ENTSO-E 3rd User Group meeting on "Network Code for Requirements for Grid Connection applicable to all Generators" (NC RfG)

26 June 2012 - 10:30 h – 16:00 h
ENTSO-E offices (ground floor)
Avenue de Cortenbergh 100
1000 Brussels

FINAL MINUTES

AGENDA

10:30	***Welcome***
10:30	**Status** - **Final ENTSO-E code** - **Overview NC RfG 'package' (supporting documentation)**
10:45	**Network Code "Requirements for Generators" in view of the future European electricity system and the Third Package network codes**
11:15	**Follow-up to topics adressed in the past RfG User Group meetings** - **Recent changes in the code** - **ENTSO-E assessment of key stakeholder issues** - **How does NC RfG relate to present practices in Europe ?**
12:30	***Lunch***
13:30	**Round table of User Group participants** - **Reflection on changes in the code since consultation** - **Supporting documentation : specific questions**
15:45	**Conclusions**
16:00	***End of Meeting***

ATTENDEES

Association	*Representative*	*Affiliation*
CEDEC	Marc Malbrancke	Inter-regies
COGEN Europe	Arnaud Duvielguerbigny	COGEN Europe
	Bob Knowles	BDR Thermea Group
EDSO for Smartgrids	Florian Chapalain	EDSO for Smartgrids
	Riccardo Lama	ENEL Distribuzione
EPIA	Bernhard Ernst	SMA
	Manoel Rekinger	EPIA
EUR	Johan Engström	Vattenfall
	Reinhard Kaisinger	Vattenfall
Eurelectric DSO	Pavla Mandatova	Eurelectric DSO
	Siegfried Wanzek	EON
Eurelectric WG Thermal	Joerg Kerlen	RWE
	Eric Dekinderen	Electrabel
EUROMOT	Paul Zepf	EUROMOT
EUTurbines	Peter Norris	Alstom
EWEA	Paul Wilczek	EWEA
	Frans Vanhulle	EWEA
Geode	Mike Kay	ENWL
IFIEC	Jean-Pierre Becret	Solvay
VGB Powertech	Joerg Kaiser	VGB
	Philippe Lebreton	EdF Energy
ENTSO-E	Dimitrios Chaniotis	ENTSO-E
	Luis Coronado	REE
	Anders Danell	Svenska Kraftnat
	Edwin Haesen	ENTSO-E
	Marta Krajewska	ENTSO-E
	Sergio Martinez	REE
	Ralph Pfeiffer	Amprion
	Thibault Prevost	RTE
	Konstantin Staschus	ENTSO-E
	Helge Urdal	National Grid
observers	Fay Geitona	ACER
	Emmanouil Styvaktakis	ACER
	Tadhg O'Briain	EC – DG ENER
	Gunnar Kaestle	CENELEC

Welcome & Status

All are welcomed for this 3rd RfG User Group meeting. ENTSO-E explains its goals for hosting this specific meeting are to:

- Receive feedback from the participating User Group nominees, representing 13 European associations from diverse backgrounds, on the supporting network code documents that were sent in advance to this meeting ;
- Discuss the changes in the code, introduced after the 2nd User Group meeting ;
- Have a general overview of stakeholders what are considered the overall positive and negative points in the past code development.

The sent draft agenda indicated a round table opportunity for all participants to provide feedback on the changes in the code since the 2nd User Group meeting, prepare questions on the available supporting documents and give feedback on the ENTSO-E presentations in the first half of the agenda.

All approve the draft agenda.

ENTSO-E announces that the final proposal for NC RfG has been unanimously approved by all ENTSO-E TSOs in the Assembly meeting of 26 June 2012 as the ENTSO-E final network code, in line with its Network Code Development Process[1], and including four last changes to be presented in this User Group meeting.

Network Code "Requirements for Generators" in view of the future European electricity system and the Third Package network codes

ENTSO-E presents a paper providing a response to some high level questions in the approach taken to develop the NC RfG:

- How does NC RfG interact with other network codes (Operational Security, Balancing)?
- Why does NC RfG expand many requirements to smaller generators?
- Why does NC RfG make technical capabilities mandatory for all, irrespective of how they will be procured? Why are services not left to markets to sort out?
- Why does NC RfG have non-mandatory requirements?
- What is the future link between NC RfG and national codes?
- What are the challenges to the future European electricity system and what is the corresponding role of NC RfG?

