

27th Grid Connection European Stakeholder Committee (GC ESC)

21 September 2022 from 09:30-13:00
ACER premises (Ljubljana) & Microsoft Teams

Minutes of the meeting

Participants		
Alcazar	Freddy	EUGINE & EG HCF Chair
Antonopoulos	Georgios	ACER
Aren	Assiet	EUGINE
Barroso Gomes	Maria	ACER
Benedict	Florentien	CEDEC
Bridi	Alberto	CEDEC
Brinch Nielsen	Flemming	ENTSO-E
Cerretti	Alberto	CENELEC
Chambers	Keith	Europgen
Dekinderen	Eric	VGBE
Dembi	Vidushi	WindEurope
Eckstein	Steffen	EUTurbines
Gabrijel	Uros	ACER / Chair of GC ESC
Gallego	Santiago	EDSO for smart grids
Glapiak	Aleksander	ACER
Gonzalez	Adrian	ENTSO-E
Govindaswami	Sudharsana	Europgen
Guenzi	Luca	EUTurbines
Hearne	Tony	EURELECTRIC
Holesek	Tibor	ACER
Kaestle	Gunnar	COGEN
Kay	Mike	GEODE

Klonari	Vasiliki	WindEurope
Lewis	Thomas	EASE
Malbrancke	Marc	CEDEC
Melnychenko	Mariia	ACER
O'Connell	Elaine	European Commission
Osenberg	Jan	Solar Power Europe
Pasquadibisceglie	Marco	Arera
Raju	Srinivasa	EUGINE
Schaupp	Thomas	CENELEC
Schowe-von der Brelie	Bernhard	EFAC
Stoessl	Martin	Orgalim
Subramanian	Hariram	SolarPower Europe & EG ACPPM Chair
Van Bossuyt	Michaël	IFIEC Europe
Vinas	Thierry	EURELECTRIC
Wilch	Michael	EDSO for smart grids

1. Opening

1. **Review of Agenda**

The Chair welcomes the participants to the 27th GC ESC meeting and reviews the participants list to ensure that only members of the Committee or/and alternates that have informed the Chair are present or connected.

The agenda is presented and approved (available [here](#)).

The Chair asks for any additional topics to be covered under AOB. Thierry Vinas (EURELECTRIC) raises the topic of connection of synchronous areas. Gunnar Kaestle (COGEN) asks whether the NC on Demand Response a grid connection or system operation issue? Uros Gabrijel (ACER) answers that the framework guideline is covering different areas of which DCC is one, whereas demand response is one of the main topics of the framework guideline of demand side response. Tony Hearne (EURELECTRIC) asks if that's part of the DCC. Uros replies that the framework guideline in the policy paper is covering lots of market aspects, and DCC is one of the issues. Gunnar concludes then that the NC on demand response is under MSC and no object of this meeting.

2. **Approval of the minutes**

The minutes are presented (available [here](#)). Eric Dekinderen (VGBE) rises editorial points from last GC ESC meeting, i.e. (1) adding a sentence from page 4 to previous paragraph and (2) changing reference of policy paper from "EG ACPPM" to "RfG NC" which will be corrected.

Sound connection to meeting room in Ljubljana breaks up for several minutes.

3. **Follow-up actions from previous meeting/ new additions to Issue Logger (available here):**

Adrian Gonzalez (ENTSO-E) presents the follow-up actions and their status from the previous meeting. He informs that there was a call for topics to workshop on the topic of RoCoF, to which no additional input has been submitted to ENTSO-E secretariat, apart from VGBE. He further informs that the workshop will be organised after today's meeting.

2. ACER

Amendment process and public workshop

Aleksander Glapiak (ACER) presents the slides (available [here](#)).

Tony Hearne (EURELECTRIC) refers to slide 5 and asks if TSO and regulator decide whether a DSO has no role. Aleksander informs that stakeholders and NRAs added this request on modernisation. He continues that usually there is a big role for TSOs on the system, established in the NC, however the role of DSOs should be discussed, which happens currently with the EU DSO entity to understand the relevant needs which fit the most. Tony points out that he wouldn't be pleased to read the section, yet he understands that discussions are currently being held.

