European Electricity Grid DSO Initiative (EEGI)

Answers to the ERGEG Position Paper on Smart Grids questions

February 28-th 2010

The EEGI DSO members do welcome the ERGEG initiative who has put forward a position paper on SmartGrids. This initiative is adequately timed when considering the short term decisions required from European decision makers / stakeholders to support the validation of SmartGrids solutions within the large-scale demonstrations proposed by the EEGI RD&D roadmap.

Some of the answers refer for more detailed information to the EEGI DSO Program. hereinafter "EEGI Program".

Section 1 – Introduction

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

Yes, we consider that networks are facing new challenges which will require significant innovation efforts in the years ahead. In this context there should be an envisaged supportive market and regulatory scheme that limits investment risks. We suppose that significant change will come gradually in 2010-2020.

Innovation is needed in order to reach the targets set out for 2020 at European level. Several innovative solutions do exists at development or pre-commercial phase: a special focus is needed at the electric system level where large-scale demonstrations are needed to validate the scaling up and replication potential of such innovations.

2. Do you agree with the ERGEG's understanding of smart grid? If not, please specify why not.

Answer:

The concept of smart grids is very broad and covers many different solutions going from regulated activities to market related activities.

This is why it is of the utmost importance to specify the scope of the regulatory approach and to define a concrete regulation plan for each part of the electricity supply chain.

It must also be recognized that different countries are at different maturity levels in terms of technical innovation. This is why roadmaps must be developed according to the definition of the local "smartness" of the grid. The deployment of this new grid concept must be supported by the necessary investments and regulation should promote the development on any levels.

Finally, we would observe that what stated in the last paragraph of page 14 of the Consultation Document ("it is possible to have smarter distribution and transmission networks without smart metering") sounds ambiguous and potentially misleading. It is clear that the smart grid concept is definitely wider than the smart metering one, but smart metering represents an essential element of smart grids. Basically, smart metering is not sufficient, but definitely necessary to built a complete smart grid.

3. Do you agree that objectives of reducing energy consumption impose the need for decoupling regulated companies' profit from the volume of energy supplied? How can this be implemented?

Answer:

First of all, it must be observed that the "objectives of reducing energy consumption" does not necessarily imply the reduction of electricity consumption. On the contrary, it must to be recognized that a wider - but wiser – use of electricity can, in many cases, significantly contribute to reduce the overall consumption of primary energy, therefore contributing to achieve the EU objectives. For example the introduction of electrical cars and more efficient heating systems (heat pumps), though increasing the electricity demand, at same time could contribute to reducing primary energy consumption and/or CO2 reduction. Attention must be paid in order to avoid that the pursuit of a false objective (reducing electricity demand) could undermine the possibility to achieve the true one (reducing/curbing overall energy consumption and/or CO2 reduction).

Independently from the objective of reducing energy consumption the tariff (the access tariff, or TPA tariff) has to be decoupled from energy supplied in all cases.

The final "tariff" paid by customers, should differentiate the energy price component from the access tariff component. The last one includes the transmission and distribution costs as well as other regulated costs.

Distribution and transmission companies, as regulated companies, should not be subject to the energy demand in its remuneration but should be remunerated for the development, maintenance and operation of their networks and components[1]

In this way it is possible to avoid the risk linked to the energy consumption variation, which is not part of the network operators' liabilities according to the Directive.

A careful analysis is needed to be made for the total market effects as well as which incentive it creates for the network operators to move towards increased SmartGrids investments

Finally, we would like to emphasize that current regulation in most European countries incentivize DSOs to increase their cost efficiency through reductions in operating expenses. This leads DSOs to face serious problems of profitability. It is of the utmost importance to allow distribution companies to recover their investments at a market rate.

Section 2 – Drivers for smart grids

4. Do you agree with the drivers that have been identified in the consultation document? If not, please offer your comments on the drivers including additional ones. *Answer*

[1] It should not be mistaken with the energy component of the access tariff. When the remuneration of regulated companies is fixed, the energy demand should not be considered as an element of this remuneration. But the formula by which the access tariff is collected normally has an energy component and a capacity component.

