

CEER Response to DRAFT THINK REPORT: “From distribution networks to smart distribution systems: Rethinking the regulation of European DSOs”

24 May 2013

1. Introduction and summary

The Council of European Energy Regulators (CEER)¹ welcomes the **draft THINK document: “From distribution networks to smart distribution systems: Rethinking the regulation of European DSOs”** and their call for a review of traditional regulatory approaches to facilitate the incorporation of distributed energy resources into the grid.

This document sets out CEER’s response to the THINK draft consultation document. It draws upon the work that is currently being progressed by CEER and individual National Regulatory Authorities (NRA).

This is an area where there has already been a number of CEER initiatives and which is a key priority for CEER. We consider that the THINK report represents a thorough examination of the issues facing distribution networks at a time of considerable change. Our comments are on the actions which are already being taken forward by CEER members and on some of the detail.

The three main issues we wish to raise are –

- the role of the consumer and other parties in the value chain
- allowing for regional/country based regulatory approaches in areas where there is scope for market development
- the importance of sharing best practice in regulation and disseminating learning

The document is divided into two sections. The first section focuses on three key issues which we consider should be given further consideration in the draft consultation. The second section provides detailed comments on the four areas of regulation in the THINK report. Some further detailed comments and corrections are in the annex to this paper.

2. Context

The EU energy sector is in the midst of a transformation which requires an innovative regulatory approach that balances the demands on the grid posed by distributed energy

¹ CEER is a not-for-profit association in which Europe's independent national regulators of electricity and gas voluntarily cooperate to protect customers' interests and to facilitate the creation of a single, competitive, efficient and sustainable internal market for gas and electricity in Europe.

resources with new commercial opportunities, and considers the need to keep energy affordable to consumers.

A broad range of what the report refers to as distributed energy resources (DER) (active demand response which is price based or volume based, distributed generation, distributed storage and electric vehicles) will need to be incorporated into the grid. Regulation should enable welfare enhancing business models under any future market development. Regulatory and policy uncertainty has been regarded as one of the major challenges facing the European power sector and a major barrier to innovation.

The THINK report examines four areas of regulation that will need reviewing and contains high level recommendations in each of the following areas:

- 1- the methods of determining DSO regulated remuneration
- 2- design of distribution network charges and levels of tariffs
- 3- function of DSOs within the market (unbundling)
- 4- the relationship between DSOs and TSOs

3. Key Issues

A cost efficient move towards low carbon power generation should be facilitated by clear policy and regulation. This should provide enough certainty to foster an environment that encourages and rewards innovation and provides a framework that allows DSOs and other market players to participate and enable the provision of new upstream and downstream services. These services should reflect the needs and reasonable expectations of consumers.

We welcome the report's main aim to rethink the traditional regulatory approach and identify areas which will need to be reviewed and updated to ensure the regulatory tools are fit for purpose to meet the technological challenges of incorporating significant DER in the coming years. We agree with its proposed focus areas and invite the authors to give further consideration to the following points which could be expanded within this report.

3.1 Role of the consumer and other parties in the value chain

We believe that further consideration should be given to the roles and responsibilities of all those in the emerging electricity value chain, and especially consumers. The report gives significant consideration to the roles of DSOs and TSOs given that these parties are subject to the different regulatory regimes across Europe. However, we believe the report should also explore the important role of the end-use customer in the value chain, including domestic and small and medium-sized enterprise (SME) consumers. Bearing in mind that consumers, especially vulnerable customers, have to be protected by adequate regulation, when necessary, also believe consumers have an important role to play as potential providers and beneficiaries of DER services. This calls for roles to be defined and the range of services to be identified and eventually remunerated. In addition to facilitating changes in consumer behaviour, the roles of TSOs and DSOs themselves should be more clearly focused on responsiveness to customers, be they residential consumers or businesses.

In 2012, CEER and BEUC, the European Consumers Organisation, developed a shared Vision of the energy sector² that puts customers first: a sector that engages with, and understands the diverse needs of customers, be they residential consumers, including the most vulnerable ones, or small businesses. This vision is reflected in CEER's key areas of work for 2013. CEER's Vision calls for the energy sector to engage with and understand the diverse needs of customers and deliver services to meet those needs.

We believe the report should give consideration to the mechanisms through which the DSOs should engage, directly or indirectly, with consumers, whether to cater to their specific supply needs or to engage them in the provision of commercial services. It should also examine the roles and relationships between the DSO and the rest of the parties in the value chain including energy suppliers, aggregators and local authorities when relevant.

