOs' readiness/derogation and SIDC go live windows.
3. A Public Consultation was held from 12/05/2025 – 12/06/2025 gathering market parties' feedback. All relevant information can be found on the following webpage: link
4. The feedback received will processed into a consultation report. This report will be attached to the formal derogation request to be submitted to the CREG.

ID: 30min GCT consultation, preliminary feedback

5 Responses

- EPEX, Nord Pool, FEBEG, 1 trader and 1 other

Short summary

- Respondents emphasize the benefits 30' ID CZ GCT will bring
- Respondents request minimizing the derogation as much as possible and appreciate Elia's limited derogation, the justification and action plan provided
- Some respondents find a derogation unacceptable in general, urge Elia to be more ambitious and request an ID CZ GCT even closer to real time.
- Some respondents suggest close interaction with market parties and the NRA regarding RD GCT and Return to Daily schedule
- Respondents suggest harmonization and synchronization of the different derogations and go live dates to increase overall efficiency of testing, resources used, etc.

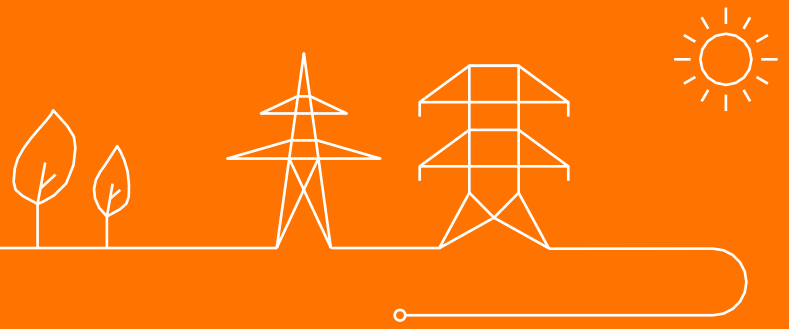
System Services Design

iCAROS:

- LT OPA go-live
- General communication regarding data quality and offering of flexibility

iCAROS team

Phase 2 - Release 1 : LT OPA [Full design availability plan for ≥ 25 MW all timeframes]

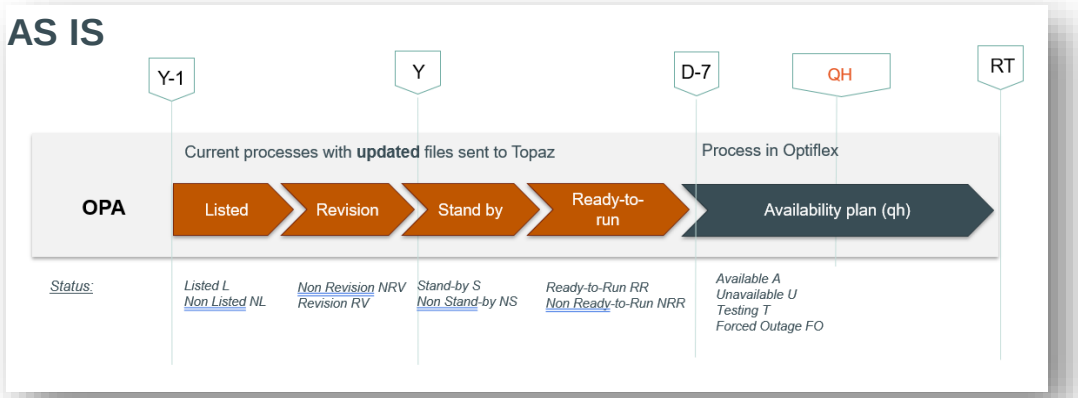


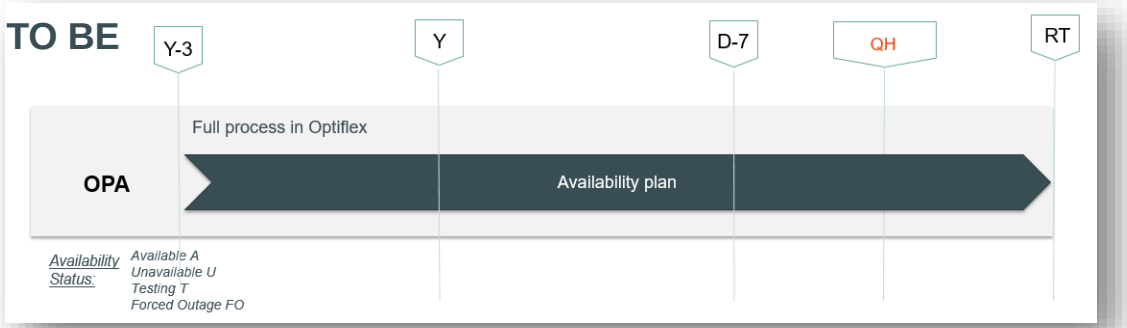
Reminder – Evolution of Availability planning process in iCAROS phase 2

For TSO (and CDSO connected to TSO grid) connected Technical Facilities with an installed capacity >= 25 MW

Target design

- **Simplified and uniform process** to provide availability plans to Elia
  - Removing several “gates” to provide information and introducing **continuous updates of data**
  - Full alignment with SOGL statuses (A, U, T and FO) for all timeframes
- Introduction of **Y-3 process** in accordance with article 93 of the SOGL
- Modalities related to the provision of a Testing status
- Alignment of provision of data with **requirements related to transparency**





FOR INFORMATION PRE-READ

Initial Go live decision process LT OPA

Readiness check point : begin June 2025

Point of no return 10/06/2025

Go live period 17/06/24 – 23/6/2024

Must

Market parties' readiness

Assessment of common testing 1 – predefined scenarios & Common testing 2 – prod data 2025 indicate that market parties are not ready for go-live => communication of delay of go-live send to OPAs 02/06/2025

Must

Regulatory approval

Regulatory approval

- VNR = 28/05/2025
- Brugel = soon to be expected
- CREG = soon to be expected

To be assessed whether the decisions are aligned, publish the approved version of the T&C OPA on Elia's website and inform involved parties.

Go - no Go

Updated Go live decision process LT OPA

Readiness check point : begin October 2025

Point of no return 7/10/2025

Go live period 14/10/24 – 21/10/2024

Must

Market parties' readiness

Market parties are requested to give feedback regarding the proposed new timeline

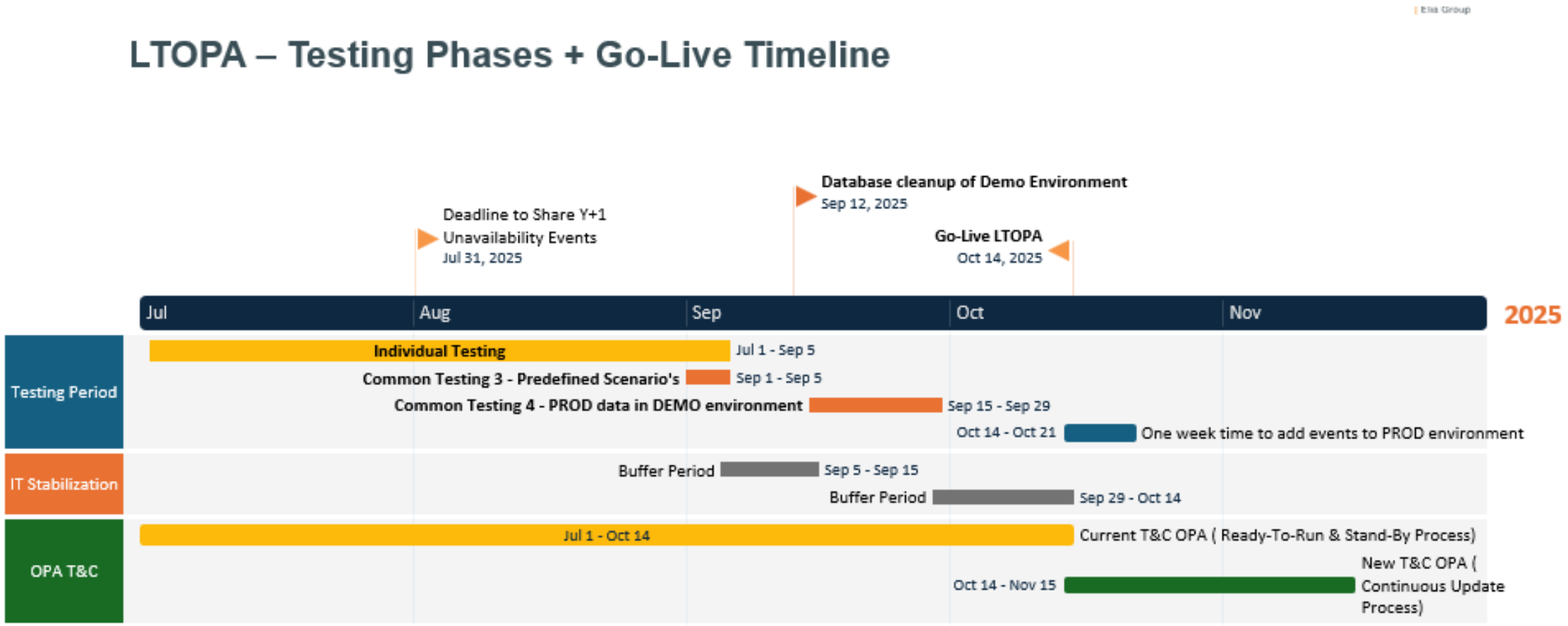
Must

Regulatory approval

Regulatory approval : should be obtained before the summer 2025

Go -
no Go

New proposed timeline due to Market Party Readiness



Attention point:

- go-live is after Y+1 unavailability events exchange (actual “Revision” procedure). The amount of unavailability events to transfer from actual framework to new OPA would therefore be much bigger.
- To be assessed whether go-live for transparency can be at the same time. Feedback will be given next WG GRID 12/9/2025

Second batch of Common testing with OPAs to reassess market party readiness

OPAs are invited to communicate specific scenarios they want to test

Common Testing 3: Submitting pre-defined unavailability Events

- **Description:** Market parties must submit pre-defined unavailability events to cover specific pre-defined scenarios. Focus on the ability of market parties to generate basic unavailability events.
- **Period:** 01/09 – 05/09
- **Participating Market Parties:** All
- **Go-live criteria:** Market parties are able to submit the pre-defined unavailability events using B2C/B2B

Common Testing 4: PROD data in DEMO environment

- **Description**: Market parties must submit in DEMO all their unavailability events for the period from October 2025 on as they would during the week of go-live
- **Period**: 15/09 – 29/09
- **Participating Market Parties:** All
- **Go-live criteria:** Market parties are able to submit their unavailability planning of 2025 - **2026 – 2027 - 2028**. Elia will check submitted availabilities randomly (*not all unavailability events will be checked this way*) and each unavailability event corresponding to an existing published unavailability (on REMIT platforms) will be accepted by Elia

Follow-up and contact persons

Comments and questions on presented information regarding LT OPA can be sent to your KAM energy:

Josephine Delmote
Josephine.Delmote@elia.be

Nicolas Koelman:
Nicolas.Koelman@elia.be

François Jadoul:
Francois.Jadoul@elia.be

Sybille Mettens:
Sybille.Mettens@elia.be

WG Grid

ICAROS PHASE 1 - DATA QUALITY MONITORING STATUS REPORT END APRIL 2025

Context update Data quality monitoring of SA/OPA

- First assessment December 2024 (period from Go-live 22 May 2024 till end November 2024) :
  Reminder of the main causes of inconsistencies
  - For the control between daily schedule and availability plan:
    - Daily schedules with higher values than Pmax available (sometimes higher than the technical Pmax)
  - For the control between the provision of RD bids and availability plan:
    - Absence of start-up/shutdown bids (also during ramping up/ramping down periods)
    - Absence of RD bids for some wind parks in case of low wind
    - Absence of RD bids for many onshore wind parks
    - Bids submitted while delivery points have a status “unavailable
- Febeliec requested a follow up during the most recent public consultation of T&C SA (6 March – 7 April 2025) of the obligation for the concerned assets to provide RD bids to Elia and transparent reporting to all market actors

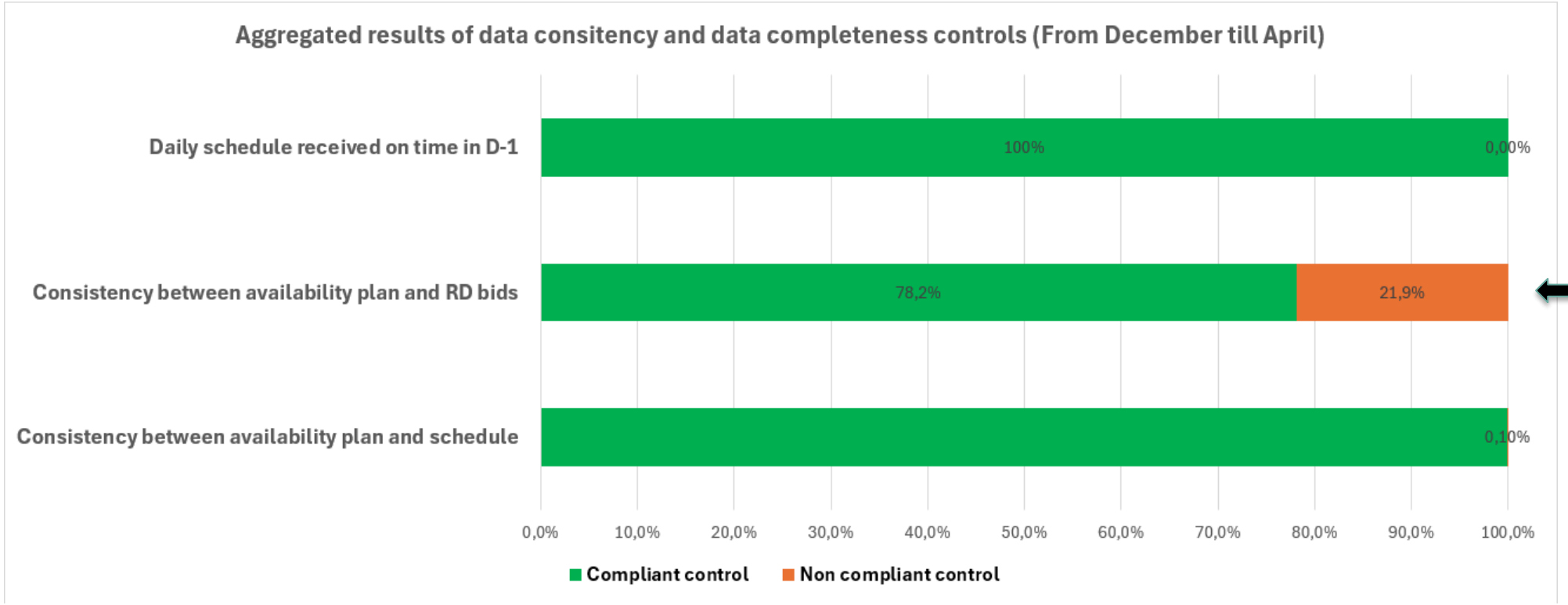
REMINDER - Data consistency and completeness controls

Consistency control between				Reason
Data 1	from	Data 2	from	
Availability status/Pmax available	OPA	**Schedule**	SA	The Availability Status given by the OPA has to be coherent with the schedule provided by the SA i.e. • In case the Availability Status is Unavailable the Daily Schedule must be equal to zero • In case the Availability Status is Available the Daily Schedule must be lower than or equal to the P_{max} Available
Availability status	OPA	**RD Energy Bids**	SA	The submission of redispatching energy bids by the SA has to be consistent with the Availability Status given by the OPA i.e. • At least one RD energy bid is submitted if the Availability Status is set to Available • No RD energy bid is submitted if the Availability Status is set to Unavailable

Data completeness control:

- Control of the on-time provision of the Schedule in D-1 at 15:00

Consistency and completeness Controls – Results (Dec 24 > April 25)



Reminder previous reporting : 22,7% of inconsistencies

Main causes of inconsistencies (similar observations to previous reporting)

- For the control between the provision of RD bids and availability plan:
  - Absence of start-up/shutdown bids (also during ramping up/ramping down periods)
  - Absence of RD bids for some wind parks in case of low wind
  - Absence of RD bids for many onshore wind parks
  - Inconsistencies between “planned outage” status and RD bids submitted

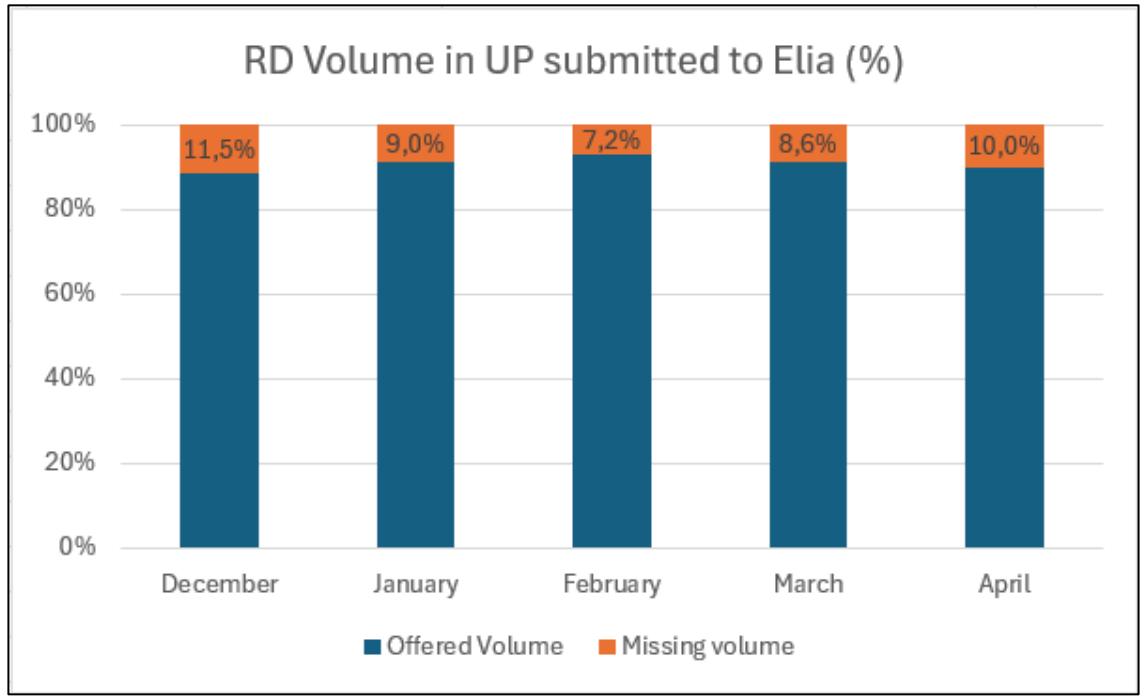
Assumptions for computing the expected flexibility in Redispatching

