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Reference; ***E10-PC-52: Pilot Framework Guidelines on Electricity Grid Connection*** *08/2010*

Dear ERGEG,

ODE is the reference organization on renewable energy in Flanders, northern region of Belgium.

We are grateful to be able to play a role of importance in this grid development process. After consultation of our group members we came to the text completions integrated in the questions' section below.

General Issues

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

Indeed; TSO and DSO should offer more service and information towards generators and their operators and constructors. Technologies are evolving rapidly and also the correct compliance to the grid code must be guided. Therefore, a good cooperation between DSO&TSO are necessary in order to share information for finally improving the grid quality.

For insuring the appropriate growth of the grid, it is essential that the data are well studied and verified by all parties. In this way good development plans can be made.

Not only a top down approach but also a bottom up approach must be followed in relation to the decision levels and future development steps. Also distributed generators should have a role in the technical and operational discussion at the same level as centralized power generation.

Amongst generation there is a growing proportion of intermittent electricity generation based upon renewable energy sources like wind and sun, it will increase the need for flexible generation units. These units will need to be light in order to start rapidly, which results in a low inertia of these rotating machines. Requirements for these units need to be realistic in this respect and take into account their use in maintaining the grid stability.

In general, all requirements for grid connections need to be realistic and achievable:

- *All requirements should be coherent with common standards (like for rotating machines: IEC 34-1);*
- *What is commonly offered by manufacturers should be sufficient to be compliant with the requirements (like for voltage/frequency and reactive power capability).*

Roles and responsibilities must be clearly established :

- *Rights and duties should be balanced and mutual: besides requirements and obligations for grid users, the duties and performance standards of grid and systems operators should be specified.*
- *Minimum requirements should be limited to the technical parameters on the connection point or the installations of the grid user as a whole and should not go as far as the inner installations, equipment, technology nor the way these should be operated or managed. E.g. a TSO or DSO should not set the requirements of demand response itself.*

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?

12 months is good but must take into account all ratification procedures of the member states since there is an impact on the existing codes

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

Harmonization of identified issues has to be across the EU for reasons of simplification and ease of installation throughout the generator suppliers as well.

Grid Users related Aspects

4. Should the requirements apply to existing grid users? *Yes - preferably*
How should it be decided? *Depending on the age of the installation and the future use, one should avoid stranded costs in existing 'infrastructure'*
To which existing users should the requirements apply***?*** *basically to all essential generators responsible for the grid support*
How should timelines for transitional periods be set? *Depending on the impact of the changes and the related grid changes, in order to continue the ongoing development*
Who should bear any costs of compliance? *Each party for his changes…other schemes must be installed if international requirements have to be met such as Kyoto, such costs have to be socialized*

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, for reasons of their specific reaction possibilities… to meet the future grid requirements (production stability towards grid profile).

How should the requirements for intermittent generation, distributed generation and responsive demand differ from the minimum requirements?
In relation to the specific geological area of interest, one could shed production to assure transport capacity or stability etc.

Is there a need for more detailed definition / differentiation of grid users? *Indeed, as many as there are different types (regulating capacity, startup possibilities, decoupling and so on). The classes and types will be decided by permanent working group level in which TSO/DSO and generators/consumption units. However it is good to split up users in categories, one should draw on existing experience of TSO/DSO.*

6. Is it necessary to be more specific regarding verification, compliance and reinforcement?
Yes, as referred to in the previous question a similar working group level should deal with these aspects. In these groups all stakeholders must have their seat.

7. What are the key benefits and types of costs (possibly with quantification from your view) of compliance with these requirements?
Better working grid and lower costs because of the harmonization of the grid.

Quantification is difficult and may vary throughout the countries and regions but all aspect should be taken into account, not only pure grid costs.. also the advantages of decentralized generation as; cos y compensation through reactive energy injection, voltage regulation etc.

Harmonization over Europe should bring a benefit, the ability to harmonize system operations across Europe, the subsequent possibility to couple electricity markets increasing liquidity and sharing reserve capacity, … But the way and the speed of implementing the harmonized requirements should not undermine these benefits. The harmonized requirements need to be elaborated in further detail to be able to estimate more precisely the possible costs (especially stranded investments) and benefits.

8. How should significant generation and consumption units be defined?
Everything related to this is to be seen in relation to the local grid situation. It could be useful to decide low generator capacities to be of interest when they can provide vital local services. Also when more and more renewable generators would enter the grid, low capacities of 1 to 5 MWe can be of importance.
A special category must be envisaged for individual solar units connected on the DSO's.

One should also consider alternative (innovative) market models, where intermediate parties (like aggregators) offer services to TSO's and DSO's based upon small scale generation and demand response but with possibly a large scale impact upon grid operations. Information sharing should also take these intermediate parties into account.

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?
No, don't see a problem for more signals; with the data we collect and transport today, this is ok. On the other hand we see the proportion of RE-generation increasing and we must be sure there is still a good account possible for the real consumption profile. Taking into account decentralized production we see not all consumption is being accounted. For example solar injects local and 'covers' the usual consumption. Reliable consumption data is essential in forecasting and planning. There will be a need to communicate with a large number of parties, including suppliers (balance responsibles) which are in the first place responsible to match demand with supply. This will result in the need for more coordination that will become more complex. Information about the planned and real-time grid status and system conditions will therefore be crucial.

What are the costs (or types of costs) and benefits you would see associated with this?
Not only costs can be expected but also profits by a better working grid (see question7). This is to be evaluated individually by TSO/DSO.
Again here the already proposed working group can be very useful in order to establish a balanced relation between all parties in relation to the grid safety and operating regime.

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