

6th Grid Connection European Stakeholder Committee (GC ESC)

Wednesday, 7 June 2017 from 09:30-15:30

Grand Hotel Union, Miklošičeva 1, 1000, Ljubljana

Draft Minutes

Participants			
Uros	GABRIJEL	ACER	Chair
Jeremy	VINCENT	ACER/CRE	Till 3pm
Elaine	O'CONNELL	European Commission	Via webstreaming
Michael	WILCH	EDSO for Smart Grids	
Aurelio	TUBILLEJA	EDSO for Smart Grids	Till 3pm
Knud	JOHANSEN	ENTSO-E	
Ioannis	THEOLOGITIS	ENTSO-E	
Robert	SCHROEDER	ENTSO-E	Till 3pm
Stela	NENOVA	ENTSO-E	Secretariat
Rene	LUIJTEN	CEDEC	Till 3pm
Marc	MALBRANCKE	CEDEC	Till 3pm
Luca	GUENZI	EUTurbines	
Toma	MIKALAUŠKAITE	ORGALIME	
Klaus	OBERHAUSER	VGB Powertech	
Ton	GERAERDS	VGB Powertech	
Jan	RASMUSSEN	EURELECTRIC	Till 3pm
Thomas	LESCARRET	EURELECTRIC	
Garth	GRAHAM	EURELECTRIC	Till 3pm
Sanni	AUMALA	EURELECTRIC	
Bertrand	FRABOULET	CENELEC	
Daniel	FRAILE	WindEurope	Via webstreaming
Raju Addala	SRINIVASA	EUGINE	
Bernhard	SCHOWE-VON DER BRELIE	EFAC	Via webstreaming
Michaël	VAN BOSSUYT	IFIEC	Till 3pm

1. Opening

1.1 Welcoming address and Draft Agenda

GC ESC Chair Uros Gabrijel (ACER) welcomes the participants to the 6th GC ESC meeting. After a brief tour de table, the agenda is approved. The Chair reminds everyone that as per the ToR, the documents for the meetings should be submitted at the latest a week in advance of each meeting. If that is not possible, draft documents should be sent for reference with a disclaimer that they are still subject to change.

1.2. Review and approval of minutes from previous meeting

The minutes of the 5th GC ESC meeting are approved without further comments.

1.3. Follow-up actions from previous meeting

The Chair reminds that at the 5th GC ESC meeting, members were asked to make sure that their representative list is updated on the website, and that associations should apply formally for membership in the ESC in case they hadn't done so before. CENELEC have been asked to formally apply for a seat according to the rules but no application has been received. Therefore, unless CENELEC is invited as an expert at the next meeting, it cannot participate any longer in the meetings.

1.4. ACER updates from SOCG TF

The Chair reiterates its previous request to stakeholders to present examples of discussions in MS regarding substantial modifications to help NRAs discuss and streamline various efforts across geographical areas and help inform processes in MSs. One example has been received from Thomas Lescarret (EURELECTRIC) on the French case but the status in France has already been discussed with the regulators thanks to CRE regular reporting.

Michaël Van Bossuyt (IFIEC) provides an example of BE under discussion with regard to interpretation of DCC with Elia. The question is how to move forward if there is an existing facility site and only a part of it is refurbished (ex. 100 factories on one location and only one is refurbished), to avoid that this would lead to an obligation to refurbish the entire existing site in order to be compliant with the requirement. The way forward seems to be if an investment is made in one part, it has to be ensured that any investment that is made into that part is either compliant or does not hamper future compliance of all facilities. Eventually all facilities will become refurbished in the future and thus compliant. Michaël Van Bossuyt (IFIEC) noted that discussions are still ongoing but will try to formulate a formal question based on the interpretation in BE. The case overlaps with closed distribution system networks but also links to SOGL. Elia is doing legal analysis on what is acceptable and planning to move by end-17 to a legal track.

Marc Malbrancke (CEDEC) asks if examples are also needed with regard to how substantially is defined in each MS. BE is working on this but there is no decision taken yet.

The Chair clarifies examples should be from MSs and from implementation point of view to help NRAs understand better the problems. The RfG does not prescribe harmonisation, but transparency is key, and examples will help NRAs be aware of what they need to be prepared for. NRAs discuss concrete examples and even if no formal position on this question exists still in BE, the ESC's role is to facilitate discussions informally before things are approved and thus implicitly help harmonising.

Thomas Lescarret (EURELECTRIC) explains briefly the FR example which has 2 parts of contribution. Part of the information for discussion is not publicly available yet. The FR case refers mainly to defining substantial changes – in case during a project Pmax (in case of generation) is increased and depending on the level of increase/threshold (for all units in same geographical site), above 10% there is a first level of compliance requested (of the newly installed parts of the unit), above 50% increase the generator has to fully comply with the present rules. The 2nd part is a complete list of technical changes that need to be considered as substantial and hence lead to the obligation of being compliant with the requirements.

Garth Graham (EURELECTRIC) would like that such type of information is shared if possible with the ESC group and the stakeholder community to enable MS to pick up and use information on what is going on around already.

