EDSO for smart grids (EDSO) response to ERGEG's Public Consultation Paper on Draft Guidelines of Good Practice on Regulatory Aspects of Smart Metering for Electricity and Gas

EDSO welcomes ERGEG initiative in drawing up its draft guidelines of good practice on Smart Metering.

In Europe National Regulators and DSOs are currently in the process of implementing the requirements set by the recently adopted 3rd Electricity Directive.

Smart Metering is the technology that can substantially enable electricity customers to become active participants in the market, to promote energy efficiency and will enable to Smart Grids development for a more efficient distribution grid management integrating renewable energy sources.

EDSO fully supports ERGEG view, already expressed in the ERGEG Position Paper on Smart Grids, that even though smart metering is the mainstay for smart grids, the scope of smart grids is larger than smart metering.

Regarding smart metering functionalities, EDSO agrees with ERGEG Smart Grids Position Paper when assuming that some smart grids technologies are impossible to develop without smart meters (e.g. active participation of customers).

EDSO strongly supports the approach chosen by ERGEG in clearly separating essential functionalities from optional functionalities and EDSO fully agrees that setting the minimum requirements is a correct starting point for harmonisation of Smart Metering in the European market, since building too many functionalities into the meter may actually make it harder to upgrade services in the future.

Given the cost of a massive roll-out, the installed smart meters should be “future proof” with a hardware lifetime of at least 15 years.
Additional functionalities should be implemented by software upgrades.
These software upgrades should be a reliable, secure and stable process, requiring a state of the art technology in the Smart Meters system.

This software upgrades must be possible in the field without a new calibration of the meter.

With reference to actual legislation on Smart metering the Directive on Measuring Instruments (MID) establishes the essential requirements and functionalities of measuring instruments.
These requirements have been further developed and integrated with new functionalities in Mandate M441 issued by European Commission.

EDSO fully appreciates that ERGEG has been conducting an active watching brief on the draft smart meter functionalities developed under the Mandate 441 and envisages the European Commission to issue a new Directive On Measuring Instruments, that embodies also the M441 provisions.

According to EDSO ERGEG paper is a further step to individuate the above requirements and contributes to the design of a smart metering framework.

General comments

Before commenting in more detail the draft guidelines drawn up by ERGEG, EDSO would like to take the opportunity of this consultation to emphasize some key elements which EDSO feels should be considered during the smart metering roll-out phase.

Investments and the need for standardisation are critically interlinked.

The roll-out of Smart Meters in the European Union will imply large investments.

EDSO thinks it would be useful to look at countries where Smart metering roll-out phase is completed (Italy, Sweden) or countries like Spain where some DSOs have started mass roll-out of Smart metering and where National Energy Regulators are to play an important role in ensuring a fair balance between minimum requirements and the need to minimise costs.

EDSO recognise that to facilitate the goal of 80% target in 2020 the following should be addressed:

- Standardisation of Smart Meters (see M441)
- Mandatory installation in order to achieve a 100% accessibility of the meter installation.
- Overcome privacy issues
- Support different tariff rates

EDSO recommends that ERGEG strongly supports the development of standards for smart metering that will be crucial to increase cost-efficiency and improve competitiveness in the market.
In this regard, EDSO is looking forward to the results of the cost-benefit analysis required in the European Directive 72/2009 and encourages ERGEG to define a common procedure to be applied in all member states. Thus, and once that cost vectors and benefit vectors have been identified, member states could use the same approach for the economic evaluation of smart metering.

EDSO advises ERGEG to take into account the results from CENELEC TC 13 WG02, whose main objective is to establish standards and technical reports as mandated by the smart metering standardization mandate M/441 of the EC for requirements, use cases, data models and communication technologies and protocols related to electricity metering.

In the same way EDSO recommends to take advantage from relevant smart metering initiatives such as OPEN Meter project (described in Annex 2) and open non-profit associations that promote standardization of communication technology and protocols of smart metering solutions, like the DLMS User Association, PRIME Alliance and METERS AND MORE.

Comments to ERGEG Recommendations on minimum customers services - electricity

Recommendation 1. Information on actual consumption, on a monthly basis

EDSO agrees that the customer should be frequently informed of his/her actual energy consumption. The smart meter should provide customers this information to customers monthly.

