40th Grid Connection European Stakeholder Committee (GC ESC)

9 December 2025, 09:30-12:00

Location: ACER offices, Trg republike 3, 1000 Ljubljana, Slovenia

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Minutes

Participants			
Name	**Association**	**Role**	**Attendance**
Uros Gabrijel	ACER	Chairperson	Physical
Georgios Antonopoulos	ACER	Member	Physical
Domen Kodric	ACER	Observer	Remote
Adriana Pop	ACEA	Member	Remote
Marco Pasqua di Bisceglie	ARERA	Member	Remote
Marc Malbrancke	CEDEC	Member	Remote
Thomas Schaupp	CENELEC	Member	Remote
Alberto Cerretti	CENELEC	Member	Remote
Julian Treichel	CharIN	Member	Remote
Benjamin Wunnerlich	CharIN	Observer	Remote
Gunnar Kaestle	COGEN	Member	Remote
Florentien Benedict	DSO Entity	Member	Physical
Tony Hearne	DSO Entity	Member	Physical
Serdar Bolat	DSO Entity	Member	Physical
Andrea Hamzova	DSO Entity	Member Substitute	Physical
Arthur Hubert	EURELECTRIC	Member	Physical
Santiago Gallego Amores	E.DSO	Member	Remote
Bernhard Schowe-von der Brelie	EFAC	Member	Remote
Freddy Alcazar	EUGINE	Member	Physical
Srinivasa Raju Addala	EUGINE	Member Substitute	Remote
Richard Masquelier	EHI	Member	Remote
Mélanie Auvray	EHPA	Member	Remote
Marco Zaccaria	ENTSO-E	Member	Remote
Flemming Brinch Nielsen	ENTSO-E	Member	Remote
Juan Giner	ENTSO-E	Member	Physical
Tomas Reilly	EUI	Observer Substitute	Remote
Elaine O' Connell	European Commission	Member	Remote
Jakub Fijalkowski	European Commission	Member Substitute	Remote
Luca Guenzi	EU Turbines	Member	Physical
Steffen Eckstein	EU Turbines	Member Substitute	Remote
Herve Biellman	EU Turbines	Member Substitute	Remote
Assiet Aren	EUGINE	Member	Remote
Mike Kay	GEODE	Member	Remote
Erno Leväniemi	GEODE	Member Substitute	Remote
Michael van Bossuyt	IFIEC	Member	Remote

Martin Stoessl	Orgalim	Member	Remote
Catarina Augusto	Solar Power Europe	Member Substitute	Remote
Rainer Fronius	Vgbe energy e. V.	Member	Physical
Klaus Oberhauser	Vgbe energy e. V.	Member	Remote
Roman Bertle	Vgbe energy e. V.	Member Substitute	Remote
Vidushi Dembi	WindEurope	Member	Remote

1. Opening

1.1. Review of the agenda

The Chair opens the meeting and asks for comments on the agenda and AOB. Arthur Hubert (Eurelectric) notes that an update from ENTSO-E's Technical Group on Forced Oscillations, expected to present results at this session, is missing from the agenda and asks whether there are any new developments and timeline for publication.

It was agreed that the topic could be discussed as AOB.

1.2. Approval of minutes from 18/09/2025 meeting

The minutes from the previous meeting are approved, as all submitted changes had already been incorporated and no further comments are raised. They can be accessed here.

1.3. Follow-up actions from previous meeting

Juan Giner (ENTSO-E) reminds stakeholders that the ongoing actions are now recorded directly in the meeting minutes (as an annex) rather than a separate Excel tracker as it was in the past.