The classification in exhaustive vs. non-exhaustive requirements is further elaborated in the document 'NC RfG Justification Outlines' (covered later in the meeting).

[1] https://www.entsoe.eu/fileadmin/user_upload/_library/Association/120217_Network_Codes_Development_Process.pdf

VGB asks why in the paper (section 5), the exhaustive/mandatory RfG requirements impact the Operational Codes, but not vice versa. Eurelectric WG Thermal claims that there is a need for having operational rules available before setting generator capabilities. Eurelectric DSO notes they have seen no vision on how the system is to be operated in 2020 as a basis for the definition of requirements, as addressed in all discussions with ENTSO-E. EWEA states conclusions are premature when stating that justifications are difficult and that the code is developed based on system operators' experience. ENTSO-E comments this is because of the time schedule in which codes are developed. A parallel drafting is not possible due to resources at all involved parties. The NC RfG was agreed the first code to be developed with support from the Florence Forum in 2009. It is stressed that operational codes will among others influence how non-exhaustive and non-mandatory requirements are implemented at national level.

Eurelectric WG Thermal believes the setting of mandatory capabilities contradicts the objectives of the Internal Energy Market that 'markets will deliver'. VGB sees a risk of discrimination and uncertainty as thresholds in categorization can be re-assessed at national level every three years and retrospective application of requirements to existing units can be contemplated, which all create uncertainty on the longer term. ENTSO-E questions whether reliance on markets to deliver and the request for certainty on the longer term are not contradicting each other. Furthermore experience has shown that capabilities (as opposed to the actual delivery of the ancillary services once the necessary investments are made) are not delivered by markets at the time they were needed, as also argued in the paper (section 4). Eurelectric WG Thermal believes the decision on a service to be provided should left be to the generator owner's discretion. ENTSO-E states that this European code stipulates the minimum requirements that are needed. In addition, the transparent, non-discriminatory processes prescribed and to which NRAs, TSOs and generator owners have to comply, bring much more certainty and non-discrimination throughout Europe.

VGB asks why the first stage of the RfG process for retrospective application does not include a public consultation already; going further, the need for two steps in the process is questioned. ENTSO-E clarifies that the first stage is a filtering step where no decisions on implementation of requirements are made, to discard all cases with no prospect, as such not wasting resources of TSOs, generator owners and NRAs. This has also been elaborated in the 'Evaluation of Comments' document (on Art. 3 and 27).

On the message of the paper, Eurelectric WG Thermal fully agrees on the additional value a European code can bring as harmonization is needed. Also improvements with earlier versions of the code are acknowledged, with some issues remaining. The supporting documents are considered to come too late and would be meaningful in the earlier consultation period. ENTSO-E states that the objective of this User Group meeting is among others to go into detail on the package of RfG supporting documents.

Changes in the network code since the previous User Group meeting

The most prominent changes in the code since the version that was sent prior to the 2nd User Group are presented.

Compared to the version published on 15 June 2012, four changes (as well as some editorials) have been integrated in the code in the ENTSO-E approved final code:

- Art. 4(3) and 4(4): amended so that national implementations shall consider existing national legislation at the day of entry into force of the Network Code and that overall system security is assigned to TSOs and shall be respected by other Network Operators appropriately.
- Art. 11(2)a.1: Temporary overvoltage withstand capability up to 1.15pu reduced to 20 minutes in Continental Europe (<300kV)
- Art. 10(2)b: Allow for both actual and maximum active power output as reference in LFSM-U mode for PPMs (which is consistent with the approach for LFSM-O)
- Art. 20(1): Update in the table 10 of voltage withstand capability for offshore generation in Continental Europe to achieve consistency with tables 6.1 and 6.2

Other prominent evolutions in the code between the version sent to the 2nd User Group meeting and the one published on 15 June are:

- Definition of „Equipment Certificate“ improved.
- Definition of „Minimum Stable Operating Level“ introduced.
- Definition of „New Power Generating module“ improved.
- Update of recovery of costs incurred by regulated Network Operators.
- Improvements in language throughout the code to emphasize the objective of requiring capabilities of Generating Units.
- Improvement of LFSM-O requirement for Power Park Modules by allowing for the actual Active Power Output as reference value for Active Power reduction at high frequencies.
- Changes to Voltage Ranges: prescribed lower limit in Continental Europe is raised to 0.85 p.u.
- Improvements to Reactive Current Injection during faults.
- Improvements to Reactive Power Capabilities below Maximum Active Power in which less onerous requirements are required at zero active power output.
- Removals from the code of requirements on torsional stress, voltage quality, specifications of control mode and Reactive Power exchange parameters for Power Park Modules, and requirements on DC offshore connections.

