



Position Paper on Smart Grids

An EREGG Conclusions Paper

Annex 3: Evaluation of Responses

Ref: E10-EQS-38-05a
10 June 2010

Annex 3 – Evaluation of Responses

The objective of this Conclusions Paper is to evaluate the responses received by the stakeholders and to state the final views and recommendations of ERGEG after the consultation process. Final views of ERGEG are presented in the main text (E10-EQS-38-05).

This Annex 3 presents, for each consultation question:

- a short summary of the single answer by each respondent;
- the ERGEG's synthetic position on the single answer (agree, partly agree, disagree);
- the ERGEG's explanation of the synthetic position and evaluation of the answer.

The lists of single answers are grouped by respondents' categories. As explained in section 1.3, the categories, in alphabetical order, are:

- consumer associations;
- energy companies;
- grid operators or their associations;
- industry association covering various sectors in the electricity supply chain;
- renewable energy producers or associations;
- research or consulting organisations;
- service providers or manufacturers).

In some cases, the respondents' answers were repositioned or properly allocated, according to ERGEG's understanding of the relevance of what discussed to each consultation question. This particularly applies for general remarks provided by many respondents.

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

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Consumer Associations		
Respondent 02: Altroconsumo Yes	Agree	
Respondent 08: Consumer Focus Yes – major changes required that are not 'business as usual'. Speedier implementation of low/zero carbon generation and more efficient consumption.	Agree	
Respondent 47: VZBZ Agrees that "the electricity market in total is facing new challenges" and that solutions must also consider the total market in a co-ordinated way. Storage and the position of prosumers must be taken into account.		
Respondent Group – Energy Company		
Respondent 04: BNE Agree. The respondent notes that most of the required changes in the grids are an evolutionary development of existing technology. The term "smart grids" is misleading as the whole electricity market has to participate. Small generators and small customers will, due to high transaction costs, not be able to directly participate on the markets.	Partly agree	We do not think the term "smart grids" to be misleading. As we see the grid as the chief enabler of a smart energy market, we do not think that small generators and small customers will not be able to directly participate on the energy markets, though we agree that easy market access for all network users, including small users, is essential for a well-functioning energy market.

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 07: Centrica Agree. The whole industry faces new challenges to deliver the 20/20/20 obligations due to the increased complexities for power systems, where network reinforcement alone may not be an economic option for meeting additional demands. To take full advantage of the new opportunities that will be facilitated by 'smart' technology, networks will require significantly more innovative approaches to actively managing the power on their systems.</p>	Agree	
<p>Respondent 12: EDF Energy Agree. EDF Energy considers that networks are facing new challenges that will require significant innovation in the near future. Generation and demand will have to be more intelligently managed so as to limit the impact of new and very significant loads and power flows on transmissions and distribution systems.</p>		
<p>Respondent 24: E.ON Agree. Modern grids will present a neutral platform for competition and system optimization. Renewables have to be integrated into an efficient and capable grid for reasonable cost and without undue delay. Network operators are already facing these new challenges today and these challenges will increase significantly over the coming years.</p>		
<p>Respondent 14: Edison Spa Agree. There is a clear need for innovative solutions to be implemented in mainly the distribution networks. The technology exists, however, more efforts should be made in the implementation phase. This will require joint effort and coordinated active participation by all stakeholders, especially with regard to standards in technology and communication.</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 13: EDF Agree. New ways of financing and new regulatory frameworks will have to be studied in order to face large-scaled investments. Regulators will have to assess incentivisation of network companies to pursue value for money of innovative solutions.</p>	Agree	
<p>Respondent 20: EnBW Agree. Although smart grids will enable more efficient grid operation, they will also lead to greater costs, at least at the beginning. The realisation of smart grids requires sufficient investment in the grids and their automation, as well in adequate metering systems. Regulatory approval of these grid operator-related costs and sufficient return on investment are essential for this implementation. The regulatory framework must provide incentives for achieving these goals.</p>		
<p>Respondent 10: DONG Energy Agree. The respondent adds that TSOs and DSOs are mainly enablers and that the bulk of innovation will have to take place in the commercial competitive domain.</p>	Partly agree	<p>We agree that TSOs and DSOs are enablers of a smart energy market and that at least part of the innovation has to take place in the commercial competitive domain. However, we think that also TSOs and DSOs have to innovate to be able to play a role as enablers of a smart energy market.</p>
<p>Respondent 40: SSE (joining ENA's response) Agree.</p>	Agree	
Respondent Group – Grid Operator		
<p>Respondent 43: Synergrid Agree. Notes that innovation encompasses operations as well as technology and new business models may be necessary.</p>	Agree	
<p>Respondent 42: Swissgrid Agree. Also identified the need for intensification of inter TSO cooperation, particularly if e.g. the pan-European high-voltage super grid, were to be implemented.</p>		

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent 35: Netbeheer Nederland Agree. Also highlights the need for non-technical innovations.		
Respondent 34: National Grid Agree. Particularly (but not exclusively) a challenge for distribution networks.		
Respondent 30: GEODE Agree.		
Respondent 25: ERDF Électricité Réseau Distribution France Agree. Emphasised that network operators need to "re-write" their business model. This requires innovation in technologies, in finance and investment and in network operations.		
Respondent 21: Energinet.dk Agree.		
Respondent 19: ENA: Energy Networks Association Agree.		
Respondent 16: European Electricity Grid Initiative – DSO Agree. Noted that there is a need for demonstration of these novel technologies.		
Respondent 15: EDP distribucao Agree. Particularly in enabling the active participation of customers in demand response and integration of electric vehicles.		
Respondent 23: ENTSO-E Agree. But also noted that smart grid is complementary to (not a substitute for) new, necessary overhead power lines.	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 36: RWE Rheinland Westfalen Netz Partly agree. The respondent emphasised that this challenge is primarily facing DSOs. The requirement for innovation on the commercial side with development of new products for end-users to engage with the smart grid.</p>	Agree	
Respondent Group – Industry Association		
<p>Respondent 03: BDEW Agree. As most of the decentralized feed-in will be connected to the low and medium voltage grid, the distribution system level is at least of equal importance to the future of the European energy supply as the transmission systems. To promote the development of smart grids, regulators should limit uncertainty and investment risks as much as possible.</p>	Agree	
<p>Respondent 06: CEDEC Agree. The distribution network has to be the focus of developments towards the smart grid. The investments and expenditure made necessary by the new demands on the transmission and distribution networks need to be supported by an appropriate regulatory system in this regard.</p>		
<p>Respondent 29: FutuRed Agree.</p>		
<p>Respondent 41: Svensk Energi Agree. Among other things the implementation of distributed generation and the introduction of electrical vehicles will create a need of significant changes in TSO and DSO innovation to maintain an efficient and stable electricity system.</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 49: EPSU Agree. Investment is also needed in jobs and skilled workers. Companies should be encouraged to be innovative also in this domain through apprenticeships, training agreements and programmes that allows the sharing of knowledge. Networks are the backbone of the public service in the electricity sector and EPSU does not share the view that networks should be run on a competitive basis or for profit.</p>	Partly Agree	We do not agree that the networks should not be managed on a competitive basis. ERGEG thinks that management of grids on a competitive basis does not hinder investments in jobs and skilled workers.
<p>Respondent 50: Eurelectric Agree. Although the technology exists, and is already innovative, more efforts should be made in the implementation phase. This will require joint efforts and coordinated active participation by all stakeholders. There is not yet a common technology and standards in technology are still lacking. The technology is currently mainly implemented in pilot projects.</p>	Agree	
Respondent Group – Renewable Generator		
<p>Respondent 28: EWEA Agree. The respondent states that ERGEG over-emphasizes potential problems due to “intermittent” characteristics and ignores the technological opportunities and benefits that these renewable technologies (possibly in aggregated form) bring. The respondent emphasises the opportunities offered by Network Codes for spelling out ‘smart grid’ type requirements.</p>	Partly Agree	We think that often intermittent sources will be a challenge for electricity grids, though we agree that aggregated intermittent sources can bring technological opportunities and benefits. We think that network codes can be used to spell out some of the requirements of smart grids, but certainly not all.
Respondent Group – Research and Consultancy		
<p>Respondent 05: Bloomberg Agree. The respondent adds that the innovation needed to address the challenges is also an opportunity to transform the power network.</p>	Agree	
<p>Respondent 09: DERlab Agree.</p>		

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 11: Frans Nieuwenhout Agree. The main challenge for both transmission and distribution companies will be to cope with the growing costs of integrating large amounts of low-carbon technologies in the networks and the use of increased smartness in electricity networks to mitigate the growing network costs. These additional network costs will still be relatively small compared to the overall costs of increasing the level of renewable electricity generation.</p> <p>Respondent 32: KTH + Power Circle Agree.</p> <p>Respondent 46: VDE-ETG Agree.</p>		
Respondent Group – Service Providers		
<p>Respondent 01: Accenture Yes</p> <p>Respondent 39: Silver Spring Yes</p> <p>Respondent 26: ESMIG Yes – the “conventional” grid was only designed for one-way power flows.</p> <p>Respondent 33: Landys & Gyr Yes – the “conventional” grid was only designed for one-way power flows.</p> <p>Respondent 38: Schneider Electric “...unbundling, new players, new business models and increasing relative weight of intermittent centralized and decentralized renewable sources are definite challenges that will require new innovative approaches in the field of the supply side.”</p>	<p>Agree</p>	<p>There is a strong consensus amongst this group that the network companies are facing significant challenges that will require significant innovation in the near future.</p>
<p>Respondent 44: T&D Europe Future challenges will impact on all parts of the supply chain – generation, T&D and consumption.</p>	<p>Agree</p>	

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent 45: Teradata Yes but would add the challenges related to data flows and analysis and the necessary speed of change to meet regulatory and market needs.	Agree	
Respondent 48: ZVEI Future challenges will impact on all parts of the supply chain – generation, T&D and consumption.	Agree	
Respondent 37: SAGEM Transmission is already 'smart' but distribution is less so, particularly at low voltages. The greatest challenge will be the development and use of the communications infrastructure required a distribution level.	Partly agree	ERGEG agrees that challenges are greater at distribution level, but disagree transmission is already smart enough to reach the European energy policy objectives. ERGEG would not wish to express a view as to what was the greatest challenge

Consultation question 2: Do you agree with the ERGEG’s understanding of smart grid? If not, please specify why not

Respondents’ views	ERGEG’s position	Explanation/evaluation
Respondent Group – Consumer Associations		
Respondent 02: Altroconsumo Yes	Agree	
Respondent 08: Consumer Focus Yes – agree that the difference is mainly related to complexity.		
Respondent 47: VZBZ Some characteristics are already features of existing grids. Smart grid indicates “special solutions for special problems”.		
Respondent Group – Energy Company		
Respondent 04: BNE Partly agree. The respondent finds ERGEG’s understanding of smart grids unsatisfactory, because it is technology-centred and does not consider the markets adequately. The smart-grid-concept has therefore to be extended by a market component and developed into a smart-electricity-system-concept.	Partly agree	We agree that the smart-grid concept should not include technology only, but also markets. We however think that the definition adapted by ERGEG includes not only technology, but also the market.
Respondent 07: Centrica Partly agree. Centrica agrees with ERGEG that a smart grid does not need to incorporate smart metering, and vice versa. Centrica believes the depiction in Figure 2 implies the contrary and prefer, to prevent confusion, that where smart meters and smart grids are incorporated together, they are referred to as a ‘smart power system’. Centrica also notes that the full contribution of smart grids is not likely to be realised within the next decade - hence they will be key contributors to the 2050 requirements.	Partly agree	ERGEG believes that a smart grid is possible without a smart meter, however, it is envisaged that the full benefits of smart grids are only reached if there is a significant role out of smart meters. We do not agree to use the term ‘smart power system’ because we believe the term ‘smart grid’ is convenient.
Respondent 10: DONG Energy Agree. The respondent notes that the concept of smart grids is far reaching and the term should therefore be used with caution.	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 12: EDF Energy Partly agree. The summary is adequate in terms of what smart grids could deliver, but EDF Energy believes that it would be helpful to also summarise some of the characteristics of smart grids as e.g. smart technologies to economically enhance the service quality and enhanced information communications system to provide greater visibility of the utilisation and condition of the network.</p>	<p>Partly agree</p>	<p>We do not agree that in this context a summarisation of characteristics of smart grids is necessary.</p>
<p>Respondent 13: EDF Partly agree. The definition used by ERGEG is not precise enough. From a regulatory point of view, it could be an issue as it is obviously difficult to regulate – or to set financial rules - for an activity which is not precisely defined and segmented.</p>	<p>Partly agree</p>	<p>We agree that it would be useful to have a more precise definition, but we think, as also suggested by EDF, that this is not possible at the moment. We do not agree that it is an issue for regulation, as regulation is aimed at outputs, which makes a precise definition not necessary per se.</p>
<p>Respondent 14: Edison Spa Agree.</p>	<p>Agree</p>	
<p>Respondent 20: EnBW Partly agree. In Section 1.2 several definitions are proposed, whereas EnBW prefers a single, joint definition for the coming years. It is important that the definition incorporates the aspect of bidirectional communication. EnBW feels that the IEC's definition is in this respect more suitable and the supplementary descriptions in Definition 7 (from EPRI) would considerably improve the informative value. Another useful definition can be found in Wikipedia: "A smart grid is an umbrella term that covers modernisation of both the transmission and distribution grids. The modernisation is directed at a disparate set of goals including facilitating greater competition between providers, enabling greater use of variable energy sources, establishing the automation and monitoring capacities needed for bulk transmission at cross continent distances, and enabling the use of market forces to drive energy conservation."</p>	<p>Partly agree</p>	<p>We agree that there are more possible definitions, but we do not agree that these are better. We also prefer a single and joint definition for the coming years.</p>

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 24: E.ON Partly agree. A more narrow definition of Smart Grids is “a (distribution) network upgraded with additional communication and information technology to steer the more complex supply and load patterns, provide intelligent load management and to enable all costumers and decentralized generators connected to the grid to participate in the energy market.” What is also important for us to mention is that DSOs may have different needs to invest into smart grids as the intelligence necessary will vary by region and voltage level.</p>	Partly agree	We agree that DSOs may have different needs to invest into smart grids, but there is no clear need to modify the proposed definition.
<p>Respondent 40: SSE (joining ENA's response) Agree. But highlighted that there would be a new role for DSOs to initiate and encourage consumer's behaviour change. Also noted the impact of smart grid on losses may not be positive. Proposed definition of smart grid characteristics (e.g. to enhance the quality reliability and security of the system, to provide greater end-to-end visibility of the utilisation and condition of the network etc.)</p>	Partly agree	ERGEG has decided to maintain the definition of a smart grid from the consultation document.
Respondent Group – Grid Operator		
<p>Respondent 36: RWE Rheinland Westfalen Netz Agree. Noted that smart grid should involve more efficient utilisation of existing and future networks, particularly at distribution level. Resulting in an increased interaction between DSO and consumer.</p>	Agree	
<p>Respondent 35: Netbeheer Nederland Partly agree. Emphasised that smart grid is not an end in itself, but a means to use our existing and future system more efficiently.</p>		
<p>Respondent 34: National Grid Agree. Emphasised the role of TSOs in delivery of secure and affordable smart grid approach.</p>		
<p>Respondent 30: GEODE Agree. Notes that this definition is in line with that of the European technology platform on smart grids.</p>		

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 42: Swissgrid Agree in general. But, highlighted that the smart grid is not a specification of technology features, it is a philosophy that facilitates the optimisation of social welfare. For example, reduction in losses may not be a top priority if the overall result in social welfare was positive. Requested explanation of the term "self healing".</p>	Agree	
<p>Respondent 23: ENTSO-E Agree. But noted that the purpose of smart grids is in the maximisation of societal benefit, and as such things like e.g. minimisation of transmission losses may not be top priority. Requested revision of the term "self healing".</p>		
<p>Respondent 16: European Electricity Grid Initiative – DSO Agree. Noted that it is important to recognise that systems may be at different levels of smartness. Highlighted that smart meters are necessary but not sufficient to build a complete smart grid.</p>	Partly agree	ERGEG does not agree that a smart grid is only possible where there is 2-way smart metering although we do agree that smart metering has the potential to be a vital component of a smart grid.
<p>Respondent 43: Synergrid Agree. But, emphasised that smart grid only makes sense where they are profitable for the consumers and that full implementation of smart grid is only possible with extensive roll-out of 2-way smart metering.</p>		
<p>Respondent 19: ENA – Energy Networks Association Agree. But highlighted that there would be a new role for DSOs to initiate and encourage consumer's behaviour change. Also noted the impact of smart grid on losses may not be positive. Proposed definition of smart grid characteristics (e.g. to enhance the quality reliability and security of the system, to provide greater end-to-end visibility of the utilisation and condition of the network etc.)</p>	Partly agree	ERGEG has decided to maintain the definition of a smart grid from the consultation document.

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent 25: ERDF Électricité Réseau Distribution France The definition is not precise enough. There are still many definitions of smart grid and from a regulatory perspective there needs to be a much tighter definition and segmentation of the activity.	Partly agree	ERGEG agrees that it would be beneficial to have a common definition of smart grid to avoid misuse or misunderstanding of the term. We will continue to promote a common definition in our work with the many other groups that are also taking on smart grid activity. However, we would resist calls for a highly specific, tightly constrained definition of smart grid. We are not convinced of the benefits of such an approach.
Respondent 21: Energinet.dk Agree with IEC definition on page 11. Emphasised that it is important that all controllable assets must be able to contribute to optimal system operation. Also noted (in position statement) that prior to any innovation having effect there is a need for national roll-out of a 2-way data communication system,	Disagree	ERGEG does not consider that the IEC definition is helpful from a regulatory perspective. The issue of an appropriate communications strategy is complex and requires much further study.
Respondent 15: EDP distribucao Agree. But proposed that the replacement of “intelligently integrate” with “cost effectively integrate” was not appropriate.	Disagree	The change is focused on output cost effectiveness (value for money paid by grid users). Intelligent technologies alone are not sufficient.
Respondent Group – Industry Association		
Respondent 03: BDEW Partly agree. 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. Modern grids will present the neutral platform for competition and system optimisation and take the role of a service provider.	Partly agree	We agree that smart grids is not a pure network-operator-related subject, we disagree that the modern grids take the role of service provider, modern grids enable service providers (being not network operators) to deliver services to end users.
Respondent 06: CEDEC Partly agree. With the definition of the term “smart grid”, it should be borne in mind that it does not represent a pure network operator issue, rather, the basis for moving away from centralised in favour of decentralised power supply. The term “smart grid” therefore describes the cooperation of all market participants in the future.	Agree	
Respondent 29: FutuRed Partly agree. FUTURED stresses the importance of the IC technologies involved in the development of any smart grid.	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 49: EPSU Agree. EPSU appreciates that ERGEG makes the distinction between smart grids and smart meters. Smart grids are set to bring benefits for society, including domestic users. EPSU is skeptical of the benefits of smart meters for domestic households compared to the costs</p>	Partly agree	We agree that it is important to roll out smart meters on a basis of a positive cost-benefit analysis.
<p>Respondent 41: Svensk Energi Partly agree. Svensk Energi stresses that new types of Independent Power Producers (IPPs) are entering the market, who have often no historical background in power production and their views and demands on the TSO/DSO are different from those of traditional utility owned producers. This will require more detailed and stronger requirements on grid-codes for connection and operation.</p>	Agree	
<p>Respondent 50: Eurelectric Partly agree. Eurelectric estimates that the role of the smart meter might be insufficiently understood. It is fully right that a smart grid implementation can be partly initiated without the smart meter but Eurelectric estimates that the full return will only be possible through an extensive additional capacity in measurements and a 2-way communication (figure 2 and belonging text are a little bit in contradiction with further explanations as for ex. par 3.5.4). Eurelectric recognises that the concept of smart grids is very wide and for this reason it is important to specify the scope of the regulatory approach and to define a concrete regulation plan for each part of the electricity supply chain.</p>	Agree	
Respondent Group – Renewable Generator		
<p>Respondent 28: EWEA Partly agree. The scope and definition of smart grids are too broad to be a workable concept for regulatory purposes. The definition of smart grids as developed by IEC is a better start. Furthermore, it does not take into account smart metering, storage, industrial demand and interactions with non-electric</p>	Partly agree	We agree that the scope and definition of smart grids in the paper is broad, but we do think that our definition is the best start. We do not agree that we do not take into account smart metering, storage, industrial demand and interactions with non-electric energy users.

Respondents' views	ERGEG's position	Explanation/evaluation
energy users.		
Respondent Group – Research and Consultancy		
Respondent 05: Bloomberg Agree. The respondent places an additional emphasis on the importance of power storage technologies and their integration onto the grid, for the purposes of maintaining power quality and balancing supply and demand.	Agree	
Respondent 09: DERlab Agree. The respondent adds that it is useful to analyse the role of smart metering in order to give a contribution to the smart grid deployment.	Agree	
Respondent 32: KTH + Power Circle Agree. The respondent comments that there are many drivers that will influence the cost level of our future electricity nets and it will not be easy to distinguish between them. From some aspects smart grids will become a cost, from other perspectives it will rationalise system performance.	Agree	
Respondent 46: VDE-ETG Agree	Agree	
Respondent Group – Service Providers		
Respondent 37: SAGEM "We are fully in line with ERGEG's position".	Agree	
Respondent 01: Accenture Yes – broader than smart meters and "beyond the meter".	Agree	
Respondent 44: T&D Europe "A very good approach to the general term" – minor changes suggested. Proposes that equipment manufacturers are involved at an early stage.	Partly agree	These respondents proposed minor changes to ERGEG's definition which we have decided not to adopt.
Respondent 38: Schneider Electric Agree – but would propose additional points – e.g. "smarter" rather than "smart", demand side changes/behaviours, include microgrids, micro generation, storage and end-users.		

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 48: ZVEI "A very good approach to the general term" – minor changes suggested. Proposes that equipment manufacturers are involved at an early stage.</p>		
<p>Respondent 33: Landys & Gyr Yes, but comments that it is misleading to say that you can have a smarter grid without smart metering. Argues that smart metering is an essential part of a smart grid.</p>	Partly agree	<p>ERGEG does not hold the view that smart grids should be developed without smart meters. ERGEG was concerned that some parties were mixing the two concepts together and that this was causing confusion. The paper therefore makes the point that smart grids and smart meters are different.</p> <p>Regarding communications, ERGEG agrees that the challenges here should not be under-estimated.</p>
<p>Respondent 26: ESMIG Yes, but comments that it is misleading to say that you can have a smarter grid without smart metering. Argues that smart metering is an essential part of a smart grid.</p>		
<p>Respondent 39: Silver Spring Comments that the ERGEG paper under-emphasises the need for a communications architecture that allows smart grids to leverage the benefits of smart metering.</p>		
<p>Respondent 45: Teradata "Yes we agree with the definition.." but concerned that information management and analysis not fully defined.</p>		

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

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Consumer Associations		
Respondent 02: Altroconsumo Yes – but no implementation proposals proposed.	Agree	
Respondent 08: Consumer Focus Agree that decoupling profits from volume is an important consideration, noting that electricity consumption could rise. Cites British example of linking revenue of network companies to outputs.		
Respondent 47: VZBZ Questions whether regulated companies should be made responsible for reducing energy consumption. Consider which parties should have this responsibility – e.g. municipalities.	Partly agree	ERGEG agrees that other parties could also be required to achieve energy reduction targets but that there is still a role for the network companies to incentivised to play a part.
Respondent Group – Energy Company		
Respondent 04: BNE Disagree. A full decoupling of companies' profit from the volume of energy supplied could have negative effects on the efficiency of the grid. A grid can only be efficient if it is not larger than required by the consumption (or generation) in that grid. ERGEG's proposal in section 4 of integrating performance indicators into a benchmarking system is a good approach to the problem - although defining the details is quite a challenge.	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 07: Centrica Partly agree. Energy consumption has been considered under many regulatory regimes to be a potential cost driver for networks. So long as revenue drivers and associated incentives are specified carefully, linking revenues to consumption should not in and of itself lead to excessive profits. In general, higher profits should only result if network companies are able to meet increased demand at a lower cost than that allowed by the regulator.</p>	<p>Agree</p>	
<p>Respondent 10: DONG Energy Partly agree. The respondents finds commercial development of products that meet the needs and demands of customers more important than to try to unwind presumed disincentives through so called decoupling.</p>		
<p>Respondent 13: EDF Agree. On the long term, major evolution of consumption implies that stakeholders must think of a new tarification model, more based on capacity payments than on consumption from the grid. Moreover, regulators, in close cooperation with suppliers, network operators and their shareholders have to set transmission and distribution price, compatible with the investment effort.</p>	<p>Agree</p>	
<p>Respondent 12: EDF Energy Agree. As there is no direct or simple link between energy supplied and the cost incurred by network companies, EDF Energy believes that the decoupling of allowed revenues and energy volumes should be recommended. OFGEM will already implement a decoupling of revenues from energy consumption and EDF Energy recommends that ERGEG studies OFGEM's decision document.</p>		

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 14: Edison Spa Partly agree. Distribution and transmission companies, as regulated companies, should not be subject to the energy demand in its remuneration but on the development, maintenance and operation of their networks and its components. However Edison Spa thinks that is important to focus more on the "optimization" of energy consumption than directly on reducing it.</p>	Agree	
<p>Respondent 20: EnBW Partly agree. A load-oriented element in the grid charges will help encourage both households and industry to introduce grid-compatible load management. The load-oriented grid charges should depend on the grid conditions and not the energy supply. On the other hand, a reduction in energy consumption does not necessary mean a reduction in electricity consumption. Electric vehicles for example can replace traditionally fuelled vehicles, leading to improved global energy efficiency.</p>		
<p>Respondent 24: E.ON Partly agree. The revenues of grid operators should be volume adjusted, as is already the case in some EU countries with revenue regulation. The revenues for DSOs are fixed and volumes deviations are balanced at the end of the regulatory period. If one of the targets is energy efficiency then the total annual volume in a benchmarking process should be re-considered.</p>	N/A	
<p>Respondent 40: SSE Disagree. The assertion is too simplistic and does not have relevance to issues of security of supply, de-carbonisation or competitiveness. From April 2010 there will be no volume driver in GB.</p>	Partly agree	We recognise that this is a complex issue and that this question has only raised one aspect of it.

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Grid Operator		
Respondent 15: EDP distribucão Agree. Supports initiatives to promote energy efficiency. Proposes that network operator revenues are established as a function of fixed costs, promoting innovation through incentive schemes similar to those designed to reduce losses etc.	Agree	
Respondent 21: Energinet.dk Partly disagree. To meet 20-20-20 targets new electrical load will be added to the system (electric vehicles and heat pumps), additional infrastructure is needed to support this (ICT in particular) regulatory frameworks should be flexible enough to allow timely investment.	Agree	
Respondent 19: ENA – Energy Networks Association Disagree. The assertion is too simplistic and does not have relevance to issues of security of supply, de-carbonisation or competitiveness. From April 2010 there will be no volume driver in GB.	Partly agree	We recognise that this is a complex issue and that this question has only raised one aspect of it.
Respondent 30: GEODE Disagree. The challenge presented requires a new approach for the new consumers that are entering the system (DG and “prosumers”). Development of appropriate tariff structures (e.g. load based) for these new customers is needed.	Partly agree	We agree that new approaches may well be needed but these would be additional to the de-coupling raised by this question.
Respondent 25: ERDF Électricité Réseau Distribution France Partly agree. The objective of reduction in energy consumption means that in the long-term the rationale for this approach is sound. In the short term there may need to be more sophisticated approach to tariffs that reflects the needs and usage patterns of new consumers as well as supporting long-term investment.	Partly agree	We recognise that this is a complex issue and that this question has only raised one aspect of it.

