

System Operation European Stakeholder Committee

Materials for meeting 26 June 2024



Agenda

Subject		Timing	Lead
1.	Opening <ul style="list-style-type: none"> Review of the agenda, approval of last meeting minutes Review of actions 	13.00 - 13.15	ACER, Uros Gabrijel ENTSO-E, Cherry Yuen
2.	Update on the implementation actions at pan-EU level	13.15 - 13.25	ENTSO-E, Cherry Yuen
3.	Report on CGM implementation	13.25 - 13.40	ENTSO-E, Habir Paré
4.	Update on the HVDC incident between France and UK	13.25 - 13.35	ENTSO-E, Laurent Rosseel
5.	Update on Wind eclipse	13.35 - 13.50	ENTSO-E, Hanna Ljungberg
6.	Update on FCR probabilistic dimensioning	13.50 – 14.00	ENTSO-E, Carmelo Mosca
7.	Update on Tmin FCR LER - TF LLFD analysis	14.00 – 14.15	ENTSO-E, Luca Ortolano
8.	Network code demand response <ul style="list-style-type: none"> Presentation by ACER NC DR impact on SO GL 	14.15 – 14.45	ACER ENTSO-E, Cherry Yuen
9.	AOB	14.45 – 15.00	

1. Review of actions

ENTSO-E, Cherry Yuen

1 Review of actions SO ESC 1/2

ACTION	ANSWER	STATUS
ENTSO-E will present the next update on 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 take the comments raised on the Wind eclipse project to the project team for their consideration.	Comments have been shared.	Done
FCR Tmin LER: ENTSO-E will inform SO ESC members when the public consultation starts	Public consultation from 31 March to 31 May. Communication sent on 29 March.	Done
Update on inertia project phase II	Update provided in joint session after the GC ESC on 27 June.	Done

1 Review of actions SO ESC 2/2

ACTION	ANSWER	STATUS
The European Commission will provide additional information on their inertia study at the next meeting.	Update to be provided when the project starts	Ongoing
Implementation of Art.39 of SO GL and follow-up of 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
ENTSO-E will investigate if there are any relevant additional information to be provided to the stakeholders on the HVDC incident between France and UK.	See agenda item #4	Ongoing
ENTSO-E and the DSO Entity will investigate the possibility to have the December meeting in person.	TBC: GC ESC hosted by EE and SO ESC hosted by DSO Entity	Ongoing

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

ENTSO-E, Cherry Yuen

Pan-European or regional deliverables 2024: SOGL/NCER

CSAm

Amendment proposal approved by ACER on 14th May ([link](#))

Art. 42.1 - Approval of the defined data quality management provisions ongoing

SO GL annual reports

Reports expected approval in September:

- Regional Coordination Assessment
 - Incident Classification Scale
 - Load-Frequency Control
-

