

**13th Grid Connection European Stakeholder Committee (GC ESC) &
8th System Operation European Stakeholder Committee (SO ESC)**

Thursday, 21 March 2019 from 09:30-16:00
ENTSO-E, Avenue de Cortenbergh 100, Brussels 1000

Draft Minutes

Participants			
Uros	GABRIJEL	ACER	Chair
Jakub	FIJALKOWSKI	European Commission	GC & SO ESC
Marco Savino	PASQUADIBISCEGLIE	ARERA	GC & SO ESC
Knud	JOHANSEN	ENTSO-E	SO ESC
Sonya	TWOHIG	ENTSO-E	GC & SO ESC
Ioannis	THEOLOGITIS	ENTSO-E	GC & SO ESC
Pilar	MUNOZ-ELENA	ENTSO-E	SO & GC ESC
Stela	NENOVA	ENTSO-E	GC & SO ESC
Kristel	ROMEO	ENTSO-E	GC & SO ESC
Rafal	KUCZYNSKI	ENTSO-E	SO ESC
Luca	ORTOLANO	ENTSO-E	SO ESC
César	CLAUSE	ENTSO-E (CGM Program)	SO ESC
Knut	EGGENBERGER	ENTSO-E (CGM Program)	SO ESC
Jacques	WARICHET	ENTSO-E	SO ESC
Jean-Philippe	PAUL	ENTSO-E	SO ESC
Michael	Wilch	EDSO for Smart Grids	GC & SO ESC
Marc	MALBRANCKE	CEDEC	GC & SO ESC
Alberto	BRIDI	CEDEC	GC & SO ESC
Thorsten	BUELO	SMA	GC & SO ESC
Adolpho	LOPEZ	EURELECTRIC	SO ESC
Florentien	BENEDICT	CEDEC	GC & SO ESC
Luca	GUENZI	EUTurbines	GC & SO ESC
Klaus	OBERHAUSER	VGB Powertech	GC & SO ESC
Eric	DEKINDEREN	VGB Powertech	GC & SO ESC
Srinivasa	RAJU ADDALA	EUGINE	GC & SO ESC
Garth	GRAHAM	EURELECTRIC	GC & SO ESC
Gilda	AMOROSI	EURELECTRIC	GC & SO ESC
Jean-Noel	MARQUET	EURELECTRIC	GC & SO ESC
Gunar	KAESTLE	COGEN	GC & SO ESC
Daniel	FRAILE	WindEurope	GC & SO ESC
Naomi	CHEVILLARD	SPE	SO ESC
Pavla	ERHARTOVA	Europex	GC & SO ESC
Mike	KAY	GEODE	GC & SO ESC
Michaël	VAN BOSSUYT	IFIEC	GC & SO ESC
Matteo	MORASCHI	EASE	SO ESC
Toma	MIKALAUŠKAITE	ORGALIME	Via webstreaming
Brittney	BECKER-ELZAREI	EASE	Via webstreaming
Stein	OVSTEBØ	IFIEC	Via webstreaming (SO)
Bernhard	SCHOWE-VON DER BRELIE	EFAC	GC & SO ESC

Participants			
Valerie	REIF	FSR	GC ESC
Vassiliki	KLONARI	WindEurope	GC ESC
Maxime	BUQUET	GE	SO ESC
Pierre	CASTAGNE	EURELECTRIC	SO ESC
Markus	JANK	Oesterreichs Energie	SO ESC

13th GC ESC

Thursday, 21 March 2019 from 09:30-12:30

1. Opening

1.1. Review of Agenda

The Chair welcomes the participants to the 13th GC SC session. The agenda is approved with additional points under agenda item 2 by ACER and WindEurope, and two questions for AOB.

1.2. Review and approval of minutes from previous meeting

The minutes of the 12th GC ESC are approved (available [here](#)).

1.3. Follow-up actions from previous meeting (available [here](#)):

1. Action 1: ENTSO-E would appreciate to receive data from various countries from stakeholders for the purpose of cross-checking these with its own sources and updating further the active library and the monitoring files, as the case may be. No action until further notice. If there is any information from the stakeholders, ENTSO-E will cross-check it and if needed update the monitoring excel file and active library. The action can remain open until the monitoring file is assumed complete.

Regarding the Issue Logger and state of play on answers provided, ENTSO-E will look into possibility to extract issues pending acknowledgement, circulate with all ESC members via email the table. However, ESC members are invited to start their own assessment no matter if ENTSO-E manages to create the table. ESC members have 2 months to send any reservations with the answers provided or remain silent (which means implicit acknowledgement of the answer). The June ESC meeting will discuss the issues for follow-up which are kept open; the other issues will be acknowledged by default. Similar questions will be clustered under one item or issue and a final answer can be provided which addresses all questions for the same topic.

2. Transparency on NC implementation: ACER has informed the NRAs of the query on how to deal with the possible delays, given also the lack of information in some countries, regarding the state of play of requirements' approval, publication and processes for certification and validation, and whether some general derogations can be applicable to the industry. Early results can be found in the [list](#) of "Documents from 21/03/2019 Grid Connection European stakeholder Committee Meeting" under Topic 2 of the agenda. The topic will remain open until final results are available.

3. Action 3: Definition of existing installations and new ones: ENTSO-E has been working on a short survey, in an attempt to clarify which member states have applied the default date of 17/05/2018 and which have defined their own deadlines. In collaboration with ACER, the findings will be shared via the Active Library. The topic will remain open until final results are available.

