ACER
Agency for the Cooperation of Energy Regulators

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5th Grid Connection European Stakeholder Committee (GC ESC)

Tuesday, 14 March 2017 from 13:00-16:30

ENTSO-E, Avenue de Cortenbergh 100, Brussels

Draft Minutes

Participants			
Uros	GABRIJEL	ACER	Chair
Astrid	ANESTAD	NVE	
Jakub	FIJALKOWSKI	ACER/E-Control	
Jeremy	VINCENT	ACER/CRE	
Teelke	OLDERMANN	BNetzA	
Nicolas	KUEN	European Commission	
Elaine	O'CONNELL	European Commission	
Michael	WILCH	EDSO for Smart Grids	
Aurelio	TUBILLEJA	EDSO for Smart Grids	
Ralph	Pfeiffer	ENTSO-E	
Ioannis	THEOLOGITIS	ENTSO-E	
Robert	SCHROEDER	ENTSO-E	
Stela	NENOVA	ENTSO-E	Secretariat
Alan	WHITAKER	ENTSO-E	
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Rene	LUIJTEN	CEDEC	
Marc	MALBRANCKE	CEDEC	
Luca	GUENZI	EUTurbines	
Brittney	BECKER	EASE	
Toma	MIKALAUSKAITE	ORGALIME	
Klaus	OBERHAUSER	VGB Powertech	
Ton	GERAERDS	VGB Powertech	
Sébastien	Grenard	EURELECTRIC	
Thomas	LESCARRET	EURELECTRIC	
Garth	GRAHAM	EURELECTRIC	
Sanni	AUMALA	EURELECTRIC	
Mike	KAY	GEODE	
Bertrand	FRABOULET	CENELEC	
Daniel	FRAILE	WindEurope	
Hamidi	VANDAD	WindEurope	
Raju Addala	SRINIVASA	EUGINE	
Bernhard	SCHOWE-VON DER BRELIE	EFAC	
Michael	VAN BOSSUYT	IFIEC	

1. Opening

1.1 Welcoming address and Draft Agenda

GC ESC Chair Uros Gabrijel (ACER) welcomed the participants to the 5th GC ESC meeting. The agenda was approved.

1.2. Review and approval of minutes from previous meeting

The minutes of the 4th GC ESC meeting were approved without specific further comments.

Thomas Lescarret (EURELECTRIC) wondered if there has been a reaction on the generators' side regarding the studies mentioned at the previous GC ESC meeting and pointed out that stakeholders should be consulted on the studies as generators are the first responsible for units' compliance and therefore would like to be consulted as well.

Uros Gabrijel (ACER) noted that regarding the transparency of studies and the developments discussed, ENTSO-E has now provided a roadmap including both grid and system operation aspects on the IGDs, studies and stakeholder involvement are an inherent part so this information will be seen in the discussion on the roadmap.

Michael Van Bossuyt (IFIEC) noted that CDSOs have some particularities, also as regards classification as DSOs, noted it would be good to be invited to meetings for TSO-DSO cooperation discussions in order to make sure all is covered sufficiently.

Ralph Pfeiffer (ENTSO-E) noted that on TSO-DSO cooperation issue, the forum to address such matters is at the national implementation level. If in certain national implementation processes CDSOs find that they are not considered sufficiently, they should provide an example, and this can be addressed to the relevant participants at national level but there is no such equivalent at regional level or synchronous area level.

Marc Malbrancke (CEDEC) noted on the TSO-DSO cooperation there is a MOU between ENTSO-E and the DSO associations defining a number of topics to collaborate on, and workshops are organized along that framework to discuss certain subjects (such as data management, active system management among others), but this does not immediately relate to the NC implementation.

1.3. Establishment of SO ESC for information

The Chair provided an update on the start of the 1st System Operation European Stakeholder Committee (SO ESC) on 14th March. The ToRs were approved in the SO ESC and are available for information here.

Some potentially overlapping cross-committee items were discovered during the SO ESC discussions: one such topic is inertia. **ACER and ENTSO-E will discuss and develop a high-level plan on inertia for both grid connection network codes and system operation network codes/guidelines on the minimum level of inertia required, and from a market perspective if ancillary services are needed.** It will be reported back in the next SO ESC and if relevant, at the GC ESC too. If other cross-cutting issues are further identified with the other ESCs, stakeholders will be informed.

