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**Council of European
Energy Regulators**



Fostering energy markets, empowering **consumers**.

**CEER Advice on Customer Data
Management for Better Retail Market
Functioning**

Electricity and Gas

**Ref: C14-RMF-68-03
19 March 2015**



INFORMATION PAGE

Abstract

This document (Ref: C14-RMF-68-03) presents CEER's Advice on Customer Data Management for Better Retail Market Functioning (electricity and gas).

This document outlines five guiding principles to form a basis for all data management models in Europe: Privacy and Security; Transparency; Accuracy; Accessibility; and Non-Discrimination. Alongside these principles, CEER makes seven concrete recommendations to facilitate the development of customer data management in European retail energy markets; complementing the existing legislative requirements under the 3rd Energy Package.

The Advice takes into account feedback gathered through a public consultation and public hearing, both held in 2014; the results of which are summarised and reflected in the principles and recommendations. This Advice is complemented by the CEER Evaluation of Responses document – Ref: C14-RMF-68-03a.

Target Audience

European Commission, customers, prosumers, suppliers, distribution system operators, energy service companies, network owners, meter operators, Member States, academics and other interested parties.

Keywords

Data management; 2020 Vision, smart meters; smart grids, energy consumers

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Related documents

ACER, CEER and ERGEG documents

- ACER - [Energy Regulation: A Bridge to 2025, Conclusions Paper](#) – September 2014
- [CEER Status Review of Regulatory Aspects of Smart Metering](#) – Ref. C13-RMF-54-05, September 2013
- [Contributing to a 2020 Vision for Europe’s energy customers: CEER 3-year rolling action plan](#) – Ref. C12-SC-09-07, November 2012
- [A 2020 Vision for Europe’s energy customers – CEER-BEUC Joint Statement](#), November 2012
- [CEER Benchmarking Report on Meter Data Management Case Studies](#) – Ref. C12RMF-46-05, November 2012
- [CEER Guidelines of Good Practice on Electricity and Gas Retail Market Design, with a Focus on Switching and Billing](#) – Ref. C11-RMF-39-03, January 2012
- [Final Guidelines of Good Practice on Regulatory Aspects of Smart Metering for Electricity and Gas, ERGEG](#) – Ref. E10-RMF-29-05, February 2011
- [ERGEG position paper on Smart Grids](#) – Ref. E10-EQS-38-05, June 2010

Other documents

- [Conclusions of the 7th meeting of the Citizens’ Energy Forum](#) – March 2015
- European Commission – [2014/724/EU: Commission Recommendation on Data Protection Impact Assessment \(DPIA\) Template for Smart Grid and Smart Metering systems](#) – October 2014
- European Commission – [Benchmarking smart metering deployment in the EU-27 with a focus on electricity](#) – June 2014
- The Florence School of Regulation THINK project: [Shift, Not Drift: Towards Active Demand Response and Beyond](#) – June 2013
- European Commission – SMART GRID TASK FORCE – [Options on handling Smart Grids Data](#) – January 2013
- [Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC](#)



- European Commission – European Task Force for the Implementation of Smart Grids into the European Internal Market - [Mission and Work Programme 2012](#)
- European Commission - [2012/148/EU: Commission Recommendation on preparations for the roll-out of smart metering systems](#) – March 2012
- European Commission – [Digital Agenda for Europe](#) – August 2010
- [Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC](#)
- [Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC](#)
- Mandate M/441 - [DG ENTERPRISE initiative: Standardisation mandate to CEN, CENELEC and ETSI in the field of measuring instruments for the development of an open architecture for utility meters involving communication protocols enabling interoperability](#) – 12 March 2009



Table of Contents

Executive Summary	6
1 Introduction	9
1.1 Scoping the issue of customer data management.....	10
1.2 What data is within scope of this paper?	11
1.3 Objectives of the report	13
2 Identifying relevant stakeholders interests in customer data management	15
3 Issues for data management today and tomorrow	17
4 Guiding principles with recommendations	23
4.1 Guiding Principle: Privacy and Security	23
4.2 Guiding Principle: Transparency	24
4.3 Guiding Principle: Accuracy.....	27
4.4 Guiding Principle: Accessibility	28
4.5 Guiding Principle: Non-Discrimination	29
4.6 Cost and Cost-Efficiency as a Guiding Principle.....	30
5 Summary of guiding principles and recommendations	31
6 Conclusions	33
Annex 1 – CEER	34
Annex 2 – List of abbreviations	35
Annex 3 – Glossary of Terms	36
Annex 4 - Mapping the guiding principles of customer data management to the CEER 2020 Vision for Europe’s Energy Customers - RASP principles	37

Table of tables

<i>Table 1: Aspects of data management taken into account in defining the guiding principles</i>	11
<i>Table 2: Customer position of each country with respect to data privacy and security</i>	24
<i>Table 3: Summary of guiding principles and recommendations</i>	32

Table of figures

<i>Figure 1: Stakeholders and their relation to data management.</i>	16
<i>Figure 2: Mapping the guiding principles to CEER’s 2020 Vision for Europe’s energy customers</i>	37



Executive Summary

CEER believes that efficient, safe and secure data exchange between stakeholders is vital for retail market functioning and customer protection. For customers, a key consideration is which parties have access to their data and for what purpose. The availability of data is also crucial to the operation of effective competition. In the European gas and electricity retail markets, there are currently limitations on the type of data available and on which parties have access to this data. Consequently, data management can be regarded as a potential barrier to competition.

Smart metering will result in a step change in the amount of data available. However, the speed of roll-out of smart meters is different in each country and also within each country in relation to electricity and gas. Consequently, in looking at customer data management and providing advice on the development of such arrangements, it is necessary to recognise the current status as well as progress in the future, with or without smart metering and smart grids and irrespective of the data model (hub/no hub).

This Advice has been developed with a strong focus on the customer perspective, reflecting CEER-BEUCs 2020 Vision for Europe's energy customers¹. Consumers and, by extension, prosumers, are therefore a key stakeholder group. Furthermore, there are a wide range of market participants with an interest in customer data management including suppliers, distribution system operators, energy service companies, network owners, meter operators and national regulatory authorities. These stakeholders are the primary audience for this paper.

During spring 2014, a draft version of this Advice was circulated for public consultation to all interested European stakeholders. We received answers from 58 respondents. As a follow up to the comments received, we invited all respondents to a public hearing in Brussels on 22 September 2014². In preparing the final Advice, we took into account views expressed by respondents to the public consultation and those who attended the hearing.

This Advice begins by identifying three types of data which are directly relevant to retail market functioning: (1) point of delivery identification data; (2) user and contract data; and (3) consumption data. Collectively, we refer to these categories in this document as "customer meter data". We also take interest in data formats and systems for exchanging data and conclude that there are significant benefits to be gained from standardising these, at least at national level. We will explore the costs and benefits of standardising at a regional or European level in the longer term.

The management of customer meter data, now and in the future, presents both opportunities and risks. A number of these issues exist with or without the use of smart meters, e.g. the protection of vulnerable customers. Other issues become more significant with the roll-out of smart meters, such as innovation, role of third parties and the cost of customer meter data (i.e. affordability). The 3rd Energy Package³ includes a measure for consumer protection whereby European Union (EU) Member States (MSs), or a competent designated authority, shall ensure the interoperability of those metering systems to be implemented within their

¹ [A 2020 Vision for Europe's energy customers](#), 13 November 2012

² [CEER Public Hearing on Data Management](#), 22 September 2014

³ Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC, Annex 1.



territories and shall have due regard to the use of appropriate standards and best practice and the importance of the development of the internal market in electricity. Furthermore, CEER recognises that the 3rd Package includes requirements relevant to data management; this Advice is complementary to these requirements. For example, Annex 1 of the 3rd Package states that MSs shall ensure that customers “*have at their disposal their consumption data, and shall be able to, by explicit agreement and free of charge, give any registered supply undertaking access to its metering data. The party responsible for data management shall be obliged to give those data to the undertaking. Member States shall define a format for the data and a procedure for suppliers and consumers to have access to the data. No additional costs shall be charged to the consumer for that service.*”

From the customer point of view, we have identified five guiding principles for customer data management: Privacy and Security, Transparency, Accuracy, Accessibility and Non-discrimination. These principles are closely related to the 2020 Vision for Europe’s energy customers and its RASP principles: Reliability, Affordability, Simplicity, Protection and empowerment. When viewed against these principles, the five guiding principles can be understood as follows:

- I. Privacy and Security:
 - Customer meter data is protected by appropriate security and privacy measures; consumers should be able to choose the way in which their metering data shall be used and by whom, with the exception of metering data required to fulfil regulated duties within the national market model.
- II. Transparency:
 - The relevant national body shall make general information on meter data management publicly available.
 - The relevant national body should take active steps to build customer confidence in sharing customer meter data.
 - Beyond current requirements for a national common standard for data format and exchange, we recommend MSs or any competent authority they designate, to explore the costs and benefits of harmonising these standards at a broader geographical area, namely at regional and/or European level.
- III. Accuracy:
 - The relevant national body should communicate with the customer about any inaccuracies that might have taken place in relation to customer meter data.
- IV. Accessibility:
 - The customer should have easy access to their customer meter data.
- V. Non-discrimination:
 - To support an effective and competitive energy market, the data management model should not give undue preference to one stakeholder over another.