4. Action 4: EG PSH: the ESC suggestion for the EG to elaborate in its final deliverables on an explanation in the table on the reasons found in cases where it is deemed that a capability of certain mode of technology is not possible, has been noted and is already been considered in the EG. A report will be provided.

5. Action 5: EG MCS: The suggestions from the previous ESC meeting regarding the interface point investigations, the possibility of significant amendments to be included in the potential solution explored; all possible solutions to be added to the scope, and assessed accordingly with pros/cons, and the impact of storage and hybrid installations, and analysis regarding the solutions on the interface, have been noted and communicated to the EG. Developments are ongoing.

6. Action 6: Regarding the differences across FRT requirements between countries, the question of whether this is a violation of the European principle of movement of goods has been recorded in the Issue Logger and ENTSO-E has provided a reply through the Issue Logger under the title "2018-09-14GCESC-3: Regarding FRT specifications, what is the impact of different values on the Internal Energy Market?" Any additional considerations are invited by the EC - <https://esc.network-codes.eu/>

7. Action 7: The question on voltage ranges for offshore PPMs and the possibility to find a solution through modifying the RfG to avoid the need for derogations has been recorded in the Issue Logger, and ENTSO-E provided a reply that is now logged under the question: "2018-09-14GCESC - Voltage ranges for offshore PPMs and the application of Articles 23-28" of the [Issue Logger](#). The topic can be assumed as final unless there is any additional input from stakeholders.

2. Connection Network Codes implementation: Update from ENTSO-E's Technical Groups: Active Library / Monitoring Excel File Forward planning for activities in 2019

Ioannis Theologitis (ENTSO-E) provides an update on the work and planned activities of the Technical Groups (TGs) on High Penetration (HP) and Compliance Monitoring (CM) (slides [here](#)). The HP group is working on producing a report on the topic of grid forming capabilities with a view to providing a contribution for setting up requirements in future grid/network codes. The draft of the report is expected by mid-2019. The draft will be circulated for comments beyond the TG with the ESC for further input. Depending on the comments, the final version is expected during Q4 2019.

The CM group is following up with CENELEC TC8X WG3 regarding the development of the EN50549-10 report, which is a CENELEC product and members of the Technical Group collaborate with the TC8X WG3 team for the development of 50549-10. The IGD on Compliance Monitoring has been considered as one of the inputs for the development of -10. A meeting of the TG will be set up in Q3/Q4 2019 including the rest of the members and stakeholders that are not part of the WG3 to discuss on some key aspects of a developed draft. After the TG concludes its work, the list of experts will be kept for any future engagement on a relevant topic. The GC ESC will be informed of the developments.

Bernhard Schowe-von Der Brellie (EFAC) explains that there are ongoing discussions not only on the measurement procedure on the standards 1 & 2 but also on developing recommendations for testing to allow TSOs to easily see if the unit complies with a specific national provision. This work will be completed by the end of 2019.

Ioannis Theologitis (ENTSO-E) notes that this will affect the timing of the TG workshop and the ongoing work on the final draft report. Developments will be followed and the ESCs will be informed of next steps and reporting.

Ioannis Theologitis (ENTSO-E) explains the state of play on the monitoring of non-exhaustive requirements (slides [here](#)). The RfG list has advanced with all the non-exhaustive parameters under approval or as approved, shown in different colours on the maps. For DCC and HVDC, there is further progress as most of the submitted proposals have been collected and final approval is pending (except AT where there is no plan for HVDC assets and therefore no proposal). Regarding the EGs' ongoing work, there will be one more webinar for EGs to finalize the work, with the aim to submit all documents produced by the groups by the June ESCs.

Luca Guenzi (EUTurbines) inquires if any steps were taken to inform the NRAs on the gaps regarding the requirements for existing and new units and relevant non-compliance issues.

Ioannis Theologitis (ENTSO-E) explains that the definition of existing plants is in many cases applicable as of 27 April 2019 even though the default date according to the RfG was 17/05/2018. However, whatever was considered by a MS in its national context will be applicable and therefore the survey is ongoing to receive input from all MSs. Later in the meeting, ACER will show choices of deadlines in national decisions – it appears that in most cases it was chosen as 27 April of 2019 for defining what is existing and what is new, because this is the date the approved proposals coming from RfG become applicable.

The Chair explains that ACER conducted an inquiry with the NRAs and obtained links to the national decisions. Those will be shared with ENTSO-E and ENTSO-E can publish the information on its website.

Ioannis Theologitis (ENTSO-E) explains that one of the ENTSO-E monitoring tasks is to monitor if the requirements are line with the ranges in the RfG NC and that nothing goes beyond the exhaustive requirements in the NC. Stakeholders are invited to inform ENTSO-E if they spot any inconsistencies.

Jakub Fijalkowski (EC) reminds that under this binding European legislation, the NRAs should ensure that all is as it should be or else they should be informed of inconsistencies. The EC can start an infringement process otherwise. Stakeholders are invited to look into the numbers and inform the NRAs accordingly.

Eric Dekinderen (VGB) wonders what happens if a stakeholder notices some incoherences between the European text and the national proposal. He sees a role for the ESC in that: for example, someone detects inconsistency in his country while a regulator refuses this, this could be brought to the ESC.

Jakub Fijalkowski (EC) explains there is a legal process to check for escalation for such issues. First the issue should be tackled amicably. Infringement lasts long so even if it lands on the EC desk, the first attempt is to solve the problem amicably.