Eurelectric WG Thermal states that the time-limited duration of connections at 400kV up to 1.1 p.u. in Continental Europe is still exaggerated. ENTSO-E argues that it is in line with the conclusion of the CIGRE Study[2] on temporary overvoltage withstand capabilities (covered in the document ‘NC RfG Requirements in the context of present practices’).

Eurelectric DSO asks for more clarification between the notion of Equipment Certificates and the ongoing work within CENELEC. Eurelectric DSO considers the question if the Equipment Certificate at the customer is to be handled in parallel to certificates for CENELEC standards, and if testing and certification of the Equipment Certificate is possible still to be open ENTSO-E acknowledges that this is still continuing work, but an elaboration of standards for type testing is not part of this code itself nor can it be referenced explicitly in it. Follow-up of the work on standardization is also considered relevant in the context of implementation monitoring of network codes as prescribed in Regulation (EC) 714/2009 as a task for ENTSO-E and ACER. CENELEC communicates that a review of the EN50438 standard, covering small generation, has been finalized and will be distributed to national committees.

[2] WG 33.10, Temporary Overvoltages: Withstand Characteristics of Extra High Voltage Equipment, Electra No.179 August 1998, pp. 39-45

ENTSO-E assessment of key stakeholder issues

To set the scene for following discussions in this User Group meeting, ENTSO-E presents a brief overview of what are considered key concerns addressed in the code development after the web based consultation, as well as some points that are noted as recurring comments either on the code development or on its national implementation. This represents ENTSO-E's assessment of key stakeholder issues and it welcomes feedback on these points from the User Group participants.

How does NC RfG relate to present practices in Europe?

ENTSO-E presents two supporting documents to the code that are scheduled to be published.

A first document ('NC RfG Justification outlines') provides a one page clarification per RfG requirement on why it is exhaustive or not, why either principles or numerical values are provided, which alternative solutions may exist and how these requirements link to ACER's framework guidelines on electricity grid connections. As such, this document goes into deeper detail on the elements presented in the paper 'NC RfG in view of the future European electricity system and the Third Package network codes' in Section 3 ('Proposal for some NC RfG Requirements to be set at a National level'). No questions are raised on this methodology.

A second document ('NC RfG Requirements in the context of present practices') provides a response to recurring claims that the code deviates significantly from current practices and standards. This document covers an assessment of several present transmission grid code requirements on frequency ranges, voltage ranges, (Limited) Frequency Sensitive Mode, maximum active power output reduction at underfrequency, reactive power capabilities and fault-ride-through requirements. These are requirements that are mandatory and provide numerical values/ranges for national implementation (see classification addressed in 'NC RfG in view of the future European electricity system and the Third Package network codes' in Section 3 and 'NC RfG Justification Outlines'). This document is not exhaustive in all possible implementations across Europe but stresses the variety in present codes and contractual agreements today already. This shows that for exhaustive requirements the NC RfG provides neither the most, nor the least onerous ones compared to current practices. For non-exhaustive requirements NC RfG covers broadly the variety of possible present codes and aims at a creating a common framework for national codes. This document builds on and illustrates statements made by ENTSO-E in earlier stakeholder discussions. The presentation covers the main conclusions of the documents and more background information on the frequency range and voltage range requirements with references to present practices.

