

# System Operation European Stakeholder Committee

Materials for meeting 30 November 2023



# Agenda

Subject	Timing	Lead
1. Opening <ul style="list-style-type: none"><li>Review of the agenda, approval of last meeting minutes</li><li>Review of actions</li></ul>	12.30 - 12.45	ACER, Uros Gabrijel ENTSO-E, Cherry Yuen
2. Update on the implementation actions at pan-EU level	12.45 - 13.00	ENTSO-E, Cherry Yuen
3. Update on Tmin FCR LER and FCR probabilistic dimensioning methodology <ul style="list-style-type: none"><li>TF LLFD analysis</li><li>Outcome of the public consultation</li></ul>	13.00 - 13.15	ENTSO-E, Luca Ortolano & Carmelo Mosca
4. Update of SO ESC ToR	13.15 – 13.30	ACER
5. Risk preparedness for winter 23/24	13.30 - 13.40	ENTSO-E, Laurent Rosseel
6. Report on CGM Implementation	13.40 – 13.55	ENTSO-E, Habir Paré
Coffee break	13.55 – 14.10	
7. Winter Outlook report	14.10 – 14.25	ENTSO-E, Alban Joyeau
8. PRA Biennial report	14.25 – 14.35	ENTSO-E, Gamze, Nicola
9. Update on NC CS	14.35 – 14.50	EC
10. AOB	14.50 – 15.30	All

# 1. Review of actions

ENTSO-E, Cherry Yuen

# 1 Review of actions SO ESC 1/3

ACTION	ANSWER	STATUS
ENTSO-E will present the next update on Deterministic Frequency Deviation (DFD) at the meeting either in June or September	Materials to be provided separately after RGCE approval (probably by end 2023)	Ongoing
ENTSO-E will give an update to SO ESC on the probabilistic risk assessment (PRA) methodology	See agenda item #8	Ongoing
Implementation of Art.39 of SO GL and follow-up of Rate of Change of Frequency (RoCoF) discussion: ACER will liaise with GC and SO ESC members to establish the Terms of References of the new Expert Group. (topic: a macro-economic study is provided by TSOs for adapting system operators to a net zero emissions power system)	EC will initiate a consultation on a forthcoming study which the new EG under GC and SO ESC will aim to support	Ongoing

# 1 Review of actions SO ESC 2/3

ACTION	ANSWER	STATUS
Frequency Containment Reserves (FCR) probabilistic dimensioning methodology: If no public workshop is scheduled, ENTSO-E will provide an update at the next SO ESC, notably the outcomes of the public consultation	ENTSO-E is still processing the answers received during the public consultation. See agenda item #3	Ongoing
FCR Tmin Limited Energy Reservoirs (LER): ENTSO-E will inform SO ESC members when the public consultation starts	Informal meeting with NRAs and CER then public consultation. See agenda item #3	Ongoing
Winter preparation: ENTSO-E will share information about thermo-sensitivity of electricity consumption	Checking availability of data	Ongoing
Winter preparation: ENTSO-E will share information on operational risk preparedness for winter	See agenda items #5 & #7	Ongoing

# 1 Review of actions SO ESC 3/3

ACTION	ANSWER	STATUS
CGM implementation: ENTSO-E will look into the model of grid forming capability in the IGM description	<a href="#">CGMES</a> deals with steady state analysis	Done
<p>CSA ROSC: clarification with Nordic CCR concerning the use of non-costly remedial actions</p> <p>CSA: coordinated operational security analysis ROSC: Regional Operational Security Coordination</p>	Nordic CCR confirmed that CSA v1.0 is expected to Go-Live in Q2 2024 and it will not entail any type of remedial action optimization or remedial action coordination. It will focus on providing results of the contingency analysis for day-ahead timeframe with the inclusion of SIPS (System Integrity Protection Schemes).	Done
ESC members list update	ENTSO-E will circulate the current list of members to be updated by each association before updating the website	Ongoing

# 2. Update on the implementation actions at pan-EU level

ENTSO-E, Cherry Yuen

# Pan-European or regional deliverables 2023: SOGL/NCER

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## SO GL (Article 15)

Annual report on operational security indicators published beginning October for year 2022:

Link to ENTSO-E page for all Operations Annual Reports:  
[Operations Annual Reports \(entsoe.eu\)](https://entsoe.eu/Operations-Annual-Reports)

## SO GL (Article 17)

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Annual report on regional coordination assessment published beginning October for year 2022:

Link to report:

[Regional Coordination Assessment Annual Reporting 2022 \(entsoe.eu\)](https://entsoe.eu/Regional-Coordination-Assessment-Annual-Reporting-2022)



# Pan-European or regional deliverables 2023: SOGL/NCER

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## CSAm (Article 44.5)

Secure data collection and validation platform being set up for the PRA (Probabilistic Risk Assessment) methodology expected in 2027  
- Biennial report expected December 2023 (see Agenda #8)

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## Operational Agreements

Ukraine/Moldova:

Emergency Energy Supply MLA concluded

Impact on Continental Europe Synchronous Area after synchronisation is closely monitored and reported regularly to ACER and NRAs

Ukrenergo: SAFA will replace current interconnection agreement once all technical measures as defined in the CoM (Catalogue of Measures) are implemented

# 3. Update on T<sub>min</sub> FCR LER and FCR probabilistic dimensioning methodology

ENTSO-E, Luca Ortolano & Carmelo Mosca

# TF LLFD analysis

## Update on FCR costs

- The draft of LER and non-LER cost update has been shared with RG CE and MC members in July-August 2023 to gather comments and feedback.
- The work is supported by the external consultant (CESI), which already supported ENTSO-E during the methodology definition.
- The cost update documentation has been approved by RG CE plenary on **26<sup>th</sup> September 2023 and then acknowledged by Market Committee.**
- As foreseen, a dedicated meeting with NRAs and ACER was held. NRAs and ACER asked for further analyses.
- The work is ongoing with the following tasks:
  - Implement the NRAs and ACER requests on the cost update study***
  - Discuss the results in a dedicated meeting with NRAs and ACER***
  - Proceed with the public consultation and workshop***

## **Back-up #1**

**Short list of activities from NRAs Request for Amendments and Concept note**

## Short list of activities from NRAs Request for Amendments and Concept Note

- n. 2, 3 – Assess of the effectiveness of FRR/RR dimensioning and performances
- n. 6, 7 – List implemented/planned LLEFD and DFD mitigation actions
- n. 11, 12, 13, 14 – Assess performances mFRR/RR products for tertiary reserves needs and compare resulting performances
- **n. 5 - Assess possible improvements in forecast quality**
- **n. 4, 8 – Simulate  $\Delta f$ , LLEFD considering all studied improvements**
- **n. 1 – Perform FCR Probabilistic Dimensioning**
- **n. 9, 10 - New survey to update FCR costs (LER and non-LER), run a new instance of the CBA**

# Outcome of public consultation

# Consultation of the FCR dimensioning approach with Stakeholders - Overview

The public consultation about the TSOs proposal for a probabilistic FCR dimensioning approach pursuant Art.153(2) of SO GL has been held in the period 15<sup>th</sup> May – 15<sup>th</sup> July.