Michaël Van Bossuyt (IFIEC) gives an example about a consumption facility, that falls under the DCC, with 2 existing factories and if a 3rd factory is built in addition, there is a 50% increase in Pmax. Does it mean an investment has to be made in the last factory (that will considerably increase its investment) in order to fulfil the requirements for the entire facility? Also, will the number of existing factories in a facility play a role in the implementation? NCs should not be prohibiting or hindering investments. The CDSO case might be different from other cases.

Garth Graham (EURELECTRIC) replies that the production facility is part of the same organisation so it should be treated in the same way as if a power station's owner is expanding it (9 factories and 9 owners).

Thomas Lescarret (EURELECTRIC) notes the difference between 2 values is that only the new equipment needs to be compliant.

The Chair invites stakeholders to provide any other concrete examples of such cases where available. The Chair notes the same TF is also discussing boundaries of RfG - discussions are at an early stage with a non-exhaustive overview across Europe and the necessary steps to achieve necessary visibility are on the way. NRAs will seek information and then discuss at the TF and even higher WG level depending on the input.

2. ENTSO-E answers to questions from previous meetings

2.1. Interpretation on DCC Art. 15.2

Ioannis Theologitis (ENTSO-E) provides ENTSO-E's interpretation of the questions raised regarding Art. 15 of DCC (full response available [here](#)). On interpretation of DCC art. 15.1(f) and CEDEC's question, as the TSO/DSO interface could also

contain a PGM at the same connection point, the objective of Article 15(1)(f) is to clarify that the equivalent requirements to Article 15 would be required (i.e. net of the PGM). The Article refers to the specific situation as described and not to all embedded generation (i.e. those beyond the connection point) within the DSOs network. The generator itself which has a connection with the distribution system is not relevant to this article but as the Distribution system will have a connection point to the Transmission system, it will be required to ensure that its system (network and users in totality) complies with the requirements at the connection point.

Marc Malbrancke (CEDEC) notes he will consider the reply and send any questions later if still needed for both art. 15.1 and 15.2.

Regarding the interpretation of art. 15.2, Ioannis Theologitis (ENTSO-E) explains that ENTSO-E's understanding is that the existing text of the article can be misinterpreted and thus a revised wording of Article 15.2 might be needed to deliver certainty with regard to the originally intended purpose of the requirement, as discussed and agreed with stakeholders in the consultation and development of the code. The interpretation provided to the question cannot be used with a legal value but aims to help stakeholders understand the current text without waiting for amendment processes in the future.

The Chair notes the EC position from previous meetings might be different and also that's why ENTSO-E proposes its own interpretation, but stakeholders can stick to the EC position. Regarding the amendment process, ACER has published guidelines in 2013 as to how art. 7 of the Electricity and gas regulations should be put in place. As per the last sentence of paragraph 4 of Art. 7 of the [Regulations](#) on amendments, the proposed amendments (by ACER) are without prejudice to other amendments which the EC may propose. The ACER guidance document is available [here](#)¹. The Chair reminds that if there is an issue on which there is no agreement, it can be answered at the national stage of implementation and eventually escalated to the ECJ if necessary.

The Chair notes that the issue logger could help tracking the points which have been discussed and agreed upon during the implementation process. Ioannis Theologitis (ENTSO-E) notes ENTSO-E will gather and consolidate all input provided on the question.

Marc Malbrancke (CEDEC) notes that CEDEC will look into the details but he does not see a clear answer to the question whether the figure provided by the BE DSOs can be used or not and whether the BE DSOs' interpretation of Art. 15.2 DCC is correct, as there was a GB one which was also considered as the right vision on this article.

The Chair notes that all interpretations and answers can be logged into the issue logger (to be discussed later in the agenda).

Michaël Van Bossuyt (IFIEC) reminds that the CDSOs should also be consulted on the answer of the question in addition to the 4 DSO associations. The BE railway system is a CDSO and the 25% point in the conclusion of the answer could work for public entities but not for all DSOs.

Michael Wilch (EDSO) notes there has been a discussion on this but no agreement and that's why there is a CBA obligation put in place by MS on this.

Ioannis Theologitis (ENTSO-E) will consolidate all additional input and provide an updated answer to the question.

2.2. Interpretation of the provisions related to applicability of Article 4.1 to existing type A/B PGMs and various thresholds

Ioannis Theologitis provides ENTSO-E's interpretation to the DSOs' question regarding applicability of Art. 4.1 RfG on how to deal with existing types A or B of PGMs that are modified to increase their capacity above the B/C threshold (answer available [here](#)). The power generating module (PGM) type, to which Article 4(1)(a) refers to, should be understood as the type after the substantial modification. A change of the PGM type due to a modernisation should constitute a substantial revision. If modification of type B results in an increased maximum capacity above type C thresholds, the modified PGM should meet type C requirements as far as subject to the modification. The extent of RfG compliance after such a modification would need to be evaluated on a case-by-case basis and is to be decided by the NRA or, where applicable, by the Member State according to Article 4(1)(a)(iii).

¹http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Decisions/ACER%20Guidance%20on%20Evaluation%20Procedure%20for%20NC%20Amendment%20Proposals%20under%20Article%207%20of%20Elec%20and%20Gas%20Regulations.pdf

2.3. Response to questions raised in CENELEC's slides

Knud Johansen (ENTSO-E) explains ENTSO-E's responses to the questions raised by CENELEC (all answers available [here](#)).