Garth Graham (EURELECTRIC) noted that in the discussions on TSO-DSO cooperation, some parts of CNCs (art.14.5b, 15.5c) concern the cooperation between system operators and power generating modules, and that the connecting parties need to be involved in this coordination together with the TSOs and the DSOs, in the framework of grid connection.

The Chair reminded participants that all GC ESC members should make sure the member representatives listed on ENTSO-E's GC ESC online page are updated. Associations which have not formally applied for a seat are reminded to send a formal request to ACER, as this is the formal process and should be applied on an equal footing to all associations.

2. ENTSO-E updates

2.1. ENTSO-E Roadmap on implementation guidance for determination of frequency stability requirements

Ralph Pfeiffer (ENTSO-E) presented the ENTSO-E roadmap on implementation guidance for determination of frequency stability requirements (roadmap document and presentation available). The roadmap aims to ensure coordinated approach at synchronous area level for giving guidance to the national implementation on frequency-related parameters and to achieve transparency on the rational behind decisions taken in each country.

ENTSO-E held a workshop on the Frequency stability requirements (FSR) issue on 9 March, presenting ENTSO-E view and intention in guiding the implementation of the requirements. ENTSO-E will start the process with defining the scope of the context beyond which these requirements are needed to be implemented. The workshop provided an overview of the state of play for each of the synchronous areas with regard to implementing requirements by TSOs. Some differences are notable between synchronous areas, as for smaller synchronous areas (such as GB & Ireland less coordination is needed) while for CE it is much more challenging with regard to many TSOs and control areas.

Based on priorities on requirements and stakeholder input gathered at the workshop, ENTSO-E will develop an action plan for stakeholder involvement in the process of developing further implementation guidance; ENTSO-E will work further on this and will consult stakeholders. By mid-2017 (see planned workshop and consultation below), ENTSO-E will draft implementation guidance with more precise proposals on ranges and values regarding frequency stability requirements impacting plant design and standard elaboration.

A 2nd workshop on these topics will take place in July 2017, and public consultation (Jul-Aug 17) to gather input on the draft updated IGD on FSR, with a view to publishing the final version of the IGD on FSR by end 2017. The IGD will be updated in the future as needed. Continuous update of analysis at synchronous area level can be expected in the future where necessary to prepare for updating of non-exhaustive requirements in line with the NC amendment framework.

The public workshop on FSR on 9th March 2017 addressed aspects such as FSM-Requirements, LFSM-O/-U-Requirements, time of operation at frequencies, which where not yet defined exhaustively, RoCoF withstand capability, admissible active power reduction at low frequencies, and synthetic inertia among others. More information on the ENTSO-E Workshop on FSR is available here.

Garth Graham (EURELECTRIC) noted that regarding the July 2017 workshop date, it would be helpful to have a week between the publication of the updated draft IGDs and the second workshop so that market parties can have the time to actively contribute.

Ralph Pfeiffer (ENTSO-E) confirmed that stakeholder involvement will be structured. Based on the workshop results, ENTSO-E will make a proposal how to engage with stakeholders which will be shared in an action plan developed on the basis of the WS results. **ENTSO-E will provide more clarity in the next few weeks on the timelines for stakeholder involvement in the process.**

Vandad Hamidi (WindEurope) noted that it would be good to coordinate the GC and SO aspects of the study on inertia as prescribed in the SO GL.

Ralph Pfeiffer (ENTSO-E) confirmed that things go hand in hand: the inertia study on what actually can be expected in system develpment, and then given this situation, it will be seen how system characteristics will look like with regard to disturbance etc. and this will give a clear view and context also for CACM implementation.

Uros Gabrijel (ACER) concluded that the work on grid connection investigation on system inertia related to parameters will go hand in hand with the SO study on minimum inertia on synchronous level. Stakeholders will get insights into both.

Ton Geraerds (VGB Powertech) noted that the moment of inertia [kg m^2] is very important for the stability of the system, and that grid operators should also consider power system stabilizers (they can only work if there is sufficient moment of inertia available in the grid). He encouraged ENTSO-E to involve stakeholders and manufacturers to avoid double work.

2.2. ENTSO-E update on Active Library

Ioannis Theologitis (ENTSO-E) provided an update on the recent developments with the ENTSO-E active library (available through the ENTSO-E site here) which serves as platform to show implementation processes at national level and a view on TSOs and stakeholder coordination locally in their countries and neighbourhood on implementation of certain parameters. Eleven countries contributed to the library so far and information from five more will be updated shortly. Certain technical difficulties with the tool have been encountered, and they are in the process of being solved. Ioannis noted that if stakeholders are aware of updated information, they should send the information to him so he could doublecheck and ensure good quality of data.