Four stakeholders provided a response. Respondents are:

- An association of the electricity sector (UFE, representing producers, transmission and distribution system operators) and a producer (EDF). They provide a shared response (comments are identical).
- A provider of energy control services.
- A research institute.

Some SHs asked for confidentiality in publicly sharing their names.

The proposal is currently under review to acknowledge comments from NRAs (shadow opinion) and SHs.

The final TSOs' proposal is expected to be approved by RG CE in the plenary of November 2023. The proposal will then be submitted to NRAs for approval.

NRAs approval process can legally take up to six months. Shouldn't NRAs request any amendment, the expected final approval is possible by June-July 2024.



# Consultation of the FCR dimensioning approach with Stakeholders - Overview

**CONFIDENTIAL**

*Provider of energy control services*

Few **request for clarification on the model.**

*Comments and replies can be published without the SH name.*

**CONFIDENTIAL**

*Research institute*

The contribution is **aimed at engaging with TSOs** in the FCR dimensioning and other related topics.

*Comments and replies can't be published.*



Contributions from EDF and UFE are exactly the same.

The contribution is **wide and articulated. Observations, suggestions, criticism and requests for clarification are provided.**

*Comments and replies can be published with the SH name.*

# Consultation of the FCR dimensioning approach with Stakeholders - Overview

SHs' comments regards all articles of the proposal. The most significant ones regard the following topics:

- Request of clarifications about the LER modelling.
- Request of clarification about the definitions (e.g., “LER”, “Equivalent reservoir energy capacity”).
- Suggestion about the modelling of further elements such as HVDC, local lines, etc.
- Request of clarification and comments about the definition of “critical condition”, leading to the need of FCR increase.
- Suggestion to combine probabilistic and deterministic FCR dimensioning approaches.
- Suggestion about the symmetry of reserve.
  
- Suggestion to increase the level of detail in the proposal (i.e., by including some explanations/clarification currently present only in the explanatory document).
- Request of clarification about the recalculation process to be undertaken periodically by TSOs (which entity is in charge of it? What’s the expected periodicity? What can trigger a recalculation?).

Feedback about the model presented in the proposal

Feedback about the document and the dimensioning process

# | 4. Update of SO ESC ToR

ACER

# 5. Risk Preparedness for Winter 2023-2024

ENTSO-E, Laurent Rosseel

# Operational preparedness for Winter 2023\2024

Main measures taken to minimize and manage risks during the winter period

1

## Operational Group

- The Operational Group is composed of **all interconnected TSOs, RCCs and the Secretariat**). It is a permanent structure under SOC.
- The group established a **weekly process** of data collection and revision and provides a comprehensive overview of the system status of the entire European grid for each week.
- The group supports the **cooperation, communication and alignment** between all involved parties.
- The Operational Group can activate a weekly meeting based on a request by at least one TSO or RCC, or via a SOC decision.

2

## Processes and Procedures

- **Procedures and methodologies** developed for Winter 22-23 remain in force for upcoming winter.
- **Additional operational processes** between the TSOs and RCCs will be provided where needed.
- **Training of staff of TSO and RCC** on operational processes and tools
- **Cooperation between ENTSO-E and ENTSOG** on operational level is reinforced.
- **Crisis Communication Process** is ready to be activated in case of need.

3

## 3<sup>rd</sup> country TSOs cooperation

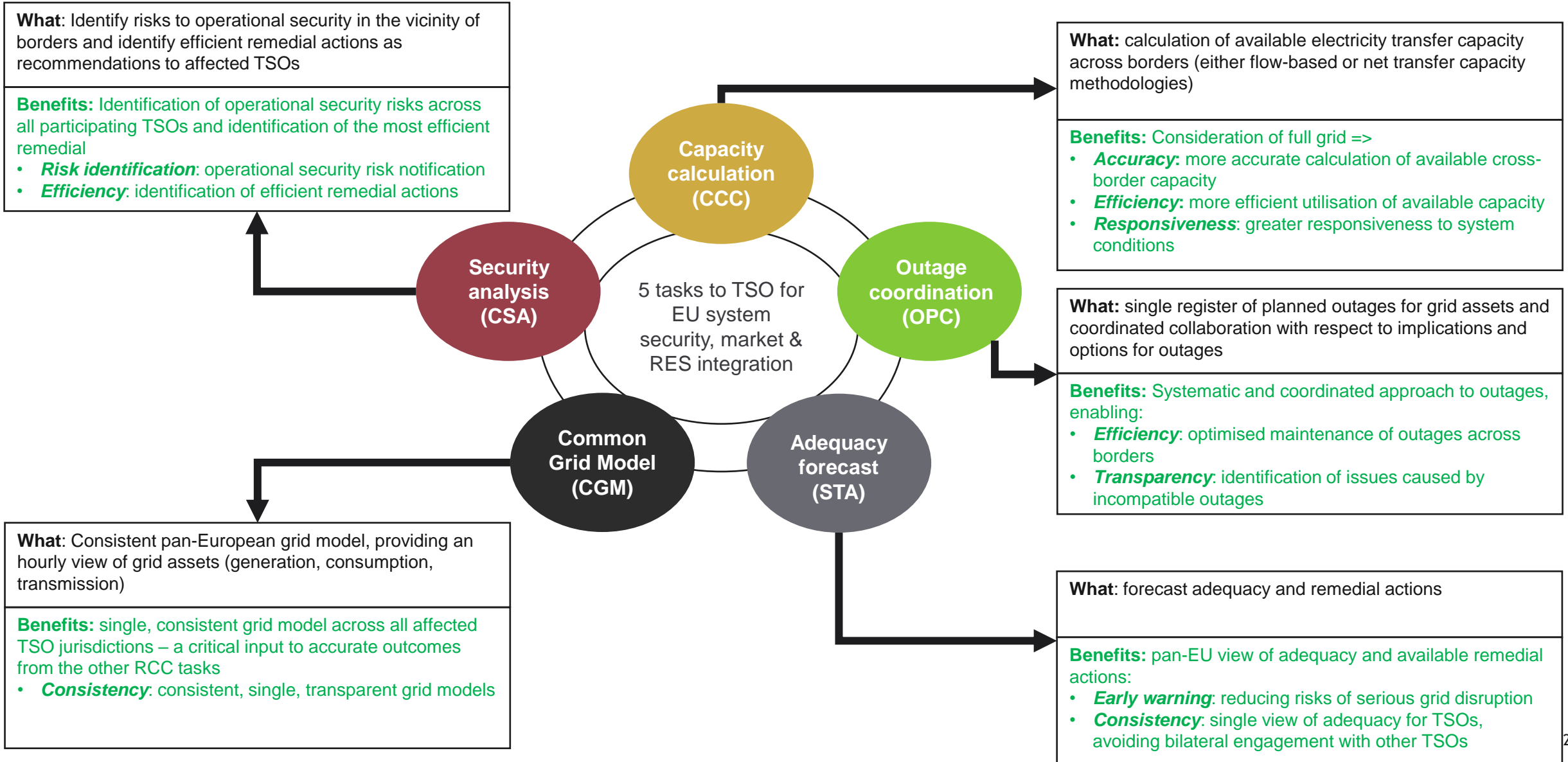
- ENTSO-E is closely monitoring the situation in 3<sup>rd</sup> country TSOs in terms of system balancing to ensure an effective preparation for the upcoming winter. Any relevant operational process is analysed and, where 3<sup>rd</sup> country TSOs data might be needed, ENTSO-E is facilitating the discussions and alignments between TSOs to enable such cooperation.