The Chair reminds of the dispute resolution provision in all grid connection codes involving the NRA as the dispute settlement authority: a stakeholder may do both, escalate the issue with an NRA and bring it to attention of the ESC if not identified through the monitoring file already via its representing association. Anyhow, the NRA needs to be informed before the issue is brought to the attention of the EC.

Ioannis Theologitis (ENTSO-E) explains that the monitoring files shows if there are divergences between values. It is expected that by end June, there will be initial analysis on the state of play with respect to any divergencies detected by ENTSO-E in the monitoring process.

Luca Guenzi (EUTurbines) expresses his appreciation and support of the EG work.

Daniel Fraile (WindEurope) inquires if there are any testing documents at national level or any way for manufacturers to see how to validate requirements and how to practically fulfil them.

Ioannis Theologitis (ENTSO-E) explains that the file was prepared with the aim to help stakeholders and is a first good starting point with values known and available for information on the state of play of implementation.

- RfG Implementation Wind & Solar perspective

Daniel Fraile (WindEurope) explains that WindEurope wrote a letter to the EC and ACER, co-signed by 24 stakeholders, to express its concerns regarding the mismatch between the timelines for the implementation of RfG (slides [here](#)). The latter asks for an extension of the deadline for complying with the new national RfG requirements in order to leave six months for the industry to adapt, country per country, and for an update of the definition of existing assets in line with the extended deadlines or the introduction of general derogations with respect to the mismatch of dates on existing assets and others purchased between May 2018 and 2019. Three potential options seem to be possible from an industry perspective: National-based solutions: uncoordinated individual derogations, legal actions against Member States; a European coordination of national solutions: coordinating regulators to issue derogations at national level, or a European legislative solution: extending the entry into force by the procedure foreseen in article 7 of Regulation 714/2009.

Michael Van Bossuyt (IFIEC) notes that this concern also applies to DCC and HVDC.

RfG implementation monitoring - 2019 (preliminary results) – ACER presentation

The Chair explains that following the discussions at the 12th GC ESC meeting, ACER circulated with all NRAs an implementation monitoring questionnaire on 22.1.2019 and 16 NRAs provided responses (slides [here](#)). It should be noted that in some MSs, the NRAs are not responsible for the approval of SOs proposals. The preliminary results confirm the findings represented on ENTSO-E's map with the banding values and the requirements for general application. Regarding the banding, 2 TSOs missed the deadline for submitting the proposal for thresholds according to Article 5(2). All NRAs confirmed that TSOs coordinated with adjacent TSOs and DSOs of the proposal for thresholds and conducted a public consultation in accordance with Article 5(3). Two proposals haven't been approved yet and one NRA missed the deadline for the approval.

ACER and ENTSO-E will cross-check the implementation monitoring file and ensure consistency across the findings.

The Chair explains that regarding requirements of general application, results show that 1 TSO missed the deadline for submitting their proposal. SOs provided a common proposal in two cases. Separate, but coordinated proposals by TSO and other SOs were provided in one case. The TSO was the sole submitter of the coordinated proposal in the rest of the cases. Three proposals haven't been approved yet. Two NRAs missed the deadline for the approval.

The Chair concludes that regarding the application of requirements, in the majority of cases, the PGMs connected until 27th of April 2019 will be subject to old connection rules.

Michael Van Bossuyt explains that as the current rules apply till 27 April, there will be amendments and new versions, and it will be challenging to solve this complexity of which version applies to which installation and the subsequent application, and this will have an impact on all.

The Chair explains that the intention of ACER is to bundle amendments in one batch.

Regarding the presence of an authorised certifier issuing equipment certificates and PGM documents, one NRA was able to confirm the presence of such certifiers in the MS. Another confirmed the presence of the PPM and SPMG testing authorised certifier. A few NRAs confirmed ongoing activities towards ensuring such certifiers in the MS. Regarding the certification and validation processes adopted, half of the NRAs confirmed the adoption of the certification and validation processes before 27 April 2019.

Garth Graham (EURELECTRIC) notes that regarding equipment certificates, this means that authorized certifiers are established and means that one equipment certificate in one place can be used across the EU, provided the equipment certified is certified to the non-exhaustive requirements of the jurisdiction in which it is to be connected.

The Chair explains that further information about authorized certifiers will be transparent when ACER develops the report. NRAs' answers will be provided there. Anyhow, some clarifications from NRAs will be sought in addition to collecting further information on the ongoing activities in this area.

Mike Kay (GEODE) explains that the certification can be provided by anyone not necessary connected to the MS, provided the certifier conforms to Regulation (EC) No 765/2008.

Daniel Fraile (WindEurope) notes that there are always interactions at plant level too, and many countries are applying plant level certification.

Ioannis Theologitis (ENTSO-E) notes that RfG requirements are assessed in a way that is acceptable in all parts of Europe; so some equipment can be certified in Poland and installed in Spain.

Bernhard Schowe-von Der Brelie (EFAC) explains that if a plant certificate is in conformity with technical specifications, as based on grid code; an RfG certificate will comply with those, and any TSO can use those. If another assessment is needed on national non-exhaustive requirements, then it is different. If some equipment is compliant in Sweden, for example, then doesn't matter where it is issued but that it complies with all requirements for the grid code. There are also interactions on a plant level too and project certificates can be used.