Garth Graham (EURELECTRIC) requested that the active library provide greater EU-wide visibility, for example: allow stakeholders to find out the applicable response on art. 14 or 15 on NC RfG in another Member State, as this could be very useful information.

Michael Van Bossuyt (IFIEC) noted that in some countries, like BE, the work is done per topics, not article-by-article so it might be difficult to reflect article-by-article information across MS.

Marc Malbrancke (CEDEC) would like to have an overview of choices made by MS on non-exhaustive requirements.

Uros Gabrijel (ACER) noted that he understands that ENTSO-E's Active Library is being developed further to reflect the mapping of all non-exhaustive requirements. **In the interest of transparency of implementation at the EU level by TSOs, the transparency obligation is best achieved through mapping of the provisions of general application that fall under non-exhaustive requirements. It would be useful if the information on the non-exhaustive requirements is published, at the latest, when requirements are proposed for consultation, and then updated when they are proposed to NRAs for approval.** However, a particular requirement might not be available at the same time because of different national implementation processes.

Ralph Pfeiffer (ENTSO-E) confirmed that ENTSO-E strives to provide transparency also in line with its obligations and to make all information available but ENTSO-E has no enforcement powers and can only encourage network operators to upload information to the Active Library. The idea of developing a table on values across countries is a possibility to be explored. However, the Active Library is not the only source of such information. As the national processes are advancing, more information will be available from the processes and can be obtained by the European associations through the national members.

Uros Gabrijel (EURELECTRIC) noted that transparency in implementation is a TSO obligation: ENTSO-E facilitates the process through providing access to the tool as a basis but ENTSO-E should not be held accountable for information if missing in the Active Library as it is individual TSOs' responsibility to provide the necessary information to the platform.

Raju Srinivasa (EUGINE) asked if the GC ESC can be used as a forum to help ENTSO-E to get the necessary documents to the library as contacts are different across various associations and there are cases where the respective EU associations do not have members or contacts in some countries, so data is difficult to attain. The active library is especially important in that respect.

Uros Gabrijel (ACER) confirmed this above-mentioned role for the GC ESC is a pragmatic approach.

Michael Van Bossuyt (IFIEC) noted the Active Library is a very useful tool and very important work has been done by ENTSO-E on it, despite the difficulties for the association and the TSOs but that it would be important to make sure the countries catch-up with the ones that are already providing information.

Thomas Lescarret (EURELECTRIC) agrees on the fact that stakeholders are requesting lots of things from ENTSO-E and that ENTSO-E is not responsible if some information is not submitted for the active library. Some simple analysis would be welcome by stakeholders. **Thomas Lescarret (EURELECTRIC) will provide at the next GC ESC meeting in June, a proposal for a template for the main non-exhaustive parameters with color categorisation demonstrating the definitive status of the values, including a methodology for filling out the template. The objective would be to provide an EU-wide view across all countries.**

Luca Guenzi (EUTurbines) asked if it would be possible for ENTSO-E to provide a type of document structured as a table as in IGDs with a list of non-exhaustive and non-mandatory requirements.

Ioannis Theologitis (ENTSO-E) noted ENTSO-E welcomes the template proposal from EURELECTRIC and encourages stakeholders if involved in relevant national processes to provide any relevant information to ENTSO-E, so the information can be verified and published. Further improvements of the Active Library are expected by the next meeting.

3. Commission Update (including questions from stakeholders received during the 4th GC ESC meeting)

Marc Malbrancke (CEDEC) noted that on Art. 15.2 DCC, there was not a clear answer from the EC at the previous GC ESC. An explanation from the UK was also received and stakeholders asked the EC if it can be confirmed that the vision on DCC art. 15.2 by UK is the one that can be followed as BE has another vision on implementation of this article and the interpretation is still open. The second open question is on an approach to questions' responses between ESC meetings as also raised at the SO ESC. Marc Malbrancke noted he can provide more information if there is a need from the EC.