EDSO thinks that informing the customer about his/her energy consumption will be crucial to incentivising the customers to actively participate in the market and be more energy efficient.

The information should be delivered by the Supplier in a cost- effective and standardised way, for example by using a web portal, not necessarily through the use of an in-house display. Customers should be able to choose the feedback device they prefer.

Any information beyond the standard should be charged and allow the remuneration of gathering and managing the information.

As it is obvious that smart metering can provide some savings to the agent that is responsible for meter operations, it is also clear to us that many of the new costs have not been quantified yet, so the uncertainty about the net result, in economic terms, still exists. This is why we understand that, until such assessment takes place, the term “free of charge” should be avoided. It is also understood that the destination of the consumption monthly information is the supplier, which in turn will forward this information to the final consumer.

When the DSO gives the consumption information to customers (e.g. online), he is unable to give the energy cost information as the DSO does not manage this data. Similarly: if a supplier is obliged to give monthly cost information to customers, in many countries he can only give the information related to energy cost not network service costs.

EDSO believes that optimising the use of electricity and increasing customers’ participation in the market requires the use of flexible and adjustable time-of-use and block tariffs. Hourly meter reading for specific groups of customers should also be reached in the long run when implemented in a cost effective way.

Meter readings with a shorter frequency will undoubtedly be expensive. Financing rules for meter readings with shorter intervals should hence be defined in the medium term by all stakeholders involved in the Demand-Side-Management process.

If a 15-minute meter reading will be necessary for supporting future processes such as Forecasting Demand Side Management, Grid management, this could be effectively done at customer level, if a cost effective solution is available . If this is not the case then other solutions have to be found at MV/LV substation level installing a meter that measures all the energy injected in the low voltage network.
For “future bidding processes” the analysis could be done by analyzing the load profile measured by the meter and reading it, every 15 minutes, if possible with a smart meter solution. Other frequencies, for example monthly meter readings could give an acceptable solution.
For “future bidding processes” the analysis could be done by analyzing the load profile measured by the meter and reading it, for example, every month.

Furthermore the needs of Plug in Electric Vehicles should be done considering the development of this market.

Recommendation 2. Accurate metering data to relevant market actors when switching supplier or moving

EDSO supports this functionality and feels that remote reading should definitely be a minimum requirement for the new meters to be installed; it is cost efficient, accurate and environmentally friendly.
EDSO strongly recommends that there should be only one entity responsible of the reading and of access to metering data. In general, the most cost efficient model is that the DSO is responsible for the meter installations, reading, management and data access, even though in different countries other models have been already established by the Regulators.

Recommendation 3. Bills based on actual consumption

EDSO strongly envisages that customers should receive accurate bills based on their actual consumption.

Nevertheless, although the performance of smart metering solutions are expected to be close to 100%, it is not always the case. There could be occasional malfunctioning meters, faulty communication modems and disturbances in the telecommunication service provided by the operator, which might request occasional estimates, both for billing and wholesale reconciliation purposes. So we would like to have this recommendation rephrased so that *bills should reflect consumer's actual consumption, unless exceptional circumstances apply*.

Recommendation 4. Offers reflecting actual consumption patterns

It is important to consider as a general rule, that the greater the level of data detail is the higher the costs are to provide the service. These would have to cover data collection, storage, processing and transmission costs."

EDSO supports the recommendation that the load profile is a basic functionality, but we need a clear framework for data security.
In some countries such as Austria, the load profile caused additional costs. This requires a national calibration. It would therefore be a prerequisite that the calibration of the load profile will be included in the MID.

Time of Use (ToU) registers needs to be defined. At present times, in the countries where it is in force, ToU interval metering is not very narrow, since Time of Use tariff is mainly based on time (night/day, winter/summer season etc..)
In the future, flexible ToU and block tariffs should be offered, wich allow the customer to adjust his/her consumption.

In the future, hourly metering values and settlements could be offered additionally as an optional chargeable service to the domestic customers, offering similar information that is already available to industrial customers. Managing load curves with higher frequencies is hardly feasible for mass deployment.