Marc Malbrancke (CEDEC) refers to the process on amendment proposals of existing Network Codes, where stakeholders can draft proposals, and ACER reviews them. He says that during the workshop on 25 October it will be a different process and asks (1) if stakeholders which would like to raise a comment need to propose an alternative text during this meeting. He further asks (2) if they have to introduce a complete file with amendments and justification, CBA etc. as it is described in legislation or will there be an easier way. Uros informs that the public workshop is placed in the middle of public consultation and intends to present key areas in which stakeholders seek to adjust the amendments. The contributions will be collected through a survey similar to the policy paper, but much more extended. He further informs that there might be first discussions on key amendments which will be submitted to be adjusted and also potentially contentious topics will be discussed during the workshop. However, stakeholders will need to propose a full legal text to the survey tool afterwards. Also, it will be available to upload any additional document. Marc further asks if all stakeholders will be able to use any documents drafted by Expert Groups, which Uros approves.

Michael Van Bossuyt (IFIEC) asks if the justifications have to fit into a certain pattern and if it will be necessary to bring all relevant documents, he asks for more clarification. Uros answers that all relevant documents need to be included to the amendment proposals, and where needed, own justifications must be created, not a full-pledge CBA but a qualitative assessment and if possible, also include data. Michael further asks if in case of full approval of EG's documents those can be referred to, which Uros confirms.

Gunnar Kaestle (COGEN) asks when the workshop will be held. Uros informs, that stakeholders are now invited to submit topics to ACER, with a rough deadline of two weeks. Based on the submitted topics the workshop will be planned. He further anticipates the meeting to be a full-day meeting, with 15-minutes slots for each topic. Michael Van B () asks if they will already be discussions during that workshop or simply presentations. Uros informs that ACER intends to moderate the discussions on contentious topics.

Erik Dekinderen (VGBE) asks if there will be no policy paper to discuss on. Uros informs that in this workshop ACER intends to present the entire survey, what ACER expects stakeholders to submit, and they will show how to use the tool. The aim is not to go into the policy paper. He further refers to the timeline on slide 2, where in September the full-fledge public consultation starts, ACER will facilitate to collect the stakeholder's proposals, after collection and discussion with NRAs on submitted topics, ACER will be able to draft own proposals for amendments in late spring 2023.

Freddy Alcazar (EUGINE) refers to slide 4 where he points out the new policy areas and asks if the whole work of EG HCF will be seen in the point of Demonstration of Compliance. Aleksander informs that the idea is to gather the key policy areas where ACER expects amendments and once ACER has the inputs they can run their own analysis, i.e. where improvements can be introduced. All stakeholders are encouraged to provide their input in the full-fledge public consultation based on the work of expert groups that are established under ESC.

Mike Kay (GEODE) asks if the EGs who already concluded, if their work will be automatically fed into ACER's considerations or do they need to be selected by stakeholders and pushed forward. Uros informs that ACER needs a formal proposal by stakeholders.

Luca Guenzi (EUTurbines) asks if each stakeholder will present and justify their own proposals or is it expected that stakeholders to take the current RfG and present possible amendments. Aleksander answers that public consultation are for gathering the exact wording for new amendments whereas the public workshop only aims to gather key proposals in general, so no exact wording is expected. Luca further asks if as a stakeholder it is sufficient to support an amendment without details during the workshop, which is confirmed. Uros also informs that if a stakeholder seeks to differ from an EG's proposal it is okay to name those differences, also acknowledging that some reports are old or outdated.

Bernhard Schowe-van der Brellie (EFAC) points out that not all stakeholder associations will be able to provide legal assistance to the process and asks if it is an issue for ACER if proposals are not of good quality legal-wise. Uros acknowledges that and informs that ACER does not expect perfect wording, such proposals will not be scrapped. If a policy is in general supported by ACER and NRAs, it will be used and revised by them. Further he informs that legal revision from ACER will be executed then. Marc Malbrancke () confirms that legal-wise all amendments will be revised to ensure same quality through the document. He continues and asks if stakeholders will be allowed to submit topics which have not been subject to any expert group or do not appear in the proposed amendments, which Aleksander confirms.

Sound connection to meeting room in Ljubljana breaks up for several minutes.