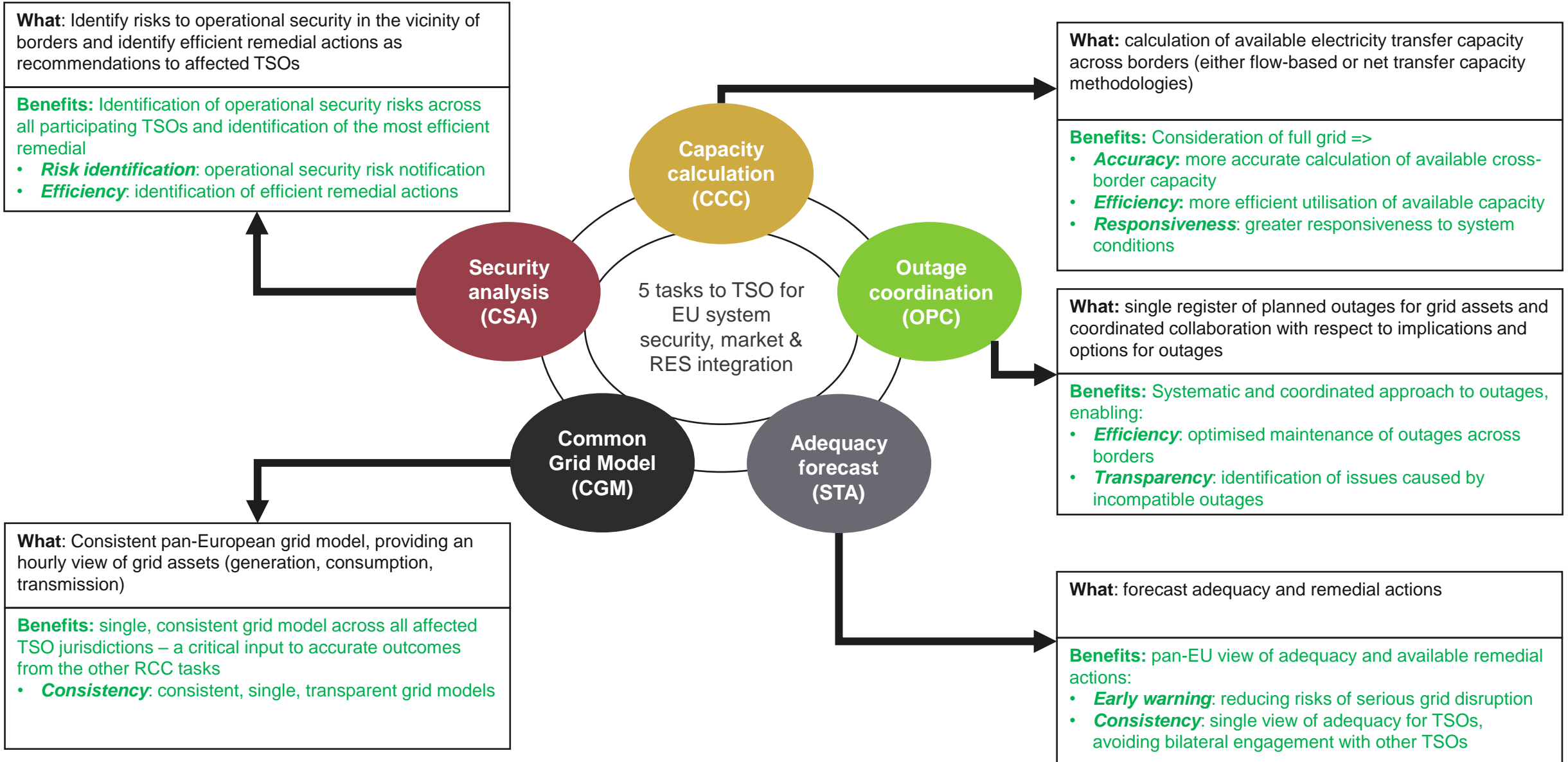


3. Report on CGM implementation

Habir Paré Nsangou

Why is regional coordination important?

Enabling reliable and efficient grid operations ...



Achievements and Challenges

Main achievements during the period (Feb 2024 – June 2024)

1. **CGM OPDE TT reorganisation and new Terms of Reference approval:** the new organisation including topic groups and coordination group should increase the commitment and participation of members. ToR approved by SOC in June 2024.
2. **CGM action plan:** contains actions aimed to ensure the CGM is operationally usable for the regional processes by mid-2025. Plan approved by SOC and endorsed by ICTC in April 2024. Implementation starting end of June 2024.
3. **RCC weekly calls and RCC debugging sessions:** Regular troubleshooting continuously performed by RCCs relating to IGMs inclusion in the CGM.

Main challenges identified

1. **Ensuring process timing alignment** between CGM Building process and other Operational processes (OPC, STA, CCC, CSA).
2. **Ensuring operational quality** of the IGMs and CGMs to be usable for other operational processes

CGM action plan

Key information



Aim: ensure that the CGM is operationally usable for the regional processes CSA and CCC by mid-2025.



Timeline: drafted in 2024-Q1; approved in 2024-Q2; implementation starting in 2024-Q3.



Key actors:

- Existing working groups and task teams appointed to carry out the actions.
- SOC and ICTC chairs directly involved for follow-up of actions' implementation.