EDSO considers that ToU registers offer a good compromise, in terms of volume of data to be collected, managed, stored and forwarded to suppliers, between one single monthly value and hourly values. Taking the example of a 2 or 3 ToU register programmable smart meters, suppliers could create competitive offers based on actual consumption managing 60 or 90 monthly energy values. ToUs registers hold consumption information in great detail as opposed to 1 single monthly value, but without the costs associated to 720 hourly values.

In the future, a 15-minutes meter reading could be foreseen (even if not for all the customers), since a lot of (market) processes are relied to this 15-minute value, such as Forecasting, Settlement, Peak consumption.

The increasing number of local productions will change drastically the consumption pattern. This means that the price levels and also the periods of high and low consumption will change. Flexibility in the register choice and consequently flexibility of the Smart Meters should keep all possibilities open.

Anyhow an adjustment of the M.I.D. is necessary.

Recommendation 5. Power capacity reduction / increase

EDSO thinks that in the future, Demand Side Management mechanisms will be essential to enhance Europe's energy efficiency. Incentivising the energy use in given period or shifting the energy use in off-peak times will hence play a key role and Smart Meters should be able to perform these services.

Reduction of capacity and reduction of consumption should be enabled by the Smart Meter connected to the Smart Home Network. These Functionalities have been implemented in Italy and Spain where the reduction and the increase of power capacity are remotely operated.

EDSO foresees that the distinction between load management for end-user energy efficiency purposes and load management for an enhanced operation of the grid is made.

Recommendation 6. Activation and de-activation of supply

EDSO agrees on the remote activation and de-activation of supply. This should be part of the minimum requirements of the smart meters as it strongly supports operational efficiency.
EDSO envisages specifically in the activation, that the system enables the customer to activate through an act expressing his/her will (e.g. switching on the breaker), but avoiding "automatic" activation.
The remote de-activation should also be implemented to ensure revenue protection for supply companies in case of exposed customers.

Recommendation 7. Only one meter for those that both generate and consume electricity

EDSO agrees that one bi directional meter is sufficient also for those customers who produce electricity as the modern meters can register both injected and consumed energy. Since the meter should be part of the DSO network, specifications on the functionalities of the meter should always be approved by the DSO. Standardisation of meters and metering could solve this issue from both DSO and customer perspective.

A single meter for those that both generate and consume electricity implicitly determines that the net balance consumption-generation is in fact charged or remunerated. This may be incompatible with national law whenever feed-in tariffs are applied to gross generation and not to the net generation balance (e.g. as it is the case in Italy and Portugal). In those cases, separate metering for generation and consumption is required."

Recommendation 8. Access on customer demand to information on consumption data

EDSO considers that there should be a distinction between the direct access to **basic data** – extracted from the meter, that should be provided free of charge - and access to **advanced data checked and elaborated** by DSOs that can be provided through a fee.

For the reasons explained in the comment to recommendation 1, EDSO would like to stress the costs associated to providing on demand access to information or consumption data. The appropriate management of high volumes of data, and the data security and privacy provisions that need to be put in place require additional investment. Therefore, we would like to replace the phrase *this service may be subject to a fee* by the phrase *this service will be subject to a fee*. Alternatively, in case ERGEG decides to leave this possibility for Member States to be considered, we would like ERGEG to redefine this service so that it is no longer considered as a minimum customer service, but rather as an optional customer service instead.

The DSO should be responsible for supplying the customer consumption data to the customer via a standard interface; feedback of consumption data can be given through different channels:

- Letter, email or bill
- WEB-portal:
- Digital TV set: (= existing display unit)
- PC, mobile or smart phone
- In home Display unit

In any case, EDSO considers that the service "access on customer demand to information on consumption data" should be classified as "optional" service, since it depends on the legal framework and economic environment of the DSO and country it belongs to.

Comments to suggested optional customer services

Recommendation 9. Alert in case of non-notified interruption

EDSO supports this recommendation, but it must be considered that the information could not reach 100% of the customers, due to technical reasons.
An "immediate" receipt of information about grid errors ask for real time communication, which is not always cost effective.