# 6. Report on CGM Implementation

ENTSO-E, Habir Paré

# Why is regional coordination important?

Enabling reliable and efficient grid operations ...



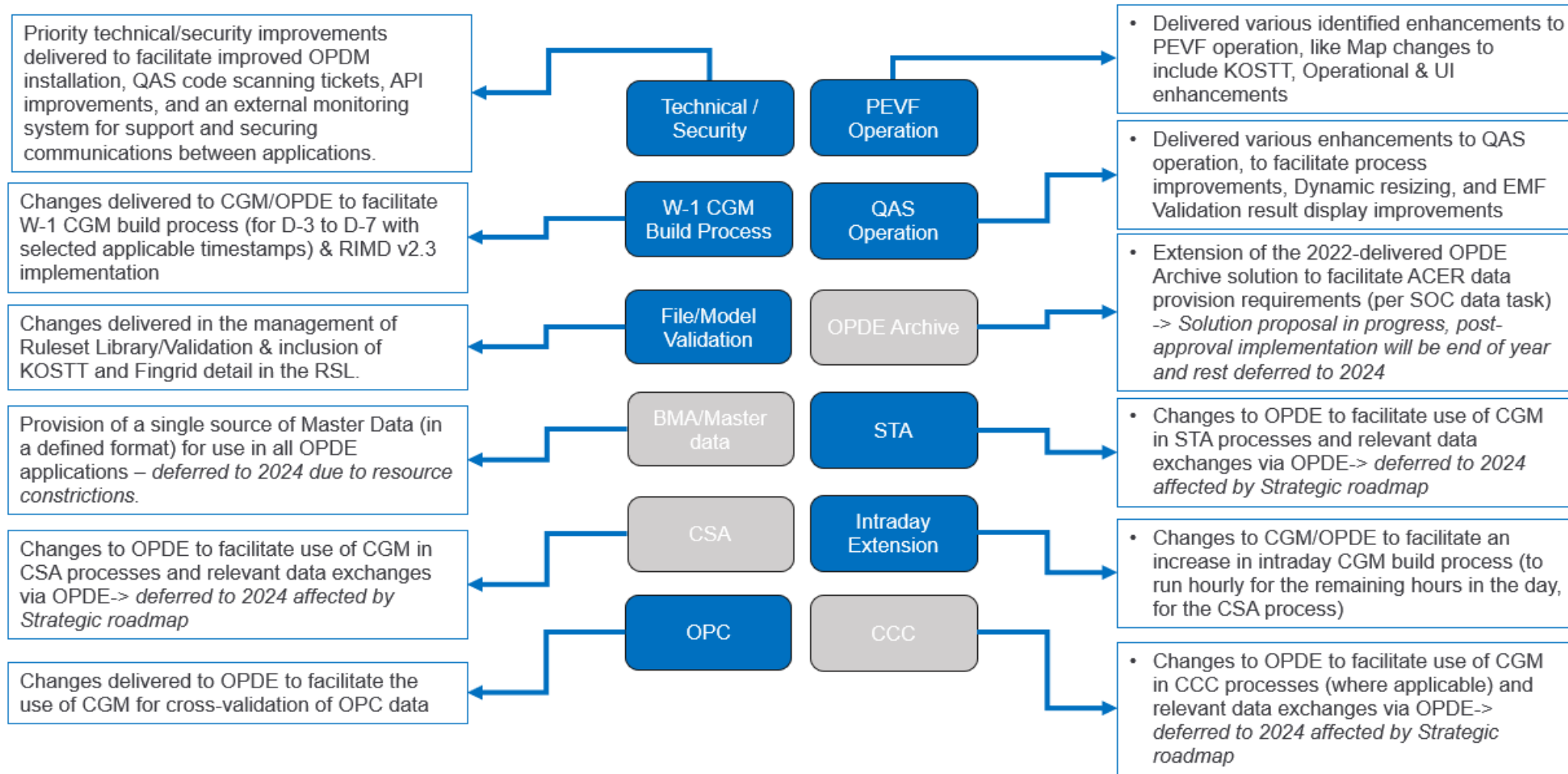
# Status update: November 2023

## Main achievements during the reporting period (April-October 2023)

1. Ongoing **bi-monthly IOP** (Interoperability testing), focused on:
  - (a) identification of issues in validation tools/rules for cases not covered by the in-house test models
  - (b) assessment of the impact of new rules to business continuity related to publication of IGMs to OPDE
2. **Expansion of TSO and RCC involvement in the modelling group** and identification of synergies with the IOP activities within the CGM OPDE Task Team, to:
  - Perform some Power Flow comparisons on IGM/CGM, identify gaps and associated root causes to implement the adequate solutions.
  - IGM/CGM quality assessment task.
  - Business usability assessments on IGM/CGM.
3. **TSO-RCCs CGM process participation survey** to understand main blockers for participation to the process
4. **RCC weekly calls and RCC debugging sessions**: Regular troubleshooting performed by RCCs relating to IGMs inclusion in the CGM
5. **Continuous improvement of the OPDE solution** - stabilisation and reduction of complexity of technical interactions via OPDE