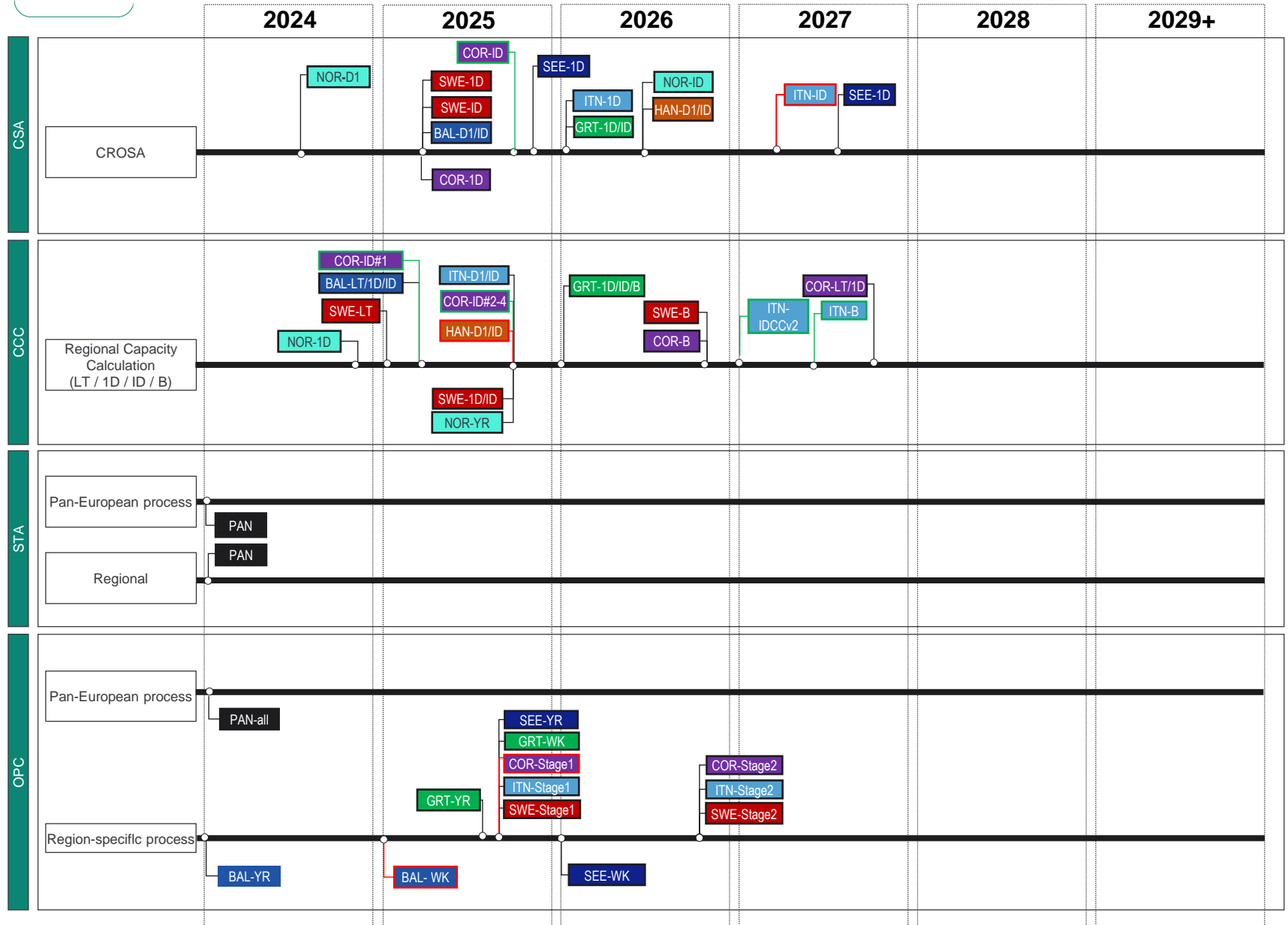


Focus areas, i.e. the streams:

- 1) **Governance Review** – ownership, agility, management principles
- 2) **IGM/CGM quality assessment** – targets, benchmarking, testing, replacement strategy
- 3) **CGMES transition plan** – standard, rule sets, conformity testing, data exchange specifications
- 4) **Compatibility of Regional coordination processes** – methodologies, process timings, operational readiness
- 5) **OPDE roadmap** – business priorities, OPDE/OPDM architecture, testing and integration environment, performances



SERVICE ROADMAP (updated in April 2024)



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

- Nordic CSA is based on regional merged model with a simplified version without RAO; full ROSC scope to be added later.
- Connectors colours of regional processes to timeline are illustrating the update made:
 - green if anticipated
 - red if delayed

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.

4. Update on the HVDC incident between France and UK

ENTSO-E, Laurent Rosseel

5. Update on Wind Eclipse

ENTSO-E, Hanna Ljungberg

Main conclusions from the collection of TSO experience 1/2

- The majority of the TSOs reported that they experience large and sudden swings of vRES infeed. However, the experience varies between TSOs.
- Several trigger events were identified; negative and low prices, wildlife, imbalance prices, meteorological causes. The TSOs that reported wildlife as trigger event also reported that this had limited to low operational impact as it was limited in size and area.
- Different trigger events influenced the type of incitement that cause vRES operators to change their output; support schemes, regulations, lack of remuneration, technical protection etc.

Main conclusions from the collection of TSO experience 2/2

- Several TSOs reported difficulties in forecasting changes in vRES infeed. The behaviour and reactions by the vRES operators for trigger events related to negative prices and imbalance prices are unknown. Similarly, meteorological changes are difficult to accurately forecast.
- Several TSOs reported the use of reserves to compensate the changes in vRES infeed.
- Several TSOs are investigating actions to mitigate impact, such as ramping restrictions and improving forecasts.
- Several TSOs expect the incidences and impact to increase in the future.