Ralph Pfeiffer (ENTSO-E) noted ENTSO-E considers the question of interpretation of DCC art. 15.2 still open as it does not find the EC response satisfying. If ENTSO-E has been asked for a position, the original intention should be clarified, but **ENTSO-E will propose an interpretation to be discussed by GC ESC at next meeting in June.**

Nicolas Kuen (European Commission) noted the UK answer seems to be going in the right direction. The relevant TSOs may request more detailed but not more restrictive requirements. If requested, justification and joint analysis should be done with DSOs if both agree. A national process should be established for that. Altogether, if there are any requests for such requirements, the TSOs and the DSOs should do a joint analysis. This point had been discussed in the Cross-border committee as well. Overall, the EC can only give a view after it sees which TSOs requested what specifically. If a TSO has a request, the MS can request a joint analysis as also approved as a process in the CBC.

Michael Wilch (EDSO for Smart Grids) asked which TSO is in need of the requirement described in Article 15.2 DCC. He would like ENTSO-E to find out which TSO plans to make use of Article 15.2 on national level and why.Marc Malbrancke (CEDEC) noted stakeholders want a process where if they have any questions specifically to the EC on legal and interpretation issues, they would like to send them before the next GC ESC meeting 3 months later.

Uros Grabrijel (ACER) informed GC ESC members that the EC noted at the first SO ESC meeting that it is considering how to organize this process, and mentioned a conference in May to celebrate the NCs' completion where they might disclose further ideas on how to proceed.

Elaine O'Connell (European Commission) confirmed that the EC has only one team working on NCs, which is exploring a suitable process for the questions and to avoid burdensome processes however, according to EC, ultimately the Court of Justice of the European Union (CJEU) is competent to provide an interpretation of EU law. The EC can only provide policy and guidance. Written legal opinions entail involvement of internal processes/DG legal services and therefore are unlikely be the fastest route to resolve an issue (and they still would not provide 100% legal certainty because the ECJ has ultimate jurisdiction). For this reason, the stakeholder committee should resolve issues where they can and agree a process for issue resolution internally.

Garth Graham (EURELECTRIC) suggested that a more formal process or a template for raising such issues to the EC be used, in order to allow GC ESC members to express their views on the issue, inform the EC, and to allow the EC to provide views back to the GC ESC. Elaine replied that the EC continues to think about the best way for addressing stakeholders' questions and has had conversations with ACER and ENTSO-E already. ACER and ENTSO-E will follow up on this. Elaine O'Connell (European Commission) reminded stakeholders that the functional mailbox of the EC is the best route for questions but they should follow an agreed process through the ESC.

4. ACER:
4.1 NRAs coordination in the implementation of provisions regarding Emerging Technologies

Uros Gabrijel (ACER) informed GC ESC members that the national regulators had a meeting on 13 March 2017 and discussed NRA coordination in the implementation of provisions regarding emerging technologies. In December, NRAs had asked ACER to prepare a position paper based on which NRAs would be able to coordinate their decisions according to NC RfG Art. 69(1). The position paper aims to provide a converging position while considering NRA comments. The paper was endorsed by NRAs at working level, and should be endorsed by the Board of Regulators on 15 March. Once endorsed, NRAs are encouraged to take it into account when issuing their own decisions as part of their coordination obligation in Article 69(1) of the NC RfG.

4.2. NRA coordination in the implementation Article 4.1.a of NC RfG

Uros Gabrijel (ACER) explained that with respect to NC RfG art. 4.1(a) on substantial modification of requirements, ACER was asked to look into possible NRA coordination in implementation of this provision which was discussed on two occasions (on 13 March and before). NRAs have shared existing practices and views as to how they are thinking to implement these provisions, but it seems there are only few existing practices around the EU. NRAs would appreciate if stakeholders could provide examples where there are potentially any unclarities as to how this provision might be implemented. Stakeholders are encouraged to provide to ACER those examples where there are doubts/questions (to be sent to the Chair) which will be then discussed with regulators, with interest to achieve a common understanding on the substance. No decisions were reached by regulators as such, regulators only shared and discussed different elements. With regard to practical implementation, however, examples from the past may not be relevant for the code implementation, so any examples or questions from current practice will be highly appreciated by NRAs as well and should be sent to ACER, if any.

Garth Graham (EURELECTRIC) asked if it could be helpful to consider substantial modifications on a technological, versus commercial and financial level. If substantial modifications are of a more technological nature, a different response might be required compared to modifications in monetary terms. He asked if there was any guidance on this and if NRAs have a different interpretation of this.