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 23: ENTSO-E Agree. Noted that the grid is likely to see an increase in electricity consumption. What is needed is a focus on incentivising adequate and secure grid operation. Network operators should be remunerated in a way that supports evolution of the infrastructure e.g. through asset base remuneration.</p>	Partly agree	We recognise that this is a complex issue and that this question has only raised one aspect of it.
<p>Respondent 16: European Electricity Grid Initiative – DSO Partly agree. the final tariff paid by consumers should differentiate the energy price component from the access price component. The access price should be adjusted to reflect the appropriate signals for network users. Regulation of DSOs through Opex (as at present across many EU DSOs) may not be helpful.</p>	Partly agree	We recognise that this is a complex issue and that this question has only raised one aspect of it.
<p>Respondent 34: National Grid Agree. Noted that this is only an issue where the networks are not separated from supply business (not the case in UK).</p>	Disagree	ERGEG does not agree that this is only where networks are not separated from a supply business.
<p>Respondent 42: Swissgrid Disagree, grid companies profits are already decoupled from the volume of energy supplied. Also re-stated that smart grid is about facilitating a globally optimal solution, this may result in an increase in electricity consumption (e.g. through electric vehicles & heat pumps).</p>	Disagree	ERGEG does not accept that grid companies' profits are already decoupled from the volume of energy supplied although this may be the case in a number of countries.
<p>Respondent 35: Netbeheer Nederland Partly agree. Regulated companies already operate independently of the volume of energy distributed, and have little impact on energy consumption. Moving from a volume, to a capacity based approach could work, if additional incentives were provided to prevent negative impact on long term investment. Facilitating societal incentives to reduce CO₂ is not the role of the grid company.</p>	Disagree	ERGEG does not accept that grid companies' profits are already decoupled from the volume of energy supplied although this may be the case in a number of countries.

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 43: Synergrid This is one approach to achieve these objectives. An alternative could be use of capacity based grid tariffs with a “bi-directionality factor”, and a move away from peak-load based pricing.</p>	N/A	This idea would need to be developed further to assess its applicability.
<p>Respondent 36: RWE Rheinland Westfalen Netz Agree. Suggest a “load-focused” approach will be necessary, i.e. as network resources become scarce, energy shipped is less significant, and charging on the basis of loads connected will send more appropriate signals.</p>	N/A	This idea would need to be developed further to assess its applicability.
Respondent Group – Industry Association		
<p>Respondent 03: BDEW Partly agree. The question about decoupling regulated companies' profit from the volume of energy supplied should be discussed independently of the smart grids development.</p>	Partly agree	We think that this discussion can take place in the discussion about smart grids, but we agree that this is a more general discussion than the discussion on smart grids only.
<p>Respondent 06: CEDEC Partly agree. A clear distinction must be made between revenues (that cover costs through network tariffs) and profits (as remuneration of the capital invested). A capital remuneration arrangement for regulated network operators depending on the output quantity supplied would indeed counteract the energy reduction objectives. A system in which the profits are detached from the quantity supplied would certainly be more sensible.</p>	Agree	
<p>Respondent 29: FutuRed Partly agree. The objective of reducing the energy consumption, which must not be against the welfare society, does not necessarily mean a reduction of electrical energy consumption. FUTURED thinks that energy reduction requires the integration in the grid of renewable energy supply, electrical vehicles the increase of PHEV, smarter energy consumption at non-peak time and so on. On this scenario their remuneration should certainly be decoupled from the volume of energy supplied.</p>	Agree	
<p>Respondent 41: Svensk Energi Partly agree. Energy efficiency however not always leads to</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
electricity consumption reduction. A shift from direct use of fossil fuels to efficient electric systems are an important tool to mitigate climate change. A regulated income frame based on the DSO assets, set for several years, reduces the effects on DSO profits from reduced energy consumption in the short run.		
Respondent 49: EPSU Partly agree. EPSU supports the idea of decoupling, but is concerned with the reference to profits in the question. EPSU does not support the view that networks should be a source of profits and hence profit-maximization. A fair and regulated rate of return can be supported.	Partly agree	We disagree that the networks should not be managed on a competitive basis.
Respondent 50: Eurelectric Energy efficiency does not always means reduction of electricity consumption. Network owners receive revenue from connection charges that have nothing to do with energy flow and use of system charge that is related to energy flows. In any case use of system charge is to be reviewed on a regular basis and the regulators could provide the right incentives. The grid access tariff, or Third Party Access (TPA) tariff, could be decoupled from energy supplied. The final "price" paid by customers, should differentiate between the energy price component and the grid access tariff component.	Agree	
Respondent Group – Renewable Generator		
Respondent 28: EWEA Disagree. The principle of decoupling profits of companies from the volumes they process seems strange. This should be better explained including the link with the subject of the paper.	Disagree	We think the explanation in the consultation paper is sufficient, also because the other respondents do not seem to have problems with the explanation.
Respondent Group – Research and Consultancy		

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 05: Bloomberg Agree. The respondent believes that decoupling can play an important role in removing the incentives to generate, transmit and sell larger volumes of energy. Decoupling can thus be a significant factor for investment in smart grid or energy efficiency technologies. However, decoupling only is not sufficient, but should be combined with additional measures to promote energy efficiency.</p>	<p>Agree</p>	
<p>Respondent 09: DERlab Agree. In general the focus should be more on the quality of the network and network services. A new quality factor could be included taking into account the reduction in energy consumption in the network compared to a reference network.</p>		
<p>Respondent 32: KTH + Power Circle Partly agree. The incentives should be more directed towards ensuring quality and the transport capacity than on the energy transferred. The conclusion is that a move towards total decoupling from energy seems premature.</p>		
<p>Respondent 46: VDE-ETG Partly agree. The today applied approach to charge for peak load and energy flow in the vertical direction (top down) only cannot lead to an interest of the network operators to implement smart grid solutions. A solution could be bonus or malus in accordance with the provided power quality parameters and for the application degree of smart grid solutions.</p>		
<p>Respondent 11: Frans Nieuwenhout Partly agree. The IMPROGRES project finding is that UoS charges should preferably be dependent on both kW production capacity and kWh energy produced. The latter reflects costs which are related to actual amount of energy transported through the network as network losses.</p>	<p>Agree</p>	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 27: Even Consults Agree. If we think in terms of cost effective charges, we should go for formulas where the contractual power at the point of connection is the key parameter. Using distributed energy as a cost driver incentivises the user to care for its energy consumption and is a way to provide the same service (contractual power) at a lower price for socially weaker users.</p>	N/A	
Respondent Group – Service Providers		
<p>Respondent 01: Accenture This is an option. However “reasonable profit levels” for regulated companies should not be endangered. Tariff structures should reward energy efficient customers.</p> <p>Respondent 22: EnerNOC UK This is one option but other mechanisms are available – e.g. targets for suppliers to meet customers’ needs through higher efficiency rather than production including financial incentives. Extensive comments on this issue.</p> <p>Respondent 26: ESMIG Comments that if a “flat grid-use fee” kept constant for a period of years could be helpful in allowing smart grid investment.</p> <p>Respondent 33: Landys & Gyr Comments that if a “flat grid-use fee” kept constant for a period of years could be helpful in allowing smart grid investment.</p> <p>Respondent 37: SAGEM Agrees that the effect of changes in customer demand on regulated companies must be considered.</p> <p>Respondent 38: Schneider Electric Yes – comments on time of use tariffs, incentives for energy efficiency and improved power factors.</p> <p>Respondent 39: Silver Spring Energy efficiency policies require “responsive, peer-to-peer [communications] networks such as wireless mesh”</p>	N/A	<p>These respondents broadly agreed with ERGEG’s position but made a number of qualifying points that would require further study to reach an ERGEG position on, including:</p> <ul style="list-style-type: none"> • There are other options to encourage reductions in energy consumption, including tariff structures. • It is important to ensure that regulatory mechanisms do deliver appropriate profit levels for the services offered by network companies. • Predictable revenue streams could encourage network companies to invest in a smarter grid. • Incentives to improve power factors should be considered.
	Partly agree	ERGEG fully understands the need for effective communications but is agnostic about the most appropriate technology.

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 44: T&D Europe "Not necessarily" – increasing volumes of "transportable energy" through a grid could be an indicator of flexibility etc. Regulation should "provide the economical backbone" for the network companies.</p> <p>Respondent 48: ZVEI "Not necessarily" – increasing volumes of "transportable energy" through a grid could be an indicator of flexibility etc. Regulation should "provide the economical backbone" for the network companies.</p>	Partly agree	<p>ERGEG agrees that the energy transported by network companies is likely to increase if transport and heating are electrified in the future and could indicate a successful performance on the part of network companies. This may be an additional reason for decoupling profit from volume.</p>

Consultation question 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.

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Consumer Associations		
Respondent 02: Altroconsumo Yes	Agree	
Respondent 08: Consumer Focus Agree that this is a full description of the relevant drivers. Notes that demand response will rely on metering and market arrangements.		
Respondent 47: VZBZ “In general we do agree”, but comments that the grid is only part of the problem/solution.		
Respondent Group – Energy Company		
Respondent 04: BNE Agree. The respondent adds that end-user participation will depend on the products offered by energy suppliers and energy service companies, as those parties are the link between wholesale markets, grids and end-users. Grids have to enable suppliers and service companies to develop products.	Agree	
Respondent 07: Centrica Agree. Customer engagement will be a crucial factor both in encouraging changes in behaviour (in response to consumption information resulting from smart meter deployment) and in embracing new technologies (e.g. distributed generation and electric vehicles).	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 10: DONG Energy Agree. The respondent points to the importance of the transformation of the transport sector with the introduction of electrical vehicles and the transformation of the heating sector. by the use of CHP and heat pumps.</p>	<p>Agree</p>	
<p>Respondent 12: EDF Energy Partly agree. EDF Energy believes the list under 2.4 could be improved by including load growth due to a move from fossil fuels to electricity for e.g. heating and transport, the need to maximise utilisation levels and load factors for distribution networks to avoid cost-prohibitive reinforcement, the need to be able to balance a system comprising very high contributions from intermittent sources of generation, the need to be able to provide adequate levels of short-term operating reserve, and the need to integrate DG and storage.</p>		
<p>Respondent 13: EDF Partly agree. EDF adds that in the French context, where local authorities are the owners of the grid, the growing pressure from local authorities could have a significant impact on the investment trajectory of the distribution operators and the network performance, through local contractual requirements in addition to the legislative targets.</p>	<p>Partly agree</p>	<p>We agree that the pressure from local authorities can act as a driver, but we think this is a derivative of the 20/20/20 targets.</p>
<p>Respondent 14: Edison Spa Agree. Edison Spa thinks that the application of smart grids can improve customer service and is a necessity for the integration of distributed generation, renewable energy sources and hybrid cars into the electricity grid.</p>	<p>N/A</p>	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 20: EnBW Partly agree. The identified drivers are essentially correct but the item “improved operational security” should be supplemented with “cost-efficient grid expansion and automation” in order to achieve cost efficient integration for all actors. More emphasis could be placed on the role of suppliers who, through their innovative electricity products, make it possible for consumers to play a more active role in the electricity market. Dynamic and time/load-dependent grid charges provide consumers with further incentives to operate active load and energy management.</p>	Partly agree	We agree with the need for cost-efficient grid expansion and automation, but we think it is a means and not a driver for smart grids (as intended by ERGEG)
<p>Respondent 24: E.ON Partly agree. The primary drivers we see are the integration of renewables, end user participation on the energy market and the management of changing demand profiles as a result of the decarbonisation of the energy and transport sectors.</p>	Agree	
<p>Respondent 40: SSE (joining ENA's response) Proposed additional drivers: load growth, maximise network usage to avoid costly reinforcement, provision of adequate operating reserve, allow Distribution grids to contribute to balancing, integration of DER into design criteria for networks, network adaptation to the effects of climate change.</p>	N/A	Significant additional points made that would that would require further study to reach an ERGEG position on.
Respondent Group – Grid Operator		
<p>Respondent 43: Synergrid Agree. Noted that investment requirements for additional capacity could be another driver (particularly for peak shaving activity). And emphasised that as value for consumers is key in the success of smart grid, that the supplier (or aggregator) role might be crucial in driving change (by helping consumers to realise value).</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent 42: Swissgrid Generally agree. Highlighted an additional driver of performance and controllability. High input of intermittent generation and flexible demand is driving the need for a more controllable power system supported by a strong communications infrastructure.	Agree	
Respondent 34: National Grid Agree. Noted that smart grid would allow TSO's to provide operational security more efficiently (not to provide an improved service – as may be the case for DSOs).	Agree	
Respondent 30: GEODE Agree. Includes load growth from electric vehicles, heat pumps and air conditioning as a key driver, along with maintaining customer services.	Agree	
Respondent 25: ERDF Électricité Réseau Distribution France Agree. Added that growing pressure from Local Government is also a key driver (although this is a specific French issue).	Partly agree	ERGEG would not comment on the local issue described.
Respondent 21: Energinet.dk Agree. Strongly emphasised that full exploitation of all these drivers will only be possible with a true and near-real time market	Partly agree	Markets will play a vital role in the development of the electricity supply system. The precise characteristics of a future market are outside the scope of this consultation.
Respondent 19: ENA – Energy Networks Association Proposed additional drivers: load growth, maximise network usage to avoid costly reinforcement, provision of adequate operating reserve, allow Distribution grids to contribute to balancing, integration of DER into design criteria for networks, network adaptation to the effects of climate change.	N/A	Significant additional points made that would that would require further study to reach an ERGEG position on.
Respondent 16: European Electricity Grid Initiative – DSO Agree.	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent 15: EDP distribuc�o Agree - but would give greater emphasis to the driver of increased demand for electricity from electric vehicles.	N/A	
Respondent 23: ENTSO-E Agree. Noted that operational security was the "catalyst factor" for all the other drivers	Partly agree	While operational security is of the very greatest importance we do not agree that is the catalyst for all other drivers.
Respondent 36: RWE Rheinland Westfalen Netz Generally agree. But noted that challenges do not necessarily result from accommodating more demand for electricity (e.g. from electric vehicles) but from dealing with new load peaks. Also noted that operational security would not necessarily increase, as the grid resource would be being pushed closer to its limits. A reappraisal of ERGEG's concepts of operational security may be needed.	Partly agree	It would be useful to explore the comment about operational security.
Respondent 35: Netbeheer Nederland Generally agree. But doubts that consumers will play a significant role in driving the change. Highlights increasing demand for electricity and dealing with peaks in demand as a key driver. And notes that smart grid should develop through the market – not technology-push development.	Partly agree	ERGEG would hope that consumers will play a role but accepts that this cannot be predicted with certainty.
Respondent Group – Industry Association		
Respondent 03: BDEW Partly agree. 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. However, current preliminary studies indicate that the benefits of smart grids especially for users are not yet as large as expected.	Partly agree	We see the development in storage technologies as an enabler, not as a driver. We think that the benefits of smart grids can be large, we agree however that at the moment it is not clear how large these benefits will be.

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 06: CEDEC Partly agree. Another important driver concerns the network operators (transmission and distribution networks), on account of these having an interest in safe, secure and economical operation of the networks. Furthermore, it is, above all, the distribution network operators that form the connecting link between the other identified drivers (producers, network users, communication) and which therefore play a key role in the smart grid.</p>	Agree	We think that the safe and secure operation is covered under operational security, which was mentioned in the consultation paper.
<p>Respondent 29: FutuRed Agree. The most important factors that influence the implementation of a smart grid are regulation, growing demand, new technology, isolated IT systems, industry, assets and aging workforce, and climate change. To achieve these requirements the grid needs a change, in order to increment safety and reduce delivery losses, making transmission and distribution more efficient and flexible.</p>	N/A	
<p>Respondent 41: Svensk Energi Partly agree. Svensk Energi highlights that to give the incentives for the customers to invest in demand response, time shift of loads and other energy efficiency means it's crucial to have increase price transparency.</p>	Partly agree	We agree that price transparency is important for the active participation of end users, however, we do not think that this is a driver for smart grids
<p>Respondent 49: EPSU Partly agree. What is not identified, is what can be possible hindrances to the future development of the networks and deployment of innovative solutions. One of these hindrances is the availability of jobs and skilled and trained workers. Another hindrance to future development can be unclear value chain relationships through a variety of outsourcing and other arrangements. Many companies have outsourced what we used to call "core business." The regulators should be very clear in their regulations what they expect the companies that own and/or operate the networks to be responsible for.</p>	Partly agree	We agree that the availability of skilled and trained workers is paramount to the development of smart grids, However, we do not see any drivers here.
<p>Respondent 50: Eurelectric</p>	Partly agree	We agree with the importance of cost-efficiency but we do not

Respondents' views	ERGEG's position	Explanation/evaluation
Partly agree. The drivers listed are mainly internal to the grid operation and important. In addition, increasing flexibility in network operation as well as the need to optimize network investments in order to achieve a cost-efficient network, and finally ageing assets can be considered. Furthermore, external drivers exist, as progress in technology or transformation of energy use towards more electricity is a big driver and at the same time may be regarded as an opportunity for future developments. To get the drivers and incentives for the grid user/end customer to engage in demand response, time shift of loads and other energy efficiency programs it is crucial to have increased price transparency for all customers, including low voltage household customers.		think it is a driver for smart grids We think that progress in technology is not a driver, but an enabler of smart grids. We agree that price transparency is important for the active participation of end users, however, we do not think that this is a driver for smart grids
Respondent Group – Renewable Generator		
Respondent 28: EWEA Partly agree. A significant share of the presently installed wind power capacity is connected at distribution level, which does not corresponds to the concept of distributed generation outlined in the consultation paper. That ERGEG mentions the need for new smart technologies for connecting offshore wind illustrates that the ERGEG concept of smart grids is very confusing and ill defined. Strong drivers for the implementation of “smart grid” technologies which are not mentioned in the list are recent innovations in the ICT sector.	Partly agree	We agree that wind power connected to the distribution level is not separately described. However, we feel that distribution generation as a driver also encompasses the challenges that small wind power put to the distribution level, thus driving innovation. We view the development of new technologies in other sectors not as drivers, but as enablers for innovation driven by for example distributed generation.
Respondent Group – Research and Consultancy		
Respondent 05: Bloomberg Agree. The respondent believes that the deployment of electric vehicles in European countries will be an additional major technical driver for the adoption of smart grid technologies.	Agree	
Respondent 09: DERlab Agree. The respondent wants to stress the important part that electric vehicles can play in future distribution networks. The	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
respondent also notes the obstacles for the development of smart grids: The lack of harmonisation of grid codes and interconnection requirements and the gaps in the testing and certification procedures of new devices and services. Standardisation activities are not drivers themselves but the activities of the stakeholders driving the process have to be backed by standardisation.		
Respondent 32: KTH + Power Circle Agree. The respondent stress the importance of irrational drivers as customers that wish to engage energy service providers from outside the electricity business (e.g. telecom industry, estate companies). New market entrants will appear, effect the behaviour and demand market changes. These drivers are difficult to predict as the entrants are used to other market rules than those reigning the electricity market.	Agree	We agree that changing market rules might lead to new drivers
Respondent 46: VDE-ETG Agree. The respondent wants to add a as a driver the availability of advanced metering, information and communication (ICT) technologies. It should moreover be clarified that market integration includes the market participation of storage, renewable and distributed energy sources.	Partly agree	We agree on the importance of the development of new technologies in other sectors, but we do not regard them as drivers, but as enablers for innovation driven by for example distributed generation.
Respondent Group – Service Providers		
Respondent 39: Silver Spring Yes	Partly agree	These parties supported the identified drivers and made additional points that would require further study to reach an ERGEG position on.
Respondent 01: Accenture Yes but add technology evolution, customer environmental awareness and ageing grids.		
Respondent 37: SAGEM "We are in line with the explanation of drivers", but comment on the involvement of the customer and the statement (2.4) that DG cannot be considered at the design stage of a distribution network.		

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 38: Schneider Electric Suggests that energy storage, safe & reliable end-use, EVs should be added as drivers.</p> <p>Respondent 44: T&D Europe Yes but would add "subsidies" – their impact should be "rechecked".</p> <p>Respondent 45: Teradata Yes – information analysis a key enabler.</p> <p>Respondent 48: ZVEI Yes but would add "subsidies" – their impact should be "rechecked".</p>		
<p>Respondent 26: ESMIG Broadly agrees but considers legislation to be a "direct" driver and the needs of grid users as the "indirect" push.</p> <p>Respondent 33: Landys & Gyr Broadly agrees but considers legislation to be a "direct" driver and the needs of grid users as the "indirect" push.</p>	Disagree	ERGEG does not agree that current legislation is a direct driver for the development of smarter grids. Also, due to the diverse nature of smart grid solutions, it would not be appropriate to attempt to legislate for smarter grids.

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

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Consumer assoc.		
Respondent 02: Altroconsumo Yes, we do.	Agree	
Respondent 08: Consumer Focus We agree that network companies need to develop a more user-centric approach, explaining the role they play and proactively engaging with users of the network, supply companies and their customers.	Agree	
Respondent 47: VZBV It is necessary to develop the market from the viewpoint of the consumer. At the end all market developments should serve the needs of consumer.	Agree	
Respondent Group – Energy Company		
Respondent 04: BNE The participation of users is essential for the success of smart grids. The electricity networks exist for the sole purpose of facilitating the actions of parties that require their services. Retail suppliers and energy service companies have to be fully involved in any smart-grid-system.	Agree	
Respondent 07: Centrica It is important to note that there are many stakeholders that will be affected by smart grid regulation. We emphasise that the costs and benefits of smart grids should be distributed equitably amongst stakeholders, such that the benefits to a given stakeholder fairly reflect the cost and risk to them.	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent 10: DONG Energy We agree that the customer must be in the centre.	Agree	
Respondent 12: EDF Energy A user-centric approach would need to be qualified by also considering the wider societal benefits. Smart grid deployment should also consider the potentially wider role of distribution networks in providing advanced infrastructure for EVs and ancillary services to TSOs.	Agree	
Respondent 13: EDF Smart Grids tend to cross the traditional boundaries between DSOs and suppliers. An approach that would be only user-centric would fail to identify those issues. A systemic and global approach is needed to evaluate the real interest of Smart Grids which is a welfare interest, the costs of which have to be socialized.	Partly agree	A user-centric approach is focused on users' needs but it does not forget the costs and benefits of DSOs, suppliers other actors and the whole society
Respondent 14: Edison Spa We agree that the electricity system and grid challenges must certainly be linked to the user-centric approach.	Agree	
Respondent 20: EnBW The "user-centric approach" as described in the paper is largely an empty formula. If the regulator wants to provide incentives for the grid operator to sufficiently invest in a smart infrastructure, then this must also ensure a suitable return on investment, especially when this investment provides no other advantages for the grid operator within the remaining regulations.	Partly agree	A user-centric approach is focused on users' needs. ERGEG believes that grid operators will also be beneficiaries of smarter grids and this is already as an incentive for them.
Respondent 24: E.ON Smart Grids are not an end in themselves and they should enable the customer who is no longer simply a consumer but also a generator, to actively take part in the energy market. Additionally, Smart Grids are also required for smart load	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
management, ultimately the consumer has to pay for.		
Respondent 40: SSE The deployment of smart grids should depend not only on the benefits that are expected to be achieved for users/customers but also for society as a whole in its requirement for a low carbon future.	Agree	
Respondent Group – Grid Operator		
Respondent 15: EDP EDPD agrees that a user-centric approach should be adopted when considering the deployment of smart grids as electricity networks exist for the sole purpose of serving those who connect to it.	Agree	
Respondent 16: EEGI-DSO Respondent 25: ERDF As a basic principle yes it should be user-centric, but the consumer should be properly informed and trained. It must be recognized that the transformation of energy system incurs costs that are not directly transferable to user benefits.	Agree	Some benefits are beyond the network users (e.g. environmental benefits, CO ₂ reduction). However, these societal benefits are to be taken into account.
Respondent 19: ENA The deployment of smart grids should depend not only on the benefits that are expected to be achieved for users/customers but also for society as a whole in its requirement for a low carbon future.	Agree	
Respondent 21: ENERGINET.DK Yes as long as it is recognized by the European society that smart grid technology becomes a technical necessity to fully exploit all assets of more and more RES and safely operate the resulting active power systems.	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 23: ENTSO-E Yes. Smart grid technology needs to become a technical necessity in order to integrate and fully exploit all assets of more RES and safely operate power systems. Smart Grids allow network operators to maintain the current security standards under new conditions (achievement of 20/20/20 targets) at a reasonable cost.</p>	<p>Agree</p>	
<p>Respondent 30: GEODE User-centric approach may be a rather narrow approach. Greater consideration should be given to the potential benefits of Smart grids to society as a whole alongside their potential to help achieve the EU 20-20-20 targets and ensure security, quality of supply and sustainability</p>	<p>Agree</p>	
<p>Respondent 34: National Grid In addition to user benefits that may be identified there may also be benefits that straddle several parties (users) in the supply chain which could result in reduced costs to the consumer (e.g. avoiding building peaking generation). Role of Suppliers and Energy Service Companies is seen as important for translating potential benefits into meaningful products for consumers.</p>	<p>Agree</p>	
<p>Respondent 35: Netbeheer Nederland Yes, but a society-based approach is the most important if energy efficiency and CO₂ reduction are considered to be the highest goals. (requires an analysis of the entire energy chain – a grid-centric view)</p>	<p>Agree</p>	
<p>Respondent 36: RWE Prerequisite for any investment in smart grid technology will be a reliable framework given by the national regulatory body. Yet there are serious doubts whether there are sufficient foreseeable benefits to the grid operators that will automatically result in their commitment to smart grids and their active participation in the development. Especially small DSO will most</p>	<p>Disagree</p>	<p>ERGEG believes that grid operators will also be beneficiaries of smarter grids and this is already as an incentive for them.</p>

Respondents' views	ERGEG's position	Explanation/evaluation
probably tend to conventional solutions when faced with new challenges.		
Respondent 42: Swissgrid 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...). The "user" role fits well for every player involved in the supply chain while considering smart grids.	Disagree	The TSO/DSO doesn't use additional functionalities – the TSO/DSO operates the (smart) grid. The term "users" refers to network users, i.e. consumers and producers.
Respondent 43: Synergrid The deployment should not only be user-centric, but more generally society-centric, i.e. ensuring that all stakeholders are actively involved. These are local authorities (municipalities, cities, regions), 'energy professionals' (e.g. architects, service companies, goods manufacturers).	Partly agree	Attention to the whole society is important, but user awareness and participation is fundamental
Respondent Group – Industry Assoc.		
Respondent 03: BDEW Smart grid should enable the consumer to take part actively. An economically efficient energy system solely from the perspective of energy suppliers and current regulatory conditions is difficult to implement. Sufficient drivers can only be produced by the vision of the market place of energy.	Agree	
Respondent 06: CEDEC Focusing solely on the end customers runs the risk of cost-intensive investments in the entire value-chain, not producing any recognisable advantage for the final customer in the end. The user-centric vision should be coupled with a DSO-driven vision.	Partly agree	ERGEG believes that grid operators will also be beneficiaries of smarter grids and this is already as an incentive for them.
Respondent 49: EPSU Public interest regulation more important and valuable than regulation just for competitive purposes. The deployment of	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
smart grids will also have to be linked to what requirements society sets such (ensuring safety, access of all users, integrating renewables, security of the networks)		
Respondent 29: FutuRed This is maybe the main difference from the traditional grid. FUTURED agrees this is the necessary approach to cover every aspect of smart grids.	Agree	
Respondent 50 Eurelectric Eurelectric wishes to underline that regulators need indeed to take the consumer into account, but also other interests should be respected. Care must be taken in order not to underestimate network developments that do not immediately impact or are not immediately required by the users but which should be addressed in the initial stage of smart grids, in order to guarantee the smooth evolution of the networks and their ability to respond to future needs.	Agree	
Respondent 41: Svensk Energi Yes	Agree	
Renewable Generator		
Respondent 28: EWEA User centric approach from SOs: This should be reflected in the Network Codes (and hence should be spelled out in the relevant Framework Guidelines). The so-called user centric approach does not only apply for Smart Grid principles.	Agree	
Respondent Group – Research/cons.		
Respondent 05: Bloomberg BNEF Many stakeholders will be affected by smart grid regulation, some of these may not be defined as 'users' of the network. (technology vendors and taxpayers). Costs and benefits should be distributed equitably amongst stakeholders, benefits should	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
fairly reflect the cost and risk and goes beyond simply looking at 'needs'.		
<p>Respondent 09: DERLab</p> <p>It is important to note that it might become difficult to engage a large percentage of the small scale (residential) customers because energy is (often) not an issue yet and for relatively poor people (where the energy bill is an issue) they might not be able to pay for the "solution" to reduce demand.</p>	N/A	
<p>Respondent 32: KTH</p> <p>Yes, the "network user" term includes producers, consumers, retailers and service providers. However, care should be taken not to include technologies, which go "beyond the meter" (deployment of technologies will happen under other market rules).</p>	Partly agree	The term network users refer only to physical users of the grid, not retailers and service providers.
<p>Respondent 46: VDE-ETG</p> <p>The user centric approach is the prerequisite of the deployment of smart grids. Consequently, each user has to feel its benefits in Euro and Cent. However, in the first line the implementation of smart grid solutions costs a huge amount of investment. The deployment of smart grids will happen if each stakeholder can see its benefit.</p>	Agree	

Respondent Group – Service Provider

<p>Respondent 01: Accenture</p> <p>Yes, in the sense that development of smart grids and regulation of this development focuses on realizing real benefits that generate value to the end-user/customer/inhabitant. What is important in this respect is that a broader societal benefits case is required which monetizes externalities.</p>	Agree	
<p>Respondent 45:Teradata</p> <p>The user centric approach is valid in gathering the requirements, but at the same time, in order to guarantee an efficient and</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
effective solution, a holistic, agnostic approach towards information is needed to fulfil each user's need, while respecting privacy issues of the consumer.		
Respondent 26: ESMIG It is not sufficient to focus on the user - systemic view also on goals of energy and environmental policy and the needs of society as a whole. Smart grid deployments should fully take into account the social-economic benefits of a smarter grid.	Agree	
Respondent 33: Landys+Gyr Ltd. To closely focus on the user is not sufficient - a more systemic view necessary. Goals of energy and environmental policy must be considered and the needs of society as a whole.	Agree	
Respondent 37: SAGEM Communications SAS As it is a global thought at all levels of the system it will not be only a user-centric approach. Today the most sensitive point is the flexibility of demand (priorities development actions towards end-users).	Partly agree	There is apparent disagreement, but the "most sensitive point" is focused on users.
Respondent 38: Schneider Electric Yes definitely; if we want to go further than only distribution network automation, the user centric approach is fundamental, with all its added value coming from energy efficiency measures, load shedding and peak shaving of its net demand to the local grid.	Agree	
Respondent 39: Silver Spring Networks Yes	Agree	
Respondent 44: T&D Europe User centric approach should be read as participants centric approach: Participants are generators, operators, system / equipment manufacturers and consumers. An economically attractive transition will ensure the needed commitment by the participants and also recognize their different demands.	Partly agree	ERGEG does not the need that e.g. grid operators focus themselves on the needs of equipment manufacturers.