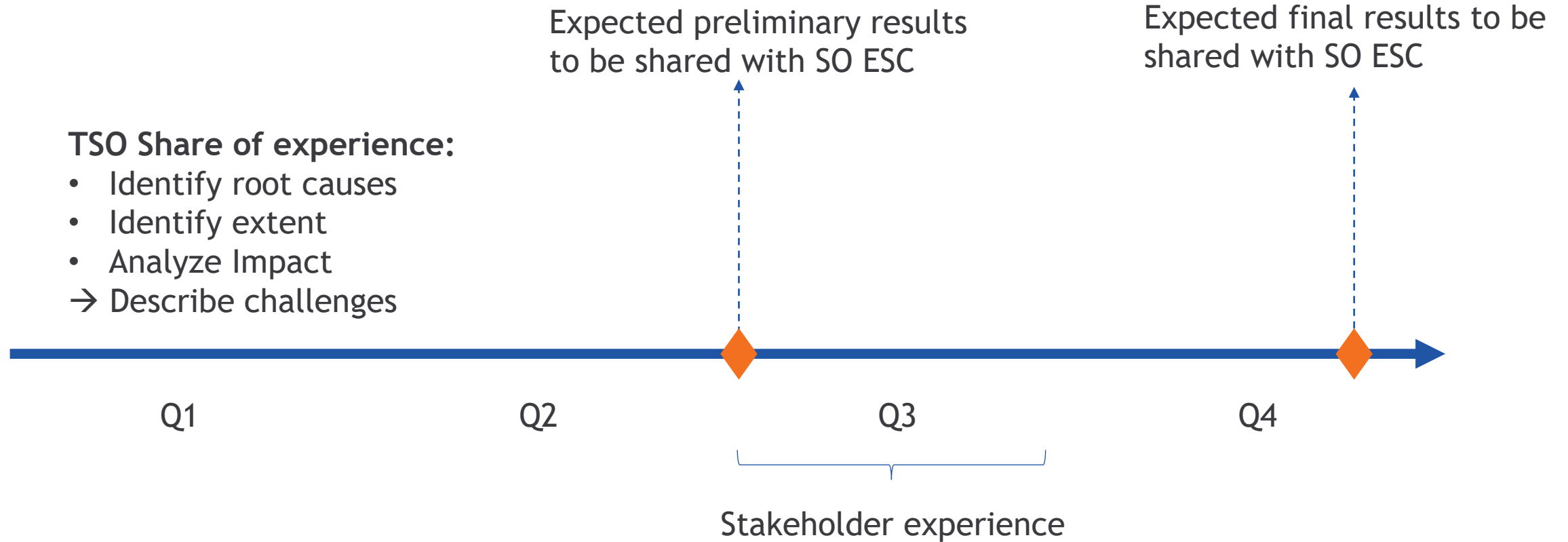
Next steps

- **Deepen analysis on the root causes.**
 - Stakeholders are invited to share their experience regarding:
 - Regulations, support schemes, etc that cause vRES operators to change their infeed.
 - Reactions and behaviors of vRES operators to these regulations, support schemes, etc.
- **Quantitative data analysis to understand the extent of change of infeed.**
 - Stakeholders are invited to share data of infeed to grid for the project team to analyze rate of occurrence of change in infeed and total amount.

Indicative timeline

TSO Share of experience:

- Identify root causes
 - Identify extent
 - Analyze Impact
- Describe challenges



6. Update on FCR probabilistic dimensionning

ENTSO-E, Carmelo Mosca

Update on FCR probabilistic dimensioning

- On 22 May 2024, the National Regulatory Authorities (NRAs) of the Continental Europe Synchronous Area requested from ACER a six-months extension to decide on the Transmission System Operators' (TSOs') proposal to introduce a probabilistic dimensioning approach of Frequency Containment Reserves (FCRs).
- ACER intends to act promptly on this request, aiming to issue a decision by the end of July 2024.
- If ACER decides to grant this extension, 11 January 2025 would be the new deadline for NRAs to reach an agreement on the TSOs' proposal.

[Regulators request more time to decide on a new method for calculating electricity reserves | www.acer.europa.eu](https://www.acer.europa.eu)



7. Update on LLEFD TF analysis

ENTSO-E, Luca Ortolano

Update on LLEFD TF analysis

Update on TF LLEFD analysis

Background information:

- TSOs performed an analyses of the 20 **worst LLEFDs** of 2017-2021, with a focus on their **root causes** (involved Blocks, trigger, causes of underperforming reserve activation).

TF LLEFD activities:

- The task is to go through the list of LLEFDs and to **highlight the mitigation actions** (either already existing or to be implemented) which would have had an impact on each event.
- The TF drafted a **report** on countermeasures against LLEFDs, describing how the system has improved in the meanwhile (or will improve in the future) in order to reduce the probability that similar events occur again or to reduce their severity (duration, amplitude).
- The report has been sent to the NRAs on 31 March 2023. A **dedicated workshop with stakeholders**, as requested by NRAs, has been held on May 8th.

CBA data input and assumptions

CBA rerun activities – data input and assumptions

- The cost update analysis has been updated by the PT using **more recent input data**.
- In their RfA, the NRAs asked to **update the frequency input for the CBA rerun** to take into account the mitigation measures put in place by TSOs and described in the aforementioned report. In the informal meetings, the NRAs also stated **that the input data for CBA and Probabilistic FCR Dimensioning shall be the same**.
- About the **outages**, for the CBA rerun it is proposed to align the CBA methodology input to the probabilistic FCR dimensioning methodology.
- The report on Updated input data and assumption for CBA LER has been **publicly consulted** from 31 March to 31 May 2024. A dedicated **workshop with Stakeholders** has been held on May 8th to illustrate the documentation.
- During the consultation, **six Stakeholders provided their feedback**. The PT is currently working on them, also to provide answer to the questions/remarks.

Summary of the next steps

Next steps

The next steps consists of:

- **Finalization of the report** on updated input data and assumption for CBA LER, including an assessment of the Stakeholders' feedback.
- **Submission of the report** to NRAs by June 30th.
- Run the **CBA** to define the proposed TminLER
- **Submission to NRAs** of final report on the outcome of the CBA by September 30th
- Launch the **public consultation of new proposal for Tmim LER** from September 30th to October 31st