The open action points from the previous meeting are the following:

- **FMI standards:** It is agreed to update the existing action to explicitly include software standards. A short presentation should be prepared to reintroduce the topic in the March meeting by EUGINE and/or EU Turbines, after which the Committee will decide on the appropriate next steps. The relevant members are invited to provide missing information (if any) compared the existing material during the next meeting. Afterwards, ENTSO-E is invited to share how to follow up on this topic and come back in the subsequent meeting with an action plan.
  This action remains **open**.
- **Baltic region synchronisation with the Continental Europe system**: ENTSO-E, after internal investigation, recommends reaching out to the Baltic TSOs and/or NRAs as they have the most updated and accurate information about the process. The Chair mentions that he will discuss this topic with the Baltic NRAs during an internal task force meeting and will share feedback in the March meeting.
  This action remains **open**.
- **ENTSO-E Technical Groups (TGs):** ENTSO-E recently informed GC ESC about the publication of the Technical Group on Grid Forming Capability (TG GFC) report. The TG on Forced Oscillations (TG FO) has not yet been published, and ENTSO-E will inform GC ESC once published.
  This action remains **open**.
- **GC ESC EG on Certification on EVs/HPs:** this topic will be discussed during the meeting.
  After the meeting, the action remained **open**.
- **AOB – to organize ad-hoc meetings to cover incidents:** Even though an ad-hoc session was organized the day before the current meeting, the Chair mentions that a further session may be added to the March meeting agenda.
  This action remains **open**.

1.4. Short Updates from EC

Elaine O'Connell (European Commission) provides an update on the adoption of the CNC 2.0: EC internal approval is given to restart the work on NC RfG 2.0 early next year, although a detailed timeline is not yet available due to ongoing work on CACM 2.0 and resource constraints. It is clarified that the CNC 2.0 deprioritization was due to limited resources. Further updates will be shared by email if needed, with a more detailed plan to be presented at the next GC ESC meeting.

The plan is still to first work on the NC RfG 2.0 and then the NC DC 2.0. Furthermore, the EC is also dealing with market-related codes: progress on the NC DR is less predictable, as it is an implementing act requiring Member State voting before its adoption, whereas RfG and DC codes are delegated acts, that do not require any voting procedure. Moreover, the NC DR comitology process is expected to begin in Q1 2026, and updates will be provided on timing, overlaps on CNC 2.0, and progress as the work advances. Upon stakeholders' concern about the NC DR and NC DC links, Elaine O'Connell clarifies that the EC will start working on the NC RfG 2.0 and, afterwards, the approach to addressing the interlinks between NC DC and NC DR will be assessed.

Finally, in comparison to ACER's draft on NC RfG 2.0, Elaine O'Connell highlights that the EC intends to simplify the legal text as per RfG 1.0 text; however, content-wise, no drastic changes are foreseen so far. Nevertheless, more details will follow.

2. ESC EG on Certification on EVs/HPs - Updates

Mike Kay (GEODE) updates stakeholders mentioning the most recent events. The expert group has met three times since the last GC ESC meeting, primarily to receive updates from the workstreams, which are developing technical content.

- **EV Work Stream**: Nearly completed the first draft of the technical annex for NC RfG, focusing on splitting functions between EVs and EVSEs, compliance, and certification. Minor issues remain, including interpretation of "remaining connected" and V2G functionality, which are being addressed. Work has been presented to EV and EVSE manufacturers in October 2025 and received positive informal feedback.
- **Heat Pump Work Stream**: Made early progress on drafting the technical annex and is now focusing on finding simpler testing procedures. Future discussions with the European Commission are needed to align certification with CE marking requirements.
- **Terms of Reference (ToR)**: The original ToR have been updated to reflect revised deliverables, compliance scheme recommendations, and technical annexes. The GC ESC is asked to approve the revised terms of reference, with some members raising questions for discussion.

Overall, the workstreams are advancing technical content of existing requirements for the two network codes, while minor clarifications and procedural updates are ongoing.

Flemming Brinch Nielsen (ENTSO-E) informs stakeholders that an email was sent by ENTSO-E highlighting late concerns regarding the technical annexes and their regulatory alignment. Additional internal discussion is required, thus no approval from ENTSO-E could be provided at this meeting. Mike Kay (GEODE) remarks that the annexes are not intended to change any part of the legal texts, providing guidance on certification scheme instead.It is agreed that more time is needed, and finalizing the revised terms of reference can wait until the next GC ESC meeting.