CEER plans further work in this field. CEER’s 2015 Work Programme⁴ shows an ambitious strategy to strengthen the position of the customer on the European market. This includes preparing a benchmarking report on how to remove barriers to entry in European retail energy markets. As part of this work, we plan to consider the extent to which the absence of national/EU standards for data management limits entry to markets in the context of other

⁴ [Final CEER 2015 Work Programme](#) – Ref: C14-WPDC-26-05, 9 January 2015



barriers. CEER will also write a position paper on a competitive retail market, in which the focus will be on the customer and the customer's needs in a well-functioning retail market.⁵

⁵ CEER 2015 Work Programme Ref: C14-WPDC-26-05 and the ACER "Energy Regulation: A bridge to 2025"



1 Introduction

At the 2012 Citizens' Energy Forum, CEER and BEUC (the European Consumers Organisation⁶) launched A 2020 Vision for Europe's energy customers. Retail market competition is at the heart of this Vision, which sets out an energy sector that puts smaller customers first. The present advice develops CEER's views on what characterises a well-functioning data management model to the benefit the energy customers. It also follows regulators' reflections in the ACER Bridge to 2025. One of the work packages identified at the Citizens' Energy Forum was data management for better retail market functioning; this Advice represents regulators' efforts to address this important issue⁷.

Legal context

Annex 1 of the 3rd Energy Package states that EU Member States (MSs) shall ensure that customers "*have at their disposal their consumption data, and shall be able to, by explicit agreement and free of charge, give any registered supply undertaking access to its metering data. The party responsible for data management shall be obliged to give those data to the undertaking. Member States shall define a format for the data and a procedure for suppliers and consumers to have access to the data. No additional costs shall be charged to the consumer for that service*".

In addition, Annex 1 of the 3rd Package also states, with respect to smart meter systems, that "*The Member States, or any competent authority they designate, shall ensure the interoperability of those metering systems to be implemented within their territories and shall have due regard to the use of appropriate standards and best practice and the importance of the development of the internal market in electricity*".

Article 9 of EU Directive 2012/27/EU on energy efficiency (the Energy Efficiency Directive)⁸ sets out rules in relation to metering. In particular, the Directive establishes the importance of customers, or third parties acting on behalf of customers, being provided with good quality data. It also reinforces the importance of ensuring the security of data provision and protecting the privacy of customers.

Article 10 of this Directive also ensures that customers can have easy access to (historical) consumption data, setting rules in relation to the type and amount of consumption information. Furthermore, customers will be able to use new smart technologies to manage their energy consumption and production, or may choose to engage service providers to manage their interface with the energy market⁹. This underlines the importance of the principles and recommendations in this Advice.

CEER held a public consultation on its draft advice for all interested European stakeholders during the spring of 2014. We received answers from 58 respondents. As a follow up to the comments received, CEER invited all respondents to a hearing in Brussels on 22 September

⁶ <http://www.beuc.org/>

⁷ [Energy Regulation: A Bridge to 2025, Conclusions Paper](#)

⁸ DIRECTIVE 2012/27/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC (EUT L 315, 14.11.2012, s. 1, Celex 32012L0027).

⁹ ACER: Energy Regulation: A Bridge to 2025



2014. The result of the public consultation as well as the discussion at during hearing form the basis of this final Advice. This document is accompanied by an Evaluation of responses (Ref. C14-RMF-68-03a). All individual responses can be found on the CEER website¹⁰, except for 7 which were marked as confidential.

Structure of the document

There are several stages to identifying which recommendations are relevant for customer data management. These stages provide the structure for the remainder of the document:

- Chapter 1 – describes the scope and objectives of the Advice
- Chapter 2 – identifies the relevant stakeholders and their interests in customer data management
- Chapter 3 – identifies the issues for customer data management today and in the future
- Chapter 4 – sets out guiding principles with recommendations
- Chapter 5 – provides a summary of the principles and recommendations
- Chapter 6 – presents the conclusions

1.1 Scoping the issue of customer data management

Customer data management comprises the processes by which data is sourced, validated, stored, protected and processed, and the basis on which it can be accessed. The scope of this advice is not to define any preferred data management model but to provide a set of guiding principles that the design of such a model should be based on.

These principles are as important for existing data management models as for new models. The guiding principles should therefore apply, regardless of data management model, and the principles used to evaluate current functioning customer data management models. In this respect, the DPIA template¹¹ issued by the European Commission in 2014 is also an important tool.

There are a number of aspects of data management that we took into account when defining the guiding principles and the table below provides an overview. These aspects can be seen as stepping stones between the high-level aspects of data management and the more practical guiding principles.

¹⁰ [CEER consultation on data management for better retail market functioning](#), 2014/03/23-2014/05/23

¹¹ [Commission Recommendation of 10 October 2014 on the Data Protection Impact Assessment Template for Smart Grid and Smart Metering Systems](#)



Aspect	Summary	Relation to the customer
Data quality/integrity	There are a number of quality components, including data accuracy, how easily it can be understood and the timeliness of the provision of that information.	The better the data quality the more confidence customers can have in that data.
Data processing	How the data is converted into a form that can be used. This means the conversion of customer data into other formats which may be of use to different parties.	The customer needs data in a format that they can understand and use. There are benefits to be gained when these arrangements are standardised, such as efficient switching processes.
Data access control	Who controls access to the data?	Customers should have easy access to their customer meter data and also choose the way in which way metering data should be used and by whom. This will help customers to engage with the energy market, including other suppliers, switching websites, energy brokers and energy efficiency advice providers.
Affordability	There will always be a cost associated with data management.	Data management arrangements should be cost-efficient.

Table 1: Aspects of data management taken into account in defining the guiding principles

1.2 What data is within scope of this paper?

For the purposes of this Advice, we have considered data necessary for the efficient functioning of the retail market for electricity and gas. This includes wider data relevant to the operation of the retail market. The types of data we consider in this paper are as follows:

- **Point of delivery identification data** – This is data used to identify the meter itself and the point where the meter is installed¹².
- **User and contract data** – This is data on the user of the meter (name and address of the user) and the user's contract data (e.g supplier identification data, first day of supply for each supplier serving that user/point of delivery).
- **Consumption data** – This is data on the usage associated with the meter. Among the forms of data collected can be; real-time energy usage, current and historic consumption and energy efficiency information when available, and micro-generated input data. Smart meters will allow a more granular breakdown of consumption data, possibly including consumption by individual home appliances.

¹² For example, in the UK this is referred to as the Meter Point Administration Number (MPAN); in Spain it is the Universal Point of Supply Code (CUPS).



We refer to these types collectively as “**customer meter data**”.

Smart meters will be able to handle a wider range of data, for example operational data (such as voltage quality). We are also aware of the fact that there are other market participants involved in data management, such as balance responsible parties. However, this advice focuses on data relevant to retail market functioning and on customer meter data. Customer data management includes only final industrial and domestic consumers, and does not include commercially distributed generation¹³ and storage units also defined as commercial data¹⁴.

Standardisation regarding data content, data format and systems for exchanging data

There are three factors with significant impact on the arrangements for customer meter data management. These are: (1) the content of the data; (2) the format in which this content/data is provided to parties (e.g. the point of delivery identification data and the way the customer meter data is presented); and (3) the systems used for the exchange of this data (e.g. use of centralised systems, databases and delivery points to customers). CEER considers that the adoption of at least national standardised arrangements has significant benefits for customers. These benefits are reflected in:

- **Greater certainty** – Customers would be more likely to understand the data they receive and how to access it if the presentation and format are similar regardless of their supplier. This makes the information more transparent, reduces the risk of confusion and increases the potential opportunities for using data in a relevant way.
- **Efficiency** – As customers are more likely to understand their data, they are also more likely to use it to make efficient decisions about their consumption; this has wider impacts on the efficiency of the system as a whole.
- **Enhanced competition** – A standardised approach to the provision of data creates a level playing field among stakeholders, which in turn leads to better-positioned customers making decisions about changing tariffs or switching suppliers. National standards could reduce barriers to entry/expansion into different parts of national markets.