Jan Rasmussen (EURELECTRIC) asks for further clarification on question 1 referring to LFSM-O/U: whether a DSO would allow an active power output smaller than LFSM-U or if the plant running with less than LFSM-U should increase power to reach the point set in overfrequency situations.

Knud Johansen (ENTSO-E) clarifies that anything related to frequency control is defined by the TSO, not by the DSO as it affects the balance of the grid. Regarding the plant in question, Knud Johansen (ENTSO-E) clarifies that it depends on the case: if someone providing an agreed amount of power at an agreed time, and then increases the power, he is out of balancing and will be penalized for the imbalance caused if no further agreement is established with the TSO. Knud Johansen (ENTSO-E) clarifies that in emergency operation situations no additional active power would be needed.

Michael Wilch (EDSO) asks for a clarification that when there is a need for LFSM-O, will it prevail over any other active power set-point set by the DSO (even a lower one). The RfG text is not very clear on this and should be clarified for the national implementation.

Knud Johansen (ENTSO-E) clarifies that the active power operating point should be taken, not the unit's absolute power; it is the limitation from the actual point of operation. For the IGDs it will be emphasised that it is always from the actual operation point of view.

Jan Rasmussen (EURELECTRIC) notes the article should be considered as for synchronous machines the reference value is Pmax so it should be written and clarified in the document as well that the reference in use should be the available or the actual active power.

On the question on response time for LFSM-O, Knud Johansen (ENTSO-E) clarifies that RfG does not define the times for regulation completion, but the RfG specify the minimum requirement to activation or regulation and therefore does not prohibit response (if "response" is understood as the total time for regulation – from start to completion) time longer than 1-2s. Any initial delay should not be confused with an intentional delay of activation of the power frequency response. The term "as fast as possible" should be understood as implementing the fastest technically feasible response.

Jan Rasmussen (EURELECTRIC) asks for clarification of whether a response time of 30s would be compliant with RfG.

Knud Johansen (ENTSO-E) clarifies that the standard given is reflecting the thinking of Cenelec but there is no requirement on full activation/completion time, and on a max time on full activation of response. This case refers to alert operation, not normal operation conditions, so generators in operation are requested to provide what they are able to do in such cases.

Klaus Oberhauser (VGB) points out that generators do not want to introduce another time limit/requirement for any technology and/or a limit that makes them fasten up machines. Thomas Lescarret (EURELECTRIC) supports VGB's point: generators do not like new requirements to be added under pretext of standardization. Studies and precisions provided in standard work should not be confused with additional requirements.

Jan Rasmussen (EURELECTRIC) notes this should be brought as a comment for inquiry for standards which is now in this phase of development and to ensure compliance. If there is no response time, there is no clarity what has to be tested and no requirement on when the reaction should be finished. Then it is impossible to evaluate and test, and it can take several days to downregulate which is then not useful. This should be put into comments on standardization.

Bertrand Fraboulet (CENELEC) notes it is up to the manufacturer to define the time needed to react.

Klaus Oberhauser (VGB) agrees that there is time limit for frequency sensitive mode as a market product, and every technology should support as good as it can.

The Chair reminds that when deciding on a standard, you need to ask yourself if the requirement is more stringent or more detailed compared to the NC and sometimes details are needed.

On the question regarding the relationship between Art. 13.4 and 5, ENTSO-E's answer is that taking into account of technical capabilities according to 13.5(b) cannot result in a higher power reduction than described in Art. 13.4b.

Luca Guenzi (EUTurbines) notes that regarding technical boundaries, some types of generators had issues during the RfG drafting related to the design of the turbines and their ability to follow the indicated diagram. Luca Guenzi (EUTurbines) would like to revise the answer in light of the presentation made in the past and will provide the presentation, and further data on how the machines react.

On the question regarding LFSM-O operation with hysteresis, ENTSO-E's answer is that above the frequency threshold to be defined by the relevant TSO, the active power output shall vary in a linear way as a function of frequency. At the time of establishing CNCs, this situation was not foreseen in the code and it is not forbidden on the graph.

Michael Wilch (EDSO) notes this was done in Germany but then abandoned as it can bring the system to a swinging state after a frequency incident when there is a lot of distributed generation. The decision was to go down and up in a linear function for frequency deviations. There is a higher risk of undetected islanding in the DSO system but then it is a responsibility of the DSO. Measures to detect it and train personnel to manage this can help even if certain parts get switched off.

Jan Rasmussen (EURELECTRIC) asks if it is allowed according to RfG to implement a function with hysteresis.

Knud Johansen (ENTSO-E) clarifies that such situation was not foreseen at the time of the RfG so it is not forbidden in practice. It can be specified in the standards based on the agreements between various parties.

The Chair clarifies that the reasoning that it was not foreseen does not give permissions to impose deviations (unless falling under more detailed specifications). It has to be implemented unless there is a derogation, which also runs under a separate process.

Jan Rasmussen (EURELECTRIC) asks for further clarification on interpretation to be written in the answer to clarify whether it is compliant with RfG or not, and whether the other function is compliant or not.

Knud Johansen (ENTSO-E) notes ENTSO-E will rephrase the answer and state clearly that the linear should be followed. It is Cenelec's responsibility as to what is written in the standard.