Jeremy Vincent (CRE) noted that France is already working on this topic and trying to adapt to what is already in the NC RfG. On a more technical basis, the NRA is looking at definitions of substantial modification and different criteria, as related to certain % on PGM power modifications (ex. if power increase is up by 60 or 70%, to apply new requirements at new parts) but the threshold is not defined yet. The NRA will define it for all PGMs, and will provide a more detailed presentation to other regulators to exchange on best practices for policy.

Michael Van Bossuyt (IFIEC) noted that for DCC, similar considerations need to be taken into account as well. He asked if requirements are applicable to a new part only or to everything, and if and how this can be distinguished on a production line. He noted that DCC is applicable at the connection point and not at a machine level, so it is more difficult to identify such aspects, especially for big facilities, which should also be taken into account.

Jeremy Vincent (CRE) clarified that CRE is going to notify of each case whether it falls under substantial modification or not. The main details will be communicated in the national regulation.

Klaus Oberhauser (VGB Powertech) asked if examples will assist in defining criteria or as business cases for the modification.

The Chair concluded that examples, including also from the experience of demand facilities, are needed to inform the NRAs' discussions. Examples should be sent to him and he will share those examples with the regulators to enable regulators to better understand the technological nature of the issues, and the current problems.

5. Standardisation progress – CENELEC/ENTSO-E

Bertrand Fraboulet (CENELEC) provided an overview of CENELEC's progress on standards and a timetable for the process (presentation available here). In 2016, after the publication of the NC RfG, CENELEC's TC8X-WG3 has started drafting future series of standards to be used to provide conformity with NC RfG and is working on drafting 2 standards on Requirements for generators to be connected to distribution networks (draft EN50549-1 on connection to a LV distribution network, and draft EN50549-2 on connection to a MV distribution network). After July 2016, EN 50438 has been merged with the new standard in preparation and its draft will be ready by mid-2017, with a phase for comments after sept-17, then comments from national committees by end-2017 with a view to submitting the new standard by mid-2018 for a vote. The TC8X/WG3 approach is aiming to provide single understanding of vocabulary, definitions and requirements across Members States (MS), a wider scope than NC RfG, a reference for MS without existing technical guidelines and for manufacturers for mass product that will be connected to distribution network (type A&B). **CENELEC provided some technical questions to the GC ESC regarding requirements (on active power set-points during LSFM-O, response time to LFSM-O, active power output for falling frequency, LSFM-O logic with hysteresis, and minimum requirements and if more stringent requirements can be considered and/or additional requirements can be introduced) and is waiting for an answer on those.** Some new annexes are introduced as well, mainly for information on list of national requirements applicable for generating plants and the relationship between the standard and the NC RfG requirements.

As of 22 March 2017, TC8X is starting to work on EN50549-10 Compliance test specification, to provide conformity with NC RfG. Further attention should be paid to ensuring effective harmonization or as minimum coordinated values for non-exhaustive parameters regarding frequency requirement on the same synchronous area, and to avoid that each Member State introduces their own specific range of products with consequences on generation costs. As national implementation is progressing simultaneously and future national technical guidelines are to be established, a key question for CENELEC is **if EN5049-10 should be taken as a basis to specify a methodology for testing and assessing NC RfG exhaustive and non-exhaustive requirements to be used for mass generating units. Regarding the interpretation of questions that were submitted to the 4th GC ESC, CENELEC had decided on certain interpretations but needs confirmation if the decision and interpretations are good on how to proceed with implementation standardisation.**

The Chair asked if CENELEC has discussed with ENTSO-E within the MoU framework these questions, for example how to deliver technical specifications. It appears that CENELEC has discussed the questions with ENTSO-E but lacks clarity yet on what to do on NC RfG regarding transmission network minimum requirements.

Luca Guenzi (EUTurbines) noted that CENELEC has discussed a number of those issues with TSOs, the question was presented in December at the 4th GC ESC, and an answer is needed to clarify which instrument is to be used.

Ralph Pfeiffer (ENTSO-E) noted that from ENTSO-E perspective a general concern is the lack of a clear delineation between national implementation of network codes and the CENELEC projects as there is considerable overlap between the two since they both deal with similar issues. He clarified that the specification of parameters for non-exhaustive requirements, applying default values/parameters for non-exhaustive requirements, is a task of national implementation in the codes. Confusion between standardisation process and national implementation of codes should be avoided.