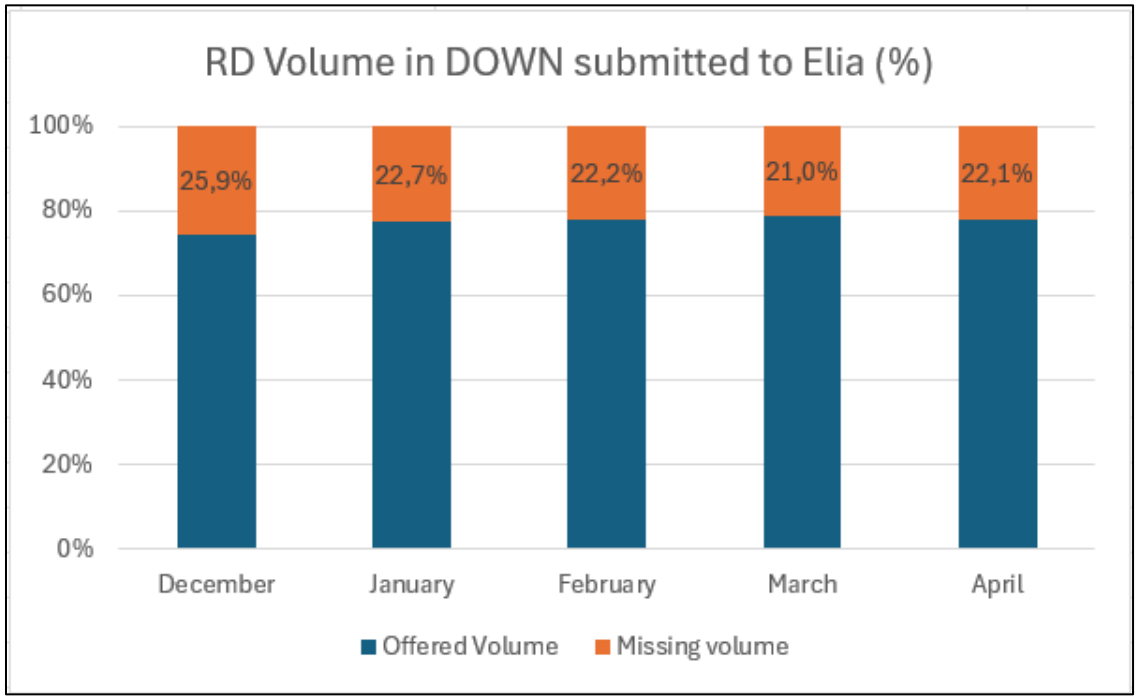
Elia took the following assumptions to compute the expected flexibility

- For upwards direction, expected RD volume is computed based on ‘Pmax – schedule’ including the mFRR contracted if any;
- For downwards direction, expected RD volume is computed based on the schedule;
- All submitted RD bids were considered independently of conditional links but capped to Pmax;

The final results were aggregated for all SAs & all technologies; therefore, it only represents a high level overview of the expected flexibility.

Explicit volume submitted by SA to Elia (Dec 24 > April 25)





REMINDER : Return to schedule (RTS)

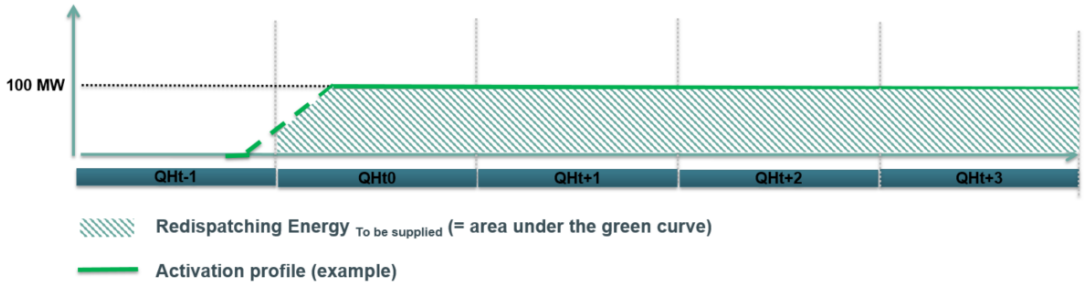
- The **last valid schedule** is expected to be **firm** and Elia can enforce the SA to return to this schedule
- In practice, Elia will only enforce the SA to **return to the schedule** when deemed **necessary for grid security i.e. if deviation from the schedule causes or aggravates an operational security risk**

Return to schedule

1. Applicable to a specific DP or all DPs in an electrical zone
2. Only applicable to DPs linked to technical facilities that are **coordinable in the opposite direction of the CRI level defined in the zone**
3. Reaction expected only if **active power injection/offtake is deviating in the direction of the medium of high CRI defined in the zone**
4. Applicable to the quarter-hour following the quarter-hour in which the request was sent by Elia and all following quarter-hours for which the RD GCT has passed

REMINDER : RD Energy Bids – Activation control

1. All the RD Energy Bid activations are controlled
2. The activation of RD energy bids will be controlled **at 'Operating Mode' level** given that RD Energy bid submission is also at this level
3. The activation control is based on the Redispatching Energy $_{\text{to be supplied}}$



Redispatching Energy $_{\text{to be supplied}}$= RD Energy $_{\text{requested}}$ except in case ramping up/down are considered:

- For the first quarter-hour due to activation profile (with a difference for scheduled activation and direct activation)
- Between consecutive quarter-hours

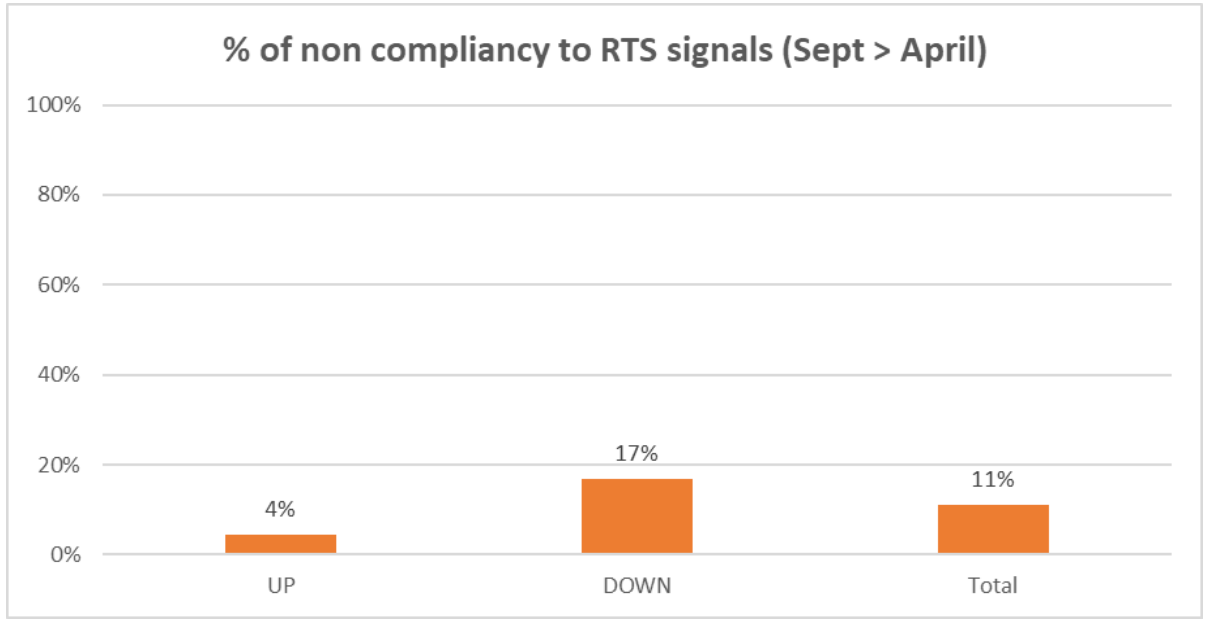
4. A RD Energy Bid activation will be considered as **non-compliant** as soon as
   a) For incremental activation: $\boldsymbol{RD\ Energy_{\ to\ be\ supplied} - RD\ Energy_{\ supplied} > 0}$
   b) For decremental activation: $\boldsymbol{RD\ Energy_{\ to\ be\ supplied} - RD\ Energy_{\ supplied} < 0}$

   Where $\mathbf{RD\ Energy_{\ supplied}} = \frac{1}{4} x\ (\boldsymbol{Schedule - Active\ power\ measured})$

FOR INFORMATION PRE-READ

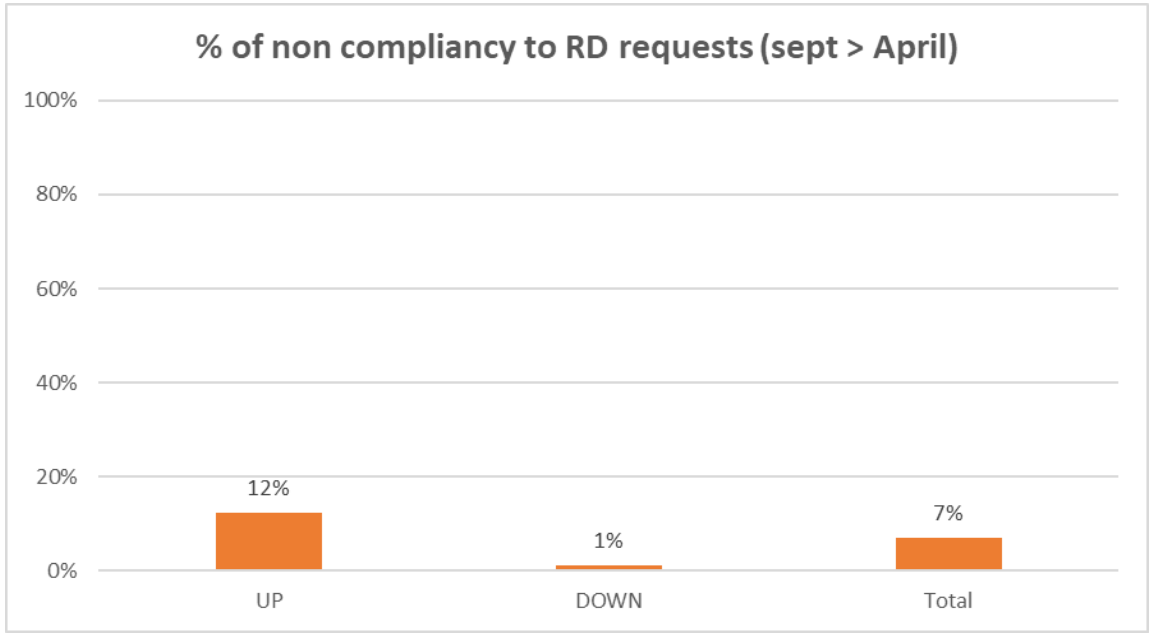
Return to Schedule and Redispatching compliances (Sep 24 > April 25)

RTS compliance



RTS per direction	Energy deviation due to non compliance (MWh)
UP	525
DOWN	6356
UP and DOWN (*)	609
Total	7490

Redispatching compliance



RD per direction	Energy deviation due to non compliance (MWh)
UP	2686
DOWN	54
Total	2740

Remark (*): RTS in UP and Down is a possible RTS signal from Elia but is not displayed in the graph as it remains rare.

Next steps

The follow-up assessment shows that a follow up and in-depth analysis is required as such the following next steps are foreseen

- Launch of a complex in-depth analysis during the summer 2025 with objective to have individual reviews between Elia and the individual SA before end 2025.
- The combination of the in-depth analysis together with the bilateral SA-Elia alignments will be compiled to an (anonymized) consolidated feedback
- This (anonymized) consolidated feedback will be transparently communicated to all market parties before end of year 2025 (target date)

Monitoring of CRI levels

CRI Statistic
Direction UP from go-live to begin of June 2025

Row Labels	CRI Level High %	CRI Level Medium %	CRI Level Low %
380kV	0.02%	0.01%	99.97%
Hainaut East	0.76%	1.66%	97.58%
Hainaut West	0.48%	0.86%	98.66%
Langerbrugge East	0.58%	0.90%	98.53%
Langerbrugge West	1.89%	1.24%	96.86%
Liège	0.20%	0.98%	98.83%
Merksem	0.06%	0.01%	99.93%
Ruien	0.04%	0.01%	99.94%
Schaerbeek / Brussels		0.02%	99.98%
Stalen		0.08%	99.92%
Grand Total	**0.40%**	**0.58%**	**99.02%**

CRI Statistic
Direction DOWN from go-live to begin of June 2025

Row Labels	CRI Level High %	CRI Level Medium %	CRI Level Low %
380kV	0.09%	0.16%	99.76%
Hainaut East	0.55%	0.41%	99.04%
Hainaut West	0.35%	0.14%	99.51%
Langerbrugge East	0.65%	0.24%	99.10%
Langerbrugge West	0.10%	0.01%	99.89%
Liège	0.25%	0.01%	99.73%
Merksem	0.01%	0.07%	99.92%
Ruien	0.12%	0.01%	99.87%
Schaerbeek / Brussels	0.22%	0.14%	99.63%
Stalen	0.45%	0.55%	98.99%
Grand Total	**0.28%**	**0.18%**	**99.55%**

Stakeholder interactions

Upcoming stakeholder management interactions in the framework of iCAROS

- Next interactions
  - **Summer 2025 – Target date for launch common TSO/DSO informal consultation** design for small units /Demand facilities [release 3]
  - **Q4 2025:** presentation design extension of CRI to local (< 150 kV up to 36/30 kV) - no development needed from market parties [release 2]

GUFlex: Feedback from the workshop on 19/05 + initiation of TF Grid Flex

System Services Design

Cécile Pellegrin

Workshop organized on 19/05 and way forward

- A workshop on connections with flexible access took place on the 19/05 and covered the following agenda points :
  - Introduction
  - CREG decision on Code of Conduct: impact and next steps
  - Status on developments in the Regions
  - Harmonization of frameworks
  - Implementation plan
  - Organization Task Force

- The publication of the amended CoC is only the beginning of a part of a long journey. Several tracks will have to be managed in parallel.
- ELIA therefore proposed to create a TF Grid Flex that would report to WG Grid.
- TF scope will cover the aspects related to the “industrialization” of the Gflex RT product on federal and regional levels, to the development of the Target Model as other flexible access products and, where applicable, to the “management of the transition”.
- If easier for the market parties’ representatives, planning of the meeting of this TF could be combined with the meeting of the TF iCAROS

Concretely, this implies to work on 3 different levels with 3 ST goals

	Federal	Wallonia	Flanders	Brussels
Existing : Any signed GUflex RT that would be connected before end of industrialization	Follow up coming cases	• Settlement beyond the limits for RES • Follow up coming cases	Follow up coming cases	Follow up coming cases
Temporary solutions: Pilots or any transitory solutions	• Define & implement “pilot” solutions	• For offtake (inc. batteries): follow up development of any temporary solutions at legal or regulatory level	• Define temporary solutions within existing framework (e.g. M-Flex)	follow up development of any temporary solutions at legal or regulatory level
Industrialize	Flexible connection RT	Development at Regional level (RT)		
	Develop additional products (e.g. ex ante products)			

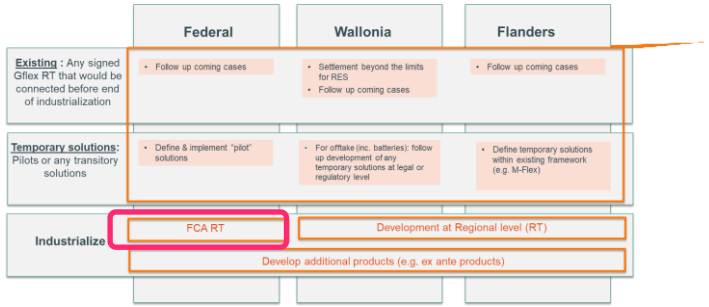
1. Manage the existing situations
2. Design and implement solutions for each of these cases
3. Pursue design & implementation of RT product, pursue reflections for ex ante products, follow legislative tracks in regions

Where are we today ?

