CEER

Council of European Energy Regulators

Fostering energy markets, empowering **consumers**.

2017 Handbook for National Energy Regulators: Pilots

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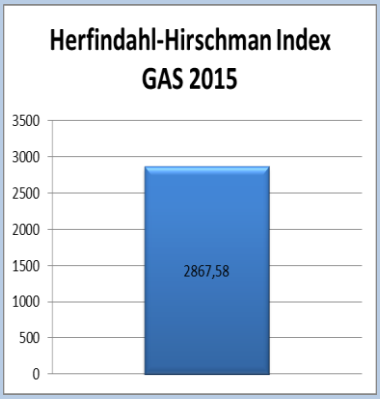
Content

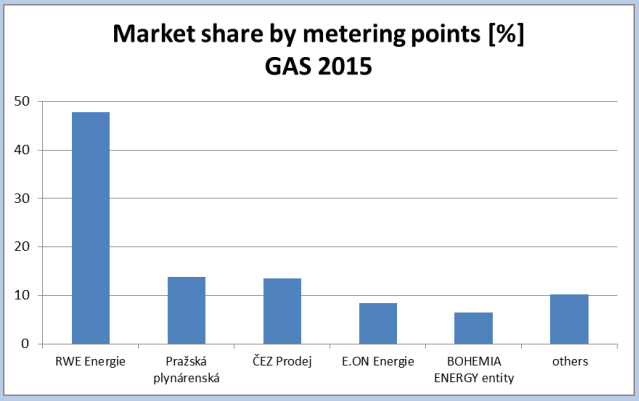
1 Pilots

1.1 Metric 1: Pilot – Czech Republic

Metric 1	**Herfindahl-Hirschman Index**
Description	The HHI measures the degree of concentration in a market.
Purpose	Based on guidance from the European Commission (Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings (2004/C 31/03)), a HHI above 2000 signifies a highly concentrated market. In general, a high number of suppliers and low market concentration is seen as an indicator of a competitive market structure. To accurately evaluate the degree of concentration, the NRA could use the following step-by-step approach, which is in line with that used by DG COMP and national competition authorities: 1. Define the relevant product markets (i.e. assess the degree of demand and supply substitutability of different products): The retail supply market for both gas and electricity can be divided into several categories, based on the characteristics of the final customers, who have different product preferences and needs: (i) households, (ii) small industrial and commercial customers (SMEs), (iii) large industrial customers and (iv) very large/energy intensive customers. We advise to, as a minimum, distinguish between household and non-household customer segments and, preferably, between households, SMEs and other customer segments. In some member states, the supply of energy at regulated prices (or supply covered by a designated supplier of last resort) and the supply of energy at free prices or the supply to customers with different metering arrangements (e.g. prepayment meters, time of use and smart meters) can be considered as relevant product markets. The market for some categories of vulnerable household customers or the market for households on social tariffs can also be considered as a relevant market. For electricity, industrial/commercial customers are usually 'half-hourly metered' and often connected to high and medium voltage grids. It may however be considered that supply to large industrial consumers forms part of the wholesale market, not retail market, depending on whether industrial consumers buy energy to consume or to resell. Households and smaller industrial/commercial customers are most often non-half-hourly metered, and are connected to the lower voltage grids. For gas, product markets can be defined on the basis of criteria such as the customers' volume of consumed gas, off take patterns (e.g. usage of gas for electricity generation), or whether the customer is connected to the transmission network. Finally, the possibility of a combined retail gas and electricity market for domestic customers can be considered, as some suppliers offer single domestic contracts covering both the supply of gas and electricity (dual fuel contract). 2. Define the relevant geographic markets (i.e. identify the geographic boundaries of the area where suppliers compete against each other): The retail supply of electricity to large industrial and commercial

	customers can been considered to be national, provided that these markets are fully liberalised, and that the conditions of competition are found to be uniform throughout the relevant territory. The retail supply of electricity to households and smaller industrial and commercial customers is generally national in scope, however, if, for example, many local energy companies (vertically-integrated DSO/supplier) exclusively serve their historical zones and no other suppliers operate, regional areas can be considered as relevant markets. For gas, retail supply markets are generally national in scope, but can also be local. 3. Calculate the HHI for every relevant market according to the quantification as suggested below. The resulting relevant markets should also be considered for the construction of the other metrics contained in this handbook. **In the Czech Republic, there are three main gas distribution areas. In each distribution area, there is an incumbent acting as a major supplier. A condition for exemption from the requirement of unbundling is having less than 90 000 supply points. Shares of suppliers on the national market do not provide the relevant information for a competition assessment, and for evaluation a geographic market segmentation by distribution area is required. Small, local, vertically integrated suppliers have a negligible market share and their non-inclusion does not cause a distortion of the evaluation.** **The data needed for evaluation is not available in the Czech Republic (customer segmentation suppliers of electricity by volume, or supply points, for gas by volume). However, this data is crucial for HHI processing. This metric is necessary for the evaluation of other relevant criteria.**
Source of data	Information request to retailers and regulated companies **Data are collected by the market operator OTE, a.s. Currently ERO does not have this data but are planning to negotiate the transfer of the data that is needed. Part of the data which is not available to the operator (the amount of energy supplied) must be requested from suppliers.**
Quantification	The HHI is calculated as the sum of the squares of the market shares of all firms in the market. It ranges between 0, for an infinite number of small firms, and 10,000, for one firm with a 100% market share. Market shares can be calculated on the basis of consumed volumes and number of customers, or meter points. The HHI should be calculated on at least an annual basis. In particular, the indicator's development over time should be assessed in order to understand whether the market structure is becoming more or less competitive.





One supplier has a market share higher than 40%, ie the existence of significant market power is expected, and it is necessary to consider other criteria. Other suppliers have a share of less than 25%, ie. It is unlikely that these entities have significant market power. HHI is higher than 2500 and represents a highly concentrated market.

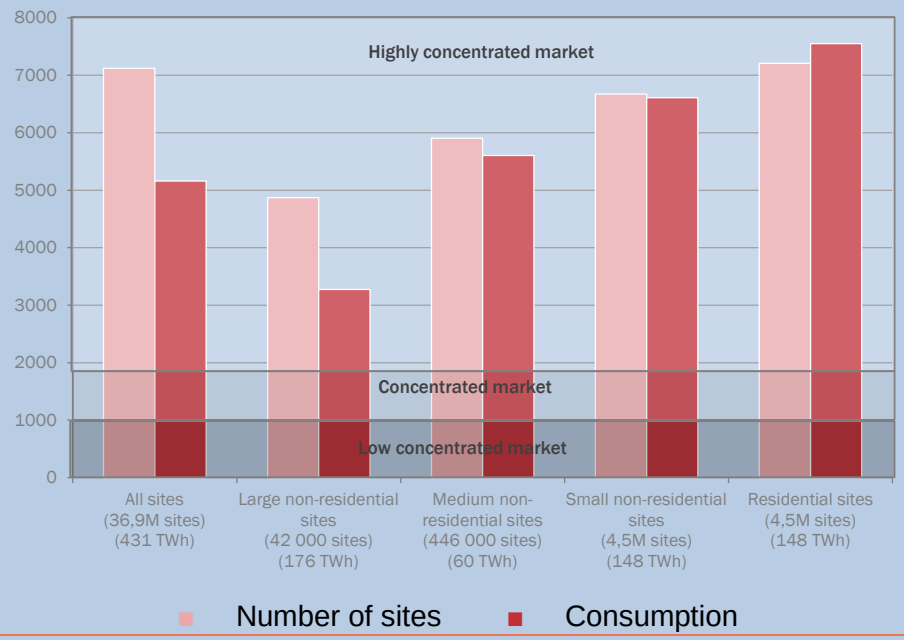
Unit of measure	Index
Data completeness	The data requirements to calculate the HHI have varying complexity, dependent on the relevant market definition. As a minimum, the NRA should be able to obtain data on supplier shares in household and non-household markets. **ERO monitors some of the metrics of the market structure on an annual basis. Data on gas suppliers is monitored with customer segmentation in relation to households and business customers by the volume of gas supplied and the number of supply points, without geographic segmentation (national market). We do not have historical data to assess the trend of the indicator over time (which is necessary for the evaluation of the market). Details on electricity suppliers are monitored by ERO for the entire market at a national level in segmentation by consumption category without breakdown by individual suppliers. This data is used for the CEER database.**

1.2 Metric 1: Pilot – France

Metric 1	Herfindahl-Hirschman Index
Description	The HH index measures the concentration of the market. The HHI is equal to the sum of the squares of the market shares of participants. It is generally considered that a market is not highly concentrated if its HHI is below 1,000, and highly concentrated if it is higher than 1800. CRE calculates the HHI every quarter in a number of sites and by consumption volume for all four market segments in the gas and electricity retail market: households, small business consumers, medium industrial consumers and large industrial consumers. CRE publishes the HHI in its quarterly publication “Retail market observatory”.
Purpose	Given the specificities of the markets for electricity and gas, this index should be used cautiously as an indicator of the degree of competition. Indeed, in the case of electricity, concentration and competition are not as directly related as in most other markets. Therefore, as also suggested in the CEER GGP on Indicators for retail market monitoring for electricity and gas published in 2010[1], CRE considers HHI results along with other indicators in order to draw conclusions on the market situation in France. Below is an example of the HHI in electricity and in gas for the second quarter in 2016.

[1] http://www.ceer.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Customers/Tab1/E10-RMF-27-03_final%20GGP%20IRMM_12-Oct-2010.pdf

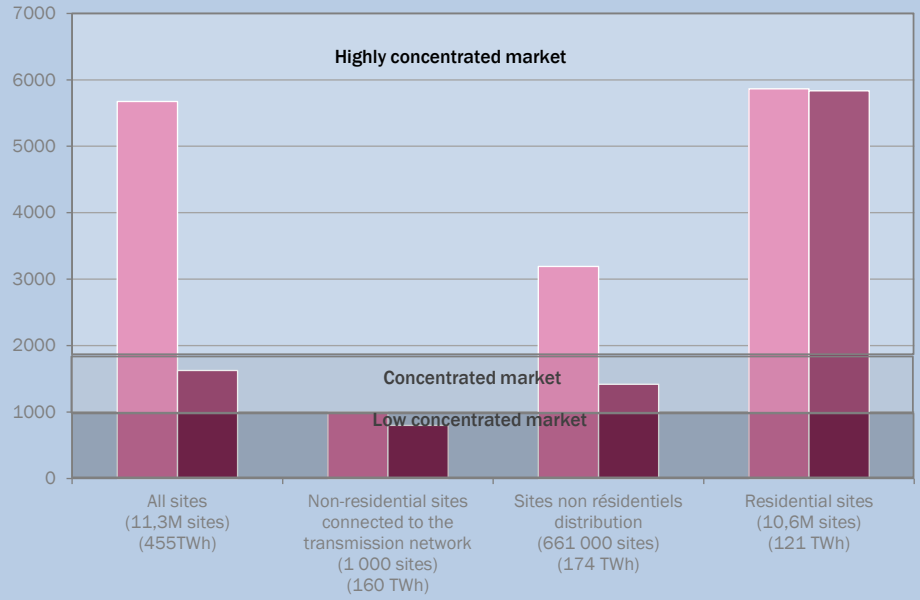
HHI by market segment in electricity



The recent developments in the French market, with the removal of regulated tariffs for the medium and the large industrial customers in electricity as of January 1st 2016, have shown quite an important change in the market structure. While the question is whether we talk about market opening by having more consumers under market price based contracts whether they are within an incumbent or an alternative supplier, the HHI is still highly concentrated for all market segments including the segments where there is a removal of regulated tariffs, although it has decreased compared to the previous year. While we expect to have lower concentration in these segments, these markets are still concentrated, although more competition is expected to be established in the future. It is important to note that many clients that had contracts under regulated tariffs with the incumbent supplier, stayed within this supplier but changed their contracts to contracts based on market prices. This is one of the results of the growth in internet switching.

The HHI values in terms of volume for the large industrial customers, decreased between June 2014 and June 2016, from 4,810 to 3,275.

HHI by market segment in gas



The French gas market is developing more quickly that the electricity market. The removal of regulated tariffs in the gas market was done in several stages, from April 2014 to January 2016, for non-household consumers. As shown in the graph, the HHI for non-household customers connected to the transmission grid, is in the zone where market concentration is said to be low. The HHI hor non-household customers connected to the distribution grid is high, showing that this segment is concentrated. This is linked to the removal of regulated tariffs, as non-household consumers connected to the transmission grid were largely choosing market price based contracts with alternative suppliers, which results in important developments for market competition in this segment. Whilst this was occuring, a large proportion of the non-household consumers connected to the distribution grid, whose removal of regulated tariffs came at later stage, were choosing the incumbent suppliers.