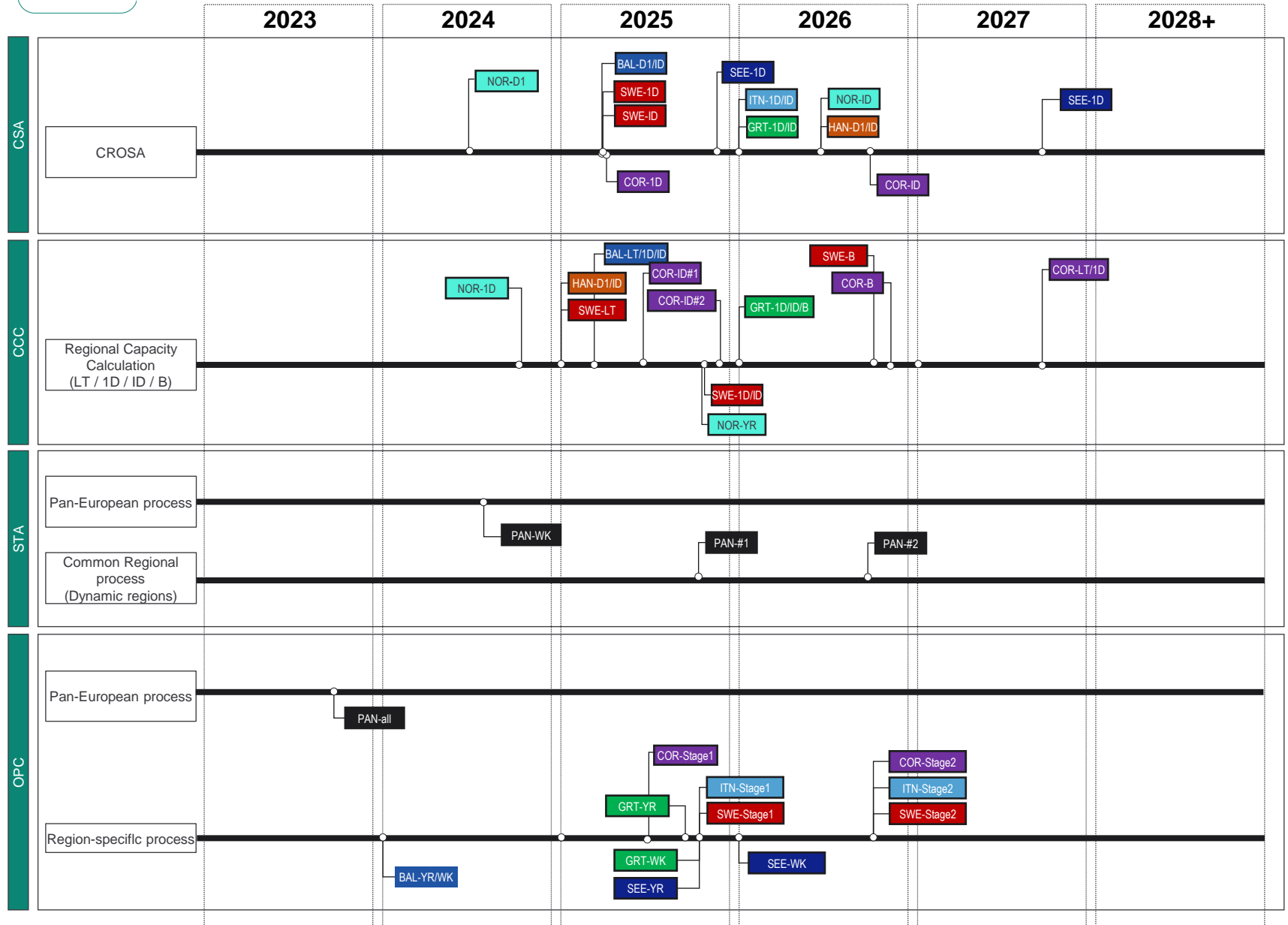
# Priority focus areas 2023 overview



In 2023, two technical-focused releases and two functional releases were delivered. The “priority focus areas” for 2023 are shown in the figure above, with individual changes at various stages of scoping, approval, development, and delivery. Four of these priority focus areas are deferred to 2024, marked in grey.



# SERVICE ROADMAP



## REGIONS

- BAL = Baltic
- COR = Core
- GRT = GRIT
- HAN = Hansa
- ITN = Italy North
- NOR = Nordic
- PAN = Pan-European/common delivery
- SEE = South East Europe
- SWE = South West Europe

## TIMEFRAMES

- LT = Long Term (YR, MO)
- YR = Year-Ahead
- WK = Week-Ahead (3D to 7D)
- 2D = Two days-ahead
- 1D = Day-Ahead
- ID = Intraday

## NB

\* Core decision in 2024 whether go-live of DA CROSA will be postponed and introduced together with ID CROSA  
 \* Nordic CSA based on Nordic CGM with a simplified version without RAO; full ROSC scope to be added later

**Important Note:**

This summary is based on the latest input available and may be an update to any version that is currently in review/awaiting written voting approval. Any such updates will be incorporated into the next version issued for review/approval.

# 7. Winter Outlook report

ENTSO-E, Alban Joyeau

# Scope



## Reference scenario

Best available information



## Energy saving scenario

What if **European energy saving targets** would be reintroduced?

### Adequacy assessment

**Critical Gas Volume** analysis (same as winter 2022-2023)

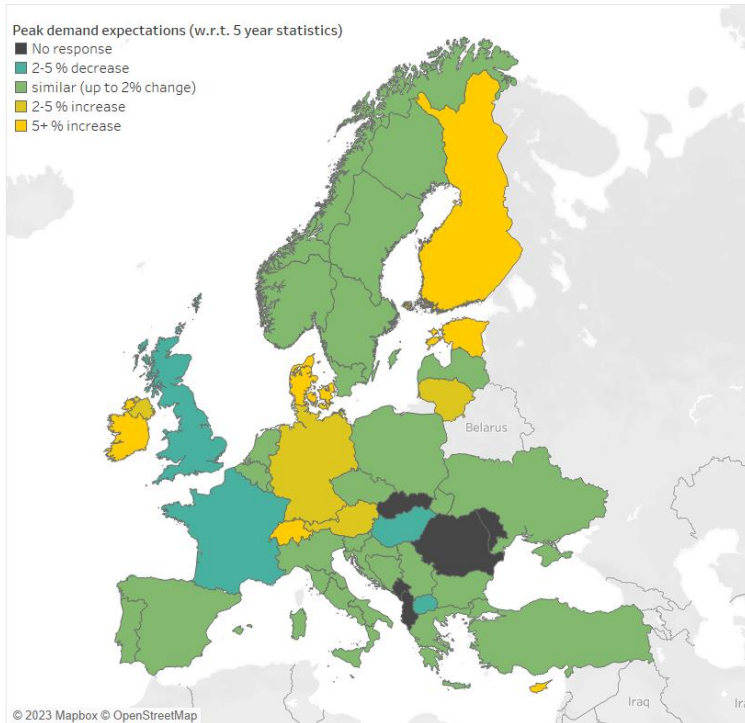
### Special considerations

- No regional concerns were identified by TSOs
- Limited lignite availability in Poland considered
- UA/MD system integrated part of European power system: enabling transit flows if needed but no consumption and generation modelling in UA/MD system itself
- UA/MD expert qualitative expectations included in the report

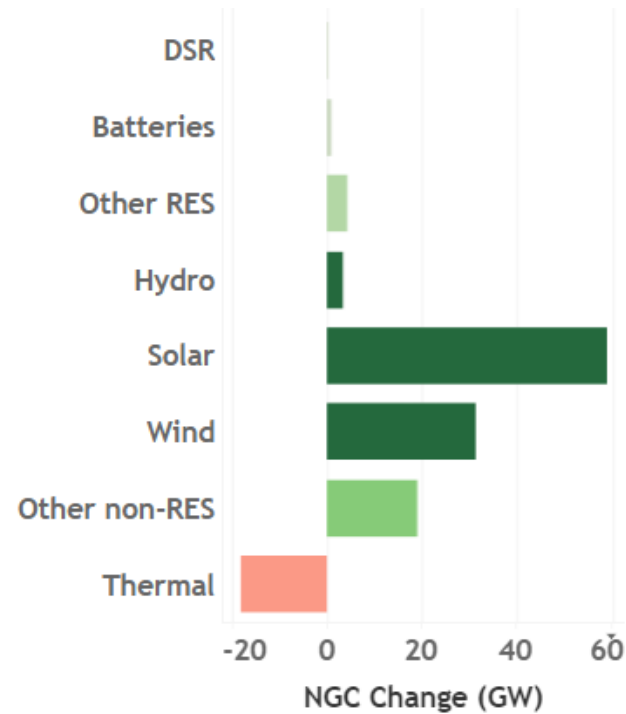
# Trends compared to past winter (I)