Recommendation 10. Alert in case of high energy consumption

As this functionality could arise privacy problems, it should be optionally chosen by the customer.
This functionality is coherent and useful to implement Demand Side Management.
EDSO does not agree on the possibility for the customer to receive information on costs as the DSO in a liberalized market does not know the prices agreed between the customer and the supplier (see comments on Recommendation 1).
There is already a limitation because of the capacity limit (recommendation 5).
An alert could be developed when there is a sudden increase of the consumption duration (in hours).

Recommendation 11. Interface with the home

A customer interface can be provided. It is necessary, that this interface is standardized in Europe (inclusion in the mandate M/441).

A standardization in this area is welcome. The Smart Meter cannot support all physical interfaces. There is only one gate, and therefore one interface. M441 should give a definite answer.

Recommendation 12. Information on Voltage Quality

EDSO does not fully support this optional recommendation, since the Smart Meter cannot be considered an instrument fully compliant to IEC 61000-4-30.
The Smart meter can detect Voltage quality characteristics such as Voltage interruption or voltage variation, according to EN50160 but cannot be considered a tool to measure the compliance to IEC 61000-4-30.

In a lot of cases the meter is not installed on the place where the DSO has to guarantee the power quality. There could be also disturbances between the connection point to the low voltage grid and the meter. In these cases the information about the power quality could be wrong.

Recommendation 13. Information on Continuity of Supply

EDSO supports this optional recommendation

In a lot of cases the meter is not installed on the border between customer and DSO responsibility. In this case the information could be wrong. (see comments on recommendation 12).

With reference to the Question 13, other services for alerting or for becoming active actors in Smart Grid could be:

- Forward load diagram
- Forward load diagram analysis
- Simulations with local productions
- Forward local productions results + need of cleaning solar cells
- Individual RUE (Rational Use of Energy) measures

Comments to other recommendations

Recommendation 14. When making a cost benefit analysis, an extensive value chain should be used.

EDSO supports this recommendation. Cost-Benefits Analyses which would only focus on the benefits of Smart meters for DSOs, ignoring benefits for suppliers (Better Forecasting, More services), customers and society as a whole should not be conducted.

Recommendation 15. All customers should benefit from smart metering

EDSO supports this recommendation, but only on the condition, if economically justifiable

There should be no discrimination when rolling out smart meters. There should be no discrimination within equivalent customer classes (e.g. based on power capacity or demand), particularly with respect to the answer provided to recommendation 16.

Recommendation 16. No discrimination when rolling out smart meters

EDSO supports this recommendation, but only on the condition, if economically justifiable.

There should be no discrimination when rolling out smart meters. There should be no discrimination within equivalent customer classes (e.g. based on power capacity or demand), particularly with respect to the answer provided to Recommendation 15.

GAS

Recommendation 17. Information on actual consumption, on a monthly basis

In the case of gas it should be clearly stipulated which consumption unit is taken into consideration:

- In m^3.
- In kilowatt-hour. Then the calorific value should be known. Sending these data to the meter charges the system.

Recommendation 18. Accurate metering data to relevant market actors when switching supplier or moving

Also here the use of a database with a quarter- of hour-value is sufficient to put the correct data at disposal.

Recommendation 19. Bills based on actual consumption

Defective meters and fall out of the data communication connections can be the cause of data loss and subsequently of (small indeed) estimations.
These incidents should be kept minimal by:

- Solid meters with a small fall-out (<1%) which keep minimally 1 month consumptions in memory.
- Fail save data communication system.

Recommendation 20. Offers reflecting actual consumption patterns

a) For gas hour-values are sufficient
b) Keeping the hour-values allows flexibility in the use of “time of use” (T.O.U.)

Recommendation 21 Access on customer demand to information on consumption data

Feedback of consumption data can be given through different canals:

- Letter, email or bill
- WEB-portal
- Digital TV set: (= existing display unit)
- PC, mobile or smart phone
- In home Display unit

Recommendation 22. Hourly flow capacity reduction/increase

A gas meter can only operate in an "open" or "closed" position. Otherwise the gas pressure cannot be kept stable. The capacity can only be reduced by closing the meter after a defined consumption. The problem of the life span of the gas meter's battery for the power supply of electronic data communication mechanism and for the power supply of the motors for steering the valves is not yet resolved. Also the safety procedure when "opening" should be defined.