Garth Graham (EURELECTRIC) notes that as the RfG says there are technical requirements, the authorizer in one country says the equipment can do given things; but the compliance testing then will not need to be repeated again if the MS/NRA has approved certain requirements, and the authorizer has said it fulfills the requirements. This should avoid the need to repeat tests if they already have been certified for a piece of equipment. There are no universal certificates as there are national requirements (FRT etc.) but it is cheaper for manufacturers and gives them a competitive advantage (as the RfG requirements then won't need to be checked again).

Alexandra Tudoroiu-Lakavice (COGEN) explains that SME manufacturers are also having difficulties with respect to understanding the timeline for the deadlines to comply with the NC because of this uncertainty. There needs to be more clarity on what the manufacturers should be doing and the solution to be applied.

Thorsten Buelo (SMA) explains that manufacturers for inverters are keen on having a clear view on implementation as to ensure they can comply with them. If devices are already shipped and are in the distribution line, it is too short from today's point of view and leads to huge costs, but it is not known what the state of play is. It would be useful to split the information on a country-per-country basis and make findings are available as there is a huge amount of devices that would need to be updated.

The Chair notes that ACER and ENTSO-E will merge the up-to-date information which be published on ENTSO-E website in or along the monitoring file.

In reply to WindEurope's suggestions for steps further, Jakub explains that 16 NRAs will follow and 4 NRAs will not follow. The majority of MS/NRAs followed but it is national choice as the RfG as a design leaves a lot to MS national decisions. As the legislation was approved by MSs, the only option is to have an amendment. A deadline extension could be extremely controversial. The EC will have a deeper look on the situation and what the options are and how realistic they are. The process is very lengthy, but the EC will look into options and check facts with ENTSO-E and ACER. He also pointed out that such issues are preferably to be raised at the beginning of the process rather than at the end.

The EC response to the letter will be circulated to the ESC.

3. Report from the GC ESC Expert Groups: Joint meeting on March 20/Status of work each Experts Group

Ioannis Theologitis (ENTSO-E) provides an update from the all-EGs joint meeting which took place on 20 March, organized by ENTSO-E (slides [here](#)). The objectives of the meeting were to present the status of work to a wider audience, to discuss overlapping topics across different EGs, assess the way of working of the groups and suggest improvements for the future, as well as timelines for reporting and publications.

Ioannis Theologitis (ENTSO-E) explains that the reports developed by the EGs will be submitted to the ESC for review and then uploaded to the website. As to the practical use, when discussions on future amendments start, the materials are then ready to be used in this context. The EG work proposes improvements by addressing technical considerations, but it is not in its scope of work to propose how these considerations should appear in a legal text.

The Chair notes there are two options to amend a code – either via ACER or the EC: if via ACER, then a guideline will be followed on how to tackle the stakeholder proposals for amendments, and on how proposals for amendments are submitted to the EC. The EC may amend the ACER proposal before bringing it to the comitology. Then MS, can provide their own views and vote on the final proposed text. ACER recommends to the EC proposals for amendments, but the EC can come to other proposals.

Jakub Fijalkowski (EC) clarifies that the EC decides on what to propose as an option and as a final decision-making body. The ESCs are recognized as an important channel for information on amendments.

- **Report from the Expert Group 'Requirements for Pump-Storage Hydro modules' (EG PSH)**

Klaus Oberhauser (VGB) provides an update on the work of the EG on pump-storage hydro modules (EG PSH) (slides [here](#)). The EG continued working on assessing better the capabilities of the different technologies, and analysed fixed speed pump turbine, single shaft ternary, variable speed pump turbine (doubly-fed induction machine), variable speed pump turbine (full converter) in three operating modes against the requirements of frequency, voltage, system restoration, and instrumentation and protection. The EG is preparing a report to document clearly the specific characteristics or constraints of PSH power generating modules for each operating mode and the consequences on connection requirements. The report will wrap up with some recommendations and also highlight some observations that might be interesting for future work or considerations when it comes to capabilities and risks from the PSH technologies. There are ongoing discussions on open questions such as how to treat pumped storage (as demand and exclude from RfG), how to better use the capabilities from some PSH technologies to improve the management of low frequency events etc.

- **Report from the Expert Group 'Identification of storage devices' (EG STORAGE)**

Ioannis Theologitis (ENTSO-E) provides an update on the state of play of the EG on storage (slides [here](#)). The EG identified the storage technologies and grouped them with respect to connection requirements in two categories: synchronous electricity storage module (with similar requirements to SPGMs) and non-synchronous electricity storage module (similar requirements to PPMs). The EG categorized the different technologies under synchronous and non-synchronous and has been assessing their capabilities against the RfG requirements with possible technology additions e.g. power to gas (P2G). Additional requirements from DCC, HVDC requirements or E&R requirements related to storage behaviour were also considered (ex. low frequency demand disconnection during importing modes of operation (DCC); active power control (ramping, switching) (HVDC – Article 13); switch or disconnect storage devices before 1st step of LFDD (E&R – Article 15). The EG has also studied two main categories: standalone devices (facilities comprising solely of one or more storage units) and co-located sites (installed in the same facility than a Generating Unit or a Demand Unit). The EG will prepare a report which includes the status regarding RfG requirements/other requirements, explains how co-located sites are treated, include reference to applicable standards, and make references to the mixed customer sites align the work with the respective EG, but without providing a recommendation on whether storage devices should be covered by amending the existing codes or drafting a dedicated new code.