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 48: ZVEI A user centric approach should be read as participants centric approach. Participants are power generators, transmission, distribution, system/equipment manufacturers and consumers/prosumers. By making the transition economically attractive will ensure the needed commitment by the participants and also recognize their different demands.</p>	Partly agree	ERGEG does not the need that e.g. grid operators focus themselves on the needs of equipment manufacturers.

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

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Consumer assoc.		
Respondent 08: Consumer Focus A fundamental requirement in achieving the potential benefits of smart grids will be for energy suppliers and energy service companies to understand the needs of their customers. They will also need to consider any measures imposed by regulators to ensure that vulnerable customers are treated fairly with regard to opportunities to participate and sharing the associated costs.	Agree	
Respondent 47: VZBV Energy suppliers have to interlink consumption and power generation with attractive tariffs. But it is necessary to find the right conditions to solve this problem.	Agree	
Respondent Group – Energy Company		
Respondent 04: BNE Energy suppliers and energy service companies will be the link between the grids, the wholesale markets and the customers/prosumers. With their products they are going to enable the users to participate in the markets. They will on the other hand offer services to the grid operators.	Agree	
Respondent 07: Centrica As stakeholders, both must be actively involved in identifying new services as well as in the deployment of smart grids and smart power systems generally. Since suppliers are also responsible for both engaging and incentivising the customer to change behaviour, they will have the role of developing attractive energy services and product pricing.	Agree	
Respondent 10: DONG Effective competition and commercialisation will force energy	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
suppliers and energy service companies to be innovative and create the solutions that can unleash the potential values of smart grids. The regulatory challenge is to remove barriers for such innovative solutions.		
Respondent 12: EDF Energy Smart Grids will potentially allow energy suppliers and energy services companies to develop their portfolios. This will allow even higher utilisation of existing infrastructure by unlocking capacity and controlling daily demand cycles.	Agree	
Respondent 13: EDF Energy Service Companies and aggregators can certainly play a role in the development of Smart Grids. However, their insertion in the energy value chain should not be detrimental to the efforts of suppliers. Network companies develop a regulated activity whereas suppliers/ESCOs are on a liberalized market. Another very important item is the possibility for energy service companies to have access to customer data.	Agree	
Respondent 14: Edison Spa Energy supplier and energy service companies (ESCOs) should be in the process of smart grids definition and smart grid deployment. There must be a common interface between energy supplier and energy service companies and DSO/TSO to assure non discrimination to all players.	Agree	
Respondent 20: EnBW Energy providers should use the smart infrastructure in order to offer their new contractual models within the competitive market. Although it is undisputed that the grids under the responsibility of the regulators will play an important and essential role in introducing smart grids, the competitive value added chain will play an equally important role. A basic problem of the ERGEG paper is its failure to clearly distinguish between the roles of suppliers, metering point operators, metering service providers	Partly agree	ERGEG's position is that roles and responsibilities must be clearly defined and duly committed.

Respondents' views	ERGEG's position	Explanation/evaluation
and grid operators. For example, the distinction between the innovations from the grid operators that are essential and those that can result from healthy competition is not made sufficiently clear		
Respondent 24: E.ON There is no one-size-fits-all-solution. There is a need for an attractive and supportive framework for suppliers, consumers, networks businesses and others. Innovation is needed and there is an increasing willingness from the network side to lead the process. However, within the actual regulatory framework of most countries high barriers to investment remain.	Partly Agree	ERGEG believes it possible to have smarter distribution and transmission and that will best be decided at national level
Respondent 40: SSE Energy Suppliers and ESCos can offer home area network services, more flexible tariffs that will incentivise customers (optimise utilisation, respond to local network constraints), demand-side management and generator dispatch contracts to both manage balancing and market price volatility risk	Agree	
Respondent Group – Grid Operator		
Respondent 15: EDP Energy suppliers and ESCo are naturally in direct contact with end-use customers and will be, therefore, best positioned to offer new tariffs and new energy services. Consequently, the services that can be offered depend and may be limited by the functionalities of the smart grid platform.	Partly Agree	We agree that the reasons for limiting functionalities must be identified and avoided
Respondent 16: EEGI-DSO 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.	Agree	In line with ERGEG's position – of course other necessary stakeholders should be also involved
Respondent 25: ERDF	Agree	In line with ERGEG's position – of course other necessary

Respondents' views	ERGEG's position	Explanation/evaluation
<p>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.</p>		<p>stakeholders should be also involved</p>
<p>Respondent 21 Energinet Generally there must be more focus on what can be developed on competitive terms and what should be developed and provided by the monopoly entities. Most often competitive businesses requires a much faster rate of return on there investments.</p>	<p>Agree</p>	
<p>Respondent 19: ENA Energy Suppliers and ESCOs can offer home area network services, more flexible tariffs that will incentivise customers (optimise utilisation, respond to local network constraints), demand-side management and generator dispatch contracts to both manage balancing and market price volatility risk</p>	<p>Agree</p>	
<p>Respondent 23: ENTSO-E 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, etc. In order to have a real global benefit, the System Operators must participate to the definition of the corresponding services with special focus the ability to keep the system under control.</p>	<p>Agree</p>	
<p>Respondent 30: GEODE DSOs (main players in the process) have the task of implementing the network infrastructure. Decarbonisation of electricity supply will bring incentives to offer new services and products to customers (up to now not actively involved in the discussions). DSOs would like to act as service providers.</p>	<p>Agree</p>	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 34: National Grid</p> <p>Their role is to building trust with consumers and engaging them in the efficient and responsible use of energy. This requires efforts in education, aggregation of demand services to the supply chain, use of open data standards, enabling home automation, translate supply chain efficiencies into usable energy tariffs.</p>	N/A	
<p>Respondent 35: Netbeheer Nederland</p> <p>Deployment of smart grids should be a means for facilitating the transition needed to achieve a sustainable energy supply and more flexibility to the grid. An integrated approach (combining electricity, gas, heat and cooling), a quick start with pilot projects, and attention to the different roles of players in the market is the way to go. (cooperation)</p>	Agree	
<p>Respondent 36: RWE</p> <p>Not in the focus of distribution system operators. In general, in order to develop effectively functioning smart grid solutions all players should work closely together.</p>	N/A	We agree that in the process of developing a smart grid all players should work closely together.
<p>Respondent 42: Swissgrid</p> <p>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. TSOs are in frontline of the deployment of intelligent equipment like power flow controllers and storage solutions to the HV grid.</p>	Agree	
<p>Respondent 43: Synergrid</p> <p>Energy services companies will achieve their goals (using smart grid technologies) in assisting the users behaving more efficiently. In order to avoid conflicts between suppliers and grid operators collaborations are required (suppliers could sell ancillary services to the network companies, whereby the</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
suppliers manage the load diagrams of their customers, according to the needs of the grid operators). However, the multiplication of the number of players involved should be avoided.		
Respondent Group – Industry Assoc.		
Respondent 03: BDEW Energy suppliers and energy service companies can make an essential contribution to the development of smart grids. An appropriate and fair framework provided by the legislator and supported by laws/ regulations needs to be made available to all parties concerned.	Agree	
Respondent 06: CEDEC Energy suppliers and energy service providers can make a substantial contribution to the development of a smart grid. It would also be possible to assist the distribution network operators with the implementation of intelligent control by coordinating decentralised production and consumption by customers.	Agree	
Respondent 49: EPSU The regulators should set out the public policy principles and criteria (companies will invest in training and respect Information and Consultation obligations).The regulators might want to ensure that companies apply principles of Corporate Social Responsibility (defined by the trade unions and Eurelectric)	N/A	
Respondent 29: FutuRed They are called to be the promoters of the deployment of the smart grids (define all necessary processes satisfying every need). Regulatory measures will be necessary to maximize medium/long-term global benefit (economic profit).	Agree	
Respondent 50 Eurelectric	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
Energy supplier and energy service companies (ESCOs) should be closely involved in the process of smart grids definition (functional requirements) and smart grid deployment. The introduction of smart grids will also necessitate a review of the roles and responsibilities of the market parties.		
Respondent 41: Svensk Energi It must be a price transparency for the real electricity system costs - e.g. spot prices, congestion prices, temporary local capacity problems and extra balance power costs.	N/A	
Respondent group - Renewable Generators		
Respondent 28: EWEA The role and duties of energy suppliers and energy service companies can only become more clear if the concept of smart grids is defined in a more focused and clear way.	N/A	We agree that there is a very wide understanding on how a smart grid should look like. a more clear and focused way will emerge in the future.
Respondent Group – Research/cons.		
Respondent 05: Bloomberg BNEF These companies have two important functions to play in the deployment of smart grids. First, they are the main point of contact for consumers. Second, energy suppliers and ESCOs in liberalised markets have the opportunity to innovate and provide new types of services, as outlined in the Consultation Paper. The importance of this role should not be underestimated and has been highlighted by recent events related to the Pacific Gas & Electric(PG&E) smart meter roll-out in California. A lack of consumer understanding of smart metering in PG&E's territory has led to a consumer backlash, with smart meters being blamed for increases in energy bills.	Agree	
Respondent 09: DERLab Both are stakeholders (receive benefits and have an interest that it not fails) and should participate actively and willing to invest. But since one of their main objectives must be economic	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
profit, sometimes short-term profit, regulatory measures to maximize medium/long-term global benefit will have to be adopted by the regulator.		
Respondent 11: ECN Energy suppliers and energy service companies are expected to take the lead by looking for cost-effective solutions in linking their customers' potential flexibility in consumption and generation of electricity to the needs of the markets. Integrating the interests of users, network companies and suppliers will be crucial to prevent that the network cost will rise unnecessarily.	Agree	
Respondent 27: Even Consults TSO's and DNO's do not have to be service providers for exchange of information between the suppliers/aggregators and customers. Actions by the network and system operators shall be limited to those required for preventing the system to operate out of the technical limits. Information exchange between the DNO's and the grid users via the smart meters has to be carefully defined by regulation for creating a level playing field for the liberalized players.	Agree	
Respondent 32: KTH It will be necessary to agree on common standards and the exchange of data. This information might well be shared with third party companies, but the terms of such sharing is probably not always easy to agree on.	Agree	
Respondent 46: VDE-ETG Clear regulatory rules shall be established promoting the deployment of Smart Grids. The second barrier is the practice of fix feed-in tariffs for renewable energy. Only after the establishment of adequate regulatory rules all service providers achieve a secure grounding for evaluation of their business models and for starting the required investment.	Partly Agree	The pointed barrier of fix feed-in tariffs for renewable energy is an important advice but is based on the national legislative framework.

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Service Provider		
<p>Respondent 01: Accenture Energy suppliers and energy service companies should engage in dialogue with regulators and network companies, in order to ensure that roles and responsibilities of these parties vis-à-vis the network companies and the customers are clearly defined. Further, they should ensure that their future needs will be supported by the investments that the network companies will make in the smart grid area, e.g., when rolling out smart meters.</p>	Agree	
<p>Respondent 26: ESMIG The investments into smart grids need to be clearly allocated. Clear regulation and clear incentives for the retail market requested. Energy suppliers and services companies will have a more passive role in the deployment of smart grids. Competition should take place between energy suppliers.</p>	N/A	
<p>Respondent 33: Landys+Gyr Ltd. The investments that need to take place need to be clearly allocated. In the case of smart metering, the DSO is the only reasonable entity to carry out a smart meter deployment (complete rollout at lower costs). Competition should take place between energy suppliers who then can use that infrastructure to offer new and innovative products and services.</p>	Partly agree	Smart meter should be only a small part of the smart grid discussion
<p>Respondent 37: SAGEM Communications SAS Service providers will be the ones to propose services and equipment for the customer to take part in Smart Grid. Supplier and service companies have already started with the development of proposal of web portals and energy boxes – they provide levels of service to small and large customers</p>	N/A	
<p>Respondent 38: Schneider Electric They should develop innovative offers for their customers as</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
described in § 3.3.3. Regulation should lead them to act as catalysts.		
<p>Respondent 39: Silver Spring Networks</p> <p>The requirements for networking the smart grid compound the requirements for networking smart meters. Reliability and responsiveness of communication devices are paramount.</p>	N/A	
<p>Respondent 44: T&D Europe</p> <p>Balancing all participants (not just suppliers, service companies) the regulatory environment will determine the transition speed directly. They should have the aligned targets, stimulated by connected or at least no competing interests. Supply and service regulations need to be in one hand to avoid contradicting interests.</p>	N/A	
<p>Respondent 45 Teradata</p> <p>Energy suppliers and energy service companies need to act in a consumer focused, results driven, fact based, transparent, auditable and timely manner while deploying smart grid solutions. Standards are needed for exchange and sharing of information in a timely manner, to make the grid "smart".</p>	Agree	
<p>Respondent 48: ZVEI</p> <p>Energy suppliers and energy service companies are participants for developing the smart grid. Without the needed regulatory and economical backing neither consumers nor equipment manufacturer will be open for innovative ideas and slow down or stop the conversion. Supply and service regulations need to be in one hand to avoid contradicting interests. e.g. service: benefiting by reducing consumption, supplier benefitting by increase.</p>	Agree	

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

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Consumer assoc.		
Respondent 02: Altroconsumo Yes, they are as they are quite general.	Agree	
Respondent 08: Consumer Focus We consider that the main needs have been identified. We also agree that the transition towards smart grids will be an evolutionary process and that new requirements may well emerge over time requiring the development of new services.	Agree	Important comment
Respondent 47: vzbv We do agree with the identified needs for household consumers and household “prosumers”. It must absolutely be avoided that in the future the demand has to follow the power generation, i.e. low-income households are only able to use electricity during times of high level of generation and therefore low prices. Higher commodity prices will be an other factor affecting the electricity price. Therefore it is absolutely important to take the price effects always into account.	Agree	
Respondent Group – Energy Company		
Respondent 04: BNE In section 3.3.1. the services needed by generators and prosumers are listed. This list does not differentiate between small and large generators. This differentiation is essential, as the access to the markets requires a high degree of knowledge and costly resources.	Agree	
Respondent 07: Centrica ERGEG has correctly identified the major areas of need insofar as they can currently be perceived. However it is important to recognise the need for flexibility, over time and between Member States. Also, Member States will vary in their priorities	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
and emphases, and this must be respected, in this as in other areas.		
Respondent 10: DONG Needs are well identified.	Agree	
Respondent 12: EDF Energy Broadly – yes. However, we would like to stress the importance of smart metering as an enabler of expected smart grid benefits. Whilst we agree that generation network users will require timely connection and grid access, we disagree with the need for tailored access products.	Agree	Access is a route to market and should be provided to all generation.
Respondent 13: EDF We propose to add public authorities (local, regional or national) as one of the major stakeholders of the power sector, to this list, because Smart Grids will be one of the key contribution in the next future for building up more effective and consistent public energy policies (for example : smart cities...).	N/A	
Respondent 14: Edison Spa We are in favour of sharing direct participation of all stakeholders in the definition of the new functionalities to be achieved by the smart grids. A Smart Grid will require an integrated approach between the DSO and TSO.	Agree	
Respondent 20: EnBW The depiction is certainly correct. The problem of data protection is also very important for end customers and should be correspondingly dealt with. Section 3.3 mentions that some customers may accept a lower quality and reliability in return for a lower price. This last statement is unreasonable. The improvement in quality of supply is not limited to the introduction of new technologies and can be provided with the present technology.	Agree	Useful comment about quality of supply
Respondent 24: E.ON	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
In principle we agree but want to express our doubts that the “decarbonisation of electricity supply will cause reduction in quality and reliability”. Up to now, there have been strong incentive systems to increase the share of renewable energy but almost no incentive to integrate these renewables into the grid. The challenge for law makers in Europe will be to find the appropriate balance between necessary investment and the cost to end consumers.		
Respondent 40: SSE Broadly – yes. But only by deploying smart metering (and communication) systems, based on a comprehensive functional specification, will all of these benefits be delivered. Home area network services /smart appliances will also play a major role in helping residential customers to become effective ‘prosumers’.	Agree	The boundary between grid and energy system should be defined/clarified.
Respondent Group – Grid Operator		
Respondent 15: EDP The needs of users of Electric Vehicles (EV) should be explicitly referred in section 3.3 of the position paper, given the very specific new needs of these network users and the high impact on the grid foreseen for the massive use of EV	Disagree	Needs of electric vehicles (EV) will be more clear over time
Respondent 16: EEGI-DSO Respondent 25: ERDF 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.	Agree	
Respondent 19: ENA Broadly – yes. But only by deploying smart metering (and communication) systems, based on a comprehensive functional specification, will all of these benefits be delivered. Home area network services /smart appliances will also play a major role in helping residential customers to become effective ‘prosumers’.	Agree	The boundary between grid and energy system should be defined/clarified.

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 21: Energinet Mostly yes, though we have also identified the additional needs to be included.</p>	N/A	
<p>Respondent 23: ENTSO-E Basically yes, but the system security issue is the cornerstone that supports the provision of all other services covering the current and future needs of network users. A fair and transparent regulatory framework is a precondition for stakeholders to participate in and actually efficient electricity market. Suitable grid information have to be provided to the decentralised power producers to get them together into an efficient virtual power plant.</p>	Agree	
<p>Respondent 30: GEODE Yes, but the list is incomplete. Security and quality of supply and sustainability are important for network users. Needs, desires, behaviour etc. of network users shall be examined to avoid a false development. Real potential of demand side management activities of residential customers should be examined.</p>	Agree	
<p>Respondent 34: National Grid Yes, with the exception of security of supply. They think it would be useful to provide an additional section that describes the 'efficient provision of security of supply' role that networks and the System Operator perform for all their users to enable the market to operate.</p>	Agree	
<p>Respondent 35: Netbeheer Nederland No. Network companies, retail suppliers and ESCOs are also dependent on new (and more) information to be able to operate the grid and serve their clients. Furthermore, the needs and interests of a (probably) large group of consumers who are not interested in innovation will have to be respected. (hybrid forms)</p>	N/A	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 36: RWE We would like to point out that grid users should be prepared to face a lower standard of quality of supply than they have in the past. The more widespread employment of remote electronic components will almost certainly make distribution grids more prone to interruption. The challenges facing the distribution grids will partially be addressed by employing available security reserves.</p>	Disagree	This is contrary to ERGEG's position that smart grids will guarantee a satisfactory level of quality and security of supply
<p>Respondent 42: Swissgrid Yes.</p>	Agree	
<p>Respondent 43: Synergrid Demand for the described services will highly depend from the price at which these services will be offered. Some of them are in a short to medium term not economically justified. Regulatory rules as a prerequisite for storage capacity need to be developed even if technologies are not available yet.</p>	N/A	
Respondent Group – Industry Assoc.		
<p>Respondent 03: BDEW In principle, we agree with this description of the different needs of customers, generators, suppliers and energy service companies (ESCO). The allocation of costs for these investments should be shown transparently to end consumers.</p>	Agree	
<p>Respondent 06: CEDEC The essential trends have been pointed out and explained in a comprehensible manner. The general political and regulatory conditions need to be created according to the new requirements in this regard because lengthy procedures would obstruct rapid development in a number of Member States.</p>	Agree	
<p>Respondent 49: EPSU More emphasis could have been placed on security of supply, the implications for vulnerable users, what affordable price and a</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
just rate of return imply in the case of deploying smart grids.		
<p>Respondent 29: FutuRed</p> <p>Yes, underlining the importance of system security as an additional need. Furthermore, they introduce the idea of an appropriate remuneration for ancillary services which should be the base for a business model that maximizes all stakeholders' benefits.</p>	Agree	
<p>Respondent 50: Eurelectric</p> <p>The needs of energy suppliers are not sufficiently identified in the ERGEG document (chapter 3.3 Services needed), and ERGEG is apparently not considering energy suppliers as a key network user group. Eurelectric is in favour of a market model, where the energy supplier is also the responsible party for billing of both grid fee and commodity, including all related costs.</p>	Disagree	In the understanding of ERGEG of course energy suppliers have also an important role in the development of a smart grid.
<p>Respondent 41: Svensk Energi</p> <p>Yes. Single customers rarely can demand higher quality of supply than other customers in the area. In some cases (e.g. large industrial plants) extra lines can be built to a singular customer to reduce the risk of an outage.</p>	Agree	
Respondent group - Renewable Generators		
<p>Respondent 28: EWEA</p> <p>Several services needed by generators (balancing) and customers (flexibility choosing a supplier, load shifting) should be added. European Energy regulators should acknowledge that insufficient decarbonisation will lead to price increases due to the expected shortage of fossil fuel.</p>	Partly Agree	Based on the different national regulatory framework, regulators are restricted to their legal obligations. Limited fossil fuel is not a regulatory matter.
Respondent Group – Research/cons.		
<p>Respondent 05: Bloomberg BNEF</p> <p>We broadly agree; in particular we emphasise that new</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
interconnection standards and reward structures will be required to enable widespread power storage and distributed energy resources to be deployed. In regulating for smart grids, we believe that markets should be designed not only to meet the minimal 'needs' of stakeholders, but also to maximise the potential benefits and opportunities to them.		
Respondent 09: DERLab Future network challenges have been identified properly. However, more stress should be put on ancillary services which can be provided by customers/users employing distributed energy resources connected to the grid by converters.	Agree	
Respondent 32: KTH Yes, although section 3.3.3 would benefit from separating the services offered by network companies (under a regulatory regime) and those offered by retail suppliers and ESCOs. The final paragraph in section 3.3.3 is of vital importance for the new user services to develop. A crucial issue is to set up a regime that encourages a dialogue between the "free market actors" and the monopoly net works.	Agree	
Respondent 46: VDE-ETG The chapter 3.3. presents a good overview about some future needs and services . However, there is expected more. (For details see the complete response from VDE-ETG)	Agree	Useful, detailed explanation
Respondent Group – Service Provider		
Respondent 01: <i>Accenture</i> Yes, we believe there will be a group of new users of the network (generators and prosumers) who will require access to the grid. And indeed there will be existing consumers who will expect reliable and affordable power, and some customer segments may be open to innovative and more interactive services and tariffs.	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 26: ESMIG</p> <p>Yes. Group of "Prosumers" is one of the driving factors in the development of the smart grid. Transparency and information flows will be essential to the development of the smart grid, and this means down to the final consumer, and it is indispensable for the "prosumer".</p>	Agree	"Prosumer" is a very wide used term – it must be distinct which data are necessary from generators and which from consumers (will not be the same; depend on size, type, ...)
<p>Respondent 33: Landys+Gyr Ltd.</p> <p>Yes. Of particular importance will be the growing group of "prosumers" (one of the driving factors in the development of the SG. In the description of services to "increase the elasticity of the demand side", a discussion of transparency is missing. (distribution system is "blind").</p>	Partly Agree	"Prosumer" is a very wide used term – it must be distinct which data are necessary from generators and which from consumers (will not be the same; depend on size, type, ...)
<p>Respondent 37: SAGEM Communications SAS</p> <p>Yes, but the end customer has no native interest in grid management and today a poor elasticity to energy usage – stimulus needed how to promote his interests. Operational need of customers is to have a fully automated process.</p>	Agree	
<p>Respondent 38: Schneider Electric</p> <p>Consumers and prosumers will need to dispose of all means to manage, monitor, store and optimize their energy net consumption and the cost of what they need to buy, with the adequate level of reliability and full safety conditions.</p>	Agree	
<p>Respondent 39: Silver Spring Networks</p> <p>Time differentiated pricing, transparency between wholesale and retail markets, demand responsive programs, and distributed generation are foundational applications which require a choice of communications architectures.</p>	Agree	
<p>Respondent 44: T&D Europe</p> <p>Yes, important is also involvement of all participants</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
(generators, grid operators, system/equipment suppliers, consumers/prosumers. These participants constitute equally the base for smart grid. The contribution of all these is necessary and should be matching and reflect parity in parallel.		
<p>Respondent 45</p> <p>It is unclear if the information management and analysis role has been properly identified across the grid. In particular, small customers may require access to information around their detailed consumption patterns to understand and modify their own behaviour.</p>	Agree	
<p>Respondent 48: ZVEI</p> <p>The needs are well described. Also important the involvement of all participants from power generation, transmission, distribution to consumers/prosumers and system/equipment suppliers. The contribution of all these is necessary in the smart grid set up.</p>	Agree	

Consultation 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? If not, please provide details of additional challenges/solutions.