Ton Geraerds (VGB) does not agree with the answer and notes the market still has to deliver as much as possible to the linear reduction of power, but due to some process the matching can't come back as fast. If there is a hysteresis case, it will cost money, as soon as frequency goes back to 50Hz, there might be issues to come back fast for a given generator, so there must be a process to come slower to it, but this process in itself should not matter as such.

Michael Wilch (EDSO) notes it is only required by TSOs. If there are technical limits that limit your power ramping, this prevails over this requirement, or if market issues leading to lower power infeed than prescribed here or required, then it is allowed to feed in less power. The only limitation is not to feed in more power.

The Chair emphasizes that as Knud has mentioned, it is up to the standard to define the precision of the curve, but in principle, the hysteresis goes against the linear curve in the code.

Knud Johansen (ENTSO-E) notes that the only requirement is 2s to get control but there is no requirement on how fast you go down. How the deregulation is made is not defined, the requirement is on when you start controlling but does not state when the control should be completed. On DCC there is a requirement on demand and it is similar. This will be in the defense and restoration plans too.

Ioannis Theologitis (ENTSO-E) invites Ton Geraerds (VGB) and Michael Wilch (EDSO) to provide suggestions for improvement on the answer and ENTSO-E will provide an updated reply (last question under 2.3)

2.4. Response from the EG on compliance to general questions on implementation of equipment certificates (and the questions from GB in particular)

Knud Johansen (ENTSO-E) presents ENTSO-E's responses on compliance understanding as raised per email (answers available [here](#)).

Garth Graham (EURELECTRIC) notes in the UK equipment certificates for RfG compliance don't exist today – the certificates are to show compliance with RfG, not national requirements, so there is no need to do any additional requirements. The point would be to avoid the need for testing.

Michael Wilch (EDSO) notes the equipment certificates are to show compliance with national obligation on non-exhaustive requirements by RfG.

Garth Graham (EURELECTRIC) notes equipment certificates are subject to NRA approval, and may be issued by another country, don't need to come from country A, but can just show that obligations are met for country A. National requirements as set out can vary as long as they don't affect XB terms.

Michael Wilch (EDSO) notes there could be non-exhaustive requirement differently across countries - MS B can issue an equipment certificate for some type of generation technology showing compliance of this generation in country A.

Garth Graham (EURELECTRIC) notes that with respect to general requirements on RfG, by 16 May 2018 it will be known what they are for each TSO, they will be approved by NRAs, then the national specifications will be clear, tested in a test house in the EU and then there will be no more need to do any additional compliance testing. If site-specific requirements, they may be subject to NRA approval; if for general application – then a paper issued as the equipment certificates which shows no additional testing is needed.

Jan Rasmussen (EURELECTRIC) asks whether it is up to the testing house to decide how to define the test and if the DSOs/TSOs can question the tests made. There is no standard test method defined to do that currently and each testing house can decide by themselves how to perform that – this is not clear and should be discussed.

Michael Wilch (EDSO) clarifies there are certain test specifications agreed on international level (such as 61400-21 on wind turbines) and on national level (DE) has well formulated since years on distributed generation. With regard to some units connected to TSOs, there have been in the past single projects where a team with TSOs assesses the conformity for reaching every single object to establish a new network connection and those are individual processes.

Bertrand Fraboulet (CENELEC) notes that when it comes to standards for wind, not all requirements are described in the standard (like RoCoF) so a common standard is needed for all technologies specifying each test to be done. If there is a manufacturer producing a unit in Portugal, it should be compliant with all national implementation. It would be useful to have valid data for all countries that can be used to establish national equipment certificates.

Garth Graham (EURELECTRIC) reminds that the requirements of general application need to be approved by the NRA, but if you apply a site-specific arrangement to every single site he suggests that such requirement becomes a general requirement. NRAs will decide if a requirement is binding, and only once approved, it becomes applicable. Otherwise the TSO cannot apply general requirements with respect to RfG.

3. System Inertia Roadmap (holistic approach throughout the suite of network codes)

Knud Johansen (ENTSO-E) presents ENTSO-E's holistic approach across the codes to the topic of system inertia and related issues on stability (slides available [here](#)). System inertia as an essential feature of frequency stability can have an increasingly important impact on system stability in the context of increasing displacement of synchronous PGMs by power generating units connected through power electronics and will require accordingly different user design to meet the challenge of emulating the transient behaviour of those synchronous PGMs leaving the system.

Within the context of the CNCs, requirements will be defined to ensure that system users are equipped with technical capabilities to ensure adequate performance under normal and disturbed operating conditions to contribute to maintain and restore system security (such as synthetic inertia of power park modules in RfG, very fast active power control through demand response in DCC, and synthetic inertia of HVDC systems). A series of Implementation Guidance documents (IGDs) have been developed so far to guide the national decision-making and its preparation, and future studies will inform those detailed technical specifications and analyse improvements on system stability, but also to identify possible drawbacks.

Knud Johansen (ENTSO-E) explains that from a system design perspective, the TYNDP scenarios per synchronous area and per MS provide a basis for further long-term analysis on the development of system inertia but they do not identify tipping points and reference incidents at this stage.