CREG decision on Code of Conduct

Industrialize – Federal

CREG decision on Code of Conduct



- CREG has published its decision on the Code of Conduct on the 24th of April 2025
- Presentation during the workshop did not intend to present the Code of Conduct but to bring the attention on :
  - Aspects impacted in the short term:
    - ✓ Grid connection studies
    - ✓ Process for pilot projects
  - Elements impacting the implementation plan:
    - ✓ The need to resume some design discussions
      - Impact on the BSP : Elia needs further exchanges with the CREG on the high-level principles (f.i. regarding capacity obligations) before pursuing the initiated design work
      - “GU’s contribution” within the contractual limits. This topic is closely linked to baselining methodologies
      - The order of activation in case several Grid Users can solve a same congestion: elements to take into account are specified, but the actual order, including the interpretation of the economic efficiency, still need to be defined
    - ✓ Additional requests to Elia
      - Reporting obligations
      - Order of activation: depending on the interpretation of the criteria of economic efficiency, a link between the bidding platform and the real-time Gflex activation tool might need to be implemented

Where are we today ?

Status on developments in the Regions

Current status Flexible access contracts at different levels – Elia grid

	Federal	Wallonia	Flanders	Brussels
Existing Legal & Regulatory Framework	**Under construction for RT since '24** • CoC part I just amended ⇒ to be further implemented in regulated contracts, rules, processes & tools ⇒ Possibility for sandboxing ("pilot") • Next step: CoC part II (connection process & capa. reservation/allocation)	Full framework for injection only ⇒ connection study methodology differs from federal – no growth potentials per technologies ⇒ individual CBA triggered in case of flex need to determine grid investment ⇒ remuneration beyond limits only for RES and depending on outcome CBA	• No framework for flexible connection agreement ⇒ The only existing framework for congestion management is Tflex & Mflex • Note: Recent launch of track for decree revision (see next slides)	No framework
Existing cases	• No connected GU *yet* • Signed contracts • EOS/EDS studies for flexible connection agreement • No pilot *yet*	• Connected GUs • Signed contracts • EOS/EDS studies for flexible connection agreement	• EOS/EDS studies that might be for flexible connection agreement	No case

Different frameworks, different level of progress

➔ Need to converge towards a **coherent** (harmonized, coordinated) framework and to implement it

➔ **"INDUSTRIALIZE"**

➔ We cannot wait a full transposition and extension of the framework in all regions

➔ **Manage the transition**
- **a. Manage existing**
- **b. Temporary solutions**

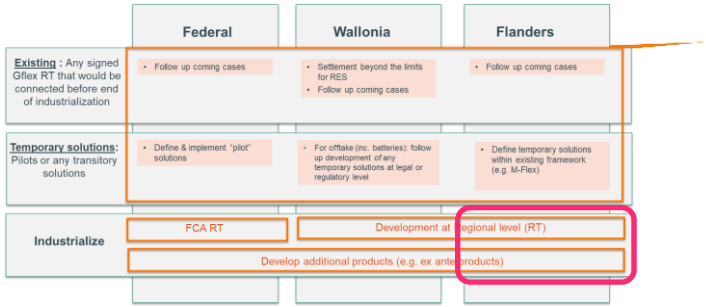
a) Manage the existing (for connected GUs)
- Implement MVP & Work arounds to ensure the necessary actions (reporting, settlement for RES in Wallonia, Pilots…)
- Review of studies at federal

b) Design and implement temporary solutions within existing* framework

* Very light and rapid adaptations not excluded

Industrialize – Flanders

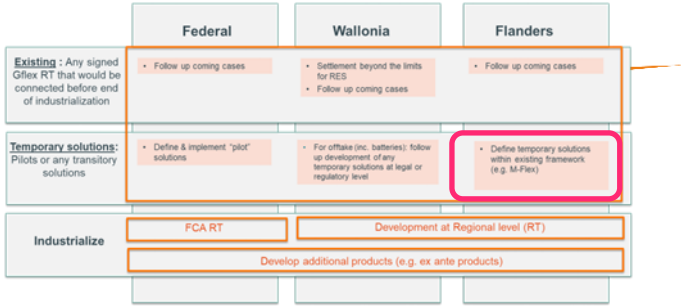
Amendment of Flemish decree



- On 14/4 VEKA launched a track for the amendment of the Flemish Decree to transpose article 6bis of the EMDR directive and to introduce the concept of Flexible Connection Agreement
- Elia as one of the stakeholders has the opportunity to react to the proposed decree in several stages of it's evolutions. During the first window for reaction, Elia made comments and/or suggestions aiming mainly at ensuring:
  - An efficient and necessary level of alignment between the federal and regional levels (for. Ex. For the BRP correction)
  - Enough flexibility to swiftly adapt some processes taking into account the evolving context.
- Goal is to publish the decree in the Belgian Official Gazette by Q1 2026

Temporary solutions – Flanders

Fall-back flex PVN



- There is a need for a temporary solution awaiting the final flexible connection framework
- To fit within the current legal & regulatory framework in Flanders, this solution needs to be based on existing principles (M-flex)
- Therefore, in line with article 4.4.30 of the technical regulation:
  - Elia defines the specifications for market tests in the context of a solution called “Fall-back flex PVN”
  - Elia presents its proposal towards the stakeholders based on following principles
  - Elia organizes a public consultation for a period of 3 weeks that will be launched tomorrow 20/5 and will run until 10/6

- Important to note is that this is intended as a temporary solution that will end when the final flexible connection framework is in place, i.e. when article 6bis of the EMDR directive is fully transposed. Therefore also, a simple solution is strived for in order to allow for a fast implementation to optimize its added value as a temporary solution.

Implementation plan & next steps

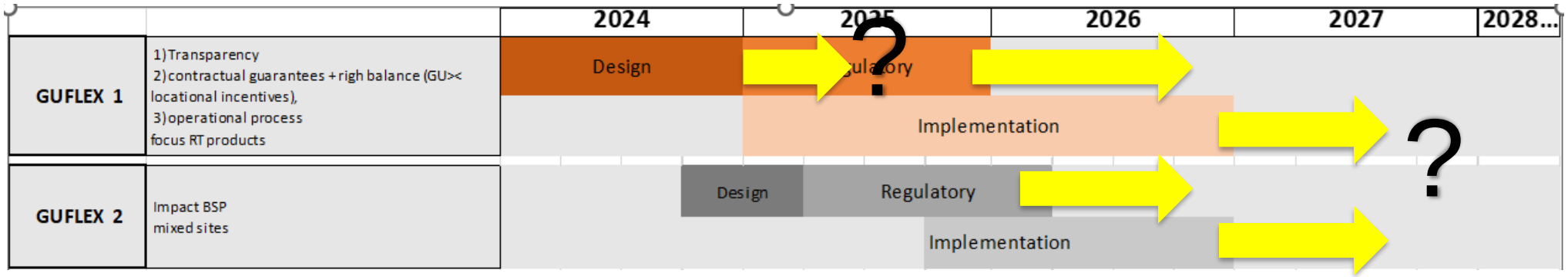
Status on the multiple defined go lives for RT flexible connection on Federal level

Go-Live		Dependencies	Target	Status
1	Methodology for client-connection studies	No amendment of the Code of Conduct needed	Q4-2024	The methodology has been published on Elia website and has been applied for the new studies as planned
2	Reporting of flexibility activation – industrialization	No amendment of the Code of Conduct needed	From Q1-2025 on	• Similarities and differences identified between federal/regions report => Elia is building a harmonized proposal considering the latest changes at federal and regional level. • Meanwhile, the reports are sent manually to relevant regulators and Grid Users • The CoC imposes additional reporting requirements, requiring significant implementation
3	Client Connection processes – Capacity reservation	Amendment of the Code of Conduct needed	TBD	The amendment of the Code of Conduct has been split in 2 parts, the client connection process will be subject to the 2nd part
4	MASC	Amendment of the Connection contract needed	TBD	The modalities are being discussed in WG Belgian Grid, with the intention to include it in the version of the connection contract that will follow the one currently in the approval process
5	Guarantees and operational principles	Amendment of the regulated documents needed	TBD	See here after

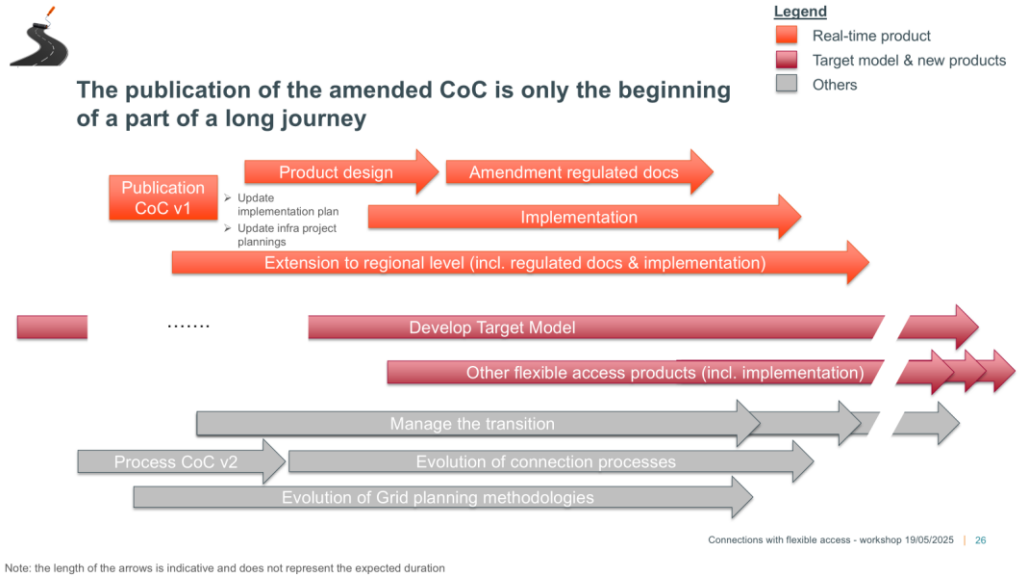
Go-live 5 - Guarantees and operational principles

- The CREG requests Elia to submit for approval to the CREG the following documents within 12 months after the publication of CREG's decision on the CoC
    - Connection contract
    - Coordination rules
    - T&C BRP

  Taking into account the elements raised by the CREG in its decision.
- The inclusion of the binding parameters (such as the temporary period) and the operational modalities (such as BRP perimeter correction) will enter into force according to the implementation plan that will be included in the relevant regulated documents and will also be valid for existing connections.
- "De CREG is van mening dat een inwerkingtreding van alle modaliteiten dient te worden geambieerd ten laatste tegen 1 januari 2027." ➔ implementation plan will be updated, but 1st of January 27 doesn't seem realistic



Implementation plan – Next steps



Note: the length of the arrows is indicative and does not represent the expected duration

An updated roadmap will have to be prepared taking into account:

- The impacts of the CoC on the implementation track of Gflex RT on Federal level (see here above)
- The impacts of the regional tracks and (non-) harmonization of the frameworks
- The tactical approach and priorities to be given to the different streams

Restoration of the grid: BESS and their role/obligation after a blackout

System Services Design

Harold Guisset

Restoration of the grid: BESS and their role/obligation after a blackout

Context and purpose of this presentation

Context

- The number of connection requests for BESS projects is increasing fast.
- The experience with the conformity assessment of these projects is still limited.
- BESS are unique any some ways which creates some new challenges.

Purpose

- Share with BESS project owners some attention points related to **voice communication** and **remote operation** gathered during the conformity assessment of the first BESS projects.
- Invite BESS project owners to contact us early in the design process to find solutions for the identified challenges.

**BESS: Battery Energy Storage Systems*

Restoration of the grid: BESS and their role/obligation after a blackout

Reminder of the regulations and content of the restoration plan

In line with EU regulations and national law, ELIA has identified BESS as Significant Grid Users (SGU) in its validated restoration plan. The following requirements regarding the restoration plan apply to the significant grid users.

User type	Capacity used in the restoration plan	Reference to legal obligations
New asynchronous storage facilities connected to the transmission grid with a maximum active power greater than or equal to 1 MW	• Be able to follow up on the TSO's permission for reactivation after unexpected dis connection. • Be able to follow a (maximum) set point from the TSO for the exchange of active power with the grid.	Required by FTR, art. 97 §5 and §6 Required by NC RfG, art. 20(1)

Roles and responsibilities of entities in the context of the restoration plan

- PGMs or asynchronous energy storage facilities with a maximum active power greater than 1MW that are connected to the ELIA grid are obligated to **follow ELIA's instructions** without delay during the restoration state to contribute to the restoration of the grid to the extent technically possible. These instructions are binding.

- Asynchronous Energy storage facilities with a maximum active capacity greater than 1MW are obliged to **make their stored energy reserves available** for grid restoration during the restoration period upon ELIA's instruction. This instruction is binding.

- Connection of the PGM or asynchronous energy storage facility with a maximum active power greater than 1MW to the transmission grid must be **coordinated with ELIA** in real time during grid restoration. During the recovery condition, **automatic reconnection of a PGM or asynchronous energy storage facility with a maximum active power greater than 1MW is not permitted.**

- Communication with ELIA by **voice communications** is required prior to reconnecting the PGM or asynchronous energy storage facility with a maximum active capacity greater than or equal to 25 MW to the grid.

- Operators of asynchronous energy storage facilities with a maximum active capacity greater than or equal to 25 MW **must designate a contact entity that is available 24/7.** This contact entity must be able to provide ELIA with clear information on the capabilities and limitations of the energy storage facility concerned in the event of a blackout.

Restoration of the grid: BESS and their role/obligation after a blackout

During recent connection requests and analysis, we have identified several challenges

Some attention points identified during the first projects

- Many BESS are or are planned to be operated remotely and sometimes from outside of Belgium.
- Remote operation is mostly done over public communication infrastructure which might / is not black out proof.
- BESS are unmanned and most/many BESS cannot be operated on site.

Challenge 1

Where should we locate the black out proof communication phone? This phone must be connected to the Elia communications network which is only available in Belgium. (24/7 contact entity)

Challenge 2

How will the Significant Grid User (SGU) operate the battery remotely if the public communication infrastructure is down during a blackout? Is back up blackout proof communication foreseen in the design?

Challenge 3

If there is no back up blackout proof communication infrastructure, is there a possibility to operate the BESS locally? (local SCADA?)

Restoration of the grid: BESS and their role/obligation after a blackout

Invitation to collaborate from Emergency and Restoration team

If you are in the (early) stages of design of a BESS project:

- Include the Emergency and Restoration topics early in your design.
- Do not hesitate to contact us to find solutions for these challenges early, in order to avoid (lengthy) discussions at the tail end of the project.

VSP: Start date of the new contract

System Services Design

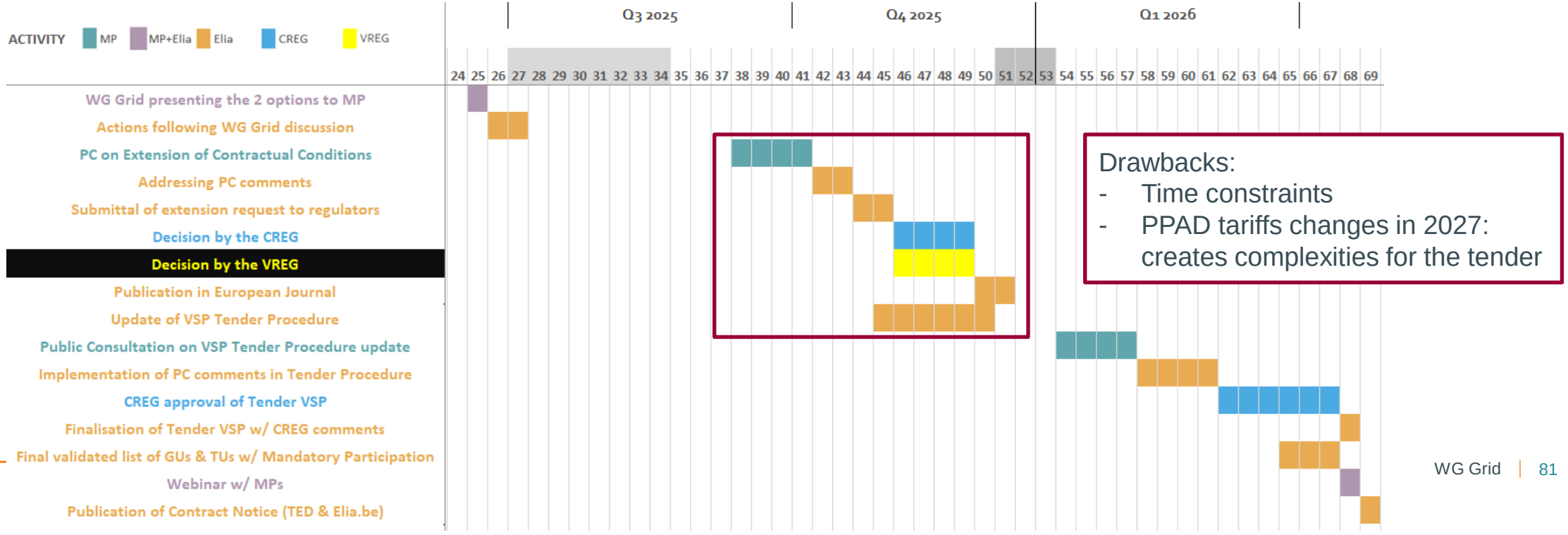
Alexandre Nève

Foreword on VSP T&C Public Consultation

- Thanks to Market Parties for submitting their comments as part of the Public Consultation.
- Dedicated Workshop under preparation for Monday 30th of June to present Elia's answers to the comments and get an opportunity to exchange before finalization of VSP T&C and submittal to regulators.
- This discussion is focused on the **options for Technical Go-Live on February 1st 2027**.
  - ☑ Elia and VSPs agree that VSP Communication IT Go-Live should be on Feb 1st 2027 instead of Jan 1st
  - In any case, Technical Go-Live needs to be at the start of the month - at midnight – to avoid mixture of 2 settlements.