Luca adds to Marc's question to remain in the frame of the public consultation topic. Uros confirms that all stakeholders are free to propose their comments and also add comments to EGs work, if they think there are incremental changes that are necessary to add.

Vasiliki Klonari (WindEurope) asks if the public consultation already started, to which Uros replies that it will start next week.

Michael Van Bossuyt (IFIEC) asks if (1) ACER will also present their own proposals for amendments during the public workshop, that might be beyond the work conducted so far, which might be on ACER's list. Further he asks (2) if it will be possible to raise comments during the ACER public consultation in Q2 2023. Uros replies to (1) that ACER is not going to present any proposals during the workshop on 25 October, since they haven't any. And to (2) that indeed some EGs documents will be only available at a later stage, and it will be possible to comment on this at this later stage. He points out that any incremental proposal will be taken into consideration.

Thierry Vinas (EURELECTRIC) raises that the planning has been not modified and market section informed him that there were some delays in the amendment process, he asks if the grid connection teams are not affected by those delays. Uros informs that CACM amendments are put on hold and confirms that grid connection topics are not affected. Thus, he is confident that the timeline can be maintained.

Uros concludes the discussion and encourages to send remaining questions to him via email.

ACTION: ACER will organise a workshop intending to discuss submitted topics to amendment proposal process.

ACTION: Stakeholders to send hot topics on Network Code amendments to Uros.

3. **VGBE**

Mitigation of the Rate of Change of Frequency (RoCoF)

Eric Dekinderen (VGBE) presents the slides (available [here](#)). *First minutes of Eric's presentation are not recorded.*

Adrian Gonzalez (ENTSO-E) reacts to the presentation and ensures that Entso-E will analyze the findings. He further asks where Eric found the inconsistencies in the national requirements in comparison to Recital 25. Eric replies that *a clear definition of RoCoF is missing and the theory behind the RoCoF values is completely unknown for most stakeholders*. Adrian replies that he sees now the opportunity to improve the network code in this regard, thus they take the proposal to improve the definition on RoCoF and capabilities, they have now the implementation guiding and document, which is not binding, thus national implementations might vary. *Eric indistinct*. Adrian replies to this that the different thresholds and time windows are already included in the implementation guiding document, which shows that Entso-E already acknowledges the different windows and values. *Eric indistinct*. Adrian doesn't agree and refers to study from February 2022 and the system split from last year where RoCoF above 1 Hz/sec happened. Eric proposes to conclude the discussion and asks Adrian to organize a second workshop on this topic, to which Adrian agrees.

Gunnar Kaestle (COGEN) supports the idea of holding a second workshop since the first workshop only described the problem itself, rather than introducing solutions to those. He continues on saying that the scope of the workshop could be how to cope with the issues in the future with higher RoCoF measures and less inertia. Also, he informs that when CENELEC introduced RoCoF as an immunity measure, they took 500 ms as sliding window, which is a good compromise being fast enough but not too focused for local phenomena. He further stresses that this is a measurement for immunity requirement, not to be used in a feedback loop for compensating. He continues that there is a need of standardised frequency including RoCoF management that there is a at IC a study ongoing on the frequency measurements vs RoCoF measurements, which might be finished next year.

Theirry Vinas (EURELECTRIC) also endorses having a second workshop, which should focus on realistic and technically feasible values and requirements for power plants, which he underlines by saying that too high requirements might result in not investing into a power plant because it doesn't comply with the requirements. Adrian replies that the mentioned study from the slides is from 2013 informs that it is desired to have a better understanding in order to implement requirements to the next edition of Network Codes which will be applicable in the late 2020s. He anticipates that the technology will improve such that requirements will be feasible as of 2030 for new power plants, whereas older power plants will only need to comply if they are modernized or modified substantially.

Tony Hearne (EURELECTRIC) informs that for the existing fleet of large power plants in Ireland there were a lot of time, effort, and argument to do studies to determine to what extend the older fleet could comply with 1 Hz/sec and that would be a huge amount of effort. Even for newer plants it turned out to be lot of time and effort to establish the requirements, which he assumes is associated to the mechanics of the whole system and control system that feed in. He concludes by stating that it will need a lot of engagement with OEMs and generators and thus he wouldn't take for granted that the solution will be straight-forward.

