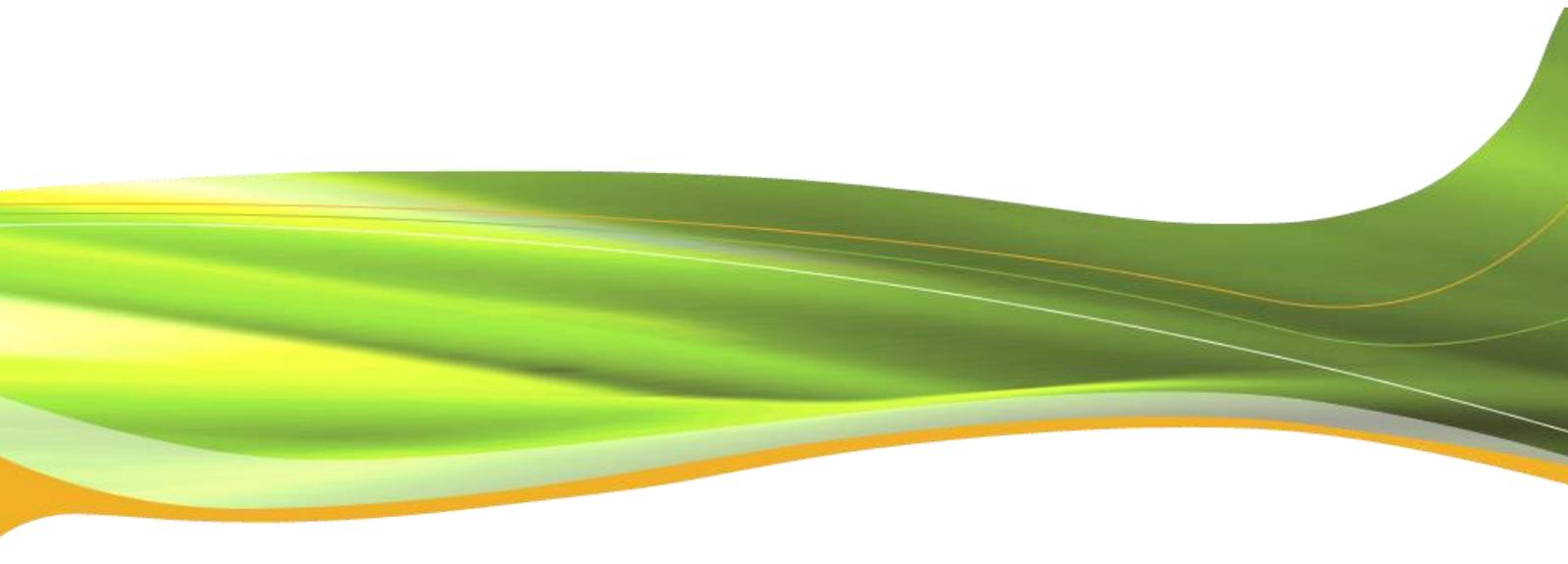


European Distribution System Operators for Smart Grids

Response to CEER/BEUC questionnaire on the
Implementation of the 2020 Vision for Europe's
energy customers

May 2014



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Background

The [2020 Vision for Europe's energy customers](#), developed by the Council of European Energy Regulators (CEER) and the European Consumer Organisation (BEUC) in 2012, is characterised by four principles governing the relationship between the energy sector and the variety of its customers. These four principles are the basis of the work that European energy regulators prepare through CEER.

The RASP principles represent a vision of the internal energy market. A market in which consumers can expect the reliability of both the physical supply of energy, and the commercial systems supporting them (**Reliability**), where charges are clear and kept to fair and reasonable levels for all customers, reflecting value for money (**Affordability**), where information is provided to customers such that it is easy for them to understand their bill and better manage their energy consumption (**Simplicity**), and where consumers are protected from unfair commercial practices and have the possibility to participate actively in the market (**Protection and Empowerment**).