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Consumer assoc.		
Respondent 02: Altroconsumo Consumers may not want to complicate their life by comparing and managing a complicated electricity offers and may not accept price signals because of a lack of confidence about the remote control of their appliances and possible effects on their appliance use.	N/A	
Respondent 08: Consumer Focus We consider that ERGEG has broadly defined the main future network challenges.	Agree	
Respondent Group – Energy Company		
Respondent 04: BNE The assessment of the main future network challenges is overall comprehensive. The role of the markets and the role of energy suppliers and energy service companies though are not sufficiently recognized. ERGEG names interoperable communication facilities to link customer-owned devices with the network. A direct communication link is not required; it would in fact tamper the activities of energy suppliers and therefore retail competition.	Agree	Useful comment
Respondent 07: Centrica These sections are a helpful summary of the position. As networks migrate from passively managed systems to smart grids, challenges will arise. Innovation will require networks to take more risk, but smart grids should not be an excuse to raise revenues beyond that which is appropriate to their investment needs and risk profile.	Agree	
Respondent 10: DONG	N/A	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Challenges are well identified. Metering infrastructure installed within the regulated domain should only be performing obligations that naturally belong in the regulated domain - meter electricity flow for economic settlement. Equipment for automated solutions should be separate and should belong to the commercial domain.</p> <p>Unless a specific DSO has a clear positive business case for full roll out of metering equipment in the regulated domain, demand driven investment (installation-on-demand) is likely to lead to more optimal investment. Some scale may be lost, but on the other hand installing expensive equipment with customers that are not going to use it is avoided.</p>		
<p>Respondent 12: EDF Energy</p> <p>Moreover, we believe that the claimed reduction of losses is unrealistic, or at least needs to be put in context. Smart metering could undoubtedly have a positive effect on reducing commercial losses. However, the case is the opposite for technical losses. Smart Grids will result in higher electricity demand.</p>	N/A	
<p>Respondent 13: EDF</p> <p>The main future network challenges and possible solutions are identified in sections 3.4 and 3.5. However in several European countries, we can see a need for 'basic' network investments in order to restore the performances of the 90's (mainly quality of service...) and compensate for some lack of investments in the last decade.</p>	Agree	
<p>Respondent 14: Edison Spa</p> <p>The main challenges for networks development and possible solutions have been identified in the report. Very important will be anyway security and ICT solutions of smart grids. Also scalability should not be underestimated.</p>	Agree	
<p>Respondent 20: EnBW</p>	N/A	

Respondents' views	ERGEG's position	Explanation/evaluation
Section 3.4.2 focuses on supply and does not have to be necessarily discussed under Section 3.4 (Network challenges). The regulator generally needs to separate the competitive areas and functions when introducing smart grids from the areas and functions requiring regulation. Both areas need to be defined more clearly. It is very important that the grid operators can use the right instruments to be created in the regulatory framework in order to create incentives for the end customers and to enable load management. A corresponding incentive could be dynamic grid charges.		
Respondent 24: E.ON It should however be clear, that smart grids are a tool and a platform for the services described in chapter 3.5.4. These services have to be offered in a competitive environment. From the customer perspective, we do not wholly agree that "higher electricity prices and stronger time-dependency of prices will make that customers will require more details about their consumption pattern than today".	Agree	
Respondent 40: SSE The list under 3.4 could include planning for higher levels of DG at all voltage levels through HV/MV down to MV/LV connected community energy schemes, planning for demand growth by establishing load management policies, deploying new active network management technologies, contracting for demand-side services - to alleviate network constraints, taking actions as necessary to maintain network efficiency and security, and manage network constraints and playing a leading role in enabling electric vehicles.	N/A	
Respondent Group – Grid Operator		
Respondent 15: EDP As commented on the previous question, there should be a more explicit mention to the widespread use of EVs considering	N/A	

Respondents' views	ERGEG's position	Explanation/evaluation
the challenge and the target solutions that must be implemented		
<p>Respondent 16: EEGI-DSO Respondent 25: ERDF</p> <p>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. Smart Grid should deliver at lower costs than existing grids and would anyhow need further technical and cost benefit analysis.</p>	Agree	
<p>Respondent 19: ENA</p> <p>The list under 3.4 could include planning for higher levels of DG at all voltage levels through HV/MV down to MV/LV connected community energy schemes, planning for demand growth by establishing load management policies, deploying new active network management technologies, contracting for demand-side services - to alleviate network constraints, taking actions as necessary to maintain network efficiency and security, and manage network constraints and playing a leading role in enabling electric vehicles.</p>	N/A	
<p>Respondent 23: ENTSO-E</p> <p>Yes, but the virtual power plant should be added. Challenges for TSOs are still higher as result of the difficulty to build additional transmission facilities (NIMBY issues). Avoiding statements like "Losses in networks represent by far their most significant carbon impact" because; seen from a power system perspective the sentence is false.</p>	Partly Agree	Specific understanding of virtual power plants need to be clarified first

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 42: Swissgrid Yes, but important to avoid statements like about losses/carbon impact. Network losses have to be considered from the system as a whole and not in isolation for each activity. Additional challenge is the civil opposition against nearly any kind of grid expansion project. For RES integration a tremendous burden of managing today's generation with yesterday's transmission grid.</p>		
<p>Respondent 34: National Grid Planning consent and public acceptability to build new infrastructure to harness new forms of generation will continue to be a major challenge. The issue to forecast wind generation output and develop a better understanding of the factors that will influence net demand at a distribution level will remain.</p>		
<p>Respondent 21: Energinet In addition to what have been identified we believe that guaranteeing satisfactory security of supply and power quality should be added. Power quality in the network planning and in operation must be taken into account because smart use of DG to control Var and voltages often can post-bone the need for costly reinforcement of grid infrastructure.</p>	Agree	We also have the understanding that Power Quality is one of the most important planning parameter
<p>Respondent 30: GEODE In general yes, but again the list is incomplete. Increased growth in distributed generation and electric vehicles, heat pumps and air cooling should be considered when referring to network capacity planning.</p>	Agree	Increased growth in generation and demand are no new duties for network operators
<p>Respondent 35: Netbeheer Nederland Yes. The future grid will increase the complexity of the network and difficulties with regard to maintenance and repairs. Lifetime expectancies of IT products are shorter than current primary network components/installations. Controlling power quality will</p>	Agree	Useful comment

Respondents' views	ERGEG's position	Explanation/evaluation
become more complex.		
Respondent 36: RWE We consent to the list ERGEG has presented concerning the future challenges and their possible solutions. Over and above, the list it should be noted that the new technology is costing money.	Agree	
Respondent 43: Synergrid Yes, but role of electronic manufacturers' industry (not only support other players) and the network challenge to management of congestions is not considered enough in the paper. Furthermore, the financial incentives or penalties will not be sufficient to make customers change their behaviour.	N/A	
Respondent Group – Industry Assoc.		
Respondent 03: BDEW 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. 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.	Agree	
Respondent 06: CEDEC The main aspects of the networks of the future have been demonstrated and the important areas of action and regulation referred to. However, a number of points do require greater detail. In this context, carrying out investments can be seen as a challenge in a regulatory environment. What is needed here are appropriate incentives through the regulator.	Agree	
Respondent 49: EPSU Regulators should ensure that qualified staff of network	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
companies is available (encourage training). The relation between the complexity and fragmentation of the industry, outsourcing and the implications for regulatory oversight, control and monitoring are not made.		
Respondent 29: FutuRed Dealing with cost-benefit analysis and the real long term costs should have to be systematically assessed and considered.	Agree	
Respondent 41: Svensk Energi Yes.	Agree	
Respondent 50: Eurelectric The main challenges for networks development and possible solutions have been identified in the report. The biggest will be anyway security and ICT solutions of smart grids. Also scalability should not be underestimated.	Agree	
Respondent group - Renewable Generators		
Respondent 28: EWEA Challenges are adequately described (if the term intermittent is replaced by variable. Furthermore, network planning does not seem to be an area for smart grids in the proper sense of the word (should be embedded in the network planning codes).	Disagree	Variable instead intermittent is a useful input. In several definitions smart grid stand for planning, building, operating and maintaining the (future) grid
Respondent Group – Research/cons.		
Respondent 05: <i>Bloomberg BNEF</i> We think that the main challenges and solutions have been identified. Again we add that powerstorage can be as important a solution as distributed generation and demand-side resources	Agree	
Respondent 09: DERLab Development of a modular universal architecture for the inter-connection of distributed energy resources (DER) with the grid is the cornerstone in the process of micro-grid/ smart grid deployment. Standard functions should be defined for such systems	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
including: power conversion, power conditioning and quality, protection, controls, metering, communications and ancillary services.		
<p>Respondent 32: KTH</p> <p>Mostly yes, but the issue of quality and security is not highlighted. It should also be noted that the new structure of generation will need to observe the need short circuit situations. Importance of interoperable communication facilities should be added.</p>	Agree	
<p>Respondent 46: VDE-ETG</p> <p>The main future challenges and possible solutions are presented well. Some remarks: <u>Active</u> demand management sounds like switching of load. That is not in the interest of the most of the consumers.</p>	Agree	
Respondent Group – Service Provider		
<p>Respondent 01: Accenture</p> <p>What will be required of utilities going forward, is the integration of renewable and decentralized generation, taking into account network capacity, balancing impact, and commercial schemes to make these new types of generation economically viable; and incentive schemes for end-user active participation. Ensuring sufficient funding in the current tight capital markets- Safeguarding data privacy and cyber security</p>	N/A	
<p>Respondent 26: ESMIG</p> <p>Yes, however the emphasis on creating demonstration and pilot projects should not hinder the deployment of technology already available (smart metering) Direct feedback of final customers is essential. Smart metering is the essential first step towards a smart grid (technology already available).</p>	Disagree	Smart Meters regards only/prior "small" consumers mostly on low voltage level. The grid/power system (smart or not smart) has four voltage levels (low, medium, high, extra high) or can be categorised in transmission and distribution. Consumers on three of the voltage levels (MV, HV, EHV) or transmission are in many cases not directly affected by new SM (as they are

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 33: Landys+Gyr Ltd.</p> <p>Yes, however the emphasis on creating demonstration and pilot projects should not hinder the deployment of technology already available, such as smart metering. They don't think that smart grids without smart metering is possible. (it brings intelligence to the "last mile" between the grid and the final customer)</p>		already measured on an hourly basis).
<p>Respondent 37: SAGEM Communications SAS</p> <p>Generally yes, but ownership of data and how they will be shared between stakeholders, interest of conflict between distribution and supplier due to unbundling, network capacity planning for prosumers was not considered in the sections.</p>	Partly agree	This needs to be defined in the regulatory framework on national level (to take into account specific differences between Member States)
<p>Respondent 38: Schneider Electric</p> <p>Consumers will require monitoring of the real time consolidated demand and the automation of the control of the final appliances are key. Also consumers / prosumers will need to manage in real time their electricity consumption and optimize it.</p>	N/A	
<p>Respondent 39: Silver Spring Networks</p> <p>Yes, but the solutions from the ICT industry seem like an afterthought. Section 3.5.5 should include wireless mesh as a key solution. Where suitable wireless spectrum is available, wireless mesh is the de facto architecture for most solutions over a utility distribution network.</p>	N/A	
<p>Respondent 44: T&D Europe</p> <p>The overall challenge to combine the different participants' needs and challenges is well described. Maintaining the parity of the parties, the electrical industry equipment vendors and system integrators (section 3.4.4) should be also recognized as active parties.</p>	Partly Agree	The inputs of electrical industry equipment vendors and system integrators are quite necessary and important, but their interests focus also on business opportunities
<p>Respondent 45: Teradata</p> <p>In addition to the infrastructure requirements, there will be an</p>	N/A	

Respondents' views	ERGEG's position	Explanation/evaluation
information requirement to support the future network.		
<p>Respondent 48: ZVEI</p> <p>The overall challenge to combine the different participant's needs and challenges is well described. Maintaining the parity of the parties, should also recognize the electrical industry equipment vendors and system integrators not only as support but as active party.</p>	Agree	

Consultation question 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.

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Consumer assoc.		
<p>Respondent 02: Altroconsumo</p> <p>To get some profits from smart grids, as household consumers you first need investments in new and more intelligent (and costly) appliances. People with low consumption levels may hardly be more flexible than already they do with current "price signals" (low pick - high pick tariffs) with their use of energy.</p>	Agree	(i.e. marginal savings in costs not be sufficient to justify high investment in new appliances).
<p>Respondent 08: Consumer Focus</p> <p>It is not clear at this stage whether smart grid solutions will be lower cost than conventional solutions, but it is likely that cost-benefit assessments would show over time real savings from foregone network investment.</p>	Agree	
<p>Respondent 47: vzbv</p> <p>We refer to our answers No. 4 and 7. Efficient processes and participation of consumers on the benefits in the market are needed to control the rising of electricity prices because of upcoming investments.</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Energy Company		
Respondent 04: BNE Smart grids will be essential in keeping a high quality of supply in some distribution grids, this really depends on the individual conditions of the grids. Smart grids will help in providing balancing energy for intermittennd generation, though the required “smartness” of the grids for this application is limited. We have no evidence on costs for smart-grid-solutions.	Agree	
Respondent 07: Centrica In general smart grid solutions must be supported by a business case that is signed off by stakeholders, and the cost of the smart grid must be justified by the benefits it delivers to users.	Agree	
Respondent 10: DONG DONG Energy collaborates with e-mobility provider Better Place on developing a solution for smart charging of EVs. DONG Energy also invests in developing a platform for aggregation and management of distributed resources. Both these projects belong purely to the commercial competitive domain. All these activities are based on the assumption that they will lead to cost effective solutions and offerings also in the short run.	Agree	Useful comment
Respondent 12: EDF Energy Over the next few years there will be a need to front-load trials and deployments of Smarts Grids solutions involving prototype (but not necessarily yet fully commercialised) technologies. This will result in incremental costs over and above investments using conventional technologies.	N/A	
Respondent 13: EDF If Smart Grids were cheaper than traditional grids, there would then be no need for incentives and regulation for development. Programs such as smart metering rollouts have a negative Return on Investment, and would therefore not be acted on financial motivations only. There is thus a necessity to partly go	Partly agree	ERGEG believes that grid operators will also be beneficiaries of smarter grids and this is already as an incentive for them. ERGEG agrees that social benefits have to be taken into

Respondents' views	ERGEG's position	Explanation/evaluation
beyond traditional financial criteria (because cost effectiveness might not be the only input), and consider the broader picture of social benefits and positive externalities, such as climate change. This cannot happen without regulation.		consideration.
Respondent 14: Edison Spa It should be considered that costs will not be necessarily lower than today, but the quality and services for all stakeholders may be improved and this improvement may be done at the lowest cost.	Agree	
Respondent 20: EnBW Optimised grid loading requires a high degree of monitoring, communication, sensors and actuators in the distribution grids and thus higher costs. At first sight, smart grid solutions appear to be more expensive than conventional solutions.	Partly Agree	ERGEG believes that in the longer term smart grid solutions are expected to significantly reduce the costs of supporting the expected growth of alternative renewable generation.
Respondent 24: E.ON One reason to invest in Smart Grids is to improve asset utilisation, which in the long run will lead to a reduction in future investment. This is, however, a major challenge for regulators as smart grids may mean higher expenditure today (due to a need to invest in information and communication technology) to postpone or even avoid the need for investment in more conventional grid assets in the future. Currently, we do not yet see that regulators support increased investments into smart grids as typical benchmarking or incentive regulation always compares with the network operator who is most efficient today and not most efficient in the future. Without a more forward looking regulation we think that smart grids might not be implemented on a broad scale	N/A	Incentives are based on the national legal and regulatory framework.
Respondent 40: SSE Widespread development of smart grids is unlikely over the next few years. However, during this time deployments of smart grid solutions need to be undertaken while continuing to research and develop new technologies (incremental costs over and	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
above investments using conventional technologies). However, in the longer term smart grid solutions significantly reduce the costs of supporting the expected growth in low carbon heat and transport alternatives.		
Respondent Group – Grid Operator		
Respondent 15: EDP Given the significant amount of investment envisaged in new smart grid technologies when compared to conventional network investment solutions, smarter grid solutions will expectedly be more costly than conventional solutions despite the smart grids.	N/A	
Respondent 16: EEGI-DSO Respondent 25: ERDF 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.	Agree	cost/benefit is essential for any projects
Respondent 19: ENA Widespread development of smart grids is unlikely over the next few years. However, during this time deployments of smart grid solutions need to be undertaken while continuing to research and develop new technologies (incremental costs over and above investments using conventional technologies). However, in the longer term smart grid solutions significantly reduce the costs of supporting the expected growth in low carbon heat and transport alternatives.	Agree	Highlighted also in the position paper
Respondent 23: ENTSO-E Some “Smart Grids” solutions will become a necessary prerequisite for maintaining security of supply in power systems with a high penetration of RES. Implementing “Smart Grids” solutions will most probably be more costly than the “fit and forget” strategy applied for decades, but at the end of the day	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
the benefits in controllability, efficiency, quality and security of supply will redress the higher investment costs.		
Respondent 21: Energinet Some smart grid solutions will become a necessary prerequisite for maintaining security of supply in power systems with a high penetration of RES.	Agree	
Respondent 30: GEODE Smarter grid solutions will not be essential or neither will costs decrease in the next few years (will decrease just in the longer term). However during this time projects investment on smart technologies will begin, but together with investments using conventional technologies.	Partly Agree	The fact that smarter grid solutions will not be essential in the next few years is seen very differently by the different stakeholders.
Respondent 34: National Grid In their view, providing the framework to incentivise behaviour and provide appropriate investment signals should drive networks and the supply chain to employ the most efficient/cost effective solutions. For distribution networks rollout of smart meters will be key element to engage consumers in efficient energy use and distribution network utilisation. For Transmission, it is more concerned with building transmission capacity efficiently and within planning permission requirements.	Partly Agree	Smart meters are just relevant for some smart grid functionalities
Respondent 35: Netbeheer Nederland Yes, smart grids means the addition of more ICT to the energy grid. Rapid development with IT is most likely to generate solutions of a limited lifespan but with high costs. Unnecessary investments can be avoided through increased insight into the condition (monitoring, management of energy flows in the grid).	Agree	Limited lifespan of ICT should be taken into account (Unnecessary investments should be avoided).
Respondent 36: RWE We anticipate potential increases of costs: either costs for extending the existing (conventional) grid or costs for refining the grid with innovative smart grids. We have good reasons to	Partly Agree	ERGEG believes that grid operators will also be beneficiaries of smarter grids and this is already as an incentive for them.

Respondents' views	ERGEG's position	Explanation/evaluation
believe that the costs for refining the existing grid with innovative technology will be less expensive than spending monies on extending the conventional grid.		
<p>Respondent 42: Swissgrid</p> <p>Smarter grid solutions will become a necessary prerequisite to maintain security of supply in power systems with high penetration of RES. They will never be as cheap as the "fix and forget" strategy but at the end of the day the earnings in controllability, efficiency, quality and security of supply will redress the higher investment costs.</p>	Agree	
<p>Respondent 43: Synergrid</p> <p>The integration of a huge amount of DER in the network combined with a major shift from fossil fuels to more electrical consumption will definitely result in an increase of the network costs at least in the short term. However, advantages created by the smart grid will limit these increasing costs and will enable new services for the other market parties.</p>	Agree	
Respondent Group – Industry Assoc.		
<p>Respondent 03: BDEW</p> <p>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. 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.</p>	N/A	Incentives are based on the national legal and regulatory framework.
<p>Respondent 06: CEDEC</p> <p>Smart networks at the distribution network level require substantial investments, especially in infrastructure and</p>	Partly Agree	If incentives are given accordingly, the introduction of a smart grid will nevertheless lead to higher costs initially. ERGEG believes that grid operators will also be beneficiaries of

Respondents' views	ERGEG's position	Explanation/evaluation
communication technologies. However, there is the dilemma that those who should/could invest in smart networks do not have any regulatory incentives for such investments.		smarter grids and this is already as an incentive for them.
Respondent 29: FutuRed Yes. Support from the regulation side is fundamental (regulatory incentives). These measures will help in the technology deployment until it achieves a competitive price.	N/A	
Respondent 41: Svensk Energi From a DSO perspective, costs are expected to increase. Hence incentives are needed in the regulation, especially in the implementation phase. In the coming years investments in smart grid solutions will increase, but the business case is not yet clear.	Agree	
Respondent 49: EPSU Some scepticism is required to those who would claim smart grid solutions will be low cost in the forthcoming years. Smart grids will not prevent that investment is needed in the networks over the years to come. Smart grid technology might in such cases actually add to the costs (extension of networks).	N/A	
Respondent 50 Eurelectric Some smart grids solutions (e.g. AMR projects already deployed in Italy, Sweden and Finland) have already proved their benefits, others require to be proved. Anyway it should be considered that costs will most probably not be lower than today, but the quality and services for all stakeholders may be improved and this improvement should be done at the lowest cost.	Agree	
Respondent group - Renewable Generators		
Respondent 28: EWEA More intelligent networks will enable the integration of more renewables, which will lead to lower generation costs. This	Partly Agree	The interconnection of more renewables and lower generation costs is unclear

Respondents' views	ERGEG's position	Explanation/evaluation
justifies the use of higher quality (and probably more expensive) infrastructure.		
Respondent Group – Research/cons.		
Respondent 05: Bloomberg BNEF There are already areas where smart grid solutions are more effective and at lower costs than conventional solutions. The incremental cost is even lower (and the cost-benefit ratio more favourable) if installations are in new-build houses or replacements for 'dumb' meters which have reached the end of their service lives.	N/A	
Respondent 09: DERLab Smarter grid solutions will be essential and we expect smarter grid solutions leading to lower costs than conventional solutions in the long run, but for the next few years no lower cost are foreseen because of lack of standardisation, no practical operational experience and no large (production) volumes.	N/A	
Respondent 32: KTH New investments to cope with less predictable and variable introduction of renewables are a must (more exchange and handling of data, securing solutions, heat pumps and electrical vehicles need new technical approaches) Smart-Grid technique is a way to turn the up-warding cost trend downwards again.	Agree	
Respondent 46: VDE-ETG The smart grid solutions require in the first line additional investment. Only in the second line smart grid solutions will achieve benefits for each stakeholder. However, it is not possible to define these benefits in Euro and Cent in the moment.	Agree	Useful comment
Respondent Group – Service Provider		
Respondent 01: Accenture	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
Next to cost, maintaining manageability will also be an important driver for investment in smart grids. With regard to cost effectiveness, there is probably not a one-size-fits-all answer, nor is the decision to implement a smart grid a "yes or no" matter.		
Respondent 22: EnerNOC UK Limited Practical experiences illustrated that smart grid applications, such as commercial and industrial demand response, are already lower cost than conventional solutions like gas turbine peaking plants.	Agree	
Respondent 26: ESMIG The expectation is certainly there that grid operations will be more cost effective with smarter grid solutions. There is no expectation that the prices for smart grids technology will rise in the coming years.	Agree	
Respondent 33: Landys+Gyr Ltd. The expectation is certainly there that grid operations will be more cost effective with smarter grid solutions. There is no expectation that the prices for smart grids technology will rise in the coming years.	Agree	
Respondent 37: SAGEM Communications SAS In a first stage most deployments of equipments of the network will not be done specifically for Smart; secondly in case of distributed intelligence of networks is required extra costs may occur. The main investments for DSOs, service providers will be for administration and IT systems.	Partly agree	Limited lifespan of ICT should be taken into account (Unnecessary investments should be avoided).
Respondent 38: Schneider Electric Technologies offered by the electrical and electronic as well as ICT industries will completely change the picture. Costs, on a like for like basis in term of demand and primary energy price,	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
can't be higher.		
<p>Respondent 39: Silver Spring Networks</p> <p>Wireless mesh technologies provide more value to the utility and, transitively, the consumer than application-specific, stove-piped solutions that have been traditionally deployed. A unified network architecture centred on Internet Protocol and wireless mesh are very cost effective (both CAPEX OPEX perspectives).</p>	Agree	
<p>Respondent 44: T&D Europe</p> <p>Essential smarter grid solutions are mandatory, however not automatically at lower costs. On the long term perspective costs might even increase. Smart features will create cost at CAPEX side, but savings on the OPEX-side. Regulatory setting essential to provide the economical attractiveness for smart grid innovations.</p>	Agree	
<p>Respondent 45: Teradata</p> <p>Initially the investment cost may be higher, but the resulting total cost of ownership should be lower if the data generated by the smart grid is analysed and used to optimize operations and drive down wastage, i.e. if the grid is actually made smart.</p>	Agree	
<p>Respondent 48: ZVEI</p> <p>Essential smarter grid solutions are essential, however not automatically at lower costs. On the long term perspective cost might even increase. For all participants it needs to provide the economical attractiveness for smart grid innovations.</p>	Agree	

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

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Consumer assoc.		
Respondent 02: Altroconsumo No, we don't.	Agree	
Respondent 08: Consumer Focus We agree that (a) encouraging innovation and (b) enabling the network companies to identify and prioritise specific smart grid solutions that can more effectively meet users' needs, are two major regulatory challenges in moving to smarter grids.	Agree	
Respondent Group – Energy Company		
Respondent 07: Centrica We do not disagree with the challenges noted by ERGEG. Regulation will play an important part in delivering new regulatory frameworks that facilitate new commercial relationships between suppliers, networks and other parties. In general, regulation must create a clear, consistent pathway to ensure the 20/20/20 targets are achieved, setting the smart grid targets and ensuring the targets are adhered to. It should permit flexibility in Member State solutions and approach and should encourage a culture of innovation whereby innovative networks and users are rewarded for identifying and delivering cost effective solutions	Agree	
Respondent 10: DONG The paragraph on regulatory challenges gives network companies a leading role in developing the smart grid and driving innovation. However, the role of commercial entities will be equally important. Removing commercial barriers and encouraging commercial solutions should be a priority for regulators.	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 13: EDF It seems difficult to oppose the regulatory challenges outlined in Section 3.6.. One of the challenges facing regulation concerning Smart Grids is then to imagine better cooperation between regulated and unregulated businesses.</p>	Agree	
<p>Respondent 14: Edison Spa We think that European electricity networks have to be prepared to cope with the ambitious EU sustainability targets. The Smart Grids deployment also considers legislative and regulatory schemes to secure the developments in a timely way.</p>	Agree	
<p>Respondent 20: EnBW We are convinced that this “smart revolution” will only happen if the investment incentives are sufficiently high. The regulatory authorities could deploy already existing tools in the grid charges regulation to ensure adequate returns on the necessary investments. We also support the idea that the regulators must remain technologically neutral.</p>	N/A	
<p>Respondent 24: E.ON In principle, we agree. Encouraging innovation is certainly a very important challenge for regulators. Most regulation in European member states where E.ON is active does not support R&D investments – the British regulation being a rather positive exception. Nevertheless, whilst the UK is commended for providing funding for R&D, the underlying regulation has not been amended to support innovation or to encourage smart grids as a business as usual investment. As the implementation of smart grids still needs a lot of research to be done, this low focus of regulators on R&D is a big disadvantage. As a consequence, investment into smart grids will either be too late or too low Another important aspect in our view is the integration of positive externalities into the regulation</p>	N/A	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 40: SSE Regulators will need to encourage companies to spend money on innovation for the benefit not just of today's but also future customers and users. Arrangements must be put in place that recognise the uncertainty (offering companies a higher rate of return for managing the extra risk and establishing clear ground rules for the treatment of stranded assets due unexpected developments).</p>	Agree	
Respondent Group – Grid Operator		
<p>Respondent 15: EDP It is important that new regulatory models decouple the volume of energy supplied from the profits of grid operators. Also, incentive mechanisms should be put in place to enable network companies to pursue innovative solutions where these can be considered as beneficial.</p>	Agree	
<p>Respondent 16: EEGI-DSO Respondent 25: ERDF Some regulatory changes ex-ante are necessary, Regulators should incentivise and address R&D areas. The first mover on a market and/or an area always has higher risks and somewhat higher costs.</p>	Agree	
<p>Respondent 19: ENA Regulators will need to encourage companies to spend money on innovation for the benefit not just of today's but also future customers and users. Arrangements must be put in place that recognise the uncertainty (offering companies a higher rate of return for managing the extra risk and establishing clear ground rules for the treatment of stranded assets due unexpected developments).</p>	Agree	
<p>Respondent 23: ENTSO-E An adequate regulatory scheme harmonised at European</p>	Partly agree	Revenues and incentives depend on the national regulatory

