POSITION

Subject: Response to the Elia consultation on the general requirements for RFG, DCC, HVDC and storage
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Introduction

Elia is organizing a consultation on its proposals for general requirements RFG, DCC, HDVC and storage. The consultation is open from the 15th of March, 2018 until the 23rd of April, 2018.

This document is the response of the **Belgian Generators' Associations (BGA): this is an *ad hoc* cooperation of the associations BOP, COGEN, EDORA, FEBEG and ODE**.

BGA welcomes this consultation and wants to thank Elia for creating this opportunity for all stakeholders to submit their comments and suggestions with regard to the proposals for general requirements.

The BGA response to this consultation consists of the following documents:

- a version of the general requirements RFG with track changes and comments;
- a version of the general requirements DCC with track changes and comments;
- a version of the general requirements HVDC with track changes and comments;
- a version of the general requirements storage connections with track changes and comments
- an explanatory note summarizing the main comments and suggestions, i.e. this note.

The five abovementioned documents jointly constitute the BGA response to this consultation. This response is not confidential.

BGA also wants to highlight that it analyzed all general requirements, but that its main focus was on the requirements for generators and storage. The requirements HDVC and DCC were analyzed from a rather high level perspective.

Importance of the categorization of grid users for the interpretation of the general requirements

Categorization of significant grid users A and B

BGA welcomes the decision to set the limit between power generating modules A and B at 1 MW. The shift from the initial proposed limit of 0,25 MW to 1 MW relieves a lot of smaller power generating modules from technical requirements and information exchange obligations that are applicable on category B units. This decision limits the costs for grid users.

In the context of the decision on the limit between type A en B **BGA supports the approach to impose additional technical requirements through the regional grid codes**. BGA does call upon the grid operators:

- not to impose remote control when not necessary;
- to develop transparent and non-discriminatory rules for imposing remote control;
- to investigate if the cost of the remote control cannot be decreased;
- to assess if (a part of) the cost of the remote control cannot be socialized.

Derogations

BGA appreciates that system operators have already – together with the consultation on the proposals for a modified Federal Grid Code and the technical requirements – indicated which derogations they have identified and will apply for. This increases the visibility – although legal certainty is missing – on the requirements that will be applicable on every installation.
Elia has communicated that it will apply for a derogation for power generating modules A and B connected to a voltage level above 110 kV. **The grid users regret that no similar derogation will be submitted for power generating modules type C that are connected to a voltage level above 110 kV: the current regulation will to an unequal treatment** of installations type C connected on a voltage level above 110 kV and installations type C connected to a voltage level below 110 kV or via a closed distribution grid. The voltage condition for the classification of PGMs at industrial sites is discussed at European level. Several countries will propose a class derogation as proposed by ELIA. BGA recommends to closely follow future evolutions and to modify this voltage condition if other countries do so for type C PGMs at industrial sites.

Main comments requirements for generators

Disclaimer

The requirements for generators are far out the most important document for BGA. Unfortunately BGA considers it difficult to come to a final position on the document at this moment because (1) there are no sufficient guarantees for a level playing field, (2) some elements are unclear or information is missing and (3) some requirements are not in line with the NC RfG or are onerous and (4) some requirements are simply unacceptable. Therefore, BGA wants to express its reservations with regard to the requirements for generators.

Level playing field

BGA considers it of utmost importance that a **level playing field is ensured between countries and between types of grid users**.

Therefore, BGA regrets that article 1 of the RfG NC was not repeated in this document: '*This regulation also lays down the obligations for ensuring that system operators make appropriate use of the power-generating facilities' capabilities in a transparent and non-discriminatory manner to provide a level playing field throughout the Union.*'

Many of the non-exhaustive or optional requirements of the Network Codes have been dealt with in other international bodies, whether at ENTSO-E (Implementation Guideline Documents or IGD's) or in normative agencies (IEC, CENELEC, etc). In order to facilitate an efficient European market, both with a level playing field for electricity producers and with harmonized technical rules for equipment manufacturers, **BGA is of the opinion that the Belgian regulation should be as much as possible harmonized with other European countries**. For this reason, BGA would appreciate it if Elia could add to each documents' section the reference to the international norms/guidelines that are being followed **and, when the proposed Belgian regulation deviates from international norms/guidelines, to give a detailed technical justification**.