From a system operation perspective, ENTSO-E will perform bi-annual inertia studies as per the SOGL to serve as an indicator of the overall system stability development. Two task forces (on system inertia and on over-frequency control schemes) for Continental Europe will deliver further recommendations for CNC implementation. From a market perspective, open questions to investigate include the consideration of inertia as an ancillary service and the role of the market procurement of virtual inertia, cross-border trade, technical limitations etc.

ENTSO-E will first work in parallel on studies on long-term system development and performance (SD) and dynamic stability assessments (SO) to help identify tipping points, reference to incidents to maintain stability and security, then define further technical capabilities of system users and afterwards, define ancillary services and appropriate market products for delivering inertia.

ENTSO-E's intention is to open the debate to stakeholders and discuss with them either in December or early 2018, also to incorporate market-related discussions and inputs. Dates will be confirmed in due time.

The Chair notes as per the SO ESC discussions, that ENTSO-E is asked to enrich the last slide of the presentation with dates and approximate times when the respective studies will take place and when the interaction with stakeholders is planned within this roadmap on inertia. The updates can be provided on the ESCs' webpage or per email.

Ton Geraerds (VGB Powertech) welcomes the presentation but notes that what is missing, based on the RfG is a point on countermeasures to be adopted such as synthetic inertia. A basic point of the RfG (page 4, item (25)) is: "Therefore countermeasures should be adopted, to avoid larger rate of change of frequency during high RES production". Attention should be paid to this.

In the interest of time, the Chair invites stakeholders to comment the slides only in case they haven't done that in the SO ESC meeting on 6th June or if they have any additional comments. The minutes of the SO ESC meeting should be exhaustive on stakeholders' feedback.

All documents on IGDs linked to the slides are available [here](#).

4. Commission update

Elaine O'Connell (EC) notes that the EC is receiving notifications from NRAs on criteria for derogation requirements and will gather and look at them. Regarding the discussions on more stringent vs. more detailed requirements on certain types of generation modules, the EC wants to have a harmonized approach and common standards across Europe. More detail is fine but if more stringent is different, the EC wants to avoid risk of different applications in different MS as this would go against the NC. The EC is considering several options on how to approach this - potentially through amendments on the NCs. Considerations are at a very early stage but the EC does not want lengthy processes and will work with ACER and ENTSO-E on this, including in terms of impact assessments. It would be helpful from ACER, ENTSO-E, stakeholders to provide examples on the technical side on what might be needed. If an amendment would be considered, the aim is clearly not to reopen discussions on other topics in the NC.

The Chair notes there could be quite a few amendments that could be pursued but there is no consolidated record of all items as issues are addressed as they get raised and may be discussed further. One such item can be in relation to art. 15.2 in the DCC where ENTSO-E proposes an amendment in its answer but the issue is in early stage, as more input is needed before the issue is clarified. The question is which avenue can be taken for amendments – there is the lengthy ACER procedure and expedited way via the EC.

With regard to more stringent requirements, Elaine O'Connell (EC) clarifies the NCs will not be changed to allow varied Member State application of more stringent requirements. The current issue is on what requirements apply to certain generators: the EC wants a common and harmonized approach around Europe, not ad-hoc approaches all around. Such an approach could be done through amendments. The main objective is that the same piece of legislation is applying to everyone. All issues as well as ensuring proper consultation will be part of a future process on that which is still to be clarified.

Michael Wilch (EDSO) notes that during the drafting of the RfG, the consensus was that RfG should cover all requirements that affect cross border trade and flows, now market integration and cross border trade developments exceed the draft phase from a DSO point of view and impact with lots of requirements on smaller generators type A, B etc. For type A generators e.g. there is no reactive power requirement, but if all needs to be harmonized, the current version should be considered incomplete. DSOs may need additional requirements for local purposes, which are not provided by the NCs.

5. Proposal on how to manage issues detected by stakeholders

5.1. ENTSO-E/ACER proposal

Ioannis Theologitis (ENTSO-E) presents a joint proposal by ACER and ENTSO-E (available [here](#)) on managing questions by stakeholders. The aim of the tool is to make full use of the ESCs, bridge the time-gap between ESCs' meetings, and provide a one-stop shop as a source for major implementation issues raised at the ESC's level.

The process proposed will be: questions raised by stakeholders are first discussed at the ESC meetings. During the meetings, questions will be formed and addressees will be chosen for issues that cannot be fully addressed in the discussions. The questions agreed will be posted on the issue logger (to be put on the ESCs' webpage) and answers to the questions will be posted upon addressees providing their answers (in advance of the next meeting). The tool designed to serve the Q&A process will be developed further based on needs to show as well the status of each answer provided. ENTSO-E will remain the only hub and owner of the tool (i.e. logging the questions and answers as received). Everyone will be able to view the Q&A but not have edit rights on the site (only ENTSO-E can upload the information). Ioannis Theologitis (ENTSO-E) provides a quick demonstration of how the tool works and its basic functionalities.

The Chair notes that the tool has been also presented at the SO ESC meeting on 6th June and the first question from SO ESC stakeholders is whether there is a way of publishing (in the tool) the old issues as recorded in the minutes of meetings.

Daniel Fraile (WindEurope) proposes that a general structure for sorting and searching by topic could be useful.

The Chair invites ENTSO-E to embed the first iteration of improvements as discussed in the two meetings and then bring the issue logger up as soon as possible with a view that further flexibilities for improving the efficiency of the tool may be needed in future. Something to bear in mind in addition is that not all questions might be related to one code, but some will be cross-cutting several codes.