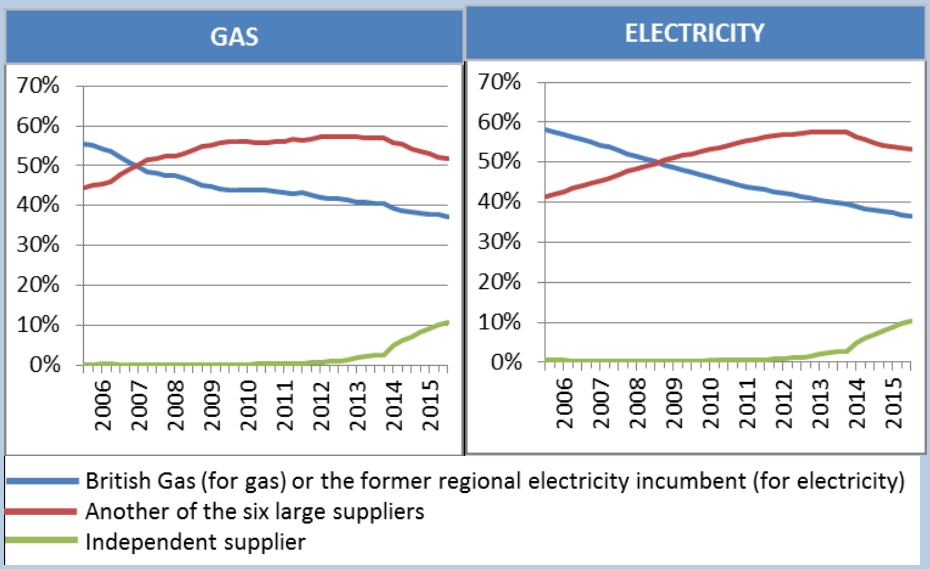
The HHI values in terms of volume for the non-household segment connected to the transmission grid decreased between June 2014 and June 2016, from 1,255 to 799.

Source of data	The is collected by CRE on a monthly basis from gas and electricity DSOs and TSOs. This same data is used to calculate all other indicators for retail market monitoring, but also particularly in this case for calculating the market shares for all four market segments, for each type of energy, that is the necessary requirement for computing the HHIs.
Quantification	For each market segment, an accurate HHI calculation requires knowledge of individual market shares for all active suppliers.
Unit of measure	Index (ranges from 0 to 10,000)

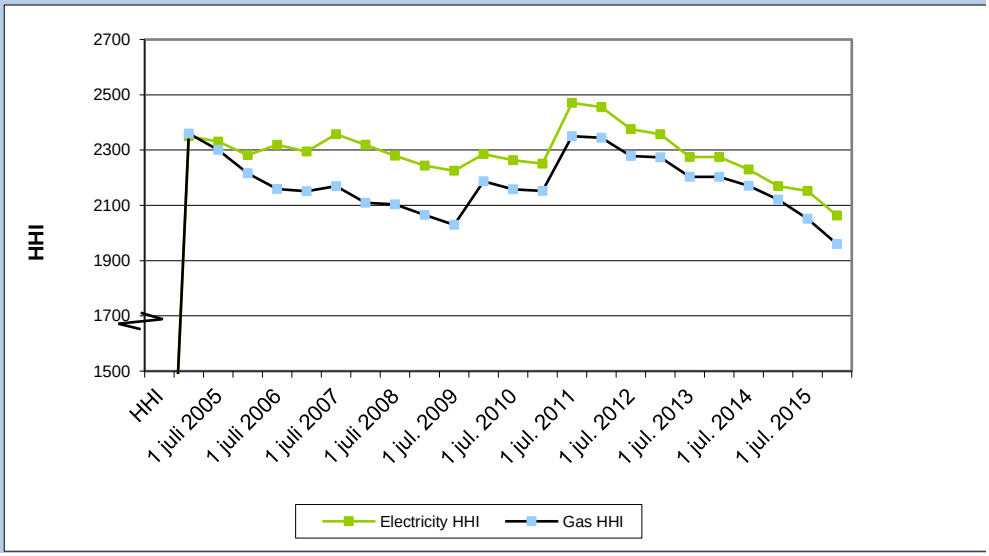
	The HHI is equal to the sum of the squares of the market shares of participants. It is generally considered that a market is not highly concentrated if its HHI is below 1,000, and highly concentrated if it is higher than 1800.
Data completeness	The data is complete. CRE has been monitoring market shares since 2004 for the non-household segment, and since 2007 (when there was a full opening of the market) for all segments.

1.3 Metric 1: Pilot – Great Britain

Metric 1	**Herfindahl-Hirschman Index**
Description	Ofgem monitors a number of indicators of market structure on a quarterly basis, including the number of active suppliers, new entry and market shares (on a national and regional basis). The HHI is calculated once per year, as part of the National Report for the European Commission. Traditionally, Ofgem has focused on the following relevant product markets, separately for gas and electricity: households, small businesses and large industrial consumers. Within households, there has also been an emphasis on monitoring the dual-fuel and the single fuel segments, with the former typically including the more competitive offers. For non-households, in electricity the segmentation between small and large customers is mainly based on half-hourly and non-half hourly meter points, while in gas it is based on consumption levels. More recently, Ofgem has started monitoring concentration in specific segments where customers are likely to be less engaged and/or in vulnerable situations and the competitive pressure tends to be lower, including customers on default tariffs, prepayment meters and bespoke time-of-use meters. The recent investigation conducted by the Competition Market Authority has also focused on these relevant markets. In addition to considering concentration at the national level, Ofgem looks at it at the level of geographic distribution areas in order to measure the position of incumbent suppliers, which inherited the regional monopolies that existed in the electricity sector prior to market liberalisation.
Purpose	While the HHI and similar concentration metrics do not provide conclusive evidence of the level of competition, they do point out as to whether a market has the potential to deliver non-competitive outcomes. Ofgem's approach considers the HHI alongside other indicators (as mentioned above) in order to assess market structure. This allows for a more holistic and informative assessment. The HHI alone is a synthetic measure, possibly more useful for long-term trend monitoring and cross-country comparison purposes. As an example of this type of assessment, see below for a concise description of the recent evolution of the GB energy household market structure. As shown in the figure below, as of June 2015, around 90% of domestic gas and electricity customers in GB were supplied by one of the six large suppliers, while the expansion of independent suppliers to 10% of the domestic market is a relatively recent development.

	Independent suppliers are a heterogeneous group with a large variety of entry pathways and business models, and their expansion has not been homogeneous across different groups of domestic customers and products. They tend to have a greater proportion of customers on fixed tariffs (53% compared to 27% for the six large suppliers) and direct debit accounts (83% compared to 58% for the six large suppliers) and relatively high penetration of the online accounts segment (a share of around 14% of all online customer accounts, compared to 3% of offline accounts). **Share of GB meter points served by different types of supplier**  Source: Ofgem analysis of data provided by DNOs/Xoserve. The impact of new entry since 2012 can also be appreciated through the changes in the HHI values. From December 2012 to December 2015, the HHI in the domestic electricity market decreased from 1,720 to 1,552 and in the domestic gas market from 2,373 to 2,042.
Source of data	The main source of data is meter points, collected by Ofgem through a regular information request to gas and electricity DSOs. This is used to calculate market shares for the households and non-households segments, for each fuel. On the other hand, suppliers provide data on customer accounts by contract (dual fuel or single fuel), tariff and payment type, which is used to calculate market shares for more specific product segments.
Quantification	Once the relevant market is defined, an accurate HHI calculation requires knowledge of individual market shares for all active suppliers. If individual market shares are not known for a significant portion of the market, the HHI may overestimate the degree of concentration in the market.
Unit of measure	Index
Data completeness	Ofgem has monitored market share data since the full opening of the market to competition.

1.4 Metric 1: Pilot – the Netherlands

Metric 1	**Herfindahl-Hirschman Index**
Description	ACM monitors the concentration in a market by calculating the HHI biannually. All suppliers are asked to provide the numbers of contracts, specified by duration of the contract, and the number of households and small businesses. The suppliers are required to fill this in for both electricity and gas. Using these numbers, the HHI is calculated. ACM uses a HHI threshold of 2000 to define a market as competitive.
Purpose	The HHI points out whether a market has the potential to deliver non-competitive outcomes. The gas HHI has developed significantly in the past half year. On 31 December 31 2015 the HHI was calculated as 2014, just above the threshold for a competitive market. On June 30 2016 the HHI was calculated to be 1960, which satisfies the condition for us to regard is as a competitive market. Concerning electricity, in December 2015 the HHI was calculated as 2106, while 6 months later it had fallen to 2063, getting closer to the threshold. 
Source of data	As specified in the description area, all Dutch suppliers are asked to provide the numbers of contracts they hold. This is used to calculate market shares for the households and small businesses segments, for each fuel. ACM collects this data biannually.
Quantification	Based on the number of contracts, and thus market share, the HHI can be calculated per duration and per fuel, for both households and small businesses.
Unit of measure	Index.
Data completeness	ACM has monitored this data since 2005, and the development of the HHI can be seen in the graph.

1.5 Metric 2: Pilot – Sweden

Metric 2	**Time needed and cost of assessing well-functioning wholesale markets and licensing / balancing regimes**
Description	Fair access to energy procurement on the wholesale market, and to licencing and balancing regimes, is a key pre-requisite for any supplier considering entry into the retail market. In Sweden, a supplier does not need a license to act on the retail market. In the Nordic region, a supplier may buy electricity on the Nord Pool day ahead or intraday markets, or bilaterally. In the future, suppliers can also benefit from other NEMO's (Epex Spot is currently approved to enter the market). A supplier is always responsible to ensure they have a balance responsibility party, who is in turn responsible for the suppliers' intake and out-take of electricity from the electricity system. This can be done either through applying to Svenska Kraftnät TSO for balancing responsibility, or by collaborating with another balancing party. Balancing electricity can be bought on the balancing markets arranged by the Swedish TSO. The rules for became a balance responsible party are open and *non-discriminatory.* The rules about balancing responsibility can be found in the Swedish electricity act, chapter 8. The Swedish NRA approves the methods used by the TSO. To access the Nord Pool day ahead and intraday markets the supplier must comply with the Nord Pool trading rules, which in turn should be complaint with the decision on designation as a NEMO. The wholesale energy market is regulated by REMIT, which is an EU-wide framework to prohibit market manipulation and trading on inside information.
Purpose	*The procedure to access a well-functioning wholesale market and licensing/ balancing regimes should be as distinct and flexible as possible, while maintaining a secure, open and non-discriminatory market.*
Source of data	
Quantification	In order to quantify this metric Ei addresses the following three sets of questions: Wholesale energy procurement • Are there procedures to access a national or regional wholesale market? Yes, according to REMIT all market participants need to register certain information, which has to be approved by the Swedish Energy Markets Inspectorate, on a registration tool called CEREMP (distributed by ACER) to get access to a national or regional wholesale market. • How long does it take to gain access to energy procurement in a national or regional wholesale market? It varies from application to application. When market participants send in their application in, CEREMP the Swedish NRA (appointed by ACER) reviews, the information and in the next step approves it. As an estimate, a

	review gets completed the same day as the application is received if the NRA does not need to ask something additional/or have any questions about the content of the application. • What is the cost of accessing national or regional wholesale market? The costs consist of two types of fees: - A yearly fee of 420.95 EUR for the maintainance of the national register. - A yearly fixed fee of 105.24 EUR and an additional variable fee depending on the yearly cost for the Swedish NRA to achieve their supervision and market surveillance. To note, the total of the fees that contribute to the Swedish regulatory supervision and market monitoring has a limit of 736,663 EUR/year. • Supplier license: Are market participants required to have a license to act on a national or regional market? Yes, when market participants are registered in CEREMP they get an ACER-code, which works as a licence. • How long does it take to obtain a licence to act on a national or regional market? See above. • What is the cost of acquiring a licence to act on a national or regional market? See above. Balancing responsibility • Is it possible for market participants to become a balance responsible party on a national or regional market? Yes. A market participant can apply for balancing responsibility to Svenska Kraftnät, TSO, or by collaborating with another balancing party. • How long does it take to become a Balance Responsible Party (BRP) on a national or regional market? No specific time frame, it depends from case to case. The total procedure normally takes a couple of months (from applying to official be a BRP). What is the cost to obtain balancing responsibility on a national or regional market (e.g. bank guarantees)?
Unit of measure	Regarding the existence of the relevant procedures: Yes/No and qualitative explanation. Regarding time: Number of months (legal requirements and/or as observed in practice if data is available). Regarding costs: Euros as applicable in relation with the different types of procedures/licensing. Date of currency conversion: 2016-07-26
Data completeness	

1.6 Metric 2: Pilots – the Netherlands

Metric 2	**Low market entry barriers - Time needed and cost of accessing well-functioning wholesale markets and licensing / balancing regimes.**
Description	In the Netherlands, energy suppliers must be licensed by ACM. Concerning the wholesale energy procurement, one has to register through ACER, and balancing responsibility can be obtained by registering at the operators (GTS and TenneT).
Purpose	There are standardized procedures concerning the supplier license for energy in the Netherlands. ACM has a division that assesses potential suppliers, who are all subject to the same procedure. The ACM website displays the whole procedure, including a detailed description of what potential suppliers have to provide. Concerning the wholesale markets and balancing regimes, one also has to follow a standardized procedure to obtain a license.
Source of data	For the supplier license, the data used comes from ACM's license team. This team provides all suppliers with the necessary license and therefore has the relevant information concerning the procedure.
Quantification	Concerning the wholesale market, to supply within the EU, potential suppliers must register at ACM, according to the European regulation REMIT. The registration at ACM goes through the Centralised European Registry for Energy Market Participants (CEREMP), an online platform for of REMIT participants, developed by ACER and the European NRAs. Registration can take up to three months. Given the supplier license, there are procedures that must be undertaken in order to acquire a license to act on the national market. If all the relevant information is provided in a satisfactory manner, the license team has a maximum of eight (8) weeks to decide upon wether to provide the license. This can be extended if more information is required, or if the application is incomplete. The average time that is needed to decide whether a supplier is given a license is 150 days, and ranges from 54 days to 481 days. The costs are €1,199, per fuel for the license. However, an assurance report is also needed in order to decide upon wether to accept a license application. The cost of these reports depends on the accountant and the supplier, and therefore is not taken into account in answering this question. Lastly, the balancing procedure in the Netherlands. To gain permission to operate here, one first has to inform either TenneT or GTS, respectively for electricity and gas. An information package will then be sent to the applicant, and then all applicable forms must be filled in and sent to the operators. Within 12 weeks, the operators decide whether the application will be granted, testing several factors, i.e. financial, legal, technical and organizational.
Unit of measure	Answers to questions
Data completeness	As ACM is the only legal provider of the licenses for suppliers, the data is complete. Concerning the balancing and wholesale market, it is written based on available information.