EDSO is an official supporter of the Vision and RASP principles, and as such was invited by CEER to respond to a questionnaire aimed at identifying the steps being taken towards their implementation. Below you will find EDSO's response to these important questions.

1. Do you consider that any of the RASP principles better reflect the work undertaken by your association, or that of your members, more so than any of the other RASP principles?

All four principles are very much in line with the work within EDSO and its member companies. The whole development of smart grids is based on the four principles:

Reliability – Security of supply & quality of service are the DSO’s core responsibilities

Since security of supply and quality of service are the *core* functions of the DSO, Reliability is probably the principle that the DSO is the most strongly linked to. Our society is increasingly dependent on a secure and stable supply of electricity. Ensuring this for consumers has never been straight forward, and is becoming increasingly challenging as a result of Europe’s climate and energy agenda, but also internal market objectives.¹ More specifically, security of supply is increasingly challenged by the growing amount of distributed generation connected to our networks and which generates new kinds of constraints for the grid.

DSOs across Europe have turned to smart solutions involving two way communications, sensors, remote control and automation to help manage the less predictable flows of energy against demand (including new demand like electric vehicles). These new technologies will also allow for unexpected outages, caused by severe weather for example, to be located, isolated and in some cases even fixed remotely. Together, these solutions are part of what are commonly referred to as smart grids.

Affordability – Smart grids are the cost-efficient way to ensure reliability

The whole basis for going with smart grid solutions is cost-efficiency. Simply burying more copper in the ground, the business as usual approach, is extremely expensive and not sustainable (consider the cost of copper, road works, planning procedures, etc.). Smart grid technologies, accompanied by the possibility to trigger reactions from high consumers and producers connected to the grid in emergencies, will allow DSOs to ensure reliability of service through active management instead of the antiquated resource- and cost-inefficient grid reinforcement.² Moreover, smart grid solutions, as explained in more detail under the “Protection and Empowerment” section below, enable the development of innovative services for customers that might also result in cost savings for end users.

Simplicity – A work in progress

This may be the most difficult principle given the complexity of the energy market, costing and how this engages with smart grid technologies and incentives for consumers to engage. Having said that, DSOs in many member states, through the roll-out of smart metering, where appropriate, have already contributed to the simplification of consumer bills by facilitating billing based on real energy use. The main benefit that smart metering and related interfaces could offer everyday consumers, namely using energy more wisely based on regular and accurate consumption data provided to them with high frequency and in an easy and accessible way, could do with being made simpler. DSOs are in the process of deciding what the best course of action is in this respect, considering also how this will fit into tomorrow’s future energy market set-up. Much will depend on decisions taken by the EU, member states and national regulators on how energy pricing and future regulatory frameworks will

¹ [EDSO comment on the European Commission Climate and Energy Framework to 2030](#) (February, 2014)

² [EDSO response to European Commission consultations on draft state aid guidelines for energy and the environment and a Union framework for state aid for research, development and innovation](#) (February 2014)

look. Despite the abovementioned uncertainty, as the 2013 [Smart Grid projects in Europe: lessons learned and current developments](#) report from the JRC showed, and as echoed in a resulting [study](#), DSOs are taking the leading role when it comes to smart grid engagement strategies, which currently strongly focus on the residential sector. Smart meters can also help to detect interruptions remotely, and as mentioned above, accompanied by sensors, controls and switches on the grid, can be used to isolate and sometimes fix problems remotely, thus reducing the negative impact on the consumer and simplifying the process for them.

Protection and Empowerment – A cornerstone of smart grid development

Empowering the consumer is one of the cornerstones of smart grids development. Smart metering, where rolled out, can play a crucial role here. Smart metering will not only allow for accurate billing and real-time insight into energy consumption (facilitated by the use of innovative interfaces either through PCs, laptop, smart phone or a separate display in one's house). Eventually, by assessing consumption patterns over time, multiple "time of use" tariffs/prices/incentives, can be developed to equip consumers to make smarter choices that could save them money. Moreover, with the customer's consent, smart meter data can be made available by DSOs to third parties for them to provide innovative services to the customer, facilitating active participation in the electricity market. Where smart metering will not be rolled out, innovative incentive schemes are being developed to reward consumers for actions that favour grid stability and reduce network development costs.