Yes, we agree. Although some of the drivers are grid external, like “Active end-user participation” and “Market integration and market accessibility” we agree with the fact that these drivers are pushing the smart grid development.

Section 3 – Smart grid opportunities and regulatory challenges

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

Answer:

As a basic principle yes it should be user-centric since it is the customer or the generator who in the end is in charge of paying for the rollout of SmartGrids.

In addition, the consumer should be properly informed and trained about all the information that is going to manage and the benefits derived from that. Only in this way, he/she will be receptive enough to assume all costs involved and the targets will be achieved. Without consumers’ and generators’ commitment the achievement of these goals will not be possible.

On the other hand, it must be recognized that the transformation of energy system with more introduction of renewables incurs costs that not directly are transferable to user benefits and causes some benefits that are beyond the network users (e.g. environmental benefits, CO2 reduction).

There must be a balance among profits and costs for all stakeholders, but we should not forget that the best way to ensure the necessary investments in smart infrastructure is to ensure an adequate return on investment.

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

Answer:

In the Smart Grids deployment process it is necessary to have the commitment of the stakeholders, among which there are also energy suppliers and ESCO’s.

Energy supplier and energy service companies should be in the process of smart grids definition and smart grid deployment. There must be a common interface to develop appropriate functions for smart grids between energy supplier and energy service companies whereas DSO/TSO ensure nondiscrimination to all the market players. Common interface should simplify and unify the smart grid system functionalities.

The network operators have to strive towards standardization (communication, design, …) and interoperability in order to reduce investment and operational costs. However it must be recognized that the move towards SmartGrids is a continuous evolution where the suppliers and service companies constantly need to improve and push the edge, i.e. SmartGrids do not have a well defined end. It is therefore necessary that the DSOs play the role to harmonize the system having the responsibility to choose the appropriate technical solution. Suppliers, energy service companies and network operators coordinate their actions through dedicated task forces under

the supervision of National Regulators, taking into account the grid constraints (peak period, quality of supply, etc.) and aiming at the customer satisfaction and benefits.

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

Answer:

Yes.It must be recognized that the customer needs and the services they require from the retailers, aggregators and third parties is expected to evolve over time.

8. Do you think that the main future network challenges and possible solutions have been identified in Section 3.4 and 3.5 respectively? If not, please provide details of additional challenges/solutions.

Answer:

Yes, we agree.

Most of the cost efficient solutions are not yet proven and therefore large-scale demonstrators as outlined in the EEGI Program are necessary The biggest challenges will be security and ICT solution of Smart Grids.

Nevertheless proper remuneration schemes to distributors should put in place to have a suitable return of investments.

In relation to the concept of “plug and play access”, Although this could be a final, future goal, it would not be realistic in the short or medium term, and would anyhow need further technical an cost benefit analisys.

Regarding item 3.5 Smart grids solutions, there is a statement that could lead to some misunderstanding: “There is a general confidence among relevant stakeholders that by doing this, new services will be delivered at lower cost than with existing solutions.”This remark could not always be realistic in short or medium term and this fact should be handled very carefully in order not to arise some expectations that could lead to disappointing situations.

We fully support the need for a standardisation of the communication protocols which will prevent from expensive developments. This should be highlighted as much as possible.

9. Do you expect smarter grid solutions to be essential and/or lower cost than conventional solutions in the next few years? Do you have any evidence that they already are? If so, please provide details.

Answer:

Again, it must be recognized that SmartGrids is a natural evolution of the grid business, where some benefit already has been proven (for example Enel AMR and remote control of MV network

at steady state in Italy, Vattenfall, E.ON, and other AMR rollout in Sweden and Finland,), others are ongoing (automation in the network with existing solutions) and other need to be further proven (see the 12 functional demonstrators in the EEGI Program). This does not necessarily mean that the costs will always be lower in the short term than today, but it should mean that the quality and services for all stakeholders will be improved and that this improvement will be done to the lowest cost possible.

Another important issue is the level of compromise and willingness of end consumer in relation with this approach. We could observe low compromise or engagement of consumers if they are not going to have significant savings in their energy bills derived from the implementation of the new smart solutions. It is very important to send a correct energy price signal to consumers and make the enough discrimination in prices in order to get an appropriate response in terms of smart consumption, which will not be reached if the prices paid are not cost reflective.