A potential example of how customer meter data could be useful to customers is the Green Button¹⁵ initiative in the USA, which went live in 2012. Under these arrangements, the companies provide a website from which the customers can click on the “Green Button” and download up to 13 months of their detailed electricity usage data broken down by either 15-minute or hourly interval data. The associated opportunities include seeing a breakdown of their energy usage by appliance, getting an immediate comparison of how optional time-of-use rate plans would affect their bills and calculating their potential savings and payback for installing insulation. Developing a tool in that direction could be an interesting next-step approach for European energy customers.

¹³ This generation does not include micro generation.

¹⁴ This specification is useful to understand the difference in perimeter of the CEER papers. In the ongoing CEER work to develop advice on the future role of DSO, the use of “commercial data management” broadens the definition of “customer data management” to include not only final consumers but also distributed generation and storage units.

¹⁵ <http://energy.gov/data/green-button>



The majority of CEER regulators consider that it would be beneficial to have national standardised content, format and systems for the exchange of data. Key reasons included: promoting competition in the retail market; the creation of economies of scale; the ability to offer universal solutions and services; it is in the broader interests of consumers as it is more transparent, reduces the scope for confusion and makes it possible for customers to maintain services when switching suppliers. At the same time, there were concerns about the efficiency impact of imposing a single standard and the scope for additional costs reflected in higher prices for final consumers.

In order to develop data formats, one needs first to understand what content should be formatted. Furthermore, we recognise that there are potential cost and efficiency issues for putting standardised arrangements in place. There are different levels of standardisation that can be achieved and different ways in which arrangements can be put in place. We consider that the starting point could be customer meter data, which includes the three areas discussed in the previous section of this paper: point of delivery identification data, user and contract data, and net consumption data. We also consider that there could be various stages to such standardisation.

Standardised customer meter data exchange implies, at a minimum, the need to standardise interfaces and information exchange at distribution system operator (DSO) boundaries; between customers and market participants. This becomes increasingly important with the introduction of smart meters and would be critical to the introduction of individualised customer information on detailed energy use.

We consider that standardisation is a key element of transparency.

1.3 Objectives of the report

The main objective of this advice is to present guiding principles and recommendations on which the development of customer data management the retail market should be based:

- in relation to electricity and gas markets; and
- in the current time period as well as in the future, with or without smart metering and smart grids, and regardless of the data model (hub/no hub etc.).

Advice relating to electricity and gas

There are specific technical differences between the gas and electricity markets which have implications for the types of data that can be collected. Most issues concerning data management are the same for gas and electricity. In this paper, unless otherwise stated, all sections cover both gas and electricity equally.

With or without smart meters

A significant issue for data management is the roll-out of smart meters and the opportunities that this presents, as well as the risks which will need to be managed. However, there are



two reasons why it is important that this advice considers not only a future based on smart meters but also the current situation:

1. Data management is already a key issue. The availability of good quality data is a crucial facilitator of competition and, in the absence of appropriate arrangements for data management, could be regarded as a potential barrier to competition.
2. Smart meters will not be rolled-out in the same timescale in all countries. The Electricity Directive 2009/72/EC and Gas Directive 2009/73/EC set up the framework for the roll-out of smart meters. The Directives state that MSs should ensure the implementation of smart metering systems to facilitate the active participation of customers in the electricity and gas supply market. For electricity meters, a deadline of 80% of customers by the year 2020 has been set.

The Directives also state that the roll-out may be subject to an economic assessment of long-term costs and benefits. Some countries have already undertaken a cost-benefit analysis and, on that basis, determined that it is not appropriate to roll-out smart meters in the electricity and/or gas markets at this time. For those countries, it is important to continue considering data management in an environment without smart meters.



2 Identifying relevant stakeholders interests in customer data management

Below we present the different groups of stakeholders relevant to customer data management.

2.1 Customers

In this Advice, we use the same definition for customers as is used in the 2020 Vision. Customers are defined as the European retail customers of electricity, gas and district heating, as well as those that both generate and consume electricity (prosumers). Customers can be households or small enterprises (i.e. very small businesses which are in many ways similar to household customers in their engagement with energy markets). However, district heating customers are not relevant for the purposes of this paper.

Today, most customers have virtually no control over the customer meter data generated by their use of energy. If the DSO/metering operator reported the data available to the customer through an interface tailored for the customer, there would be more transparency over this data. Furthermore, a customer data management model should provide customers with an opportunity that does not always exist today; to get a review of point of delivery identification data, user and contract data and finally consumption data. At present, customers often experience a lack of transparency according to what a stakeholder can do on the customers' behalf and possibly thereby provide benefits.

2.2 Suppliers

In most European countries, electricity and gas suppliers must have bilateral contact with the DSO/metering operator in order to obtain access to information on its customers metering data. Non-discriminatory and smooth accesibility of data is naturally most important, during pre-contractual as well as running contractual situations. The DSO / metering operator should act as a neutral point of contact, from which the supplier can obtain the necessary information to conclude agreements, implement billing or offer tailored energy contracts.

2.3 DSOs/metering operators

The DSO¹⁶/metering operator should be neutral market facilitators and act in a non-discriminatory way as regards other market actors.

2.4 Third Parties

With the development of smart meters, a category of market participant that is likely to have more prominence will be third parties. By a "third party", we mean a party that does not already have a contract with the customer or a party that does not already have authorisation by law, for example, for carrying out regulatory duties in relation to the customer. So third parties might be potential suppliers (not the customer's current one), aggregators or energy service companies (ESCOs).

¹⁶ CEER's final advice on the future role of DSO is planned for 2015.



ESCOs are parties which offer customers alternative routes to engaging with energy markets and can empower customers to make better choices, and include e.g. switching websites, energy brokers and energy efficiency advice providers. This can result in customers saving money. In order to offer such services, ESCOs need access to data. In most European countries, ESCOs (where they exist) must have a bilateral contract with the DSO/metering operator in order to get access to information on customer meter data. For aggregators, who can help consumers participate in demand side response, the situation is much the same.

2.5 National Regulatory Authorities (NRAs)

Depending on the national data models, NRAs might be involved in data management as well as standardisation and its implementation. There might also be other bodies that operate and monitor data management.

2.6 Other stakeholders

Depending on MSs' data management models, there can be stakeholders others than those already mentioned involved in a data management model, such as the national data hub. This data hub might be owned/operated by one, or a combination, of the stakeholders above and facilitates the storage and exchange of customer meter data. The hub might also be operated by an independent company such as the transmission system operator (TSO), an information and communication technology (ICT) operator or other¹⁷.

Furthermore, the TSOs or parties responsible for balancing might be a stakeholder as well. These parties are not explicitly highlighted in this document since the scope here is focused on residential customers and small businesses, and a balance responsible party is not directly relevant from the customer's point of view. The figure below presents the interrelations between the stakeholders above.

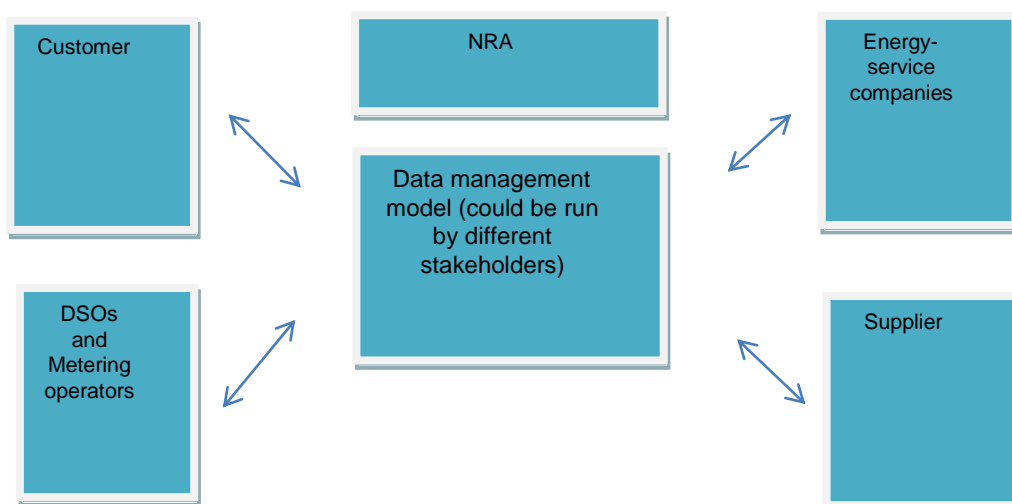


Figure 1: Stakeholders and their relation to data management¹⁸.