More severe requirements in Belgium compared to other countries will have **a negative impact on the investment climate in Belgium** which should be avoided at all times.

BGA also wants to point out that, if no agreement is found within Synergrid for some of the requirements, the document should not allow each RSO or each DSO to set its own requirements. Instead, **the concerned requirements should be dealt with in the appropriate legal text (e.g. regional) and be common for all system operators concerned by this legal text**.

Some requirements are unclear or information is missing

To be able to understand certain provisions and hence to take a position on them, several questions need to be answered.

Some examples:

- Article 2.1: Tuning of the PSS may be depending of the load and grid characteristics of a customer of the TSO. How can the grid users access the needed information?
- Article 3.1.1: With regards to the mentioned time windows between 47,5Hz and 49Hz, the questions rises if these are combinable? In other words: if the frequency stays above 47,5Hz, one needs to stay connected for 30 or 60 minutes. For BGA this should be 30 minutes and thus summarized to 47,5Hz – 49 Hz as, otherwise, problems will occur with connected engines and generators (increasing flux leading to heating of the stator).
- Article 3.1.4: This article describes the actions needed at over-frequencies. Why are provisions mentioned for an increase of power in the table page 9?
- Article 3.1.7: This article describes an automatic connection with a gradient of 20% and an automatic reconnection with a gradient of 10%. The operator of a PGM does not know which gradient to apply after a LOM (loss of main). How to apply the correct gradient? BGA assumes that it is 10% in case of network disturbance, but the wording allows different interpretations.
- Article 4.2.2.1: The connection point is operated by the TSO or DSO according to Belgian regulation. Why to mention such requirements as the PGM cannot be responsible for such requirements, e.g. measurements?
- Article 4.3.1: The limitations of the AVR limiter/underexcitation protection (or 32Q) are not indicated on the most P/Q- capacity diagrams of generators. Those protections add additional limitations on the P/Q-capacity of the generators and shall be taken into account for the extended capabilities.
- Article 4.3.2: This article specifies that 'synchronous power-generating module (SPGM) of type B shall be equipped with a permanent automatic excitation control system'. 'Permanent' might refer to permanent magnet excitation system (PMG), which must be ordered separately for the generators. Therefore, this definition needs clarification or grid users need to be informed which kind of excitation sources are allowed (e.g. auxiliary winding, PMG, etc.).
- Article 5.1.2: This article describes the actions needed at under-frequencies. Why are provisions mentioned for a decrease of power in the table page 21?
- Article 5.2.2: This article imposes '*the identification of house load operation must not be based solely on switchgear positions*'. What kind of information has then to be submitted?
- Article 5.3.1: What is the meaning of '*loss of control*'?
- Articles 5.3.1, 5.3.2 and 5.3.3: These articles impose that '*These parameters will be taken in the appendices of the individual connection agreement*'. Do these appendices need to be approved by the regulator? What happens in case of non-agreement?

Some requirements are not in line with the NC RfG or are onerous

Some examples

- General comment: The values of 1 pu are defined only for type D PGMs and values are not mentioned for other types of PGMs. The value of 1 pu has to be mentioned for all types of PGMs.
- Article 3.1.5: This requirement also applies on CHP's whereas article 6.4. of NC RfG makes an exception for CHPs regarding the application of article 13.4. of NC RfG. Elia has to justify the non-respect of the NC RfG.
- Article 4.3.1: This article specifies, for a type B SPGM connected at a DSO grid, the requirements for reactive power at the connection point. The NC RfG allows this for the PGM itself (as defined for a connection at the TSO). The result will be two different requirements that will impose two standards leading to additional costs.
- Article 4.3.2: The content of this article is not consistent with the content of article 17.2.b of NC RfG allowing only a '*constant alternator terminal voltage'*.
- Article 4.3.3: The requirement imposes a tclear of 0.2 sec. The RfG NC allows this in article 14, table 3.1, but only if '*system protection AND secure operation so require'*. A justification is missing in this document. Furthermore, in many countries the same profile is specified for 150 ms, and is considered as a standard value. Hence, without justification, the FRT-profile should be reduced to 150 ms. This comment also applies on article 4.4.1.
- Article 5.5.1: The sentence '*This requirement should be met at the connection point'* is in breach with article 18.2 of NC RfG indicating that the additional reactive power needed for compensation for the HV-line between the connection point and the HV-terminals shall be provided by the responsible owner of that line. The owner in Belgium is the transmission system operator.
- Article 5.5.1: The value of 1.118 pu is in conflict with figure 7 of NC RfG indicating a maximum value of 1.1 pu.
- Article 5.6.2: See the two comments listed above for article 5.5.1 and referring to figure 8 of NC RfG.
- Article 6.1.1: The table imposes voltage ranges from 0.85 pu up to 1.15 pu while the tables 7 and 8 of the NC RfG impose a voltage range for reactive power in the fixed outer envelope from 0.875 pu up to 1.1 pu.
- Article 6.3.1, table 1: See comment regarding tclear = 0.2 sec above.
- Article 6.4.1, table 2: See comment regarding tclear = 0.2 sec above.