Respondents' views	ERGEG's position	Explanation/evaluation
<p>level should allow a relevant sharing of costs and benefits between stakeholders. In that respect the regulatory scheme should be based on depreciation values which recognize the differences between High Voltage assets and IT assets. A regulatory scheme should be harmonized as much as possible on European level. Full harmonization is not possible due to different topology of networks and different stages of network development</p>		<p>scheme.</p>
<p>Respondent 21 Energinet It is vital that new regulatory frameworks, supporting incentives and controlling benchmarking schemes should be developed by the European Regulators allowing for the initial up-front investments be done by the transmission and distribution system operators before the first generator or consumer can be integrated and hence before any benefits can be measured by any stakeholder.</p>	<p>Partly Agree</p>	<p>Revenues and incentives depend on the national regulatory scheme.</p>
<p>Respondent 30: GEODE National regulators should guarantee adequate finance for DSOs and TSOs to cover the huge investments the installation of Smart Grids will require (investment friendly climate). DSOs (small and medium) require regulatory incentives for R&D expenditure. Regulators have to change their regulatory behaviour from short term cost reduction regulation to a long term innovative and investment friendly regulation scheme.</p>	<p>N/A</p>	
<p>Respondent 34: National Grid They believe it is important to develop a regulatory regime that enables efficient anticipatory investment and appropriately values network flexibility / 'optionality'. Regulators need to seek to develop regimes which remove the incentives for energy companies to simply "sell more" to customers. For widespread penetration of distributed generation common standards agreed by network companies and manufacturers of generating</p>	<p>Agree</p>	<p>Useful comment</p>

Respondents' views	ERGEG's position	Explanation/evaluation
equipment need to be developed.		
<p>Respondent 35: Netbeheer Nederland</p> <p>An economic efficient regulatory framework should be stable enough to be able to set fair boundaries within which stakeholders can have their playing field, but at the same time be flexible enough to allow adjustment in times (anticipation of future developments). Measures must be taken to prevent DSOs from being "punished" for making costs for the energy transition now. (regulators bear a major responsibility concerning these risks)</p>	Agree	
<p>Respondent 36: RWE</p> <p>The regulatory challenges as describes cover the main challenges. Indeed it is crucial to provide adequate incentives for network companies to be able to focus on innovation. At the same time it is important that the regulatory regime is stable and maintains its focus on regulated infrastructure business.</p>	Agree	
<p>Respondent 42: Swissgrid</p> <p>It is 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.</p>	Agree	
<p>Respondent 43: Synergrid</p> <p>The major challenge for the regulators (transparent and stable framework) will indeed be the definitions of incentives that do not prevent a fast evolution to economically balanced models in order to encourage innovation and effectiveness.</p>	Agree	
Respondent Group – Industry Assoc.		
<p>Respondent 03: BDEW</p> <p>In principle, we agree. It has to be considered that a regulatory framework that encourages the network operators' investment is the most effective incentive to pursue innovative solutions.</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Regulations in European member states do to a large extent not support R&D investments. 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.</p>		
<p>Respondent 06: CEDEC In view of the general European objectives, the thesis is, in particular, that the ICT investments required in relation to developing the smart grid with a large number of new services have to be shared among the different stakeholders through a corresponding regulatory framework and cannot be borne by the network alone. Investments that only lead to higher costs in the end without any macro-economic advantage are neither desirable nor economically meaningful.</p>	Agree	
<p>Respondent 49: EPSU The challenge for the regulators is to stimulate the companies to have well trained and qualified staff, to respect their corporate social responsibility obligations, etc. Regulators should not stimulate risk taking of companies to be innovative but to invest in research and development.</p>	N/A	
<p>Respondent 29: FutuRed When any new specific challenge arises the adequate regulatory actions have to be studied and implemented. FutuRed encourage smart rates (TOU, CPP, RTP etc.) to "smart customers", who can access to their consumption on a near real time basis.</p>	Agree	
<p>Respondent 41: Svensk Energi It is of importance that the regulators understand that often in deployment of new technologies the costs are there at day one and benefits comes in the future.</p>	N/A	
<p>Respondent 50: Eurelectric</p>	N/A	

Respondents' views	ERGEG's position	Explanation/evaluation
the current regulation of distribution investment does not allow most European DSOs to recover their investments at a market rate. Eurelectric recognizes the importance for regulators to understand that often in deployment of new technologies there are significant costs from the early start of any project and that benefits may only come later in the future.		
Respondent group - Renewable Generators		
Respondent Group – Research/cons.		
<p>Respondent 05: <i>Bloomberg BNEF</i> We particularly support the sentiments outlined in the final paragraph of Section 3.6.1: 'We believe that regulators must move from a narrow focus on cost minimisation to a broader set of objectives that includes environmental and societal benefits. This will require a shift from straight economic cost-benefit analyses to a more complex set of benefit considerations and performance indicators. <i>Depending of the regulatory framework, regulators will critically assess incentivisation of network companies to pursue value for money of innovative solutions to the benefit of consumers. This overarching change of approach, including the expected effects and measurable quantities resulting from the deployment of the appropriate innovative solutions, is the key challenge for regulators.</i></p>	Agree	
<p>Respondent 09: DERLab We agree basically. When any news specific challenges arise, the adequate regulatory actions have to be assessed and implemented in an - as much as possible - worldwide scenario. We would like to stress that care must be taken to distribute costs as well as benefits of the deployment of a smart grids in a fair way among the different involved parties.</p>	Agree	
Respondent 32: KTH	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
Regulation incentives should have mechanisms to allow investments before new generators or relevant consumer equipment pose a risk of leading to shortage of network capacity.		
<p>Respondent 46: VDE-ETG We agree with the conclusions about the regulatory challenges. The regulatory framework will not only play an important role – it is the main enabler for establishing new smart grid solutions and services in the electricity network. It is the time now that the barriers for smart grid solutions will be recognized and that countermeasures will be integrated into the regulatory framework as soon as possible.</p>	Agree	
Respondent Group – Service Provider		
<p>Respondent 01: Accenture Indeed, regulators would need to devise incentive schemes that will support utilities in experimenting with and adopting innovative business models and technologies.</p>	N/A	
<p>Respondent 26: ESMIG It is the task of the regulatory authority to incentivise the grid companies pursuing innovative technologies and spread the costs of the smart grids development among market actors according to the benefits they derive – and this includes the final consumers.</p>	Partly agree	Revenues and incentives depend on the national regulatory scheme.
<p>Respondent 33: Landys+Gyr Ltd. It is the task of the regulatory authority to incentivise the grid companies pursuing innovative technologies and spread the costs of the smart grids development among market actors according to the benefits they derive – and this includes the final consumers.</p>	Partly agree	Revenues and incentives depend on the national regulatory scheme.
<p>Respondent 37: SAGEM Communications SAS No additional remarks to this topic</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 38: Schneider Electric Regulators need to care as well about the need for end users to change behaviour and invest in measuring, monitoring and controlling tools.</p>	N/A	
<p>Respondent 39: Silver Spring Networks Yes, they strongly encourage energy regulators and policymakers to collaborate with communications/spectrum regulators and policymakers to align goals.</p>	Agree	Regulators task is to encourage collaboration amongst relevant stakeholders
<p>Respondent 44: T&D Europe The regulatory changes should actively challenge the participants (power generation, operators, equipment industry, consumers) while maintaining/creating parity. The parity of these parties will provide the needed continuous development (no single party could afford to step out of this process).</p>	Agree	
<p>Respondent 45: Teradata Information monopoly could hinder an efficient market, and information should be freely available to optimize the energy market competition and efficiency, while at the same time respect the consumers' privacy. The regulators need to promote standardization of the smart grid information exchange</p>	Agree	
<p>Respondent 48: ZVEI Here the mentioned challenges give a very good overview. Also recognizing the bases for innovation and users needs. The regulatory changes should actively challenge the participants (power generation, transmission, distribution, consumers/prosumers, equipment industry) while maintaining/creating parity.</p>	Agree	

Consultation 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)?

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Consumer associations		
Respondent 02: Altroconsumo Yes, but regulators should not exclude “technical details”	Partly agree	Regulators should look also at “technical details” (regulation of inputs), but with main focus on outputs, as they cannot do the job better than operators
Respondent 08: Consumer Focus Yes, outputs should be discussed with users and customers	Agree	
Respondent 47: VZBV Yes, outputs as effects for the demand side and especially household consumers	Partly agree	Output for all grid users are important
Respondent Group – Energy company		
Respondent 04: BNE Bundesverband Neuer Energieanbieter Agree, because technical details cannot be the scope of regulation of electricity grids	Disagree	Regulation of inputs can be and is often part of the regulation of electricity grids.
Respondent 07: Centrica Regulators should focus on outputs, rewarding networks on the basis of the outputs they deliver and focusing on the aspects of service delivery that users and other stakeholders value. Customers can be more certain that they are getting value for money. Only once there is confidence in the robustness of output measures should funding be linked to the attainment of such targets.	Agree	Especially agree that output measures should be carefully evaluated, quantified and tested in practice before linking them to rewards and penalties.
Respondent 10: DONG Energy Regulators should focus on barriers to smart decisions. Actors will be able to apply optimal inputs to create optimal outputs.	Partly agree	ERGEG agrees that un-necessary regulatory barriers should be avoided. It is not immediate that a non-regulated company will behave optimally for the society as a whole..

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent 12: EDF Energy Yes, only in the longer term. In the short term, focus needed on innovation (see Q14).	Agree	Focus on output measures is more appropriate in the longer term. See also replies by ENA, SSE, EEGI-DSOs, ERDF
Respondent 13: EDF Yes	Agree	
Respondent 14: Edison SpA Yes	Agree	
Respondent 20: EnBW The lack of suitable or operational performance criteria means that it will remain difficult for the regulation to focus purely on output. The incentive regulation is not limited to "smart grids". Without deploying smart grids, the incentive regulation is already applied by some European countries.	Disagree Agree	Main focus on outputs does not mean forgetting the technical and economic details for defining regulatory mechanisms.
Respondent 24: E.On Yes. Parallel to the output parameters some technical details should also be considered by regulators to compare the capability of smart grids with each other. Regulators shall also take the capability of smart grids, e.g. amount of transported load, into account to incentive cost effective solutions.	Agree	
Respondent 40: SSE Agree, but proposed outputs must be really related to networks and output regulation should not be intrusive requiring a very large burden of data to be provided by the operators. In the short term, focus on output measures would be inappropriate and might lead to risk-aversion, delay innovation	Partly agree Agree	Data are needed for an effective output regulation Focus on output measures is more appropriate in the longer term. See also replies by EDF Energy, ENA, EEGI-DSOs, ERDF

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Grid operator		
Respondent 15: EDP distribuição EDPD considers it is important that regulators focus both on outputs and on inputs.	Partly agree	Attention to output regulation does not mean that regulators should forget the “technical details”.
Respondent 16: European Electricity Grid Initiative – DSOs It depends on the maturity of Smart Grids: in R&D phase, benefits are difficult to measure in the roll-out phase, regulation of outputs can be very effective	Agree	This is an interesting comment See also replies from ENA, SSE, EDF Energy.
Respondent 25: ERDF joins EEGI DSOs response		
Respondent 19: ENA - Energy networks association Agree, but proposed outputs must be really related to networks and output regulation should not be intrusive requiring a very large burden of data to be provided by the operators. In the short term, focus on output measures would be inappropriate and might lead to risk-aversion, delay innovation	Partly agree Agree	Data are needed for an effective output regulation Focus on output measures is more appropriate in the longer term. See also replies by EDF Energy, SSE, EEGI-DSOs, ERDF
Respondent 21: ENERGINET.DK Yes, though in some cases the benefits of smart grids are easier measured by technical details.	Agree	
Respondent 23: ENTSO-E Agree on output benefits. Also the technical details needs a clear regulatory understanding and examination.	Agree	
Respondent 30: GEODE Agree, but regulators should understand the technical details as well.	Agree	
Respondent 34: National Grid Yes	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 35: Netbeheer Nederland Regulators should not focus on technical details. They should only focus on fine tuning the regulatory system. One could introduce a rewards/penalties system for certain aspects of the business, but for it to work the impact would have to be substantial.</p>	<p>Partly agree</p> <p>N/A</p>	<p>It is rather difficult to fine tune a regulatory system without no knowledge at all of technical and economical details.</p> <p>ERGEG has no clear view whether the impact have to be substantial</p>
<p>Respondent 36: RWE Rheinland Westfalen Netz Yes, but focus on inputs would require micromanagement by the regulatory authorities.</p>	<p>Agree</p>	
<p>Respondent 42: Swissgrid 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.</p>	<p>Disagree</p>	<p>Proposed focus on output regulation is not limited to quality and security of supply</p>
<p>Respondent 43: Synergrid We agree on the principle but with remarks: - local country situation - targets in terms of quality for users - the value of output must be fairly remunerated - some outputs might be contradictory with each other</p>	<p>Agree</p> <p>Agree</p> <p>Agree</p> <p>Partly agree</p> <p>N/A</p>	<p>Might be true in principle, but output regulation not necessarily has economic impact</p>
Respondent Group – Industry Association		
<p>Respondent 03: BDEW Yes, agrees.</p>	<p>Agree</p>	
<p>Respondent 06: CEDEC They agree in general, but also note the importance of technical and economical terms.</p>	<p>Agree</p>	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 17: EFET Generally agrees in output regulation by incentives and minimum requirements (direct regulation). However, suggests also not defining a generic regulatory approach for smart grids. Instead, regulators should focus on more specific issues that are likely to arise.</p>	Agree	ERGEG agrees that smart grid is not a goal in it self, but can be a means to reach the goal, i.e. a regulatory approach towards smart grids, alone, is not envisaged. This coincides with the messages in the ERGEG Consultation Paper, section 4.1.
<p>Respondent 29: FutuRed Yes, except when a specific technique is required to attain some of the outputs.</p>	Agree	ERGEG agrees that in special cases a special technique may be required, so the regulators interference in this is not to be completely neglected; however, national differences may occur.
<p>Respondent 41: Svensk Energi Yes, agrees.</p>	Agree	
<p>Respondent 49: EPSU No, disagrees. A mix of both will be needed. The complexity of networks and the fragmentation will increase. Regulators will be required to develop clear guidelines on inputs as well. The experience of the regulators themselves should be guidance as well. If they do not intervene market prices will be much higher than appropriate and justified.</p>	Partly agree	ERGEG agrees that while the main regulatory role will be focusing on outputs (financial incentives, minimum requirements, benchmarking), the need of focusing on technical details cannot be completely neglected in all cases, e.g. framework guidelines and standardisation.
<p>Respondent 50: EURELECTRIC No, disagrees. Regulators should focus on both inputs and outputs. Suitable output criteria are sometimes difficult to define, therefore, the use of certain input criteria/processes should not be excluded (e.g. a cost-based approach). New types of IPP are entering the market, will require more detailed and stronger requirements on grid-codes for connection and operation.</p>	Partly agree	ERGEG agrees that while the main regulatory role will be focusing on outputs (financial incentives, minimum requirements, benchmarking), the need of focusing on technical details cannot be completely neglected in all cases. However, whether to use a cost-based approach ex-ante can only be determined at national level.
Respondent Group – Renewable generator		

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 28: EWEA The regulators should facilitate proper standards and minimum requirements. The appropriate road is (a) Network Codes and (b) additional standards by CEN/CENELEC. R&D efforts are needed.</p>	Disagree	Smart grid deployment must be centred on the need and benefit of users. This is not adequately guaranteed by network codes (only for transmission) and technical standards only. However, this input regulation is also important (see main text).
<p>Respondent 31: World Future Council and other NGOs Regulators have to ensure their access to all new sources of data provided by smart technology, in order to keep oversight and control of markets they are tasked with overseeing.</p>	Disagree	The mission of regulators is defined by EU and national legislation, the core missions are first to regulate and second to control. Still, regulators need access to relevant data regarding the area they are controlling.
Respondent Group – Research/ Consultant		
<p>Respondent 05: BNEF Broadly speaking, they agree.</p>	Agree	
<p>Respondent 09: DERLab experts Basically they agree. However, benefits of smart grids should be combined with general technical objectives e.g. interoperability as general objective could lead to less proprietary solutions. But the way to interoperability must be defined by the stakeholders.</p>	Agree	ERGEG agrees to the importance of ensuring interoperability and non-proprietary solutions. See also Q15 and standardisation
<p>Respondent 11: Frans Nieuwenhout Yes, agrees.</p>	Agree	
<p>Respondent 27: Even consultant Yes, agrees.</p>	Agree	
<p>Respondent 32: KTH + Power Circle Yes, agrees in principle. However, a technical perspective may be needed on the regulation. (Certain technical constraints must be fulfilled.)</p>	Agree	ERGEG agrees that the regulation must have both an economical and a technical perspective.

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 46: VDE-ETG Yes, agrees. Further Regulators should be directed on enabling mechanisms, such as:</p> <ul style="list-style-type: none"> - Support of technical solutions like smart meters. - Establishment of clear market rules for new service providers. <p>Regulators should introduce the whole scope of rules in cooperation with legislation, which may be required to change in some countries.</p>	Partly agree	ERGEG believes national regulatory authorities will support new technical solutions when they are beneficial from the viewpoint of the society, and not (necessarily) in any case. ERGEG agrees it is important to ensure a complete regulation.
Respondent Group – Service Provider		
<p>Respondent 01: Accenture Yes, agrees.</p>	Agree	
<p>Respondent 26: ESMIG Respondent 33: Landis & Gyr Yes, agrees.</p>	Agree	
<p>Respondent 37: Sagecom Agrees mainly. However, technical details cannot be avoided. Regulators will have a huge role to survey investments of regulated stakeholders to take into account the future Smart Grid functionalities.</p>	Partly agree	Regulators' role in surveying investments will depend on national regulations. ERGEG agrees that the need of focusing on technical details cannot be completely neglected in all cases.
<p>Respondent 38: Schneider Electric Yes, agrees.</p>	Agree	
<p>Respondent 39: Silver Spring Yes, agrees. However, regulators should ensure that a range of effective technology options is available.</p>	Partly agree	Technology should be available through relevant standards, and based on business needs. Regulators' play a role in European and national standardisation, but ERGEG believes that regulators should not be the main enabler for making effective technology options available.

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 44: T-D Europe and Respondent 48: ZVEI Yes, agrees. A challenge how to benefit the investor and to benefit the party (generator) selling less amount of energy due to the investment. Reflected should be also the mentioned parity and accessibility for power generation, transmission, distribution, equipment industry and consumers/prosumers.</p>	Agree	ERGEG agrees that clear understanding of allocation of benefits and costs is important.

Consultation 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

Ranking of most significant benefits is not further assessed as there are difference among responses. Due to this reason, sub-responses dealing with this issue are marked with ERGEG's position N/A.

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Consumer associations		
Respondent 08: Consumer Focus Include customer satisfaction with the impact of smart grids, for domestic customers smart meters impact and quality of supply	Agree	User satisfaction is included as indicator for benefit (4). See main text 2.3.3.
Respondent 47: VZBV We do agree. Benefits should take into account differences across countries and be based on actual circumstances.	Agree	The paper recognised “indicators that will be the best ones to consider can vary from country to country”.
Respondent Group – Energy company		
Respondent 04: BNE Bundesverband Neuer Energieanbieter The list needs further analysis. Importance of effects differs over regions.	Agree	The importance of effects, benefits and indicators can vary from country to country.
Respondent 07: Centrica Does not disagree. However proposes additional (sub)effects: Reduces infrastructure requirements, thereby reducing environmental impacts Smooths demand, increases efficiency, less pollution Faster fault resolution, preventive monitoring, easy identification Better planning of future investment Facilitates consumer engagement and power / incentives to act Gives consumers greater choice / control of consumption	Agree	Very important comment. Especially agree the importance of the last two effects/benefits: facilitate consumer engagement and give consumers greater choice and awareness of its consumption. These are included as a new benefit (8)

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 10: DONG Energy</p> <p>The list of benefits presents a fair picture. The priorities should be to monetize the values that have so far not been monetised, and remove the barriers in accessing the market for flexibility. Removing such barriers and monetizing constraints through tariffs and open markets will lead to better utilisation of T & D grids and more optimal dispatch of resources particularly for short term balancing.</p> <p>Monetisation can provide intelligent incentives to the users.</p>	<p>Partly agree</p>	<p>In principle agree, but in practice (for some benefits) monetisation is probably not completely possible.</p>
<p>Respondent 12: EDF Energy</p> <p>One of the main benefits of Smart Grids will be the involvement of customers</p> <p>The paper identifies numerous benefits. However, we feel we must disagree with the potential benefits that could be delivered from reducing technical system losses</p> <p>Additional beneficial effects:</p> <p>Improved grid stability</p> <p>Accommodation of significant growth in electricity demand</p> <p>Intelligent voltage control</p> <p>Residual balancing at T/D interface by distribution grids</p>	<p>Agree</p> <p>Partly agree</p> <p>Agree</p> <p>N/A</p> <p>Partly agree</p> <p>N/A</p>	<p>ERGEG adds a benefit (8) related to this</p> <p>The reduction of losses has to be intended vs. business as usual approach</p> <p>Grid stability and voltage control are part of effect (4) and effect (5)</p>
<p>Respondent 40: SSE</p> <p>Additional benefits include:</p> <p>(i) Reduced market price volatility – through closer real-time matching of demand and intermittent renewable generation.</p> <p>(ii) Improved grid stability by flexible demand</p> <p>(iii) Accommodation of significant electricity growth while avoiding T&D major investments</p> <p>(iv) Intelligent voltage control avoiding LV grid investments</p> <p>(v) distribution grids contribution to residual balancing</p> <p>(vi) more granular charging regimes, even nodal charging in distribution grids;</p> <p>(vii) multiple time-of-use (TOU) and critical peak pricing (CPP) and even real-time dynamic pricing.</p>	<p>Partly agree</p>	<p>Some benefits are already included in ERGEG list of effects. Other benefits – although not wrong – are rather instruments to achieve a benefit (e.g. voltage control, time of use and peak pricing)</p>

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 13: EDF The proposed list appears to be exhaustive, but we consider that a focus should be made on manoeuvrability and flexibility gains for the system. Items (1) (4) (5) are more significant to achieving EU targets</p>	<p>Partly agree N/A</p>	<p>Manoeuvrability and flexibility are not completely “output” benefits</p>
<p>Respondent 14: Edison SpA Effects (6) and (7) are not specific to smart grids</p>	<p>Partly agree</p>	<p>Some of the effects can be reached by conventional solutions. Smarter solutions will be applied when they are more cost-efficient, hence the performance indicators promote smart solutions when beneficial. This is indeed a “smart” approach.</p>
<p>Respondent 20: EnBW Effects (3) and (7) are not specific to smart grids. Generation diversification can be added as a new effect. Rank effects and benefits as follows, arranged from the most to the least significant EU targets to be achieved: 1, 5, 2, 6, 7, 4, 3. National differences to be taken into account.</p>	<p>Partly agree Partly agree N/A Agree</p>	<p>Some of the effects can be reached by conventional solutions. Smarter solutions will be applied when they are more cost-efficient, hence the performance indicators promote smart solutions when beneficial. This is indeed a “smart” approach. Generation diversification relates to (1) improved sustainability and (4) higher security of supply</p>
<p>Respondent 24: E.On List is already fairly complete and may already contain too many performance indicators because every additional indicator leads to more complexity for network operators and regulators. (1) (2) (5) more important. (7) can be achieved without smartness</p>	<p>Partly agree N/A Partly agree</p>	<p>The list presents potential performance indicators, where the best one to consider have to be evaluated taking into account national factors. Therefore, it is not a long list. Smarter solutions will be applied when they are more cost-efficient than conventional ones, hence the performance indicators promote smart solutions when beneficial.</p>
<p>Respondent Group – Grid operator</p>		
<p>Respondent 15: EDP distribuição The identification of the benefits that may be derived from smart grids is useful to allocate the costs to the beneficiaries of the smart grid infrastructure.</p>	<p>Agree</p>	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>EDPD would like distribution network activities to be explicitly considered in the list. Certain "system operator" activities (such as frequency support, voluntary distributed interruption availability, peak demand shaving services) within a smart grid framework may be performed at the distribution level as well.</p> <p>Advantages associated to DSM technologies More and better quality data may be acquired</p>		
<p>Respondent 16: European Electricity Grid Initiative – DSOs The consumer should be properly informed on benefits. Some benefits are beyond the network users (e.g. environmental benefits, CO₂ reduction). We consider the list quite complete and (1) (2) (5) more significant. In relation to uniform connection conditions in Benefit (3), the paper proposes the same conditions to all kind of user. We cannot agree</p>	<p>Agree</p> <p>N/A</p> <p>Agree</p>	<p>Improved user awareness is new effect (8)</p> <p>Uniform has to be intended by similar type of user</p>
<p>Respondent 25: ERDF joins EEGI DSOs response</p>		
<p>Respondent 19: ENA - Energy networks association Additional benefits include: (i) Reduced market price volatility – through closer real-time matching of demand and intermittent renewable generation. (ii) Improved grid stability by flexible demand (iii) Accommodation of significant electricity growth while avoiding T&D major investments (iv) Intelligent voltage control avoiding LV grid investments (v) distribution grids contribution to residual balancing (vi) more granular charging regimes, even nodal charging in distribution grids; (vii) multiple time-of-use (TOU) and critical peak pricing (CPP) and even real-time dynamic pricing.</p>	<p>Partly agree</p>	<p>Some benefits are already included in ERGEG list of effects. Other benefits – although not wrong – are rather instruments to achieve a benefit (e.g. voltage control, time of use and peak pricing)</p>

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 30: GEODE Other additional benefits may include reduction of market price volatility, improvement of grid stability, smart voltage control to accommodate higher levels of RES, electrical vehicles, and heat or cooling pumps demand to minimise network reinforcement.</p>	Partly agree	Some benefits are already included in ERGEG list of effects. Other benefits – although not wrong – are rather instruments to achieve a benefit (e.g. voltage control, time of use and peak pricing)
<p>Respondent 21: ENERGINET.DK Benefits are ranked in descending order 5-4-2-3-7-6-1</p>	N/A	
<p>Respondent 23: ENTSO-E Limit (6) to “Effective support of transnational markets” Effect (1) should be extended towards a minimisation of the environmental impact Add coordinated grid rules for operation (1)-(2) for sustainability; (4)-(5) for security of supply; (6) for competitiveness</p>	<p>Agree Agree Agree N/A</p>	<p>Reworded Included as indicator Partly fits under effect (6)</p>
<p>Respondent 34: National Grid We broadly agree with the effects and benefits that have been identified in Section 4.1 Table 1. We also agree that the order in which they appear reflects their relative significance. Carbon emission constraints to be considered at the energy level and not electricity one. Therefore electricity demand to rise. Delaying the need for traditional network asset. Note network losses will likely increase. benefit 4 should perhaps say ‘appropriate’ security and quality of supply. For example, in some instances, a lower security of supply may be appropriate for certain classes of consumer or appliances provided it is agreed and accompanied by a corresponding reduction in cost.</p>	<p>N/A Agree Partly agree</p>	<p>The reduction of losses has to be intended vs. business as usual approach The benefit (4) is re-formulated as “satisfactory” quality and security.</p>
<p>Respondent 35: Netbeheer Nederland Replied to Question 13</p>	N/A	
<p>Respondent 36: RWE Rheinland Westfalen Netz The task of a DSO and the parameters to measure the output of</p>	Disagree	It cannot be said that there should not be a link.