¹⁷ By way of example, in Denmark and Norway the data hub is operated by the TSO; in Great Britain it is an ICT company; and in Italy it is another type of stakeholder (Acquirente Unico, Italy's single buyer for electricity).

¹⁸ "NRA" is without arrows since its relation to data management differs between countries.



3 Issues for data management today and tomorrow

This section briefly presents the different functionalities of traditional meters, smart meters and the opportunities and risks related to data management.

3.1 Traditional Meters

Traditional (not smart) electricity and gas meters have very limited functionalities. They are designed to measure the total amount of energy used by a customer and are typically calibrated in billing units – kilowatt hours in the case of electricity meters and cubic meters/hundreds of cubic feet in the case of gas meters.

Periodic meter readings are required to establish the billing cycles and energy used during a cycle. Given that actual readings can only be taken manually for traditional meters – directly at the meter – estimates are widely used for billing purposes with actual readings used to reconcile bills within a certain period. One specific type of meter is a prepayment meter. Prepayment meters function like a “pay as you go” mobile phone, whereby you pay for your usage upfront and have to top-up with credit. Given their limited functionality, the data management issues associated with traditional meters are also limited.

3.2 Smart Meters

There are a number of features that identify a smart meter. A joint contribution from DG ENER and DG INFSO (now DG CONNECT)¹⁹ towards the EU's Digital Agenda in October 2011⁷ outlined the key features of smart meters as:

- providing readings from the meter to the customer and to equipment that they may have installed;
- updating those readings frequently enough to allow the customer meter data to be used to achieve energy savings/cost savings;
- allowing remote reading of meter registers by the meter operator;
- providing two-way communication between the meter and external networks for maintenance and control of the meter;
- allowing readings to be taken frequently enough to allow the customer meter data to be used for network planning;
- supporting advanced tariff systems;
- allowing remote ON/OFF control of the supply and/or flow or power limitation;
- providing Secure Data Communications;
- fraud prevention and detection; and
- providing Import/Export & Reactive Metering.

The increased functionalities of smart meters greatly increase customer data management issues, including: the impact on privacy of greater accessibility to customer meter data (i.e. who controls the data) and who can access it; the cost of accessing customer meter data; the usability of available customer meter data (i.e. the level of complexity involved); and the ability of customers to engage with it. At the same time, the deployment of smart meters and, consequently, the increasing opportunity of meter readings should not lead to data overuse

¹⁹ [A joint contribution of DG ENER and DG INFSO towards the Digital Agenda, Action 73: Set of common functional requirements of the SMART METER](#), October 2011



and undue costs. This assessment should take into account the purposes of data management (for example, data used to save energy or for billing) and the feasibility of new approaches from a technical point of view.

3.3 Opportunities and risks of data management arrangements

There are a range of aspects of metering arrangements that are affected by data management. We have identified nine key areas, a number of which are interrelated. The opportunities and risks posed by data management include how those may change with the introduction of smart meters and/or smart grids. We consider these for each of the identified nine areas.

3.3.1 Customer experience

The customer is the key stakeholder in relation to customer data management. The way in which customer meter data is managed can have a significant impact on what customers consume and produce, what customers pay and the level of service they receive. More generally, it can also impact on their trust in the metering arrangements and their desire to have a smart meter.

Efficient provision of customer meter data provides scope for fast, reliable and cost-effective supplier switching. If this process provides a positive customer experience, then more customers would engage in this process; which in turn would facilitate greater competition. At the same time, the greater availability of customer meter data can have a negative impact on the customer's experience if the arrangements become too complex and therefore difficult for the average customer to engage with. Ultimately, customers could make the wrong decisions, thereby undermining their confidence.

Smart meters provide better (more accurate and sophisticated) customer data, facilitating billing arrangements and supplier switching. However, for the same reason the risk of complexity is greater with smart meters.

Consumers' concerns over data privacy have increased with the arrival of smart meters. The relevant bodies need to put in place the appropriate measures to increase customer trust in the arrangements for data management so that customers freely consider the benefits associated with smart meters.

3.3.2 Vulnerable customers

Vulnerable customers are a specific subset of customers. Most MSs have specific arrangements in place aimed at protecting the interests of vulnerable customers. These measures are most often concerned with debt and disconnection. How customer meter data is managed is important for the identification and protection of vulnerable customers. For example, accuracy of customer meter data is important, particularly when attempting to contact a customer regarding a debt²⁰. Data may enable customers, and this includes vulnerable customers, to take actions to reduce their energy bills and generally to use

²⁰ The THINK report on active demand management recognised the importance of ensuring additional assistance for vulnerable customers in relation to data protection.



energy more efficiently. However, vulnerable customers are less likely to engage with and/or are less able to take advantage of the benefits arising from the available customer meter data.

The challenges for adequately and effectively engaging vulnerable customers exist with or without smart meters. Smart meters can benefit vulnerable consumers, for example by providing better information on energy consumption that helps them to budget better. But smart metering also presents new risks for vulnerable consumers; for example, smart meters may create the potential for remote disconnections which is a new form of risk for vulnerable customers without adequate consumer protection rules.

3.3.3 Customer empowerment

A key objective of the roll-out of smart meters is to enhance the position of customers in making their decisions. The Mission and Work Programme of the Smart Grids Task Force²¹ states that: “*Consumer empowerment includes capabilities of supplier’s customers to have sufficient and timely information on their actual energy consumption/production, to learn and act upon their energy savings through energy usage optimisation and more energy efficient technologies, to have access to competitive offers for energy services to develop energy efficient consumption practices and to allow them to become energy providers*”. But of course, this is not the only tool which contributes to customer empowerment; equally important are transparency and standardised data management for examples.

The form of customer data management is therefore central to customer empowerment. The greater the level of transparency over customer meter data, the more empowered customers will be to better manage their energy needs. This includes making a decision to adjust consumption and injection (by prosumers) or to switch supplier. It may also mean making a decision to share customer meter data with third parties.

The introduction of smart meters will make more customer meter data available in a timely manner, providing customers with better control over their energy consumption and the ability to adjust their behaviour so as to reduce their energy bills. Therefore, smart meters increase the potential opportunities for customer empowerment. The main risk is that customers remain apathetic about the opportunities available to manage their consumption and benefits from injection. They may be unwilling to take any additional actions, including an unwillingness to share their data with other parties, which would reduce any benefits of having customer meter data. It is recognised that it is the customer’s right to determine how other parties use their customer meter data, including who they share it with.

Customer apathy is a risk with or without smart meters. The key point is that the customer will miss out on the greater opportunities presented by smart meters. One factor that may help address this is the possibilities that smart meters enable for automation; i.e. some actions could be taken automatically to help manage energy and therefore to empower and protect the interests of customers.

²¹ The Smart Grids Task Force (SGTF) was set up by the European Commission (EC) at the end of 2009 and is made up of stakeholder representatives from industry, regulators, consumer groups and the European Commission (EC). The mission of the Task Force is to advise the Commission on policy and regulatory directions at European level and to coordinate the first steps towards the implementation of Smart Grids under the provision of the 3rd Energy Package.



3.3.4 Cost of accessing data

One key issue is the cost of accessing customer meter data. Cost is an issue for third parties who may be able to use customer meter data to generate benefits for customers. In this regard, the Energy Efficiency Directive (Article 11) states that *“Member States shall ensure that final customers receive all their bills and billing information for energy consumption free of charge and that final customers also have access to their consumption data in an appropriate way and free of charge”*.

However, in the case of multi-apartment and multi-purpose buildings with a central heating/cooling source or supply from a district heating *“the distribution of costs of billing information for the individual consumption of heating and cooling in multi-apartment and multi-purpose buildings pursuant to Article 9(3) shall be carried out on a non-profit basis. Costs resulting from the assignment of this task to a third party, such as a service provider or the local energy supplier, covering the measuring, allocation and accounting for actual individual consumption in such buildings may be passed onto the final customers to the extent that such costs are reasonable.”*

Other parties, including third parties, may also be authorised by the consumer to access data and provide them with additional value-added services. We consider it a possibility that these parties might have to pay for the costs of accessing and gathering this data. However, unreasonable costs associated with accessing and securing customer meter data can act as a barrier to the use and sharing of data by customers. This may discourage parties, such as third parties, who could use that data to provide additional services and benefits. Therefore, it is important that any costs for third parties are reasonable.