1.7 Metric 3: Pilot – Czech Republic

Metric 3	Percentage of consumers connected to "bundled" DSOs
Description	"Unbundling" was implemented to Czech legislation via Act No 670/2004 COLL. amended by Act No 458/2000 COLL. (Energy Act) effective from 30th of December 2004. Provision of Section 25a para 2 provides that "Distribution system operator of which system is connected more than 90 000 supply points of customers shall not be simultaneously the holder of an electricity generation license, an electricity transmission license, an electricity trading license and a gas trading license" Practical separation of an electricity distribution system occurred on 1st of January 2006. Also, provision of Section § 59a para 2 provides that unbundling according to the Energy Act is not required for a vertically integrated gas entrepreneur who provides services for less than 90 000 connected customers. Practical separation of a gas distribution system occurred on 1st of January 2007. In view of the fact that in 2005 there were several gas distribution system operators with approximately 100 000 consumers, in Czech Republic, the limit for unbundling was set by law to 90 000, so that this obligation applies to all such gas distribution system operators. In 2015 the distribution system operation was provided by 271 operators in the Czech Republic, three of which were distribution system operators with unbundling obligations (ČEZ Distribuce, E.ON Distribuce, PREdistribuce).
Purpose	It is necessary to monitor the development of new providers entering the market. In particular, it is necessary to monitor the entry of households to the market, where the competitive conditions are considerably different from non-households market. Whereas non-households usually choose energy suppliers via (public) tender, household consumers are usually in a weaker position for negotiation. If a vertically integrated entity, despite the obligation of separation, still holds a high share, that with time does not lessen, it is necessary to investigate further the setting and compliance with the conditions for market entry. Barriers to market entry may be found for a number of different reasons - contracts with a commitment of several years, fees for early termination of contracts, lack of access to customer information for new entrants suppliers, benefit of widespread network of branches in the distribution area, binding supplies and other services (insurance, mobile phones, electricity and gas supply, etc.), quantity discounts. Currently, ERU does not evaluate this indicator. It will become part of the data, after setting the conditions for the monitoring of the indicators
Source of data	ERU anually monitors indicators related primarily to regulated prices for distribution, for all distribution system operators. Information gathered from electricity distributors now includes data on the number of supply points, consumption and voltage levels of supply points. These figures are monitored separately by customers and producers of electricity.

The data enables an assessment of the nationwide proportion of new suppliers without the possibility of evaluating individual shares of the incumbents in their distribution areas. This will be possible after setting the conditions for monitoring indicators (see Purpose).

Quantification

A total of 271 distributors submitted data on the operation of the electrical distribution system.

Three Distributors are subject to the obligation of unbundling, i.e. 268 operators electrical grid are under no obligation of unbundling (as they have less than 90,000 supply points). From the operators who are not subject to unbundling, none of them have no more than 1,500 supply points. Household customers have only 73 of them. See the table below with the shares by supply points and consumption.

Due to the fact that the operators without DSO unbundling obligations constitute an entirely negligible proportion of total consumption in the whole country, it is necessary to evaluate DSO unbundling obligations with details of their shares in their distribution areas. Currently, ERU does not evaluate this indicator. It will become part of the data ERU collects, after setting conditions for monitoring of the indicators.

Unbundling in the Czech Republic:

Market share of DSOs in the Czech Republic

Electricity	by metering points			by consupmtion [GWh/year]		
	non-household	household	Σ	non-household	household	Σ
unbunled DSO	97,1%	99,8%	**99,4%**	84,2%	99,9%	**88,0%**
bundled DSO	2,9%	0,2%	**0,6%**	15,8%	0,1%	**12,0%**
Σ	**797 424**	**5 138 113**	**5 935 537**	**46 362**	**14 811**	**61 173**

Number of DSOs: 271

Number of unbundled DSOs: 3

DSOs <100.000 customers: 268 of which

- 190 DSOs with only non-households customers
- 73 DSOs with household consumers
- 49 DSOs with > 5 households and without non-households consumer with higher consumption
- only 14 DSOs with > 5 non-households customers with high consumption, without households consumers.

Unit of measure

Unbundling implemented: YES

Shares of DSOs according supply points and according to consumption: %.

Data completeness

ERU has only partial access to the necessary data. A monitoring system is under preparation.

1.8 Metric 3: Pilot – Germany

Metric #	Percentage of consumers connected to "bundled" DSOs
Description	As energy networks are regulated monopolies, DSOs have exclusive access to all customers within their network area. The 3rd Package requires legal, functional, informational and accounting separation of DSOs and suppliers within a vertically integrated utility, although the 3rd Package specifies exemptions from these requirements for smaller DSOs. In Germany, all DSOs are unbundled according to the provisions of the 3rd Package. DSOs serving 100,000 or more connected customers have to fulfil legal, functional, informational and accounting unbundling. Whereas DSOs with less than 100,000 connected customers are exempted from legal and functional unbundling and are called "de-minimis". Some DSOs are a part of a vertically integrated group of companies with more than one integrated DSO. In order to determine the number of customers connected to a DSO, the numbers of connected customers of each vertically integrated DSO within the group has to be taken into account. This should avoid the circumvention of unbundling rules. E. g. the majority share of EVB Netze GmbH, a small DSO serving less than 100,000 connected customers, is held by a group of companies with other DSOs serving more than 100,000 connected customers (E.ON group). EVB Netze GmbH and the DSO's of the E.ON Group together serve more than 100,000 connected customers. For the small DSO EVB Netze GmbH this vertical integration leads to the obligation to apply legal and functional unbundling. Since the composition of shareholders of a company can change due to mergers and acquisitions, the legal obligations of DSOs with regard to unbundling can change too. Many smaller DSOs which are vertically integrated among themselves are equally relevant for the market as is one large DSO. If their combined number of connected customers is 100,000 or more, they need to apply legal and functional unbundling.
Purpose	For new suppliers entering the market, both national and cross-border, it is essential to have equal rules. Therefore, there must be a sufficient level of unbundling between suppliers and associated DSOs in order to create a level playing field in retail energy markets. This is essential, in order for all competitive actors to be able to compete on the same terms. The fact that there are exemptions from unbundling for DSOs does not immediately mean that there is a problem, but it might be a sign to further look into the matter. There might be DSOs serving less than 100,000 connected customers which have a more significant influence on the market than other DSOs serving more than 100,000 connected customers. Therefore, BNetzA believes it might be useful to apply another unit of measure like conducted energy for the categorisation of de-minimis-DSOs. However, this would be for the legislator to decide.
Source of data	There are no direct sources for data. DSOs are obliged to participate in BNetzA's annual market monitoring survey.

	DSOs are also obliged to publish the number of consumption points on their websites (§ 27 StromNZV, § 27 GasNZV) which is an indicator for the number of customers connected to their network. For small DSOs, which are obliged to unbundle legally and functionally because they are part of a vertically integrated group of companies, there is no direct source of data. Vertically integrated undertakings (VIU) are obliged to publish and implement an "equal treatment programme" for their members of staff employed by the DSOs. They are also obliged to file an annual report on this programme, which includes all DSOs of the VIU, to BNetzA.
Quantification	Germany has implemented the 3rd Package requirements around distribution unbundling completely. Therefore "bundled" DSOs do not exist anymore. However, Germany has made use of the option in Article 26 par. 4 of Directive 2009/72/EC to exempt DSOs serving less than 100,000 connected customers from legal and functional unbundling. The 2015 monitoring survey revealed a total number of 50.1 million final electricity customer metering points supplied in DSOs' network areas, including 46.9 million metering points of household customers. In the gas distribution network, there are 13.8 million final customer metering points, including around 12.5 million metering points of household customers.
Unit of measure	The unit of measure is the number of connected customers served by the DSOs. Connected customers of vertically integrated DSOs are added together. Customers connected to a downstream electricity or gas DSO which is not vertically integrated with the upstream network operator, are not added up. Because in the case that there is more than one upstream DSO, it is not clear how connected customers at the downstream level should be allocated to one of the upstream network operators. To quantify the number of connected customers, the number of consumption metering points within a network area is relevant. BNetzA believes that every metering point is a relevant delivery facility for commercial purposes in a competitive market. On the one hand, counting each metering point is relatively easy. On the other hand, it also avoids frequent deviations in the number of customers. Such deviations could occur because a customer with several metering points might have them all supplied through one contract and one supplier or through several contracts and suppliers. Also, properties might be temporarily shut down or uninhabited but still contain metering points which could be supplied again at any time. In Germany 72 out of 884 electricity DSOs have more than 100,000 connected customers. But 77 % of all electricity customers are connected to these 72 DSOs. The quantity of electricity supplied through these 72 DSO networks amounts to 75 % of all delivered electricity.

	This means, upon reversion, that 23 % of all electricity customers are connected to DSOs that have some exemptions from unbundling rules. These exemptions of legal and functional unbundling are applied as provided for in Article 26 par. 4 of Directive 2009/72/EC. Since all electricity suppliers in Germany operate non-discriminatorily, all 753 registered suppliers are potential rival suppliers in this area. In the gas sector, only 25 DSOs out of 701 have more than 100,000 connected customers. These 25 DSOs serve 45 % of all gas customers The quantity of gas supplied through their networks amounts to 43 % of all delivered gas. As in the electricity sector this means, upon reversion, that 55 % of all gas customers are connected to DSOs that have some exemptions from unbundling rules. These exemptions of legal and functional unbundling are applied as provided for in Article 26 par. 4 of Directive 2009/73/EC. Since all gas suppliers in Germany also operate non-discriminatorily all 560 registered suppliers are potential rival suppliers in this area.
Data completeness	The market coverage rate in our annual monitoring survey is well over 90% for most of the data.

1.9 Metric 3: Pilot – Norway

Metric 3	**Number of consumers connected to bundled DSOs**
Description	The Norwegian energy sector is characterised by the existence of a many small energy companies with integrated DSOs, mainly in rural areas. In total, there are 146 DSOs in Norway, of which seven have more than 100,000 customers. Currently, only DSOs with more than 100,000 customers are required to be legally and functionally unbundled in Norway. The 139 DSOs that are not required to be legally or functionally unbundled represent 1,266.000 of 2,938,000 total connected consumers in Norway (43%). The seven DSOs with more than 100,000 customers represent the remaining 1,672,000 of connected consumers (57%). This is set to change by 2021, when legal and functional unbundling will be required of all DSOs, irrespective of size. In 2013, a government commission delivered a report showing that bundled DSOs have approximately 15% higher costs per kilometre of network operated compared to unbundled DSOs, when taking into account customer density and other relevant geographical factors. The report concluded with a recommendation of establishing of legal and functional unbundling for all DSOs. Legal and functional unbundling is considered to increase neutrality vis-à-vis competitive market actors and reduce the risk of cross-subsidisation.

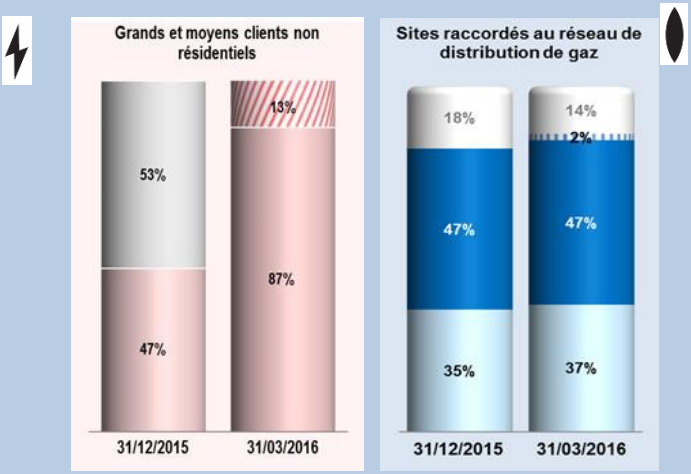
	In 2015, the Norwegian Ministry of Petroleum and Energy proposed an amendment to the Energy Act that imposes legal and functional unbundling for all DSOs. The proposed amendment was approved by the Parliament in June 2016, and will enter into force 1 January 2021. Hence, by 1 January 2021, all consumers in Norway will be connected to DSOs that are required to be legally and functionally unbundled.
Purpose	The lack of separation between monopoly regulated companies and competitive market actors is considered to contribute to inefficient competition and a lack of neutrality. For example, integrated companies can use access to the DSOs customer database to the benefit from its own competitive activities, and have incentives to use regulated income to support competitive activity. This type of activity is not socially efficient, and may be difficult for the energy regulator to discover and react against. By assessing the number of consumers that are connected to bundled DSOs, NVE has gained an overview of the number of consumers that may be disadvantaged. In general, however, Norwegian customers connected to the bundled DSOs do enjoy the same rights and opportunities in terms of participating in the competitive market as customers connected to unbundled DSOs.
Source of data	Yearly reporting by DSOs until 1 January 2021, not applicable after this date.
Quantification	Number of consumers connected to bundled DSOs. Percentage of total consumers connected to bundled DSOs.
Unit of measure	Number and percentage.
Data completeness	Since the implementation of the Energy Act in 1991.