Bertrand Fraboulet (CENELEC) noted that the annex was added in the standard of the national implementation decision indicating in the standard that national implementation parameters should prevail over the defaults provided by the standards. It is based on figures from existing technical guidance in some countries.

Ralph Pfeiffer (ENTSO-E) clarified that the logical sequence should be the following: first the provisions of higher value shall be available (national implementation), then suitable standards should be developed. He questioned the value of a standard which needs to have many disclaimers about what aspects prevail and when. The recommendation is to have national implementation of network codes first, then define standards.

Uros Gabrijel (ACER) reminded that the EC slides from 4th GC ESC meeting on 9th December provide guidance on some of these questions.

6. IGDs

6.1 ENTSO-E report on the consultation of the updated IGDs from the DCC and HVDC perspective

Ioannis Theologitis (ENTSO-E) provided an update on the results of the public consultation on the IGDs from a DCC and HVDC perspective (presentation here). The consultation ran between 8 December 2016 and 16 January 2017, and received some comments and questions which have been addressed and published here. Based on the consultation results, the IGD Compliance Testing and Monitoring is the only IGD which needs updating. The updated version has been produced with the support of the respective EG. The detailed response as well as the IGD Compliance Testing and Monitoring can be found here.

6.2 ENTSO-E update on workshops, expert groups, and plans/follow-up actions

Ralph Pfeiffer (ENTSO-E) provided an update on the work of the expert groups on Fast Fault Current Contribution/high penetration issues (FFCC) and compliance monitoring (presentation here). The EG FFCC delivered on its mandate between December 2016 and January 2017, and worked on deriving performance requirements according to the system needs, reviewed existing IGD on "Fast Fault Current Contribution", and created a first version of IGD on "High penetration of Power Electronics interfaced Power Sources" (HPoPEiPS). The results of this work will be published as soon as passed through ENTSO-E internal procedures and should be ready for publication by early April. The EG FFCC's scope will be widened to provide a more "holistic approach" of the IGD on HPoPEiPS, and to work on deriving performance criteria for benchmarking and testing.

The EG on compliance monitoring was set up to give further guidance on compliance testing and simulation through the IGD on compliance testing and simulation and provided recommendations for improvements on the IGD, now published in a revised version after consultation. The EG has concluded its work program but is interested to remain active and inter alia under the MoU between CENELEC and ENTSO-E offers further expertise to CENELEC on compliance monitoring and testing (50549010).

Daniel Fraile (WindEurope) welcomed the achievements of the EG on compliance and noted that as a next step more clarity on how to implement the IGDs at national level is needed. Also, clarity on the future role of the EG FFCC would be helpful.

Garth Graham (EURELECTRIC) asked if it is possible to have the list of organizations to contact and to liaise with to ensure that information is spread, and to provide relevant input to the expert groups.

Ralph Pfeiffer (ENTSO-E) clarified that the calls for experts are publicized openly and organizations had a chance to nominate members.

CBA WS on 2 March 2017: Ralph Pfeiffer noted that ENTSO-E held a workshop on CBA as requested earlier by stakeholders. All stakeholders attending the WS requested that a CBA expert group is established, while concluding that such EG would have its benefits if clear framework conditions are established for its work on the updates of relevant IGDs. It has been decided that the EG should work to deliver in the span of 6 months and its scope will be limited to CNC issues and will respect the principle of subsidiarity with regard to national processes. Examples on CBA for retrospective application (as usually motivated by TSOs) and CBA for derogations (usually motivated by stakeholders) are encouraged to be added to IGDs. ENTSO-E will soon publish a call for experts and expects nominations for the group (more information here).

A Workshop on Frequency Stability Parameters took place on 9 March 2017, and its results are under assessment by ENTSO-E. A number of priority issues that were identified to be tackled in the IGDs including inertia issues/maturity of synthetic inertia, RoCoF, LFSM and response time, cross-country harmonization of relevant parameters, controllability of large numbers of generating units, among others. More detailed outcomes of the workshops are available here.

Luca Guenzi (EUTurbines) noted lots of additional items were discussed at the WS and recommended a follow-up on the frequency issues of the EG, as well as a future public consultation and more time to be dedicated to these workshops to enable more thorough discussion on certain topics.

As requested by some stakeholders, ENTSO-E will add a list of who participated in the session/list of participants in the workshop on FSR for information.

