

Position Statement

**Position Paper on Smart Grids - An ERGEG Public Consultation Paper
Ref. E09-EQS-30-04, 10 December 2009**

February 26th, 2010

The German Association of Energy and Water Industries (BDEW) represents the interests of its 1,800 members of the electricity, gas and water industry. In the energy sector, BDEW represents companies active in generation, trading, transmission, distribution and retail.

1 General Remarks

Currently, there is an intense discussion about smart grids on numerous levels (national or international, technical or regulatory...).

BDEW welcomes this consultation paper from ERGEG on smart grids in which ERGEG highlights the major problems and provides suggestions for solutions. However, we want to mention that some of these are only partially feasible or are still under development. For a fruitful deployment of smart grids, it is necessary to develop a comprehensive model with economic incentives for all stakeholders.

Generally, in the further development of the regulatory framework, a clear distinction has to be strictly made between regulated (grid) and competitive (production, trading, supply) business. In this context, a clear distinction between transport and distribution functions and a clear description of the market role of suppliers within smart grids (e.g. questions of balancing) would also be helpful for a focussed discussion in a lot of issues.

Furthermore, the distribution of roles between the power providers, metering companies (installation & maintenance) and metering service providers (reading & distribution of the meter data) is unclear. For example, the differences between innovations from grid operators that are essential and those that can result from healthy competition still need to be clarified. The paper also leaves open the question of possible conflicting interests between the market partners.

A final remark, clear-cut definitions and clearly defined requirements on smart meters and smart grids are necessary.

2 Specific Remarks

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?”

Yes, we completely agree with ERGEG. The European climate objectives will have deep impacts on the generation mix. To achieve the needed performance improvements in system optimization and energy efficiency along the entire value chain, modern and intelligent transport and distribution grids are indispensable. Modern grids will present the neutral platform for competition and system optimization.

Renewables have to be integrated into an efficient and capable grid without congestions. Network operators face the new challenges already today and these challenges will rise significantly over the next few years. Especially in Southern Germany for example, BDEW is aware of a growing reversal of load flows from the low-voltage to the medium-voltage grid due to the strong increase in photovoltaics (PV). The same is the case with wind feed-in in Northern Germany. Additionally, the increase of PV-generation also leads to increasing problems for voltage stability. The growing number of (large) decentralised generation and the stochastic feed-in of renewables will lead to technical problems if the current grid structure and technical standards will not change.

In this context, attention must be paid to the fact that the distribution system level is at least of equal importance to the future of the European energy supply as the transmission systems. Most of the decentralized feed-in will be connected to the low and medium voltage grid. Therefore, the distribution network has to be equipped with tools for load (supply) and demand side management for decentralised generation and complex customer services; for example active control elements.

To promote the development of smart grids, (national) regulators and governments should limit uncertainty and investment risks as much as possible. First of all, they should recognise the need to reinforce networks, authorize investments on a timely basis and allocate the appropriate remuneration (or approve the necessary grid tariffs) to TSOs and DSOs. This would contribute to realizing the granted rate of return on equity and giving positive and stable investment impulses.

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

The position paper shows very well the interdependencies and necessary interactions between the different parties involved in a smart grid. In particular, we see it as positive that the paper underlines the importance of the role of transmission and distribution networks with regard to smart grids of the future.

When defining the term „smart grid“, attention must be paid to the fact that this issue does not constitute a pure network-operator-related subject (though this impression is given by the wording). Modern grids will present the neutral platform for competition and system optimisation and take the role of a service provider.

Currently, there exist various definitions of “smart grids” in the international context. Depending on the definition of smart grids, different answers are possible. Therefore, the consultation paper may be an impulse for further discussions and may contribute to a harmonisation of the existing definitions.

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?

The question about decoupling regulated companies' profit from the volume of energy supplied should be discussed independently of the smart grids development.

The core of the involvement of consumers in smart grids are energy management services and infrastructures (e.g. technical building equipment, multi-media connection) which reduce the energy costs and support energy efficiency. Concerning regulated retail prices, BDEW shares the point of view of the European Commission to abolish regulated retail prices negatively affecting wholesale markets and retail competition.

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.

The consultation paper identified the main drivers of smart grids facing the challenges of the future energy supply. Particular attention has to be paid to DSOs as the link between the market roles. As additional drivers, the development of storage technologies and the increase in energy efficiency should be added.

The consultation paper focuses on the user-centric approach as a prominent driver of smart grids and ERGEG assumes that smart grids will increase the elasticity of demand, e.g. by allowing customers to actively participate in the energy market or using smart appliances that can shift their energy demand automatically. However, current preliminary studies indicate that the benefits of smart grids especially for users are not yet as large as expected.