1.10 Metric 4: Pilot – France

Metric 4	**Percentage of consumers with regulated energy prices**
Description	In the CEER "Benchmarking report on removing barriers to entry for energy suppliers in EU energy markets"2 a regulated end-user price is defined as a price subject to regulation or control by a public authority. The regulation can take different forms, such as setting or approval of prices, price caps or various elements of these. In Member States with regulated energy prices, the percentage of these is an important and a must have indicator, in order to assess the market openness and therefore the health of the market.

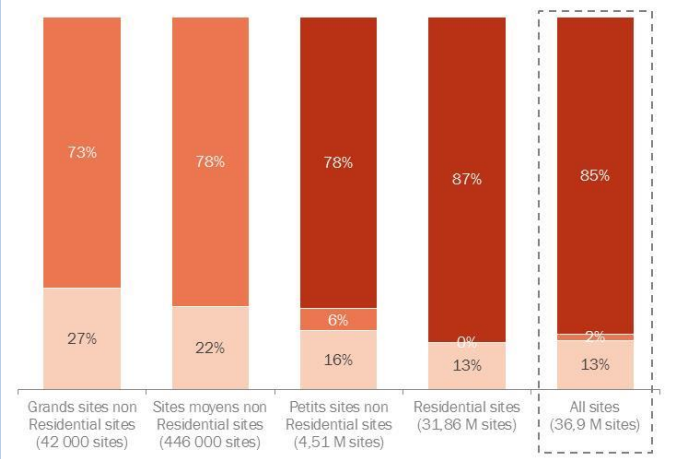
[2] http://www.ceer.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Customers/tab6/C15-RMF-70-03_BR_barriers_to_entry_for_suppliers_1-Apr-2016.pdf

	CRE calculates the percentage of regulated energy prices for all four market segments (households, small business consumers, medium industrial consumers et large industrial consumers).
Purpose	Knowing the percentage of consumers with regulated energy prices is crucial for an accurate assessment of the market development. But it is important also to mention that as for the other indicators, this indicator should be considered alongside other indicators such as the switching rate or other similar indicators of consumer engagement. In order to obtain a complete picture of the health of one's energy market, the NRA needs to know the number of consumers in each segment that have contracts under regulated tariffs. This can also provide information about the behavior of consumers. If the percentage of consumers with regulated energy prices is high, it can be said that consumers are not active participants in the market and stay with their incumbent supplier by historic reasons of loyalty, but also because of low level of knowledge of market opening and the possibilities offered to consumers. This leads to a more closed market with little competition. On the other side, if the percentage is low, consumers are changing suppliers and are going towards the alternative suppliers which can be interpreted as evidence of a more dynamic market. However, it is true that consumers can also stay with their incumbent suppliers under market price based contracts that are more difficult to qualify as market opening, although the percentage of consumers with regulated energy prices is low. In France, the regulated energy prices dominate the household segment in electricity, with 88% and a better situation in gas with 59% in December 2015. The situation is different in the non-household segment for both gas and electricity, with the removal of regulated prices as of January 2016 as shown in the graph below for electricity where the change can be clearly seen between December 2015 and March 2016. The majority of consumers signed a contract at a market based price, but there is a certain percentage (13%) that stayed under "transition offer" (offer for consumers that haven't chosen a new supplier or a market price based offer) within the incumbent supplier with a validity of 6 months. In France, regulated tariffs were removed in electricity as of 1st of January 2016, for non-households (large and medium industrial customers) with an electric power over 36 kVA. Regulated tariffs were removed in gas in 3 steps since June 2014, with the last stage as of 1st of January 2016 for all non-households whose annual consumption exceeds 30 MWh. **Evolution of the non-household consumers concerned by the removal of regulated prices in electricity and natural gas**



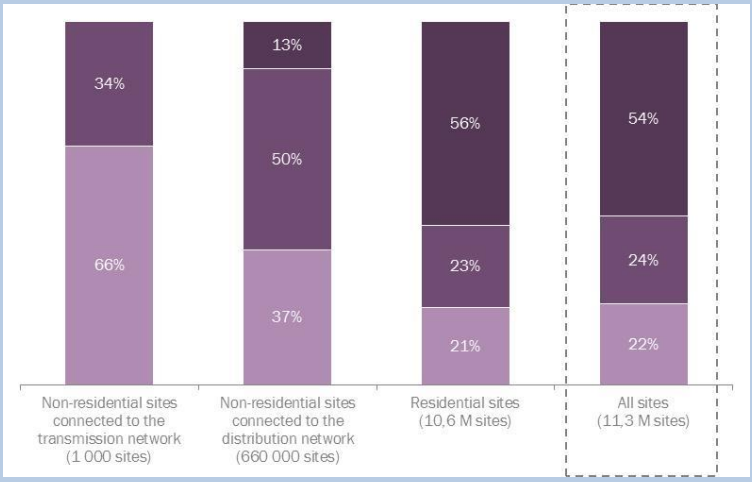
Market price offers (alternative and incumbent suppliers) Regulated tariffs Transition offer

Distribution of electricity clients by type of contract on June 30, 2016



Market price offers (alternative suppliers) Market price offers (incumbent suppliers) Regulated tariffs

Distribution of gas clients by type of contract on June 30, 2016



Market price offers (alternative suppliers) ■ Market price offers (incumbent suppliers) ■ Regulated tariffs

Source of data	The data is collected by CRE on a monthly basis from gas and electricity DSOs and TSOs. This same data is used to calculate all other indicators for retail market monitoring.
Quantification	The type of price regulation in France takes the form of an ex-ante price regulation. As defined by CEER, in an ex ante type of regulation, the price is defined by the responsible authority based on underlying information on the market, before market participants conclude contracts based on these prices. Regulated tariffs in France are set by the Ministers in charge of Economy and Energy, on a proposal from the Energy Regulator. Before, this CRE was only consulted for an opinion/advice, and now it has the role to propose the tariffs. Electricity regulated tariffs change once a year, while natural gas regulated tariffs change once a month. To calculate the percentage of consumers with regulated energy prices, the CRE uses the ratio of the number of consumers with regulated prices and the total number of consumers for each market segment.
Unit of measure	Percentage
Data completeness	Data is complete. CRE has monitored the percentage of consumers with regulated prices since 2004 for the non-household segment and since 2007 (full opening of the market) for all segments.

1.11 Metric 4: Pilot – Belgium

Metric 4	**Percentage of consumers with regulated energy prices**
Description	Social tariff • A cheaper tariff than the regular tariff • It is calculated twice a year and published by the CREG based on the lowest commercial tariffs on the market from suppliers of electricity and gas

	• It is only allocated to individuals belonging to specific categories • It is uniform throughout Belgium, regardless of supplier • It covers both the energy component as well as the distribution and transmission network tariffs. Those receiving the social tariff are not exempted from paying VAT, the federal contribution, the connection fee to the network in Wallonia and contributions to the energy fund in Flanders. Tariff for cut-off customers Your supplier can opt to cancel your energy contract in the event of non-payment. In this case, your distribution system operator will act as supplier and apply this rate. For electricity, this tariff will be applied to customers connected to the low-voltage network with an annually read meter. For gas, this tariff will be applied to customers with an annually read meter. However, this tariff will not be applied to customers who have had their energy contracts cancelled by their supplier but who were benefitting from the social tariff. In this case, the distribution system operator will continue charging the social tariff. How will this tariff be determined? • calculated for each distribution system operator based on the CREG rulings • reviewed twice a year and published by the CREG • covers the energy component and the costs for distribution and transport. This includes VAT, the energy contribution, the federal contribution, the connection fee to the network in Wallonia, the public service obligation charge in Brussels and the contributions to the energy fund in Flanders. The CREG publishes these charges for information purposes only.
Purpose	New entrants can apply the social tariff to relevant customers (categories defined in the Royal Orders of 29 March 2012). New suppliers receive proportionally the same compensation for the application of the social tariff as the historical operators and other suppliers already operating in the market.
Source of data	Suppliers are the main source for this data, for both social tariffs and tariffs for cut-off customers. In addition, all DSOs are asked for their input to complete the tariffs for cut-off customers.

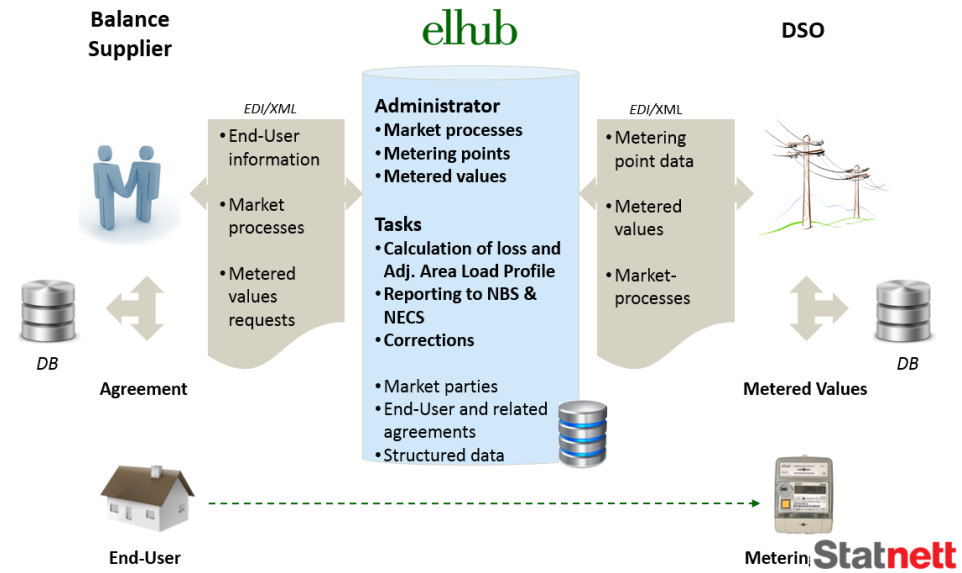
Quantification	The 6-month tariffs applied by the DSOs to their non-protected cut-off residential customers are calculated by the DSOs in accordance with the Ministerial Orders of 1 June 2004 (electricity) and 15 February 2005 (gas) using a standard form for all the DSOs. The top selling tariffs for suppliers are used to determine the tariff for cut-off customers. After examination by the CREG, the tariffs are published by the DSOs on their website. 6-month social tariffs are determined by the CREG on the basis of the the Ministerial Orders of 30 March 2007, setting the maximum social prices for the supply of electricity and gas to residential customers on low incomes or in financial difficulties. Electricity There are 438,000 customers (422,700 social customers at federal level and 15,300 at regional level) on social tariffs. These customers are residential customers only. The average volume per customer is +/- 3 MWh/year. There are 81,600 customers on tariffs for cut-off customers (79,300 residential customers and 2,300 SMEs). The average volume is unknown but should be similar to that of customers on social tariffs. Gas 258,000 (249,600 customers at federal level and 8,400 at regional level) are on social tariffs. These customers are residential customers only. The average volume per customer is +/- 15 MWh/year. There are 60,300 customers on tariffs for cut-off customers (59,500 residential customers and 800 SMEs). The average volume is unknown but should be similar to that of customers on social tariffs. The proportion of customers with social tariffs is 9% for electricity and gas. Tariffs for clients who have been dropped (cut-off customers) are determined on the basis of the Ministerial Decree of 1/06/2004 (electricity) and 15/02/2005 (natural gas) setting maximum prices for supply by distribution network operators to final customers whose supply contract has been terminated by their supplier who cannot be considered as protected low-income or vulnerable household customers. They are established every six months by the DSOs and controlled by the CREG. They are calculated based on a weighted average (in relation to market shares) of the most commonly sold tariffs from suppliers.
Unit of measure	Calculating the social tariff: (Art 8. AR 30 March 2007) The social tariff calculated by the Commission is obtained by calculating the lowest commercial tariff per supplier for the geographical area with the lowest distribution tariff, on the condition that at least 1% of the Belgian population lives in that area, for a period of three months prior to the calculation of the social tariff. The lowest commercial tariff shall be calculated on the basis of the existing divisions of residential customers.