8.1 Network Code Demand Response

ACER, Athina Tellidou



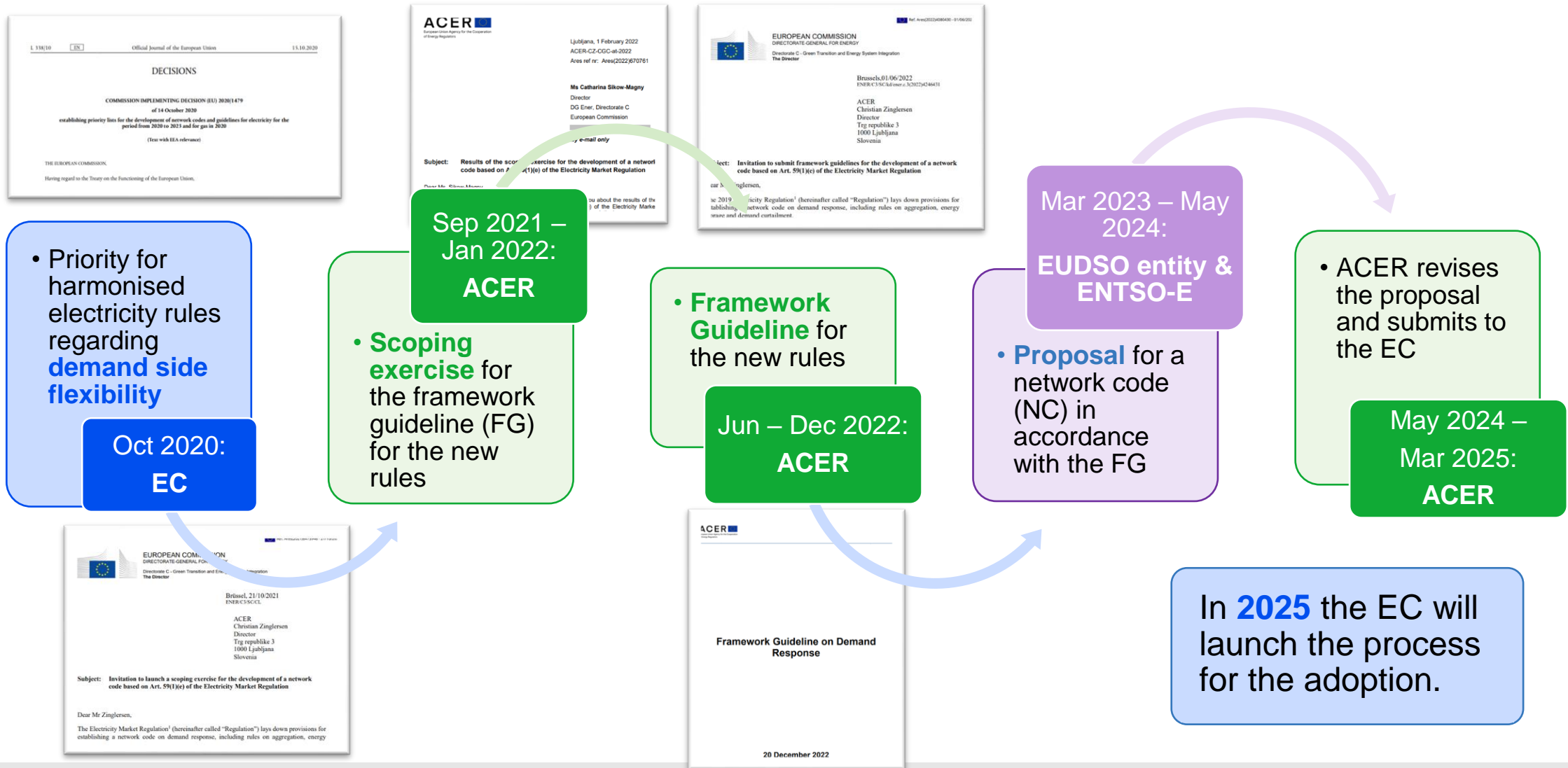
European Union Agency for the Cooperation
of Energy Regulators