Garth Graham (EURELECTRIC) noted that the topics of frequency parameters and CBA methodology are a top priority and recommended that stakeholders are informed as soon as possible about the date of the next meeting in order to be able to provide some formal contribution to the CBA topic.

6.3 Feedback from stakeholders

Mike Kay (GEODE) presented the current understanding and questions from stakeholders in GB regarding compliance issues (presentation available here). One possibility of providing answers to those questions could be the EG, especially as the EG on compliance monitoring is to remain active. In GB, TSOs use the existing compliance assessment approaches/on-site tests. For DSOs which can't have interaction with each manufacturer to ensure equipment compliance, some common standards and equipment certificates are needed. Relevant standards might not be developed in time and open questions remain as to the application of the EU blue guide (EU C 2016 72), on the use of equipment certificates without NC RfG compliant standards, and how the equipment will be certified. A common approach across Europe needs to be selected.

Garth Graham (EURELECTRIC) noted it is important that any equipment certificate issued in one place is also usable across any other MS, regardless of size A, B, C PGM so to give a possibility to use the equipment certificate rather than going through compliance testing to use it with the operator.

Bertrand Fraboulet (CENELEC) clarified that if certificates are to be transferrable across MS, a harmonized standard that allows an identifiable way of testing and measuring exhaustive parameters and non-exhaustive parameters would be needed so that this could be used for assessing between countries.

Uros Gabrijel (ACER) asks ENTSO-E to provide feedback to the ESC on the compliance assessment in the absence of standards with a view to seeing if further steps are needed. ENTSO-E may involve the EG to gather information for this feedback.

7. AOB

7.1 National Derogation Process documents being issued by the NRAs

Garth Graham (EURELECTRIC) noted that regarding derogation procedures that are followed, the question is if other NRAs can share information about the process, i.e. what is the procedure to submit a request and what procedures are followed by NRAs to assess what is to be done.

Uros Gabrijel (ACER) noted that derogation processes are to an extent detailed in the network codes; however, additional guidance documents may be issued by the NRAs. ACER will facilitate the collection of information on any such guidance issued by NRAs. Anyhow, the EC received derogation criteria by every NRA (or by other authority if so provided by a Member State) and the intention is to publish the links to the national decisions and any additional guidance documents on the Active Library.

7.2. Applicability of Article 4.1 to existing type A/B PGMs and aggregations of PPMs

Aurelio Tubilleja (EDSO for Smart Grids) noted on Art. 4.1 of NC RfG, it seems to concern only type C or D PGM if it has been modified to such an extent that its connection agreement must be substantially revised (if increased to reach a type C module or once they increase capacity over the C/D threshold) and asked what ENTSO-E's and the EC's vision is on this topic (presentation here). The question is also how to deal with type A or type B PGMs (or aggregation of PPMs) that are modified in order to increase their capacity above the B/C threshold.

Ralph Pfeiffer (ENTSO-E) noted he can't give an immediate response on interpretation of the provisions as ENTSO-E needs to evaluate this first and may provide a response later.

Nicolas Kuen (European Commission) noted that if existing connections of type A and B are modified in such a way that it results in a new connection agreement for example for type C and D, the connection has to be treated as new.

Michael Wilch (EDSO) noted that if the power of existing type A or B is increased, this means that a new grid connection and a new connection agreement is needed for the power rise as it is significant and might be needed at a higher voltage.

Nicolas Kuen (EC) confirmed that if the modification concerns a new connection, it will be a new agreement.

Aurelio Tubilleja (EDSO) noted that Art. 5.3 NC RfG TSOs should propose max capacity thresholds for types B, C and D PGMs and in this respect TSOs need to coordinate with adjacent TSOs and DSOs but how they achieve this coordination is of highest value. Stakeholders expect coordination at a European level to be achieved transparently through publication of indicative values that are nationally discussed/consulted and approved by NRAs. Harmonization of the thresholds through TSO coordination as mentioned in the network codes is one of the aspects to be considered, and it is relevant that TSOs are transparent in their implementation. The question is whether ACER has the same expectations too.

Ton Geraerds (VGB Powertech) informed the group that with respect to the thresholds for the classification of Generators in Type A/B/C/D in BE, there is a proposal of Elia (TSO) to use lower values in the NC RfG for the thresholds for type B and C while the NL has adopted highest possible values which means there is no level-playing field. Grids are comparable so he wondered how this is possible.