With the introduction of smart metering, there will be greater potential opportunities to use data in a way that generates value for customers. The imposition of a cost could limit the scope of such benefits. Therefore, the negative impact of imposing a cost on customer meter data is potentially greater in a sector with smart metering, than it is in a sector without smart metering.

3.3.5 Role for third parties

Third parties are a category of parties that can make use of customer meter data to offer a range of services to customers. The way in which they do so and the value they can generate by doing so will be impacted on by the way in which the data is managed. A third party can act on behalf of the customer, offer customers alternative routes to engaging with energy markets and empower customers to make better choices. This may result in customers saving money. The value third parties can generate for customers in the energy market depends to a large extent on their ability to access customer meter data.

It is of highest importance to recognise that data sharing with third parties can be done only after customer consent²². Work undertaken by some regulators, including Ofgem in Great Britain, highlighted that customers had concerns (either real or perceived) about the practices of third parties;²³ specifically, that some may not be fair or transparent.

²² [Final Guidelines of Good Practice on Regulatory Aspects of Smart Metering for Electricity and Gas](#), ERGEG – Ref: E10-RMF-29-05, February 2011.

²³ [Third Party Intermediaries: exploration of market issues and options](#) - Consultation, Ofgem, 28 June 2013. In its document, Ofgem recognised that these concerns could be detrimental to customers, could damage the reputation of all third parties, and



The opportunities for third parties in retail energy markets is likely to grow with the introduction of smart meters and smart grids. This reflects the fact that the scope of the functions such parties could undertake will increase with a greater level of data being generated. Equipped with more data, third parties could provide additional value-added services such as analysis of energy usage – providing energy saving advice and providing services that monitor vulnerable customers' usage. Third parties could also become involved in providing demand-response services and advising on time-of-use and dynamic prices etc.

3.3.6 Timing of data sharing

Data has a time value. The more quickly parties receive data, the quicker they can respond. The timing in which parties receive customer meter data will depend on the processes in place to share that data. The process will in turn be impacted by the model of data management in place.

The potential cost savings and energy efficiency gains from being able to respond to customer meter data in a timely manner are significant. However, the value of sharing customer meter data quickly depends on the robustness of that data; if the data shared is of poor quality, then the value that can be gained by providing it in a timely manner is lost and can even be detrimental - i.e. customers could make the wrong decisions based on inaccurate customer meter data.

The introduction of smart metering will have a significant impact on how quickly parties can access customer meter data. Smart meters will provide data frequently enough, enabling customers to make consumption choices. This could have significant cost benefits for the customers.

3.3.7 Network Management

Network operators use customer meter data to help operate the network in the shorter term, as well as network planning and investment in the long term. The introduction of smart metering will mean that network operators have access to more detailed customer meter data in a more timely manner.

3.3.8 Incentives on suppliers and other service providers

CEER recommends that the general market model should aim to be consumer-centric²⁴. In such a model, the supplier will be the main, but not only, contact for the customer. Ultimately, the incentive on suppliers is to use customer meter data in a way that helps them both to retain existing customers by delivering a high-quality services and to attract new customers by making enticing product offers.

Data management models that provide market participants with information about customers' preferences allow current and potential market participants the possibility to offer products and services that meet those preferences. At the same time, where

have the potential to hinder competitive activity in the energy market overall.

²⁴ [Electricity and Gas Retail market design, with a focus on supplier switching and billing Guidelines of Good Practice](#) Ref: C11-RMF-39-03 24 January 2012



customers are provided with up-to-date information about offers, they are in a better position to take a view on the services that are right for them, including the appropriate tariffs as well as other services that can be a part of the offers. Customers can also take a view on which supplier is right for them and can consider the merits of switching supplier. It is this customer empowerment that strengthens the incentive for suppliers to continually improve the quality of service and/or provide competitive offers.

If the customer data management arrangements result in poor (inaccurate, insufficient or out-of-date) customer meter data being available to suppliers and customers, it is difficult for suppliers to offer the right products and services, and it is difficult for customers to appropriately assess their options.

With the roll-out of smart meters, more opportunities will be presented to improve the incentives on suppliers and the interaction between suppliers, third parties and customers. The availability of more granular customer meter data will enable service providers to offer products that are more suitable to their customers' consumption needs.

The greater frequency and quality of billing data should promote greater accuracy and reduce the scope for errors. This, in turn, should reduce the level of complaints from customers.

3.3.9 Innovation

Currently, in European energy retail markets there are opportunities for suppliers, network operators and third parties to innovate, thereby improving service for customers and reducing the customers' costs. Innovation is likely to be incentivised where there is high-quality customer meter data and market participants are able to see the opportunity to use that data to offer services. Such innovation can deliver more choice and better solutions for customers.

The key risk is that the data, that has the ability to drive innovation, is not made available at the right times and to the necessary parties. For example, suppliers would have less reason to invest in innovation if there was little competition for their market share.



4 Guiding principles with recommendations

Given that different data management models apply, it is important to have some common minimum principles that govern the arrangements. Through this Advice, CEER suggests implementing a set of five guiding principles, applicable regardless of the data management model. These are: Privacy and Security; Transparency; Accuracy; Accessibility; and Non-Discrimination.

We present each of these guiding principles below, accompanied by recommendations (seven in total).

4.1 Guiding Principle: Privacy and Security

At the outset, it is important to highlight that the issues of privacy and data protection are much wider than the focus of this document and that energy regulators are not data protection regulators. The requirements for data protection are already set out in EU data protection and privacy legislation.

We note the work undertaken by the Smart Grids Task Force and, in particular, the work of Expert Group 2 on regulatory recommendations for privacy, security and data protection. In addition, we note that in its Final Guidelines of Good Practice (GGP) on Regulatory Aspects of Smart Metering for Electricity and Gas²⁵, ERGEG recommended that the customer should choose the way in which metering data shall be used and by whom, with the exception of metering data required to fulfil regulated duties and within the national market model. The principle should be that the party requesting information shall state what information is needed, with what frequency and will then obtain the customer's approval for this²⁶; this includes third parties. CEER continues to support this view.

Customer's interests are probably served by the appropriate sharing of customer meter data with parties that can use that information to offer customers improved service standards and lower costs.

We consider it important that the data management arrangements should serve to protect the privacy of personal data and that the customers should ultimately be able to determine how their data is used. We also consider it important that the relevant bodies support the development of data management arrangements that highlight the benefits of sharing customer meter data with third parties, thereby helping customers maximise the value from their data. This is even more important in the context of smart meters with a view to maximising the additional opportunities they provide.

²⁵ Final Guidelines of Good Practice on Regulatory Aspects of Smart Metering for Electricity and Gas, ERGEG – February 2011, Ref. E10-RMF-29-05

²⁶ Recommendation E/G 1. Customer control of metering data: It is always the customer that chooses in which way metering data shall be used and by whom, with the exception of metering data required to fulfil regulated duties and within the national market model. The principle should be that the party requesting information shall state what information is needed, with what frequency and will then obtain the customer's approval for this. Full transparency on existing customer data should be the general principle. For instance, when a service provider is in charge of information on the customer's voltage quality the customer should in this case be able to a) know that this data exists, and b) receive information on the explicit data. This information could be subject to a reasonable fee.



Recommendation 1: Customer meter data should be protected by the application of appropriate security and privacy measures. Customers should control access to their customer meter data, with the exception of data required to fulfil regulated duties and within the national market model.

The principle should be that the party shall state what information they will collect, with what frequency and for how long.

Principles on allowing access to customer meter data should be ensured by legislation/regulation.

The table below is from CEER's Status Review of Regulation on Smart Metering²⁷ and sets out the position of customers in each country with respect to data privacy and security.

In control & informed	In control & not informed	No control over data	No answer
12 AT, DK, FR, DE, GB, IE, IT, LU, NO, PL, NL, BE	1 FI	8 CY, CZ, EE, IS, RO, ES, SI, SE	2 LT, PT

Table 2: Customer position of each country with respect to data privacy and security

Table 2 shows that, in just over half of countries, customers are informed and are given control over their data. However, there are a number of countries that do not currently give this control.

It is important that the customer is the one who decides what will happen to their data, therefore, access by a third party usually requires the customer's consent. As already stated there is data needed by specific parties, e.g. to fulfil regulated duties related to operation of the grid; this data can be accessed by authorised parties without the customer's consent.