## Demand varies around average levels across Europe

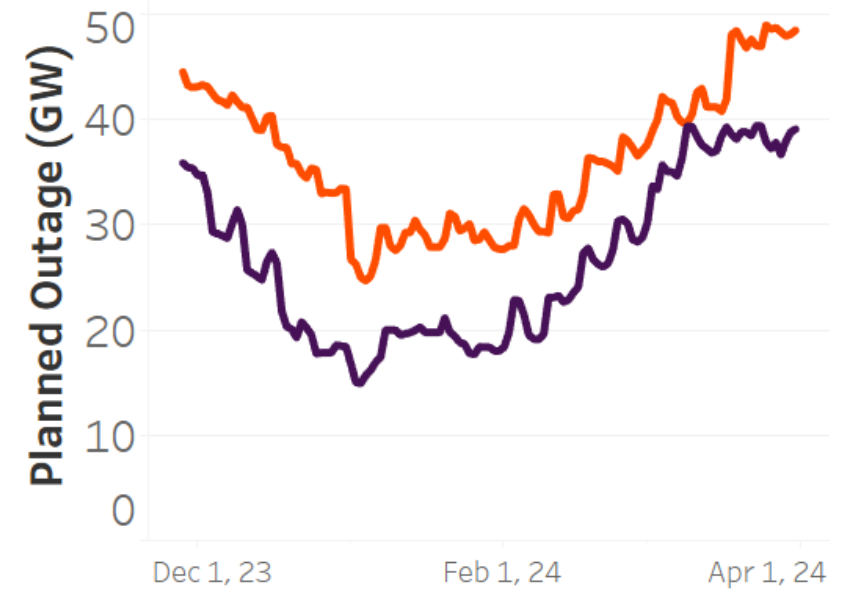
Peak demand



## RES increase; Conventional decrease



## More favorable planned outage schedule

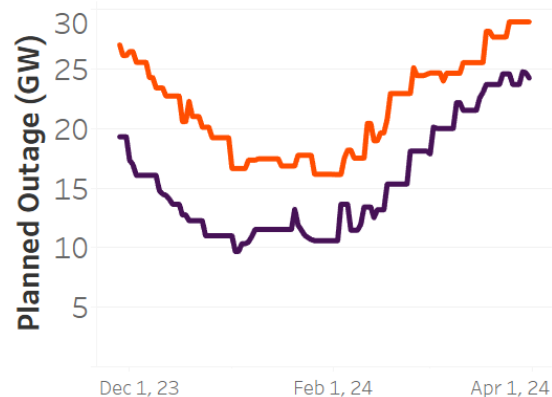


**WO 2022-2023**      **WO 2023-2024**

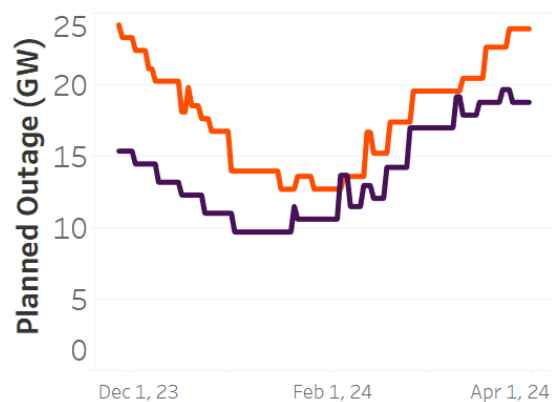
# Trends compared to past winter (II)

Higher expected nuclear availability

Pan-European



France

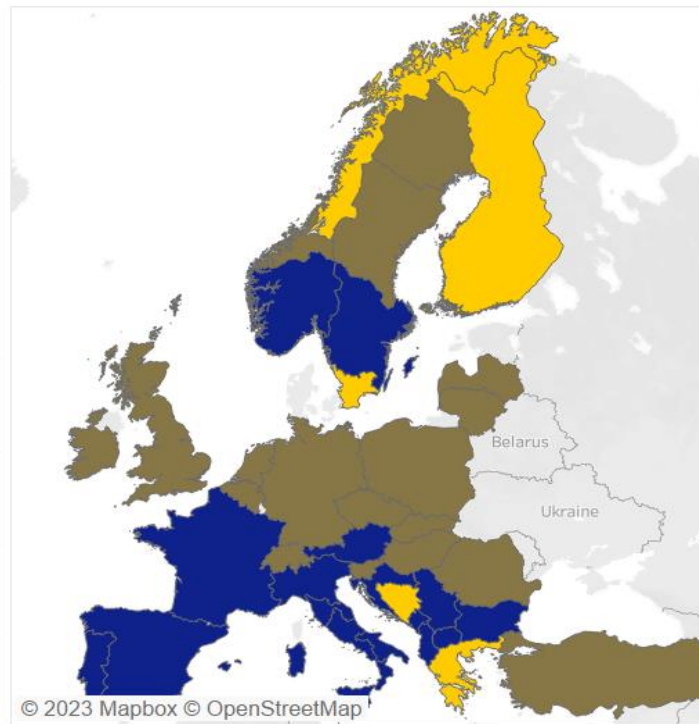
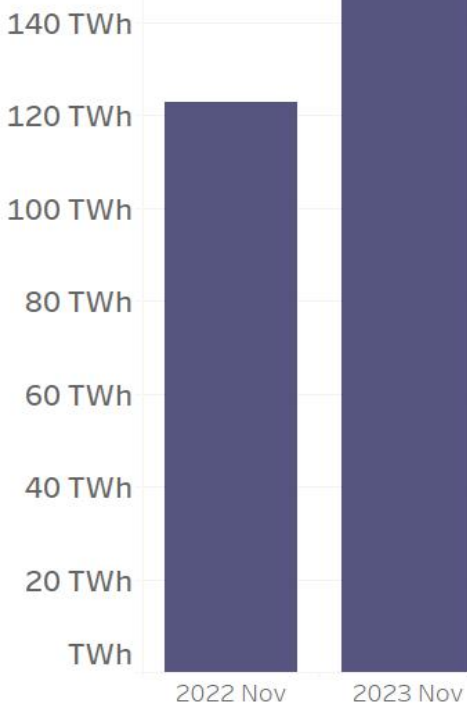