It is noted that the co-located site discussion is to be followed-up - first at EG level and then discussed at wider level. The final report of the EG will be submitted to the ESC for review, then uploaded on the website.

- **Report from the Expert Group 'Mixed Customer Sites with generation, demand and storage and definition of system users' (EG MCS)**

Ioannis Theologitis (ENTSO-E) explains the progress of the EG MCS work and the main issues in the scope of the EG work (slides [here](#)). The objective of the EG is to clarify the requirements on mixed customer sites (MCS), where these could be a combination of generation, demand and/or storage facilities. It is widely acknowledged that RfG 'type D' voltage default was not perfect but during the drafting of RfG had been the best option available. In line with the ACER [FWGL](#) to take account of the connection voltage, 'the minimum standards and requirements shall be defined for each type of significant grid user and shall take into account the voltage level at the grid user's connection point.' Different options have been considered with respect to potential solutions, with some potential preferred options varying between the potential removal of voltage criteria (for all types A-C), the removal of voltage criteria for A & B, or an interface point. The EG will work on completing the acceptability assessment and finalizing the report in the meeting in April and come to conclusions where possible. The final report will be submitted to the GC ESC for publication.

The Chair thanks ENTSO-E for organising meetings, the experts for their contributions and the chairs for delivering the results.

5. Stakeholders slot: AOB

Eric Dekinderen (VGB) inquires if it would possible to update the table with the potential EGs and provide ENTSO-E with additional ideas for the definition of topics for the next EGs.

The Chair welcomes the proposal under the assumption that the work of the EGs will be finalized at the next ESC in June and no follow-up requests to the EGs are made. ENTSO-E will circulate at the beginning of April the survey for EG topics to all ESC members and request from ESC members to review priorities within 1 month. Preferences and descriptions of topics should be sent to ENTSO-E by the beginning of May. More topics based on new findings can be proposed, including short justifications. ENTSO-E will compile the information and sends back to ESC ahead of next ESC meeting. The June ESC meeting will see the results of the survey and confirm the order of the EGs that will replace the current ones.

6. Follow-up actions:

Action 1: Issue-logger: ENTSO-E will look into possibility to extract issues pending acknowledgement, circulate with all ESC members via email the table. ESC members have 2 months to send any reservations with the answers provided or remain silent. The June ESC meeting will discuss the issues for follow-up which are kept open; the other issues will be acknowledged by default.

Action 2: National choices on the definition of existing plants as applicable as of 27 April: ACER will share with ENTSO-E for publication on the website the results of the inquiry with NRAs and links to the national decisions.

Action 3: ACER update on implementation monitoring: ACER and ENTSO-E will cross-check the implementation monitoring file and ensure consistency across the findings. ACER and ENTSO-E will merge the information and will show a merged results file for information. Information will then be sent to ENTSO-E to be published in the monitoring file.

Action 4: Topics for next EGs: ENTSO-E will circulate at the beginning of April the survey for EG topics to all ESC members and request from ESC members to review current priorities within 1 month. Preferences and descriptions of topics should be sent to ENTSO-E by the beginning of May. More topics based on new findings can be proposed, including short justifications. ENTSO-E will compile the information and sends back to ESC ahead of next ESC meeting. The June ESC meeting will see the results of the survey and confirm the order of the EGs that will replace the current ones.

8th System Operation ESC meeting

21 March 2019 from 12:30-17:00
ENTSO-E, Avenue de Cortenbergh 100, Brussels 1000

1. Opening

1.1 Welcoming address and Draft Agenda

The Chair, Uros Gabrijel (ACER), welcomes the participants to the 8th SO ESC meeting. The draft agenda is approved.

1.2. Review and approval of minutes from previous meeting

The minutes of the previous 7th SO ESC meeting are approved (available [here](#)).

1.3. Follow-up actions from previous meeting (available [here](#))

1. Action 1 (from 6th SO ESC) SOGL: ENTSO-E is invited to provide visibility regarding the numbers and the approaches taken regarding the implementation of the LFC block operational agreements and reserve sizing, for example regarding the probabilistic approaches applied in different areas and how those compare to each other. ENTSO-E replies that it will endeavour to collect the relevant data during the second half of 2019, after the approval of the LFC blocks operational agreements and after clarifying the scope of the request with ACER. ENTSO-E confirms it plans to provide a consistent view by the end of year.

2. Action 2 (from 6th SO ESC) ENTSO-E should collect information regarding SOGL and NC ER implementation and ensure transparency through the Active Library and the monitoring file. ENTSO-E, ACER & EC should look together into what additional proposals should be further made available on the website or through the Active Library. The ESC agrees that the follow-up action should be kept open and subject to further discussion regarding the status at the next ESC. ENTSO-E explains that the Active library will be extended to allow TSOs to cover also the ER and SOGL implementation. ENTSO-E will provide an update on this in the second half of 2019. The primary focus is on pan-European and regional implementation as national requirements in SOGL in many cases represent the status quo.

3. Action 3 (from 6th SO ESC) NC ER - defence and restoration plans: A workshop for the exchange of experiences and examples from different Member States' national implementation processes, is to take place on 7 May 2019.

4. Action 4: Regional coordination proposals (per CCR): ENTSO-E explains that the Art. 76 proposals of each CCR will be available for public consultations at different times. ENTSO-E is consulting the CCRs about their willingness to participate in a potential workshop and will follow up depending on the answers.

5. Action 5: The question regarding types of data needed by TSOs for the CBA methodology and analysis is answer covered under agenda item 3.