Respondents' views	ERGEG's position	Explanation/evaluation
a DSO should not directly be linked to achieving EU targets. Regulation must then ensure that the DSO accommodates the new elements in the grid in a cost-effective way. Regulation should not replace energy policy by defining objectives and incentivising the grid operators directly to realise these objectives. Politics have to address what benefits will be prevailing, legislation will design the regulatory framework and DSO will react appropriately to achieve the benefits.	Disagree	Regulators define objectives according to European directives and national framework. As well, they perform benefit assessments.
Respondent 42: Swissgrid How and where smart grids can really generate benefits can be decided best by the grid operators himself.	Disagree	Generally speaking, an operator may propose a cost benefit assessment to an independent governmental or regulatory body, depending on national frameworks.
Respondent 43: Synergrid The regulators have to evaluate properly the benefits of the smart grid for all user categories. Optimization should be above the whole value chain Some benefits will only be measurable in the long term.	Agree Agree N/A	This might be true for some effects.
Respondent Group – Industry Association		
Respondent 03: BDEW a) The respondent believes the list is already fairly complete, but states that some indicators are covered by the work to be done by ENTSO-E on framework guidelines and codes. b) Increased sustainability, adequate capacity and enhanced efficiency (1) (2) (5) are the most important benefits of smartness to achieve the EU targets. Other benefits like e.g. “Coordinated grid development” can also be reached without smartness. c) Regulation must take into account that benefits of smart grids will be harvested in the future and are mostly outside of the direct network business; otherwise, many investments into smartness will be postponed or deterred. Measures to be adopted and the approach to be chosen are political decisions. The grid can only deliver the platform and investments need to	Agree N/A Partly agree Agree	ERGEG is aware that some indicators are covered by the work done by ENTSO-E, as described in the ERGEG Consultation Paper. ERGEG agrees that some (most) benefits can be reached without smartness, i.e. by using conventional grid solutions. Smarter grid solutions can be an option when the costs associated are lower than by using conventional grid solutions. ERGEG agrees to the challenging point that many benefits of smart grids may (only) be harvested in the future.

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 11: Frans Nieuwenhout The main benefit of smartness in electricity is providing adequate network capacity to connect increasing shares of distributed generation and flexible loads. Energy curtailment of renewable sources due to congestion would be a suitable performance indicator. An acceptable optimal level should be defined based on a trade off between the capacity cost of low-carbon technologies and the costs of additional network capacity.</p>	<p>N/A</p> <p>Agree</p>	<p>ERGEG's opinion is that several effects and benefits may be necessary. These are not ranked here.</p> <p>See question 13. ERGEG agrees, however, removing all congestion at all times is not economically sound from the viewpoint of the society.</p>
<p>Respondent 32: KTH + POWER CIRCLE Two additional ideas for consideration and some words about prioritising: (8) Empowered network users possibly measured as the number of network customers in an area that have changed supplier the last year. Number of small scale customers producing electricity. (9) Increased electrical safety through following the development of selected network quality criteria. The most important general EU-target to follow and prioritise for network business would be related to keeping the power on line with the defined quality. Disturbances are failures. Thus the following "electrical items" are the most important: (4); (2); and (5).</p>	<p>Partly agree</p> <p>N/A</p> <p>N/A</p>	<p>ERGEG agrees that empowered network users and customers awareness is important. An additional benefit number (8) "Enhanced consumer awareness and participation in the market by new players" have now been included. The detailed list of indicators to be included for this benefit is listed in section 2.3.3.</p> <p>Safety is imperative when developing new grid solutions, and cannot be compromised when reaching for the other goals.</p>
<p>Respondent 46: VDE-ETG First of all it should be clear, who is the driver of the effects of smartness in table 1. Our proposal: 1- traders, power producers, VPPs, 2 – TSO, DSO, 3 – DSO, TSO, 4 – DSO, traders, power producers 5 – TSO, DSO, 6 – TSO, 7 – TSO We recommend the inclusion of an additional column. Secondly, the performance indicators should not present a snap shot but a development trend (2010, current year, targets 2020, 2030).</p>	<p>N/A</p> <p>Disagree</p> <p>Agree</p>	<p>ERGEG sees no additional benefit for introducing this extra column for "who is the driver of the effects". Most key performance indicators will be used for regulation of DSOs and TSOs, but can also involve other users. In all cases when introducing key performance indicators, a clear understanding of which party is able to influence and who will benefit, is imperative.</p> <p>See question 13 on performance indicators. ERGEG agrees that performance indicators should not</p>

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Proposes additional the following indicators (see table in the reply):</p> <ul style="list-style-type: none"> 8) Smart meter coverage 9) VPP market participation 10) Storage technology 11) ICT penetration 12) Wide area monitoring, control and protection for congestion management 13) Load flow control and shift 14) Frequency stability 	<p>Disagree</p> <p>Partly agree</p> <p>Disagree</p> <p>Disagree</p> <p>Partly agree</p> <p>Disagree</p> <p>Agree</p>	<p>represent a snap shot.</p> <p>Many of the proposed items are important but are also an implicitly part of other key performance indicators. Further not all are output indicators.</p>
Respondent Group – Service Provider		
<p>Respondent 01: Accenture</p> <p>The list seems to include a broad and balanced mix of important values to be imposed on networks. Emphasise that an important question is how to balance responsibilities and share incentives among various market parties, in order to reach an overall societal optimum. Various relative weights may be given to the various KPIs for different countries.</p>	<p>Agree</p>	
<p>Respondent 26: ESMIG and Respondent 33: Landis & Gyr</p> <p>The list is complete. Benefits (1) and (5), increased sustainability and enhanced efficiency and better service in electricity supply and grid operation are the two most important elements in achieving the EU's 20-20-20 targets.</p> <p>In fact, all three of the 20-20-20 targets depend on increased sustainability and efficiency in energy use and grid operations. The “enabler” and gateway to the grid is the smart metering system.</p> <p>No matter how future benefits are quantified, the benchmark cannot be the “status quo” because the current, conventional grid will not be capable of meeting the future challenges described in the position paper.</p>	<p>N/A</p> <p>Partly agree</p> <p>Disagree</p>	<p>ERGEG disagrees that smart meters are the enabler and gateway to the entire grid, but smart meters can enable some features and functionalities of smart grids. There is no reason to wait for the implementation of smart meters before introducing smarter grid solutions.</p> <p>There is a general confidence among stakeholders that by applying smarter solutions, where needed, this can lead to lower costs for the society in the long run than by coping with the same challenges using only conventional solutions. As stated in the ERGEG Consultation Paper, conventional solutions are in any case expected to play an important role also in the future.</p>

Consultation 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?

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Consumer associations		
Respondent 02: Altroconsumo DER hosting capacity for medium and small generators	Agree	This is mentioned under (2)
Respondent 08: Consumer Focus A broad range of output measures may be appropriate	Agree	
Respondent Group – Energy company		
Respondent 04: BNE Bundesverband Neuer Energieanbieter Defining performance indicators is a good approach, although defining the details is quite a challenge	Agree	
Respondent 07: Centrica It is essential that network companies' performance is monitored against deliverables and dates in a published deployment timetable. Output measures selected should depend on the economic case and expected benefits in each instance. Thus we do not see any immediate benefits for benchmarking at EU level	Partly agree	Published timetable is not strictly related to output. However it can be defined as minimum requirement. Totally different output measures at national level would prevent from learning from best practises in other countries. Benchmarking might be useful.
Respondent 10: DONG Energy Incentives for balanced investments are the main element. Measures must be an integrated part of network regulation, which differs between European jurisdictions.	Agree	Basically agree, although the need for incentives can vary across regulations and across Europe.
Respondent 12: EDF Energy In addition to performance indicators in table 1, additional ones: (i) reduced requirements for spinning reserve and hence reduced costs of system residual balancing (ii) distribution network utilisation factors and load factors; (iii) utilisation of voltage bandwidth and avoidance of voltage	N/A	Rather similar to SSE and ENA response

Respondents' views	ERGEG's position	Explanation/evaluation
<p>transgressions NO market price volatility (relation with grids too difficult to be assessed) Further, an interim output regime for R&D&D is needed in the short-medium term</p>		
<p>Respondent 40: SSE In addition to performance indicators in table 1, additional one (referred to the list Q12): (i) mitigated price volatility (ii) (v) reduced requirements for spinning reserve and hence reduced costs (iii) distribution network utilisation factors and load factors; (iv) utilisation of voltage bandwidth and avoidance of voltage transgressions (vi) (vii) effectiveness of locational cost-reflectivity Further, output indicators for R&D&D are needed.</p>	Partly agree	<p>ERGEG agrees on indicators iii) and iv). The other proposed indicators would require further analyses. ERGEG agrees appropriate indicators for R&D&D are needed.</p>
<p>Respondent 13: EDF Potential indicator: proportion of flexible generation in real-time. Share of electricity production from RES can refer to effect (1). Few performance indicators can easily be assessed and cleansed of grid external effects: there are structural factors, specific to each operator (consumption density, burying rate of the lines, local environment conditions, network structure, size). Suitable performance indicators, allowing a European benchmarking, are difficult to define. In reference to the subsidiarity principle, other European indicators should not be legally restrictive.</p>	<p>N/A Agree Agree Partly agree</p>	<p>Structural factors are mentioned in the Consultation Paper But this is not a reason for not defining them Best definition of indicators can vary from country to country, as also said in the Consultation Paper</p>

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 14: Edison SpA Performance targets but indicators seem to be a hard and sensitive task. The success of the implemented regulation depends on these ones. Indicators should be carefully designed and any benchmarking exercise should take into account that the results depend on external factors</p>	<p>Agree Agree</p>	<p>It might be true that successful regulation depend on deep analysis and good definition of performance targets and indicators</p>
<p>Respondent 20: EnBW Suitable output indicators are difficult to define. It is not clear whether suitable indicators can be found (that do not lead to distortion and cannot be influenced by grid operators). Explanations for the differences among performance indicators must take into account the peculiarities of each country. Potential innovation indicator: ratio between research and development (R&D) expenses and company revenues.</p>	<p>Partly Agree Agree Partly agree</p>	<p>Some output indicators are already defined in various countries (e.g. continuity) National differences are mentioned in the Consultation Paper. The concept is in principle good and it might be a useful "measure", but this is not an indicator of an effective output of R&D expenses.</p>
<p>Respondent 24: E.On Output measures are important for the design of regulation. The output parameters listed by ERGEG may interfere with other national parameters, e.g. quality regulation. Additionally, the coverage rate of grids with I&C technology and the coverage rate of households with smart meters, number of renewable units feeding-in along certain categories and decentralized micro-generation, installed capacities of renewables feeding-in along certain categories and decentralized micro-generation might, inter alia, be suitable measures for European level benchmarking.</p>	<p>Agree Disagree Partly agree</p>	<p>The point is not clear, as quality is part of output regulation. The listed measures can be important as "structural factors" affecting the performance of grid companies; they are not grid-internal performance indicators.</p>
Respondent Group – Grid operator		
<p>Respondent 15: EDP distribuição Benefits may be measured, for instance, by: (i) reduction of the energy bills of consumers, (ii) costs associated with the provision of system services,</p>	<p>Partly agree</p>	<p>We agree that benchmarking exercises should be carried out with care, but this must do not diminish the importance and usefulness of benchmarking.</p>

Respondents' views	ERGEG's position	Explanation/evaluation
<p>(iii) measurement of asset utilization indexes, (iv) displacement of peak hour consumption to non-peak hours (v) amount of postponed peak generation investment Performance indicators are important in so far as they may enable the measurement of the implementation success of smart grid technologies. Nevertheless, benchmarking exercises based on these indicators may prove inadequate. Benchmarking exercises should be carefully carried out considering all the external factors (that might be difficult to cleanse), namely the particular development status of each network, inherent network characteristics due, for instance, to population density or consumption patterns.</p>		
<p>Respondent 16: European Electricity Grid Initiative – DSOs 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. It is hard to fully assess benefits and impacts "ex ante" 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.</p>	<p>Agree</p>	<p>Important.</p>
<p>Respondent 25: ERDF joins EEGI DSOs response</p>		
<p>Respondent 19: ENA - Energy networks association In addition to performance indicators in table 1, additional one (referred to the list Q12): (i) mitigated price volatility (ii) (v) reduced requirements for spinning reserve and hence reduced costs (iii) distribution network utilisation factors and load factors; (iv) utilisation of voltage bandwidth and avoidance of voltage transgressions</p>	<p>Partly agree</p>	<p>ERGEG agrees on indicators iii) and iv). The other proposed indicators would require further analyses. ERGEG agrees appropriate indicators for R&D&D are needed.</p>

Respondents' views	ERGEG's position	Explanation/evaluation
(vi) (vii) effectiveness of locational cost-reflectivity Further, output indicators for R&D&D are needed.		
Respondent 21: ENERGINET.DK Benefits (1)-(5) ratio of customers on real time pricing Benefit (4) ratio of DER for active network management	Partly agree	The additional output measures are clear and can be easily measured. But the correspondence with benefits is not clear.
Respondent 23: ENTSO-E Performance indicator for effect (6) could be the convergence of market prices at European level. Proposed performance indicators are affected by traditional grid development. A key and difficult point is to measure results of specific smart grid solutions. The most representative KPI could be DER hosting capacity for distribution and large RES hosting capacity for transmission (for sustainability); duration and frequency of interruptions (for security of supply); interconnection capacity vs. demand and congestion rents (for competitiveness). Current incentives should be refocused to an efficient grid operation and development in the future. It is not easy to define the performance indicators valid for any European TSO. Performance indicators are not suitable for EU-level benchmarking without a significant effort of homogenisation. The infrastructure depends on the regional context. A standardisation of TSO benchmarking methods and evaluation of pros and cons at the European level could be a first step.	Partly agree	ERGEG believes that efforts should be devoted to the analysis of performance indicators also for transmission. The differences in regional contexts must not prevent the adoption of performance benchmarking approach In such case, harmonisation of benchmarking method might be a first step
Respondent 30: GEODE The indicators proposed by ERGEG in Consultation Paper plus reduction of market price volatility, improvement of grid stability, higher levels of RES, minimise network reinforcement.	Partly agree	Not all the proposed indicators are easy to be measured

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 34: National Grid</p> <p>We do not believe that there should be specific output measures for smart grids and, as you have already noted within the Position Paper, we believe any measures should be focussed on benefits rather than technology.</p> <p>(First indicator under) item 6 not appropriate as there is no justification for an arbitrary level of interconnection. The cost of interconnection will vary widely due to geographic considerations – e.g. for the UK or Ireland they will be substantially higher than for systems that can use AC interconnectors and so the economically efficient level of interconnection will be likely to be different.</p> <p>Indicator (5): the ability for consumers to provide system services through demand side management</p> <p>There are many differences to the networks across Europe. Given this variation it makes it difficult to make any meaningful comparison. We think this is worth exploring the practicality and value.</p>	<p>Agree</p> <p>Partly agree</p> <p>Agree</p> <p>Agree</p>	<p>Apparent (small) misunderstanding of the term “Smart Grids” which is not technology Agree output are related to benefits for users</p> <p>We agree, but it is an apparent misunderstanding on indicator item 6, as the Consultation Paper states: ”Any infrastructure project should be developed in the most economically-efficient way and with a final net benefit to consumers, evaluated by cost-benefit analyses (CBA) and impact assessments.” ”Better cost-benefit analysis (CBA), with the aim to improve capacity where it is most beneficial (especially important for interconnection capacity favouring cross-border trades)”</p> <p>Yes, there are differences, but benchmarking might be useful, this has to be further evaluated.</p>
<p>Respondent 35: Netbeheer Nederland</p> <p>Risk associated to performance indicators is that they can encourage “strategic” behaviour and sub-optimisation.</p> <p>Promising indicators: energy not withdrawn from renewables due to congestion; time to connect a new user; level of losses in distribution networks.</p> <p>Promising output measures: grid safety, connection capacity, voltage quality and quality of service</p> <p>Output measures should be based on expectations of future, not history of the past.</p>	<p>Agree</p> <p>N/A</p> <p>N/A</p> <p>Partly agree</p>	<p>Sub-optimisation risk needs to be addressed by means of a robust identification of output measures.</p> <p>It can be difficult (but in some cases more correct) to refer to future system conditions. E.g. percentage of renewable generation when evaluating the energy not withdrawn from RES. Congestion would be more acceptable when determined by a high level of production / penetration of RES.</p>

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 36: RWE Rheinland Westfalen Netz Care not to select output indicators that are too wide to really be influenced by the grid operators. Grid operators can in our view be sufficiently incentivised through the application of performance indicators that are already used today. Still, new parameters, like the number of e-mobility charging points have to be added. A European-level benchmarking is no valid method.</p>	<p>Agree</p> <p>N/A</p> <p>N/A</p> <p>Disagree</p>	<p>Selection is probably not an easy task</p> <p>Note that performance indicators already used today vary from country for country.</p> <p>Opportunity for EU benchmarking has to be further evaluated.</p>
<p>Respondent 42: Swissgrid It is doubtful that a prescription of performance or benchmarking measures really generates additional incentives. If it creates incentives it must be proofed if these incentives are right.</p>	<p>Partly agree</p>	<p>Indicators for benchmarking and, more important, for performance-based incentive regulation have to carefully evaluated and measured.</p>
<p>Respondent 43: Synergrid It will be hard to define the right targets and thus the right indicators. Indicator carbon emissions almost impossible to measure Indicator (2) (3) are valuable, but perhaps not of too much relevance to the overall objectives (4): continuity and voltage quality are under operator's control Some users might be willing to offer some "interruptibility" Indicators under (5) are important for DSOs but very hard to measure. Indicator (6) (7) are mostly TSO-related</p>	<p>N/A</p>	<p>ERGEG basically agrees with the comments on indicators, this is indeed useful for possible follow-up discussions at national level.</p>
<p>Respondent Group – Industry Association</p>		
<p>Respondent 03: BDEW Output measures are an important point for the design of regulation.</p>	<p>Agree</p>	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 06: CEDEC</p> <p>The security and quality of supply, as well as adequate network dimensioning in addition to the degree of performance of a smart grid in relation to the needs of the network users, adjusted according to stipulations under regulative law, is a standard for comparison at the European level.</p>	N/A	
<p>Respondent 29: FutuRed</p> <p>Thinks that some indicators easy to asses are:</p> <ul style="list-style-type: none"> Virtual generation Critical reserve load Energy not supplied Amount of incidents, number of customers ordered by priority, timing to solve them (localisation, isolation and restoration), telecontroled and non-telecontroled equipment affected Active and Reactive energy losses Investments Level of under/over loading for equipments 	Partly agree N/A Agree N/A N/A N/A N/A	<p>Some indicators are mentioned. Energy not supplied is an important indicator, however, listing duration and frequency of interruptions does not exclude other useful indicators which can finally only be determined at national level.</p>
<p>Respondent 41: Svensk Energi</p> <p>One possible indicator is the trend of utilization time for peak load (annual energy flow / peak load) at different levels of both TSO and DSO grids. This can show the trend and success of introducing demand response and incentives for load shifting from peak load hours to other hours, at both the customer side and interaction with distributed generation.</p>	Agree	
<p>Respondent 49: EPSU</p> <p>Availability of qualified and well trained staff. Regulators can assess this through: demanding overview of outstanding job vacancies in relation to the number of jobs in the company; plus an overview of the number of people in training in the companies (apprenticeships) in relation to overall workforce. Both categories would have to be divided in specific education levels or job categories. Another measure is the number of</p>	Partly agree	<p>ERGEG agrees that sufficient trained, educated and available personnel are necessary now and in the future, however, the means to achieve this need to be further elaborated and discussed by relevant parties, mainly at national level.</p>

Respondents' views	ERGEG's position	Explanation/evaluation
agreements between the company and the trade unions to train workers. This benchmark could be part of the overall security and quality of supply benefit measure.		
<p>Respondent 50: EURELECTRIC A Smart Grid includes a smart meter management. (...) Installation of market agents (software) to facilitate the trading of energy on local scale seems to be one way towards increased energy efficiency and this measure should be taken into consideration.</p> <p>One theoretical indicator might be the trend of utilization time for peak load (annual energy flow/peak load) at different levels of both TSO & DSO grid.</p> <p>Losses reduction in a very long term perspective because of metering problems could be considered as well.</p> <p>These indicators should be carefully analysed and any benchmarking exercise should take into account that the results depend not only on the actual situation but also on the characteristics of the demand and other factors such as climate. The indicators should be carefully designed and take into account additional external factors which could be the historic evolution of the network infrastructure, the geographical location of regions, rural areas, etc. The indicators should be designed depending on the smart grid's definition and this is going to be developed in parallel. Therefore, it is not realistic designing some incentives for a smart grid which are not adequate to afford the challenge.</p>	Partly agree	A smart grid does not have to include smart meter management, otherwise agree.
Respondent Group – Renewable generator		
<p>Respondent 28: EWEA There is a need for a more focused analysis on distribution level</p>	Agree	
Respondent Group – Research/ Consultant		
<p>Respondent 05: BNEF We believe those proposed are reasonable measures of</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>performance, while acknowledging that some benefits are harder to quantify or measure than others.</p>		
<p>Respondent 09: DERLab experts The performance indicator of benefit (1) "Increased sustainability" should not only focus on carbon emissions, but could be enhanced by avoiding long-term problems with waste (for instance nuclear or carbon capture and storage), or diversity of bio-energy crops. The performance indicator could for example summarise "external costs" of the power generation. "Increased sustainability" should also consider "quantified reduction of fuel imports" at European level. In benefit (4), voltage quality is definitely a measure of the power quality, but there are other perturbations which cannot be neglected: harmonics, etc or even frequency stability if we also consider isolated power systems. In benefit (5), the ratio between minimum and maximum demand could be reduced also by a higher minimum demand, this contradicts energy efficiency efforts for base load equipments (e.g. circulating pumps, refrigerators). Instead the peak power evolution within a defined time period could be considered. Emphasise an appropriate policy framework supporting system operation in the near future, and the importance of ancillary services and related incentives and regulations. Output measures for performance of network companies: - Reliability measures (frequency and duration of supply interruptions), - Power and energy quality (also in view of future ancillary service procurement methods), - Level of regional transitory balance between generation and consumption of energy.</p>	<p>N/A</p> <p>Disagree</p> <p>Partly agree</p>	<p>ERGEG stress that voltage quality in (4) includes all relevant voltage disturbances (parameters), including harmonics and frequency deviations. However, frequency stability is not included and is worth to consider as an additional indicator.</p> <p>ERGEG takes note of the comment related to (5); this is important to consider, but peak power evolution alone is not useful as well.</p> <p>ERGEG agrees that sufficient legislation and regulation is necessary regarding ancillary services. The details need to be further elaborated at national level.</p>
<p>Respondent 11: Frans Nieuwenhout In the smart grids situation with larger shares of distributed</p>	<p>Agree</p>	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 26: ESMIG and Respondent 33: Landis & Gyr The outputs (benefits) should not be cleansed from the performance indicators, but should be taken into consideration when incentivising grid companies to invest in innovative technologies.</p>	N/A	Seems a misunderstanding.
<p>Respondent 38: Schneider Electric Reference documents are either European or US origins. Japan and may be few other Asian countries should be looked at as well.</p>	N/A	ERGEG has already considered several useful reference documents, see reference list in the ERGEG Consultation Paper.
<p>Respondent 39: Silver Spring The focus of the reply is on ensuring that cohesive, underlying communications architecture is considered. Many policy objectives could be more easily deployed and digested by utilizing cost effective technologies readily available in other markets such as the American and Australian.</p>	Partly agree	Necessary tools for communication and other means are implicitly given through the various KPIs.

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 44: T-D Europe and Respondent 48: ZVEI In general the performance indicators should be transparent and offer the parties the needed economical growth. An indicator for the flexibility of smart grid will be the capability to compensate external effects. From this viewpoint the reaction time of such compensation would be an important indicator for network companies. Also in general, potential key performance indicators should be reviewed and if necessary revised on a regular base. That depends very much on how the future smart grid will be.</p> <ul style="list-style-type: none"> • Will it become a mainly a “back bone grid” for self-sufficient prosumers or consumers with some big consumers which could not generate enough electrical energy to be self-sufficient and accordingly some big generators? • Will it stay as it is, but added by communication ability only with the purpose to reduce or reallocate consumption? • Or others? <p>This needs to be answered at first. Then output measures can be defined.</p>	Partly agree	<p>ERGEG agrees that performance indicators need to be transparent, c.f. ERGEG Consultation Paper.</p> <p>ERGEG agrees that probably the best indicators may vary and evolve over time</p> <p>The future grid will exist of conventional and smarter grid solutions, depending on various needs throughout the power system, hence indicators need to be developed taking this into account.</p>

Consultation 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?

ERGEG believes that the opportunity of incentives for innovation and demonstration projects will be better evaluated on a national basis. Due to this reason, responses dealing with this issue are marked with ERGEG’s position N/A.

