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E.ON proposals to amend
Pilot Framework Guidelines on Electricity Grid Connection

The E.ON Group welcomes and appreciates the draft Pilot Framework Guidelines on Electricity Grid Connection (Ref.: E09-ENM-18-04). Our subsequent proposals reflect the wish to promote an efficient internal market for electricity by applying market-acknowledged best practice. We furthermore want to stress the need to set with the guidelines a clear framework to avoid later difficulties for regulators, TSOs and market participants to interpret what could be meant by certain provisions during the development of the related Network Codes.

We fully support the statement in the Initial Impact Assessment (IIA) that climate change, security of supply and creation of the European Internal Energy Market) are currently the three major challenges of European energy policy. Against the backdrop of the progressive evolution of the European electricity market and in order to create a level playing field, special attention should also be given to a harmonized approach for the processes in grid connection of all types of generation as new capacities will drive competition and price convergence across Europe.

In the following we answer your Questions for Consultation first and then make additional remarks to the sections and proposals to amend.

General Issues

1. **Are there additional major problem areas or further policy issues that should be addressed within the Grid Connection Framework Guideline?**

We agree with the addressed issues but find them incomplete. Derived from our experience across Europe, we see the **grid connection process** and the differences in how it is managed in several countries with great concern. Harmonised processes and timelines are urgently needed to create equal conditions and safeguard a level playing field for generation companies across Europe (e.g. number of weeks within which grid operators have to check connection request, execute security analysis and reply to applicant). This relates even more to harmonisation of rules within each synchronous zone where differences of grid connection requirements are therefore not acceptable, as power producers are competing in integrated or closely linked markets and a level playing field is of upmost importance. We are also of the opinion to extend such harmonised processes, timelines and rule settings as much as possible to renewable energy units which, according to our knowledge, face quite different frameworks for grid access across Europe. Exemptions might be only reasonable if technically justified. An optimal outcome would be to define a precise process with clear deadlines and responsibilities of TSOs/DSOs and generation companies.

The Framework Guidelines are describing tasks and duties of grid users connected to TSOs but there is no description of (basic) tasks of the TSOs. Furthermore, there is no clarification of general definitions (e.g. “grid connection point”, “field of application - minimum voltage level for grid connection” or “minimum range/content - grid connection contracts”). We propose to add at the beginning a section about the role, responsibilities and tasks of the TSOs that clearly points out what is the framework to be harmonised. Likewise, we suggest adding a bullet point “general definitions”. As an example the TSOs are responsible for system stability. Such

description is already made in the IIA and could be included under “Scope” in the Framework Guidelines. Furthermore, TSOs and DSOs should have to implement specific publications (maybe web-based), which should provide detailed process-explanations (e.g. standard grid connection contracts and what requirements have to be met in order for the TSO to start assessing the possibility of the specific grid connection demand) and technical information (actual schematic grid plan within the whole grid infrastructure, e.g. switch yards and general grid data) to the generation asset owner. In addition to that, the grid operator TSO/DSO has to provide information about possible congestions inside the control area.

Section 1 comprises requirements for all grid users and section 3 is about requirements for three specific groups of grid users: large-scale intermittent generation, distributed generation, demand response. With this structure it is not clear what the relationship between these two sections is and if the requirements in section 3 are additional or alternative. We understand that conventional power plants are covered in section 1. We are of the opinion that it could be confusing if the requirements for conventional power plants are included in the 1st section for all grid users. An own section for conventional power plants should be added and the 1st section reduced to requirements that apply for all users without exceptions.

A general remark should also be added that all provisions concerning DSOs (i.e. connection of distributed generation, flow of information between DSO and others) in the Network Codes to be adopted according to this Framework Guidelines should be jointly elaborated and agreed between TSOs and DSOs. As DSO do not have a formal role in the development process of the Network Codes this step is important to clear possible inconsistencies and contradictions in the Network Code at an early stage and to safeguard the later implementation of the related Network Codes.

2. **What timescale is needed to implement the provisions after the network code is adopted? Is 12 months appropriate or should it be shorter or longer?**

This is a legal/operative question on adoption of the Network Code with national law and other provisions. Although work may already be underway in order to assess the feasibility of mirroring new or changed arrangements in existing national codes, we estimate 12 months to be a challenge. The answer to the question of how fast new requirements can be implemented in new technical solutions by grid users depends on technical feasibility e.g. technical installations have long preparatory/lead times. There will be a need for transitional periods in some instances.