We welcome the proposal of a more coordinated approach between DSOs and TSOs. However, we encourage the authors to go further and consider how DSOs and TSOs should engage with the other parties in the emerging value chain in order to unlock the value of downstream services while contributing to decarbonisation and energy security objectives.

The roles and responsibilities might well be determined by the different levels of DER penetration and the business environment within each Member State. The level of penetration of renewable energy sources will differ across Member States and different tools would need to be deployed to manage it. Some countries will experience high levels of distributed generation which might require the DSOs to take on a more active role in system security, including voltage quality; whereas other Member States might rely on offshore wind which means that the TSO would be likely to retain all system operation mechanisms.

3.2 Allow for regional/country based regulatory approaches in areas where there is scope for market development

The integration of DER into the grid is driving the shift from a linear supply chain towards a more systems based model. This model will see a growing part of domestic consumers becoming producers, electricity and information flows moving in two directions along the chain and real-time management becoming necessary to manage variable generation. This new value chain should provide opportunities for a number of agents who are in a position to gain value in the provision of new services - energy services providers, information and services platform owners, information services, information devices and appliance owners, aggregators, generators, consumers and consumers who both consume and generate ("prosumers"). We believe that NRAs are best placed to decide, in consultation with relevant stakeholders, what the best approach should be to unlocking the benefits of the upstream and downstream value change. Some of these areas might be better served by effective competition while others might require the development of a framework to facilitate information exchange between all the parties. The approach would be largely influenced by the right market conditions and the right business environment in each country.

In the case of electric vehicle charging infrastructure, we believe that a market approach should be favoured over a regulated approach. There is significant expertise and interest in certain countries in the provision of charging infrastructure and ancillary services. This would encourage the development of a competitive environment which would ultimately benefit customers. We believe more regulation – or the wrong sort of regulation - in this market may

² [Including electricity, gas and district heating.](#)

stifle innovation and hamper the development of viable commercial propositions to the detriment of Europe's sustainability goals.

In order to achieve the economies of scale in these markets which would lower costs and enable their expansion, the new technologies developed need to be interoperable. The challenge is then to foster innovation while facilitating the creation of consistent standards within a common framework. The objective here would be to achieve interoperability and to enable the implementation of smart grid technologies at a suitable pace for all market players. In this respect, CEER and NRAs contribute to the expert groups of the European Commission Smart Grid Task Force and to the European standards bodies CEN-CENELEC-ETSI. Through the Commission's task force, we are considering aspects mandated by EC (M/490): definition of technical reference architecture, a set of consistent standards and sustainable standardisation processes.

3.3 Importance of sharing best practice in regulation and disseminating learning

As smart grids are being developed across Europe as a key component of a smart distribution system, it is important to have a coordinated regulatory approach among Member States.

The CEER work programme of 2013 dedicates significant resources and expertise to a range of relevant initiatives in this regard. It includes a status review of regulatory approaches to smart grids.

Areas for this initiative will include: learning and dissemination of best practice for smart grid projects; cost benefit analysis for demonstration and deployment of Smart Grids; regulating challenges and incentive mechanisms for the development and deployment of Smart Grids; examination of flexibility tools such as electricity storage; and other related areas of work around commercial and regulatory arrangements for consumer engagement.

4. Other areas of consideration

4.1 DSO regulated remuneration

In order to enable DSOs to actively manage their systems, the report calls for regulation that takes into account a number of factors: (a) changing CAPEX and OPEX structures; (b) optional choice to allow DSOs to find a cost efficient trade-off between using DER and reinforcing network; (c) incentives on DSOs to find innovative solutions for ICT, data handling and other services. We note here that while the role of DSOs is changing and they need to respond to a new environment, their core role is to maintain grid stability and grid service quality.

As mentioned in the report, the approach to calculating revenue as a total - TOTEX³ - might prove useful in allowing networks the necessary flexibility to invest in the required infrastructure while managing their operational costs to ensure a good level of service to customers. Nevertheless, the particular circumstances of different countries must be taken into account. Alternative approaches do not always work for all existing systems, and may depend on the existing regulatory framework, the actual state of network installations etc.

³ Such models already exist and are already applied by various NRAs.

Given the number of different regulatory regimes in Europe, a general recommendation of one single model should not be pursued.

The role of the regulator is critical. The regulator should monitor and regulate network operators and create an environment where innovative solutions in electricity distribution will be enabled. There is also a role for governments in stimulating innovation and enable markets to be developed.

CEER initiatives are tackling the issue of regulation and remuneration in relation to smart grids from different innovative perspectives. The CEER status review of regulatory approaches to smart electricity grids⁴ focuses on incentives to ensure DSOs investment solutions are cost effective for all users.