Unacceptable requirements

For some provisions additional justification is absolutely necessary. At the moment BGA doesn't understand or support the reasons of these requirements. As a result, these requirements are – at the moment – not acceptable for BGA.

Some examples:

- Article 2: BGA pleads to treat installations of type C but connected ≥ 110 kV not as a type D, but as a type C. This follows the same approach as Elia suggest for type A and B (see above).
- Article 4.3.4 with regard to post fault recovery for Type B SPGM: Elia requires 90% of the pre fault power within 3 seconds. This is only possible in full load. If the GT would run part load the IVG will play part resulting in a slower reaction, driven by low NOx recovery.
- Article 4.4.3: The requirement with regard to injection of current at an overvoltage is not possible.
- Article 5.1.1: If the automatic remote device is out of service, the time to react is 15 min. This is not realistic for a type C PGM.
- The formula on page 24 contains the factor '0.45'. This value is out-of-date as it was an element of the old Belgian legislation.

Main comments requirements DCC

General comment

In the introduction it is stated that the general requirements for DCC are only partially supported by Synergrid. In other words, it is possible that there will be differences between the rules imposed by the TSO and the rules imposed by the DSO's. **Such discriminatory approach should be avoided at all times. Therefore, BGA calls Synergrid to strive for a level playing field and to harmonize by developing common requirements** for demand facilities connected on the TSO as well as on the DSO grid.

Detailed comments

Article 1.1.1:

BGA asks Elia to check the frequency requirements with the producers of end users' appliances to be sure that the requirements are compliant with those technical characteristics of those appliances, e.g. medical equipment.

Article 2:

It is not clear if the requirements for demand facilities with respect to delivery of demand response services are applicable on all demand facilities or only on the ones that effectively supply – on a voluntary basis – demand response services. On top of that, does the demand facility still has to comply with requirements when it stopped offering demand response services?
BGA also assumes that demand response services will be contracted via market based mechanisms, or at least be fairly remunerated.
Finally, it is of utmost importance that the impact of the activation of demand response services on other market parties, e.g. BRP, supplier, …, is neutralized.
BGA is of the opinion that the abovementioned elements should be clarified and added – at least in footnote – to requirements.

Article 2.2.2 – 2.2.4:

The requirements for voltage ranges, dead band, maximum frequency deviation to respond, …have to be – of units connected above 110 kVA – subject to market consultation.

Main comments general requirements HVDC

General comment

The Elia proposal for general requirements HVDC leaves most points open for an *ad hoc* solution. Although this approach has the advantage of flexibility, it has also some downsides: (1) potential investors will have difficulties to have a view on the requirements that will be applicable on the installation and (2) it will be difficult to ensure a level playing field between the projects.

Detailed comments

Article 2.2.7.1 and 3.1.6.1:

Both articles are referring to the Synergrid regulations, but the relation with the Synergrid regulations is not clear. Why is there no reference to IEC?

Article 2.4.4:

Germany has already experienced difficulties as a result subsynchronous torsional interactions which has led to problems and costs at the grid users. Therefore, **the transmission system operator should demonstrate that the existing installations as well as new installations will not be impacted by the subharmonic distortions**.

Article 3.2.3.1:

Synergrid has no requirements as regards subharmonic distortions. The requirement related to power quality should therefore be set with consent of the PPM owners.