Respondents’ views	ERGEG’s position	Explanation/evaluation
Respondent Group – Consumer associations		
Respondent 02: Altroconsumo Answer is not relevant to this question (see Q13)	N/A	
Respondent 08: Consumer Focus It is difficult to define output measures for innovation as output cannot be defined in advance. An option is to adopt a fund similar to UK LCN fund	Agree N/A	The part regarding “difficult to define output measures” is an important comment.
Respondent 47: VZBV No, the innovative solutions will be driven by the market	Agree	
Respondent Group – Energy company		
Respondent 04: BNE Bundesverband Neuer Energieanbieter ERGEG’s proposal for performance indicators is a good approach. Defining the details is quite a challenge. The indicators need more detailed examination. Any indicator having an impact on the revenue of the regulated entity has to be fully checkable by regulators	Partly agree	Agree in general, but does not completely fit this question, seems to refer to Q13.
Respondent 07: Centrica In the case of smart grids, network companies need to be incentivised and reasonably funded to innovate. However it must be recognised that R&D is not risk free. There will be mistakes, those mistakes will have costs and assets may be stranded.	Agree	Strong requirements on dissemination of results should help in avoiding to “do the same mistake” in another demonstration project.
Respondent 10: DONG Energy Economic regulation needs to evolve beyond a strict focus on	Agree	The consultation paper confirms different focus than cost cutting

Respondents' views	ERGEG's position	Explanation/evaluation
cost cutting, to accommodate future requirements. Investment incentives are key, and additional measures may also be useful.	N/A	It is not completely clear whether the last phrase refers (only) to innovation.
Respondent 12: EDF Energy It is important to maintain and even reinforce the momentum that we have seen to date from appropriate governmental support schemes, notably in R&D and pilot innovative projects, A valid (and valuable) output of RD&DD is learning, including learning from failure. It will be important to construct outputs that reward well managed projects: clear definition of learning objectives, of delivery timescales, to enable an objective ex-post review of the project.	N/A Agree	Support schemes have to discussed on a national basis See also SSE and ENA response
Respondent 40: SSE Spending on R&D has reduced, which will not be appropriate in the future. Companies should be encouraged through new performance incentives. A valid (and valuable) output of RD&D is learning; this includes learning from failure. It will be important to construct outputs that reward well managed projects and to enable an objective ex-post review of RD&D projects.	N/A Agree	Performance incentives have to discussed on a national basis See also ENA response
Respondent 13: EDF Incentives for network companies to develop innovative solutions could be needed.	N/A	
Respondent 14: Edison SpA Incentives given by Regulators to DSOs for their involvement in R&D work and for the development and deployment of new technologies supporting Smart Grids should be improved.	N/A	
Respondent 20: EnBW Incentives for grid operators exist when there is a profitable return on investments. Network companies should be encouraged to pursue innovative	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
solutions.		
<p>Respondent 24: E.On Without incentives, companies will not face increased risks for innovation. Appropriate incentives might be a higher return on equity (e.g. Italy), special funds for smart grid projects (e.g. UK), accelerated depreciation periods for new technologies.</p>	N/A	
Respondent Group – Grid operator		
<p>Respondent 15: EDP distribuição Agree. Additional premia payments to network operators must be considered, otherwise there is no incentive to implement innovative solutions to move from the status quo. In practice, there is currently not enough experience available for establishing output measures that ensure network companies pursue innovative solutions/technologies. This experience will be acquired with smart grids pilot projects.</p>	N/A	
<p>Respondent 16: European Electricity Grid Initiative – DSOs Focus on large scale demonstrations and replication potential. A first step is to go ahead with the large-scale pilots outlined within EEGI. 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 Regulators should incentivise and address R&D areas. 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).</p>	Partly agree	<p>Decision on large scale pilots is on national basis. EC strategy asks for increased R&D. Only R&D opex to have some R&D staff in the companies (linking with other R&D and with demonstration) this would probably be a more efficient solution than today It might be useful to start monitoring some measures as soon as possible. It is not possible to wait five years for output measures.</p>
Respondent 25: ERDF joins EEGI DSOs response		

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 19: ENA - Energy networks association Spending on R&D has reduced, which will not be appropriate in the future. Companies should be encouraged through new performance incentives. A valid (and valuable) output of RD&D, is learning; this includes learning from failure. It will be important to construct outputs that reward well managed projects and to enable an objective ex-post review of RD&D projects.</p>	<p>N/A</p> <p>Agree</p>	<p>Performance incentives have to be discussed on a national basis</p>
<p>Respondent 21: ENERGINET.DK Agree. Incentives for innovation should favour long term investments.</p>	<p>N/A</p>	
<p>Respondent 23: ENTSO-E The amount of RD&D needed calls for stronger cooperation among grid operators. Focus on a common strategy to reduce overall RD&D costs and accelerate the introduction of new solutions. Innovation has become a relevant activity for network company. Financial compensation for the additional cost is a must. RD&D carried out by TSOs has to be taken into account in the methodology of calculating remuneration. Additional measures to promote TSO's commitment to innovation should be (i) roadmap, including high level CBA, (ii) promotion of specific projects with precise goals and KPI measurement of results (iii) the assessment of projects.</p>	<p>Partly agree</p>	<p>The possible differentiation of R&D and innovation in the methodologies for calculating remuneration should not represent a "blank cheque" by regulators. Careful assessment of results and dissemination of RD&D projects is a pre-condition for allowing special regulatory treatment.</p>
<p>Respondent 30: GEODE Sufficient incentives should be provided by Regulators for DSO to guarantee the necessary investments in electricity grid and sufficient R&D can be carried out.</p>	<p>N/A</p>	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 34: National Grid Extensive innovation along R&D&D is required. But lack of experienced engineers is a problem also for R&D. Additional funding should be made available. National Grid's practice is to deliver a R&D annual report</p>	N/A	<p>Additional funding to be evaluated on a national basis.</p> <p>The latter is an example of disseminating R&D results.</p>
<p>Respondent 35: Netbeheer Nederland Feels strongly that the current framework is not suitable for network companies to pursue innovative solutions. Providing incentives is one way to stimulate innovation.</p>	N/A	
<p>Respondent 36: RWE Rheinland Westfalen Netz In general innovative solutions should be used if and where they prove to be more cost effective than conventional concepts. However, this fails to recognise that new technologies introduced quickly on a large scale bear both technological and regulatory risks. These risks may prevent the use of innovative solutions unless they are compensated for. Those investments with a potentially greater risk require a risk premium for larger-than-average risks.</p>	N/A	
<p>Respondent 42: Swissgrid Smart grids generates high costs for R&D and grid investments in the short and mid-term. Regulators should therefore build up an environment in which the financing of these projects is guaranteed.</p>	N/A	
<p>Respondent 43: Synergrid Yes, incentives are needed. Return for DSO/TSO should reflect higher risks. Performance indicators can be used to incite innovation, but this should be done very carefully.</p>	N/A	
Respondent Group – Industry Association		

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 03: BDEW Yes. Innovations bear a high risk for investors. In particular, when introducing new technology on a large scale. 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.</p>	N/A	
<p>Respondent 06: CEDEC The distribution network operators need incentives in order to be involved in advance solutions for a smart grid as active driving forces. This could be ensured, for example, through support and recognition of research and development costs as an incentive in the individual regulatory systems or through broader support. Network operators who invest and thus push forward the development of a smart grid should also be rewarded for this. This can speed up development considerably, especially with the introduction of new technologies.</p>	N/A	The development of a smart grid should only be developed when it brings value to the society as a whole.
<p>Respondent 29: FutuRed Agrees with this statement and supports that both regulation and financial incentivisation are necessary. The output measures could be the ones considered in previous sections.</p>	N/A	
<p>Respondent 41: Svensk Energi Yes, to start R&D projects, pilots and implementation of more long-term and risky investments need to be incentivized. Incentives will be needed for the implementation phases, where a clear positive business case is not in place from a DSO perspective, even if it is from a society perspective. One way to handle this can be to allow the DSO to add these types of investments to the regulated asset base, if the asset base is the base for the regulated acceptable income level for the DSO.</p>	N/A	
<p>Respondent 49: EPSU Yes. If there is no incentive to train workers, it will often not be</p>	Partly agree.	ERGEG agrees that sufficient trained, educated and available personnel are necessary now and in the future, however, the

Respondents' views	ERGEG's position	Explanation/evaluation
done from fear of training for the broader labour market and not benefiting directly. The end result is that there is a lack of trained staff. As we argued earlier, the easiest solution would be to consider the training programmes agreed between the unions and the companies, and to encourage to companies to enter into such programmes.		means to achieve this need to be further elaborated and discussed by relevant parties, mainly at national level.
Respondent 50: EURELECTRIC Incentives given by Regulators to DSOs for their involvement in R&D work and for the development and deployment of new technologies supporting Smart Grids should be improved. Thus the regulatory regime should give incentives that foster the transformation from the current grid system into a Smart Grid or a comparable concept able to cope with the EU policy goals. Being part of the regulated business, network operators will be more in favour of costs reductions rather than markets changes. The investment return and incentive schemes must be put in place in order to achieve the targets.	N/A	
Respondent Group – Renewable generator		
Respondent Group – Research/ Consultant		

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 05: BNEF We believe that network companies should be incentivised to pursue innovative solutions, just as retail suppliers and ESCOs should be. One approach would be to offer financial awards for projects which demonstrate innovative technologies, with the regulator responsible for making awards to projects it deems sufficiently innovative. Another approach could offer incentives for deployment of particular solutions, such as phasor measurement units or flywheel storage.</p>	N/A	
<p>Respondent 09: DERLab experts A small percentage of the energy prices or the revenues of the network operators but also of power producers and metering service providers should be collected in a national or European research fund. This fund could be used for financing research and deployment of innovative solutions. A R&D program could be created and monitored by a representative group of stakeholders (network companies but also governmental bodies etc) to guarantee that also long-term R&D is done. Deployment of innovative solutions will in turn optimise the business operation and reduce costs, which could be an incentive in a price-cap/ yardstick regulation mode.</p>	Disagree	<p>ERGEG sees that this is covered at European level through European Commission's Framework Programmes. At national level; various arrangements exist across Europe which are defined on a national basis.</p>
<p>Respondent 32: KTH + POWER CIRCLE Yes, there must be incentive schemes.</p>	N/A	
<p>Respondent 46: VDE-ETG We are convinced that the network companies need incentives for establishing smart grid solutions. In the first line, this could be done by an adaptation of the calculation base for network charges (see topic 3). A second method is to establish directives for targets, e.g. in which time the full coverage of smart meters shall be reached.</p>	Disagree	<p>National regulation. However, the introduction of smart grids cannot be compared to the introduction of smart meters where a specific target year for a full roll-out is set. Smart grid solutions will be implemented where necessary as an evolution of (part of) the grid. Already today elements of smartness exist in many parts of existing grids, and also in the future it will be sufficient with conventional grid solutions many places in the network.</p>

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Service Provider		
<p>Respondent 01: Accenture Yes, network companies are monopolies, it is important that regulators include the right incentives to encourage pursuing innovative solutions. Distinguish between “proof of concepts”, “pilots”, “test zones” etc on the one hand, and full adoption and roll out on the other hand. These may require different sets of incentive schemes.</p>	Agree	
<p>Respondent 26: ESMIG and Respondent 33: Landis & Gyr Network companies are by nature conservative, as regulated monopolies they are not risk-takers. Regulators need to articulate the functional requirements of the smart grid and give the network companies the financial “breathing room” to invest in innovative solutions.</p>	N/A	
<p>Respondent 37: Sagecom We cannot imagine network companies not to be incentivised to pursue innovative solutions. On the industrial side there are also consequences, as network companies have a poor rate on investments on smart grids functionalities; they will keep a high pressure on equipment prices. Equipment manufacturer and solution providers need large investment to provide innovative solution keeping low level of price. So they also need to be incentivised for such developments.</p>	N/A	
<p>Respondent 38: Schneider Electric Incentives need to be developed and made available for all stakeholders to move and change.</p>	Disagree	Incentives cannot be provided in an indiscriminate way to all stakeholders. Each of them has different role and responsibility in smart grid deployment.
<p>Respondent 39: Silver Spring The focus of the reply is on ensuring that cohesive, underlying communications architecture is considered. It should be reiterated that distribution companies and retail companies</p>	Partly agree	Cost-efficient solutions are envisaged for both communication solutions and other solutions.

Respondents' views	ERGEG's position	Explanation/evaluation
<p>should be encouraged to leverage a unified, cost effective communications network infrastructure (such as wireless mesh).</p>		
<p>Respondent 44: T-D Europe and Respondent 48: ZVEI Yes, that needs to be done, since the network companies are interested in investing, if the invested CAPEX will become repaid by reduced OPEX. Making the grid smart (communication and automation) does not create OPEX for the network companies. Additionally, the definition of the benefits of innovative solutions for grid operators needs to be developed and specified. We consider energy efficiency improvements as one of the major benefits to be pursued.</p>	<p>N/A</p>	

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

There were differences in the responses to the ERGEG question number 15 about whether existing standards or lack of standards represent a barrier to the deployment of smart grids. As discussed in section 2.3.5, European Energy Regulators has not a final view on this issue, but they will continue to cooperate with the European Commission and with CENELEC in current and future activities for better understanding the need for reviewed standardisation with regard to Smart Grids. Due to this reason, the position of ERGEG is "N/A" for a number of the following answers.

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Consumer associations		
Respondent 08: Consumer Focus Yes, regulators are welcome to cooperate with stand. bodies	Agree	
Respondent 47: VZBV	-	Note: the question was apparently misunderstood
Respondent Group – Energy company		
Respondent 04: BNE Bundesverband Neuer Energieanbieter Standards are not adjusted to the smart grid concept. Open and uniform standards are essential to keep the cost low.	Agree	
Respondent 07: Centrica It may be too early to start mandating standards for smart grids, at least until there is some clarity and consensus on the functionalities involved and their implications for communications requirements.	N/A	
Respondent 10: DONG Energy Standards for communication and other parts of the underlying infrastructure may be necessary, but at the current state other barriers are more important. Standards "by decree" will add to the costs of the affected technologies potentially deferring investments.	N/A	
Respondent 12: EDF Energy Respondent 40: SSE	Agree	Same as ENA response

Respondents' views	ERGEG's position	Explanation/evaluation
Existing standards (including ICT standards) provide a valuable foundation for developing the necessary open 'smart grid' standards. The focus must be on identifying, and addressing, any barriers to interoperability and integration that existing standards might give rise to. Standardisation fields: 'interoperability' of smart meters, home area networks (HAN) and smart appliances; and 'integration' of smart meter data with network power flow data.		
Respondent 13: EDF We believe that interoperability is a very important issue, especially in the case of end-use applications. It seems too early to enforce standardization, standards will be needed in the near future in order to build trust.	Agree N/A	
Respondent 14: Edison SpA Yes, there is a need to define new standards to facilitate deployment of smart grids	N/A	
Respondent 20: EnBW Yes. It needs to be ensured that the communication processes between the regulated and competitive areas are standardised.	N/A	
Respondent 24: E.On Yes, the lack of standards is a significant barrier to investment	N/A	
Respondent Group – Grid operator		
Respondent 15: EDP distribuição EDPD regards the existence of standards as a requirement to create economies of scale which may result in lower investment	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 16: European Electricity Grid Initiative – DSOs Yes, the absence of minimum standards regarding communication and interoperability can be a barrier (e.g. EV charging stations). It is not possible to wait for missing standards. Standardisation of the communication protocols will prevent from expensive developments. This should be highlighted as much as possible. The network operators have to strive towards standardization (communication, design, ...) and interoperability in order to reduce investment and operational costs. the DSOs play the role to harmonize the system having the responsibility to choose the appropriate technical solution.</p>	N/A	
<p>Respondent 25: ERDF joins EEGI DSOs response</p>		
<p>Respondent 19: ENA - Energy networks association Existing standards (including ICT standards) provide a valuable foundation for developing the necessary open 'smart grid' standards. The focus must be on identifying, and addressing, any barriers to interoperability and integration that existing standards might give rise to. Standardisation fields: 'interoperability' of smart meters, home area networks (HAN) and smart appliances; and 'integration' of smart meter data with network power flow data.</p>	Agree	
<p>Respondent 21: ENERGINET.DK Respondent 23: ENTSO-E Many standards needed for smart grids already exist. Only one open data communication standard should be encouraged.</p>	Agree	
<p>Respondent 30: GEODE believes standardisation is especially important to achieve interoperability of Smart Grid devices and systems, but they should not become a barrier to the deployment of more efficient</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
electricity grids.		
<p>Respondent 34: National Grid supports the use of standards to promote interoperability, competition between equipment suppliers and choice for users along the supply chain. There are opportunities to improve operational standards for distribution embedded generation and appliances, such as frequency control. Opportunities to enhance appliance standards.</p>	<p>Agree</p> <p>N/A</p>	
<p>Respondent 35: Netbeheer Nederland The absence of standards seems to us to create a barrier for deployment of smart grids. Initiatives to facilitate standardization should come from the market place.</p>	N/A	
<p>Respondent 36: RWE Rheinland Westfalen Netz Lack of standards certainly is a problem. On the other hand it would be detrimental if the regulatory bodies try to incentivise the market by half baked standards and without input of relevant market-participants.</p>	N/A	
<p>Respondent 43: Synergrid No in the short term. Yes in the long term. Technical standards must be completed, adapted, and effectively adopted by manufacturers (competition as lever to reduce costs). Standards must absolutely guarantee a high level of interoperability, not only between different manufacturers but also among successive generations of tools.</p>	N/A	
Respondent Group – Industry Association		

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 03: BDEW Yes, lack of standards is an important barrier to investment. 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.</p>	N/A	
<p>Respondent 06: CEDEC Yes. The implementation of a new technology can only be carried out very slowly without generally acknowledged, reliable and functioning standards.</p>	N/A	
<p>Respondent 29: FutuRed They fully agree with this point. Standards are a must. Concepts such as integration, interoperability, plug&play etc. must be the real world for the Smart Grids. All the actors are moving in that direction but not as quick as needed.</p>	N/A	
<p>Respondent 41: Svensk Energi Yes, lack of standards is a barrier, especially in countries with many DSOs. Lack of common standards for e.g. access to metering values, access to meter-on-line and demand response interfaces is a barrier when the DSOs chooses different solutions, different ambition levels etc. The market players needs one-single-interface standard to access customers for all different DSO implementations.</p>	N/A	
<p>Respondent 49: EPSU Yes.</p>	N/A	
<p>Respondent 50: EURELECTRIC Yes. There is a need to define new standards to facilitate deployment of smart grids. Cooperation among stakeholders should be developed in this area.</p>	N/A	
Respondent Group – Renewable generator		

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 28: EWEA Yes, there is the need to make an inventory of gaps in the existing standards. The process of Network Code development offers an opportunity to identify the relevant standards.</p>	Partly agree	Network codes are being defined at transmission and system operation level. Standards are also needed for distribution.
Respondent Group – Research/ Consultant		
<p>Respondent 05: BNEF A lack of clear standards has indeed acted as a barrier to deployment. Interoperability is one of the most important barriers facing smart grid deployments, and the setting of open and uniform standards will be the solution.</p>	N/A	
<p>Respondent 09: DERLab experts Yes, this makes mass production for manufactures very difficult and is a drawback for the development of new energy related services. But part of the problem is also the very different ways (distribution) grids are designed throughout Europe. Therefore standardisation of grid designs is urgently needed.</p>	N/A	
<p>Respondent 32: KTH + POWER CIRCLE Yes, there is still not a stable set of standards for information exchange between distribution companies and energy providers regarding usage data. Many good developments exist, but no uniform standard has yet appeared.</p>	N/A	
<p>Respondent 46: VDE-ETG In the first line, standards are requested for the communication and information infrastructure. The problem is not the lack of standards but the availability of too many standards. The respondent lists various areas where standards are already in use.</p>	N/A	
Respondent Group – Service Provider		
<p>Respondent 01: Accenture Yes, but on the other hand, a prematurely introduced standard</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>that is too narrow can with time become a barrier to innovation. A standard should be broad and flexible to be future proof. Business and functional information requirements involved in smart grids, should be "standardised" through industry guidelines.</p>	<p>Agree N/A</p>	
<p>Respondent 26: ESMIG and Respondent 33: Landis & Gyr It is not just a matter of writing standards. We support the EU mandate M/441 for smart metering standardisation, but also want to stress the fact, that open standards are only a necessary condition for interoperable products. Writing standards is a technical exercise, providing an interoperable product is a commercial exercise. There are already enough standards available that a smart metering can be deployed, if the network operator decides which standards it wants to use.</p>	<p>N/A</p>	<p>CEER/ERGEG participates and will continue to participate in the work on standardisation at European level cooperating with relevant stakeholders in order to reach standards that are optimised as far as possible from the viewpoint of the society. This includes the ongoing work under the mandate M/441.</p>
<p>Respondent 37: Sagecom As smart grid functionalities rely on new concept, actually there is no standard available. In any manner standardisation must reduce numbers of variance developed around a single technology basis. A strong standardisation definition is needed at end-customer level.</p>	<p>N/A</p>	
<p>Respondent 38: Schneider Electric There will be significant changes in the way key functionalities will be managed, operated, checked, tested.....etc. Smart Grid is too much a buzz and fuzzy today. Comprehensive standardization program is mandatory with an approach as holistic as possible to facilitate offer development and implementation.</p>	<p>N/A</p>	
<p>Respondent 39: Silver Spring In some cases, the answer is "yes". But, such as the case of NIST in North America, standards are being rapidly codified and adopted. Promising standards are being developed, too,</p>	<p>N/A</p>	

Respondents' views	ERGEG's position	Explanation/evaluation
specifically to meet the requirements of Smart Utility Networks; these include IEEE 802.15.4g and ETSI ERM TG28.		
Respondent 44: T-D Europe and Respondent 48: ZVEI Existing standards are also currently reshaped in the light of the new grid. E.g. in Germany DKE is already developing a roadmap for technical standards for Smart Grids. This roadmap, also considers the integration into European Standards and is predominantly intended to be in line with IEC. Furthermore, also quality and performance standards need to be developed and harmonised across Europe.	N/A	
Respondent 45: Teradata No. There are sufficient standards for data and information exchange today and these will continue to evolve in the future. The most important thing is that these standards are open and developed by the actors on the energy market and meets the demands of the smart grid's users.	N/A	

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

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Consumer associations		
Respondent 08: Consumer Focus Change the behaviour of consumers. Regulators have a role in ensuring communication the benefits from networks	Agree	
Respondent 47: VZBV Discusses barrier for a modern electricity market	Disagree	The question was apparently misunderstood
Respondent Group – Energy company		
Respondent 04: BNE Bundesverband Neuer Energieanbieter Market design and rules for active participation of small generation and demand side management. Most importantly, the meaning of smart-grids is not yet conclusive.	Partly agree	The paper referred to “future work of the European energy regulators in investigating the strict relationship between electricity grids, wholesale and retail markets and new market places”.
Respondent 07: Centrica Overall investment climate, cost of capital and cost of debt (not only price controls, but also when assessing other market players); regulatory certainty. In addition, for electric vehicles, there is a need for an entire new infrastructure to be developed and deployed. Need for user engagement and a user-centric approach.	Agree	
Respondent 10: DONG Energy Barriers to innovation, solutions and contracts between market parties and customers. Direct economic regulation of network companies relates to a fraction of relevant barriers so this calls for a broader, more value oriented focus from regulators. From the perspective of the respondent the main regulatory	N/A	Market solutions will probably evolve over time. Network regulation should ensure at least a non-discriminatory field for all market players. This might require further investigation in the future. Definition of roles and responsibilities was already identified as a major need by ERGEG in the Consultation Paper.

Respondents' views	ERGEG's position	Explanation/evaluation
challenges and barriers today can be grouped in the following categories: Market design. Monetising constraints in the grid, roles and responsibilities and Restricted use of standards.		Monetisation (see Q12). Standards (see Q15)
Respondent 12: EDF Energy The liberalisation of the market, and the resultant multiplicity of market players, do lead to co-ordination challenges. E.g. the system balancing will be more complex, with market players looking to minimise their own risk, not the global one	Agree	See also SSE and ENA response
Respondent 40: SSE The unbundling of the market and the number of players along the electricity supply chain, e.g. system balancing will become significantly more complex and risky.	N/A	
Respondent 13: EDF An additional barrier to deployment could be the lack of acceptability by the end-users, concerned with the intrusion of smart home services. Close attention should be given to the issue of private data property and treatment.	Agree	Data privacy and safety is being assessed by regulators within cooperation with the EC task force on smart grids
Respondent 14: Edison SpA Education and availability of skills	Agree	ERGEG adds this to the list of barriers, although the approach to this topic is not only regulatory. See also EPSU, Eurelectric, Synergyd responses.
Respondent 20: EnBW In order to interest customers for greater energy efficiency and active participation in the "smart energy world", they need to be considerably more involved.	Agree	See question 12 and proposed effect (8)
Respondent 24: E.On This consultation provides already gives a very good overview. With regard to smart grids a lot of R&D still has to be undertaken	Agree	Further, there is need of effort to improve the link between R&D and demonstration and deployment.
Respondent Group – Grid operator		
Respondent 15: EDP distribuição The environment should be favourable to e.g. DSM measures,	Partly agree	We do not agree that network technology should be incentivised (as technology is not an end in itself). We intend this as a

Respondents' views	ERGEG's position	Explanation/evaluation
integration of DG, deployment of electric vehicles. Simultaneously, regulation should be changed in order to incentivise the implementation of innovative network technology		request of incentives to innovation (demonstration projects).
Respondent 16: European Electricity Grid Initiative – DSOs Extending cost-cutting targets for R&D costs Too long depreciation times motivate the companies to postpone grid investments The first-mover risk needs to be addressed.	N/A	
Respondent 25: ERDF joins EEGI DSOs response		
Respondent 19: ENA - Energy networks association The unbundling of the market and the number of players along the electricity supply chain, e.g. system balancing will become significantly more complex and risky.	N/A	
Respondent 21: ENERGINET.DK The initial investment in secure and reliable ICT is a barrier.	N/A	
Respondent 23: ENTSO-E The availability of secure and reliable ICT is a major barrier. Suitable economic incentives and contracts to ensure the customer participation.	N/A	
Respondent 30: GEODE Barriers not mentioned in the Consultation Paper: Uncertainty on cost recovery Unproven technology Unbundling of market and number of market players	Partly agree	Cost recovery through a stable regulatory framework for investments was mentioned in the Consultation Paper.
Respondent 34: National Grid Consumer participation is uncertain. Concerns over the use and availability of data Planning and consenting issues Technology specific subsidies	Agree	Therefore there is need of improved user awareness and grid operators/suppliers engagement with users
Respondent 35: Netbeheer Nederland		Some issues are currently treated by EG Task Force Smart

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Other barriers are: Unclear roles and responsibilities of market players and uncertain division of responsibilities with network companies. Uncertainty for the market players. Lack of awareness of consumers. Efficiency approach in the current regulatory framework. Sound splitting of costs and benefits among parties. Privacy and security issues Return on investments Issues related to stranded assets.</p>	<p>Agree N/A Agree N/A Agree N/A Partly agree N/A</p>	<p>Grids. Clear definition is needed There is need of improved user awareness Cost/benefit detailed assessments are needed A stable framework has to be ensured, but ERGEG does not believe it is currently a real big barrier</p>
<p>Respondent 36: RWE Rheinland Westfalen Netz No other barriers.</p>	<p>N/A</p>	
<p>Respondent 43: Synergrid Education and availability of skills for deployment. User acceptance and readiness to participate</p>	<p>Agree N/A</p>	<p>ERGEG adds this to the list of barriers, although the approach to this topic is not only regulatory.</p>
Respondent Group – Industry Association		
<p>Respondent 03: BDEW We think that this consultation already gives a good overview. 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. R&D and related financing, data security, data privacy and functional reliability. Expect acceptance and support for R&D based on the ERGEG paper.</p>	<p>N/A</p>	<p>Regulatory recommendations for data safety, data handling and data protection are assessed under EC TF on SG. Definition of roles and responsibilities was already identified as a major need by ERGEG in the Consultation Paper.</p>

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 06: CEDEC From our point of view, the subject of the security of information (security, privacy) and safety as the essential basis for the implementation of a smart grid as a critical infrastructure as well as the examination of system solutions cannot be emphasised enough. This interdisciplinary issue should be handled separately in the document as a decisive factor for success. Pure cost-cuts hinder investment. There is a lack of standardised parameters and formalities.</p>	Partly agree	Regulatory recommendations for data safety, data handling and data protection are assessed under EC TF on SG.
<p>Respondent 29: FutuRed No, we think they are a fairly complete exposition.</p>	N/A	
<p>Respondent 41: Svensk Energi Countries with many DSOs will have challenges to reach consensus for applied interfaces. Standards are needed to be an enabler for the open market.</p>	Agree	This is discussed in Q15.
<p>Respondent 49: EPSU Lack of skilled workers. Another barrier we identified concerns unclear responsibilities in the value chain.</p>	Agree Agree	ERGEG adds this to the list of barriers, although the approach to this topic is not only regulatory. Definition of roles and responsibilities was already identified as a major need by ERGEG in the Consultation Paper.