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

First sufficiently attractive incentives in the regulation are key to enable the transformation of the grids into the SmartGrids. In order to incentivise companies and prioritise smart grids solutions, some regulatory changes ex-ante are necessary, through new regulatory schemes/incentives e.g. Regulators should incentivise and address R&D areas.

Secondly, being the first mover on a market and/or an area always has higher risks and somewhat higher costs (for example *adaptations for local service companies).* The regulatory framework should enable the integration of the new services in the electricity network, sharing the possible extra costs in a fair way.

Finally we should address the current tendency in reducing the remuneration of network companies, with the goal of “maximizing the efficiency”. It is crucial to define the adequate remuneration scheme in order to promote the smartness; yet the starting point should be an adequate level of remuneration of network activities, which should imply an adequate return on investments allowed.

Section 4 – Priorities for Regulation

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)?

Answer:

It depends on the maturity of Smart Grids. Specifically in the R&D phase the benefits are sometimes difficult to measure and an ex-ante regulation is the most effective solution. In the demonstration and roll-out phase the Regulation based on outputs can be very effective. Nevertheless, defining performance targets and indicators is a hard and sensitive task to be developed. The success of the implemented regulation depends on these ones.

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?

Answer:

We consider the list quite complete.

Of the proposed list the more significant effects in order to achieve EU targets are (1), (2) and (5) In relation to uniform connection conditions in Benefit (3), the paper proposes the same conditions to all kind of user. We cannot agree in general terms with this statement, because the grid connections depend on technical features that are different for each kind of user.

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?

Answer:

The EEGI Program provides suggested performance indicators (KPI's) to be used to provide incentives for SmartGrids as well as a defined set of boundary conditions to cover differences throughout Europe. The indicators include KPI's for stakeholders (system, customers, DSOs, retailers and suppliers). It should also be recognized at the current situation it is hard to fully assess benefits and impacts "ex ante" and therefore large scale pilots with following "ex post" evaluation is needed.

Indicators should be designed according to the development of the "smartness" of the grid. It has no sense to develop very sophisticated performance indicators if the grid is not prepare to operate with such performance.

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?

Answer:

A proactive incentive solution will be required to support the implementation of the Smart Grids. A first step is to go ahead with the large-scale pilots outlined within EEGI.

Also in the long-term it is critical to give the network companies adequate incentives to invest in innovations, which often benefit also to the other market parties. This could, for example, involve a higher degree of acceptance for R&D costs related to SmartGrids in the tariffs.

With regard to output measures, it will be possible to define them after the large-scale demonstrations have been run.

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

Answer:

Yes, the absence of minimum standards regarding communication and interoperability can be a barrier (e.g. EV charging stations). So far we have some standards but there is a lack of other standards. However it is not possible to wait for missing standards, they need to be developed at the same time as we make the network evolve. As a matter of fact, the standards are usually adopted after a period of time during which their cost effectiveness is proved. Large-scale demonstrations can help to push the development of new standards; in addition, general cooperation among the stakeholders needs to be developed.

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

Answer:

There is a risk that certain national regulatory models set barriers to deployment by extending cost-cutting targets for R&D costs as well as adopt biased parameters such as too long depreciation times which motivate the companies to postpone grid investments. More information is in the EEGI document, where among other things the first-mover risk is identified and this needs to be addressed.

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

Answer:

There is a risk, but the use of well-defined KPI's should optimize this. The risks could be minimised as well by means of a clear definition of responsibilities which will establish the costs that each stakeholders will bear.

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

Answer:

Actively support large scale pilots to gain more knowledge on the effective deployment of innovative solutions to host more DER units and more active demand.

Accept a limited risk of financing grid external benefits in these large-scale pilots and do proper "ex post" evaluation to utilize experiences and get standards applicable as soon as possible.

In order to meet the 2020 targets, regulation should incentivize the energy efficiency, the deployment of renewables and the integration of DER.

In our opinion, Regulators should give priority to Large Scale demonstration regarding the implementation of Active demand, Integrated Communication infrastructures, integration of DER and E-mobility infrastructure, as detailed in the EEGI Program