

European Regulators Group
for Electricity and Gas (EREG)
c/o Council of European Energy Regulators (CEER)
Rue de Titien 28
B-1000 Brussels

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EREG Position Paper on Smart Grids

Swissgrid response to public consultation

Dear Sir or Madam,

On behalf of Swissgrid, the Swiss TSO, we are pleased to hereby provide our response to the public consultation "EREG Position Paper on Smart Grids".

Question 1: Do you consider that networks, transmission and distribution are facing new challenges that will require significant innovation in the near future?

Answer 1: Yes, energy companies involved in energy transmission and distribution will have to deal with the aging workforce and especially transmission system operators will be forced to work more efficient while moving in pan European energy markets. The integration of renewable energies, vehicle to grid concepts and a vast amount of distributed generation will foster both transmission system operators and distribution system operators to build up a pervasive communication infrastructure to maintain system stability and security of supply.

The existing inter-TSO cooperation needs to be further intensified. A superior pan European high-voltage grid could facilitate the utilization of flexible production and storage solutions for balancing volatile renewable generation.

Question 2: Do you agree with EREGs understanding of smart grid? If not, specify why not.

Answer 2: Generally yes, but:

- In our understanding smart grids are not specified by a certain amount and location of distributed generation, rather the ability of an intelligent management of storage solutions and integration of new renewable energy sources into the power system.
- smart grids describe a power system which sustains energy supply, while using all available resources in such a way that social welfare can be maximized. Hence, there might be the case whereas minimization of transmission losses is not the top priority.
- the term self-healing technologies should be specified or may be replaced by "increased use of intelligent autonomous subsystems"

All in all smart grid is not a specification of technology features. In fact, it's a philosophy how to optimize the power system design, extension and operation and thereby increasing the overall social welfare including security of supply.

Question 3: Do you agree that objectives of reducing energy consumption impose the need for de-coupling regulated companies profit from the volume of energy supplied?

Answer 3: Grid companies profits are already decoupled from the volume of energy supplied, because the cost of grid companies are largely independent of the volume supplied.

Furthermore, as described under answer 2 the question is not whether energy consumption may be reduced or not, it strongly depends on the main target of smart grid concepts and on the scenario. In a low carbon economy the electrical energy consumption could increase due to a vast amount of Electric Vehicles and Heat Pumps connected to the grid even though contributing significantly to achieve the 20-20-20 goals.

Question 4: Do you agree with the drivers that have been identified in the consultation document?

Answer 4: Generally yes, but from a TSO point of view one important driver is missing: performance and controllability of the power system really need to be improved to cope with more and more fluctuating energy sources. In order to be able to handle larger power fluctuations due to large amount of intermittent renewable energy sources the performance and controllability of the power system need to be improved. New applications for power system control demand for an pervasive information and communication infrastructure to compensate the growing amount of inflexible generation with more flexible and manageable demand.

Question 5: Do you agree that a user-centric approach should be adopted when considering the deployment of smart grids?

Answer 5: The term “user” should be eliminated or replaced because it could describe the TSO/DSO which is using additional functionality provided by the smart grid or the consumer which benefits from higher integration of renewable energies (or flexible tariffs...).

In our understanding the “user” role fits well for every player involved in the supply chain while considering smart grids.

Question 6: How should energy suppliers and energy service companies act in the process of deploying smart grids solution?

Answer 6: Especially energy suppliers are destined to kick-off the smart grid deployment by pushing forward the roll-out of smart-meters. This will represent the first step of end-user sensitization and participation in the energy supply process. Nevertheless all involved players have to coordinate the development to sustain compatibility of smart grid applications and technology driven by the different energy suppliers, grid operators to ensure standardized equipment and communication interfaces.

In order to have a pan-European benefit transmission system operators have to participate in the definition of the corresponding services with special focus on observability and controllability. They are in front-line of the deployment of intelligent equipment like power flow controllers (FACTS, HVDC etc.) and storage solutions to the high voltage grid.

Question 7: Do you think that the current and future needs of network users have been properly identified in Section 3.3?

Answer 7: Yes.

Question 8: Do you think that the main future network challenges and possible solutions have been identified in section 3.4 and 3.5 respectively?

Answer 8: Yes the most important aspects are considered but we would propose to avoid conjectural statements like “Losses in networks represent by far their most significant carbon impact”. Network losses have to be considered the point of view the system as a whole and not in isolation for each activity. By way of example some power flow applications like FACTS would have direct impact on transmission losses but would be the way for keeping connected to the grid renewable energy sources and avoiding

their curtailment and substitution for another generation based on fossil fuels. Hence system losses will be larger but the overall CO2 emissions are still lower.