Update on the DR NC and next steps

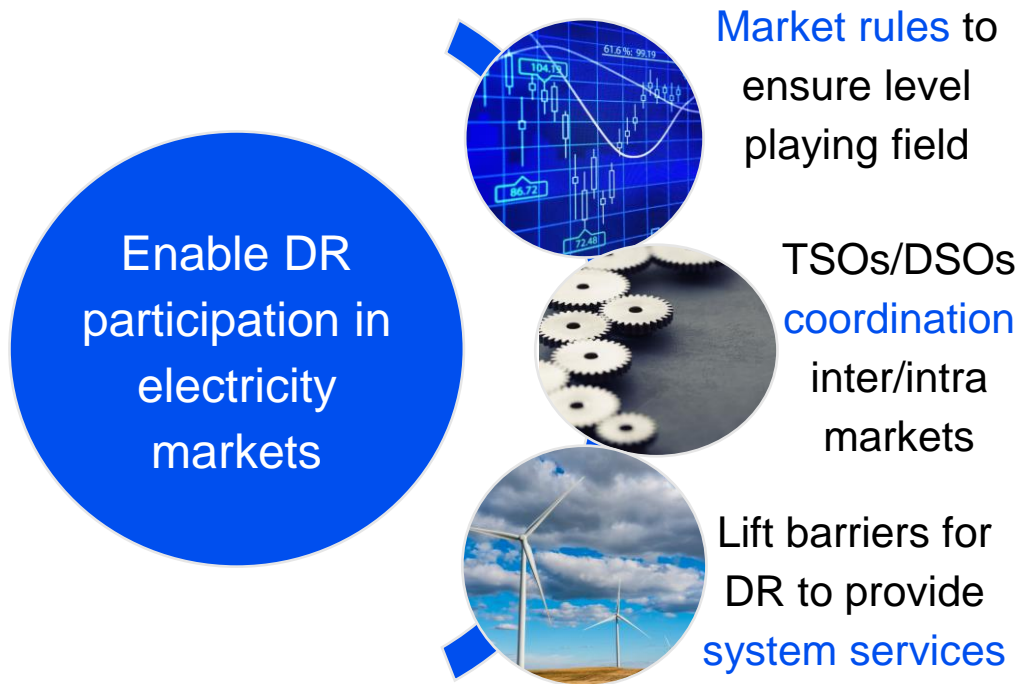
SOESC meeting

26 June 2024

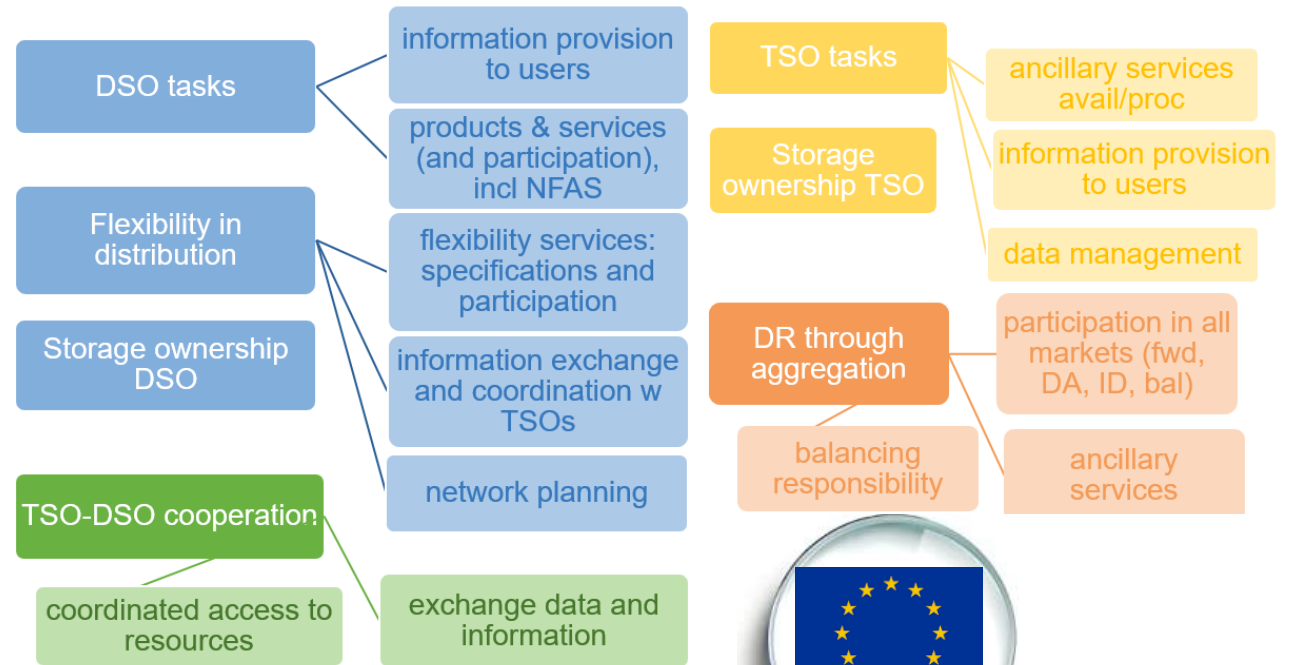
Timeline: from priority rules to network code



Scope based on the legal basis



Legal basis



This exercise should address the part of the whole picture where **cross-border aspects come in**

“Network code **for demand response**”



- ‘New rules’ to facilitate demand response’s participation, but this doesn’t mean that the new rules are **only applicable** to demand response.
- ‘New rules’ means also **amending existing guidelines** (either by adding or amending provisions), which are anyway applicable to every market participant (or service provider).

Demand response network code content

General requirements for market access

- Roles and responsibilities
- Aggregation models
- Provision of the services:
baseline measurement
- Imbalance settlement

Prequalification

- General principles, requirements and processes
- Simplification of the prequalification processes
- Flexibility register

Data exchange and SOs interactions

- Market interaction
- Operation of local markets for SO services
- SOs coordination
- Data exchange
- Flexible connection agreements
- SO-owned storage facilities

Congestion management

- Products
- Procurement and pricing
- Network development plans
- Harmonisation

Voltage control

- Products
- Procurement
- NRA assessment
- Reporting

ACER process for revision/recommendation



The stakeholders views on the SOs proposal are **known**; in case ACER identifies topics for further discussion with the drafting committee **before** the launch of the public consultation, **ad hoc** calls will be scheduled.

MESC updates: 8 Oct and 3 Dec

SO ESC updates: 26 Jun, 12 Sep and 10 Dec

Ensure legally consistent draft

Improve drafting quality with amendments on wording, structure and clarity of legal requirements.



Ensure compliance with the framework guideline*

Some of the requirements of the DR FG are **not fulfilled** in the formal proposal.



Content direction

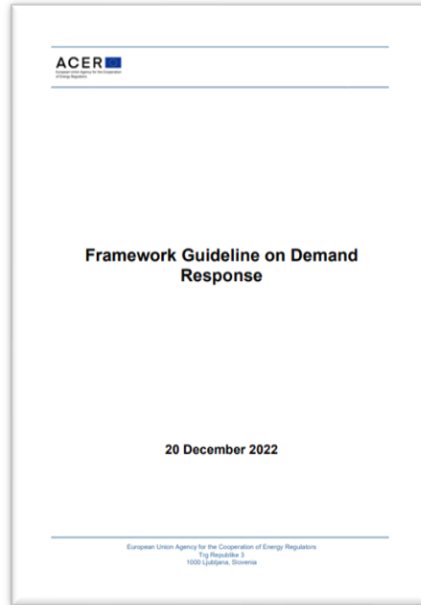
Direction in the DR NC, within the boundaries of the FG, and respecting the objectives of the Electricity Regulation.