4.2 Tariff structure

With greater DER and distributed generation, there may be a need for changes in the charging structure for DSOs. The way in which charges should develop is however unclear and needs further consideration. There is currently no clear indication for any cross-border issues.

The report focuses on the importance of reflecting power related signals into tariffs (€/MW) for use-of-system charges and connection charges. However, we consider that energy related signals (€/MWh) in network tariff are also important in order to direct users' decisions. Energy related signals should encourage consumers to reduce their energy consumption at peak times.

At a high level, the power related signal encourages consumers whose consumption is flat over time (those who use the subscribed network capacity all the time) to decrease their use of network capacity. The energy related signal encourages consumers whose consumption is concentrated on a few hours in the year to limit their consumption at peak hours.

For generators, an energy related tariff could potentially create bias in the merit order. Whereas power related signals could also create biased allocation of resources between different types of producers. Peak producers who have a high power related generation charge may be disadvantaged compared to base load producers⁵.

4.3 The role of the DSO should be clarified in relation to the market

The report describes the transition of the DSO from a neutral market facilitator of energy services, who manages the network assets, towards an active system operator who could potentially have a wider role. The former role saw DSOs as facilitating the development of other markets: retail markets, energy services companies which can be metering companies, ICT companies, aggregating services. The latter role might see the DSO as a more active

⁴ http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Electricity/2011/C11-EQS-45-04_SmartGridsApproach_6%20July%202011.pdf

⁵ We note that Acer is currently conducting a monitoring on the generation charge with a view to providing a recommendation on the appropriate range of generation charges based on Annex B of Regulation 838/2010.

player whose role could expand from transportation and access services to market facilitation services and system operator services. However, it is important that the roles of different entities are clear, in the context of the position in each country.

This is an essential part of the paper discussing the role of DSOs in a future market design. It raises the problem of DSOs becoming incumbents in future markets. However, the paper does not appear to distinguish clearly between the infrastructure services and market activities of DSOs. It is important that there is a level playing field and that market participants do not benefit from their position in a related market. This issue should be addressed more thoroughly in order to better identify unbundling issues.

We consider that the question of specific unbundling measures (ownership unbundling or ITO-like measures) needs to be kept under review. It is difficult to be specific at this stage given the uncertainty around how markets will develop.

4.3.1 Metering Equipment

In regards to ownership and management of metering equipment, the THINK report analysed pros and cons of two alternative models (regulated or liberalised) for ownership and management of metering equipment. The main conclusion of the report is that both models can work in practice. The suitability of a certain model will depend on system-specific conditions, and the decision about whether to include such tasks as a function of DSOs should be left to national authorities.

In principle, we agree with this conclusion but we wish to contribute to this discussion. In addition, CEER is committed to delivering a number of initiatives in 2013 which include comparing approaches to managing data from smart meters. In this context, we would like to draw your attention towards the following document: “the Guidelines of Good Practice (GGP) on Regulatory Aspects of Smart Metering for Electricity and Gas”⁶, and the current work that is expected for this year on “Status Review of Regulation on Smart Metering”.

4.3.2 Data handling

The report describes three models for data handling: (a) DSO based; (b) 3rd Party Market Facilitator; and (c) Data Access point Manager. The report concludes that the definition of specific data formats and cost recovery can be left to the EU Member States. However, it recommends that at EU level a minimum set of requirements for data provision, storage and privacy should be defined (independently of the selected data model(s)).

As we set out in our key issues section, we believe that (NRAs within) the different EU Member States are well placed to decide which is the most cost effective arrangement for data management.

However, we consider that there should be an initial list of the following high-level principles:

⁶http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Customers/Tab2/E10-RMF-29-05_GGP_SM_8-Feb-2011.pdf

- it is of fundamental importance to have a good interface between the existing data hubs to enable cross-border activity. This is fundamental to allow the treatment of data from different countries, which might possibly have different models in place;
- the data interface should be shaped according to clear and transparent rules;
- the operator managing the data shall act as a market facilitator in a neutral and non-discriminatory manner as well as an enabler for energy-services;
- network operators must have access to data they need for ensuring the network performance (e.g. safety, security, planning) in line with their legal obligations;
- any data management should be conducted in a secure manner and with respect for customer privacy;
- the models should be driven by high level of transparency, cost-efficiency and along interest of customers;
- a model should be as much as possible open to both centralised and decentralised approaches, in order to best meet the specificities of the market design and conditions across Europe; and
- customers should be in control of their basic data and should always be in control of and have access to their data in a simple and reliable way without any additional costs.