2. ER implementation

Rafal Kuczynski (ENTSO-E) provides information on the topics to cover at the upcoming workshop on ER organized by ENTSO-E on 7 May (slides [here](#)). The discussion will address topics related to telecommunication guidance, RSC activities for NC ER, guidance related to critical tools and facilities, among others. Regarding Art. 4.2, all proposals were submitted to the respective NRAs and a decision is expected in June 2019. The RSC technical report on the consistency of the measures as per Art. 6.1 is expected on a voluntary basis in October 2019. A public consultation on the Test Plan (NC ER Art. 4.2.g) is expected in autumn 2019.

Garth Graham (EURELECTRIC) notes about Art. 4.2 and the list of SGUs that many TSOs have provided either a list of locations or sites of SGUs while others have listed the scope of NC ER Art.2. It appears there are different interpretations as to the requirements and it is not very easy for stakeholders to understand.

Rafal Kuczynski (ENTSO-E) explains that the list of SGUs and the measures to be implemented according to CNC and national legislation, it is difficult to differentiate high-priority SGUs and SGUs. ENTSO-E will check this at the next meeting. Regarding the facilities guidance, the ENTSO-E approach has been to separate the telecommunication guidance and the guidance on how to contact the physical layer (SCADA, control system).

Garth Graham (EURELECTRIC) notes with respect to the requirement for 24h communication, SGUs for example won't have special telecommunication capabilities and will rely on public communication. **He requests TSOs to engage as a community with the telecom community on what is happening in MSs as opposed to just leaving on them the obligation to deal with that alone.**

Eric Dekinderen (VGB) inquires about the settlement in case of suspension of market activities. Jean-Philippe Paul explains that when it is about national implementation, it is a national choice with respect to the settlement in case of suspension of market activities. The workshop on 7 May will provide an overview on the state of play in different countries.

The Chair inquires whether it would be possible for ENTSO-E to show at the 7 May workshop the active library, and wonders if the active library can show information on the TSO proposals which have been submitted already to NRAs, in a similar manner as this is being shown for the RfG where TSO proposals are available through the common monitoring file on the active library.

Rafal Kuczynski (ENTSO-E) explains that the active library will follow a similar model as to the one for the Connection codes. ENTSO-E will need to test it first; and will represent in a similar way the information about the ER NC, including also information on consultation processes. Garth Graham (EURELECTRIC) welcomes the proposal.

➤ **The Chair encourages ENTSO-E to ensure the publication on the active library as soon as possible.**

Michael Van Bossuyt (IFIEC) notes that the list of SGUs is very important as it will be new for some compared to the past and that it would be important to have some good communication on this vis-à-vis the entities that might end up on the list. Regarding the topic of coordination in RSCs and consistency, even if voluntary, it is very important that everyone knows who is doing what to avoid perverse effects that counteract each other.

3. SOGL implementation

Jean-Philippe Paul (ENTSO-E) explains the state of play of pan-European deliverables for the SOGL (slides [here](#)). The KORRR methodology was approved by all NRAs 19 December 2018 and its final version is available on [ENTSO-E website](#). The CSAM & RAOC methodologies were referred to ACER in December 2018 for decision by 21 June 2019. ACER held a publication consultation between 25 January & 18 February. Regarding LFCR transparency, preparations are ongoing to

start publication according to SO GL articles 183-190. Regarding regional deliverables, the SAOA is undergoing NRA approvals between April and August 2019. Agreements will be signed by one month after NRA approvals, and the entry into force of the SAOA is by three months after NRA approval. On the topic of minimum inertia, a stakeholder workshop will take place on 15 May. The studies on minimum inertia per synchronous area will be delivered in September 2019, and methodologies for definition of minimum inertia where relevant, will be developed between October 2019 and March 2020. The CBA methodology's approval is expected April 2019. The CBA results suggesting the minimum activation period for FCR will be delivered by April 2020. On regional coordination per CCR (art. 76-77), the proposals are due 3 months after approval of CSAM. Each CCR is organizing public consultation on the proposals between March and August 2019, and proposals are to be submitted by 21 September 2019 to NRAs.

Stakeholders note that they would appreciate if there could be a link to access all types of relevant documents for a given NC development (ex. like papers of NRAs or ACER, etc.).

- **ENTSO-E & ACER will have a look together to see what is possible to add. ENTSO-E is asked to look into how to combine the relevant information on the website to facilitate stakeholder access to the relevant documentation on various deliverables (ex. dynamic stability related documents regardless of SA).**

Luca Ortolano (ENTSO-E) provides an update on the state of play of the CBA methodology proposal for the definition of a minimum time period of FCR provision by LER (slides [here](#)). NRAs approved the revised CBA methodology on 1st March 2019 and national decisions are expected to be issued by 20th April 2019. The period of implementation will start of the date of the last NRA sending to the TSO the methodology. ENTSO-E informs that it intends to involve stakeholders through ESC meetings and, if the case, dedicated WSs; as agreed during the previous WS (presentation of the CBA methodology for the definition of the minimum time period of full activation of the FCR provided by LER), ENTSO-E confirms the availability of involving the stakeholders for collecting the input data of the methodology, such as information on outages, probability of outages, data on LER installation (e.g. amount of installed LER, their technical characteristics, costs of installations) among others. The objective is to ensure that the TSO data is correct and coherent with stakeholder data and to make available data for publication (since most of the TSO data can't be made public). ENTSO-E will look at consolidated numbers per synchronous area. The data will be needed as a first step to start the methodology implementation.