5.2. Eurelectric proposal (supported by the other associations representing DSOs)

Sanni Aumala (EURELECTRIC) welcomes ENTSO-E's proposal on the issue logger and presents Eurelectric's proposal as initially developed for the GC ESC, on a process of handling stakeholder questions between ESC meetings (presentation available [here](#)). Eurelectric would like to see possibilities for earlier and more active stakeholder involvement in discussions and negotiations and in making the responses to the questions, not just receiving the responses when ready.

The Chair reminds, as also mentioned in the SO ESC, that the EGs working on IDGs were created to tackle such kind of issues. As a general understanding, ENTSO-E is currently convening 3 EGs working on a part of a larger subset of IGDs and once an item is resolved, ENTSO-E will dissolve an EG and form another on another IGD where needed as per the list of priority areas agreed with stakeholders. This approach is fit for purpose and any double work and additional bureaucracy should be avoided. Otherwise, there is a risk of lack of understanding as to who is responsible for what deliverable. Also, ToRs for each ESC allows for the creation of subgroups should such a need arise to tackle specific technical issues at an expert level – and upon a decision by the Chair – so the Eurelectric proposal is already enshrined in the ToRs. Therefore, there is no need for an additional process to be defined in parallel. **The Chair invites ENTSO-E to provide a more structured approach for updating the ESCs on the work of the EGs, i.e. through regular reporting on overview of the progress on the deliverables of each EG, plans for next EGs, etc.** The Chair clarifies that technical issues need to be discussed inclusively amongst technical experts, and if more legal interpretation is needed, the issue logger will address this, and feed back into the ESC. Also, if more time would be needed to discuss an issue, then an ESC meeting can be extended to the whole day so as to allow for thorough discussions with relevant experts.

Michael Wilch (EDSO) notes the issue of reactive power capability should be discussed within the ESC instead of third groups as the deadlines are short and a consensus might need to be found faster (though its ECJ decision).

The Chair underlines that a meaningful discussion cannot happen before the national discussions on banding are understood, as these have wide implications on the national choices on non-exhaustive requirements and drafting of standards. The Chair reminds that the EC has clarified that they don't issue binding legal interpretations on the network codes, and nor does ACER. On MS implementation of non-exhaustive requirements, harmonization should go as required in the NCs, the rest is left to MS to address. However, if a cross border issue is identified, a systemic solution is needed to that, not a regional or individual one.

6. Active Library

6.1. Eurelectric proposal for a common template on implementation-in-progress across MSs for the Active Library

Thomas Lescarret (EURELECTRIC) proposes a template for common monitoring of national implementation processes as a complement to the Active Library to support a better transversal presentation across countries (slides available [here](#)). The template can serve first as a basis for RfG requirements and enriched for DCC and HVDC. Four sheets will provide information on explanations of the content, organization regarding main topics in progress, list of all technical and non-exhaustive requirements of the RfG as well as other relevant topics. The template would support the need to have a global vision on what is happening across various MS. A traffic light system can be used to show the status of each task and provide more visibility on the status in each country, on links with other codes, and will help identify and address any gaps.

6.1. ENTSO-E update (including on data collection template)

Ioannis Theologitis (ENTSO-E) presents an updated template (available [here](#)) which will provide as a complement to the active library to present the national process of implementation for each code, including links. The template will give for RfG a list of non-exhaustive parameters for each country with a proposal on values and a second one on status. Definitions can be aligned further and for each country, ENTSO-E is trying to gather information through its responsible link people. Ioannis Theologitis (ENTSO-E) reminds the excel template should be read together with the Active Library which provides timelines and information on the consultations. Whatever values are shared nationally, they are made public on the AL.

Garth Graham (EURELECTRIC) requests that a color scheme is applied to enable stakeholders to see more easily the status of each deliverable instead of numbers as indicating status. Specific links pointing to relevant documents would be welcome as general websites often change.

Raju Srinivasa (EUGINE) asks if the template can have both numbers and colors and whether it is possible to have the contacts of each TSO or respective stakeholders or information on consultation done/under preparation per country. Ioannis Theologitis (ENTSO-E) will check about the possibilities. Daniel Fraile (WindEurope) would like to see a distinction in the template structure between generator types like PPMs and synchronous generators on requirements as the value may be different on reactive power across those.

Michaël Van Bossuyt (IFIEC) reminds that some countries (as is the case for Belgium) work on cross-codes topics not on provisions article by article per code, so not so easy to link easily.

Ioannis Theologitis (ENTSO-E) notes that ENTSO-E has sent requests for the information to all countries. **Once a final template is agreed, it will be uploaded and made visible on the website.**

The Chair concludes that ENTSO-E will take into account comments received and see in which ways they can improve the template and include the active library to follow-up on additional information as mentioned in the Eurelectric slides. Eurelectric is willing to participate on improving the Excel file.

7. Standardisation progress – CENELEC

Bertrand Fraboulet provides an update on the CENELEC progress in establishing standards (slides available [here](#)). Regarding prEN50549-1 & 2, translations of the drafts have been sent to National Committees end-May. Comments of national committees are expected by end-August. After a period of enquiry for 3 months (between June and August), 2.5 months of editing are needed and with the aim to have the standards published in May/June 2018. Regarding the standard for test procedures, planning etc. (EN 50549-10), after comments from part 1 and 2, the work on the testing part will resume in early 2018, and take 1-2 years for finalization and publication by end of 2019/early 2020.