Moreover, smart grids are necessary for further market integration complemented by intelligent market arrangements. They enable an active demand-side management and management of storage possibilities (electricity storages, e-vehicles) to respond to the increasing intermittency of wind power. For further market integration and the interoperability of the grid, ERGEG should require the supplier industry and network companies to develop and implement fully compatible standards.

The advantages of more active demand-side participation could be increased by a central implicit intra-day platform which allows a continuous power wholesale trading across Europe. This would enable markets to make best use of the most effective demand-side response to intermittency of wind power. The most sensible demand-side response could be also balanced against any other supply-side reaction in a market-based way.

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?

Yes, we agree. Smart grids are not a means in itself. They should enable the consumer to actively take part in the energy market.

However, smart grids will only be successful if they reach a broad acceptance and involvement of consumers. An economically efficient reconstruction of the energy system solely from the perspective of energy suppliers and current regulatory conditions is difficult to implement. Sufficient drivers in terms of overall economy and from the business perspective can only be produced by the vision of the market place of energy with a large variety of new energy services for customers who are broadly integrated as new network users through bidirectional communication.

Furthermore, smart grids are also required for a smart load management which allows for balancing increased decentralised feed-in and intermittency from wind and other renewables and the “new” network user behaviour.

With regard to the grid, the platform function and a clear regulatory framework for support of innovation and the necessary additional investment should be a core part in our view.

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

Energy suppliers and energy service companies can make an essential contribution to the development of smart grids. New tariff schemes will give incentives to customers to change their consumption patterns thus bringing a benefit to customers, suppliers and network operators through a smart utilisation of networks. Thus, the demand side can also contribute to mitigate the fluctuations in electricity generation from renewable energies. In this context, it could be also taken in consideration if new forms of grid fees – either sending flexible signals or enabling direct action by the DSO – can be used to optimise the utilisation of smart grids, e.g. to optimise network extension that would otherwise be required to a larger extent. In this context, an economically efficient and sustainable energy generation should also be taken into account.

Energy service companies can provide support to the reconstruction and development of peripheral appliances (monitoring, control, communication) and also to network operation. In order to take advantage of these possibilities for all network users, a stronger linkage between often separated fields of energy supply and energy services are considered to be advantageous.

Additionally, an appropriate and fair framework provided by the legislator and supported by laws/ regulations needs to be made available to all parties concerned.

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

In principle, we agree with this description of the different needs of customers, generators, suppliers and energy service companies (ESCo). The essential trends are mentioned.

In order to reach the European climate objectives, large investments in infrastructure are necessary and will not be realised if the necessary return is not guaranteed in the compensation scheme. The challenge for politicians will be to find the appropriate balance between necessary investments for intended climate objectives and costs for end consumers. The allocation of costs for these investments should be shown transparently to end consumers.

In the context of the necessary construction of new networks, we want to stress that the improvement of authorization procedures is an urgent task. Currently, the public authorisation processes for networks to be constructed require too much time and lead to uncertainties in terms of investment processes. In Germany, the construction of new lines sometimes takes more than eight years. It must be made possible that networks can be constructed in adequate time frames (concerning this topic, see also BDEW position statement on CEER draft on “Regulatory aspects of the integration of wind generation in European electricity markets”).

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.

In principle, we agree with the mentioned challenges.

However, we want to stress once more that smart grids are a tool and a platform and that the services described in chapter 3.5.4 are to be marketed in a competitive environment. In section 3.4.2 (Challenges related to needs of customers) sales and marketing questions are examined with regard to the grid-related section 3.4 (Network challenges). The selection of performance indicators for smart grids (see below) should not cause the results of genuine sales and marketing activities (tariff offers, energy efficiency offers, etc.) to be included in the assessment of the grid. On the one hand, the grid operator has no influence on these and on the other hand, for reasons of unbundling there should be no incentive created for the grid operator to intervene in sales and marketing activities with the exception of dynamic network tariffs/incentives in order to achieve and improve efficient network operation.

It is particularly important to lay down the rules for the interaction, communication and legal cooperation of the different network users and network operators (transmission and distribution networks). Further important fields of action relate to the setting of rules in terms of the responsibility for network stability and safety and for the security of energy transports at the agreed time by the different network users. The different network operators play a central role which must be accepted by all network users. The network quality (network stability and safety) is obtained from the technical parameters of the network structure and the connected network users. It is important to lay down the rules on how to transfer the tolerable quality of

the individual network user to the other network users and how to establish a balance between the different network users in technical and economic terms.