The stakeholder representatives inform that for them the input provision can be difficult for different reasons: NDAs, anti-trust rules, time needed to collect the data. It is then agreed that ENTSO will collect the data as per TSO availability and with information available in literature, and the data will be shared in the ESC meetings or a dedicated session. ENTSO-E clarifies that it is of utmost importance that the stakeholders will check the input data at this initial stage, since it won't be possible to modify them later on.

Eric Dekinderen (VGB) suggests that each TSO can ask their generators for confirmation of the data that the TSO already has and each generating company can contact its TSO to check the data.

Knud Johansen (ENTSO-E) provides an update on the state of play of the dynamic stability assessment (DSA) and minimum inertia studies as per art. 38 and 39 of SOGL (slides [here](#)). Two stakeholder workshops took place in 2018 on the dynamic stability assessment and the next one takes place on 15 May at ENTSO-E. A TSO survey on DSA coordination and minimum inertia are concluded concerning minimum inertia and the coming focus will be on compliance to SO GL art. 38.2 on coordination of DSA activities needs to be further agreed and described for RG Central Europe and RG Nordic. Regarding minimum inertia as per art. 39.3.a, studies are ongoing in all different synchronous area and TSOs are taking formal steps to confirm fulfilment of the requirements for the NRAs in RG Central Europe and the RG Nordic. The RG GB, RG IE/Ni are compliant to art 39(3)(a) and their implementation need to be formal accepted by the respective NRA's. A report on the progress on compliance to SO GL art 39(3) per synchronous area is planned for summer 2019.

Eric Dekinderen (VGB) recalls that in the ESC in December 2018, ENTSO-E was asked to make a simulation for the Continental grid after system splits and inquires if ENTSO-E intends to present this soon. Knud Johansen (ENTSO-E) explains work is ongoing and the intention is to provide an overview on this assessment at the WS in May.

The Chair reminds that at the first DSA WS, ACER made a comment that different approaches have been taken in different SAs. However, systems are intrinsically the same but vary in size. Under different scenarios - system split and restoration - you always deal with same issues regardless of the area size. ENTSO-E is asked to take into account these and include them in the common scenarios that could be assessed by different synchronous areas independently.

Knud Johansen (ENTSO-E) explains that a conclusion on this issue is still pending. The restoration phase is also where some of the input on system split discussions are coming from. Based on these scenarios for restoration, there are some characteristics on where system split will occur.

Jean-Philippe Paul (ENTSO-E) provides an update on SO GL monitoring. ACER and ENTSO-E started discussing the list of relevant information per SO GL article 14(2) in January 2019 (slides [here](#)). ENTSO-E is looking upon data that ACER believes is needed for its tasks is related to CSAM and regional methodologies, including remedial actions availability, coordination between CCRs and RSCs; dependency between control areas; TSO data quality, etc.

The Chair notes that ENTSO-E is gathering a lot of data via the ICS methodology already. ACER will look into what additional information is needed for monitoring the efficiency of the SO GL and beyond what is already provided under the scope of the ICS methodology. This may involve on the one hand, the need for one-off data submission for implementation monitoring on how the requirements have been implemented and on the other hand, data as per areas of regular submission of information to be collected based on everyday procedures as set up by TSOs. Discussions with ENTSO-E are ongoing and ACER aims at specifying this data by the end of the year. In turn, ENTSO-E will prepare data collection processes with RSCs and TSOs. This is the first data request on this topic; the regulation gives subject to updates. The CEP will also affect the regulation and data requests. The intention to collect the data is to assess the effect of SO GL on the functioning of the internal energy market and to provide the market monitoring like reports. On data publication, it will depend on what the market sensitive information is under REMIT. This will be analysed after formal requests are issued.

Jacques Warichet (ENTSO-E) provides an update on the SAOA state-of-play as per Art. 118 SOGL requirements in the different synchronous areas in Europe and ENTSO-E's obligations for implementation monitoring as per Art. 14 (slides [here](#)). Regarding the SAOA, Baltics are exempted from the requirements. Most methodologies have been submitted for approval in December. There are three different parts in the SAOA with different level of obligations regarding the methodologies, conditions and values: Part A - required by NC/GL and to be approved by NRAs (e.g. listed in SO GL Art. 6.3); Part B - required by NC/GL, and part C - content introduced by TSOs on voluntary basis to further strengthen the objectives of the Agreement. Part A and B are legally required by the NCs, part C is a private contract between the relevant TSOs themselves.

The Chair notes that it is the NRAs' task to ensure that TSOs are compliant with their legal obligations.

Knut Eggenberger (ENTSO-E) provides an update on the state of play of the CGM methodologies (slides [here](#)) on behalf of César Clause, Convenor of the CGM Methodologies drafting team. Currently there are three versions of the Common Grid Model Methodology (CGMM) and 2 versions of the Generation and Load Data Provision Methodology (GLDPM). The three CGM methodologies' content is almost identical, except some differences in Art. 3 (Scenarios), Art. 4 (IGMs), Art. 22 (CGM Process), and the terminology is not 100% consistent. The two GLDPM methodologies' content is almost identical but the terminology is not 100% consistent. NRAs and TSOs agree that a single consolidated version of the CGMMs (and GLDPMs) would be very helpful in order to have 1 document instead of 3 for the CGMM and 2 for the GLDPM. The terminology would be made consistent. The NRAs' legal experts note that such a document could be legally binding and could replace the existing versions. Regarding the CGMM for the week-ahead time frame, RSCs and TSOs have expressed interest in a CGM for the week-ahead time frame. Principal applications include CGS (Critical Grid Situations analysis), OPC (Outage Planning Coordination), STA (Short-Term Adequacy assessment). The principle of a single CGM per time frame is to be retained: use of CGM to be described in process descriptions for subsequent processes, not in the CGMM. Work on the revisions has recently begun.