In the CEER public consultation and at the public hearing, there was a consensus that it should be clear that the customer is in control of the data and should be in the driver's seat.

4.2 Guiding Principle: Transparency

The Electricity and Gas Directives and the Energy Efficiency Directive specify that the policy framework for accessing energy usage data should provide customers with access to objective and transparent consumption data. Further, in its GGP on Regulatory Aspects of Smart Metering, ERGEG argued that the general principle for customer meter data should be 'full transparency.' CEER continues to support this view.

²⁷ CEER Status Review of Regulatory Aspects of Smart Metering, Ref: C13-RMF-54-05, 12 September 2013



We note that in the THINK report - Shift Not Drift on demand response²⁸ - it was proposed that customers should have easy access to disaggregated billing information when demand response is bundled with other service offers. CEER considers that transparency should extend beyond disaggregating billing information and that the wider data management arrangements should be transparent as well. Customers also need transparency as to who is using their customer meter data and for what purpose.

4.2.1 Providing Information

It is not only important that the customer data management arrangements are transparent to customers; there are other market participants e.g. network owners, third parties, etc. who may require access to customer meter data. To ensure the efficiency of the overall data management arrangements and ultimately to maximise the benefits to customers, it is equally important that the data management processes are transparent for those parties.

It is relevant to the customer's benefit that they are able to understand the information – providing too much information may be confusing. So it is important to find a balance and to decide how data should be presented to the customer.

Recommendation 2: The relevant body in each MS (DSO/metering operator/other) shall make the following general information on meter data management publically available, as a minimum: (a) the customer's rights with regard to customer data management; (b) what type of customer meter data exists and what it is used for; (c) how customer meter data is stored and for how long; (d) how the customer and market participants authorised by the customer get access to that data; and (e) within what time period the customer and market participants authorised by the customer have to wait to get disaggregated data. This should be ensured by the NRA.

The above general information on meter data management should, as a minimum, be published on the website of the relevant body (DSO/metering operator/other) and must be presented in a customer-friendly way.

4.2.2 Building Customer Trust

Transparency is also important for building customer trust. A customer is more likely to trust meter data and the processes for data management if they can understand how their customer meter data is generated, collected, stored and subsequently used.

²⁸ [THINK report - Shift, Not Drift: Towards Active Demand Response and Beyond](#), June 2013.



Recommendation 3: In order to achieve energy efficiency benefits and other potential benefits, the relevant bodies in each country should take active steps to build customer confidence in sharing customer meter data. Those bodies could be the NRAs, the DSO/metering operator, public authorities and consumer organisations.

Active steps to be taken might include information campaigns and the use of energy advisors.

Information can be provided in several ways. A vast majority of the respondents to the public consultation supported an information campaign combined with other options. These options can include the use of an energy advisor. An energy advisor is a person who can give advice to the customer, e. g. on how to save energy or what to do in order to receive wider benefits. The energy advisor can be employed by the municipality or within the private sector.

4.2.3 Common Standards

A core element of transparency is the format in which data is provided to parties and the systems used for the exchange of that data. As highlighted earlier in this paper, we consider that transparency is enhanced where there is standardised content, format and systems for the exchange of data. This has benefits in terms of providing greater certainty, improved efficiency and enhanced competition.

CEER recognises that Annex 1 of the 3rd Package Directives states that MSs shall ensure that customers “*have at their disposal their consumption data, and shall be able to, by explicit agreement and free of charge, give any registered supply undertaking access to its metering data. The party responsible for data management shall be obliged to give those data to the undertaking. Member States shall define a format for the data and a procedure for suppliers and consumers to have access to the data. No additional costs shall be charged to the consumer for that service*”.

In addition, Annex 1 also states, with respect to smart meter systems, that “*The Member States, or any competent authority they designate, shall ensure the interoperability of those metering systems to be implemented within their territories and shall have due regard to the use of appropriate standards and best practice and the importance of the development of the internal market in electricity*”.

By this, we understand that there should be a national common standard for data content, data format and data exchange in the retail market. The appropriate standards in this regard are still not in place in all EU countries. So the first step is to implement these.

Taking into consideration the future internal energy market, also at retail level, we recommend exploring the costs and benefits of harmonising these standards at a broader geographical area, namely at regional and/or European level. In the CEER public consultation, four respondents highlighted concerns with standardisation at a European level due to the high costs incurred and that those costs need to be justified by a full cost-benefit analysis.



Provided that MSs have designated NRAs as the competent body, NRAs should ensure that these common standards are developed. We recommend that the customer meter data to be standardised should, as a starting point, be the point of delivery identification data, the user and contract data and the net consumption data.

Recommendation 4:

Beyond current requirements for a national common standard for data format and exchange, we recommend MSs, or any competent authority they designate, explore the costs and benefits of harmonising these standards at a broader geographical area, namely at regional and/or European level.

If a common European standard for data content, format and exchange is developed, one has to take into account that these changes will have implications for other related topics such as data processes, business processes and basic agreements/contracts.

From the CEER public consultation, there is a consensus that transparency is a key issue for the success of customer data management, but related to this guiding principle there are challenges that need to be faced.

4.3 Guiding Principle: Accuracy

Data accuracy is an important issue with or without smart meters. Accuracy is crucial for building customer trust, as well as creating accurate energy bills related to usage. It is therefore important that customer meter data, be it from smart or traditional meters, is robust and the processes that are subsequently used to convert that data for the purposes of billing are equally robust. The data management processes should be robust and ensure that meter data is of high quality, that customers receive accurate and timely bills, and as a consequence, that customers have confidence in the quality of their bills.

Parties need to receive useful information in a timely manner. If useful information is not provided and it is not available in a timely manner then the usefulness of that information diminishes, and so does the overall efficiency of the arrangements.

The additional functionality provided by smart meters, including remote reading and interval metering, should increase the quality of customer meter data and thus increase billing accuracy. As a result, customers are likely to engage more actively with their energy usage if they know exactly how much energy they are using.

There are a number of benefits associated with this including, but not limited to:

- scope for customers to save on energy bills;
- making supplier switching more efficient and easy;
- suppliers having better customer meter data to improve service to their customers;
- network operators being able to plan and develop their networks in a better informed manner; and
- wider societal benefits stemming from a reduction of greenhouse gas emissions and increases in energy efficiency.

Another key aspect of ensuring accuracy is the quality of industry processes; meaning how the parties involved in communicating data execute that communication. The better the



processes put in place by industry to ensure accuracy, the better the quality of the information provided. This is relevant with or without smart meters.

No data management model will entirely remove the possibility of data inaccuracy due to technical or manual errors. Therefore, the relevant national body in each country should have arrangements in place to identify inaccuracies and address them as early as possible.

Technical equipment in the meters are in most MSs under the responsibility of electricity (and gas) security authorities. The recommendation below does not refer to failures concerning the technical equipment, but to the right of the customer to know that something with respect to (the reading of) customer meter data deviates from common procedures.

Recommendation 5: The relevant body (DSO/metering operator/other) should communicate to the customer any inaccuracies that might have taken place in relation to customer meter data and inform how these inaccuracies have been addressed (e.g. loss of meter data leading to an estimation of consumption in the bill). The NRA should ensure that measures for addressing these inaccuracies are established in legislation/regulation.

4.4 Guiding Principle: Accessibility

Accessibility is a crucial area of consideration for the success of data management arrangements. Particularly important is the interaction with the principle of Privacy and Security.

Two of the guidelines on ERGEG's GGP on Regulatory Aspects of Smart Metering are directly relevant to data accessibility, namely:

- Recommendation E/G 3 – Access to data on consumption and cost data on customer demand. Specifically it is noted that, on demand, a customer as well as those that both generate and consume electricity should be able to access up-to-date consumption data and costs.
- Recommendation E/G 12 – Interface with the home. In line with the functionalities required under Mandate 44129, smart meters should be equipped with or connected to an open gateway. The service provider(s) chosen by the customer should have access to this gateway, which should have a standardised interface enabling energy management solutions, such as home automation and facilitate delivery of data directly.

There are a number of stakeholders who may have an interest in accessing customer meter data. First and foremost, customers (or a party operating on their behalf) need to be able to access their customer meter data to help manage their energy use. For many customers, it is likely that a third party will have a role in accessing and using this data. The data could be provided through an in-home system or by means of a gateway. If this is the case, that third party must have easy access to the data. This directly benefits customers in terms of the ability to save money, but also has wider potential system benefits in relation to security of supply and environmental benefits through the impact on carbon emissions.