Mike Kay (GEODE) also confirms that the work on LFSM-U and the technical annexes for the NC RfG 2.0 is expected to be completed by the end of February 2026, with a report to be prepared for the March 2026 GC ESC meeting. The report will include background, context, interoperability and certification issues, clear recommendations, and the technical annex itself. While the annexes are written by the workstream (not lawyers), they aim to be improved to a format suitable for inclusion in the European Commission's proposal, with guidance from legal examples.

Elaine O'Connell (European Commission) highlights that the presented timeline is acceptable.

The slides are accessible here and the updated draft ToRs can be found here for the expert group, here for the heat pumps workstream, and here for the electric vehicles workstream.

Action – EG to engage bilaterally with ENTSO-E to align on the updated ToRs

Action – EG to provide an updated ToR for GC ESC approval in the next meeting

3. ENTSO-E – IGD Planning Updates

Juan Giner (ENTSO-E) provides an update on ENTSO-E's work on Implementation Guidance Documents (IGDs). IGDs are non-binding documents that support national implementation of CNCs requirements. Following the entry into force of CNCs 2.0, ENTSO-E plans to update existing IGDs becoming obsolete and create new IGDs in three waves, aligned with the sequential entry into force of RfG 2.0, DC 2.0, and HVDC 2.0 network codes.

- **Wave 1** will cover four NC RfG 2.0 related topics; the following topics will be addressed, also taking into account stakeholders' remarks on prioritization: grid forming, forced oscillation, certification processes, and LFSM.
- **Wave 2** will focus on NC DC 2.0 related topics.

- **Wave 3** will address NC HVDC 2.0 topics.

Timing may be adjusted depending on the European Commission's schedule. Further updates on the planning for the 2nd and 3rd wave will be shared by ENTSO-E in following GC ESC meetings.

Marco Zaccaria (ENTSO-E) adds that each IGDs will be publicly consulted through ENTSO-E's online platform. All GC ESC stakeholders are invited to formally submit comments. ENTSO-E will review and digest the comments internally and publish a public tracker showing the assessment of the feedback. Relevant comments may be incorporated into the final version of the documents, and for those not included, a formal response will be provided. A link to the existing final documents is included in the slides for reference.

It was also discussed that organizing a public workshop prior to the IGDs public consultation could be useful to present the documents, gather preliminary feedback, and facilitate discussion among stakeholders, complementing the formal consultation. In particular, the Chair remarks the added value of taking into account not only individual comments, but also mutual understanding, that can enrich ENTSO-E's view to support the formal assessment.

Catarina Augusto (Solar Power Europe) requests clarification on which specific articles the IGDs will provide guidance for, as some IGDs titles are generic and could cover multiple areas.

Action – ENTSO-E to share in a next GC ESC meeting the articles that each IGD of the 1st wave will address.

Overall, stakeholders offer support in providing input and feedback for the IGDs work, even before the public consultation is launched. Luca Guenzi (EUTurbines) recommends sharing a more detailed timeline once available, aiming at facilitating stakeholders' resource allocation.

It is clarified that some preparatory work with technical groups and expert groups has already been done, thus the work will not wait until the NC RfG 2.0 enters into force. ENTSO-E plans to start working on the 1st wave after the Christmas break.

Flemming Brinch Nielsen (ENTSO-E) acknowledges that holding an ENTSO-E workshop before the public consultation of an IGD may be a good idea. He clarifies that IGDs are supporting documents explaining how CNCs requirements are understood and should be implemented, without introducing new requirements and without the purpose of explaining how different connected facilities are working and for that reason the need for involving stakeholders is limited. He notes that changes in the final regulation text could affect IGDs preparation.

Florentien Benedict (DSO Entity) mentions that DSO Entity is looking forward to cooperating in the IGDs where necessary, following the suggestion DSO Entity submitted to EC.

The slides are accessible here.