Alignment of the proposed amendments to existing regulations

*DR FG: [ACER Framework Guideline on Demand Response](#)

Objectives of the Electricity Regulation



CHAPTER I
 SUBJECT MATTER, SCOPE AND DEFINITIONS

Article 1
 Subject matter and scope

This Regulation aims to:

(a) set the basis for an efficient achievement of the objectives of the Energy Union and in particular the climate and energy framework for 2030 by enabling market signals to be delivered for increased efficiency, higher share of renewable energy sources, security of supply, flexibility, sustainability, decarbonization and innovation;

(b) set fundamental principles for well-functioning, integrated electricity markets, which allow all resource providers and electricity customers non-discriminatory market access, empower consumers, ensure competitiveness on the global market as well as demand response, energy storage and energy efficiency, and facilitate aggregation of distributed demand and supply, and enable market and sectoral integration and market-based remuneration of electricity generated from renewable sources;

^(*) OJ L 123, 12.5.2016, p. 1.
^(**) Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011 laying down the rules and general principles concerning mechanisms for control by Member States of the Commission's exercise of implementing powers (OJ L 55, 28.2.2011, p. 13).



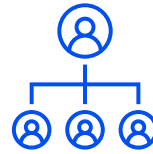
Relevant for the
EU framework

“shall” vs “may”

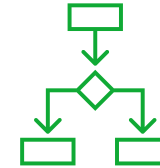


Main objectives on specific topics

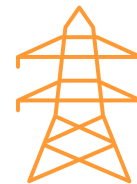
Clear requirements for the implementation of **aggregation models** in wholesale electricity markets.



Efficient **TSO-DSO and DSO-DSO coordination** for identifying and solving system issues (congestion and voltage control).



Simplification of the **prequalification** processes and avoiding duplications for the provision of multiple services.



Clear requirements for the **interactions between markets** (incl. market-based procurement of services) to ensure **overall efficient** operation.



Thank you!



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8.2 Network Code Demand Response – SO GL amendments

ENTSO-E, Cherry Yuen

Introduction

Amendment proposal submitted alongside the NC DR

1. SO GL and KORRR amendments mainly related to the DSO observability area

- **Purpose**
Content alignment mainly related to the DSO observability area
- **Submitted on behalf on ENTSO-E and DSO Entity**
Small re-wording after discussion with DSO experts

2. SO GL amendments related to the integration of NC DC Title 3

- **Purpose**
Move Network Code Demand Connection (NC DC) Title 3 to the SO GL to limit the scope of the NC DC to capabilities for the grid connection in alignment with ACER FG
- **Submitted on behalf on ENTSO-E**
Discussions with DSO experts but no formal approval by the DSOs.

3. SO GL amendments related to prequalification

- **Purpose**
NC DR includes prequalification requirements for units and groups providing balancing services. Those provisions should be included as provisions in EB Regulation and SO GL to ensure consistency of the overall legal framework
- **Submitted on behalf on ENTSO-E**
No agreement could be found with the DSOs

1. SO GL and KORRR amendments related to the DSO observability area

The grid prequalification process of service providing group:

- NC DR refers to affected system operators → SO GL reviewed accordingly for consistency.

The definition of DSO observability area

- The newly defined DSO observability area extends the right of DSOs to obtain data beyond the connection point --> SO GL and KORRR reviewed accordingly to remove the limitations regarding the data exchange between TSOs and DSOs

Impacted articles	Description
SO GL - Article 182 – Reserve providing groups or units connected to the DSO grid	Added reference to "affected DSOs" Added reference to DSO observability area to removing limitations on requirements for data exchange between TSOs and DSOs
SO GL - Article 51 - Data exchange between TSOs and DSOs concerning significant power generating modules	
SO GL - Article 40 - Organisation, roles, responsibilities and quality of data exchange	
KORRR - Article 5 - Access to information	
KORRR - Article 9 - Responsibilities of TSOs	
KORRR - Article 12 - Rights and responsibilities of DSOs	

2. SO GL amendments related to the integration of NC DC Title 3

Introduction

- **Moving NC DC Title 3 + article 41 & 45 to SO GL**

For consistency with ACER FG approach, StG CNC pointed art. 41 and 45 to be removed as well.

→ SO GL reviewed to ensure no technical gaps are created by removing the content from NC DC

→ SO GL reviewed while ensuring consistency in the terminology used in SO GL

- **References in SO GL to NC DC Title 3 and art. 41 and 45**

→ SO GL reviewed to amend the references properly

2. SO GL amendments related to the integration of NC DC Title 3

Introduction

- **NC DC Title 3 – Article 27 – General provisions**

1. Demand response services provided to system operators shall be distinguished based on the following categories:
 - (a) remotely controlled:
 - (i) demand response active power control;
 - (ii) demand response reactive power control;
 - (iii) demand response transmission constraint management.
 - (b) autonomously controlled:
 - (i) demand response system frequency control;
 - (ii) demand response very fast active power control.

→ **Terminology and categorisation of demand response services unused in SO GL**

→ **Introduction in SO GL not needed**

2. SO GL amendments related to the integration of NC DC Title 3

Introduction

- Directive 2019/944: ‘ancillary services’ are services excluding congestion management.
- Article 55 of SO GL already mentions ‘congestion management services’ as services the TSO shall use to ensure the operational security of its control area.

How to integrate the technical requirements from NC DC Title 3 in SO GL?

Substitute the term ‘demand response’ in SO GL by:
(frequency and non-frequency) ‘ancillary services and congestion management services’
--> covers all the service categories from (a) and (b) as established in Art. 27 of NC DC.

Impact on NC DR?

- In SO GL, ‘congestion management services’ is considered a self-explanatory term, which reflects the concept of a service to manage a congestion, including cross-border congestion. Its introduction neither alters the NC DR scope nor removes the need for a more precise term in NC DR (‘local services’) that refers to intra-bidding zone service to solve ‘congestion issues’.