Option presented to market parties in PC

- During the PC, Elia asked market parties to provide their feedback on the option to "Extend the 2025-2026 contractual conditions up to Jan 2027 included and to start T&C VSP on Feb 1st 2027"
- Based on the feedback received by market parties and regulators, this option still has some drawbacks:
  - Fixed costs for current tender must be updated for Jan 2027 based on 2027 PPAD tariffs (double tender for 2027)
  - CREG and VREG approvals for extension of contractual conditions and review of Jan 2027 prices (Time constraints)



Alternative proposal

- Considering feedback from MPs during the PC, Elia has identified a **better option for all parties**
- This option consist in: “Start of T&C VSP on Jan 1st 2027, with transitory modalities for some articles until Feb 1st 2027”
- Adapted transitory modalities on:
  - Availability info exchange
  - Power Saving Mode info exchange
  - Starting assets and extension of assets service

Advantages:
- Simpler process for everyone (one tender), less time constraints
- One more month to prepare IT tools
- No legal and timing constraints on the tender process

Alternative proposal - Availability info exchange

- Use the backup channels described in Annex 14 of the VSP T&C (emails and phone)
- For maintenance planned for Jan-Feb 2027 and affecting reactive power service, Elia requests VSPs to warn Elia by end of 2026

III.6.10 The communication, pursuant Art. III.6.9, must be done according to Annex 14. The following combinations of status and available Reactive Power are possible:

Availability Status	Meaning	Corresponding $Q_{min\ Available}$ and $Q_{max\ Available}$
A	Available	$\|Q_{min\ Available}\| \leq \|Q_{tech\_min}\|$ and $\|Q_{max\ Available}\| \leq \|Q_{tech\_max}\|$ and $Q_{min\ Available} \neq Q_{max\ Available}$
U	Unavailable	$Q_{min\ Available} = Q_{max\ Available}$
T	Testing	$\|Q_{min\ Available}\| \leq \|Q_{tech\_min}\|$ and $\|Q_{max\ Available}\| \leq \|Q_{tech\_max}\|$
FO	Forced Outage	$\|Q_{min\ Available}\| \leq \|Q_{tech\_min}\|$ and $\|Q_{max\ Available}\| \leq \|Q_{tech\_max}\|$

Where:

- $Q_{min\ Available}$ is the maximum absolute value of available reactive power that can be absorbed by the Technical Unit of the VSP
- Q_{tech_min} is defined in Annex 1
- $Q_{max\ Available}$ is the maximum absolute value of available reactive power that can be injected by the Technical Unit of the VSP
- Q_{tech_max} is defined in Annex 1

III.6.12 In the event of unavailability or regained availability of the Automatic Control service type or of the Manual Control service type of a VSP Technical unit, the VSP has the obligation to inform Elia as soon² as possible of the unavailability or regained availability of the Control service type, as mentioned in Annex 14.

III.6.13 Pursuant Art. III.6.12, the following Control service type availabilities can be submitted:

Available Control service type	Description
Automatic & Manual Control available	Normal operation of Controlling Unit, assumed by default
Automatic & Manual Control unavailable	Both the Automatic Control Service and the Manual Control Service Controlling Unit are unavailable. If technically possible, the VSP shall set the Reactive Power setpoint of the Technical Unit before the start of the Control unavailability to the Reference Setpoint defined in Annex 1 of the VSP T&C, or if not technically achievable, it shall strive to reach 0 MVAr injection/absorption. The VSP shall provide a reason for the unavailability.
Power Saving Mode	As defined in Art. II.1 Definitions

III.6.14 The VSP submits changes of Reactive Power availabilities to Elia under Availability Status "A" (Available) or "U" (Unavailable) of Art.III.6.10 at least one hour before the quarter-hour of changed Reactive Power availability.

III.6.15 Only when the VSP is planning a test with potential impact on the transmission system, the VSP submits to Elia at least one month before the start of the test:

- An Availability Status "T" (Testing) with a $Q_{min\ Available}$ and $Q_{max\ Available}$ for the test period; and
- the reason for the planned test.

In accordance with the provisions of Art. 68 of the Code of Conduct, the test may only be executed after a written agreement has been provided by Elia to the VSP. Art. 69 to 70 also apply to this test.

III.6.16 The VSP submits changes of Reactive Power availabilities to Elia under Availability Status "FO" (Forced Outage) of Art.III.6.10 in cases not covered by Art. III.6.14 and Art. III.6.15.

Alternative proposal - Availability info exchange

III.6.17 ELIA reserves the right to request the following changes to the Availability Status provided by the VSP until 5 Working Days before the day of start of the unavailability:

	ELIA can request	
Indicated by the VSP	**Availability Status**	**Meaning**
Available (A) with $\|Q_{min\ Available}\|<\|Q_{tech\_min}\|$ or $\|Q_{max\ Available}\|<\|Q_{tech\_max}\|$ for excessive lengths of time or too high frequency of occurrences	Available (A) with $\|Q_{min\ Available}\|=\|Q_{tech\_min}\|$ and $\|Q_{max\ Available}\|=\|Q_{tech\_max}\|$	The Technical Unit is requested to be capable to inject (or offtake) reactive power at values set in the Contract and minimise durations of partial Reactive Power availability
Unavailable (U)	Available (A)	The Technical Unit is requested to be capable to inject (or offtake) reactive power
Testing (T)	Available (A)	

III.6.18 In the event of a partial or full unavailability of the Technical Control Band of a Technical Unit of a VSP, the VSP must inform Elia of a more detailled reason for the unavailabilty.

Use the backup channels described in Annex 14 of the VSP T&C (emails and phone)

Alternative proposal - “Power saving mode info exchange” and & “Starting & Extension of activation” feature

III.6.11	The VSP has the obligation to message Elia as described in Annex 14 when one of its Technical Units enters into Power Saving Mode or leaves Power Saving Mode.

Elia will add an article stating entry into force of this article from 1st of February 2027

ART. III.7 ACTIVATION OF ASSETS EITHER SHUT DOWN OR IN POWER SAVING MODE, AND PROLONGATION OF ACTIVATION

III.7.1	Elia may request a Technical Unit listed in Annex 1 that is neither in Injection Mode, nor in Compensator Mode, nor Starting Up nor Shutting Down, to be activated and to increase its active power at the Minimum Active Power Threshold in Offtake or in Compensator Mode. This request only applies to Technical Unit whose Availability Control service type is not Automatic & Manual Control unavailable.
III.7.2	The request described in Art. III.7.1 is associated to an end time.
III.7.3	For Technical Units activated per Art. III.7.1, the VSP must maintain the Technical Units in Compensator Mode or, if the Compensator Mode is not available, at the Minimum Active Power Threshold in Offtake, until the activation request end time.
III.7.4	Elia may prolong the request described in Art. III.7.1 for Technical Units whose Available Control service type is not Automatic & Manual Control unavailable by providing a new end time.
III.7.5	Elia may also require Technical Units that are in Injection Mode or in Compensator Mode, and whose Available Control service type is not Automatic & Manual Control unavailable, to remain in Compensator Mode, or if the Compensator Mode is not available, to maintain their active power above or at the Minimum Active Power Threshold in Offtake. This is done by sending a request as described in Art. III.7.1.

Elia will use the back-up communication system in Jan 2027 (emails and phone calls) to start and extend activation of assets in Compensator Mode or Offtake

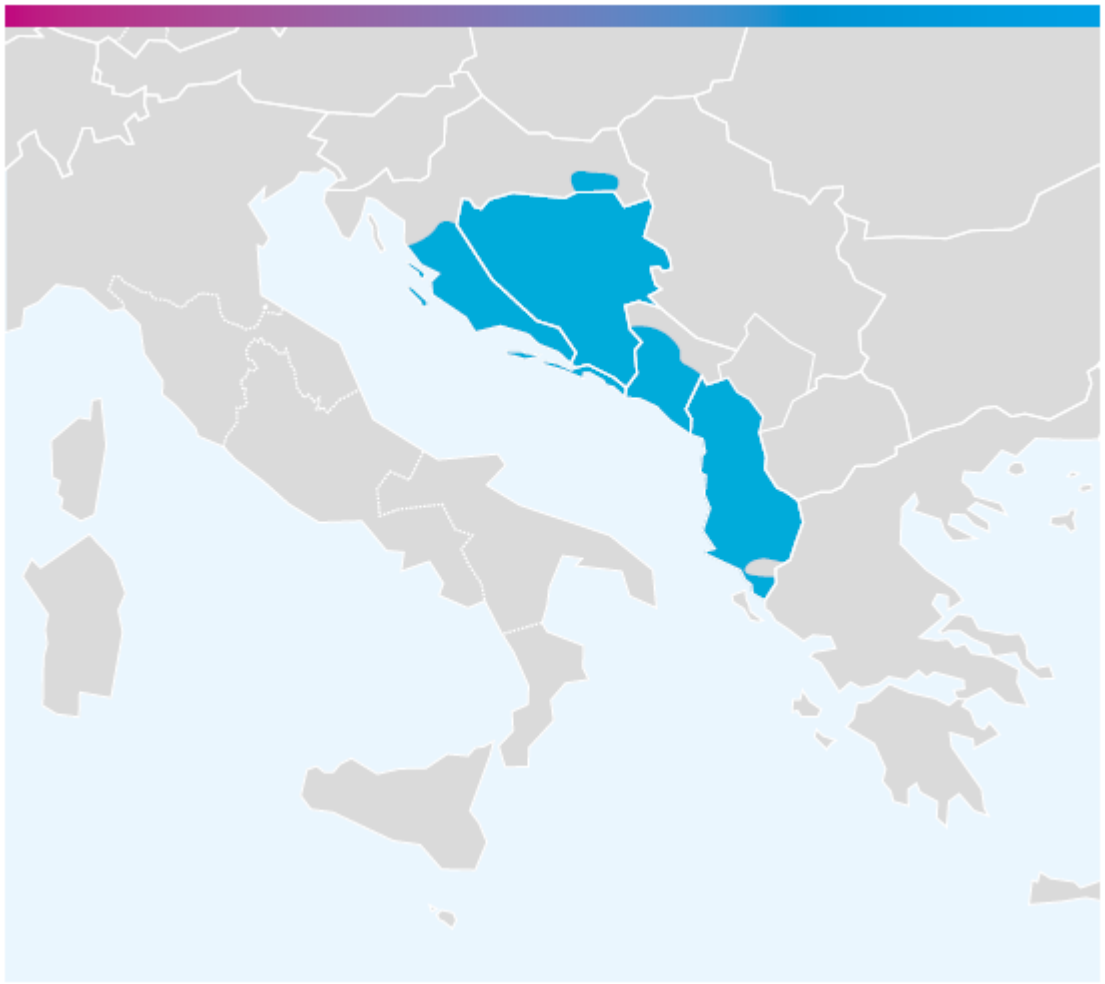
Operations

Balkan Blackout 21-06-2024

Final conclusions and recommendations

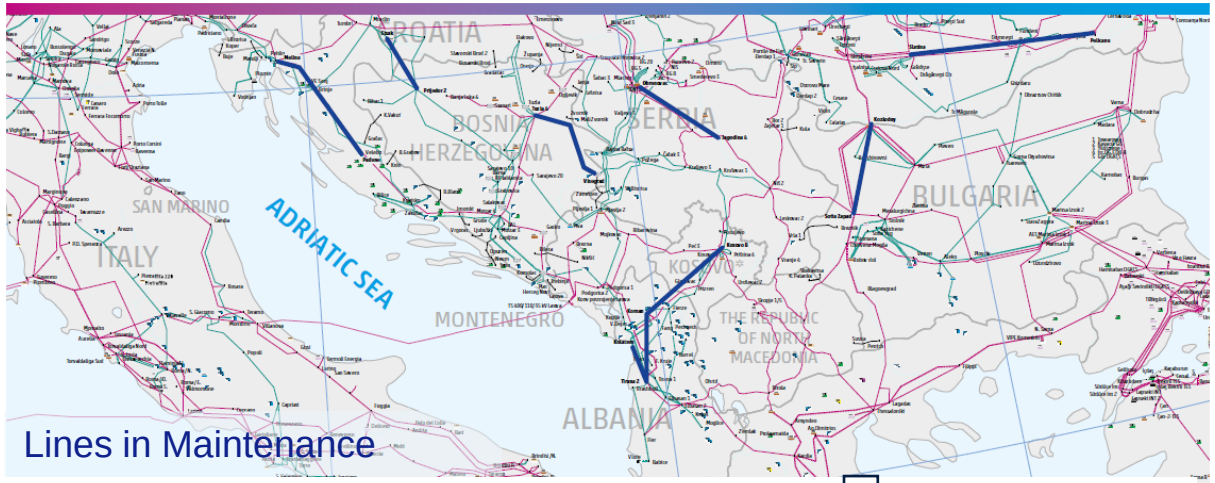
Operations | Peter Van Meirhaeghe

Balkan Blackout 21 June



- Friday June 21, 2024 at approximately 12:20 CET
- Blackout in parts of Albania, Montenegro, Bosnia-Herzegovina and Croatia
- Around 4 GW consumers lost
- Power restored within approximately 3 hours
- General cause, **voltage collapse**
- Main root cause: disconnection of lines due to high vegetation and due to overload protections

System and Market conditions before the incident – no flows out of the ordinary – no specific grid issues



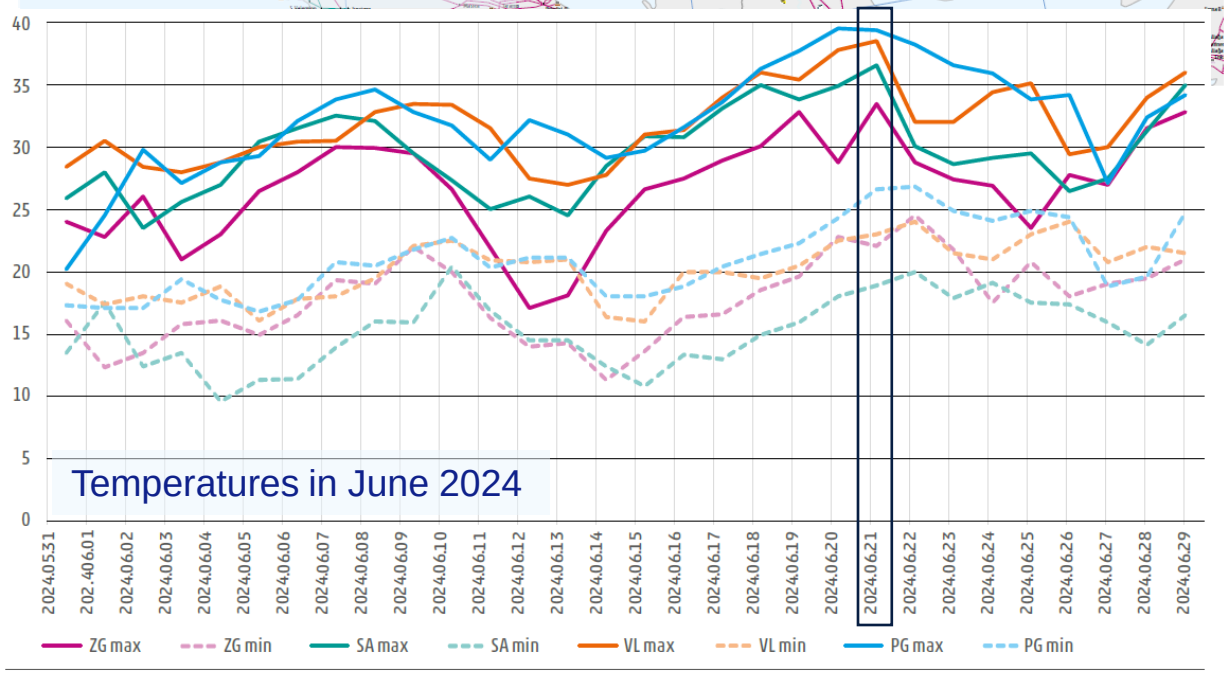
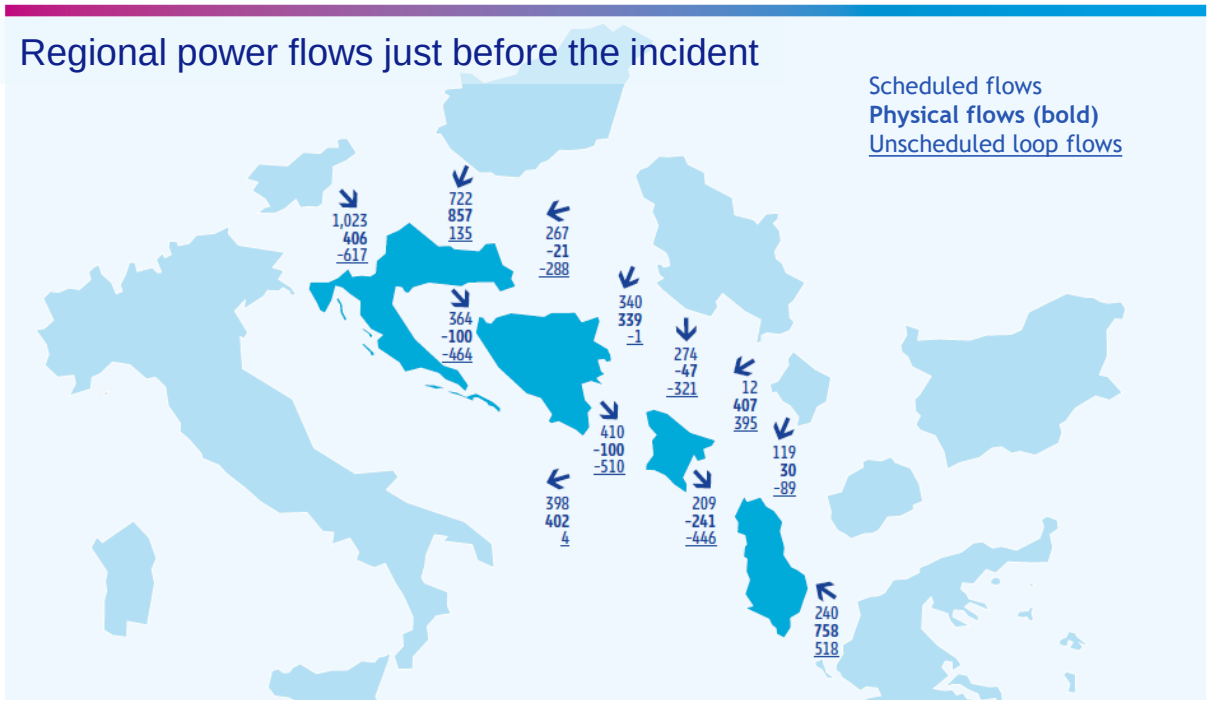