With regard of the integration of feed-in of renewables, account must be taken of the fact that wind power is usually located where the prevailing wind conditions are best and construction areas are available. These locations are very often far away from the consumption centres. Thus, offshore extension is always associated with the necessity of onshore network development for which the availability of financial resources must be guaranteed in order to ensure the security of supply. In this context, attention must be paid to the fact that the distribution system level is at least of equal importance to the future of the European energy supply as the transmission systems. Only if, apart from transmission networks, distribution networks are sufficiently developed, it will be possible to transport the energy produced elsewhere to European cities and consumption centres where it is needed. The development of a trans-European electricity network towards and including the distribution level is of essential importance to the transmission of solar and wind energy to the local points of consumption. As the priority of national regulation for DSOs has to be respected, it is a major challenge to precisely define the interface between national regulation for DSOs and European regulation for cross-border infrastructure.

Regarding network tariffs, see also our answer to question 6.

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.

Looking at smart technologies in the grid on an isolated basis they need additional investment, which however will be a more appropriate solution to address new challenges than the exclusive use of conventional technologies. One goal of investing in smart grids is to improve the utilization of the grids. This should ultimately lead to a reduction of investment in the long run, compared to pure conventional technologies. But in total, the investments for e.g. integration of renewable energies and building the platform "smart grids" will be significantly higher than today. So, the smart grid solutions will help to optimise the increase of investment needs, but, nevertheless, we expect a huge increase. This is, however, one major challenge for the regulators as smart grids mean more risk-prone investment (due to additional information and communication technology).

Another aspect might be that the propagation of smart solutions may lead to an increase in the number of devices and a decrease of average unit costs. That might be reached by the implementation of a clear-cut set of standards regarding functions and data formats instead of a variety of products. Currently, we don't see that regulators support these increased investments in smart grids as long as typical benchmarking or incentive regulation always compares network operators who are most efficient today and not most efficient in the future. Without a more forward looking regulation with clear-cut investment incentives to market partners, we think that smart grids might not be implemented on a broader scale.

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

In principle, we agree with this statement. ERGEG convincingly argues that network operators have to be incentivised to pursue innovative solutions implementing smart grids. It has to be considered that a regulatory framework that encourages the network operators' investment is the most effective incentive to pursue innovative solutions.

Regulations in European member states do to a large extent not support R&D investments - some countries like Great Britain being a rather positive exception in regulation. However, as the implementation of smart grids still needs a lot of research to be conducted, this low focus on R&D is a big disadvantage. As a consequence, investments into smart grids will either be too late or too low.

For example, in Germany the regulatory framework does not encourage investments due to a substantial time period until the network operators receive revenues for the investments. A regulatory framework that encourages investments is much more important, because smart grids will cause heavy investments at the beginning. Investment budgets are a reasonable way to incentivise network operators, but these budgets should not be limited to specific topics like the integration of renewable energy technology instead of the integration of all kinds of decentralised generation technology into the grid.

Therefore, the EU and European regulators should aim at an appropriate and stable regulatory framework in terms of R & D costs. Research activities should focus on technologies which lead to a corresponding refinement of networks. In this context, control and storage technologies which enable the stability of networks to be maintained at times of high energy generation (e.g. from wind energy) and low energy demand are of particular interest. The possibility to integrate electric vehicles for electricity storage should also be taken into consideration.

Another important aspect in our view is that positive externalities and the platform function of smart grids would need to be integrated into the regulation. High priority is to be given to the guarantee of an adequate rate of return on investments and the timely acknowledgement of modernisation costs.

By balancing the interests of all network users, regulation must ensure that the costs incurred for investments (extensions and retrofitting) and expenditures (network adjustments) required by the new demands on transmission and distribution networks are re-financed through appropriate rulings on payment with an adequate rate of return on investments. This is necessary in order to sustainably safeguard the attractiveness of network operation to stakeholders and to ensure a fair distribution of burdens among all network users with the aim to generate a benefit (win-win) to all parties concerned. If network operators are placed at a disadvantage, e.g. where the costs incurred and their refinancing are not or only partly acknowledged, network operators will not be incited to develop a smart grid.

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)?

As stated above, we agree that benefits for users and the implementation of political goals on climate protection are the core focus for smart grids.

BDEW agrees that the regulator should focus on outputs instead of technical details as this prevents micromanagement by the regulating authorities. Consequently, the regulator should not also involve in cost or pricing details and prescribe for example what kind of smart meter is part of the smart grid and what is not. However, when it is about methodologies for regulation of the grid, a clear focus on technical parameters will be unavoidable. It has to be underlined that the network operators need standards to implement smart grids in order to avoid stranded investments. Consequently, we welcome the efforts to develop a European standard for smart meters.

12.

12a. Which effects and benefits of smartness could be added to the list (1) - (7) presented in Section 4.1, Table 1?

We think that this list is already fairly complete and maybe already contains too many performance indicators because it is absolutely necessary that such indicators which are used to measure the performance of grid companies are limited to such indicators which can be directly influenced. Some of the mentioned performance indicators depend on the development of products by suppliers in a competitive environment like the increased sustainability, which depends on the generation structure and the market situation (item 1). Also it should be taken into consideration that in our opinion some of the indicators are already covered by framework guidelines and codes which are to be developed by ENTSO-E, for example item 7 on grid planning in transmission networks.