	Determination of the tariff for cut-off customers (Article 2 and 3 AM 1 June 2004 NAD 15 February 2005). Distribution companies ensure supply to eligible unprotected end customers whose supply contract has been terminated by their supplier at the maximum prices determined as follows: Energy price + transport price + distribution network price + margin. The margin refers to an amount which is added to the sum of the price of the energy, the transport price and the distribution network price if that amount is below the average of the most recent prices published by the suppliers. The CREG has drawn up standard Excel files for the calculation of social tariffs and tariffs for cut-off customers. The CREG collects data from electricity and gas companies on a quarterly basis for the purpose of establishing quarterly prices. The suppliers who apply a social tariff receive compensation via a procedure described in the Royal Orders of 29 March 2012. This proportion of customers and their consumption relative to the total number of customers and consumption is 9% for electricity and gas social tariffs. For electricity and gas cut-off customer tariffs, the proportion of customers and their consumption relative to the total number of customers and consumption is 2%. The number of customers affected is noted above.
Data completeness	The information requested is set out in the responses to the questions above. In Belgium, all the information is acquired on a legal basis, rather than in the context of monitoring activities.

1.12 Metric 5: Pilot – Norway

Metric 5	**Number of common standards for consumer data & for DSO-supplier contract or existence of data hub**
Description	The current data management model in Norway is a decentralised message exchange system. The system, called Ediel, acts as a communications platform between suppliers and DSOs by facilitating the exchange of customer data, historical metering data required for billing and performs supplier switches. Ediel is a single standard with standardised data formats, but requires all market participants to send messages and make data requests to each individual DSO. Consumers do not have access to data in the Ediel portal, however they may request the data from their DSO. From 2017, the Norwegian data management model will move to a centralised data hub called Elhub. NVE gave the task of developing Elhub to the Norwegian TSO, Statnett. The purpose of Elhub is to facilitate the exchange of metering values and customer information, which is used for settlement and billing. When the smart meter roll-out is completed in Norway

on 1 January 2019, Elhub will collect and distribute hourly metering data from more than 2.8 million smart meters. Elhub will also handle supplier-switching processes.



The key principle for data handling in Elhub is that the consumers have ownership and control over their data. This is enshrined in the changes that NVE has made to regulation no. 301 on metering and settlement. Among the most important changes in this regard is the use of national ID-numbers for identification purposes, both in electricity contracts and business processes in the electricity market. This ensures the correct identification of individuals in the power market and in Elhub.

The changes to regulation on metering and settlement facilitates the following:

- Elhub takes over responsibilities from DSOs
  - Performing supplier switching and moving
  - Profiling manually read meters and grid loss
  - Compute and provide balance settlement data to BRP/suppliers and NBS
  - Reconciliation – correction settlement
- Supplier centric management of customer data
  - Supplier provides customer data
  - Supplier shall provide historical consumption data to customers

Other changes in the regulation are about:

- Messaging standards (Ediel)
- Data quality and migration
- Storage duration
- Metering requirements
- Reversal of business processes
- Standards for validation, change and estimation of metering data
- Meter values in Elhub must be used for billing
- Security management systems
- Privacy web solution

	○ Neutrality requirements ○ Elhub user contract NVE has also conducted an additional hearing that establishes the use of national ID-numbers in Elhub and adds further demands concerning quality control and the migration of data. NVE has also introduced a voluntary combined billing regime in 2016. Within the combined billing regime, NVE has set minimum requirements for the contract between DSOs and suppliers. There is no standardised contract format outside the minimum requirements.
Purpose	By enabling the efficient distribution of data and through quality controls of metering data from DSOs, Elhub will ensure maximum security and efficiency in the use of smart meter data. Elhub will ensure that data is accessed at a single point, with a single interface, simplifying the market structure significantly as suppliers no longer have to message 146 DSOs in order to get data. Elhub will therefore contribute to a more efficient organization of the power market, increasing neutrality in the interaction between DSOs and market participants. By making the divide between monopolies and competition clearer, Elhub will be a platform for increased competition and innovation in the electricity market. Finally, Elhub is also a tool for customer empowerment, enabling customers to have equal access to data and enabling them to control their data and to share data with market actors.
Source of data	Elhub
Quantification	Is there a procedure containing common standards regarding the accessibility of data for suppliers and third parties? Yes, but mainly for suppliers until Elhub is live in 2017. In principle, all license holders have access. What kind of data is covered by the procedure? Customer data, metering data, data required to perform a move or switch. Is there a procedure for contracts between DSO-supplier in a MS where a supplier centric model is applicable? No supplier centric model until Elhub v2, however minimum requirements for contracts established with voluntary combined billing. Is there a national data hub? Yes from 2017, see qualitative description of the changes Elhub will bring.
Unit of measure	Yes/no.
Data completeness	

1.13 Metric 5: Pilot – the Netherlands

Metric 5	**Number of common standards for consumer data and for DSO-supplier contract or existence of data hub**

Description	In the Netherlands, the joint DSO's own an ICT-organization which is responsible for the storage and access to consumer data in various centralized databases. This organization is called Energie Data Services Nederland (EDSN). The databases contain: 1) Metering data 2) Data related to the point of delivery 3) Data related to various energy-processes (such as supplier switching) 4) Supplier-consumer contract data (current supplier and current contract end date) The DSO's, suppliers, and metering operators are obliged to co-operate to setup rules for the storage and exchange of consumer data. The NRA has to approve these rules and monitors compliance. EDSN translates the rules into ICT: - Database - Servers - Communication protocols - Authorisation methods - Authentication methods - Access privileges (varying per market role) - Security The data protection agency is responsible for enforcement of the data protection law. The consumer remains owner of his/her data, and data may only be accessed by a market role when explicit permission has been given by the consumer.
Purpose	The centralized data hub facilitates market functioning. By creating a single point of information, with standardized protocols and procedures, information can be exchanged more efficiently and effectively between market players such as suppliers and DSO's. Furthermore, because ICT changes can be implemented in a central system, the cost of changes in ICT for market players is significantly lower and less prone to errors.
Source of data	EDSN
Quantification	Is there a data hub? Yes and related qualitative description.
Unit of measure	Answers to questions
Data completeness	

1.14 Metric 6: Pilot – Sweden

Metric # 6 Sweden	**Availability of time-of-use metering and – where applicable – additional fee paid by the consumer to be able to have time-of-use prices vs. traditional metering**
Description	All 150 000 customers with a power fuse larger than 63 A are metered hourly. A customer with a power fuse less than or equal to 63 ampere who signs a time-of-use-price-contract with a supplier will automatically have their meter changed to hourly metering at no additional cost for the customer.
Purpose	In 2010, the Swedish government stated that customers should have access to a tool through which they can have an impact on their consumption. Hourly metering is an example of such a tool. Through hourly metering the customer has the possibility to be active in the market and adjust the consumption to real time spot prices and time varying network tariffs. This legislation came into force on October 1st 2012.
Source of data	Ei has monitored the development of hourly contracts and hourly metering through an online survey to all suppliers and DSOs. Additional metering data is collected from the Swedish TSO, Svenska Kraftnät.
Quantification	Hourly metering is available for all customers on the Swedish market. On October 31st 2013 there were 8 600 hourly metered customers with a power fuse less than or equal to 63 ampere. The total amount of metering points with a power fuse less than or equal to 63 ampere is 5 200 000. There is no additional cost for customers up to 63 ampere to have hourly metering.
Unit of measure	Yes. 8 600 metering points under 63 ampere with hourly metering. 0 euro.
Data completeness	Data complete.

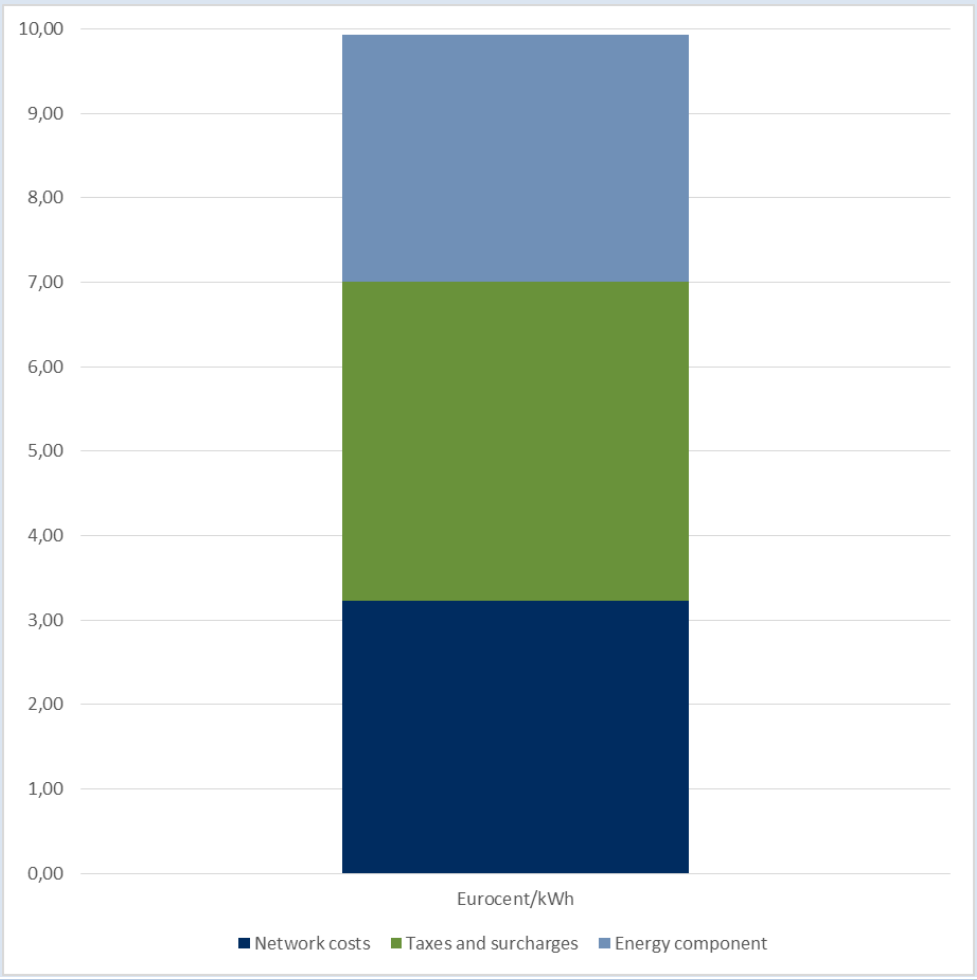
1.15 Metric 6: Pilot – the Netherlands

Metric 6	**Availability of time-of-use metering and, where applicable, additional fee paid by the consumer to be able to have time-of-use price vs. traditional metering**
Description	In the Netherlands households can have various meters. Single meters, double meters or smart meters. The single meters don't allow time-of-use pricing, the double meters allow time-of-use pricing by applying day/night metering and smart meters allow time-of-use pricing and are currently being rolled out.

	From 2015 onwards, all households in the Netherlands are to be offered a 'smart meter'. The operators decide the planning of the roll-out and by current estimates, the roll-out will be complete in 2020. With 'smart metering', customers have the ability to be active in the market through demand response of flexibility schemes.
Purpose	The day/night metering allows for a differentiation in prices between day- and night-time. The purpose of these meters was to make consumers more aware of their energy consumption and to allow them to shift their consumption to other time periods in order to save money. By obtaining insight into their real-time consumption via the smart meter, consumers will be able to actively shift their consumption to save money with spot prices. Furthermore, these insights might encourage them to find ways to reduce their consumption. For example, by improving the insulation of their house or installing solar panels.
Source of data	The costs are set by law.
Quantification	In the Netherlands, all customers can obtain a smart meter. If provided by the operator, as described above, it will be free of charge. Also, installation is free of charge when large scale renovations occur, when regular replacement happens, or in new buildings. If the customer wants the smart meter before the scheduled installation by the operator, it will be installed within three months, if technically possible. Only in that case, installing a smart meter for both fuels can cost €72.60 maximum. For only electricity this amount is €67.76. At the end of the first quarter of 2016, 2.086.132 smart meters were installed.
Unit of measure	Euros for installation, quantification for number of meters installed.
Data completeness	Data concerning number of smart meters is taken from the Ministry of Economic Affairs, the costs of installation are regulated.

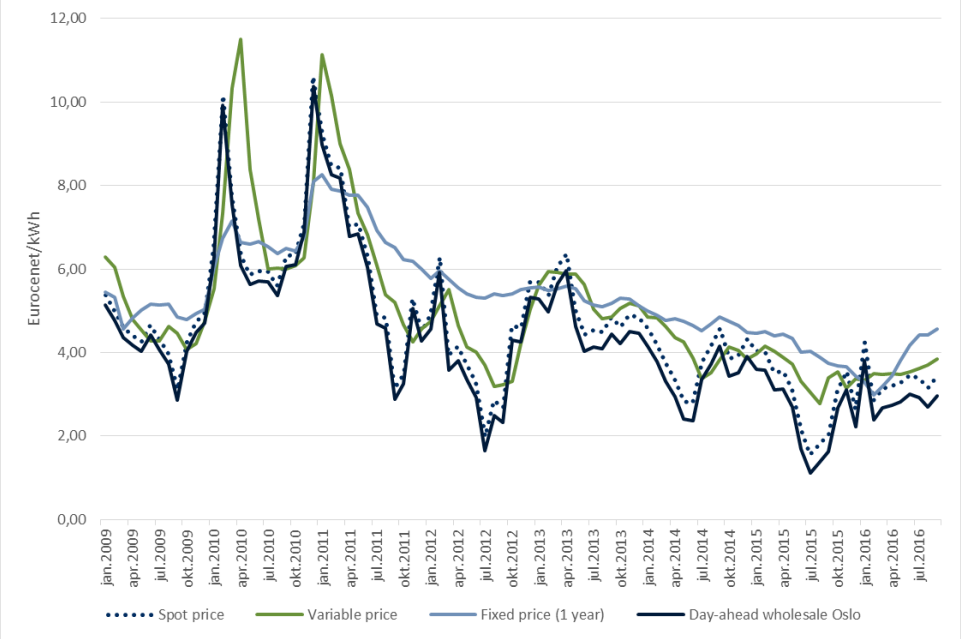
1.16 Key Property III: Pilot - Norway

Key Property III	**Price breakdown**
Description	In 2014, the breakdown shows that the average electricity cost in Norway amounted to 32% grid tariff, 38% taxes and surcharges and 29% energy component. In Eurocent/kWh this was 3,32 in network costs, 3,78 in taxes and surcharges and 2,92 in energy component costs.