Main comments general requirements storage connection

General comment

Storage is in its infancy and extra regulation can only slow down its development. Moreover, most power electronics devices are manufactured abroad and follow international standards which are not going to be directly impacted by Belgian regulation. This regulation has thus no added value and can only become a blocking point, slowing down development of storage. This is especially true for type A SPM and non-stationary applications where potential extra costs would be relatively much higher. Given that there is no EU obligation, BGA believes that sufficient time should be taken to develop efficient regulation on storage, with a consistent and general vision taking into account all aspects (technical, market, support, etc) and also lessons learned from the first projects and future EU regulation.

BGA regrets that Elia imposes such strong requirements to storage power modules: (1) the document makes no distinction between storage facilities that provide services to the market and storage facilities that deliver services on site; (2) the proposed requirements are sometimes more severe than the requirements for generators as the storage facilities cannot benefit from the exceptions foreseen in the NC RfG (e.g. derogations, exceptions for emergency batteries, …) and (3) Elia also proposes really severe requirements for data exchange, remote control and contribution to reactive management.

Detailed comments

General comment

The document often refers to the NC RfG while this NC explicitly states not to be applicable on SPM. To avoid legal issues, BGA recommends to repeat the actual requirements of the NC RfG.

Article 1:

This article introduces the requirements for storage and describes the background. But at the same time, it raises a lot of questions that are not answered. **BGA is of the opinion that the following aspects should be addressed** as well:

- SPM that don't deliver services to the grid (e.g. UPS, peak shaving in industrial context, …) should be out of scope; only SPM that offer services in the market should be in scope.
- The document doesn't point to the fact that SPM are only capable of limited injection or off-take of energy in time.
- Storage systems is broader than only electric storage systems, e.g. mechanic (flywheel) and chemical (batteries) storage should also be in scope.

- The distinction between Pump Storage Systems (PPS) and other types of storage should be more clarified and detailed as PPS are within scope of the requirements of NC RfG while there are no European requirements for the other types of storage. A better and broader definition of storage seems to be necessary.

Article 2:

It is important to note that the **state of charge can only be expressed taking into account the technical characteristics of the SPM**.

Article 4.1.5:

The document states that an interface should be available to receive the signal to interrupt injection. **It should be clear and also mentioned that Elia is responsible to deliver to signal to the interface. It should also be clarified that Elia can only intervene in the operation of the installation when the market is no longer in status 'normal' or 'alert'**. In the status 'normal' or 'alert' one should rely on the market to find a solution.

Article 4.2 (see also comment 4.1.5)

This requirement is also applicable on home batteries: this means that Elia is also responsible for delivering a signal to these batteries.

Article 4.2 and 5.2.3:

BGA wonders why it is not foreseen to send two signals. At the moment, only one signal will be sent with the message to stop. This implies that also SPM that contribute to the grid – that are injecting – will be stopped.

Article 5.1.1 and 6.1.1:

Why is it necessary for Elia to be able to remotely control the reduction of active power? Why should Elia be able to send a set point for this batteries? BGA is of the opinion that such intervention should not be allowed when the market is in status 'normal' or 'alert'. On top of that, **a market should be created to allow Elia to procure this service or, at least, the service should be properly remunerated** taking into account the energy and missed opportunities.

Article 5.4:

When a battery is embedded in an industrial grid or CDS, **it should be possible to comply with the requirement for reactive power with other assets**. If the battery is not embedded, the following questions rise. How can one demonstrate to be compliant with the requirement? Does Elia want to able to steer the reactive power? If yes, how and how will this service be remunerated?

Article 5.4:

This article that mentions that SPM should not limit its capabilities to comply with the requirement. **BGA wonders how the costs linked to the delivery of higher capabilities that strictly necessary will be compensated.**

Article 6.1.3:

BGA proposes to include in this article the requirements for frequency sensitivity mode.

Article 6.3:

BGA suggests the alignment of the requirements in 6.3 with the ones in 5.4 taking into account installations on industrial sides. Otherwise the values need to be measured at the HV side of the step-up transformer or at the convertor terminals.

Article 6.3, figure 7:

Maximum voltage should be equal to 1.1 p.u and not 1.18 p.u.