Figure 3: Maximal and minimal daily temperatures during June 2024 in Zagreb (HR), Sarajevo (BA), Podgorica (ME) and Vlore (AL)



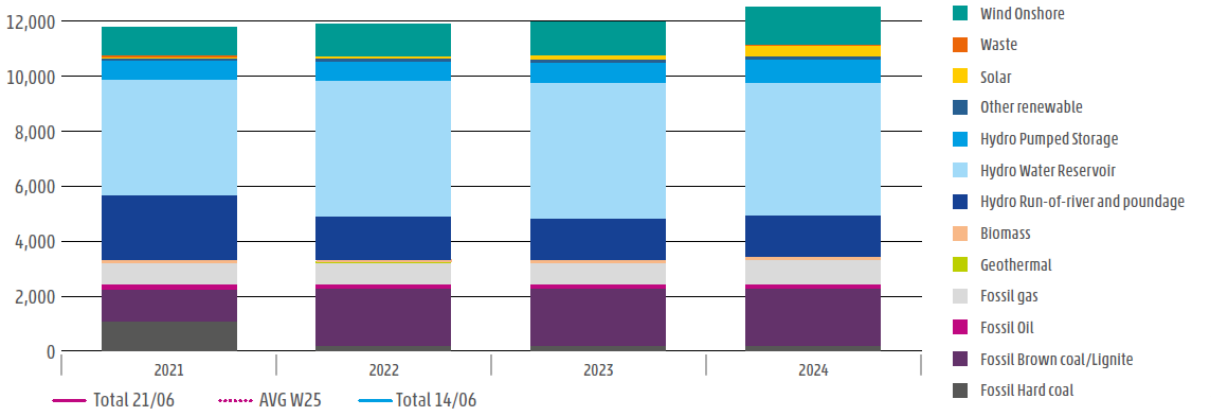
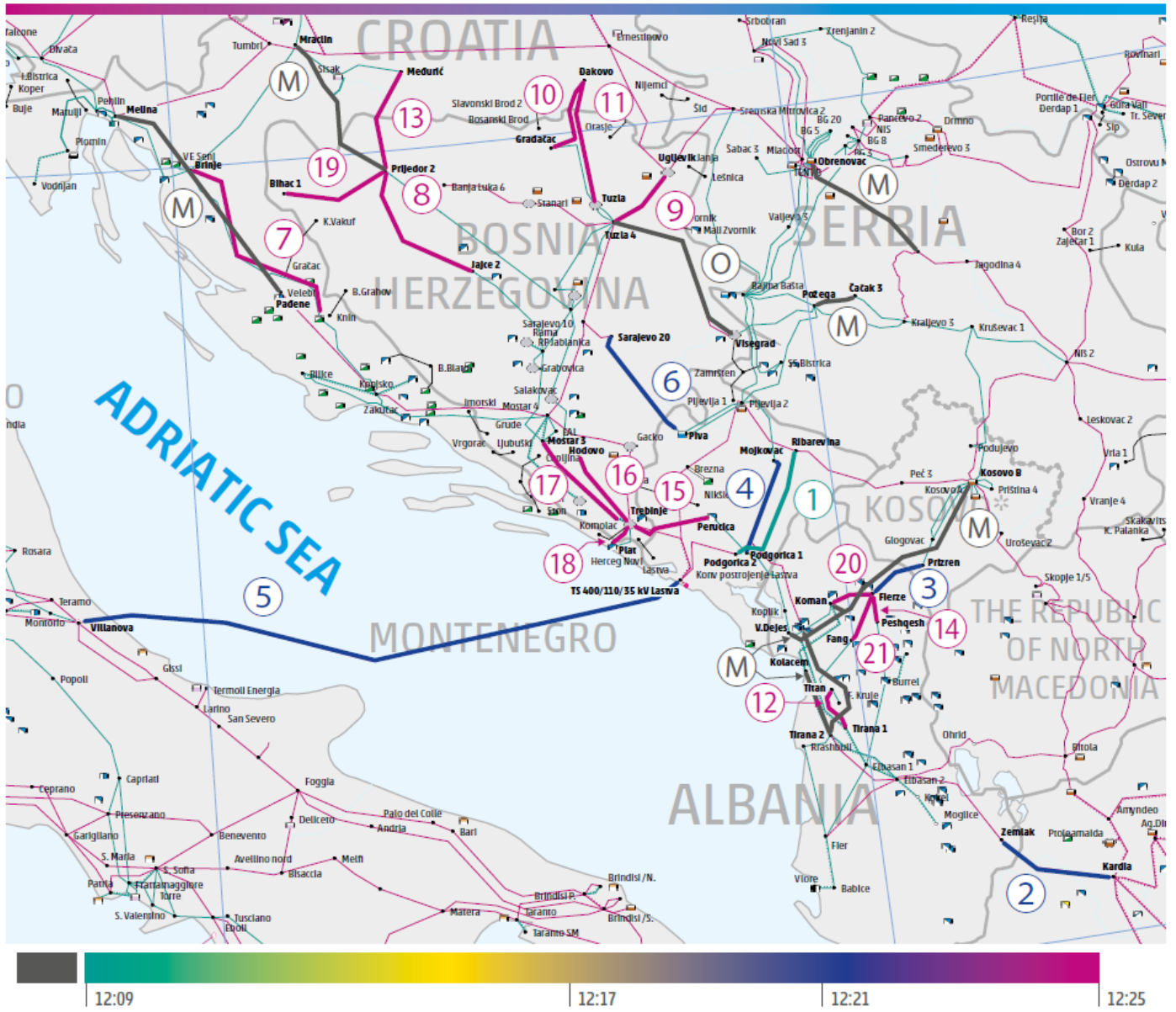


Figure 11: Generation structure of the affected systems during the past years.

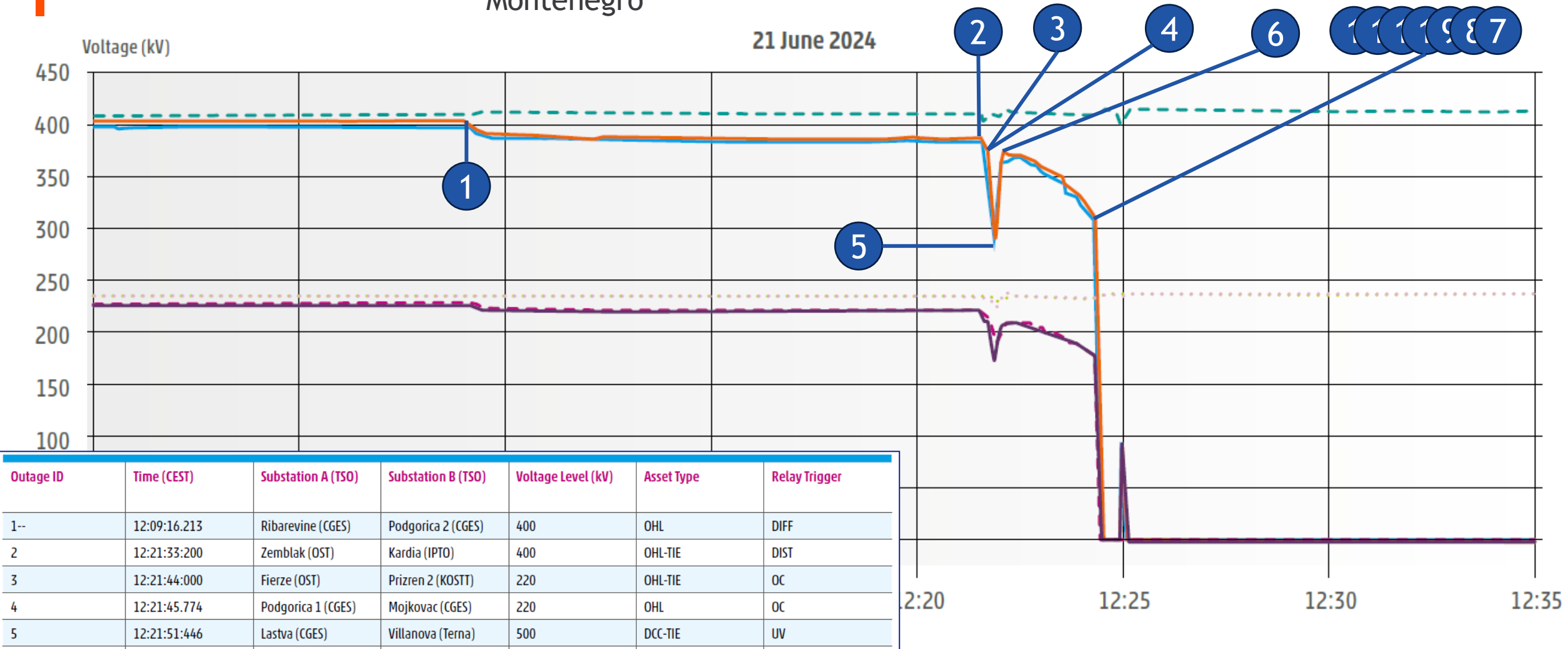
Factual Sequence of Events



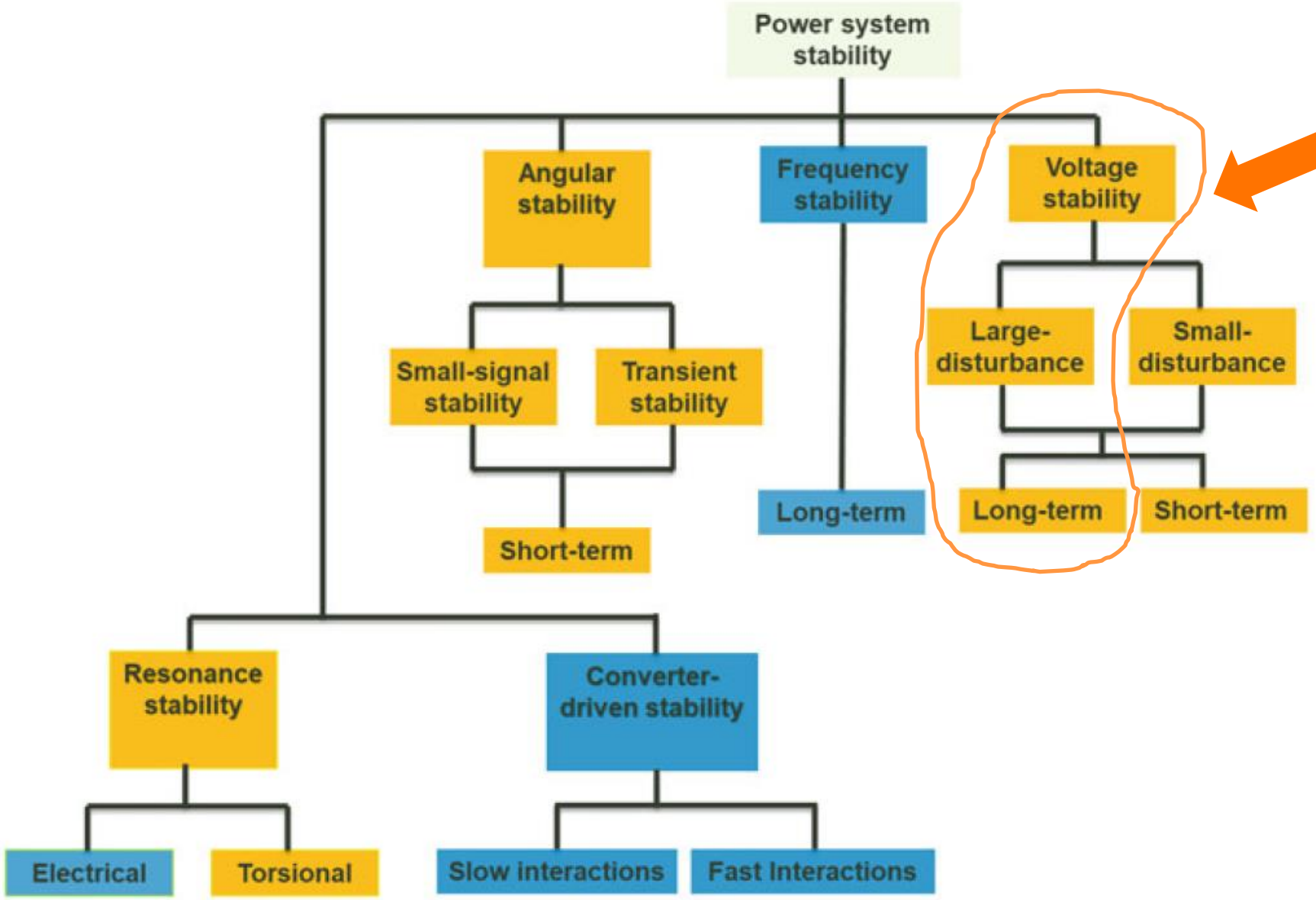
- Line numbering = sequence of events
  - 1 & 2 short-circuit with vegetation
  - 3, 4 & 6 overload protection
- M = line in Maintenance
- O = line out for high voltages
- 5 = Monita HVDC cable

Voltage evolution in CGES network on the 400 kV and 220 kV levels

Montenegro



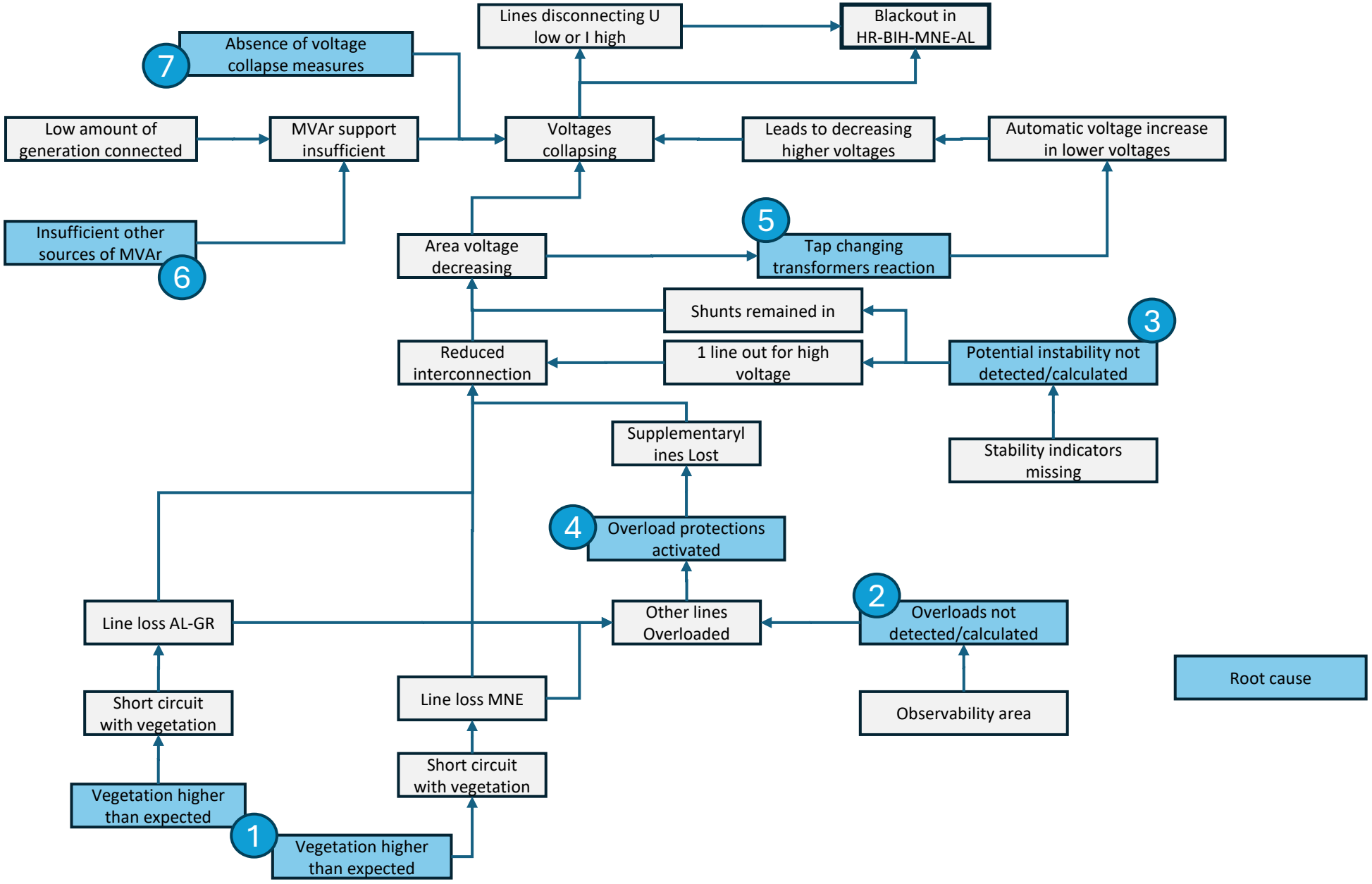
Outage ID	Time (CEST)	Substation A (TSO)	Substation B (TSO)	Voltage Level (kV)	Asset Type	Relay Trigger
1--	12:09:16.213	Ribarevine (CGES)	Podgorica 2 (CGES)	400	OHL	DIFF
2	12:21:33:200	Zemblak (OST)	Kardia (IPTO)	400	OHL-TIE	DIST
3	12:21:44:000	Fierze (OST)	Prizren 2 (KOSTT)	220	OHL-TIE	OC
4	12:21:45.774	Podgorica 1 (CGES)	Mojkovac (CGES)	220	OHL	OC
5	12:21:51:446	Lastva (CGES)	Villanova (Terna)	500	DCC-TIE	UV
6	12:22:06:012	Sarajevo 20 (NOSBiH)	Piva (CGES)	220	OHL-TIE	OC
7	12:24:21:587	Brinje (HOPS)	Pađene (HOPS)	220	OHL	DIST
8	12:24:22:341	Prijedor 2 (NOSBiH)	Jajce 2 (NOSBiH)	220	OHL	OC
9	12:24:22:350	Ugljevik (NOSBiH)	Tuzla 4 (NOSBiH)	400	OHL	OC
10*	12:24:22:959	Đakovo (HOPS)	Gradačac (NOSBiH)	220	OHL-TIE	UV