Irrespective of roll-outs, citizens wishing to produce their own energy will, in most cases, need smart meters to, for example, connect their solar panels to the grid, empowering households to become active participants in the energy value chain ("prosumers") as well as empowering them to better contribute to a more sustainable future.

DSOs are very committed to the protection of customers' data. Security and privacy, identified by CEER in its consultation on data management as a core principle, will remain of utmost importance for DSOs.

2. What activities, relating to the Vision (or its principles), has your organisation undertaken since you became a supporter of the Vision?

As an EU association, EDSO is contributing every day towards the RASP principles through its efforts to speed up the development and deployment of smart grids in Europe. Activities in this direction range from direct involvement or coordination of EU-funded smart grid projects ([GRID+](#), [REserviceS](#), [Meter-ON](#) and [evolvDSO](#)) the facilitation of knowledge sharing between projects and dissemination of results, the production of position papers on key EU initiatives, many in the last couple of years focusing on the future of Europe's energy systems and market design, but also involvement in a number of smart grid related initiatives at European level³.

EDSO position on Flexibility

Among the most relevant EDSO positions to have been published since the launch of the 2020 Vision is EDSO's [paper](#) "Flexibility: The role of DSOs in tomorrow's electricity market", prepared alongside EDSO's [response](#) to the European Commission's Retail Market consultation this Spring. The main RASP principles linked to this issue are both reliability and

³ [EDSO brochure: Bringing smart grids from vision to reality](#) (October 2014)

affordability. The use of flexibility services from grid users, be they generators or consumers, by the DSO is crucial for *cost-efficiently* maintaining security of supply and quality of service in this new and more volatile energy system with increased distributed renewable energy.

DSOs being able to procure these services will allow for the faster integration of new distributed energy resources, including solar panels on household roof-tops (encouraging the development of 'prosumers', which supports the Empowerment principle), without having to spend as much on reinforcing grids with more and costly copper. In other words, better use could be made of the existing network by efficiently managing supply against demand on the grid instead of merely increasing the grids' capacity. Eventually, if demand increases significantly, or much larger generators wish to connect to the distribution grid, reinforcements will still need to take place. However, until then, unplanned and expensive works on the networks can be avoided. Planned reinforcements can always be carried out more cost-efficiently than unplanned ones.

Facilitation of smart grid knowledge sharing (GRID+, InnoGrid2020+, EDSO Projects Committee)

As indicated in the response to Question 1, there are many issues which remain up in the air in terms of how the future energy system will look and how DSOs will serve the European energy market, especially at retail level. This is why research, development and demonstration (RD&D) at European level is so important, especially if costs are to be saved by avoiding duplication of efforts (Affordability). The DSO sector is quite unique from most sectors when it comes to RD&D in that there is less need for secrecy in the name of competition. DSOs are willing and eager to share their knowledge on securing supply at the lowest cost while engaging and empowering the consumer in a way that is not too complicated (all four RASP principles), but how to go about this efficiently has been a challenge.

EDSO is a partner in the [GRID+](#) project (*October 2011 – September 2014*), designed to support the actions of the European Electricity Grid Initiative (EEG) and guide future EU spending on grid projects (Integrated Roadmap under Horizon 2020) but also to contribute to the JRC's extensive smart grid projects database. Knowledge sharing is a key element of the project, and an online knowledge sharing platform for smart grid projects, [GRID Innovation Online](#), has been developed for this purpose.