We would also like to make a very important additional point. Different discussions have drawn comparisons with the way markets operate to provide innovative services to customers in other sectors (e.g. telecommunications, banking). We believe that it is helpful to look outside the electricity sector to find market models that challenge the status quo. However, we stress that no other market is as physically interconnected as the electricity system, requiring the continuous balancing of supply and demand. Maintaining the system's security and integrity should not be compromised by market arrangements and any new market models should be considered against this primary requirement.

Furthermore, CEER will contribute to this effort through the CEER Benchmarking report on Meter Data Management Case Studies⁷, and the ongoing work on Data Management for Better Retail Market Functioning that will provide advice on these issues along this year and in 2014.

4.4 DSO and TSO roles

The traditional role of the DSO has been confined to network asset planning and operation. TSOs are responsible for long-term transmission planning and grid development which entails balancing the network and ensuring short run supply security.

The report highlights the potential for DER to provide short term and long-term TSO and DSO services. The report argues that the DSO should be able to access services with economic value from DER such as network congestion management, voltage control, system recovery. This can be used to optimise grid operation or expansion and more importantly avoid or postpone investments. We agree that the DSO should be able to access these services if they are the agents who will draw the most value from them. However, there are certain areas in which both TSO and DSOs will want access to the same resources such as congestion relief.

⁷http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Customers/Tab3/C12-RMF-46-05_BR_MDM_07Nov2012.pdf

We support the view that DER should be allowed to compete on equal terms with agents that currently provide system operators with ancillary services. The report recommends that a clear product definition for the use of DER in DSO and TSO operations is needed specially since there is no current regulation defining how DSOs can engage in the use of DER. There is a need for clear coordination among the parties in cases where they can access the same service.

The report calls for procedures and principles of coordination between DSOs and TSOs to be defined at European level in order to avoid barriers to market entry and allow competition.

Coordinated efforts are underway in order to define and limit the roles of TSO, DSOs and other affected parties. Directive 2009/72/EC concerning common rules for the internal market in electricity (Third Package) set objectives for the integration of increasing low carbon generation, the secure operation of European power systems and the complete functioning of the internal market for electricity and cross border trade. The Third Package provided for the creation of legally binding European Network Codes (NCs) which are the chosen vehicle to deliver the changes in the energy system. The European Network of Transmission System Operators for Electricity (ENTSO-E) is currently developing European Network Codes in line with the Framework Guidelines produced by the Agency for the Cooperation of Energy Regulators (ACER). The work on the Codes has brought together DSOs, TSOs, generators, suppliers and other stakeholders.

As highlighted in the key issues section above, we believe that the emerging new electricity value chain goes further than the DSO/TSO relationship. We recognise the key role the DSOs and TSOs play in grid planning and management. However, we believe more consideration should be given to new market players within the chain and the relationship between consumers and all these new players. In this respect, CEER has been progressing some important work examining the DSO functions in relation to markets, including the GGP on indicators for retail market monitoring⁸ (focusing on market conditions and DSO services), the CEER status review of their implementation as of 1 January 2012⁹, and our ongoing work on “Regulation of the quality of the DSO services: advice from a consumer/prosumer perspective”.

⁸http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Customers/Tab1/E10-RMF-27-03_final%20GGP%20IRMM_12-Oct-2010.pdf

⁹http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Customers/Tab3/C12-RMF-46-03_RMI-SR_03-Sep-2012.pdf

Annex

Further, more detailed comments

- Page 19, “That employing DER can lead to overall cost savings for DSOs is also confirmed by Cossent (2010),...”: sentence difficult to read/contradictory
- Page 4, “(e.g. in Austria, air conditioning is mainly used during night times ...): maybe instead of “air conditioning” is meant “electric heating systems” or “water heating”?
- Page 11, figure 3: in the Netherlands all grids ≥ 110 kV are operated by the TSO.
- Page 12, table 1: there is only 1 TSO in The Netherlands and 8 DSOs.
- Page 12, Figure 5 / Table 1: data from year 2012 vs. 2010
- Page 40, Footer 27, Austria (and remark p. 43): curtailment for security reasons is allowed in Austria
- The savings in total distribution costs are limited and depending on the local situation including network topology and technology – as written in the referenced paper: “... Most of these savings correspond to the lower transformation capacity that is required... and further ... This huge savings are basically due to the wide variety of response options considered and the extreme planning assumptions considered for the BAU situation. Note that under the BAU situation it had been assumed that DG, whose penetration levels were very high, did not produce at all at peak load hours whereas all units were producing at rated capacity in local valley hours”. To avoid misunderstandings within Figure 8, this should be more detailed clarified or deleted.