WO 2022-2023    WO 2023-2024

Hydro storage levels in November projected to be better than year before

Total hydro in storages

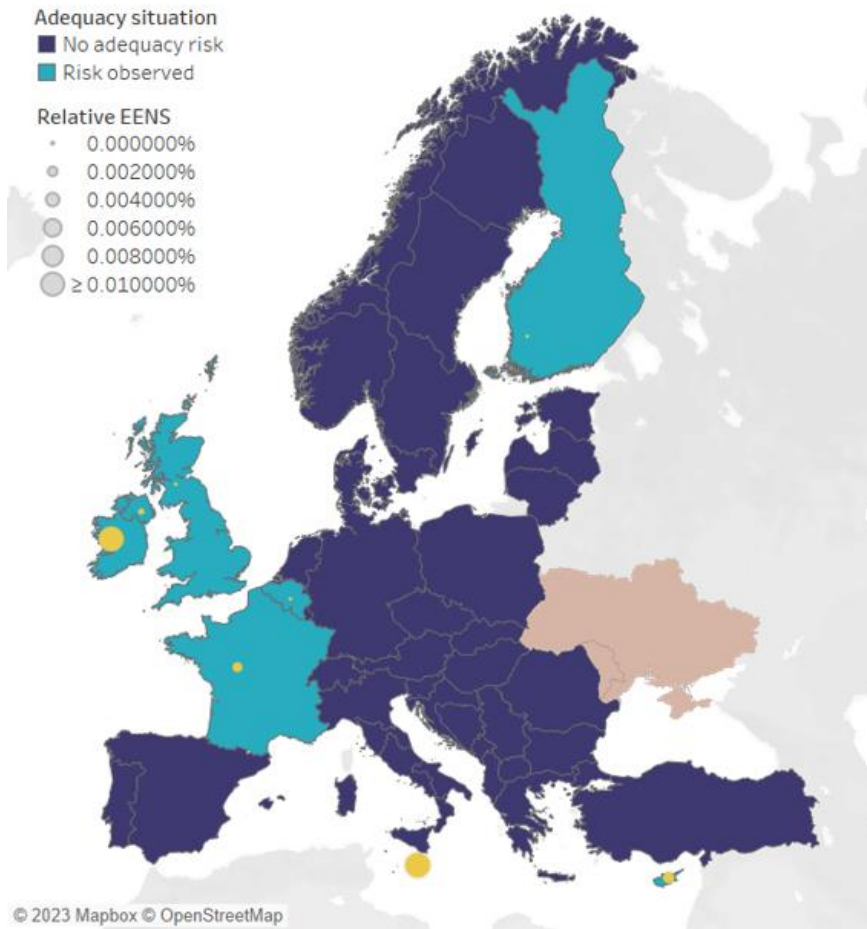
Compared with winter 2022-2023



**Reservoir levels**

- More than 5% higher
- Between -5% and 5% change
- More than 5% lower

# Results confirm positive trend identified in input data



## Favourable adequacy results due to:

due to:



RES expansion



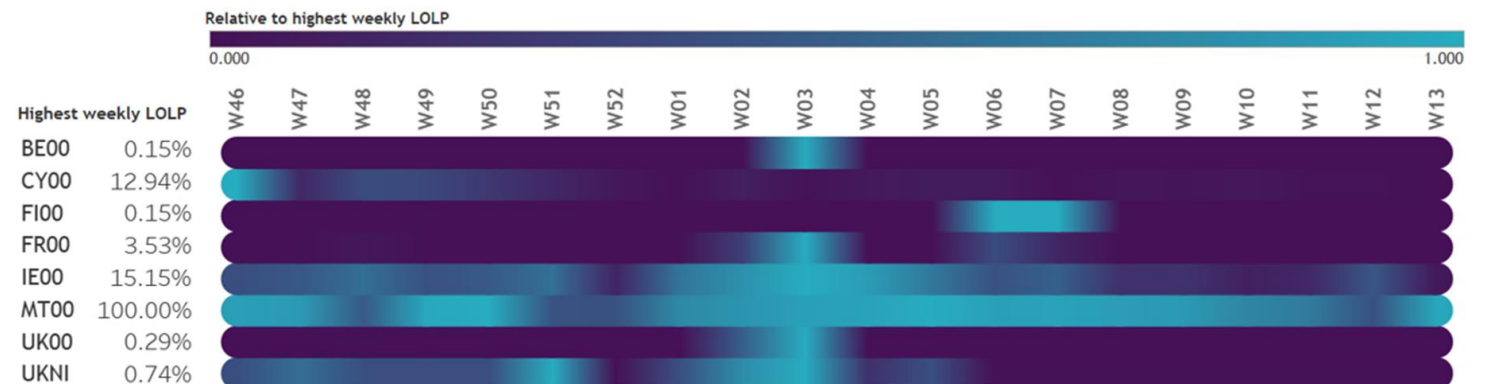
Favourable planned maintenance schedules



Stagnant demand

## Adequacy risks:

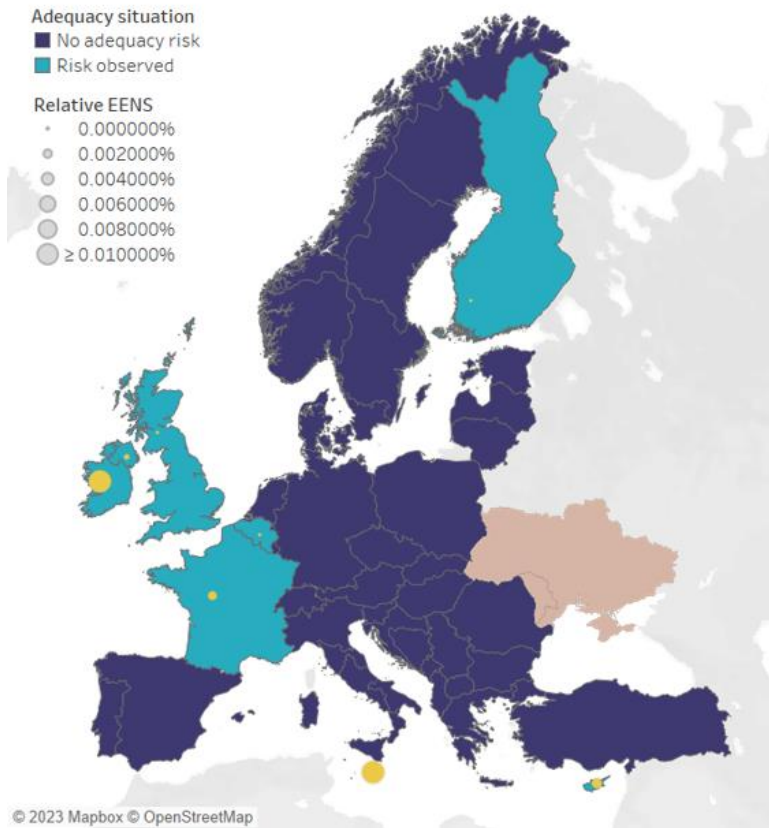
- In rather remote systems
- Traces of risks in Finland suggest tight supply margins
- Regional risks in and around France should be addressed by FBMC (Flow-based market coupling) efficiencies



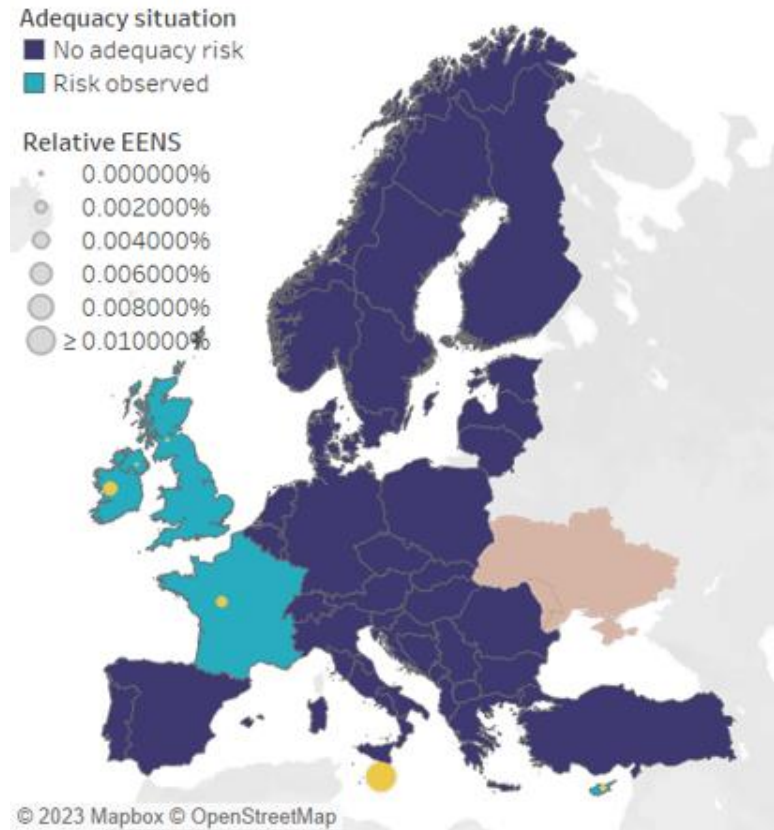
\*Adequacy risks can be mitigated by non-market resources in Ireland and Malta.