EDSO is also contributing to smart grid knowledge sharing between its member experts through its Projects Committee, but also externally with its annual [InnoGrid2020+](#) event, now in its third year and attracting more than 250 industry representatives, researchers, policy makers and regulators. EDSO has each year worked, with co-organisers ENTSO-E and the GRID+ Project, to increase the opportunity for knowledge exchange at the conference. This year, an exhibition of EU-funded smart grid projects ran for the duration of the two days, and a total of 5 hours was allocated especially to projects to present their results and ongoing work. The topics of the projects this year covered the spectrum of smart grid related issues, including those closely linked to ensuring the four principles.

For your information, below are short overviews of the other key EDSO projects of relevance, despite some having been launched prior to the 2020 Vision.

REserviceS project

April 2012 – September 2014

Affordability is the most relevant principle to apply to the EU-funded [REserviceS](#) project, which aims to establish whether economic grid support can be provided from variable renewables through ancillary services. In other words, can flexibility from renewable energy sources help to keep grid costs down. The [latest report](#) from the project shows the potential for DSOs of using these services to reduce costs, based on case studies performed in Germany, Spain, Italy and Portugal. In areas where the network is weak and the penetration of distributed generation is high, voltage control provided by variable renewable energy resources can bring a number of benefits for DSOs, generators and the society, including:

- Reduced operational and maintenance costs
- Increased hosting capacity of the networks for variable generation
- Deferred distribution capacity investments
- Reduced electrical grid losses
- Reduced outage times
- Reduced curtailment of variable generation.

Meter-ON project

July 2012 – June 2014

Launched just months before the 2020 Vision, but of increasing relevance to the principles of Protection and Empowerment in particular, the FP7-funded Meter-On project aims to deliver an extensive analysis of smart metering projects in Europe with a view to providing recommendations for roll-outs based on best practice. The project is based on results from a survey sent to a large number of DSOs in Europe covering different aspects of smart metering projects, including a set of questions related to protection and empowerment: current use of smart metering, policy for vulnerable customers, possibility to opt out etc. A first analysis shows that DSOs are progressively putting in place special policies and procedures for vulnerable consumers, such as reducing the capacity of contracts instead of disconnecting customers, so the lights and fridge stay on. Other DSOs, such as ERDF through their “Watt et Moi” project (more details under the answer to Question 3) are actively informing inhabitants of social houses about their energy consumption and raising awareness of their most energy consuming appliances. The project’s final report will be presented on June 26th 2014 at a [High Level Policy Conference](#) forming part of EU Sustainable Energy Week (EUSEW).

evolvDSO project

September 2013 – December 2016

The most recent of EDSO’s EU-funded projects, [evolvDSO](#) is designed to explore the methodologies and tools for DSOs’ roles (new and evolving)

which are developing as a result of the need for an efficient integration of distributed renewable energy sources into distribution networks. This project is of particular relevance to the general development of Europe's internal energy market, and quite holistically addresses all the main issues related to smart grid development and the RASP principles: cost-efficient security of supply, protection and empowerment of consumers (smart metering, incentive schemes, integrating 'prosumers'), but also to a lesser extent simplicity, as much as can be expected when the whole energy value chain is exposed to such uncertainty when it comes to how the future energy system could look.

3. Could you provide some real examples of the actions that you, or your members, have taken in delivering the aims of the Vision?

EDSO members have launched several projects over the years that contribute to the delivery of the CEER/BEUC Vision. Since, as explained above, the development of smart grids contributes to all four RASP principles, too many projects would be of relevance. Below, therefore, you will find details of just some of the most relevant or holistic *demonstration* projects which our members are currently involved in.

GRID4EU project

Duration: November 2011 – January 2016

EDSO members: ERDF (coordinator), CEZ Distribuce, Enel Distribuzione, Iberdrola Distribución, RWE, Vattenfall

Although this project also commenced before the CEER-BEUC Vision launch, it will continue until 2016 and is a remarkably holistic project addressing all the RASP principles. Six of Europe's largest DSOs and EDSO members, are running the largest smart grid demonstration project to date, involving demonstration sites across six member states. [GRID4EU](#) embodies a holistic approach to smart grid development, testing and aiming to provide replicable recommendations on numerous factors, including active, more efficient participation of customers in electricity markets. Part of the process will be a social behaviour assessment. By supporting the development of smart grids and discovering how best to engage consumers, the project is contributing to all four principles for the reasons stated under Question 1 of this questionnaire.