Jan Rasmussen (EURELECTRIC) notes as a follow-up to previous discussions on whether it is allowed or not to set up more requirements than in RfG, the EC should clarify whether standards could or should be developed or not.

Garth Graham (EURELECTRIC) notes a pan-European standard goes to the point of harmonization as applied through MSs; issue comes when there is a national standard which is more stringent on a given topic than the CENELEC one. CENELEC is covering European standards, not national ones.

Bertrand Fraboulet (CENELEC) clarifies that the standard includes annex or national implementation and requirements: requirements could be included in the standards.

The Chair notes that a standard is not a law per se, only a general framework, and the question is what prevails. So far, it is clear that EU NCs prevail over national provisions if overlapping or on the same issues. The question of Jan Rasmussen (EURELECTRIC) still stands as to whether the EC should be asked to answer this. The issue seems to be that there is no clarity and transparency on what the standards try to address.

Jan Rasmussen (EURELECTRIC) would like CENELEC to clarify this issue further with the EC.

The Chair notes that if this issue is followed, CENELEC should specify where problems have been seen and which provisions of NCs overlap and clash or whether there are clarity issues on the standards over those items so the EC can provide an informed answer.

CENELEC notes that on more stringent requirements, at the December meeting it was said that European MS should have more stringent requirements if there were standards describing those requirements so CENELEC decided they could specify more stringent requirements but they are non-mandatory as the standard is not binding, as opposed to the regulation.

Garth Graham (EURELECTRIC) points out that the RfG sets out particular obligations and MS chose to provide detail: if a detail refers to a standard that is more stringent, the national arrangement on given requirements would be illegal if more stringent.

The Chair notes that a question to formulate for the issue logger based on this discussion is whether the requirements on accuracy of measurements of certain parameters, which are prescribed in the NC either exhaustive or non-exhaustive, fall under the scope of more stringent or more detailed requirements, and if each MS can decide its own accuracy (as then one might have different requirements in different countries). The addressee of the question is the EC.

Knud Johansen (ENTSO-E) asks if CENELEC could provide a similar roadmap on EN50549-10 as already provided for parts 1 and 2. He recommends that WG 3 is involved fully in compiling the comments from the national committees.

8. WindEurope's view on the national implementation process

Daniel Fraile provides WindEurope's views on progress on national implementation of RfG (slides available [here](#)). On implementation on RfG, he notes there are various developments in different countries and the ENTSO-E platform (active library) can a good place for best practice exchange and helping understand developments across. The template proposed is going in the right direction but stakeholders want to exchange early before requirements are approved so they can learn before decisions are taken on this. One idea is if possible to have workshops or events where implementation process and updates are shared, also as one way of helping ENTSO-E gather further input.

WindEurope has 2 main questions: 1) if plant level certification is required (beyond the equipment certificate), who shall bear the costs; and 2) if a failure is encountered after positive compliance assessment by a 3rd party, who should be responsible for this. Regarding IGDs and future system requirements, WindEurope recommends that IGDs should not rush into new requirements that are not yet well-understood; minimum technical specifications should be technology neutral to allow the industry to develop, among others. WindEurope would like that the ESC provides a better understanding as an exchange platform to what is going at MSs level, and that ENTSO-E provides some longer-term visibility on planning for consultations, events, surveys, EGs etc. so stakeholders can prepare ahead of time and get actively involved.

On Q2, Garth Graham (EURELECTRIC) explains that a third party is either the third party that does the compliance (a TSO or a DSO) who appoints the party. The code says that the TSO or DSO is the one responsible in any case. If using an equipment certificate as a generator, it is up to the generator to ensure compliance through its contract, and the manufacturer is liable for the failure to the generator if something failed. The responsibility lies on the party that is responsible, it cannot be delegated to a third party.

Daniel Fraile (WindEurope) clarifies this refers more to the plant level certificates, meaning the certification body in the question.

Thomas Lescarret (EURELECTRIC) agrees with Garth Graham (EURELECTRIC) and notes that first responsible is the generator unit owner who can return or make a procedure against the certifier who produced the certification.

The Chair notes that as Thomas Lescarret (EURELECTRIC) said, it is the generator owner who is responsible that this failure occurred as the certifier just processes data and information obtained from the owner. It is up to the generator owner to rely on those certificates when they apply for the connection, otherwise they can still pursue the other path that is without certification and have simulation and testing conducted on its generator.

Daniel Fraile (WindEurope) questions this free choice to not use the equipment certificate.

Thomas Lescarret (EURELECTRIC) notes that according to the EG on compliance, it was concluded that equipment certificates can be used in the place of simulation or testing but this is not mandatory. It is the choice of the generating unit owner but it is his own responsibility to trust the certifier too.

The Chair notes that if Daniel's concern relates to Art.41.5 speaking of relevant system operator delegating the performance of compliance monitoring to third parties, the answer of Garth Graham (EURELECTRIC) stands and the system operator will be the one responsible for this.