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 05: BNEF Identifies seven groups of barriers or bottlenecks, discussed in an upcoming Bloomberg New Energy Finance White Paper. They are briefly summarised in the respondents reply to the consultation: Political will Regulatory structures and alignment of incentives Access to financing The utility business case Technologies and standards Data management, access and security Consumer engagement and awareness</p>	N/A	ERGEG takes note of the respondents' list of possible barriers.
<p>Respondent 09: DERLab experts The main barrier is the lack of standardisation also in the concept of smart grid. Most important is to provide a clear and general definition of what smart grid really means and which technologies are going to be involved. Further barriers: 1) Market requirements constitute another barrier: e.g., minimum capacity requirements for trading on wholesale markets as well as high annual trading fees may impose barriers for small producers. 2) Ineffective implementation of unbundling provisions (ownership/ ISO for TSOs, legal and functional for DSOs) may aggravate creation of level playing field. Increased activities in education and training of stakeholders and public information in the area of new smart grid technology will lower the barriers.</p>	Disagree	Included in the ERGEG Consultation Paper.
<p>Respondent 46: VDE-ETG In our understanding, the main barriers are currently: In the majority of European countries the growing share of renewable energy is not integrated in the energy market because of the applied supporting schemes.</p>	N/A	Companies have installed smart meters in countries without

Respondents' views	ERGEG's position	Explanation/evaluation
<p>There is no core interest to install smart meters. In the first line it costs money. The regulations should support adequate business models for meter service providers.</p> <p>There are protests of the population in some countries against the erection of new transmission lines.</p> <p>A supporting scheme for storage is still missing. The currently available storage technologies are not in a technical and a cost position which allows their economical application for power system purposes. The further development and a future broad application of storage technologies require a similar support like it is recommended for the renewable energy sources.</p>		<p>regulatory requirements.</p> <p>Implicitly given through 1)-7)</p>
Respondent Group – Service Provider		
<p>Respondent 01: Accenture</p> <p>Yes, there is a lack of business model. Roles and responsibilities of existing and new parties, smart functionalities and technologies must be clarified at an early stage.</p>	N/A	<p>Definition of roles and responsibilities was already identified as a major need by ERGEG in the Consultation Paper Roles and responsibilities are currently being developed under EC TF on SG.</p>
<p>Respondent 26: ESMIG and Respondent 33: Landis & Gyr</p> <p>One of the biggest barriers to deployment is uncertainty: uncertainty in regard to technology, standards and investments. The technology is available and the current standards are sufficient. What is needed is clear commitment to smart grid development on the part of the regulators, so that network operators will be encouraged to invest in smart metering and smart grid technologies.</p>	<p>Partly agree</p> <p>Disagree</p>	<p>Commitment necessary also of the relevant stakeholders other than regulators are needed. ERGEG still considers that there are no fundamental barriers to the deployment of smarter distribution and transmission systems where necessary and cost-efficient.</p>

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 37: Sagecom A major point providing barriers for smart grids deployment is delaying it and the incompatibility with other investments. Lack of definition of smart grids functionalities and technical solutions leads to the choice of equipments or solutions needs to be imagined to support unclear future smart grids functionalities or it may lock the system for decades. A large choice of different technologies users may be lost and may delay their investments in waiting for the next much more promising technology. Standardisation will have to guarantee continuity of solutions for investments over the years and future requirements.</p>	N/A	<p>Functionalities for smart grids and Meters are currently being developed under EC TF on SG.</p>
<p>Respondent 38: Schneider Electric No; the paper is quite comprehensive.</p>	Agree	
<p>Respondent 39: Silver Spring We make the case that cost effective, reliable, responsive communications are foundational to the success of Smart Grids/Meters. We feel that the Paper does not strongly acknowledge limitations in the current solution space.</p>	N/A	<p>Cost-efficient solutions are envisaged for both communication solutions and other solutions, as described in the ERGEG Consultation paper.</p>
<p>Respondent 44: T-D Europe and Respondent 48: ZVEI Safety and security could pose a challenge. Not only from a technical but also from a data and personal data protection view. Data from individual citizens could be used or misused creating a personal profile. Also on greater level "energy fingerprints" or profiles could be used to identify, characterized and tracked network participants like individuals companies etc. So the point of transparency and data secrecy could prove to be challenging.</p>	N/A	<p>Regulatory recommendations for data safety, data handling and data protection are developed under EC TF on SG.</p>

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 45: Teradata There are barriers regard how data generated by a smart grid will be managed, mainly regarding:</p> <ul style="list-style-type: none"> • What are you going to do with the data to drive the benefits of a smart grid? • Who owns the data generated by the grid? • What analysis will be performed on the data to generate valuable information to act upon? • How will information be shared between the different parties? • How will individual consumer privacy be protected, while still enabling operational efficiencies and consumer choice? • How will the information and analysis be provided to the hundred+ million users of the grid? 	N/A	Regulatory recommendations for data safety, data handling and data protection are developed under EC TF on SG.

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

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Consumer associations		
Respondent 08: Consumer Focus Yes, appropriate regulation is needed to safeguard	Agree	
Respondent 47: VZBV Yes, there are problems related to lack of ownership unbundling (grid-generation) and for smart meters market and energy efficiency services	Agree	Unbundling is important to avoid cross subsidies
Respondent Group – Energy company		
Respondent 04: BNE Bundesverband Neuer Energieanbieter Yes, and it is difficult to be overseen by regulators. Effective unbundling for distribution would minimise the danger.	Agree	Unbundling is important to avoid cross subsidies
Respondent 07: Centrica We welcome ERGEG drawing national regulators' attention to this important aspect. In general we believe that to help avoid cross-subsidies, the roles and responsibilities of different market players must be clearly understood. If this is done, there will be greater clarity about how the costs and benefits are spread across the value chain, and thus who is being remunerated for what. Potential cross-subsidies as between TSOs and DSOs should be eliminated with the strengthened unbundling provisions. It is essential that a distinction is also drawn within DSOs between their network businesses and their metering businesses.	Agree N/A	Roles and responsibilities have to be defined. Cost-benefit analysis need breakdown by each actor Unbundling of distribution and metering could be considered for better identification of costs.
Respondent 10: DONG Energy Yes.	Agree	
Respondent 12: EDF Energy	Partly agree	The regulators have to oversee this risk and to evaluate whether

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 40: SSE The risk of cross-subsidy needs to be assessed. Cross-subsidy might be an acceptable consequence for getting wider societal benefits. Cost reflective pricing should minimise cross subsidies</p>		<p>some cross-subsidy (e.g. socialisation of costs) might be acceptable to get future societal benefits.</p>
<p>Respondent 13: EDF No, provided the functions offered by Smart Grids are open on a transparent and fair basis to all suppliers, their costs socialized and mentioned as such on the consumers' bill.</p>	Partly agree	<p>The functions have to be available on a non-discriminatory basis to all suppliers</p>
<p>Respondent 14: Edison SpA Maybe. Question is how to allocate the cost of the smart grid deployment between network companies and other suppliers</p>	N/A	
<p>Respondent 20: EnBW This could indeed happen. However, regulation which properly addresses cross-subsidization should be able to prevent such intervention.</p>	Agree	
<p>Respondent 24: E.On A clear definition of the roles and responsibilities of DSOs and TSOs will help avoid. Clarity on the borders and functions between the regulated business in the grid and the services on this platform undertaken in a competitive environment will also contribute. This however does not mean that positive externalities of smart grids to other non regulated players shall be avoided.</p>	Agree	<p>Roles and responsibilities have to be clearly defined</p>
Respondent Group – Grid operator		
<p>Respondent 15: EDP distribuição EDPD is concerned. The challenge is to identify costs and benefits among agents.</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent 16: European Electricity Grid Initiative – DSOs There is a risk. KPI and clear definition of responsibilities will minimise this risk	Agree	
Respondent 25: ERDF joins EEGI DSOs response		
Respondent 19: ENA - Energy networks association The risk of cross-subsidy needs to be assessed. Cross-subsidy might be an acceptable consequence for getting wider societal benefits. Cost reflective pricing should minimise cross subsidies	Partly agree	The regulators have to oversee this risk and to evaluate whether some cross-subsidy (e.g. socialisation of costs) might be acceptable to get future societal benefits.
Respondent 21: ENERGINET.DK TSO will buy services from the distribution sub-grids. This should not be a subsidy, but a sound DSO-TSO business.	Agree	
Respondent 23: ENTSO-E All grid operators are obliged to unbundling requirements.	Agree	Unbundling is important to avoid cross subsidies
Respondent 30: GEODE Should be carefully monitored.	Agree	
Respondent 34: National Grid No, because of the regulatory regime (unbundling)	Partly agree	Unbundling is important to avoid cross subsidies
Respondent 35: Netbeheer Nederland Difficult to say. A clear understanding of the objective and of the responsibility of the regulated company is needed	Partly agree	Roles and responsibilities have to be clearly defined
Respondent 36: RWE Rheinland Westfalen Netz The critical question when designing the regulatory framework for smart grids is not preventing cross-subsidies, although the different market roles have to be clearly defined	Partly agree	Roles and responsibilities have to be clearly defined
Respondent 42: Swissgrid Benefits spread to different parties will require a fair allocation of costs	N/A	
Respondent 43: Synergrid There is in principle a risk for cross-subsidies.	Agree	Unbundling is important to avoid cross subsidies

Respondents' views	ERGEG's position	Explanation/evaluation
Unbundling will avoid.		
Respondent Group – Industry Association		
<p>Respondent 03: BDEW A limited cross subsidisation between DSOs and TSOs is not 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.</p>	N/A	Roles and responsibilities have to be clearly defined.
<p>Respondent 06: CEDEC DSO and TSO have to perform different tasks within the context of smart grids, which means there is only minor overlapping in terms of content. However, the exchange of data information via the TSO and DSO level is required in order to ensure network stability. Standardised basic conditions have to be established in this regard. The necessary network links and expansions of the transmission and distribution networks also have to be carried out with the same sense of importance.</p>	N/A	
<p>Respondent 41: Svensk Energi With clearly defined roles for TSOs and DSOs this should not be a problem.</p>	N/A	Roles and responsibilities are currently being developed under EC TF on SG.
<p>Respondent 49: EPSU Possibly. What should be prevented is that users and especially vulnerable users are charged for expenses and developments they will hardly benefit from, or for which they will not recuperate the investment.</p>	Agree	
<p>Respondent 50: EURELECTRIC This may be the case with regards to new communication services expected to be provided in the future. If communication services are provided over the smart grid data network, one question that follows is how to allocate the cost of the smart grid deployment between electricity customers and communications</p>	N/A	

Respondents' views	ERGEG's position	Explanation/evaluation
service subscribers to prevent customers from cross-subsidizing communications services. Any threat of a cross-subsidy will draw the attention of the telecommunications and cable companies, and their participation in cost allocation proceedings.		
Respondent Group – Renewable generator		
Respondent Group – Research/ Consultant		
Respondent 05: BNEF The assignment of capital expenditure responsibilities and risk for smart grid technology roll-outs must be carefully examined to avoid cross-subsidies. For example, smart grid investments made by a DSO will drive up distribution network fees, while bringing benefits to other parts of the value chain, such as suppliers and generation companies.	N/A	
Respondent 09: DERLab experts This can easily happen. The technical tasks (demand-side-management, quality of supply, grid operation, etc) and resulting benefits of a smart grid are complex and closely interwoven. Thus the unbundling and the technical and administrative interfaces between the stakeholders must be carefully defined.	Agree	Unbundling is important to avoid cross subsidies. Roles and responsibilities have to be clearly defined.
Respondent 27: Even consultant The risk depends on the regulatory scheme. As long as propriety unbundling is achieved this risk will be reduced.	Agree	Unbundling is important to avoid cross subsidies.
Respondent 32: KTH + POWER CIRCLE No.	Disagree	
Respondent 46: VDE-ETG Intelligent regulatory rules are able to avoid any cross subsidizing between the stakeholders of the smart grids. Today the renewable sources are cross- subsidized in the following ways:	N/A	Depending on differences in national regulations.

Respondents' views	ERGEG's position	Explanation/evaluation
<ul style="list-style-type: none"> By the consumers through higher tariffs covering the fixed feed-in tariffs. By the network operators (TSO, DSO) through network access without charges. By the TSOs through compensation of all deviations from the forecasts. <p>A stepwise market integration of RES will avoid this kind of cross subsidizing.</p>		
Respondent Group – Service Provider		
<p>Respondent 01: Accenture It would be only normal that the investments in smart technologies would support business functionalities and services of the commercial suppliers. Important that competing suppliers are supported by monopoly smart technologies in the same non-discriminatory way. Those areas where smart technologies are not provided by the network monopoly to the market should be clearly delineated from those that are.</p>	N/A	
<p>Respondent 26: ESMIG and Respondent 33: Landis & Gyr Not, if a clear delineation is made between smart grid infrastructure – which includes smart metering - and the parts of the system, such as personal energy management, home automation, etc. that rightfully belong in the realm of the competitive suppliers.</p>	Partly agree	Roles and responsibilities have to be clearly defined.
<p>Respondent 39: Silver Spring Yes.</p>	Agree	
<p>Respondent 44: T-D Europe and Respondent 48: ZVEI Due to the nature of smart grids, namely creating new combinations, there are already new combinations e.g. telecommunication companies involved in electronic billing of smart meters. As the grid develops so will the new combination.</p>	N/A	

Respondents' views	ERGEG's position	Explanation/evaluation
Another possible opportunity for non-network service could be agents (virtual or human) checking the grid for defects, peaks etc. as similar agents do today in networks.		

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

Respondents' views	ERGEG's position	Explanation/evaluation
Respondent Group – Consumer associations		
Respondent 02: Altroconsumo Grid access for MV users	N/A	
Respondent 08: Consumer Focus Promote network companies to engage with their customers, in order that services reflect consumers' needs Regulators should ensure that benefits go to consumers	Agree	Important comment: promote companies to engage with consumers
Respondent 47: VZBV Not only grids, but the whole energy market is facing challenges. An efficient grid expansion is a priority, with "smart" grid for reasonable price. Household active participation is needed, but time-based tariffs make no economical sense at present.	Partly agree	The last comment is not supported by evidence. However, the introduction of smart metering development is up to a national cost-benefit assessment, according to the electricity directive.
Respondent Group – Energy company		
Respondent 04: BNE Bundesverband Neuer Energieanbieter Capacity of the transmission grid for renewable generation. Cost-effective integration of new technologies in networks. Improved market design to facilitate response of market participants. New grid tariffs to incentivise flexibility.	N/A	
Respondent 07: Centrica We broadly agree with the issues identified in ERGEG's consultation document. On the practical aspects associated with implementation, we would note that regulators may be able to draw on international experience and – in time – deployment in other Member States – to support regulatory approaches and understanding at their national level.	N/A Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 10: DONG Energy Main priority: competitive commercial entities must take a leading role in engaging with the final customer. Main barriers: Market design: Monetising constraints in the grid; roles and responsibilities; Restricted use of standards</p>	<p>Agree</p> <p>N/A</p>	<p>Engagement of market parties with customers is important, although ERGEG sees a prime mover role for TSOs and DSOs in order to allow market work. The main barriers are discussed in Q16 and are different with respect to priorities for regulation discussed in the Consultation.</p>
<p>Respondent 12: EDF Energy Important resources have to be put into R&D, innovation, skills and knowledge Unprecedented network investments will be needed. Appropriate investment climate for new generation Timely connection of new generation Review of security standards to deliver efficient investments Effective incentives for innovation; recognising the workforce and skills challenge No barriers due to unbundled markets Innovation in management of consumer's behaviour</p>	<p>N/A</p>	
<p>Respondent 13: EDF Major regulatory actions on: - generation of small units actually managed by the system, - implementation of appropriate network tariffs, including support to storage, - financing issues, - higher cooperation between regulated and unregulated businesses at research and development stages, - interoperability.</p>	<p>N/A</p>	
<p>Respondent 14: Edison SpA - Predictable and transparent regulatory framework for the European electricity market. - Harmonising rules across Europe. - Optimised business model for all parts of the value chain. - Clear definition of responsibilities will contribute to defining the cost allocation.</p>	<p>Agree</p> <p>N/A</p> <p>N/A</p> <p>Agree</p>	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Respondent 20: EnBW the grid operators must be offered corresponding investment incentives as part of the regulation. As described in Section 4, the role of regulators is important for cooperation, research and innovation. The priority in Europe should be to coordinate the R&D activities of regulated companies. It makes sense and would be efficient to manage transmission R&D activities and promote coordination between TSOs at the European level in order to facilitate innovation for an integrated and smart grid.</p>	Agree	These partly correspond to priorities highlighted in the Consultation Paper.
<p>Respondent 24: E.On - Better investment conditions - Good R&D conditions to encourage innovation, demonstration and deployment - Move focus from cost cutting to incentives to invest.</p>	N/A	
<p>Respondent 40: SSE i. A predictable and transparent regulatory framework allowing an appropriate return to companies and seeking to optimise societal benefits at minimum cost. ii. effective incentives for innovation, in terms both of direct incentives and proper returns. iii. Management of workforce renewal and skills challenge iv. Ensuring that unbundled markets do not create barriers</p>	<p>Agree N/A Agree N/A</p>	See also responses to Q16
Respondent Group – Grid operator		
<p>Respondent 15: EDP distribuição EDPD highlights the fundamental change in the role of DSOs from providing secure and reliable supply to providing new services to customers who should contribute to attain EU and national 2020 targets: RES, DSM, DG and electric mobility. Ensuring adequate return is an essential pre-requisite to secure sufficient network investment as well as the coexistence of</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>harmonized rules across European systems.</p> <p>Respondent 16: European Electricity Grid Initiative – DSOs Actively support large scale pilots to gain more knowledge on the effective deployment of innovative solutions. Accept a limited risk of financing grid external benefits Do proper “ex post” evaluation to utilize experiences and get standards applicable as soon as possible. Regulation should incentivize the energy efficiency, the deployment of renewables and the integration of DER.</p> <p>Respondent 25: ERDF joins EEGI DSOs response</p>	Partly agree	Deployment of renewables is out of “grid” scope
<p>Respondent 19: ENA - Energy networks association</p> <ul style="list-style-type: none"> i. A predictable and transparent regulatory framework allowing an appropriate return to companies and seeking to optimise societal benefits at minimum cost. ii. effective incentives for innovation, in terms both of direct incentives and proper returns. iii. Management of workforce renewal and skills challenge iv. Ensuring that unbundled markets do not create barriers 	Agree	
<p>Respondent 21: ENERGINET.DK Development of regulatory frameworks, incentives and controlling benchmarking schemes.</p>	N/A	
<p>Respondent 23: ENTSO-E new regulatory frameworks, supporting incentives and controlling deployment schemes should be developed by the European Regulators allowing for the initial up-front investments be done by the transmission and distribution system operators as well as generators and consumers. Timely authorisation processes. Harmonised regulation. R&D activities are essential and funding mechanisms as well</p>	N/A	
<p>Respondent 30: GEODE</p>	Agree	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>Clarity on investment costs recovery mechanisms Clear roles and responsibilities Clarity on data protection issues Definition of minimum functionalities R&D accessible to all network operators ERGEG to coordinate with outcome of EC Task Force</p>		<p>See previous answer Q16 Treated by EC task force Treated by EC task force Treated by EC task force See requirements on dissemination ERGEG significantly participates in EC Task Force Smart Grids.</p>
<p>Respondent 34: National Grid it is important to develop a regulatory regime that enables efficient anticipatory investment and appropriately values network flexibility regulatory certainty is critical in providing the investment background for long term assets. Lead times required to recruit appropriate skilled resource Consumer engagement and education will be paramount in improving more efficient energy use and demand side participation. More cost reflective arrangements, charging and tariffs should promote this behaviour.</p>	<p>Agree N/A</p>	
<p>Respondent 35: Netbeheer Nederland Regulatory priorities: Understanding the difference between information for market-based customer services and for grid operators Stimulating investments on innovations by add-ons within the regulatory system. Attention in case of new performance indicators (minimize the burden, consider regional differences, prevent sub-optimisation).</p>	<p>N/A</p>	
<p>Respondent 36: RWE Rheinland Westfalen Netz allowing sufficient revenues, implementing just benchmarking procedures, devising new price systems, installing balancing regimes, allocating the various roles taking account of the developments in the design of quality incentives.</p>	<p>N/A</p>	

Respondents' views	ERGEG's position	Explanation/evaluation
However smart grids will only become a reality if the necessary investment can yield sufficient returns given the technological and regulatory risk associated with the introduction of new technologies on a large scale.		
Respondent 42: Swissgrid No reduction in security of supply intensified inter-TSO cooperation Integration of flexible production and storage solutions regulatory framework for cross border exchange of balancing power	N/A	
Respondent 43: Synergrid Defining the right incentives and rules, and a stable framework with a medium and long term perspective.	Agree	
Respondent Group – Industry Association		
Respondent 03: BDEW 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.	N/A	National regulation
Respondent 06: CEDEC To reach the 20-20-20 targets, the regulatory authorities of the EU Member States should establish an appropriate, stable and more investment-friendly regulatory framework. The focus should therefore be extended from the promotion of competition to the points concerning security of supply, investment and	N/A	National regulation

Respondents' views	ERGEG's position	Explanation/evaluation
<p>infrastructure expansion.</p> <p>Respondent 17: EFET Roles and responsibilities of various parties need to be clearly distinguished in order to decide on proper regulatory measures. An implicit intra-day platform needs to be installed urgently to facilitate the market integration of renewables and to make the best use of the smart grids' potential. Financial resources may need to be made available to network companies to develop smart solutions. For the midterm, the investment conditions given in each EU country have to be sufficient to encourage network operators to invest in smart grids on a large-scale. However, network operators should avoid second guessing the outcome of competitive processes or favouring particular types of activity (e.g. distributed generation).</p>	N/A	<p>Roles and responsibilities are developed under EC TF on SG EG3. European Energy Regulators are concerned with market design, including intra-day trade, and will address this where appropriate.</p> <p>Financial incentives are subject to national regulation</p>
<p>Respondent 29: FutuRed Considers the following as priorities:</p> <ul style="list-style-type: none"> • Reduction of CO₂ emissions • Reduction of losses • Increasing of automation level • Increasing of virtual generation • Increasing of enhanced reliability 	N/A	Partly (implicitly) included in 1) to 7)
<p>Respondent 41: Svensk Energi To incentivize R&D and give DSO investors a positive payback of investments of smart grid implementation when the society business case is positive, but the DSO business case is not.</p>	N/A	National regulation
<p>Respondent 49: EPSU The regulators should consider developing mechanisms for ensuring skilled and trained workforce that can operate, maintain and develop the networks of the future. Regulators should prevent that the fragmentation and</p>	Partly agree	ERGEG agrees that sufficient trained, educated and available personnel is necessary, however, the means to achieve this need to be further elaborated and discussed.

Respondents' views	ERGEG's position	Explanation/evaluation
<p>complexity is made worse by outsourcing and sub-sub contracting arrangements. We consider it important that the regulators define the core competencies for which the companies need to have qualified staff. As we will be confronted with an increasing number of companies, the contents of licenses becomes more important. Regulators should impose four conditions on companies as part of a license:</p> <ol style="list-style-type: none"> 1. Obligation to employ and train a skilled workforce to deliver a quality service. 2. Prohibition on outsourcing core functions, including network maintenance and customer service. 3. Liability cannot be devolved to sub-contractors. 4. Contracts should be obliged to maintain sectoral wage levels. 	<p style="text-align: center;">Agree</p> <p style="text-align: center;">National regulation</p>	<p>Defining core competencies is important, but should be done at national level taking into account national particularities.</p>
<p>Respondent 50: EURELECTRIC Stresses the need for a predictable and transparent regulatory framework for the European electricity market. We view an appropriate return as a basic prerequisite for investment, and we also recommend harmonising rules across Europe as far as possible. We call upon governments and regulatory authorities to work together towards an optimised target retail market model encompassing all parts of the value chain, from generators to consumers, so as to minimise total costs.</p> <p>Regulators need to take appropriate measures to support the development of smart grids, allowing a fair rate of return when DSOs contribute to meeting efficiency and RES targets.</p> <p>The risks could be minimised by providing a clear definition of roles and responsibilities. This will contribute to defining the costs allocated to each stakeholder.</p>	<p style="text-align: center;">N/A</p>	<p>Financial incentives are subject to national regulation.</p> <p>Roles and responsibilities are currently being developed under EC TF on SG EG3.</p>
<p>Respondent Group – Renewable generator</p>		
<p>Respondent 28: EWEA</p>	<p style="text-align: center;">N/A</p>	

Respondents' views	ERGEG's position	Explanation/evaluation
Interconnection capacity and transmission planning onshore and offshore. Regulatory measures to support the flexibility of generation mix. Support the modernisation of distribution grids.		
Respondent 31: World Future Council and other NGOs Guaranteed access to the grid for renewable energy Increased links to storage capacity	N/A	
Respondent Group – Research/ Consultant		
Respondent 05: BNEF Creating regulatory incentives and rewards for all parts of the electricity value chain to invest in energy efficiency. Decoupling can play an important role. Encouraging investments, DSR, power storage and DG. Traditional objectives; ensuring fairness of competition and low cost and reliability of supply remain as important as ever. They further refer to an upcoming Bloomberg New Energy Finance White Paper.	N/A	Financial incentives are subject to national regulation.
Respondent 09: DERLab experts 1) Standards 2) Innovation and R&D e.g. to develop new network tools and test facilities for smart grids solutions. 3) Changing network regulation to incentivise network operators to accommodate renewable production into their network operation activities. 4) The reimbursement and neutralisation of TSOs and DSOs both for higher complexity in network operation as well as potentially lower volumes transmitted.	N/A	
Respondent 11: Frans Nieuwenhout A major challenge for regulators is the fact that a major part of the benefits of smarter grids will be outside the regulated	Agrees	ERGEG agrees that a clear understanding of which parties will benefit and which will bear the costs is imperative. However,

Respondents' views	ERGEG's position	Explanation/evaluation
<p>domain, affecting the relation between customers and energy suppliers and energy services companies. Financing of smart grid projects and regulation of the network companies should take into account this complexity. Unbundling should not be used as an excuse to limit regulation to network aspects only. As a consequence, network regulation should give a prominent place to 'external effects', cost and benefits outside the network. Developing the infrastructure for smart metering and control of distributed generation and demand response may not be a financially viable 'smart grids project' when only viewed from a network cost perspective.</p>		<p>financial incentives are subject to national regulation.</p>
<p>Respondent 32: KTH + POWER CIRCLE Incentivising network expansion to host large scale renewable sources.</p>	<p>N/A</p>	<p>See the list of proposed performance indicators.</p>
<p>Respondent 46: VDE-ETG We see the first priority for regulators to achieve a European consensus that Smart Grids are the mandatory pre- requisites to reach the 20- 20 – 20 targets of the European Community. The second priority is seen in the necessity to integrate renewable energy sources stepwise into the market mechanisms. Intelligent legal and regulatory frameworks are required that this process will run flexible, supports the aggregation of small dispersed units and keeps the quantity of before agreed subsidies. Thirdly, the legal and regulatory framework for new kinds of service providers is expected. Especially the installation of smart meters and the provision of the "last meter" communication infrastructure are pre- requisites that the customers and the dispersed generation are able to participate on the markets. The fourth priority (after successful realization of 1-3 priorities) is to set minimum performance parameters or a bonus system in concern to these parameters.</p>	<p>Agree</p>	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>In our mind, R&D activities are well supported by the European commission and by the governments of some countries. The role of the regulators should be to initiate smart grids activities and projects in such countries where the smart grid initiative is still not started (new members from East and South Europe for example).</p> <p>Furthermore, the regulators can participate on information days of the ongoing projects with the goal to support the dissemination of the new solutions.</p>		
Respondent Group – Service Provider		
<p>Respondent 01: Accenture Priority should be given to concrete initiatives, such as rolling out smart meters, to get customers to act on realizing energy efficiency.</p>	Partly agree	<p>It will be too narrow to focus only on smart meters and DSM/energy efficiency.</p> <p>There is no reason to wait for the implementation of smart meters before starting introducing smarter grid solutions.</p>
<p>Respondent 26: ESMIG and Respondent 33: Landis & Gyr The main priority should be to start deployment of smart metering/smart grids technology as soon as possible. Smart Metering is the foundation of and an essential first step toward the development of the smart grid, and the technology is available right now.</p> <p>All three of the 2020 targets depend on the grid for their realisation, and the gateway to the grid from the final consumer/prosumer is the metering system. Therefore, meeting the 2020 goals depends on a quick deployment of smart metering technology, which can then be built upon to develop the smart grid.</p>	Disagree	<p>ERGEG does not agree that smart meters are the foundation of and an essential first step towards the development of the smart grid.</p> <p>There is no reason to wait for the implementation of smart meters before starting introducing smarter grid solutions.</p>
<p>Respondent 38: Schneider Electric The European roadmap to 2020 should take into account the potential benefits with its implementation timing of the Energy Efficiency measures (see Electra report ...), the renewable sources European deployment plan and the smart features of</p>	N/A	

Respondents' views	ERGEG's position	Explanation/evaluation
<p>the future electrical chains (Smarter Grids) like smart metering tools, smart control systems for buildings and homes ...etc. Furthermore, players' behaviours are critical and performance indicators of their change should be set up.</p>		
<p>Respondent 39: Silver Spring There are many. Availability of wireless mesh networks is one very important example of a core, enabling technology that is unavailable in the EU.</p>	N/A	
<p>Respondent 44: T-D Europe and Respondent 48: ZVEI Aggressive target setting for CO₂-emissions to foster the incorporation of renewables. Creating a benefit-scheme to benefit the parties which need to do the invest (CAPEX). Regulatory conditions should be reliable and "stable" giving esp. the operators the certainty they need, in order to invest into their assets"</p>	N/A	