In the following User Group Q&A opportunity no specific questions/comments on the presentation are brought forward. Some participants claim there was insufficient time to form an opinion on the latest changes to the code (as published on 15 June). Eurelectric WG Thermal states that they do not feel comfortable having too little time to evaluate all documents and will send in written comments later on. The general discussion covers the following:

IFIEC asks why Art. 3(6)h provides only a CHP exemption of some requirements to type A, B and C as some active power controllability aspects are also deemed relevant for type D generators. EUROMOT questions the criterion of rigidly coupled steam production and asks for a broader exemption towards all CHPs with rigidly coupled heat production regardless the appliance of the heat. ENTSO-E considers an exemption for type D too great a risk for future system security. In addition it is deemed a concern on the actual use of the capability and as such to be dealt with in operational and market based arrangements. Also for present CHP installations of type D size the capabilities according to these requirements have been proven in practice already and are considered state-of-the-art (as covered in 'NC RfG Requirements in the context of present practices' in Section 3 on LFSM/FSM). ENTSO-E considers an exemption for CHPs with rigidly coupled heat production to be an exemption to some NC RfG requirements for all CHPs in general.

EUR asks why the option for agreements on exemptions is not granted to nuclear units. ENTSO-E acknowledges that nuclear safety is paramount, which has also been pointed out in the Frequently Asked Questions document (see FAQ 28).

Eurelectric WG Thermal states that only the content of the code itself is of relevance as it will be the only legally binding document in the end, making clarifications and interpretations in supporting documents less relevant. ENTSO-E states there is a need to distinguish between the 'what' in the code and the 'why' in the supporting documents for proper understanding by all, including ACER and EC in the following stages of the process. In addition, having supporting documentation is common practice in legislation, which is one of the reasons for which ENTSO-E developed these documents.

Eurelectric WG Thermal and VGB ask for clarity and that the code itself states clearly that it only applies to new generators. The EC argues that retrospective application is to be seen in the context of a specific requirement always; as such, also discussions should focus on specific requirements. Also in today's national law, national requirements could be imposed retro-actively. Having a European code excluding this possibility to be implemented at the national level, is deemed not acceptable. Furthermore, the option of conditional retroactive application is required by the relevant ACER framework guidelines (see also 'Evaluation of comments' addressing Art. 3 and 27).

Round table of User Group participants

In the invitation and draft agenda all participating associations were offered approx. 15 minutes to give feedback on the changes in the code since consultation with a specific focus on the latest changes since the previous User Group meeting, and reflect on the provided supporting documents[3].

EWEA
(see slides)
Evolutions in the code, also some in the very last stage, are positively acknowledged.

[3] These notes do not intend to summarize statements made in available slides. The order of presentations is according to the seating in the meeting room. ENTSO-E notes that many of the topics are also addressed in the RfG supporting documents.

Some comments are given on recent evolutions in the code:

- Art. 15(2)b on fast reactive current injection for PPM is formulated with a specification to provide 2/3 of an additional reactive current in 10ms. EWEA asks for clarification on the values and on ENTSO-E's argumentation to change this requirement in this late stage. ENTSO-E argues that a short time frame is needed to suit the purpose of the capability with respect to fault clearance times. The requirement has been reformulated to put less focus on accuracy and specific technical details, but more on the envisaged functionality. The description and the non-mandatory nature of the requirement allow for details to be settled at national level (see 'Evaluation of Comments' for assessment of comments and arguments for the reformulation). The feasibility of the prescribed capability has been confirmed by some manufacturers in the wind industry. ENTSO-E agrees to give more information on the technical feasibility of this requirement after the meeting.
- In the revision of Art 4(3) EWEA questions the role of the NRAs in the national implementation of a non-exhaustive requirement, as this article refers to an implementation of a Directive itself. EWEA believes this may result in costly and technically impossible requirements at national level and latitude with regards to the NRA role approving national implementation of grid connection requirements. Eurelectric DSO questions whether a reference to Article 37(6) (a), (7) and (10) of Directive 2009/72/EC is relevant as it believes this covers only grid fees, and may lead to possible different implementations at national level. ENTSO-E notes that the phrasing was discussed amongst all TSOs and with ACER, resulting in a belief that the present Art 4(3) strikes an appropriate balance between various possibilities of implementation of the referred to Directive.

As a concluding point EWEA states to be 'sceptical about the consequences of implementing the present version NC with regards to facilitating the targets for penetration of renewable generation.' Eurelectric DSO notes that with increasing penetrations of wind, also at distribution level, this technology should also contribute to system security. The point is acknowledged by EWEA explaining that wind energy is already assuming its responsibilities by fulfilling ever increasingly demanding technical requirements.