4. EU DSO Entity – Activity updates

4.1. General overview

Florentien Benedict (DSO Entity) presents an overview of recent EU DSO Entity comments on the Incident Classification Methodology consultation, focusing on three main points: revising loss-of-load criteria to better reflect DSO impacts, ensuring DSO representation in the official expert panel, and clarifying requirements related to DSO independence and bundling. The update also highlights ongoing engagement with the Expert Panel and the establishment of a DSO task force on the Iberian blackout to contribute findings and recommendations that may feed into future updates of NC RfG 2.0 and related network codes.

Flemming Brinch Nielsen (ENTSO-E) mentions that the Expert Panel is already expected to assess whether missing or insufficient NC RfG 2.0 or NC DC 2.0 requirements played a role in the Iberian incident, and that this focus is likely already covered.

Tony Hearne (DSO Entity) gives an update on the DSO document on participation and the roadmap process, which has now been approved by the DSO Board of Directors. The document is considered final for now, with the focus shifting to dissemination and knowledge-sharing through a slide pack and presentations to interested stakeholders. No further development work is currently planned, as the document stands as guidance, though related insights—such as challenges with unintended island detection—are noted.

Florentien Benedict (DSO Entity) clarifies that the presentation was prepared by the EU DSO Entity as supporting material for DSOs to use when presenting the report to national authorities or other stakeholders, rather than for formal presentation in this forum. Bilateral exchanges are offered if there is interest.

The presentations on EU DSO Entity updates are accessible here (general overview) and here (grid forming document).

5. ENTSO-E – TG GFC report presentation

Juan Giner (ENTSO-E) shares the main outcomes of ENTSO-E's Technical Group Grid Forming Capability (TG GFC) report published in November 2025 and endorsed by all stakeholders who took part to the TG. The report addresses ACER's proposal on non-exhaustive GFC requirements for PPMs, which require national exhaustive implementation. Requirements vary by unit type (A, B, C and D) and cover voltage source behaviour and inertia support (both within inherent storage and with additional storage) for both cases within and beyond capability limits.

The report results from a two-phase process: an initial interim report by ENTSO-E (published in May 2024) and a stakeholder involvement process in the TG GFC, leading to a consensus report. The latter provides non-binding recommendations on exhaustive GFC requirements as well as on compliance verification. Furthermore, this report will be the main input for the IGD on GFC.

Freddy Alcazar (EUGINE) highlights that guidance for inertia markets should be given at EU level. The Chair clarifies that there is an amendment process ongoing for the Balancing Guidelines and the System Operation Guidelines (SOGL), where guidance may be provided, as this topic is out of scope for the CNCs. Regarding the timelines, the Chair notes that ACER is currently working on the SOGL policy paper, which is expected to be published by the end of 2026. In addition, Georgios Antonopoulos (ACER) indicated that the policy paper on the Balancing Guideline is expected to be finalized in Q3 2026, with subsequent amendments planned for 2027.

Arthur Hubert (Eurelectric) inquiries about the costs of GFM solutions and whether TSOs or system operators are conducting cost-benefit analyses to compare these costs with the expected system stability benefits. Juan Giner answers that specific cost information is not available; nevertheless, he mentions that the GFC requirements in the draft NC RfG 2.0 would lead to low additional costs, except for the additional storage requirement for inertia support. However, for the latter, the draft NC RfG 2.0 does not specify whether this should be a mandatory grid connection requirement or a market-based service, and it is up to each Member State to decide. Thomas Schaupp (CENELEC) agrees with this statement and complements.

Arthur Hubert (Eurelectric) provides a remark on inertia, emphasising the key role of synchronous machines currently in operation.

Mike Kay (GEODE) observes that the following statement on slide 4 is not fully complete: "Non-mandatory if voltage level below 110 kV unless Pmax ≥ 10 MW". It is agreed to discuss bilaterally on the precise applicability.

Herve Biellman (EUTurbines) shares a comment on the remuneration of the inertia provided by SPGMs. Thomas Schaupp (CENELEC) replies that the TG report deals with the draft NC RfG 2.0 legal text and it is not a responsibility of such TG to comment on how to remunerate SPGMs.

The full presentation can be found here.