Micheal Wilch (EDSO for smart grids) confirms on Tony's point that it's not only the plant but the mechanical surrounding which has to be taken into account. He further refers to Adrian's point by agreeing on considering new technologies will appear, yet he points out that there is a huge number of power plants available which will stay connected to the grid for decades and stresses that especially nuclear power plants are critical in this context. He continues and states he sees a gap in knowledge, and he cannot see a clear information on which rate of change nuclear power plants could withstand and which capability they provide, also he thinks that many societies won't accept nuclear incidents following a system incident and they would need to derive a limit for RoCoF. He concludes and encourages to close this gap and then start to check on how to adapt it the next Network Codes.

Uros Gabrijel (ACER) refers to events from the slides, which occurred in 2006 whereas he points out that Adrian referred to events in 2021. Thus, he would endorse to use findings from the recent events for the upcoming second workshop.

Assiet (EUGINE) comments that the most difficult phenomenon to be measured is the limit of the power plant. On one side during FRT event RoCoF can be seen for a short time, which is the only phenomena that can reproduced in tests. On the other side long-time RoCoF is difficult to test, thus it is necessary to find a test method in order to define the threshold. He states that Island operations do not bring any applicable example, since they perform differently. He would endorse to have tests in grid parallel operation and how to demonstrate RoCoF capability there. Uros agrees and would like to discuss this further during the dedicated workshop.

Uros concludes the discussion by informing that RoCoF will be probably topic to internal ACER discussions. However, if no consolidated and harmonised recommendation will be available for the the full-fledge public consultation then results from the dedicated workshop will be used and later defined for ACER proposals.

Flemming Brinch Nielsen () adds three comments: (1) He sees a need to harmonize RoCoF requirements through all Network Codes. (2) He emphasizes the need that while discussing the applicability it is important to keep the technical evolution in mind. (3) He states that RoCoF events can always happen, not only due to faults, but also phase angle displacements.

10 minutes break.

4. ESC Expert Groups

Expert Group: Identification of connection issues for offshore systems (EG CROS)

Flemming Brinch Nielsen (ENTSO-E) presents the slides (available [here](#)).

Adrian Gonzalez (ENTSO-E) displays the ToR of EG CROS of phase II and informs that the main deliverable is to report recommendations for the Network Codes in form of a report, mainly but not limited to on HVDC, the document is expected to be ready in summer 2023. He also advertises the workshop next week in Brussels and asks to confirm physical presence if desired. Further he informs that EG CROS is looking for participants from manufactures of Electrolysers, since this EG is also addressing the topic of AC hubs offshore, therefore they can be new members. He asks for nominees or volunteers who would like to participate in the meetings.

Uros Gabrijel (ACER) asks if the workshop of EG CROS on 29 September will be hybrid. Adrian confirms that is planned to be physical and informs that upcoming meetings will be only teleconferences. Flemming advocates for physical attendance since the work done is more dynamic and easier then.

ACTION: Advertise open positions for EG CROS across associations.

Expert Group: Harmonization of Product Family Grouping and Acceptance of Equipment Certificates in European Level (EG HCF)

Freddy Alcazar (EUGINE) presents the slides (available [here](#)).

Tony Hearne (EURELECTRIC) asks what the limit to certificates is, he gives an example of an FRT certificate from an OEM for a wind turbine and asks if it's applicable to the entire site. Freddy replies that the idea in general is to use simulation models to look at site specific requirements, and that wind is a special case. In his view it makes sense to make a FRT testing on one the turbines and apply it to the rest. He continues and refers to the case of having a capabilities certificate available which comes with a validated model real on-site data can be used to analyse the FRT capability of the site. However, Reactive Power may require additional certificates for the park, which is defined by each TSO / DSO. Continuing, he explains that PU-certification have to be provided for final approval of connection and having such a certificate gives the grid operator the confidence that the connected units can fulfil the requirements but are open for further analysis, which doesn't imply a certification at PGM level. He further gives examples of different approaches in EU-countries.