²⁹ [Standardisation mandate to CEN, CENELEC and ETSI in the field of measuring instruments for the development of an open architecture for utility meters involving communication protocols enabling interoperability](#) – March 2009



Recommendation 6: The customer (or a market participant acting on behalf of the customer) should have easy access to customer meter data. This information should, where reasonable, be made available through an adequate channel of the customer's choosing (e.g. an in-home system or by means of a gateway).

The Energy Efficiency Directive (Article 11) states that “*Member States shall ensure that final customers receive all their bills and billing information for energy consumption free of charge and that final customers also have access to their consumption data in an appropriate way and free of charge*”. The question is, however, whether a third party should have access to this data free of charge.

On the one hand, costs associated with accessing customer meter data can act as a barrier to sharing this data and may also discourage third parties who could use it to provide additional services/benefits. On the other hand, in the future there will be even more data, especially where there are smart meters installed, and the more data there is to share the more costs there will be for a DSO/metering operator. So one will have to find a reasonable compromise regarding the frequency of access and the respective costs.

4.5 Guiding Principle: Non-Discrimination

Article 8 paragraph 5 in the Energy Efficiency Directive states that “*access of market participants offering energy services shall be based on transparent and non-discriminatory criteria*”. The importance of non-discrimination was furthermore highlighted by the THINK report on demand response³⁰. It recognised the importance of “*ensuring non-discriminatory access to all segments of electricity markets for all market players*” to ensure these markets are contestable and open to all new entrants and new services. The report further recognised the importance of national authorities monitoring non-discriminatory access to data relevant for demand response to prevent the transfer of information from the regulated activities to the deregulated activities in integrated suppliers. In our view, these issues are relevant not only for demand response but also for broader energy services.

CEER agrees with the importance of non-discrimination in order for customer data management arrangements to be effective and enable effective competition. The arrangements should not discriminate between any stakeholders; i.e. where a certain category of stakeholder has access to data, then that data is available on a non-discriminatory basis to other similar stakeholders. Only by doing so will it be possible to create a level playing field between suppliers and other potential third parties.

The issue of non-discrimination is wider than just data management in respect to customer meter data, but extends to the market more broadly. Specifically, it is important that information is available on a non-discriminatory basis regarding where smart meters are installed and thus where the potential customers for these services are. This might not always be the case in countries where the roll-out of smart meters is DSO-led. There should be non-discriminatory access to this information in order to enable a level playing field between different parties in the market.

One could think of providing the information in which area there are smart meters by publishing the post code (without an address). However, providing detailed information is

³⁰ THINK report - Shift, Not Drift: Towards Active Demand Response and Beyond, June 2013.



dependent on the customer's consent; if the customer has given his/her consent, the DSO/metering operator is allowed to provide access to the requested data and the customer can decide whether to receive offers by third parties or not³¹.

Recommendation 7: To support an effective and competitive market, the data management model should not give undue preference to one stakeholder over another. This is especially important in relation to DSO-led smart meter roll-outs, for which there should be non-discriminatory access to information when and where such meters are installed.

4.6 Cost and Cost-Efficiency as a Guiding Principle

One result of the CEER public consultation was that the majority of respondents showed strong support for the proposed guiding principles. However, the respondents also consider that there are still other guiding principles that should be taken into account: customer data ownership (this idea is already included within several of the recommendations outlined above) and simplicity (which is already included within the Guiding Principle on Transparency).

The implementation of the chosen customer data management model should take into consideration the costs incurred; because these costs will likely be passed on to the customers.

The guiding principles underlying customer data management are Privacy and Security, Transparency, Accuracy, Accessibility and Non-Discrimination. Besides that, cost-efficiency considerations should always be taken into account when implementing the chosen data management model.

³¹ In some countries this information is already available.



5 Summary of guiding principles and recommendations

The table below presents the five guiding principles and seven recommendations outlined in this paper in relation to the functioning of data management arrangements.

Guiding Principle	Number	Recommendation
Privacy and Security	1	<p>Customer meter data should be protected by the application of appropriate security and privacy measures. Customers should control access to their customer meter data, with the exception of data required to fulfil regulated duties and within the national market model.</p> <p>The principle should be that the party shall state what information they will collect, with what frequency and for how long.</p>
	2	<p>The relevant body in each MS (DSO/metering operator/other) shall make the following general information on meter data management publically available, as a minimum: (a) the customer's rights with regard to customer data management; (b) what type of customer meter data exists and what it is used for; (c) how customer meter data is stored and for how long; (d) how the customer and market participants authorised by the customer get access to that data; and (e) within what time period the customer and market participants authorised by the customer have to wait to get disaggregated data. This should be ensured by the NRA.</p> <p>The above general information on meter data management should, as a minimum, be published on the website of the relevant body (DSO/metering operator/other) and must be presented in a customer-friendly way.</p>
Transparency	3	<p>In order to achieve energy efficiency benefits and other potential benefits, the relevant bodies in each country should take active steps to build customer confidence in sharing customer meter data. Those bodies could be the NRAs, the DSO/metering operator, public authorities and consumer organisations.</p> <p>Active steps to be taken might include information campaigns.</p>
	4	<p>Beyond current requirements for a national common standard for data format and exchange, we recommend MSs, or any competent authority they designate, explore the costs and benefits of harmonising these standards at a broader geographical area, namely at regional and/or European level.</p>
Accuracy	5	<p>The relevant body (DSO/metering operator/other) should communicate to the customer any inaccuracies that might</p>



		have taken place in relation with customer meter data and how these inaccuracies have been addressed (e.g. loss of meter data leading to an estimation of consumption in the bill). The NRA should ensure that measures for addressing these inaccuracies are established in legislation/regulation.
Accessibility	6	The customer (or a market participant acting on behalf of the customer) should have easy access to customer meter data. This information should, where reasonable, be made available through an adequate channel of the customer's choosing (e.g. an in-home system or by means of a gateway).
Non-discrimination	7	To support an effective and competitive market, the data management model should not give undue preference to one stakeholder over another. This is especially important in relation to DSO-led smart meters roll-outs; there should be non-discriminatory access to information when and where such meters are installed.

Table 3: Summary of guiding principles and recommendations



6 Conclusions

This CEER Advice on customer meter data management for better retail market functioning proposes seven recommendations across a set of five general guiding principles on which data management should be based from a customer point of view and regardless of the specific data management models implemented in the different MSs.

Customer meter data, already protected by EU privacy legislation, should always be subject to the control of the customer; meaning that specific parties which do not require the use of such data by law/regulation (e.g. for system operation), should always be required to ask for consumers' consent in order to access or use it.

As established in the Electricity and Gas Directives, the policy framework for accessing energy usage data should provide customers with access to objective and transparent data. Therefore, transparency is one of the key requirements any data management model should comply with. In this sense, customers should be able to access online information on their rights with regard to customer data management, on the way data is stored and for how long, and on how they can access that data in a way that is convenient for them.

Moreover, NRAs, DSOs/metering operators, consumer organisations and/or public authorities in each MS should develop information campaigns and other awareness-raising and educational programmes with the aim of building customer confidence in data management, so as to empower the customer. It is only this way that the benefits related to meter data usage, especially in a smart grid context, might be achieved.

With regard to more technical considerations, and provided that the EU energy sector is currently evolving towards an internal common market, the national data management models implemented nowadays should converge in the long run towards a harmonised model with common standards for data content, data formats and data exchange in the retail market. Such harmonisation at European level, together with the assurance that there is non-discriminatory access to information, will be crucial for eliminating entry barriers for potential market participants and, ultimately, fostering efficient retail market competition at EU level.

It is important to take into account that the implementation of the guiding principles and their corresponding recommendations should ultimately be driven by a cost-efficiency consideration in all cases.

CEER's 2015 Work Programme outlines an ambitious strategy to strengthen the position of the customer on the European market. As part of its work in 2015, CEER will also develop a paper on a competitive retail market, which will focus on the customer and the customer needs in a well functioning retail market³².

³² CEER 2015 Work Programme Ref: C14-WPDC-26-05 and the ACER "Energy Regulation: A bridge to 2025"



Annex 1 – CEER

The Council of European Energy Regulators (CEER) is the voice of Europe's national regulators of electricity and gas at EU and international level. CEER's members and observers (from 33 European countries) are the statutory bodies responsible for energy regulation at national level.