6. CENELEC – TC8X WG03 Activity Report

Alberto Cerretti (CENELEC) starts with CENELEC standardization update, highlighting progress on multiple fronts. The 2nd edition of 50549-10 is well advanced, and 50549-1 comments were collected. Work on 505744-1 is ongoing, and a new work item on dispatchable loads linked to NC DC 2.0 has been proposed. Three NWIP are under NC voting (Type C, Type D and Compliance). A new proposal on the electrical characteristics of grid forming generating plants was recently officialised.

A proposal is made to nominate Angelo Lo Brutto (RTE) as CENELEC member of the GC ESC, pending approval. Overall, standardization activities aim for alignment with grid codes and increased involvement of stakeholders, manufacturers, and system operators.

Thomas Schaupp (CENELEC) says the TG GFC report results are strongly supported and considered a main step forward. Beyond their use in the IGD, there is an intention to build on them through a European standard, aligned with the IGD and coordinated with EN 50547-1, to support a harmonised European approach.

Given the fragmented IEC activities on grid forming, the need of stronger European participation is highlighted to ensure alignment with European priorities.

The slides are accessible at the following link here.

7. AOB

7.1. Updated the list of members

The Chair informs stakeholders that ENTSO-E will update the members' list on their website, including the requests made during the year.

The Chair requests ENTSO-E to engage bilaterally in order to assess SmartEN's representation within the GC ESC.

Action - Participants are asked to inform the Chair on any nominations changes.

Action – ACER/ENTSO-E to follow up on SmartEN's representation within the GC ESC.

7.2. 2026 ESC GC dates and venues

- 4 March: Ljubljana, ACER
- 18 June: Brussels, DSO Entity
- 7 October: Brussels, ENTSO-E
- 8 December: Ljubljana, ACER

7.3. TG FO report status

Juan Giner (ENTSO-E) informs that the ENTSO-E TG FO report has not been approved yet. ENTSO-E plans to share the main outcomes of the report in the March GC ESC meeting and will inform the GC ESC once it is published.

Joint SO ESC/GC ESC session

(8 December 2025, 14:30-16:00)

The joint SO ESC/GC ESC session can be found in the 35th SO ESC minutes here.

Annex: Action Tracker

#	Raised on	Topic	Description	Responsible	Due date
1	GC ESC 19/03/2025	FMI & software standards	To open the discussion again later in 2026	EUGINE & ENTSO-E	2026
2	GC ESC 05/06/2025	Baltic region synchronisation with the Continental Europe system	To investigate synchronisation of Baltic region and report back during the next meeting on the requirements that currently apply to the Baltic region	ACER	04/03/2026
3	GC ESC 18/09/2025	ENTSO-E TG FO	ENTSO-E to inform GC ESC once the report from the TG FO is published	ENTSO-E	When published
4	GC ESC 18/09/2025	Czech & North Macedonia incidents, etc.	Organize ad-hoc meetings to cover incidents – Czech incident, North Macedonia incident, etc.	ACER	Next joint session in March 2026
5	GC ESC 09/12/2025	ESC EG on Certification on EVs/HPs	EG to engage bilaterally with ENTSO-E to align on the updated ToRs	DSO Entity	As soon as possible
6	GC ESC 09/12/2025	ESC EG on Certification on EVs/HPs	EG to provide an updated ToR for GC ESC approval in the next meeting	DSO Entity	Next GC ESC in March 2026
7	GC ESC 09/12/2025	1st wave IDG	To share in a next GC ESC meeting the articles that each IGD of the 1st wave will address.	ENTSO-E	Next GC ESC in March 2026
8	GC ESC 18/09/2025	Incidents Investigations	To consider organizing a joint SO/GC ESC session to cover the ongoing incidents investigations	ACER	03/03/2026
9	GC ESC 09/12/2025	Members' list	Members to email any nomination changes to the Chair to keep the member list updated	Stakeholders	As soon as possible
10	GC ESC 09/12/2025	Members' list	To follow up on SmartEN's representation within the GC ESC	ACER & ENTSO-E	-