ENTSO-E asks whether EWEA believes the NC RfG to be a positive step for RES integration. EWEA states it may result in too much uncertainty so it cannot give a definite answer to this question. EWEA states that the presented ENTSO-E vision on gradual harmonization of national codes (Section 3 of the paper) is at high level in line with EWEA's vision on structural harmonization though considers it not fully achieved nor sufficiently outlined in the present NC RfG.

EUTurbines

EUTurbines acknowledges the development process and interaction with ENTSO-E as positive.

The only remaining technical concern EUTurbines has on the code is on the maximum active power output reduction at under-frequency. A risk is seen for tripping as it cannot be properly tested for larger installations where the compressor is directly connected to the turbine shaft. This has also been discussed in detail with ENTSO-E. ENTSO-E believes a balance is found between the feasibility of the requirement and the risk on demand disconnection if units do trip or cannot provide sufficient active power output. It is acknowledged that there have not been many events to examine the effect of this requirement. ENTSO-E states that compared to grid codes where this requirement is defined in detail, the NC RfG is not too onerous and open

to further details at national level (see document 'NC RfG Requirements in the context of present practices' in Section 4).

Besides a request for clarification on the notion of Minimum Regulating Level in the LFSM-O requirement, EUTurbines has no comments on the latest changes in the code.

VGB

A printout of a list of concerns/questions is distributed to all User Group participants. This list is a joint statement with Eurelectric WG Thermal.

VGB has no specific comments on latest changes in the code and claims there was too little time for an in-depth analysis of the code published on 15 June. A list of comments on the version discussed in the 2nd User Group meeting was sent to ENTSO-E and feedback has been given in a dedicated bilateral contact (the results of which are visible in the documentation relevant to the 2nd User Group meeting on the ENTSO-E website).

The main concern expressed by VGB is how the code can be robust enough to evolve with regards to technological and system needs. ENTSO-E refers to the balance between exhaustive / non-exhaustive requirements and the need for either principles or detailed values as described in the documents 'NC RfG in view of the future European electricity system and the Third Package network codes' and 'NC RfG Justification Outlines'.

As expressed in earlier meetings, VGB would as an example appreciate more details on Art 10(2)d concerning frequency restoration control and on expected occurrences of deviations in frequency/voltage deviations. ENTSO-E reiterates that such estimations are hard to make as the system is designed to operate around nominal values.

Eurelectric WG Thermal

(see slides)

Eurelectric WG Thermal has no specific comments on the latest changes in the code and claims there was too little time for an in-depth analysis of the code published on 15 June.

As a positive evolution in the code the methodology of the CBA process for retrospective application is mentioned. In its presentation, Eurelectric WG Thermal states that remaining open issues from their point of view indicate unsuccessful stakeholder involvement. These issues concern the lack of justifications for requirements deviating from present practices as well as RfG requirements in general, the balance between roles/responsibilities for system operators and generators, and predictability/firmness for generators.

ENTSO-E's view on the latter two topics are addressed in the paper 'NC RfG in view of the future European electricity system and the Third Package network codes'. The topic of perceived deviations from present practices is addressed in the document 'NC RfG Requirements in the context of present practices'.

Eurelectric WG Thermal states they have not been able to evaluate this since the documents are not public up to now.

EPIA
EPIA has no specific comments on the latest changes in the code.

On the general code development process EPIA states a European network code will not help in urgent issues such as the 50.2Hz disconnection history. EPIA believes a reference to standards regarding dispersed generation is more suited to guarantee security of supply as it is believed it can better cope with specificities and amendments. CENELEC shares the opinion that legislative procedures may be more time consuming and leave less flexibility, compared to standards. ENTSO-E notes that the request for an efficient amendment procedure is shared by many (also ENTSO-E) and that ACER is working on this.

EPIA acknowledges that the certification option for smaller units in the final code is a significant improvement compared to earlier versions of the code.

On the topic of fast reactive current injection, EPIA believes an injection or even detection is not possible in a 10ms timeframe for inverters. ENTSO-E agrees to provide further information on the technical feasibility of this topic (see also the point raised by EWEA).