# Energy saving measures

## Reference scenario



## Energy saving scenario



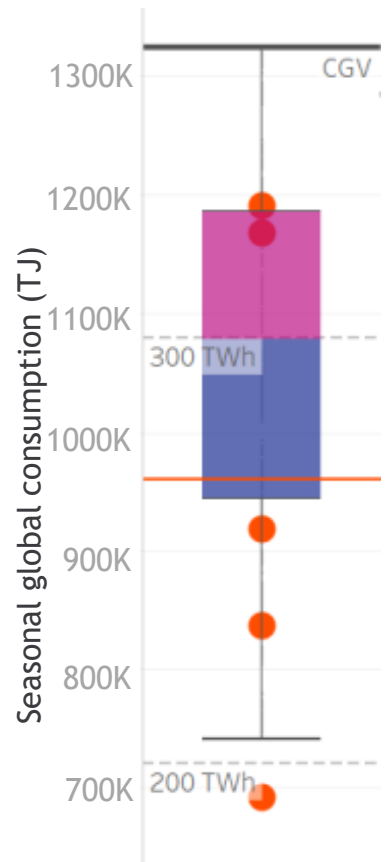
## Adequacy risks:

- Would be mitigated at least by half with energy saving scenario everywhere
- Small potential to address regional risks in and around France.

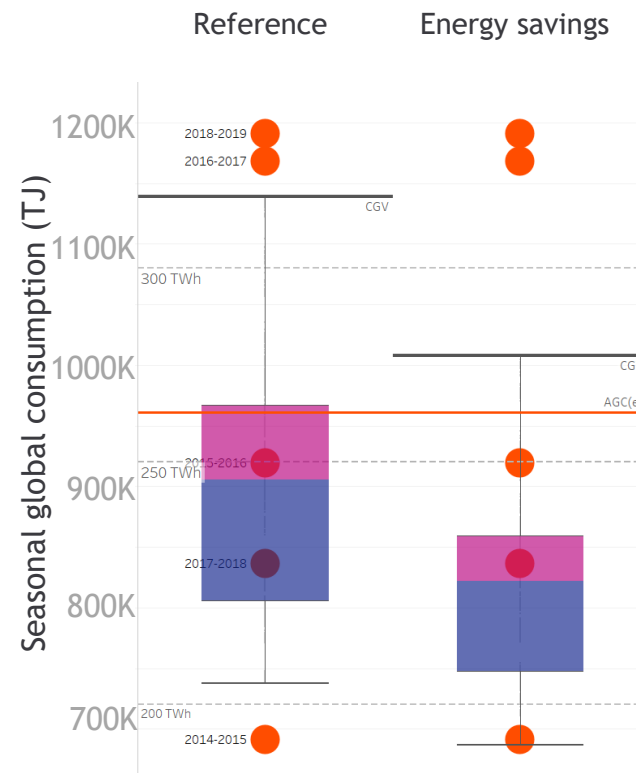


# 10% lower reliance on gas compared with winter 2022-2023 (Dec-Mar)

Winter Outlook  
2022-2023



Winter Outlook  
2023-2024



## Insights:



CGV decreases by 10% compared with previous winter.



Additional 10% gas savings may be achieved if energy saving targets would be re-introduced.



Favourable conditions this winter would reduce gas need for same period.



Thermal decommissioning compensated by RES expansion and reduced planned outages

**Reminder:** Critical Gas Volume - CGV estimates only gas needs for adequacy in harsh winter. Actual gas consumption may be higher depending on market conditions; or lower than CGV if weather conditions would be favourable. Additional gas may be needed to ensure system services.

**Thank you very much for your attention**

# | 8. PRA Biennial report

ENTSO-E, Nicola di Giacomo, Gamze Dogan

# Legal background

## Methodology for coordinating operational security analysis

### Article 44

#### Towards probabilistic risk assessment

1. All TSOs shall publish, with the support of ENTSO-E, a report on the progress achieved in Europe on the operational probabilistic coordinated security assessment and risk management. The first report shall be published in 2021 and afterwards on a biennial basis, by 31 December. ENTSO-E shall publish this report on its website.

# PRA Biennial report

## Main outcomes

Progress achieved with regard to:

- The data collection
- The development of the methodology:
  - Probability calculations
  - Impact assessment