Balkan blackout 2024

1982 blackout in North of Belgium

Root Cause tree (summary)



Recommendations

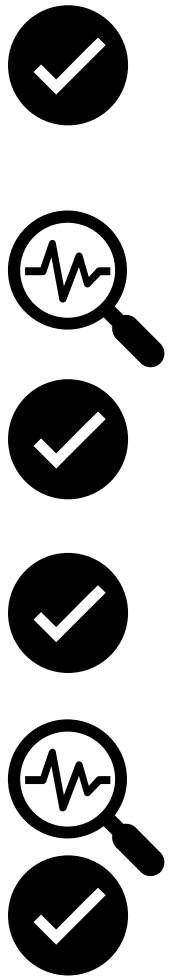
Root cause	Recommendation	Impact for Elia
avoiding the cause: short circuit	Review policies and criteria for deciding when to cut vegetation, to make sure vegetation is always removed in time	OK, this has been a priority target already
avoiding the consequence: voltage collapse	Install UVLS where appropriate (where a risk of voltage collapse could occur after N-2)	Currently no need, can be regulary (every X years) re-evaluated, but normally covered by having sufficent MVAr support
	Block Transformers to medium voltage as defense plan action, where appropriate (depending on renewable infeed)	OK, this is standard practice
	Automatic action on MVAr sources (capacitors IN, inductors OUT) at preset extreme voltage levels	OK, this is standard practice
	Line overload protections – guidelines on disconnection levels and delays – avoid disconnecting lines and weakening the grid where possible.	OK standard practice at Elia not to put overload protections,responisibility is taken by dispatchings to avoid overloading lines





Recommendations

Root cause	Recommendation	Impact for Elia
foresee the risk of voltage collapse in real time	Observability area harmonised definition, in order to see more of the other grids - dispatching need to have a live view of neighboring grids to be aware of outages that could impact grid security	OK, standard practice at Elia
	N-1 calculation of incidents in the neighbouring grid with x% impact on own grid – extent these calculations to the whole observability area	To be analysed, probably we will need to add some N-1 purely during OS stage, not in CC stage
foresee the voltage collapse in advance	N-2 and cascading incident analysis to be performed regularly to evaluate voltage collapse risk	OK, Regular PSOS studies analyse voltage stability
having sufficient voltage support	Voltage and reactive power assessment for potential low voltage situations. Review installation of support means where a risk of voltage collapse could occur	OK, done regularly by GD with PSOS input
IGM - CGM	Quality of the IGM in terms of topology and voltage control	
	Harmonise the data provided for tie-lines in the IGMs (Imax, TRM, FRM, etc)	OK, common practice since many years



General conclusion : Elia has already implemented all significant recommendations to avoid voltage collapse

Blackout Spain and Portugal 28/4/2025

Non-confidential update | Investigations are ongoing

Operations | Peter Van Meirhaeghe

Summary of events

European Awareness System among TSOs

12h33

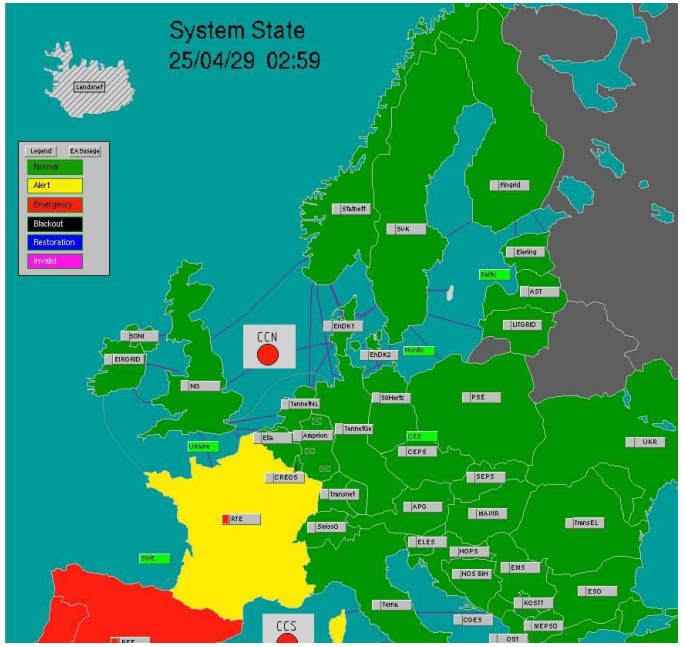
Separation of the Iberic peninsula followed by a **full black out** in ES and PT

12h44

Spain starts restoring its system

16h11

First substation energized in Portugal



0h22

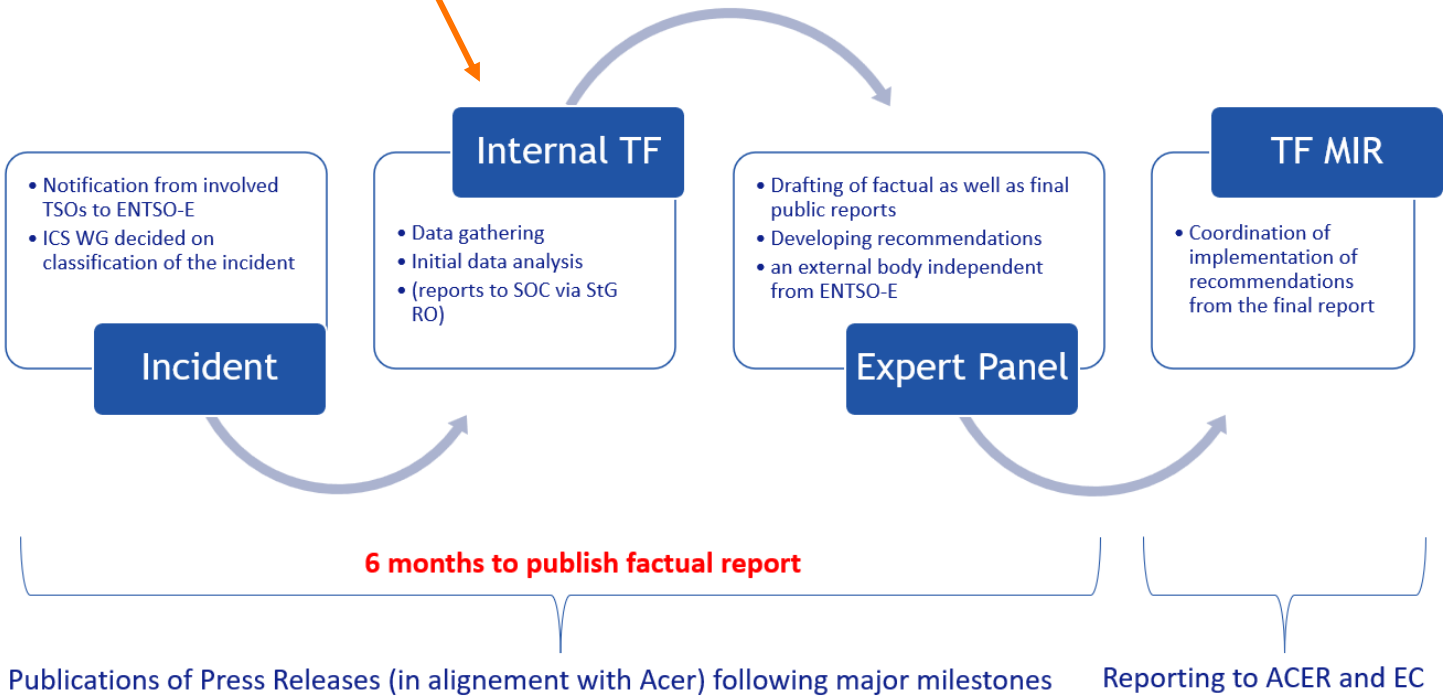
Restoration completed in Portugal

4h00

Restoration completed in Spain

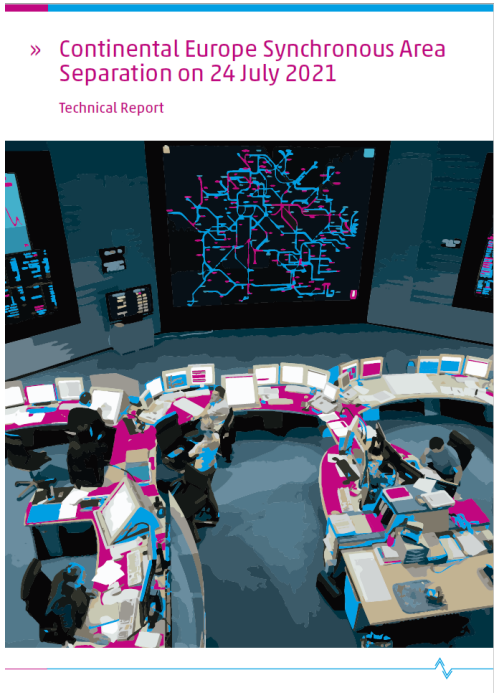
Reporting on incidents of scale 3

Elia is involved in the Entso-e taskforce with 2 experts



Timeline for the **reporting** according to SOGL art 15:

- Factual report, latest 28th October 2025,
  → target End of July 2025
- Final report, latest 30th September 2026,
  → target End of October 2025



Entso-e created a dedicated webpage reflecting the investigation progress

Conditions before the incident

	Spain	Portugal	Iberic Pennisula		Rotating SM
Load+storage	28000	7850	35850		
Solar PV	17900	2035	19935	53%	
Wind	3500	1560	5060	13%	
Nuclear	3400	0	3400	9%	3400
Hydro	3200	760	3960	11%	3960
Solar thermal	1500	0	1500	4%	1500
Biomass	1400	350	1750	5%	1750
Gas	1000	410	1410	4%	1410
Export ES-PT		2500			
					12 GW

Spain was **exporting** a few hundreds of MW to France and Morocco

Sunny, no rain, high wind in south

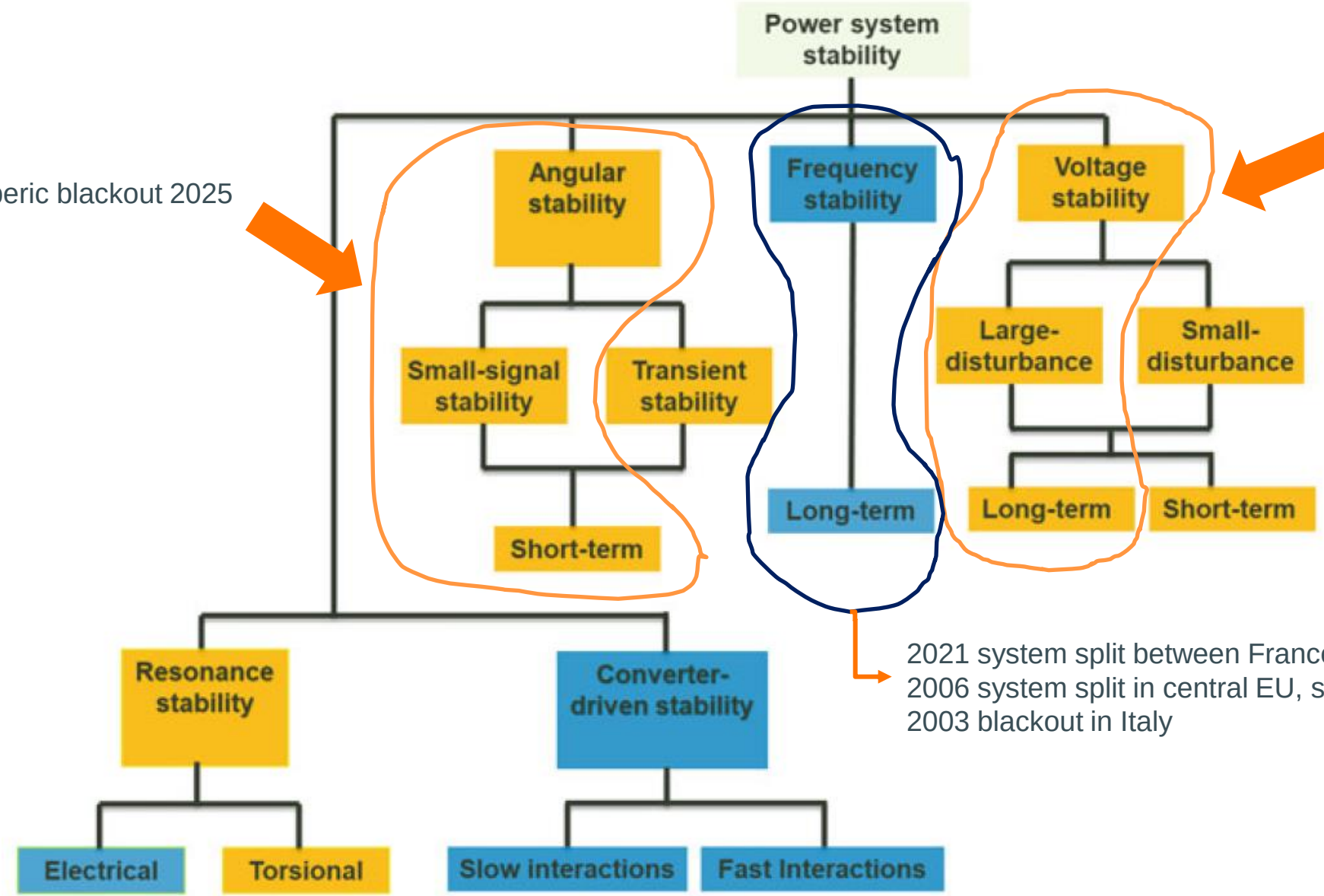
Rainy spring, high hydro levels, high flows in rivers

Sequence of events (preliminary information, work is in progress)

- Hours before the incident
  - Very high voltage variations observed, especially in the south of Spain, but within the limits (Spain may operate up to 435 kV, derogation in European network codes SOGL and RfG)
  - Transmission system acts as a source of reactive power because it is lightly loaded due to high amounts of distributed generation

- Events during last 30 minutes before the incident
  - Electromechanical oscillations in voltage and frequency detected in ES/PT and also in rest of continental EU
  - These oscillations were damped after 2 – 5 minutes, by intentional flow reduction on ES/FR and on ES/PT border
  - Voltages continue to vary up and down. Shunt reactors are operated, lines are coupled and schedules are adjusted.