Thierry Vinas (EURELECTRIC) refers to presentation given earlier by ACER where policy paper was explained to include amendments for significant modernisation rules that apply to smaller PGMs and asks if this may trigger bigger need for certification for Type A power park modules. Freddy answers that the proposal may be presented from the relevant subgroup in November.

Expert Group: Advanced Capabilities for Grids with High Shares of Power Park Modules (EG ACPPM)

Hariram Subramanian (SolarPower Europe) presents the slides (available [here](#)).

Uros Gabrijel (ACER) refers to Hariram's question from presentation asking about an extension for the group and points out that ACER would appreciate concrete amendment wording proposals from EG ACPPM to Network Codes. Further he proposes to organize a dedicated workshop for this purpose early 2023 after the group concluded its work in order to draft the proposals together. However, Uros asks Hariram whether he could already estimate the extension, to which Hariram replies that the EG started with a delay and anticipates another 2-3 months of extension. Uros stresses that ACER wouldn't feel comfortable creating amendment proposals without this EG's documents, thus this delay will have an impact on the full process. He kindly encourages the group to shorten the delay as much as possible.

Gunnar Kaestle (COGEN) emphasizes the complexity of the group's topic, since it is an on-going process, therefore three months of additional time is a little bit of help to keep maturity. He continues that there is no overall agreement, only an assessment on the technical issues and how to address them properly as well as how to tackle them on a socio-economical side. He sums up that one year of work is a short period for this work and he supports giving the group three additional months. He further adds that if grid forming capability cannot be defined thoroughly, he wouldn't add to the grid codes, instead of adding anything which later proves to be wrong. Uros endorses to leave it out of scope instead of adding something wrong. He suggests implementing a non-exhaustive and non-mandatory requirement for grid forming which could be implemented through a standard, to which Gunnar agrees. Gunnar explains that timewise it would indeed make sense to introduce basic ideas to legal text and then add the fine print into standards to which then national exhaustive implementations can refer to. Luca Guenzi (EUTurbines) sponsors Gunnar and underlines it by saying it is risky to introduce something in RfG 2.0, which is not defined and could create constraints for the next years. He adds that separating the EG's outcomes from what could be the proposal for RfG 2.0, in this case to increase flexibility, also on the tasks, on the other hand also referring to technical standards to address specificity of technology, which needs to be integrated to RfG 2.0. Uros replies that this would mean to tackle advanced capabilities in a similar way to synthetic inertia, which Luca agrees with and further points out the importance of splitting what to integrate into RfG 2.0 and the work of the expert group.

Florentien Benedict (CEDEC) complements as the Vice-Chair of EG ACPPM the presentation by informing on the progress of the EG's deliverable, which is mainly the report and not the amendment proposals. She commits to accelerate the progress but also stresses to find a common understanding of the issues. She sums up that the group needs to focus on definitions and try in parallel to draft proposals. Uros endorses this and says that each EG's objective is to submit concrete legal text proposals in their report, however he understands that this could be likely not possible for EG ACPPM. He presents that either documents could be high-level, meaning non-mandatory and non-exhaustive, on Advanced Capabilities included in the Network Code, with the possibility of further development, like a standard. Flemming (EE) comments that he sees that the functionality should be linked to the regulation for connection, however he doesn't agree having a standard which does not ensure the functionality. Michael Van Bossuyt (IFIEC) raises the issue that the presented approach could lead to loss of issues and could be even more time-consuming, also he points out that standards could be changed in another group, and all this might lead ending up with no results. Uros agrees with the concerns. He further asks if the standards needed to be done yesterday or in 5 years to come. He proposes having a dedicated workshop on the outcomes of the EG and then discuss how to tackle the issues. Uros suggests postponing the discussion and let stakeholders further express their proposals in the full pledge document. All this being said under the precondition that EG ACPPM will present exhaustive findings eventually, on which ACER can base their proposals then, also in case it must be postponed due to delays. He also points out that the topic could be scrapped, but then it would be the need to wait for another time window given by the Commission which could take up to eight years.

Vasiliki Klonari (WindEurope) highlights (1) that the recommendations of EG ACPPM could change the technology development, e.g., for the wind industry, thus nine months are certainly not enough. (2) She stresses if it is finally decided to have a non-mandatory and non-exhaustive requirement it needed to be assured that in case it goes to national level it remains non-exhaustive and non-mandatory, otherwise it is a major change, to which Uros agrees with. He points to discuss this further in spring 2023.