**The report will be published soon (deadline end of December).**

**Members will be informed via email once available.**

# | 9. Update on NC CS

EC, Felipe Castro Barrigon

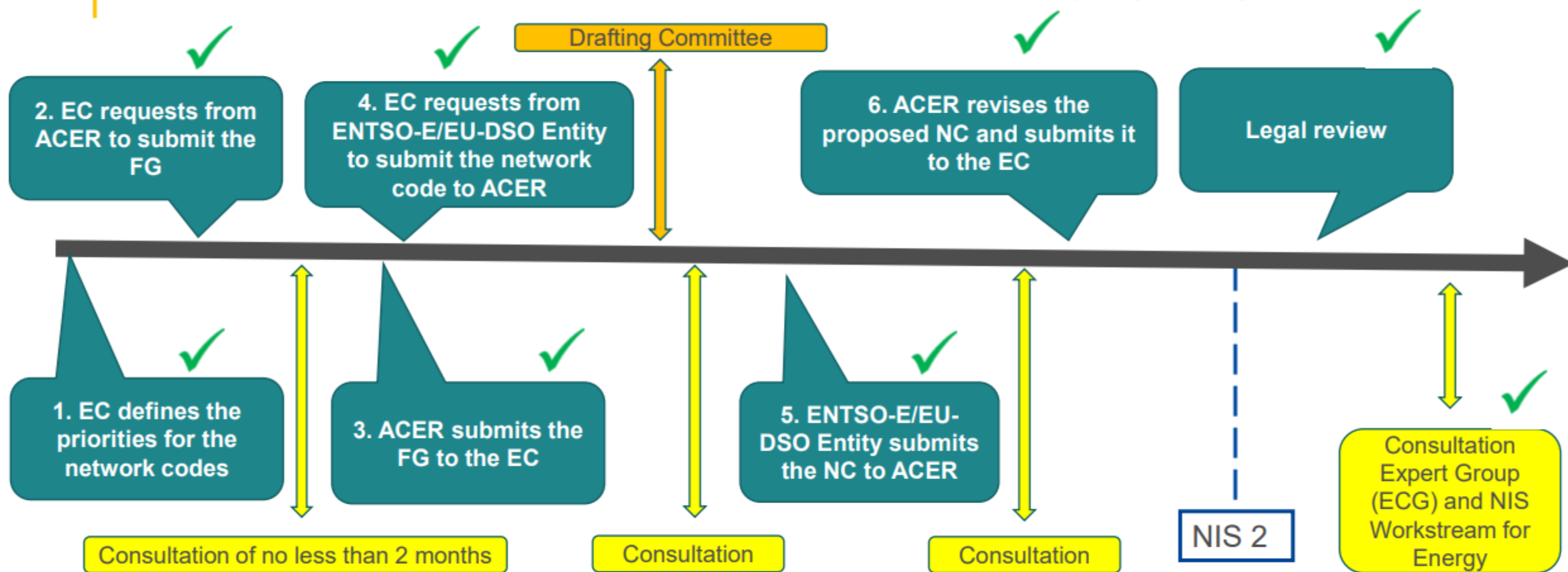


# Network Code on sector-specific rules for cybersecurity aspects of cross-border electricity flows

27th System Operation European Stakeholder Committee Meeting

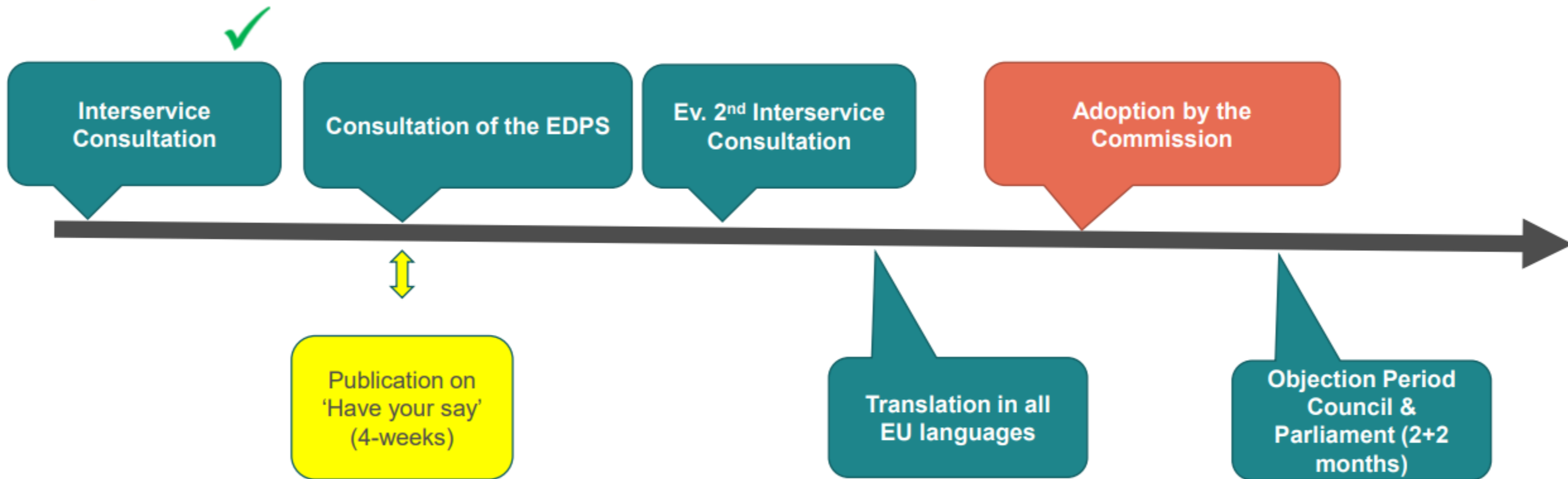
*Felipe Castro  
DG ENERGY, Unit B4: Energy security and safety*

# NCCS: process and state of play (1/2)





# NCCS: process and state of play (2/2)



# Summary of consultations for this Delegated Act

Articles 31 and 56 lay down requirements for extensive stakeholder consultation when developing the network code

1. Targeted consultation in 2020 for establishing the 2020-2023 priority list for the development of network codes (responses from 20 industry associations, 19 companies, 3 public authorities, 3 non-governmental organisations and 1 EU agency)
2. Technical report by Expert Group 2 of the Smart Grids Task Force at the beginning of 2021
3. Framework guidelines by ACER in Q2 2021, subgroups with support from ENISA, Commission
4. Public consultation by ACER on framework guidelines. April 2021

## Summary of consultations for this Delegated Act (cont')

6. Drafting committee led by ENTSO-E with participants from ACER, CEER, EC, ENISA, ENTSO-E, EU DSO Entity, NIS CG (Cooperation Group) WS 8, NEMO Committee, RCCs, SmartEN, T&D Europe. September 2021
7. ENTSO-E launched public consultation during four weeks. Nov-Dec 2021
8. DG ENER presented the state-of-play for the code to the Expert Group Electricity Coordination group in up to 6 meetings in the period 2021-23
9. ACER consulted during its revision, including participants from T&D Europe, CSIRT Network, EU DSO entity, SmartEn, NIS CG WS on energy, ENTSO-E, NEMO – Q2 2022
10. DG ENER presented the state-of-play three times to the NIS CG WS8 (17.3.22, 21.9.2022, 13.6.2023)

## Summary of consultations for this Delegated Act (cont')

12. DG ENER presented the state-of-play twice to the Council HWP-CI (8.12.2021 and 22.3.2022)
13. Commission consultation to Expert Group ECG (23 May to 20 June 2023), and in parallel to the NIS CG Workstream for Energy. Also informing Parliament and Council. Responses from 11 MS, four entities and one agency.
14. Commission internal Inter-Service Consultation to the other Services, including DG CONNECT and Legal Service of the Commission
15. Publication for feedback during four weeks in [Have your say](#) (20 October to 17 November)

# Key elements of the NCCS (1/3)

- Defining a list of entities that play a role in the NCCS, either actively applying risk management measures for their electricity processes, or by playing regulatory/supervisory/advisory roles
- Designation of National Competent Authorities for the purposes of this Regulation
- Procedures to develop and adopt Terms, Conditions and Methodologies to implement the different obligations
- Definition of rules for public consultations
- Procedures for monitoring, supervision and enforcement

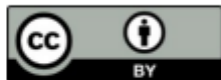
# Key elements of the NCCS (2/3)

- Definition of cybersecurity risk assessment methodologies at Union, regional, Member State and entity level specific for the electricity sector. This risk assessment will help to determine the list of critical and high-impact entities that will need to apply the cybersecurity measures.
- Obligations for the creation of a Common electricity cybersecurity framework, including
  - a) the minimum and advanced cybersecurity controls,
  - b) a matrix mapping the controls referred to selected European and international standards and national legislative or regulatory frameworks;
  - c) a cybersecurity management system for entities identified as critical or high-impact.

# Key elements of the NCCS (3/3)

- Recommendation for minimum and advanced cybersecurity controls in the supply chain and procurement.
- Establishing roles and procedures for information sharing, incident handling and crisis management. It will help to coordinate existing procedures in the electricity sector and mechanisms defined in NIS2 and other legislation.
- Framework to perform exercises, supporting the coordination of existing electricity, cybersecurity and other exercises in the Union.
- Definition of principles for the protection of information exchanged for the purposes of the Regulation.

# Thank you



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# 10. AOB

# SO ESC dates for 2024

- 13 March PM – ENTSO-E BRU
- 26 June PM – DSO Entity BRU
- 12 September PM – ACER LJU
- 10 December PM - Online