Jouw Energie Moment project

December 2011 – December 2015

EDSO members: Enexis

The [Jouw Energie Moment](#) project, managed by the Dutch DSO Enexis, commenced before the CEER-BEUC Vision launch, but is included here due to its clear support of the RASP principles, in particular Empowerment and Simplicity. The project focuses on providing consumers with

the right information to make the most of their PV systems, smart appliances and smart meters.

The results of the pilot project will help guide the development of future local energy systems in the Netherlands. In this project, residential customers produce their own energy using photovoltaic panels and have received a smart meter, an energy computer and a smart washing machine which communicates with the energy computer. The objective is to better understand how willing consumers are to use electricity in a flexible way and how to incentivise them to do so. Different options to manage electricity consumption are possible, for instance: participants can use the washing machine or other appliances at times when the photovoltaic panels produce energy or when energy costs are low. The different options enable different consumers, driven by different motivations (environmental or cost) to use their appliances in the way that suits them the most. The pilot projects started in 2013 and will last until December 2015.

Watt et Moi

May 2012 – May 2014

EDSO members: ERDF

In this project, ERDF partnered with the housing public office of Lyon (Grand Lyon Habitat) to experiment a secure website for one thousand tenants in social housing, giving them access to detailed information on their household energy consumption. This project strongly relates to the principle of protection and empowerment with a two-fold aim: display electricity usage, allow users to modify their consumption behaviour while helping them to gain familiarity with the energy usage data provided by the smart meter.

ADVANCED project

December 2012 – December 2014

EDSO members: Enel Distribuzione (coordinator), ERDF, RWE, Iberdrola Distribución

The FP7-funded [ADVANCED](#) project, involving four EDSO members, is focused on active demand value and customer experience discovery. Leveraging on the empirical data and lessons learnt in real Active Demand (AD) experiences, it aims to develop actionable frameworks enabling residential, commercial and industrial consumers to participate in AD. The benefits of AD for the key stakeholders and the inherent impacts on the electricity systems (considering its potential contribution to system stability and efficiency) are to be quantified taking different scenarios into account. This will be achieved through comparing the different AD solutions applied in Europe and enhancing them by the investigation of socio-economic and behavioural factors with direct involvement of real consumers. On this basis, key success factors of AD and recommendations for the future design of AD programmes will be derived.

SuSTAINABLE project

January 2013 – December 2015

EDSO members: EDP Distribuição (coordinator), HEDNO

The FP7-funded [SuSTAINABLE](#) project is focused on leveraging information from smart meters and short-term localised predictions to manage distribution systems in a more efficient and cost-effective way (Affordability and Reliability). A multi-objective decision-making scheme will be designed to keep network voltage inside operational constraints, minimise distributed generation energy spillage related to network constraints, minimise operational expenditures related to high reliability and continuity of service for loads and generators, minimise ageing of automatic tap changers subjected to sudden variations of power flows, and maximise the balancing and ancillary services to be provided to TSOs when necessary.

DISCERN project

February 2013 – February 2016

EDSO members: RWE (coordinator), Iberdrola Distribución, Unión Fenosa Distribución, Vattenfall

The basis of the overall concept of the FP7-funded [DISCERN](#) project is to utilise the experience of major European DSOs with innovative technological solutions for a more efficient monitoring and control of distribution networks. The complementary nature of the demonstration sites with regard to the specific challenges, as well as technological and operational solutions, serve as the main resource of DISCERN. One of the tangible results of the project will be the determination of optimal levels of intelligence in the distribution network to maintain the security of supply (Reliability).