Florentien Benedict (CEDEC) emphasizes from her past experience as a member of EG definition of storage and the chair of extra requirements for Type A PGMs, where she experienced starting working on the deliverables whereas at EG ACPPM they are discussing basic but important questions, which need to be addressed and the relevant answers established first before drafting the report and proposals.

Uros concludes the discussion and emphasizes the importance of a dedicated workshop which should be scheduled in spring 2023 to assess the group's work.

Aren Assiet (EUGINE) agrees introducing a non-mandatory requirement, however he stresses that it needs to be harmonised between all countries, to avoid several countries their own standard. Eric Dekinderen (VGBE) emphasizes to avoid 50,2 Hz issue.

5. CENELEC updates - Status of EN 50549-1 and -2 Status of draft prEN 50549-10:2021

Alberto Cerretti (CENELEC) presents the slides (available [here](#)).

Uros Gabrijel (ACER) emphasizes the willingness to participate as observer to CENELEC.

Gunnar Kaestle (COGEN) emphasizes the risk of point 5 on slide 5, because it stabilised features are added to grid forming capabilities to distribute to generators and also loads that might increase the risk of unintentional islanding. He continues that for some DSOs that might be a minor issue since their installations can cope this, but for others it's not. He also adds that the installations differ throughout Europe, but it needs to have a more stable and stronger. He refers to German DSOs who didn't apply all five security rules and caused severe incidents, like unknowingly connecting to an unintentional island. Thus, he endorses that the industry should develop new ideas. He stresses that it takes time to develop those, more than nine months. He further explains that TSOs would like to have more frequency stability also at middle and low voltage ranges but on the other side DSOs in area where they can easily adopt, there is the option to do this to the dedicated feeder, which are not interfering with the household level. He concludes that submitting an immature proposal to RfG causes more problems than it solves.

Uros invites to discuss this topic further in the dedicated workshop.

6. AOB

Thierry Vinas (EURELECTRIC) asks (1) what are the rules for connection of synchronous condensers and where can they be found. Also, he asks (2) if there will be different rules depending on if the synchronous condensers will be installed by TSOs or by producers. Adrian replies to (1) that as long as the synchronous condenser is connected to the power generating facility it should be addressed by the RfG, while for synchronous condensers connected to the TSO it is unclear and will be answered as soon as possible. Eric Dekinderen (VGBE) opposes the answers by saying that supposing you had an old synchronous generator of 1600 MWa connected to a 380 kV grid the active will be very low, thus applying RfG to that might cause problems. It is also dependent on the type of unit, and it needs an additional chapter for RfG for this topic, possibly in version 2. Mike Kay (GEODE) complements that he sees it more under commercial service in this case. Flemming Nielsen (ENTSO-E) replies to this that Mike's suggestions could not be applied to the Danish system, in case the generator is own by a TSO. It would be then seen as a fully integrated component that is used for operating the system, and if it is connected together with a production facility RfG would be applicable. Uros asks ENTSO-E to further analyse the discussed issue.

Gunnar Kaestle (COGEN) presents a standardisation mandate from early 2022 (available [here](#)). He refers to chapter 2.4 and asks if CENELEC should create a standard which deals with dispatchable loads, i.e., PYF and QYU to make it a electrotechnical framework, and not an IT one, since such applicable standard does not exist, as stated in the mandate, which refers to EN-50549. Uros Gabrijel (ACER) says he cannot answer this question, however the day after the meeting the ACER Policy Paper will be published, where stakeholders can comment on this regard.

Uros informs the members that there are yet no meeting dates for 2023, which will be circulated shortly. However, he suggests having webinars during the winter period (November to March).

The Chair concludes the meeting.

ACTION: Circulate meeting dates for 2023.

7. Follow-up actions:

1. ACER will organise a workshop intending to discuss submitted topics to amendment proposal process.
 2. Stakeholders to send hot topics on Network Code amendments to Uros.
 3. Advertise open positions for EG CROS across associations.
 4. Circulate meeting dates for 2023.
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