--> **Most appropriate proposal**

--> **No inconsistency or contradiction with existing codes/methodologies or NC DR have been identified.**

2. SO GL amendments related to the integration of NC DC Title 3

Introduction

- **Amendment proposal to:**
 - integrating technical requirements from NC DC Title 3 into relevant articles of SO GL;
 - changing the “demand response” wording in SO GL to “ancillary services and congestion management services” to fully comply with the scope of NC DC and existing scope of the SO GL.;
 - amending consistently SO GL to delete all references to Title 3 of NC DC.

2. SO GL amendments related to the integration of NC DC Title 3

Analysis of the technical requirements in NC DC Title 3 and art.41 and 45

NC DC - Title 3 - Chapter 1 - General requirements	Decision and impacted SO GL articles
Article 27 - General provisions	Decision not to include this in SO GL as the proposed changes in terminology described in the Introduction cover the gap.
Article 28 - Specific provisions for demand units with demand response active power control, reactive power control and transmission constraint management	<ul style="list-style-type: none"> - Technical requirements of NC DC 28.2a to c included in SO GL art.154 paragraph 2 and 3 - Technical requirements of NC DC 28.2.k added in SO GL in a new paragraph 12 in art.154 - Technical requirements of NC DC 28.3 included in SO GL in a new paragraph 4 in art.28
Article 29 - Specific provisions for demand units with demand response system frequency control	Technical requirements of NC DC 29.2.a to c included in SO GL art.154 paragraph 2 and 3
Article 30 - Specific provisions for demand units with demand response very fast active power control	Decision not to include this in SO GL. The specific provisions concerning the delivery of (very fast) frequency response services are in general covered by the requirements and agreements made between the TSOs and service providers in general (in SO GL Part IV - Load-frequency control and reserves).

2. SO GL amendments related to the integration of NC DC Title 3

Analysis of the technical requirements in NC DC Title 3 and art.41 and 45

NC DC - Title 3 - Chapter 2 - Operational notification procedure	Decision and impacted SO GL articles
Article 31 - General provisions	Decision not to include this in SO GL. Together with articles 32 and 33 these are covered by provisions in SO GL and NC DR such as data exchange, prequalification, verification process and flex register etc.
Article 32 - Procedures for demand units within a demand facility or a closed distribution system connected at a voltage level of or below 1 000 V	Provision of NC DC 32.6.a included in SO GL in a new subparagraph 1.(d) in art.52.1 and in new paragraph 3 in art.53. Together with articles 31 and 33 these are covered by provisions in SO GL and NC DR such as data exchange, prequalification, verification process and flex register etc.
Article 33 - Procedures for demand units within a demand facility or a closed distribution system connected at a voltage level above 1 000 V	Decision not to include this in SO GL. Together with articles 31 and 32 these are covered by provisions in SO GL and NC DR such as data exchange, prequalification, verification process and flex register, etc.

2. SO GL amendments related to the integration of NC DC Title 3

Analysis of the technical requirements in NC DC Title 3 and art.41 and 45

NC DC - Title 4 - Chapter 2 - Compliance testing	Decision and impacted SO GL articles
Article 41 - Compliance testing for demand units with demand response active power control, reactive power control and transmission constraint management	Scope of SO GL art.56 enlarged to cover congestion management by the new paragraph 1.(e) and additional wording in paragraph 2.(d). Provisions are covered via prequalification requirements.
NC DC - Title 4 - Chapter 3 - Compliance simulation	Decision and impacted SO GL articles
Article 45 - Compliance simulations for demand units with demand response very fast active power control	Decision not to include this in SO GL. Provisions are covered via prequalification.

3. SO GL amendments related to prequalification

Justification of ENTSO-E's approach in the proposal

The provisions related to prequalification of units providing balancing services should be included as provisions in EB Regulation and SO GL the following reasons:

1. There are RPUs (Reserve Providing Unit) and/or RPGs (Reserve Providing Group) that do not fall under the scope of the NC DR (e.g. generation units which are connected to the transmission grid). A technology neutral and full applicability of the requirements associated to the registration of units and groups by SPs (Service Providers), as well as a non-discriminatory application of the simplification criteria should be ensured.
2. BSPs (Balancing Service Providers) are bound to the European legal framework which consists of different relevant codes (mainly SO GL, EB Regulation and NC DR) to provide balancing services, while details may further be stipulated in national rules.

3. SO GL amendments related to prequalification

ENTSO-E's proposal

NC DR articles	ENTSO-E's proposal
Article 31 Pre-Conditions and Applicability of the product prequalification and product verification processes	31.4 Remove from NC DR 31.5-6 Re-word to local product + translate to EB Reg for specific balancing products
Article 32 Criteria for reassessment of product prequalification and product verification	Re-word to local services + translate in SO GL for reserves
Article 33B Standardised data exchange	33.1 and 33.2 Remove from NC DR + translate in EB Reg for balancing Re-word to local markets
Article 34 Requirements for product prequalification	Re-word to local products only
Article 35 Provisions for prequalification for standard and specific balancing products	Remove from NC DR
Article 37 Product Verification Requirements	Reword to local services + add in EB Reg for balancing products
Article 38 Product verification process	Reword to local services + add in EB Reg for balancing products
Article 45 Principles for national implementation	Re-word to local services + EB Reg amended for content alignment