	
Purpose	This shows the shares of the total bill affected by each cost element. This clarifies that, for example, when we are addressing the relationship between retail energy component costs and wholesale energy prices, we are dealing with costs equating to about 1/3 of the total electricity cost. Meaning that the correlation and mark-up between retail and wholesale markets will affect this 1/3 of consumers' energy bills in Norway, whereas taxes and network costs will make up the rest of the bill.
Source of data	Price comparison tools, DSOs, tax authority, Nord Pool.
Quantification	Weighted average of regional network tariffs. Energy component cost using monthly average day-ahead electricity prices in the Oslo bidding zone, with an estimated add-on of 0,23 eurocent/kWh. Taxes and surcharges include energy efficiency charge (0,12 eurocent/kWh), energy tax (1,48 eurocent/kWh), RES-charge (0,19 eurocent/kWh) and 25% VAT on all cost elements.
Unit of measure	Eurocent/kWh, percentage.
Data completeness	2014.

1.17 Metric 7: Pilot – Norway

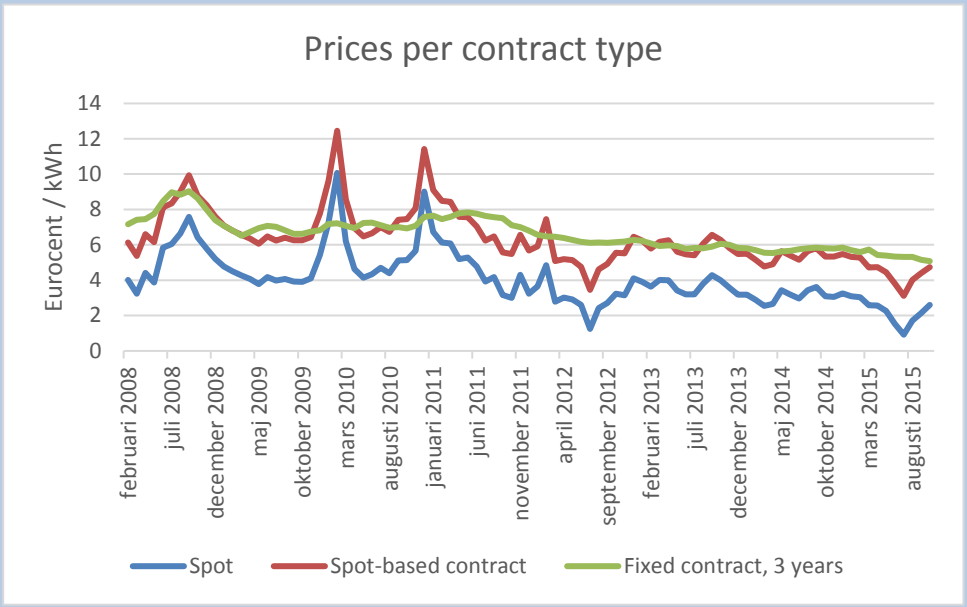
Metric 7	Correlation between wholesale and retail energy prices
Description	In the Norwegian electricity market, there is generally a close correlation between the prices of retail electricity contracts and the underlying wholesale electricity price in the bidding area where the contract is offered. In Norway, contracts are offered separately for the energy component of the retail price, and it is separated from network tariffs when billing, e.g. as a separate bill from the supplier or as a separate cost element in a combined bill. The closeness of the correlation depends on the type of energy component contract, e.g. spot price, variable price or fixed price. Therefore, any assessment of the correlation between retail electricity prices and wholesale electricity prices should consider the average prices on the main contract types versus the wholesale price. The main contract types and their relationship, in the form of a correlation with wholesale electricity prices in Norway, may be described as follows: **Spot price contract.** The price is set as an average wholesale price, or consumption profile adjusted wholesale price, for the previous month. In addition, suppliers charge a fixed add-on per kWh or a fixed monthly fee. The price should mirror average day-ahead wholesale electricity prices in individual months. (Where hourly metering is available and hourly pricing and settlement are agreed, prices should mirror day-ahead wholesale electricity prices in individual hours. Data is currently unavailable for hourly pricing.) **Variable price contract.** The supplier adjusts the price at regular intervals and the consumer is informed prior to price adjustments. The price should have some degree of correlation to day-ahead wholesale electricity prices in individual months. **Fixed price contract.** The price is by the supplier fixed for a set period of time. The price at the time of offering should have some degree of correlation with the day-ahead wholesale electricity price in the month it was offered. It is also relevant to assess fixed-price contracts against the wholesale forward contracts of the same duration. As we may observe in the following figure, there is a very close correlation between the movements on spot price contracts and the day-ahead wholesale price. This is of expected, given that the estimated add-on for spot price contracts is simply added to the underlying wholesale price, in the same way that suppliers' add-ons are added to the price and billed to consumers. With regards to variable price contracts, where the supplier adjusts the price, there is a significant correlation to the day-ahead wholesale price. However, it is also clear that there is a price-lag between the variable price and the wholesale price, likely due to varying notification

	periods for price changes from suppliers to consumers. The offered price on 1 year fixed price contracts also correlates somewhat with the day-ahead wholesale prices in individual months. However, the correlation is expectedly not as strong in terms of sudden price increases or decreases in the wholesale price. 
Purpose	Close correlation between wholesale and retail prices makes it possible for consumers to receive correct price signals from wholesale markets, which might function as an incentive for demand respose. The degree of correlation and the directness in the trasmitting of price signals will depend on the price-risk structure of the contract the consumer has with its supplier and the settlement of that contract. For example with a spot price contract, where the consumer carriers the risk of the price variation, price signals will be transmitted to the consumer according to the granularity at which the consumer is settled, e.g. monthly settlement against wholesale prices means monthly price risk or hourly settlement against wholesale prices means hourly price risk. Analysing prices on different contracts with different price-risk structures, against wholesale markets, enables us to observe the way in which correct price signals are transmitted to consumers.
Source of data	Price comparison tool, Nord Pool.
Quantification	For spot price contracts the monthly unweighted average day-ahead electricity prices in the Oslo bidding zone at Nord Pool, with an estimated add-on in eurocent/kWh (including RES-charge) of 0,24 (2009-2011), 0,35 (2012), 0,40 (2013), 0,42(2014), 0,43 (2015), 0,45 (2016). Prices on variable and fixed price contracts are reported by suppliers and weighted at 20,000 kWh/year, to quantify fixed monthly fees in terms of eurocent/kWh. Wholesale price data are unweighted average day-ahead electricity prices in the Oslo bidding zone at Nord Pool. All prices are for household consumers only. All prices include VAT of 25%.
Unit of measure	Eurocent/kWh.

Data completeness	2009-2016

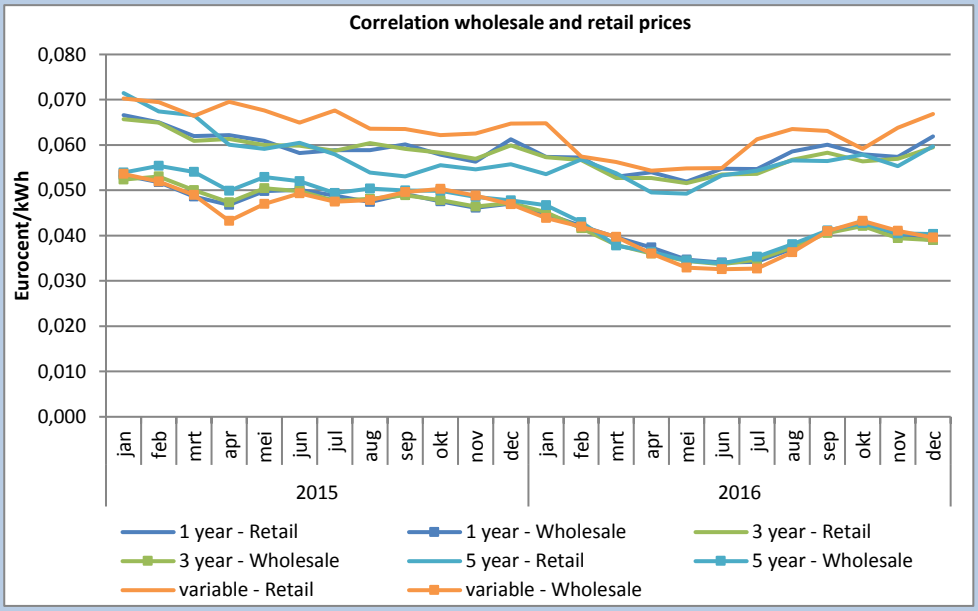
1.18 Metric 7: Pilot – Sweden

Metric 7	**Correlation between wholesale and retail energy prices**
Description	Organised and transparent wholesale markets determine the price of energy as a commodity. This metric concerns only the energy component of the total retail price, which is separate from network tariffs, taxes and surcharges. In Sweden, the network tariff and the energy price can be billed on the same bill or on separate ones, but are always distinctly separated. Energy tax and VAT are also always specified. The day-ahead wholesale price traded on Nord Pool Spot is a common reference price as most of the electricity is traded there, and the prices are publicly available. Some suppliers specifically state that their prices are based on the spot price.
Purpose	
Source of data	Ei monitoring and publicly available data from Nord Pool
Quantification	Retail and wholesale price data should be monthly average data, for a minimum of three consecutive years. In Sweden, micro data is available from 2008 and onwards. Both retail and wholesale price data is publicly available from Ei and Nord Pool respectively. Retail price data is reported to Ei excluding taxes, and are used as such for comparison with wholesale prices. Reporting offered prices to Ei is obligatory and regulated by law. Ei uses the unweighted monthly average for comparison between retail and wholesale prices. For year-on-year comparisons, a volume weighted average is usually used to account for variation in consumption patterns between years. Data on consumption is available from Statistics Sweden. Data on effectively paid prices is not available at a high granularity in Sweden, as companies are reluctant to disclose their exact customer by customer revenue. Ei use an average of all current offers on the market of respective contract type. As prices reported to Ei are with high level of detail, the cost can be computed to any consumption level. Ei commonly makes comparisons with prices computed for consumption levels of 2 000 kWh/yr and 20 000 kWh/yr. Wholesale prices are currently quantified as the monthly average Nord Pool Spot (day-ahead) prices. In case of additional power exchanges in the future, the methodology might have to be revised.

	
Unit of measure	Eurocent
Data completeness	

1.19 Metric 7: Pilot – the Netherlands

Metric 7	**Correlation between wholesale and retail energy prices**
Description	In the Netherlands, the most common contract types are one or three year fixed price contracts, or variable price contracts. Depending on the purchasing strategy of a supplier, the correlation with wholesale price tends to differ. ACM has used retail prices of suppliers for the period of 2015 – 2016. Unfortunately it was not possible to include 2014 in the current pilot due to time constraints. The data is available, but less accessible for analysis. The retail prices are sent to ACM by suppliers at least once a year and four weeks prior to a change in price and consist solely of contestable charges.
Purpose	Close correlation between wholesale markets and retail prices ensures that consumers receive correct prices. However, we would like to note that the correlation for especially variable price contracts is very dependent on the supplier purchasing strategy behind it.
Source of data	Retail prices: suppliers, wholesale prices from Endex.

Quantification	The wholesale prices are determined by modelling purchasing strategies which are common in the market. For example, for one year fixed price contracts, we would construct a portfolio of wholesale products which are necessary for supply for a year. This portfolio is "purchased" on a single day. This purchasing day is dependent on the start date of delivery of the product by the supplier. These wholesale prices also account for a margin, and various costs. The analysis below assumes that wholesale markets are well-functioning, organised, and transparent. The products analysed are variable price and one, three and five year fixed price contracts. The retail prices are unweighted averages of offers on the market and the wholesale prices consist of modelled portfolios.  Retail and wholesale prices are monthly average data and unweighted. Due to time constraints, the data is for the period 2015 – 2016. The retail prices are what consumers pay effectively in contestable prices. Wholesale prices consist of modelled portfolios of wholesale products and prices.
Unit of measure	Euro/kWh
Data completeness	The data is from 2015 and 2016. Historical data is available, but will require more effort to be made fit for analysis. We foresee no issues in the near future with regards to the availability of prices.