As additional challenge should be mentioned the discrepancy between the “acceptance” of grid expansion measures and dispensed/renewable generation. There is a huge civil opposition against nearly any kind of grid expansion project. The integration of more and more renewable energy sources far away from load centres goes ahead and TSOs are facing the tremendous burden of managing today’s generation with yester-day’s transmission grid. Hence, in our opinion the different Administrations should support the building of new infrastructure (e.g. overhead transmission lines) as they will be a key issue to support the expected challenges.

Question 9: Do you expect that smarter grid solutions to be essential and/or lower cost than conventional solutions in the next few years?

Answer 9: In terms of security of supply, which is essential for all network users, some “Smarter” grid solutions will be-come a necessary prerequisite for maintaining security of supply in power systems with high penetration of renewable energy sources:

- to develop new market designs to utilize the fluctuating generation from renewable energy sources
- to develop and utilize distributed generation which contributes to voltage control in windy periods where bulk power generation moves to remotely placed offshore wind power plants and centrally placed thermal power plants are shut down.

As described under 8. TSOs need to foster the implementation of new grid solutions to meet controllability requirements and assure security of supply. “Smarter” grid solutions will never be as cheap as the “fix and forget” strategy applied for decades, but at the end of the day the earnings in controllability, efficiency, quality and security of supply will redress the higher investment costs.

Question 10: Would you add to or change the regulatory challenges set out in Section 3.6?

Answer 10: Section 3.6 rightly highlights the problem of costs that occur in connection with smart grids and states that these costs should be allocated in a fair way among those shareholders who incur them. However we consider it also as important that the costs that incur the grid operators can be included within grid tariffs. Otherwise the financing of smart grid projects cannot be guaranteed to the grid operators.

Question 11: Do you agree that regulators should focus on outputs (i.e. the benefits of smart grids) rather than inputs (i.e. the technical details)?

General statement to the questions 11 – 16: We consider as one of the main problems that the development of smart grids generates high costs for R&D and grid investments in the short and mid-term but will pay off in the long term. In order to incentivize grid operators for that kind of developments regulators should therefore build up an environment in which the financing of these projects are guaranteed (cf. answer 10).

An important requirement for smart grids is a complete roll out of smart meter. Furthermore certain standards for smart meter and their communication interfaces need to be fulfilled in order to guarantee that they can be used within a future smart grid system. In our opinion the roll out process of smart meter should therefore be initiated and controlled centrally by the regulators. This also includes the setting of standards which have to be developed with regard to relevant know how groups. In that connection all shareholder groups must be considered even if they are not affected by the smart meter themselves but are important concerning the development of smart grids.

We consider a focus on outputs for regulators as not sensible. If financing is assured grid operators are already incentivised to design grids more efficient in order to avoid black outs. This also includes further developments concerning smart grids. It is therefore doubtful that a prescription of performance or benchmarking measures really generates additional incentives at all. If it creates incentives it must be

proofed if these incentives are right. How and where smart grids can really generate benefits can be decided best by the grid operators himself. This is especially true concerning trade offs between costs and the improvement of security of supply. A prescription of output standards could therefore even be detrimental by distorting decisions met by the grid operator.

Question 12: Which effects and benefits of smartness could be added to the list (1) - (7) presented in Section 4.1, Table 1? Which effects in this list are more significant to achieving EU targets? How can medium and long-term benefits (e.g. generation diversification and sustainability) be taken into account and measured in a future regulation?

Cf. answer 11

Question 13: Which output measures should be in place to incentivise the performance of network companies? Which performance indicators can easily be assessed and cleansed of grid external effects? Which are suitable for European-level benchmarking and which others could suffer significant differences due to peculiar features of national/regional networks?

Cf. answer 11

Question 14: Do you think that network companies need to be incentivised to pursue innovative solutions? How and what output measures could be set to ensure that the network companies pursue innovative solutions/technologies?

Cf. answer 11

Question 15: Do you consider that existing standards or lack of standards represent a barrier to the deployment of smart grids?

Cf. answer 11

Question 16: Do you think that other barriers to deployment than those mentioned in this paper can be already identified?

Cf. answer 11

Question 17: Do you believe new smart grid technologies could create cross subsidies between DSO and TSO network activities and other non-network activities?

In our opinion smart grids will create benefit for different parties including generators, grid operators and consumers. We therefore consider a fair allocation of these costs as necessary.

Question 18: What do you consider to be the regulatory priorities for electricity networks in relation to meeting the 2020 targets?

Answer 18: We consider it as important that the 2020 targets are not fulfilled at the expense of security of supply.

In order to meet the 2020 targets regulators should help to realise the following issues:

- The existing inter-TSO cooperation needs to be further intensified. This is also required for the operation of cross-border “supergrids”. A separated operation of onshore- and offshoregrids should be avoided.
- Flexible production and storage solutions should be integrated efficiently in order to balance volatile renewable generation.

- In order to enable also the cross border exchange of balancing power an according regulatory framework must be developed. The use of cross border capacities must also be possible for the exchange of balancing power. Afterwards technical solutions can be applied.

Best regards,
Swissgrid Ltd.



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