CENELEC
The standard EN50438 that was recently under revision, covering micro generation connection to the LV grid, has been reviewed in light of the draft NC RfG of April 2012 and will be distributed to the national committees for commenting and approval. Subsequent changes in the code have not been taken into account in the draft, nor are their comments/questions on this version.

CENELEC announces that a draft standard covering larger generators (TS50549) is to be finalized in autumn. A standard on testing procedures follows thereafter. ENTSO-E acknowledges the importance of this standard on testing procedures and calls for it building on the NC RfG foundation.

Eurelectric DSO expresses a concern that compliance with too many documents (standard, European code and testing procedure) may be needed in the end, which may be an impediment in compliance enforcement of its grid connected customers. Eurelectric DSO also asks for the legal arguments why standards cannot be referred to or enforced by a network code. The EC clarifies it cannot (sub)delegate its legislative powers to other bodies such as ACER or CENELEC. Any requirement to be elaborated outside the Network Code and thus comitology would be considered as the circumvention of the latter.

EUROMOT
Euromot summarizes the network code development process as a tremendous task and to be at the final stages of the ENTSO-E process is quite an achievement in which improvements were visible with every new version of the code. Also the FAQs are appreciated and considered to have an added value. EUROMOT specifically acknowledges the clearer terminology on Power Generating Modules, Power Park Modules and Power Generating Facilities.

EUROMOT has no specific comments on the latest changes in the code, but reiterates earlier expressed concerns about a few requirements which are still considered to be open. A first point covers. why CHP exemptions refer not to heat production coupling in general (see earlier point). As a second point, EUROMOT has concerns on the feasibility of potential FRT implementations. Internal combustion engine based engines need reasonable connection requirements; setting excessive targets as in the potential/extreme cases mentioned in the NC RfG are technically very challenging and unnecessarily raise the overall cost level of electricity generation (see earlier minutes of meetings, as well as the supporting NC RfG documents).

IFIEC

IFIEC has no specific comments on the latest changes in the code. Concerning Art 3(6)g IFIEC raises the question why the exemption for CHPs is limited to type A, B and C while the same technical limitations hold for type D. On the same Article IFIEC asks why no exemption from LFSM-O is included as it impacts the industrial process as well. On the controllability of CHPs IFIEC considers this is only possible within an allowed range. ENTSO-E argues this is distinct from the capability a CHP must be able to comply with; the eventual set point is likely only activated in market based balancing services that have been offered (as addressed in the paper 'NC RfG in view of the future European electricity system and the Third Package network codes'). If for a specific site or type D generator a capability is technically not feasible, this can be proven in a derogation procedure.

IFIEC reiterates an earlier concern that FRT requirements with 0V retained voltage are too strong and for some technologies even impossible. ENTSO-E argues that 0V is possible for a larger number of units in the same event if they are connected to the same HV busbar in case of a nearby fault. An overview of present FRT requirements and the argumentation for the RfG formulation are provided in the documents 'Evaluation of comments' (see related Articles) and 'NC RfG Requirements in the context of present practices' (Section 6).

DSOs (CEDEC, EDSO for Smartgrids, Eurelectric DSO, Geode)

(A letter to ENTSO-E dated June 5 is distributed to the User Group)

Improvements in the code during the development phase, especially in an efficient treatment of small units, are acknowledged. No specific comments on the latest changes in the code are addressed. Open DSO concerns are addressed in a letter to ENTSO-E dated June 5 which is distributed to the User Group. They include: absence of cost-benefit analysis/ justification of new requirements in the code, allocation of roles and responsibilities, type testing and prevailing 'responsibility gap' with respect to applicability of requirements at the connection point.

A general concern addressed is on FRT requirements which are deemed not to have a cross border impact and on which a similar formulation as for fast reactive current injection would be welcomed. ENTSO-E stresses that mass tripping of generators is a serious system security risk with a clear cross border impact (as argued in the 'NC RfG justification outlines' and 'Evaluation of Comments' in the related articles). VGB states that the main difficulty with FRT requirements lies in the compliance testing, which are often considered not to be fit for purpose, because inappropriate simulations are used.

DSOs still question the need for regular compliance assessment and deem this difficult for mass market products. This is however addressed specifically in ACER's framework guidelines[4].