12b. Which effects in this list are more significant to achieving EU targets?

We think that increased sustainability, adequate capacity and enhanced efficiency are the most important benefits of smartness to achieve the EU targets. They should be the first priority for increased investments into smartness. Other benefits like e.g. “Coordinated grid development” can also be reached without smartness.

12c. How can medium and long-term benefits (e.g. generation diversification and sustainability) be taken into account and measured in a future regulation?

As we said above, this would be the most crucial aspect of a future regulation because it has to be more forward-looking. The benefits of smart grids will be harvested in the future and are mostly outside of the direct network business. If regulation does not take this into consideration, many investments into smartness will be postponed or deterred. With regard to the cited examples, e.g. *generation diversification and sustainability*, it is clear that measures to be adopted and the approach to be chosen are political decisions where the grid can only deliver the platform and investments need to be made by producers and suppliers in a competitive environment.

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?

Output measures are an important point for the design of regulation. In Germany, the methodology of output measures and their evaluation are actually part of the E-Energy projects, which are still within the working process. Furthermore, there should be considered the recently started smart regulation initiative by the Federal Ministry of Economics and Technology in Germany.

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?

Innovations bear a high risk for investors. In particular, technological and regulatory risks occurring when introducing new technology on a large scale have to be taken into account. If the current or expected regulation does not set incentives to cover this risk why should an investor take it? To participate actively as drivers in the development of smart grids, it is very clear that innovations in the network industry need to be compensated with a higher rate of return (e.g. avoidance of extension costs) and/ or a direct compensation for R&D-effort (see also answer to question 10).

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

Yes, the lack of standards is an important barrier to investment.

Smart Metering is a good example in this respect. If a network operator invests into a smart meter he can at the moment choose between different standards. If one standard will be set centrally, the investment of the grid operator might in the future turn out to have been wrong and a second investment will be necessary. Network operators are aware of the risks involved for stranded investments. Under the current regulation, there is a considerable risk of non-acknowledgement of cost. Therefore, network operators will be very reluctant to invest in smart metering unless the regulator agrees to acknowledge this risk.

Standardisation in the field of complex energy systems with manifold actors and domains of acting is a pivotal contribution to the economic efficiency of smart grid solutions.

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

We think that this consultation already gives a good overview.

However, as stated in several places of the position statement, further barriers are the missing clear-cut investment incentives for network operators and the lack of acceptance among many consumers (e.g. consumers in small businesses) unless they can derive a noticeable financial benefit.

Additionally, we must say that with regard to smart grids a lot of R&D still has to be undertaken. We currently know that more smartness will also have positive effects. But we still have to analyse which solutions are most promising with regard to handling, performance and cost. This process will take some time but we hope that regulators will support this process of searching for smart solutions. This consultation certainly is a positive sign that regulators understand this issue and we can expect acceptance and support.

As a final remark, a further risk which is rarely mentioned in the consultation paper is the important field of data security, data privacy and functional reliability. The deployment of smart grids should not cause a conflict between smart grid targets (e.g. 2020) and data protection.

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

As we said above, investing into smartness will have positive externalities. These externalities might be positive for TSOs, consumers or other service providers. We think that this is not so much a question of cross-subsidies. It is more a question of whether politicians or regulators

believe that these positive externalities exist and therefore try to support such an optimisation of the electric system as a whole.

In the smart grid context, DSOs and TSOs have to fulfil different functions. Consequently, their activities do not much overlap. Nevertheless, information exchange is required on the TSO and DSO level to ensure network stability. As DSO and TSO are both regulated businesses, a limited cross subsidisation is not really a problem. However, there is a clear need that cross subsidies to non-network activities are avoided by a clear definition of borders and functions between the regulated business in the grid and services on this platform in a competitive environment.

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

Meeting the 2020 targets needs good investment conditions to enhance the capacities for new generators and international market integration and good R&D conditions.

The current regulatory framework from our perspective is much more focussed on cost cutting with fairly weak incentives to invest. A higher rate of return and acceptance of costs of innovative investments and R&D in the regulatory scheme will strongly support investments and thus make the 2020 targets easier to reach. However, as consumer-focussed technological solutions have still to be developed, the active contribution of consumers to the realisation of smart grids has to be questioned.

Furthermore, an R&D approach (e.g. for cost of pilot and demonstration projects) in the regulatory framework would support the ambitious targets. In addition, the temporary exclusion of smart investments from the cost-focused regulatory framework, e.g. incentive regulation, could be discussed.

Contact Person:

Christina Frein
phone: +49 30 300199-1114
christina.frein@bdew.de