- 8 seconds before the full blackout
  - Loss of generation in south of Spain (Badajoz and Sevilla area) due to over-voltage protections, resulting in less reactive power absorption capacity and rising voltages.
  - Frequency in ES/PT/MO goes down, while frequency in EU goes up (system still interconnected)
  - AC interconnection lines ES/MO disconnect
  - Automatic defense actions activated in ES and PT (pump storage plants, LFDD, …)
  - AC interconnection lines ES/FR disconnect, due to loss of synchronism (heavy electro-mechanical power swings)
  - Frequency in ES/PT goes further down, voltages go further up
  - Production units disconnected by maximum voltage or under-speed protections



Iberic blackout 2025

Balkan blackout 2024

1982 blackout in North of Belgium

2021 system split between France and Iberic peninsula, saved by LFDD
2006 system split in central EU, saved by LFDD
2003 blackout in Italy

Feedback incompressibility events spring 2025

Operations

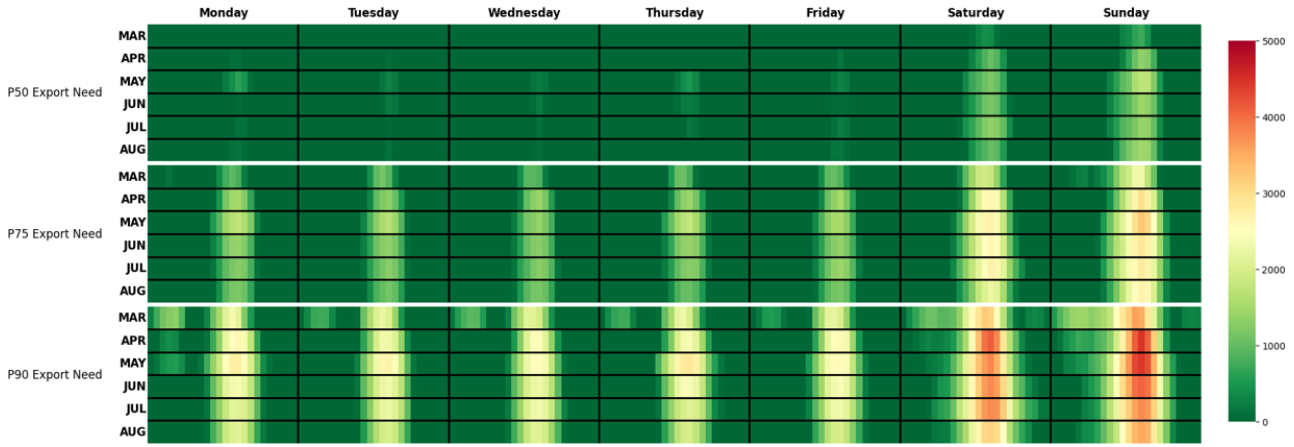
Bregt Vanderveken

Summer outlook 2025 – key take-aways

Incompressibility risk type A should be more limited vs 2024

An evolved probabilistic methodology has been used (aligned with Adeqflex studies) which shows more realistic risk indicators

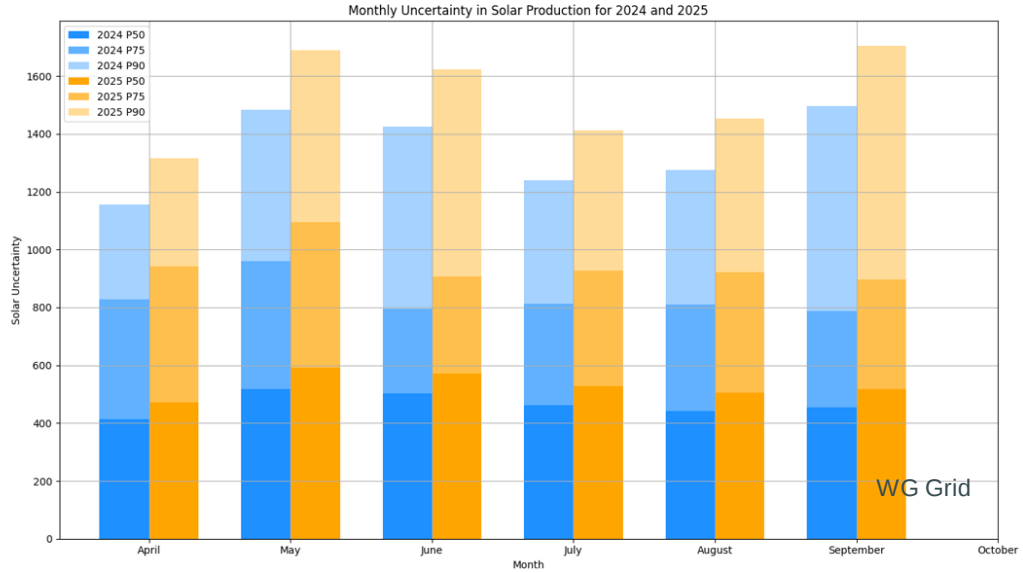
- Due to Nuclear phase-out/maintenance in 2025, BE is expected to have lower export needs than in 2024, regardless of the increase in PV capacity.
  - **Attention should be given to Incompressibility in neighbouring countries** which can impact Belgium DA market results.
- In 2025 the **most significant Export Need moments are expected to happen more often in Spring** due to several factors.
  - more limited availability of pump stations
  - higher nuclear production
  - highest level of combined RES production
- The higher proportion in April-May should not outshine that the summer months are also at risk.



Incompressibility risk type B expected to be higher vs 2024

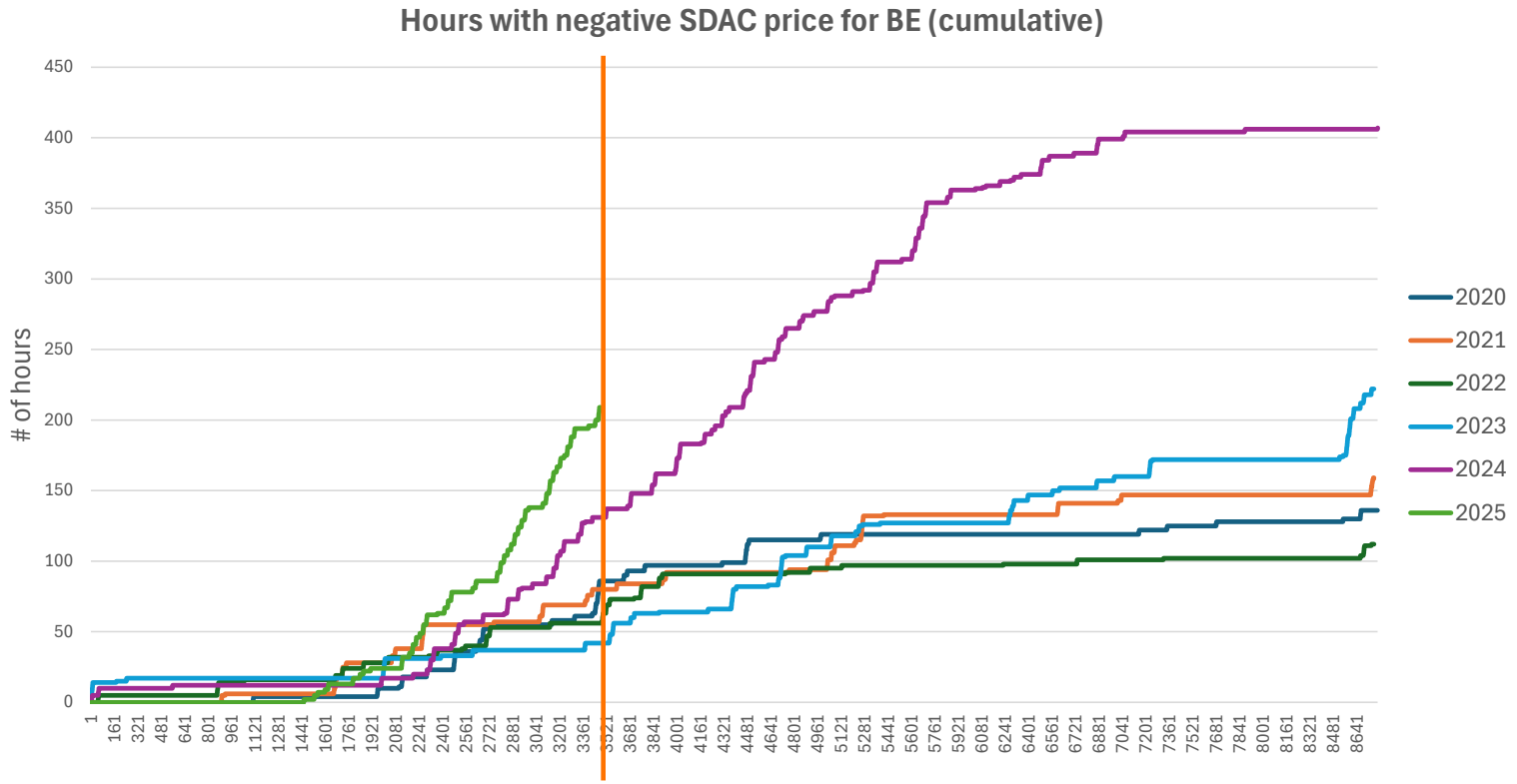
- Due to higher installed capacity, the uncertainty on solar forecast is also increasing (while relative quality of forecast is slightly increasing). This means that the occurrence and level of incompressibility risks type B is expected to be greater for spring & summer 2025.
- BESS installations is a key success factor to mitigate this risk. While BESS installation roadmap in Belgium is significant for the coming years, a limited additional capacity is expected for this summer
- It remains critical that market players anticipate incompressibility risk type B in their positioning in DA to consider the risk of renewable production forecasting errors. Moreover, due to incompressibility risks amongst our neighboring countries, the availability of reserve sharing could be less frequently available.

From 2024 – 2025 we expect an average increase in the absolute solar production uncertainty of 14%



Observed ‘type A’ incompressibility events

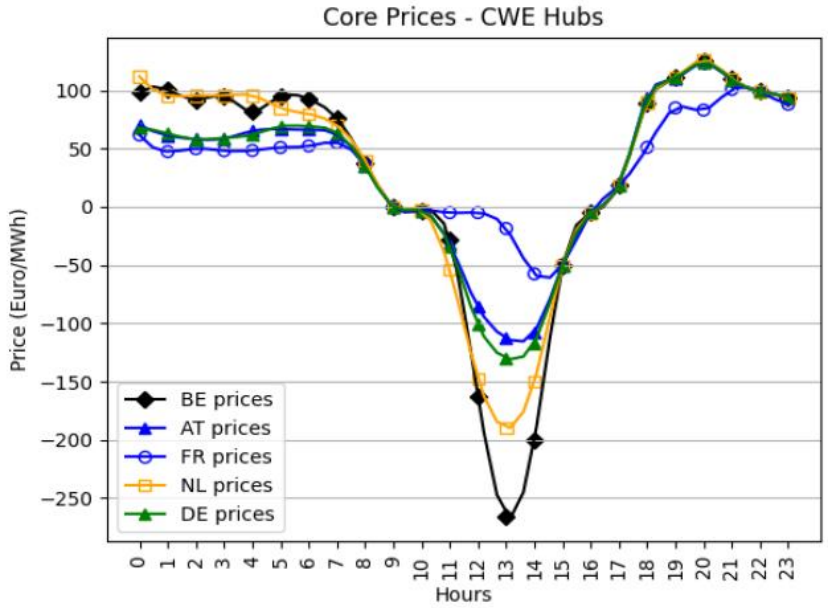
- A good indicator for the export need is the **occurrence of negative prices** in the DA market (SDAC).
- The # of hours with negative price in Belgium increased significantly compared to previous years, demonstrating excess of energy not only in Belgium but also in other bidding zones part of SDAC.
- Comparing the situation end of May 2025 vs 2024, there has been **60% more hours with negative price this year**.



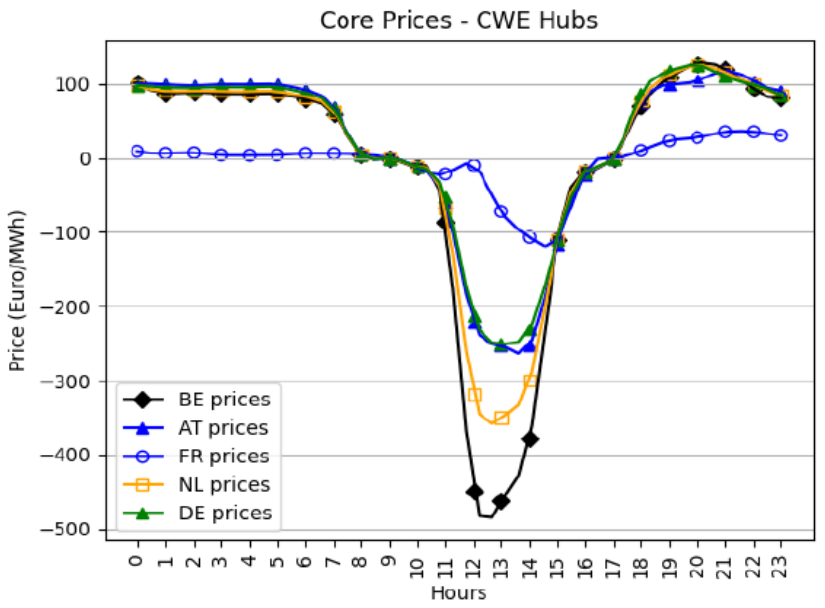
Observed ‘type A’ incompressibility events

- **NL, DE, BE and AT** are facing similar conditions. On sunny days during the weekend, **PV is covering 70 to 90% of the load** in these bidding zones, leading to lack of downwards flexibility and **large export needs**.
- This led to strong negative prices in BE for Sunday 27/04 and Sunday 11/05, with the day-ahead **price for BE going down to -266 €/MWh and -462 €/MWh respectively**
- Price was lowest in BE due to **active constraints on lines Gramme-Achène and Achène-Lonny,** which are heavily loaded not only by BE>FR exports but also by NL>FR and DE>FR transit flows. These active constraints are reinforced by the ongoing infrastructure works near Avelgem.

Sunday 27/04/2025

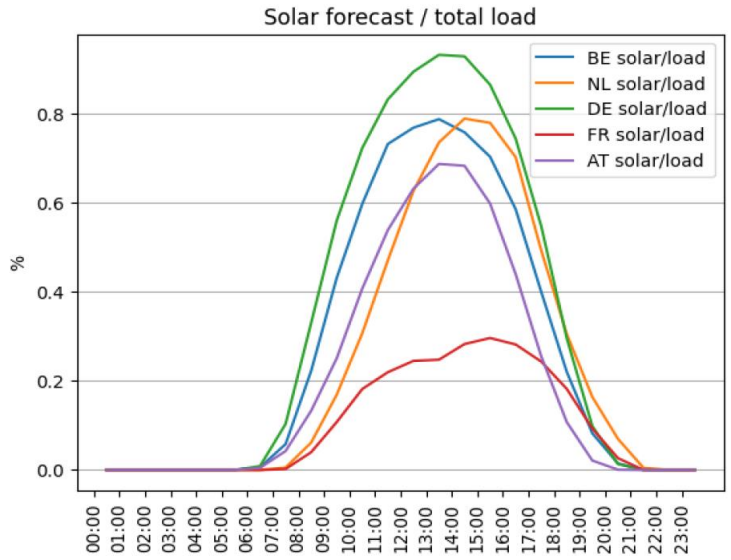


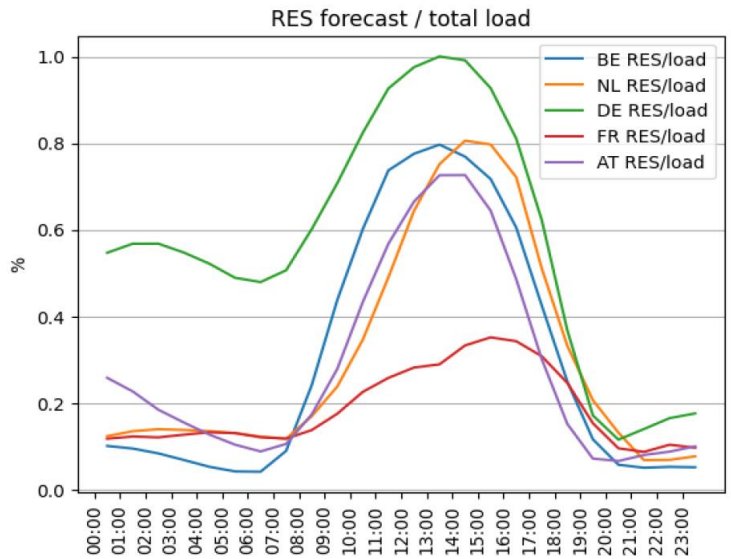
Sunday 11/05/2025



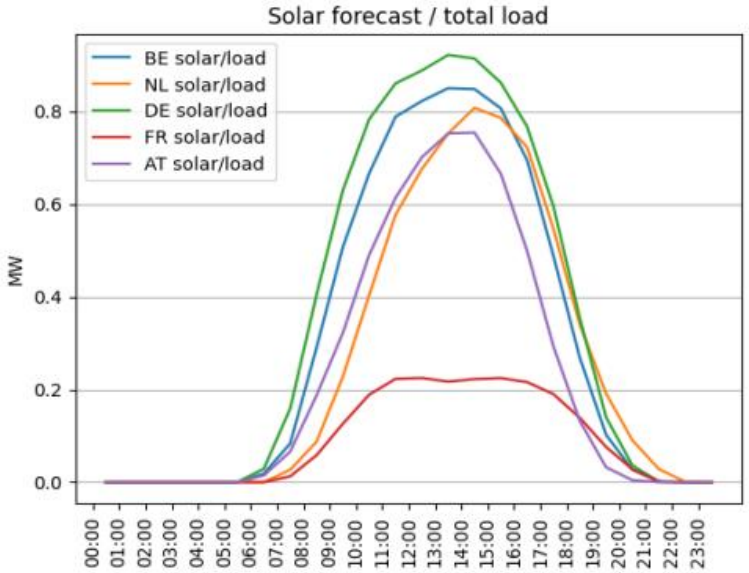
Observed ‘type A’ incompressibility events