COGEN Europe
(see slides)
COGEN Europe has no specific comments on the latest changes in the code.
Two main concerns by COGEN Europe remain that continuity in heat supply is not deemed ensured by the code – as compared to the requirements set in the forthcoming Energy Efficiency Directive - and that the code is considered to put an unfair burden on certain classes of micro-generation. On the first topic ENTSO-E refers to the distinction between mandatory capabilities and market procurements of services as elaborated in the document 'NC RfG in view of the future European electricity system and the Third Package network codes'. The latter document also frames the NC RfG as setting principles, with detailed choices to be made at the national level, possible also covering technology specificities in light of market prospects.

In the request for exemption for certain small-sized technologies with at present low market prospects, COGEN Europe reiterates the specificities of the micro-cogeneration market as it is a domestic product for boiler replacement and its primary function is to provide heat and hot water for the home owner. While heating the home 1kW of electricity is generated per singly unit. In order to meet the NC requirements in due time for the stirling engine base technology, the only alternative is to develop a special inverter that can allow power to flow both ways (not an off the shelf solution). COGEN Europe proposes to send more information to the ENTSO-E drafting team after the meeting. .Eurelectric DSO stresses the parallel lines with the earlier PV history, now resulting in massive costs for retrofitting. Eurelectric DSO states that as the concern of CHP owners is on deviations in heat demand if a service is procured, it is still justified to request the capability.

EUR
(see slides)
EUR appreciates that nuclear safety is acknowledged in an additional Frequently Asked Question, which addresses their most important concern (see FAQ 28 - Should nuclear power plants be exempted from parts of the RfG requirements in order to ensure nuclear safety?).

No comments are raised by EUR concerning the latest changes in the code. Some earlier comments are repeated covering a.o. the concern for retrospective application, the occurrence of frequency deviations, FRT limitations and the present prohibition to nuclear plants to participate in primary frequency control by law in some Member States. These deviations in present practices for existing units were also covered in

[4] Section 2.4: *"In particular, the network code(s) shall introduce an obligation for system operators regularly to assess the compliance of generation units with the standards and requirements defined for the connecting installation, including electrical safety."*

the ENTSO-E presentation on 'NC RfG Requirements in the context of present practices' and is also referred to in the 'Evaluation of comments' document.

VGB asks why, as it is deemed impossible to apply some requirements retroactively to nuclear units, there is no possibility to grant a generic derogation for all nuclear units as it is for the disconnection conditions of the CHP units.. ENTSO-E argues that it cannot support the statement that existing nuclear units cannot comply with any NC RfG requirement. ENTSO-E also refers to the earlier discussion that retrospective application at national level should not be prevented by a European code.

Conclusions

ENTSO-E concludes that this User Group discussion gave no indication that the last changes in the code raise concerns and appreciates the general perception that the code has gradually improved since the formal public consultation. Some earlier addressed, remaining concerns on the final NC RfG are noted, with ENTSO-E's argumentation provided in the supporting documentation. On some points discussed, further information will be provided as agreed.
All participants are thanked for their contribution and ENTSO-E wishes for a positive follow-up interaction with all User Group participants in the following phases of this Network Code process.

End of meeting

Attachments

- Final Network Code on 'Requirements for Grid Connection applicable to all Generators'
- NC RfG supporting documents
  - NC RfG Justification outlines
  - NC RfG Requirements in the context of present practices
- Presentations
  - ENTSO-E
  - EWEA
  - Eurelectric WG Thermal
  - COGEN Europe
  - EUR
- Documents distributed
  - VGB / Eurelectric WG Thermal
  - DSOs (CEDEC, EDSO for Smartgrids, Eurelectric DSO, Geode)

Available prior to the 3rd User Group meeting

- ENTSO-E's final proposal of the Network Code on 'Requirements for Grid Connection applicable to all Generators' (published on 15 June 2012) ;
- A paper entitled 'NC RfG in view of the future European electricity system and the Third Package network codes' (draft version published on 15 June 2012) ;
- An updated and extended set of 'Frequently Asked Questions' reflecting the last version of the code and requests in recent stakeholder interactions (sent to the User Group on 19 June) ;
- The 'Evaluation of comments' reflecting ENTSO-E's assessment of the 6052 comments received in the formal web-based consultation on the draft code (sent to the User Group on 19 June).