Aurelio Tubilleja (EDSO) noted that in Spain thresholds were defined without underlying technical studies and existing thresholds were accepted without technical justification.

Uros Gabrijel (ACER) noted that internally NRAs decided to collect all proposals and indicative values discussed in each MS but stakeholders should be aware that the NCs do not prescribe harmonization of national thresholds. There is only a requirement to coordinate with adjacent TSOs and DSOs and publicly consult. A proposal to change the threshold can be made 3 years after the current threshold has been defined.

Garth Graham (EURELECTRIC) noted that from the generators' side with respect to thresholds, there is a risk of stranded assets. In particular, certain new generators' capabilities would be deemed as stranded investment should the limits defining the type A, B, C, D PGMs be subsequently raised. In order to avoid this situation in GB, there is a proposal to set the limits as high as possibleat the outset and will be lowered if necessary in future. However there are alternative proposals and the NRA has not yet been asked to determine the limits.

7.3 Reporting methodology of lessons learned/problems detected by stakeholders to the GC ESC

As discussed at the 4th GC ESC meeting, Garth Graham (EURELECTRIC) noted that it is important to find a structured process to report issues and record lessons learned and the use of a reporting template if deemed feasible to inform the GC ESC.

Uros Gabrijel (ACER) noted that if the template would be used by various parties reporting without any filtering, it would not be efficient. It is important to frame the reporting well and, track problems in the ESC. Each European association plays a key role in filtering individual national problems or NC translation problems. Also, some issues could cut across different network codes.

Marc Malbrancke (CEDEC) noted the example template (available here) can include other elements, can be put on the ENTSO-E website by NC or an electronic version could be created. Some examples of implementation issues using the proposed template can be found on NC RfG art. 4.1, DCC art. 15.2 and DCC art. 15.1(f).

Elaine O'Connell (EC) noted it would be useful to setup such process, and that resolution of an issue sent to EC is not easy as the EC can not provide legal interpretation, and any legal opinion has to go through the EC legal services. A process is needed that works for codes where the Commission can add value.

The Chair concluded that if an issue is reported, discussed and resolved, this will in anyway be noted in the minutes. **A more concrete proposal will be explored with ENTSO-E, based on the received imput.**

8. Next meetings for 2017:

The Chair noted that the December meeting date (6th December) needs to be changed as it coincides with the ENTSO-E Annual Conference. Tentatively, the GC ESC can be rescheduled for 12 or 13 December 2017 and back-to-back with the SO ESC. The **December meeting date will be confirmed at the June meeting as the SO ESC and MESC dates will need to be revised as well.**

The Chair informed the GC ESC members of the proposal of SO ESC to replace the physical meeting in September by a web conference call in case no big developments happen in between.

GC ESC Meeting dates for 2017: 7th June (ACER, Ljubljana); 8th September (ACER, Ljubljana (tbc)); 6th December (ENTSO-E, Brussels (date tbc in June))

9. Follow-up actions

- ✓ ACER and ENTSO-E will discuss and develop a high-level plan on inertia from both grid connection and system operation on the minimum level of inertia required, and from a market perspective if ancillary services are needed.
- ✓ All members should make sure their representatives' names are listed and updated when necessary on the GC ESC website. Associations which did not formally apply for a seat yet should send a formal request to ACER to comply with the rules.
- ✓ Stakeholders can provide information or input regarding implementation on the CNC they find relevant to ENTSO-E, so the information can be verified and published in the Active Library.
- ✓ ENTSO-E will propose an interpretation on DCC art. 15.2 to be discussed with GC ESC.
- ✓ Thomas Lescarret (EURELECTRIC) will provide for the next GC ESC a proposal for a template for main non-exhaustive parameters and a methodology for filling out the template.
- ✓ Stakeholders should send to ACER current examples and practices they come across on the implementation of NC RfG and DCC on substantial modifications and problems.
- ✓ ENTSO-E will add a list of who participated in the session/list of participants in the workshop on FSR for information.
- ✓ ENTSO-E should provide a response on its interpretation of the provisions related to applicability of Article 4.1 to existing type A/B PGMs and various thresholds.
- ✓ ENTSO-E should provide a response to questions raised in CENELEC's slides.
- ✓ ENTSO-E should provide a response from the EG on compliance to general questions on implementation of equipment certificates, and the questions from GB in particular.
- ✓ ENTSO-E and ACER will explore a more concrete proposal on how to report issues detected by stakeholders in the GC ESC.