3. **Should harmonisation of identified issues be across the EU or, perhaps as an interim, by synchronous area?**

The target of the Framework Guideline and the related network codes is harmonisation across the EU. At the same time any new requirement should be clearly justified by adequate benefits and should not be asked for without justification. This is especially the case for existing installations where causing costs simply for the sake of harmonisation has to be avoided. Structuring of harmonisation by synchronous area for an interim period could be a helpful and appropriate instrument. However, any distortion of competition has to be avoided.

Grid Users related Aspects

4. **Should the requirements apply to existing grid users? How should it be decided? To which existing users should the requirements apply? How should timelines for transitional periods be set? Who should bear any costs of compliance?**

Requirements should apply to existing grid users only if this is necessary to keep system security and in other important circumstances; for example that may arise as a result of the expected far-reaching changes in the future structure of generation production. Such a change of requirements should only be made if it is the only practicable and reliable possibility and a sound analysis of benefits and costs/risks has proven the value of the requirement concerned.

The process for such decisions could be structured similar to the Network Code development process with involvement of all parties concerned. Application of new requirements to existing users and timelines for transitional periods should depend on the type and size of the challenge to be covered. Covering of costs of new requirements should be decided with involvement of the regulators as any remaining costs for TSOs and DSOs have to be recovered through grid fees. In no circumstances should any new requirements and their financing distort the economic situation of existing power plants and other grid users.

5. **The framework guideline identifies intermittent generation, distributed generation and responsive demand as requiring specific grid connection guidelines. Is it appropriate to target these different grid users?**

Yes this is appropriate. In future it will be necessary to address these grid users to adapt to the changing structure of power production. We propose to clearly structure requirements for generation in general and then to specify requirements for conventional and special production technologies in specific chapters. As new production technologies and the related requirements for grid connection evolve there is a need to keep details of such requirements open for development e.g. in case of distributed generation. This is especially the case for responsive demand where the necessary market design is only at the beginning in the European discussion. We want to stress that there is a clear need that requirements between different production technologies are balanced and one type is not burdened to the benefit of another - especially with regard to existing power plants.

How should the requirements for intermittent generation, distributed generation and responsive demand differ from the minimum requirements?

This is a very detailed question. We propose that this differentiation is covered in the development process of the Network Codes. Such requirements should be based on the relevant requirements as a result of discussions involving politicians, regulators, TSO/DSOs and grid users.

Is there a need for more detailed definition / differentiation of grid users?

For the level of detail of a Framework guideline we don't see the necessity for a more detailed definition / differentiation of grid users. We propose to cover all customers with influence on system stability in section 3.2.3.

Implementation

6. **Is it necessary to be more specific regarding verification, compliance and reinforcement?**

Yes, see our additional remarks below.

7. **What are the key benefits and types of costs (possibly with quantification from your view) of compliance with these requirements?**

The tasks of the TSOs should be clearly described in an introductory section. In that section the aimed benefits should be listed (as they are already described in the IAA). From our view there are two major benefits:

- secure system stability
- transparency about grid connection requirements

From a TSO/DSO perspective related costs will be:

- Costs for Information exchange between grid users, TSOs and DSOs: New information technology is needed, in particular on DSO-levels. The requirements of the Framework Guidelines show once more that the existing grids could partly be transformed to Smart Grids with a sophisticated communication system. These costs could be immense.
- Costs for compliance monitoring
- Costs for verifying grid connection scenarios
- Costs for grid security tests during grid connection process

From a generation asset owner perspective related costs:

- Costs for retrofitting equipment for operation of the plant between grid connection point and power plant concerning components which are used by the generation asset owner

Quantification is not possible as long as requirements are not known in detail.

8. **How should significant generation and consumption units be defined?**

As proposed in 2.4 “significant generation and consumption units” should be defined by a power threshold to be defined in the Network Code. Such thresholds might differ with the specific network situation. Other definitions might be set in the Network Code as appropriate.