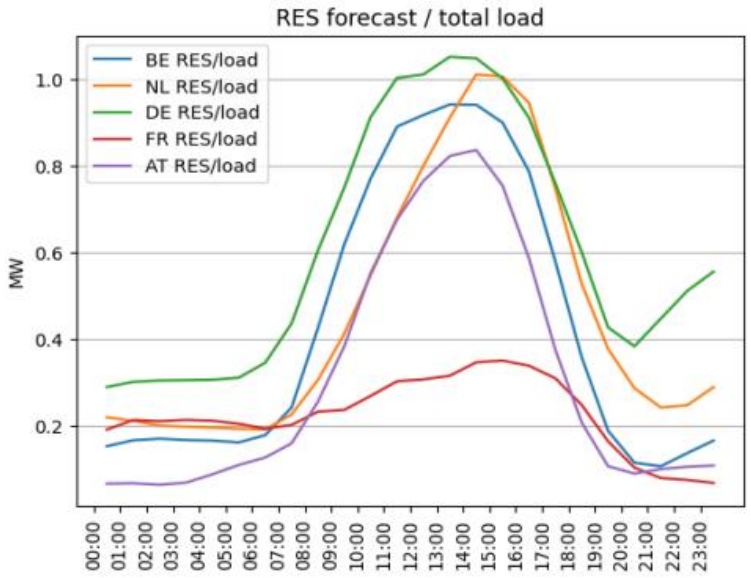
Load coverage with RES for Sunday 27/04





Load coverage with RES for Sunday 11/05



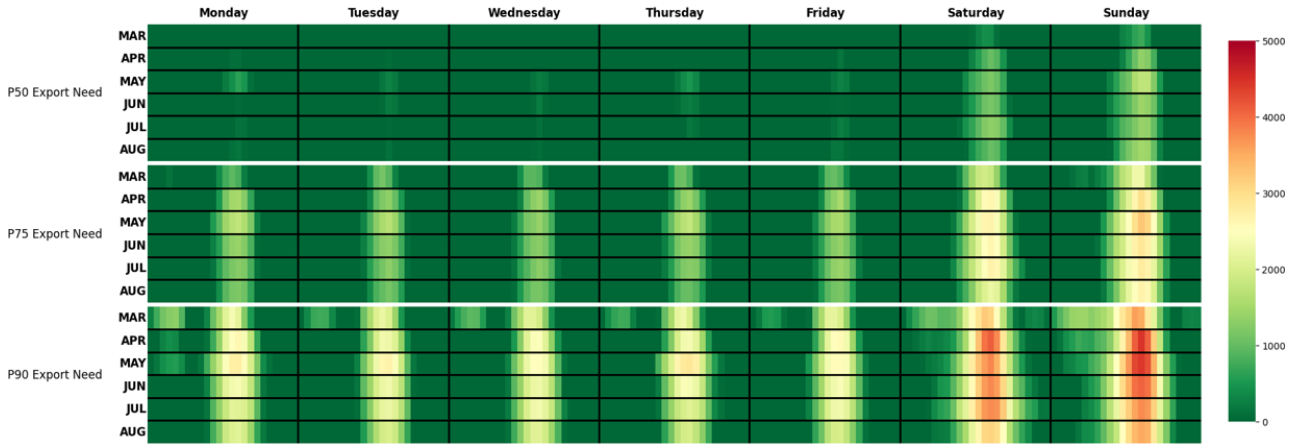


Summer outlook 2025 – key take-aways

Incompressibility risk type A should be more limited vs 2024

An evolved probabilistic methodology has been used (aligned with Adeqflex studies) which shows more realistic risk indicators

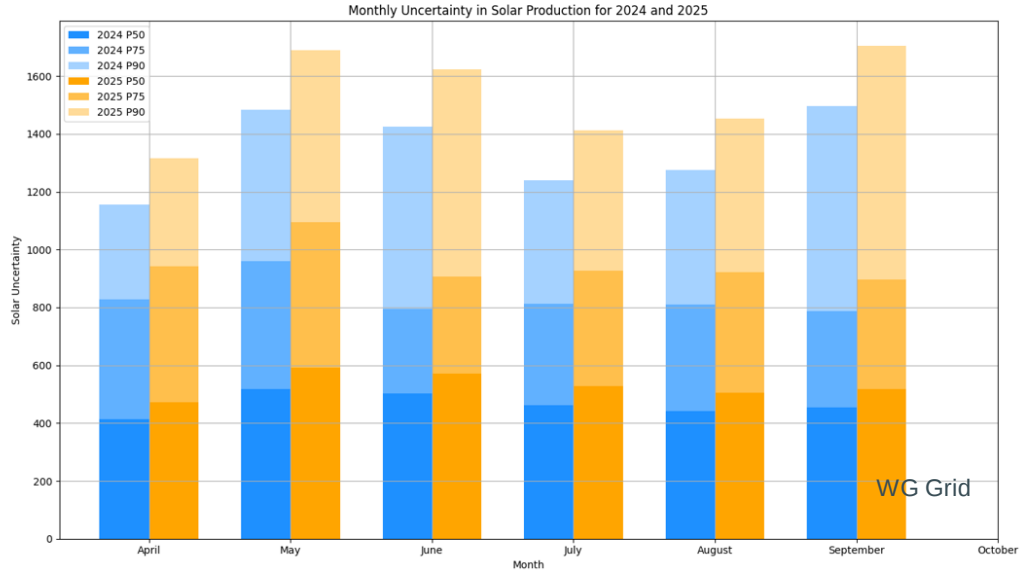
- Due to Nuclear phase-out/maintenance in 2025, BE is expected to have lower export needs than in 2024, regardless of the increase in PV capacity.
  - Attention should be given to Incompressibility in neighbouring countries which can impact Belgium DA market results.
- In 2025 the most significant Export Need moments are expected to happen more often in Spring due to several factors.
  - more limited availability of pump stations
  - higher nuclear production
  - highest level of combined RES production
- The higher proportion in April-May should not outshine that the summer months are also at risk.



Incompressibility risk type B expected to be higher vs 2024

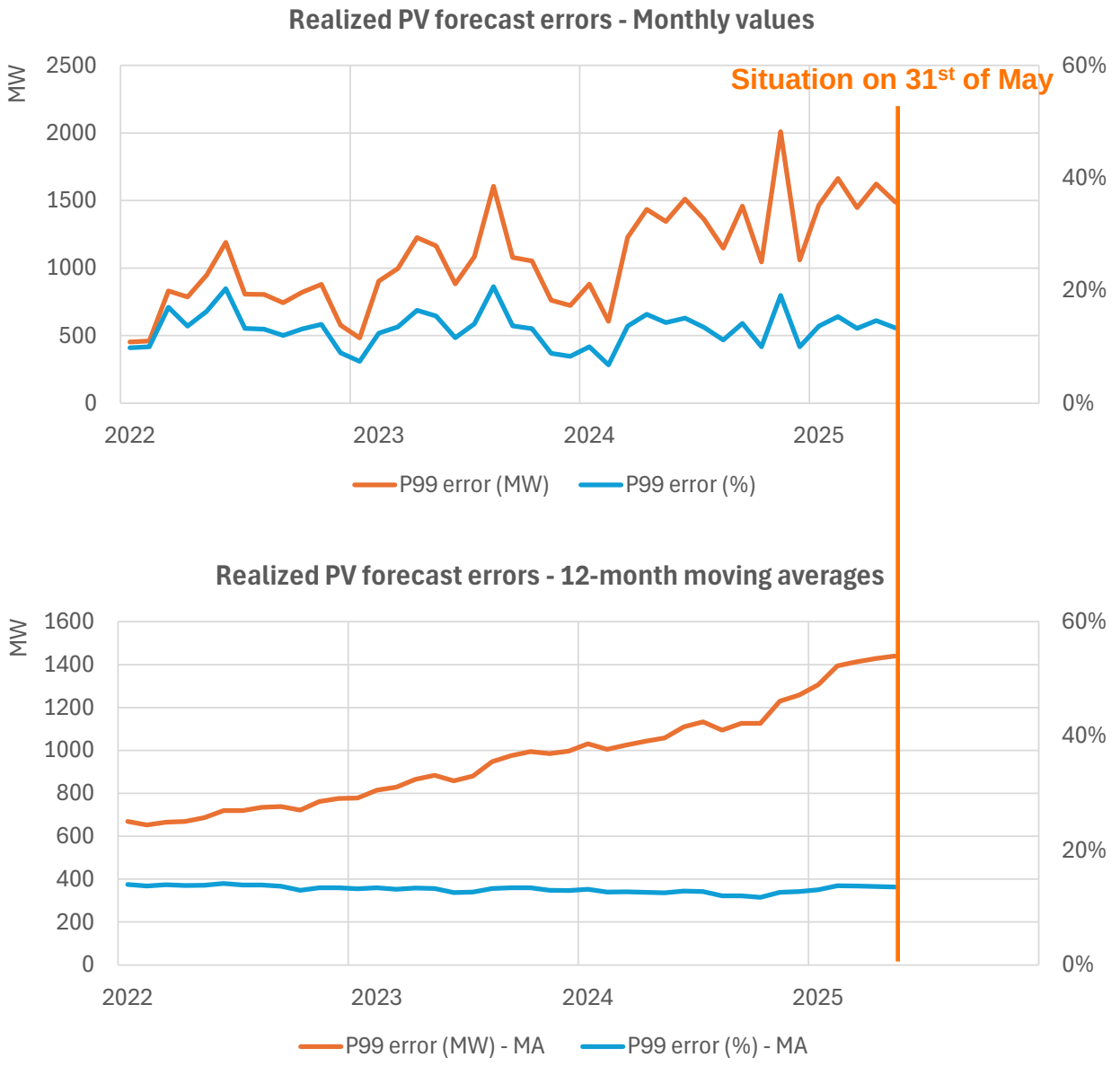
- Due to higher installed capacity, the uncertainty on solar forecast is also increasing (while relative quality of forecast is slightly increasing). This means that the **occurrence and level of incompressibility risks type B is expected to be greater for spring & summer 2025**.
- BESS installations is a key success factor to mitigate this risk. While BESS installation roadmap in Belgium is significant for the coming years, a limited additional capacity is expected for this summer
- It remains critical that market players anticipate incompressibility risk type B in their positioning in DA to consider the risk of renewable production forecasting errors. Moreover, due to incompressibility risks amongst our neighboring countries, the availability of reserve sharing could be less frequently available.

From 2024 – 2025 we expect an average increase in the absolute solar production uncertainty of 14%



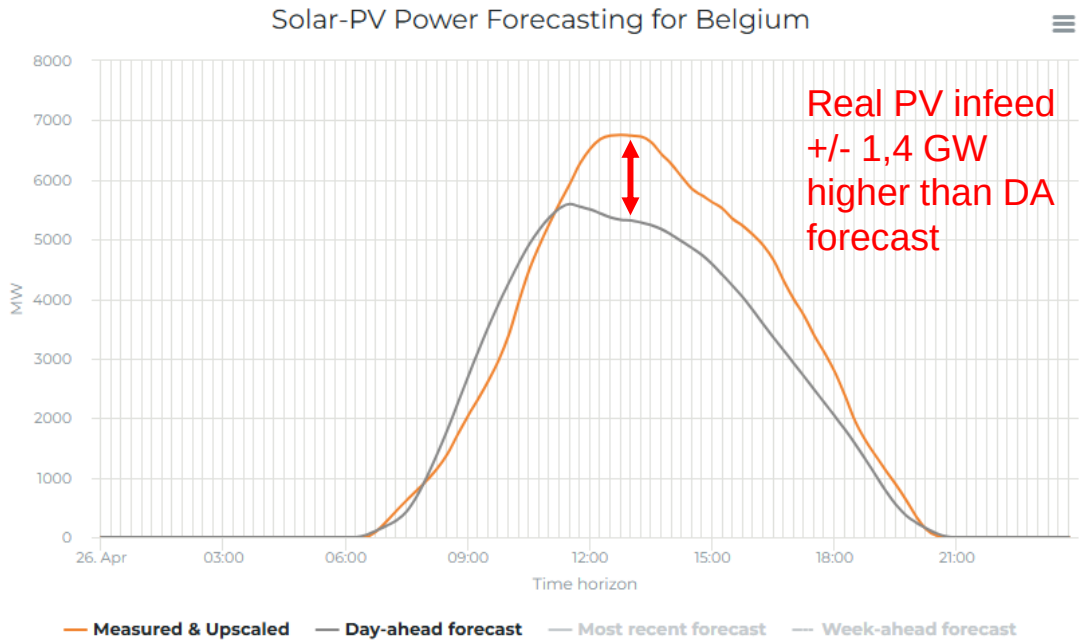
Observed ‘type B’ incompressibility events

- As expected, the observed absolute PV forecast errors – comparing measurements with day-ahead forecast – continue to rise.
- Due to large installed PV capacity on a relatively small surface, Belgium is particularly exposed to PV forecast errors.
- In 2025, the monthly **P99 value of the PV forecast error increased up to +/- 1,5 GW**.
- If such forecast errors lead to a larger than expected PV infeed, it can result in incompressibility. **Problems mainly occur in case of low wind conditions combined with lack of ID export capacities** (affecting ID market but also the available support from balancing platforms).



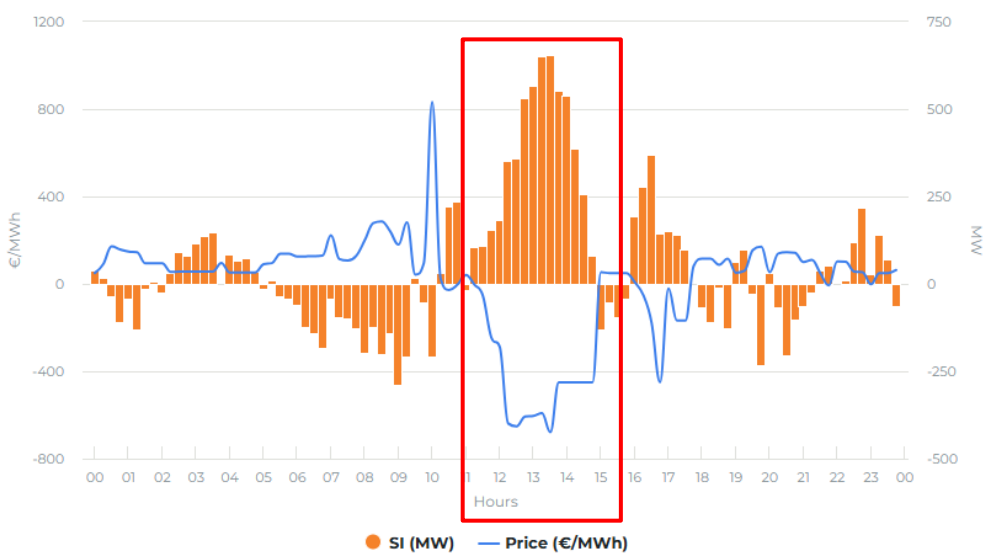
Observed ‘type B’ incompressibility events

- Saturday 26/04 at noon there was about **1,4 GW more PV** infeed than expected the day before.
- No export ID ATC were available, so PICASSO could not support.
- All local aFRR and mFRR means were activated, but these were largely insufficient to compensate for the system imbalance of our BRPs.
- **Reserve sharing with TenneT (228 MW) and RTE (200 MW) was activated simultaneously.**
- Activation of ‘exceptional balancing measures’ was narrowly avoided.



26/04/2025

Quarter	SI (MW)	ACE (MW)	Positive (upward) balancing volume					Negative (downward) balancing volume				
			aFRR		mFRR			aFRR		mFRR		
			IGCC+ (MW)	aFRR+ (MW)	mFRR SA+ (MW)	mFRR DA+ (MW)	Reserve Sharing+ (MW)	IGCC- (MW)	aFRR- (MW)	mFRR SA- (MW)	mFRR DA- (MW)	Reserve Sharing- (MW)
15:00 > 15:15	-129,123	9,807	329,208	131,541	0,000	0,000	0,000	0,000	0,000	181,000	0,000	0,000
14:45 > 15:00	81,354	-160,935	0,916	127,920	0,000	0,000	0,000	0,000	0,000	149,000	0,000	228,000
14:30 > 14:45	258,784	-56,501	14,416	83,054	0,000	0,000	0,000	0,000	0,888	144,000	0,000	228,000
14:15 > 14:30	387,950	-1,726	172,780	138,300	0,000	0,000	0,000	0,504	0,000	141,000	0,000	428,000
14:00 > 14:15	539,596	6,815	40,900	33,680	0,000	0,000	0,000	2,992	15,287	137,000	0,000	428,000
13:45 > 14:00	551,301	-7,233	15,156	14,326	0,000	0,000	0,000	0,008	41,795	113,000	0,000	428,000
13:30 > 13:45	654,204	158,969	0,000	0,000	0,000	0,000	0,000	0,000	145,517	113,000	0,000	428,000
13:15 > 13:30	650,786	175,061	0,000	0,000	0,000	0,000	0,000	0,000	152,726	111,000	0,000	200,000
13:00 > 13:15	567,821	106,348	0,000	0,000	0,000	0,000	0,000	0,000	188,316	108,000	0,000	200,000
12:45 > 13:00	531,158	53,565	0,304	0,306	0,000	0,000	0,000	0,000	167,200	81,000	0,000	200,000
12:30 > 12:45	360,901	98,484	0,000	0,000	0,000	0,000	0,000	0,000	189,910	81,000	0,000	0,000
12:15 > 12:30	351,983	117,611	0,000	0,000	0,000	0,000	0,000	0,000	191,190	50,000	0,000	0,000
12:00 > 12:15	183,503	60,698	0,000	0,000	0,000	0,000	0,000	0,000	168,793	0,000	0,000	0,000



Market suspension notification – External test debrief

Operations

Floris Vankrunkelsven

Market suspension notification – External test debrief

Quick recap

- Info session held last year, slides and recording available here: link
- First test on 24/03/2025
    - Only a limited amount of SMS notifications were sent due to a performance issue
- Second test on 26/05/2025
    - Performance issue fixed, SMS notification creation sped up
    - Still not all recipients were reached, continuous cleaning of contact list is necessary to remove fixed line numbers, mobile numbers no longer in use, …
- Next step: repeat test annually and continuously update relevant contact list

AOB

- Next WG MIGO meeting is on 12 September 9:00-13:00
- Consultation data management plan for Flemish regional transport grid: from 4 June to 4 July [LINK]
- Follow up WG Grid/WG Energy Solution Webinar on Co-optimization report R0 – Start of Public Consultation
    - Slides of the Elia workshop on Co-optimization of energy and balancing capacity in SDAC: https://www.elia.be/en/users-group/workshop/20250507-workshop
    - Public Consultation of TSOs and NEMOs opens from 19 May to 30 June 2025 https://consultations.entsoe.eu/markets/co-optimisation-r0/

ANNEX