Promoting Energy Efficiency in Households project

April 2013 – April 2018

EDSO members: Sadales Tikls

The [Promoting Energy Efficiency in Households](#) project (translation) involves 500 households in Latvia, where smart electricity meters are being introduced and the opportunity for each household to access detailed information about their electricity consumption through a customer portal and receive advice on the necessary energy efficiency measures. The project is expected to evaluate the potential of smart metering systems, consumer behavioural change and promote energy efficiency.

iGreenGrid project

June 2013 – December 2015

EDSO members: Iberdrola Distribución (coordinator), Enel Distribuzione, RWE, Unión Fenosa Distribución, ERDF, HEDNO

The [iGreenGrid](#) FP7-funded project focuses on increasing the hosting capacity for distributed renewable energy sources without compromising the reliability or jeopardising the quality of supply. By itself, and according to the criteria already mentioned above, it already addresses

all RASP principles and in particular, Reliability. The project is, however, the latest addition to a much larger project, potentially one of the most integrated and real-life smart grid projects so far: the [Smart Grids Model Region \(SGMR\) Salzburg](#). SGMR incorporates 23 projects aiming to address five central elements of smart grids, one being the integration of residential customers.

4. What activities do you plan to undertake in a near future that will aim at putting consumers at the heart of the EU internal energy market?

As indicated in the answer to Question 1, EDSO is always working on the development of smart grids. In terms of new projects under Horizon 2020, EDSO is part of a number of project proposals under the most recent ENERGY call, details of which will be shared after the selection phase. Below you will find some of the most imminent other activities that will contribute to the RASP principles.

DSOs as consumer Data Managers

This summer, EDSO will release a report on Data Management which lists the criteria DSO believe should be taken into account when setting up a data management system for customers' consumption data from smart metering. All of these criteria are in line with the RASP principles:

- Easy access to the information needed by each agent (Simplicity)
- Robust implementation & control of data use (Protection and Empowerment)
- Guarantees for non-discriminatory data storage and processing (Protection and Empowerment)
- Simplicity and robustness (Reliability and Simplicity)
- Lower possible cost for consumers (Affordability).

EDSO-ESMIG consumer information campaign

Smart grids and meters are not easy concepts to understand from the point of view of the average consumer without appropriate and targeted information. There is a lack of easily accessible information in simple terms that is not from individual DSOs, many of whom have undergone their own consumer awareness campaigns, particularly for smart metering (eg. Endesa's telegestion [info-video](#), or Energa Operators [info-video](#)).

EDSO is currently working with the European Smart Metering Industry Group (ESMIG) on a project designed to provide the average household consumer in Europe with a place where they can learn more about smart metering and grids in simple and accessible language. This will initially be through a mini website that will explain what smart grids and meters are, the potential benefits for them of engaging with them, but also for society and the environment. More than that, the two associations have researched common concerns and myths associated with smart systems and will, through the site, aim to address some of these. The idea is also to provide go-to points for more information about what is happening in their member states.

The project will therefore contribute, in first place, to the Empowerment principle, and if developed appropriately, will also contribute to the Simplicity and Affordability principles too. The main ideas for this site are to be presented for consultation at the EU Sustainable

Energy Week (EUSEW). EDSO and ESMIG, believe it would be beneficial to have the opinion of the regulators and consumer organisations, with a view to ensuring the site will be fit for purpose. In the long-term (should the campaign be considered valuable, and additional financial support can be gained for its development), the idea is for it to be translated into other European languages and to contain more targeted information for different countries. Its use can then be developed, offering for example useful materials for local authorities and even national governments to make the most of the opportunity around roll-outs to help consumers understand how they can derive the best from these technologies while contributing to the community's sustainability goals.

We, therefore, strongly encourage CEER and BEUC to attend our [High Level Policy Conference](#) on June 26th and contribute to making this a worthwhile tool.



EDSO for Smart Grids is a European association gathering leading Electricity Distribution System Operators, cooperating to bring Smart Grids from vision to reality.

www.edsoforsmartgrids.eu