9. **For what real-time information is it essential to improve provisioning between grid users and system operators? Do you envisage any problems such greater transparency? What are the costs (or types of costs) and benefits you would see associated with this?**

Real-time information exchange should only be required if such information is really necessary to secure system stability. Concerning this matter, from our point of view, an information exchange between grid operator TSO/DSO and generation asset owner has to be divided in two kinds of interfaces. On the one hand, an information exchange between power plant and grid operator is needed to transfer alarm-messages to ensure the communication in case of emergency, but also to transfer information which are needed by TSO/DSO to operate the grid management. On the other hand, generation assets which are able to produce primary and secondary reserve capacity need a specific kind of information technology infrastructure/interface with dedicated lines because of operational system security. For that reason real-time information exchange could be needed for parameters e.g.:

- active power in feed/withdrawal
- reactive power in feed/withdrawal
- wind speed (for wind generators)
- solar radiation (for photovoltaics)

With increasing feed in from distributed generation connected to the distribution grids, there is also an increasing need for real-time information to the DSO who will then give bundled information to the TSO.

The management and handling of such large amounts of information constitutes a real challenge with regard to technology and costs. R&D for appropriate solutions is currently under way as part of Smart Grid development. We are concerned that the requirement specified by the TSOs could be too extensive. Also the interaction with grid users needs to be elaborated. Currently it is not possible to specify costs. In general we talk about costs for information and process technology assets and costs for communication lines.

Additional Remarks to the sections and proposals to amend

<u>To 1.16</u>

In this section about compliance monitoring the responsibilities should be clearly stated:

- Who is responsible to prove compliance? We think this are the grid users applying for connection as fixed in the connection contract.

  From our point of view, an item labelled “TSO/DSO tasks” should be added, clarifying process steps to verify the connection demand (with regard to provision 2.3).

  - TSO/DSO has to verify the possibility of the connection demand in XX weeks
  - TSO/DSO has to verify the technical possibility to connect the power plant
  - TSO/DSO has to contact the generation unit if additional information is needed

  This could be included in the FG or the related NC.

- To whom should the compliance be proven? We are of the opinion that it is to the operator of the grid to which the user will be connected (contractual partner of the grid user). Furthermore it should be clarified what happens in case the compliance is not proven by the grid user. Which measures are to be taken to enforce the compliance?

To 2.1

There should be added a bullet point to cover the necessary information sharing between DSO and DSO in cases where several DSOs are cooperating in a vertical structure. (Very relevant in countries with strong diversification of the DSO structure, as for example in Germany where some DSOs are connected as customers to other DSOs.)

To 2.3

This section is about the publication of a transparent grid connection procedure. We appreciate such a rule (see above 1) but we recommend placing this for the different grid users in all the sections (3.1, 3.2, and 3.3). It should be developed as a transparent procedure for large-scale intermittent generation distributed generation, customers/loads and conventional power plants. Furthermore it should be clarified what happens where a grid user does not comply with the requirements of the grid connection procedure. For DSOs this is especially important in the context of section 3.2.3 where it is envisaged to assign the responsibility that grid users meet the requirements to DSOs.

Through provisions in the network code TSOs and DSOs should have the duty to implement specific publications (maybe web-based), which should provide detailed process-explanations (e.g. standard grid connection contracts and what requirements have to be met in order for the TSO/DSO to start assessing the possibility of the specific grid connection demand) and technical information (actual schematic grid plan within the whole grid infrastructure, e.g. switch yards and general grid data) to the generation asset owner. In addition to that, the grid operator TSO/DSO has to provide information about possible congestions inside the control area.

To 2.6

Probably there is a spelling mistake at the end of the paragraph.

To 3.2.2

We do not understand why requirements for the connection point between TSO and DSO are formulated here. This should be covered in chapter 1.

To 3.2.3

This section is about distributed generation but it comprises also consumption units. We recommend to cover only distributed generation in this section and to deal with consumption units in section 3.3.

Furthermore section 3.2.3 states that DSOs should be assigned the responsibility that generation and consumption units meet the requirements set by TSOs (or DSOs). Here we have two remarks:

- All requirements with relevance to the distribution grid should be jointly elaborated and agreed (as stated above)
- In all cases where DSOs are responsible to execute requirements from Network Codes it is of utmost importance that on the other hand the DSOs have the power to execute on behalf of the TSOs. For that reason it is important to have i.e. a transparent procedure for grid connection and explicit sanctions that apply in case a distributed generation unit does not comply with the requirements. Therefore we recommend the inclusion of a bullet point about the "grid connection procedure" of distributed generation in section 3.2.

To 3.2.2 *and* 3.2.3

In addition we would like to address the issue that rules regarding the connection of large scale intermittent generation and distributed generation are also set in laws and regulations on power production from renewable energies. It has to be ensured that such rules and network codes are fully consistent.

To 3.2.5

Same issue as in 3.2.2