One of CEER's key objectives is to facilitate the creation of a single, competitive, efficient and sustainable EU internal energy market that works in the public interest. CEER actively promotes an investment-friendly and harmonised regulatory environment, and consistent application of existing EU legislation. Moreover, CEER champions consumer issues in our belief that a competitive and secure EU single energy market is not a goal in itself, but should deliver benefits for energy consumers.

CEER, based in Brussels, deals with a broad range of energy issues including retail markets and consumers; distribution networks; smart grids; flexibility; sustainability; and international cooperation. European energy regulators are committed to a holistic approach to energy regulation in Europe. Through CEER, NRAs cooperate and develop common position papers, advice and forward-thinking recommendations to improve the electricity and gas markets for the benefit of consumers and businesses.

The work of CEER is structured according to a number of working groups and task forces, composed of staff members of the national energy regulatory authorities, and supported by the CEER Secretariat. This report was prepared by the Retail Market Functioning Task Force of CEER's Customers and Retail Markets Working Group.

CEER wishes to thank in particular the following regulatory experts for their work in preparing this report: Ms Gunilla Eng Åbrandt, Ms Katarina Abrahamsson, Ms Gloria Mármol Acitores, Mr Jeroen Cordeweners, Ms Stefanie Fix, Ms Ines Handrack and Mr Grant McEachran.

More information at www.ceer.eu.



Annex 2 – List of abbreviations

Term	Definition
ACER	(EU) Agency for the Cooperation of Energy Regulators
BEUC	<i>Bureau Européen des Unions de Consommateurs</i> – The European Consumer Organisation
CEER	Council of European Energy Regulators
CDH	Central Data Hub
CUPS	Universal Point of Supply Code (Spain)
DAM	Data Access-Point Manager
DCC	Data and Communications Company
DG ENER	The European Commission’s Directorate-General for Energy
DG INFSO	Formerly: The European Commission’s Directorate-General for Information Society & Media. Now: DG Connect (Communication Networks, Content and Technology)
DSO	Distribution System Operator
EU	European Union
ERGEG	European Regulators Group for Electricity and Gas
ESCO	Energy Service Company
GGP	Guidelines of Good Practice
M/441	Mandate M/441
MPAN	Meter Point Administration Number (UK)
MS(s)	(EU) Member State(s)
NRA	National Regulatory Authority
SEDC	Smart Energy Demand Coalition
Third parties	Third party are all stakeholder which has no contract with the customer.
TSO	Transmission System Operator



Annex 3 – Glossary of Terms

Term	Definition
Customer meter data	The three types of data that are directly relevant to retail market functioning are: (1) point of delivery identification data; (2) user and contract data; and (3) net consumption data.
Demand response	Changes in energy usage by end-use customers/micro generators from their current/normal consumption/injection patterns in response to changes in the price of energy over time, or to incentive payments designed to adjust energy usage at times of high wholesale market prices or when system reliability is jeopardised. This change in usage can impact the spot market prices directly as well as over time.
Demand response services	Demand response services can be based on final customers responses to price signals or on building automation.
Mandate 441	Standardisation mandate to CEN, CENELEC and ETSI in the field of measuring instruments for the development of an open architecture for utility meters.
National Data Hub	A collection of data from multiple sources organised for distribution, sharing, and often subsetting and sharing. The national data hub might be owned/operated by one, or a combination, of stakeholders and facilitates the storage and exchange of customer meter data.



Annex 4 - Mapping the guiding principles of customer data management to the CEER 2020 Vision for Europe's Energy Customers - RASP principles

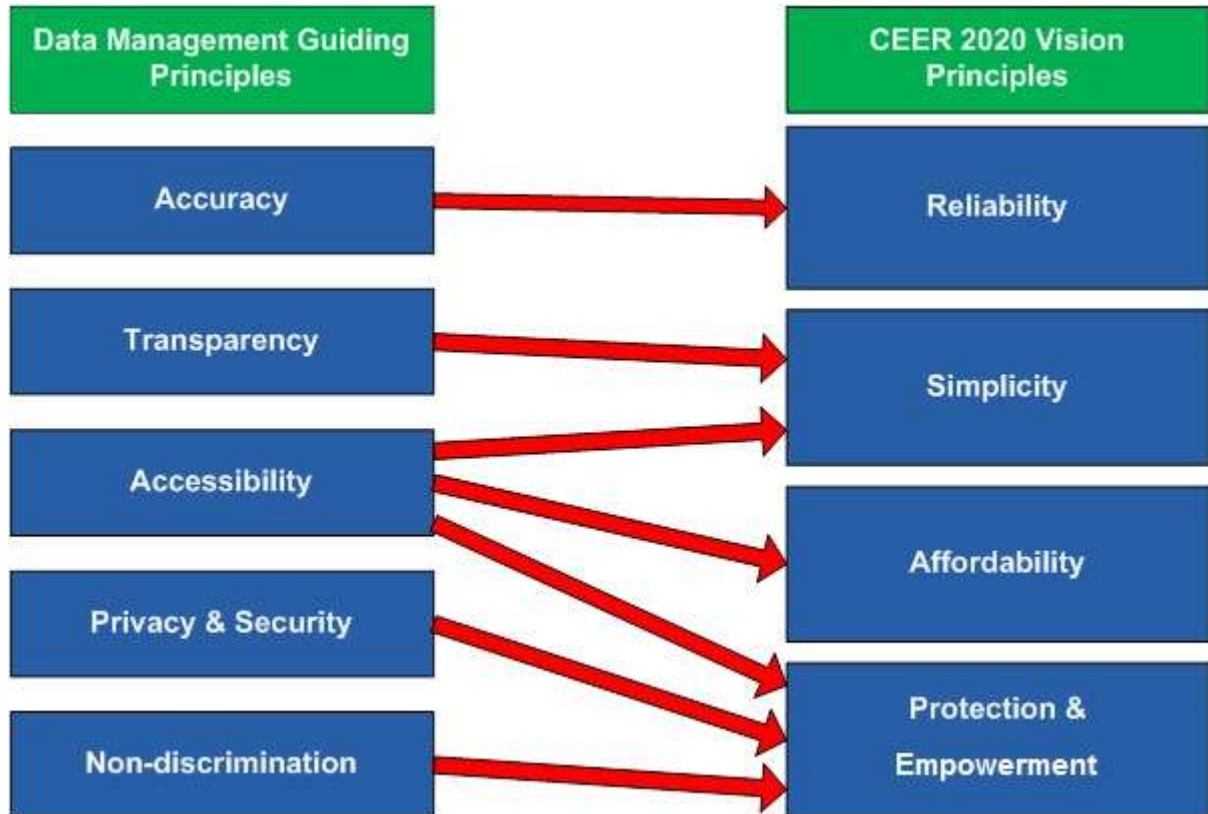


Figure 2: Mapping the guiding principles to CEER's 2020 Vision for Europe's energy customers

Reliability

Customer data management is relevant for providing reliability in the context of the 2020 Vision through the systems and processes that are put in place. In particular, it is reflected in our Guiding Principle on Accuracy, as the data produced by the systems and processes should be of a robust quality and result in customers receiving accurate bills.

Affordability

We have reflected the importance of affordability as relevant to customer data management in the context of our Guiding Principle on Accessibility. Customers own their data and should be in a position to benefit from access to that data. Equally, recognising the wider benefits of data sharing and subject to approval of the customer other parties should be able to access that data at either no cost or for a reasonable fee.

Simplicity

Again, we have specifically recognised the importance of simplicity within our Guiding Principle on Accessibility. It is important that data is presented in a customer-friendly way, on the grounds that the ability for customers to understand their data is key to building confidence and generating active participation.



We have also identified the Guiding Principle on Transparency, highlighted by the 2020 Vision as relevant in the context of simplicity, as a separate principle for customer data management. CEER considers that customer data management arrangements should be transparent so that a customer: (1) knows what data exists and what it is used for; (2) knows how to access that data; and (3) is able to easily access that data themselves.

Protection and empowerment

Protection and empowerment are relevant to customer data management in the context of how data is made available, who it is made available to and how that data is used. These are reflected in the following three guiding principles for customer data management:

- Privacy and security – Customers control their data and it should be protected from unauthorised access through appropriate security measures which guarantee the privacy of their data.
- Accessibility - At the same time, access to better data for both the customers themselves and third parties (with permission) should empower customers to make better use of their data in order to secure more positive outcomes.
- Non-discrimination - Competition is an important tool in protecting the interests of customers. There are significant opportunities for third parties to provide services to customers. In order for third parties to be effective in this role, customer data management models should not give undue preference to one stakeholder over another.