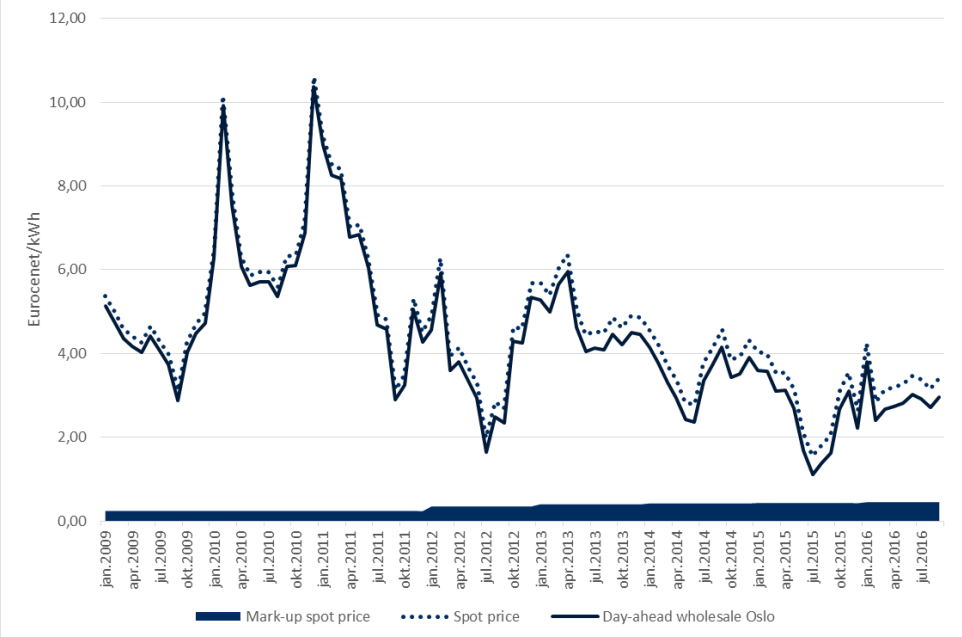
1.20 Metric 8: Pilot – Norway

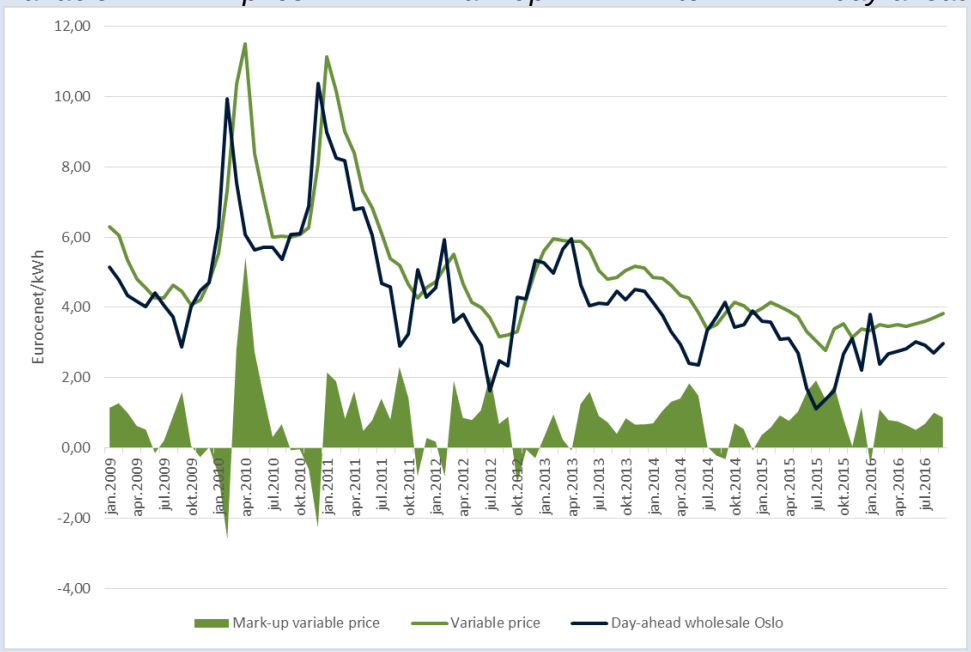
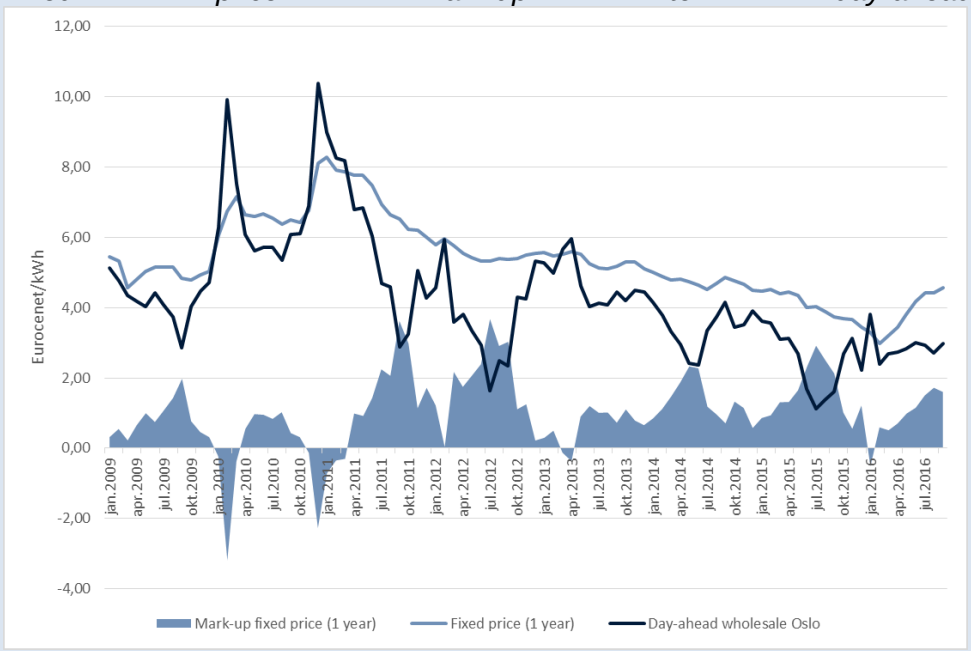
Metric 8	**Mark-up between wholesale and retail energy prices**

Description	In the Norwegian electricity market, there is a sustainable mark-up between prices on retail electricity contracts and the underlying wholesale electricity price in the bidding area where a contract is offered. In Norway, contracts are offered separately for the energy component of the retail price, and it is separated from network tariffs when billing, e.g. as a separate bill from the supplier or as a separate cost element in a combined bill. The level of the mark-up depends on the type of energy component contract, e.g. spot price, variable price or fixed price. Therefore, any assessment of the mark-up between retail electricity prices and wholesale electricity prices should consider the average prices on the main contract types versus the wholesale price. The main contract types, and their relationship in the form of a mark-up with wholesale electricity prices in Norway, may be described as follows: **Spot price contract.** The price is set as an average wholesale price, or consumption profile adjusted wholesale price, for the previous month. In addition, suppliers charge a fixed add-on per kWh or a fixed monthly fee. The mark-up should be equivalent to the costs of the add-on or fixed fee on top of the average day-ahead wholesale electricity prices in individual months, when adjusted for consumption levels. **Variable price contract.** The supplier adjusts the price at regular intervals and the consumer is informed prior to price adjustments. In theory, the mark-up on a variable price contract could be both positive and negative, depending on the price lag and underlying wholesale price movements, when compared to day-ahead wholesale electricity prices in individual months. **Fixed price contract.** The price is by the supplier fixed for a set period of time. The price at the time of offering should have a healthy mark-up when compared with the day-ahead wholesale electricity price in the month it was offered. It is also relevant to assess the mark-up on fixed-price contracts against wholesale forward contracts of the same duration. As we may observe from the mark-up analyses below, spot price contracts unexpectedly have the lowest mark-up to wholesale day-ahead prices, compared with variable price contracts which have the second highest, and fixed price contracts which have highest mark-up. From January 2009 to September 2016, the average estimated mark-up on spot price contracts was 0,34 eurocent/kWh, the average mark-up on reported variable price contracts was 0,74 eurocent/kWh and the average mark-up on reported 1 year fixed price contracts was 1,04 eurocent kWh. The average additional cost of hedging the electricity price for household consumers was 0,70 eurocent/kWh in this period, when comparing the average mark-up on spot price contracts versus 1 year fixed price contracts.

Although rare, in periods of peaking spot prices fixed price contracts are in these very limited periods clearly beneficial for consumers in terms of the mark-up. Variable price contracts seemingly always catch up to and even exceeds spot price peaks with the price lags, making these contracts less attractive in terms of price hedging. It is also clear that, if using the mark-up as a proxy for final margins, suppliers' margins will always be when offering a spot price contract. Whereas offering variable price and fixed price contracts can entail significant price risks versus the day-ahead price, as observed by the negative mark ups on these contracts in some periods. Ultimately, the price risk faced by suppliers offering these types of contracts depend on their wholesale hedging strategy. In December 2012, 60% of household consumers in Norway had a spot price contract, 36% had a variable price contract and 4% had a fixed price contract.

Spot price contract mark-up to day-ahead

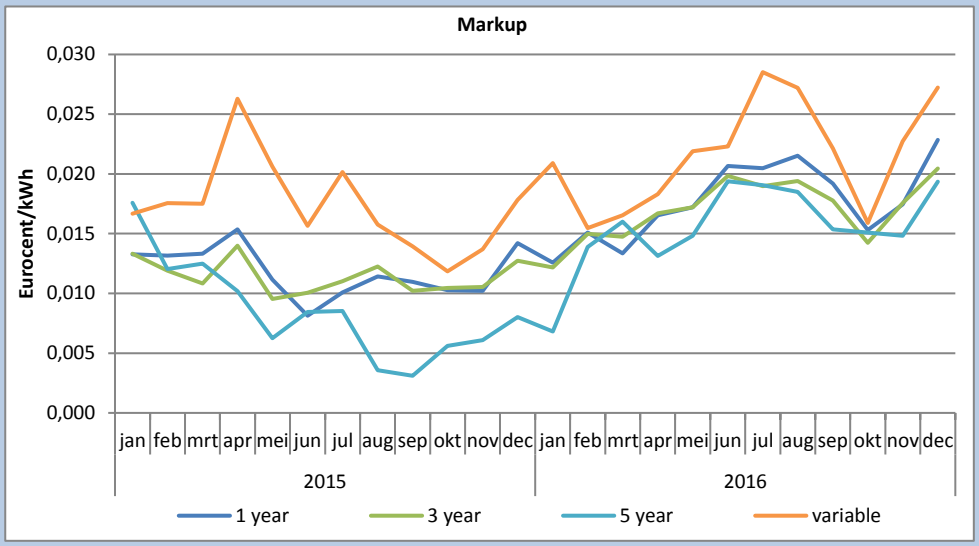


	Variable price mark-up to day-ahead  *Fixed price mark-up to day-ahead* 
Purpose	A sustainable mark-up between wholesale and retail prices enables us to observe whether consumers are paying a fair price for the underlying value of the energy commodity. We may observe what contract types are the most beneficial for consumers at specific times. We may also observe whether there is a business case for new suppliers seeking to enter the market, although mark-ups are not directly comparable to the final margin. The level of the mark-up will also highlight the hedging cost associated with variable price and especially fixed price contracts, when compared with the estimated mark-up on spot price contracts where the consumer carries the price variation risk.
Source of data	Price comparison tool, Nord Pool.

Quantification	For spot price contracts, the monthly unweighted average day-ahead electricity prices in the Oslo bidding zone at Nord Pool, with an estimated add-on in eurocent/kWh (including RES-charge) of 0,24 (2009-2011), 0,35 (2012), 0,40 (2013), 0,42(2014), 0,43 (2015), 0,45 (2016). Prices on variable and fixed price contracts are reported by suppliers and weighted at 20,000 kWh/year, to quantify fixed monthly fees in terms of eurocent/kWh. Wholesale price data are unweighted average day-ahead electricity prices in the Oslo bidding zone at Nord Pool. All prices are for household consumers. All prices include VAT of 25%.
Unit of measure	Eurocent/kWh.
Data completeness	2009-2016

1.21 Metric 8: Pilot – the Netherlands

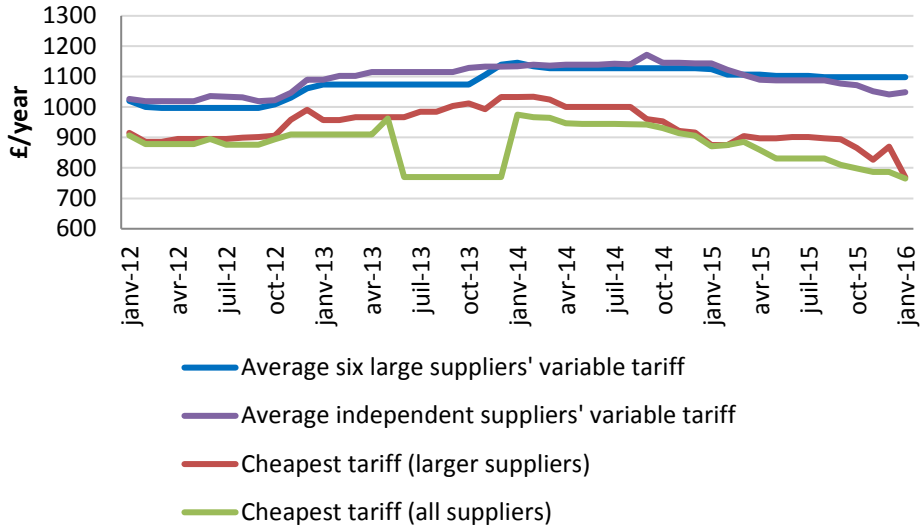
Metric 8	**Mark-up between wholesale and retail energy prices**
Description	The mark-up measures whether consumers are paying a fair price and whether or not the margin is (too) high. In the Netherlands, the most common contract types are one or three year fixed price contracts or variable price contracts. ACM has used retail prices of suppliers for the period of 2015 – 2016. Unfortunately it was not possible to include 2014 in the current pilot due to time constraints. The data is available, but less accessible for analysis. The retail prices are sent to ACM by suppliers at least once a year, and four weeks prior to a change in price, and consist solely of contestable charges.
Purpose	This analysis assumes that wholesale markets are well-functioning, organised, and transparent.
Source of data	ACM monitoring and Endex prices.
Quantification	The wholesale prices are determined by modelling purchasing strategies which are common in the market. For example, for one year fixed price contracts, we would construct a portfolio of wholesale products which are necessary for supply for a year. This portfolio is “purchased” on a single day. This purchasing day is dependent on the start date of delivery of the product by the supplier. These prices consist solely of the wholesale energy prices.