Michael Wilch (EDSO) clarifies that a certification body would not take over the responsibility. In the contract, it is defined that responsibility lies with the manufacturer.

Daniel Fraile (WindEurope) comments that on EqCerts there is a paragraph that says MS may decide to make use of certification for compliance so it is the MS choice but could become an obligation in the future.

Michael Wilch (EDSO) notes in DE, a compromise was found with an independent 3rd party to certify and prove compliance: whoever wants to connect to the system has the final responsibility of keeping his equipment compliant. Regarding Q1, he notes it is always the originator of the costs that should bear those costs. Fault right through is a requirement that bears costs and the manufacturer would have to pay for it, else it goes into grid fees and the end-consumer ultimately pays for it.

The Chair concludes that question 1 will be retained for the next GC ESC meeting in September.

The Chair notes that if there is need for additional clarity on implementation, then ENTSO-E is invited to consider regional or pan-European implementation workshops similar to others which were organized in advance of the RfG EIF with different TSOs reporting on implementation plans etc. to help reach a MS granularity and necessary level of details and thus improve transparency. **Regarding the Active Library, the ESC will check progress on the template completion at the next meeting.**

The Chair invites ENTSO-E to provide updates in case relevant stakeholder workshops about the NCs take place in the future to inform stakeholders in advance.

9. AOB

Sanni Aumala (EURELECTRIC) asks on behalf of Jan Rasmussen (EURELECTRIC) regarding more stringent requirements and more specifically if the differentiation of requirements within specific type of generators, like type B, is also considered. Thomas Lescarret (EURELECTRIC) notes a very similar question was asked before by Eric Dekinderen.

The Chair paraphrases that question: can a country adopt two sets of values for the same PGM type, i.e. different values on PPMs and synchronous generators? At the time the EC responded that this would be in the code if it was intended.

The Chair concludes that as many members already left, the question can be discussed at the next meeting when all participants are present. If the EC and ENTSO-E want to contribute earlier with responses, they are welcome to present views in the issue logger. Also, if there are other parties that want to contribute, they are welcome to provide feedback to the question.

The Chair notes that the SO ESC will not meet in September. ENTSO-E will propose as soon as possible a new meeting date for the 8th GC ESC meeting at the end of November/December in back-to back with the SO ESC meeting.

10. Next meetings

GC ESC Meeting dates for 2017: 8th September (ACER, Ljubljana); December tbc (Brussels)

11. Follow-up actions

- Stakeholders are invited to present examples of discussions in MS regarding substantial modifications from MS and from implementation point of view to help NRAs understand better the problems.
- ENTSO-E will gather and consolidate all input provided to question 2.1 and will provide an updated answer. ENTSO-E will clarify the response regarding LFSM-U based on stakeholder feedback.
- On the question regarding the relationship between Art. 13.4 and 5, Luca Guenzi (EUTurbines) should provide presentations made previously on the topic and data on machines' reaction times.
- Regarding LFSM-O operation with hysteresis, ENTSO-E should rephrase the answer to clarify which function is compliant with RfG.
- Ton Geraerds (VGB) and Michael Wilch (EDSO) should provide suggestions for improvement on the ENTSO-E answer and ENTSO-E will provide an updated reply to the last question under 2.3.
- As per the SO ESC discussions, ENTSO-E is asked to enrich the last slide of the presentation on inertia with dates and approximate times when the respective studies will take place and when the interaction with stakeholders is planned within this roadmap on inertia. The updates can be provided on the ESCs' webpage or per email.
- Issue logger: ENTSO-E is invited to embed the first iteration of improvements as discussed in the SO ESC and the GC ESC and bring the issue logger up as soon as possible for use. ENTSO-E will explore whether there is a way of publishing (in the tool) the old issues as recorded in the minutes of the meetings.
- ENTSO-E should provide a more structured approach for updating the ESCs on the work of the EGs, through regular reporting on overview of the progress on the deliverables of each EG, plans for next EGs etc.
- ENTSO-E will check about possibilities of including contacts of the respective TSO or stakeholders, or information on consultations per country in the AL template.
- ENTSO-E should take into account comments received and propose an improved template to be included in the active library, including a follow-up on additional information as mentioned in the Eurelectric slides. Eurelectric will help on improving the Excel file. Once a final template is agreed, it should be uploaded and made visible on the website. Regarding the Active Library, the ESC will check progress on the template completion at the next meeting.

- As a follow-up to previous discussions on whether it is allowed or not to set up more requirements than in RfG, the EC is asked to clarify whether standards could or should be developed or not.
- A question to formulate for the issue logger is whether the requirements on accuracy of measurements of certain parameters, which are prescribed in the NC either exhaustive or non-exhaustive, fall under the scope of more stringent or more detailed requirements, and if each MS can decide its own accuracy. The addressee of the question is the EC.
- WindEurope's question on costs should be discussed at the next GC ESC meeting in September.
- A question is raised regarding more stringent requirements and more specifically if the differentiation of requirements within specific type of generators, like type B, is also considered. Can a country adopt two sets of values for the same PGM type, i.e. different values on PPMs and synchronous generators? The question will be discussed at the next meeting but the EC, ENTSO-E and any other interested stakeholder can contribute with their answers.
- ENTSO-E will propose dates for the meetings in December, taking into account all 3 ESCs.