Marco Savino Pasquadisceglie (ARERA) clarifies that these methodologies have been approved by all NRAs. The documents will be reviewed by all NRAs once the formal requests by TSOs for the amendment have been received.

Garth Graham (EURELECTRIC) notes it would help to see what the differences are between the documents so a track changes version to show those would be helpful. Stakeholders appreciate the proposal to consolidate the versions. It would be helpful to show through different colouring the differences and parts that will be approved by NRAs and the parts which won't be approved as part of the consolidation process.

Marco Savino Pasquadisceglie (ARERA) explains that TSOs and NRAs discussed the proposals, noting the consistency between methodologies is not always present. The idea is to overcome and address these issues and make a new document with all clarifications and all the passages without changing the content. NRAs would like to see a consolidated version and the stakeholder request to consolidate those will be brought to the NRAs.

Jakub Fijalkowski (EC) notes that the EC will support this process of consolidation to improve consistency.

A tour-de-table poll during the meeting suggests that the participants are clearly in favour of consolidating the CGM-related methodologies into a single legally-binding document each.

4. DSO study on HV-equivalent models

Michael Wilch (EDSO) explains the results of a study commissioned to explore the question whether a network reduction of the HV-level is sufficient for carrying out security analyses at TSO level (slides [here](#)). The case-study concludes that for the normal steady system state one equivalent of the HV grid would be needed while for contingencies in the TSO network no additional equivalent of the HV grid would be needed. For a selection of contingencies in the DSO network separate equivalents of the HV grid are needed. Since the most DSO-contingencies are in the vicinity of the substations a reduction of needed equivalents is possible. The more the transmission system is meshed, the smaller the number of equivalents is. However, just because something has a significant effect on the DSO or TSO system, it doesn't mean it is a critical situation.

Jean-Philippe Paul (ENTSO-E) underlines that such equivalents cannot be used by TSOs for real time applications as state estimation of their own system. He notes that the link with CSA methodology should be reconsidered as the data for CGM and IGMs is different compared to the data required for Influence factors computation according to CSA, where different ways between TSOs and DSOs to secure state estimation of the TSO first and the observability data are defined.

Michael Wilch (EDSO) explains that in the CSA there is an option on the DSO and TSO to agree on the width of the observability area or the DSO is asked to give the data of the system to enable the TSO to calculate its observability area. This is linked to GLDPM and has added value for operational planning and online monitoring.

The Chair notes that the results of the study do not directly suggest that state estimation should be run on multiple equivalents, but to use information from studies in bilateral discussions between TSOs and DSOs and for quantitative analysis of observability area. He reminds that the observability area is intended for real time system operation and needed to collect real-time measurements from various substations so as to allow for accuracy of real-time security analysis. Also, the CGM is not subject to different equivalents that change from one hour to another. IGMs are stable to enable the tracking of the status of the topology.

5. VGB questions

Eric Dekinderen (VGB) explains the VGB response to the answers provided by ENTSO-E to its questions as asked at the ESC meeting on 7 March 2018 (slides [here](#)). For some remaining questions, VGB would like to ask ENTSO-E for more information, or to propose them as subject for EG work, or would like to receive an answer at a short notice. In conclusion, the proposal is to organize a dedicated meeting regarding the remaining open questions to address them with ENTSO-E.

- The Chair concludes that relevant input and feedback will be fed back to the ESC and covered in the issue logger as relevant. The issue logger will be used to follow questions that contain meaningful information and merit to be presented in the issue logger after discussion with ENTSO-E and ACER.

6. AOB & meeting dates in 2019

Next meeting takes place on 4&5 June. The ESC will be promptly informed of the operational aspects of the agenda (one or two-day meetings).

Meeting dates in 2019

The dates for 2019 are approved as suggested.

GC ESC	SO ESC
5 June, ACER	4 June, ACER
12 September, ACER	11 September, ACER
12 December, Brussels	13 December, Brussels

6. Follow-up actions:

1. ER topics: ENTSO-E is to ensure the publication of the proposals on the active library as soon as possible.
2. The TSOs are encouraged to engage as a community with the telecom community on developments in MSs as opposed to just leaving on them the obligation to deal with that alone.

3. SOGL: ENTSO-E is encouraged to provide on the website a better way to access all types of relevant documents for NC developments, ex. like papers of NRAs or ACER, RfAs, etc. ENTSO-E & ACER will look into what is possible to add.
4. ENTSO-E is encouraged to look into how to combine the relevant information on the website regarding NC deliverables to facilitate stakeholder access to the relevant documentation on various deliverables (ex. dynamic stability related documents regardless of SA).
5. With regard to dynamic stability studies, ENTSO-E is asked to take into account system split and restoration scenarios and include them in the common scenarios that could be assessed by different synchronous areas independently.
6. VGB questions: Relevant answers to the VGB questions will be covered in the issue logger. The issue logger is to be used to follow-up on the questions that merit to be presented after a VGB meeting with ENTSO-E and ACER.