Recommendation 23. Activation and de-activation of supply

See Answer to Recommendation 22.

Recommendation 24. Alert in case of high energy consumption

The right algorithm has still to be specified.

Recommendation 25. Interface with the home

Given the fact that the information of the gas meters is sent to the communication module of the E-meter, the gate way can also be connected to the E-meter.

Recommendation 26. When making a cost benefit analysis, an extensive value chain should be used

See Answer to Recommendation 14.

Recommendation 27. All customers should benefit from smart metering & 28. No discrimination when rolling out smart meters

See Answer to Recommendation 15 & 16.

Recommendation 29. Customer control of metering data

It is necessary to clarify if the recording of the load profiles without the consent of the customer is allowed. The requirements for data security must be a part of this document.

EDSO agrees that it is the customer who chooses how the measuring data will be used and trough which party in case of commercial purposes.
However as network operator it is always necessary to have control of sufficient measuring data without the agreement of the customer. The legislation for protecting the private life should be respected.

Recommendation 29. Data security and integrity – electricity and gas

Privacy is another issue that must not be disregarded. As an example, it should be noted that the more data is available to suppliers and ESCOs, the more competitive and tailored are the contracts proposed to customers and the more benefits could be derived. Similarly, if access to load diagrams by the DSOs is restrained, some of the benefits stated in the consultation document no longer apply, particularly those concerning network planning and operation. However, providing data with a greater detail may be incompatible with privacy rights.

Balanced solutions must therefore be found. For instance, when providing data for energy balance settling purposes to suppliers, rather detailed data (based on short

metering intervals) could be made available in an aggregated form, by supplier, so that individual customer privacy issues are safeguarded .

Also, regarding the establishment of digital data flow channels between the DSO and smart meters, it should be highlighted that the security of the information systems needs to be strengthened and further investment is required in order to prevent malicious access and its consequences for data and network operating systems.

In addition to our comments to ERGEG recommendations, please find below our answers to the questions included in the document.

4. a) When interval metering is applied, which interval should be used for customers and those that both generate and consume electricity? Please specify timeframes and explain.
1. Less than half an hour
2. Half an hour
3. One hour
4. More than one hour

We understand that the interval to be chosen should correspond with the interval used in the wholesale market. This may differ from country to country.

4. b) When Time-of-use (ToU) registers are applied for customers and those that both generate and consume electricity, what would be an appropriate number of registers? (Comment: In this case, registers are equivalent to prices)

It is envisaged that up to three periods of time (peak, normal, off-peak) could be applied during the day, with differentiation between weekdays and weekends, hence a maximum of six registers should be established. We would not recommend a higher number of registers as residential customers may encounter problems understanding more complex time-of-use tariffs.
As much as the maximum number of registers, a maximum number of changes between registers during the day is considered to be an important parameter for the design of new smart meters. Therefore we suggest to add this concept to the recommendation and that the maximum number of changes between registers during the day is limited to six.

Recommendation 13. What further services should be envisaged in order to allow consumers and those that both generate and consume electricity to be aware and active actors in smart grids?
A simple and inexpensive mechanism to register duration of interruptions and the number of such interruptions is considered to be appropriate for residential customers. Measurement of other quality of supply parameters, such as harmonics, is outside the scope of smart metering for residential customers.

Recommendation 20. a) When interval metering is applied, which interval should be used for customers? Please specify and explain.
- One hour
- One day
- One week
- Other

In favor of symmetry between electricity and gas markets, we would suggest to use the same interval as the one proposed in our response to recommendation 4, which is one hour.

20. b) When time-of-use (ToU) registers are applied for customers, what would be an appropriate number of registers? (Comment: In this case, registers are equivalent to prices)

In favor of symmetry between electricity and gas markets, we would suggest to use the same number of registers as the one proposed in our response to recommendation 4, which is six.

We acknowledge the differences between wholesale gas and electricity markets, but as one of the drivers to mandate smart meters is energy efficiency, and as gas bills can be as relevant to the residential household expenses as electricity bills are, we understand that the same requirements should apply. This would also foster synergies in markets where dual utilities operate, for the benefit of the consumers.