	 Retail and wholesale prices are monthly average data and unweighted. Due to time constraints the data is for the period 2015 – 2016. The retail prices are what consumers pay effectively in contestable prices. Wholesale prices consist of modelled portfolios of wholesale products and prices.
Unit of measure	Eurocents per kwh.
Data completeness	The data is from 2015 and 2016. Historical data is available, but will require more effort to be made fit for analysis. We foresee no issues in the near future with regards to the availability of prices.

1.22 Metric 9: Pilot – Great Britain

Metric 9	**Availability of a variety of pricing and billing options.**
Description	Ofgem closely monitors the types of tariff and payment methods available in the market, as well as the number of consumers on different tariffs and payment methods and the price premium/discount between different tariffs and payment methods. At present, suppliers offer two main types of tariffs. The Standard Variable Tariff (SVT), involving a variable price, is the default tariff – i.e. the tariff energy customers will pay if they have not made an active decision to change tariff. Unlike other tariffs, the SVT has no end date – customers will be on the SVT indefinitely unless they make an active decision to change. The other main type is fixed or price guarantee tariffs, providing consumers certainty that over a fixed period (usually 1 to 3 years) their tariff would either be fixed or not rise above a specified capped price. Despite the significant price gap between SVTs and fixed contract offers, nearly 2/3 of customers are currently on SVTs. This is a prominent feature noted by the Competition Market Authority in its recent energy market investigation.

Trends in domestic dual-fuel bills by supplier and tariff



Source: Energylinx

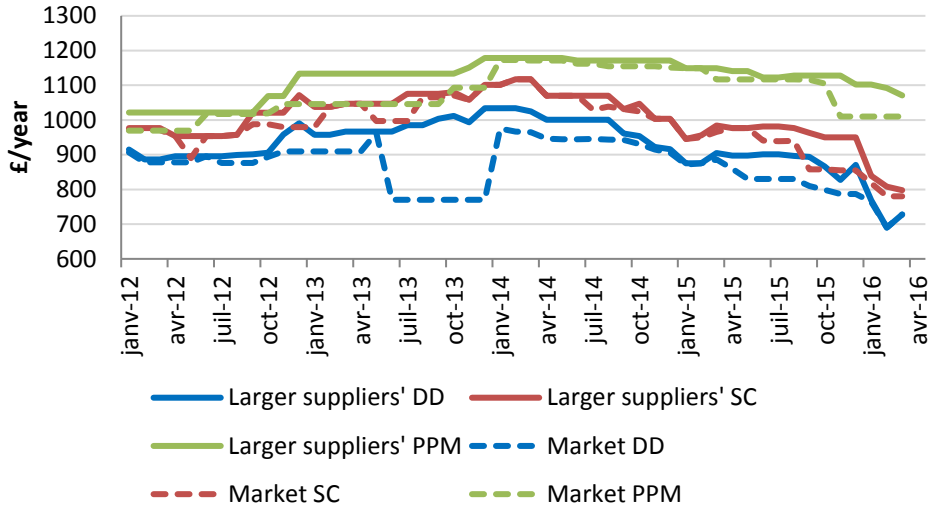
Note: Consumption 3,100 kWH of electricity and 12,500 kWh of gas.

There are three main payment methods by which energy consumers can pay for their domestic energy supplies: (i) Direct debit (DD) – a method of payment where a fixed amount is taken from a bank account each month, quarter or year; (ii) Standard credit (SC) – a payment method where customers pay on receipt of the bill. This typically covers a wide range of payment mechanisms, including cash, cheque, credit card and standing order, and (iii) Prepayment meter (PPM) – these are meters that require payment for energy to be made in advance of use or they will prevent the supply of gas or electricity (customer pays for energy by inserting electronic tokens, keys or cards into the meter).

In the mid-1990s the majority of customers paid by SC, but since then there has been a significant shift towards payment by DD. At the end of 2014, 57% of electricity and 59% of gas customers were paying by DD, 27% of electricity and 26% of gas customer by SC and remaining 17% electricity and 15% of gas customers by PPM. Suppliers have traditionally offered a variety of discounts to customers to pay by direct debit over the years. More recently, these differentials relative to direct debit have shown some alignment and generally fall in the £70–£80 range per year. Prepayment is not always a choice on the part of the customer as prepayment meters are generally installed where a customer has a poor payment history or in certain types of accommodation, such as student accommodation.

The degree of choice and competitive pressure in the different payment segments is quite different, especially between direct debit and prepayment. Fewer tariffs are available for prepayment customers, mostly SVTs, implying that these customers have not generally benefited from competitive fixed price offers.

Cheapest tariff by payments method for a typical* dual-fuel customer



Source: Energylinx

Note: Consumption 3,100 kWH of electricity and 12,500 kWh of gas

A few innovative cheaper prepayment deals have started appearing in the market more recently, including smart pay-as-you go tariffs.

Purpose

Ofgem monitors the variety of pricing and billing options available in the market in order to understand the degree of competition and innovation, as well as the easiness of comparability of the different options for consumers.

Source of data

Ofgem collects this data through a mix of sources: Energylinx (a price comparison website), regular information requests to suppliers (especially to establish the number of customers on the different types of tariffs) and Ofgem's own market intelligence research.

Quantification

For Ofgem the quantification of this metric includes a broad range of measures, among which, most importantly: the different tariffs and payment types, the number of consumers on the different types and the main price differentials.

Below Ofgem has ticked boxes included in the metric quantification template for the yes options with black and left the no boxes empty.

1) Is there a variety of pricing options?

Variable price set and announced ahead of time (ex-ante).

■ Variable price that changes 4-12 times per year (possible in principle, but generally limited to once or twice a year)

■ Variable price that changes more than 12 times per year (possible in principle, but generally not observed in practice)

Wholesale-based price announced ex-post plus fee and/or mark-up announced ex-ante.

☐ Price settled against monthly average wholesale

☐ Price settled against daily/weekly average wholesale

	☐ Price settled against hourly average wholesale Fixed price stipulated in the contract ahead of time. ■ Fixed 3-11 months ■ Fixed 1-3 years ■ Fixed 4 years or longer Mixed price based on both fixed and variable components. ☐ Mix of variable and fixed price ☐ Pricing method varies between seasons 2) Is there a variety of billing options? Tick boxes for the yes or no options available below. ■ Direct debit ■ Bank transfer ☐ SEPA[3] ■ Credit card ■ Cash ■ Pre-payment ☐ Other (specify) __Fuel direct*_____ *Electricity and gas suppliers are required to offer domestic customers in payment difficulty a range of options for repayment, including the option of paying via Fuel Direct if it is available. Fuel Direct is a budgeting scheme that lets money be deducted directly from a customer's social security benefits to pay off a debt or energy use to a supplier. A fixed amount is taken directly from the customer's weekly benefits by the Department of Work and Pensions and paid to the supplier to help clear a debt
Unit of measure	Number, %, £
Data completeness	Ofgem has been monitoring pricing and billing options for a long time. Data is generally available since 2004.
Unit of measure	Number
Data completeness	Data complete.

[3] The Single Euro Payments Area (SEPA) aims to create a true European Single Market for retail payments in euro, and makes all electronic payments in the euro area as easy as cash payments. SEPA enables fast and secure transfers between bank accounts anywhere in the euro area. With SEPA a household customer can use their home bank account to pay bills in any eurozone country. Shopping abroad, a household customer can use their own bank debit card to make a payment in euro, as they would in their home country. The SEPA Regulation (EC 260/2012) was adopted in 2012, and 1 February 2014 was originally set as the implementation date for all countries within the eurozone. The Regulation was amended in January 2014 (IP/14/6) to extend the deadline to 1 August 2014. Non-eurozone countries have until 31 October 2016 to implement SEPA for their transfers in euro.

1.23 Metric 9: Pilot – Italy

Metric 9	**Availability of a variety of pricing and billing options**
Description	This metric describes two ways of differentiating an offer (pricing and billing) in retail energy markets. Retailers may offer different products based on the way in which they are priced or billed. The consumers' bill contains key information, and may consist of information about the energy component price, the network tariff and taxes paid. This metric is aimed at the household market and possibly SMEs when and where applicable. **Due to the fact that pricing and billing may differ depending on the offer, a customer should be able to choose from a wider and wider range of offers. The price (price structure), the billing period, the way the bill is sent to the customer are characteristics that make an offer different from another.**
Purpose	Various options of pricing and billing can present innovation in the market and create benefits for the customer. Examples of various pricing options may be fixed pricing, variable pricing, or wholesale-based pricing. Wholesale pricing may be hourly, based on time-of-use metering, or monthly based on an arithmetic mean or load profile adjusted day-ahead price for the previous month, where time-of-use metering is not available. With wholesale pricing, the supplier earns its margin through an add-on per kWh or a monthly fee. Consumers should have the option to choose to be exposed to time-varying electricity prices, which reflect the value and cost of electricity and transportation at the moment of consumption. Armed with this information, consumers can make conscious choices – or automate the decision – to use less electricity at times of high prices and thereby reduce their energy bill. Variations of billing options could be many, falling essentially under two broad categories: Advance payments or post-meter reading payments. Post-meter reading billing should be advocated for consumers with time variable pricing, as this ensures that consumers are billed for the actual energy consumed during the billing period. As such, advance payments may be a barrier to demand response unless a correct settlement takes place after each consumption period. Opportunities for a variety of pricing and billing options should enable new suppliers with innovative ideas on pricing and billing to enter a market. If such opportunities are severely restricted, this might distort competition. Innovation may give rise to a wide range of pricing and billing options **for the** benefit **of** competition and the well functioning of retail markets.

	Price is **the** key factor in choosing **a** product/offer, but one can notice that offers may be chosen **also** for their non-price-related characteristics. Thanks to **smart meters'** deployment customers may be billed on **the basis of** actual consumption and/or with enough frequency: this increases the number of offers on the market because suppliers are able to propose tailor made offers. Furthermore, it enhances the position of customers in making their decisions: customers are provided with timely information on their actual energy consumption, thus they can accordingly change their consumption patterns and/or make use of energy efficient technologies. Provided with more data, suppliers are able to propose time-of-use and dynamic prices. In addition, third parties could provide new services such as demand-response. Billing options meet a different need: a part from the difference between actual consumption and estimated consumption and between advance payments and post-meter reading payments, the billing period as well as the choice of electronic bill instead of paper one may be appreciated at the moment of the conclusion of the contract.
Source of data	**Price comparison tool run by the NRA**
Quantification	In order to quantify this metric the NRA should address the following two sets of questions: 1) Is there a variety of pricing options? Tick boxes for the yes or no options below. Variable price set and announced ahead of time (ex-ante). Example: Price is changed every month and announced before the start of the month. ☐ Variable price that changes 4-12 times per year ☐ Variable price that changes more than 12 times per year Wholesale-based price announced ex-post plus fee and/or mark-up announced ex-ante. Example: The wholesale price changes every month and is announced after the month has ended, when the supplier knows what it paid on average during the previous month. ☐ Price settled against monthly average wholesale ☐ Price settled against daily/weekly average wholesale ☐ Price settled against hourly average wholesale Fixed price stipulated in the contract ahead of time. Example: Price and fee for the following 12 months are announced in the offer before the customer signs the agreement. ☐ Fixed 3-11 months ☐ Fixed 1-3 years ☐ Fixed 4 years or longer Mixed price based on both fixed and variable components. Example: 50% of the consumption is billed according to fixed rate (winter) and 50% according to a variable price (summer) component.

	☐ Mix of variable and fixed price ☐ Pricing method varies between seasons Other price that does not fit description above ☐ Other pricing 1 (specify) _____ ☐ Other pricing 2 (specify) _____ ☐ Other pricing 3 (specify) _____ 2) Are there a variety of billing options? Tick boxes for the yes or no options available below. ☐ Direct debit ☐ Bank transfer ☐ SEPA[4] ☐ Credit card ☐ Cash ☐ Pre-payment ☐ Other (specify) _____ Description of: i. price options (variable price/fixed price/wholesale-based price, or rather, post-based price such as PUN) ii. billing period iii. payment methods (direct debt, bank transfer, etc.)
Unit of measure	Yes/or no for all the questions and any relevant qualitative explanations
Data completeness	**Price comparison tool run by the NRA**

1.24 Metric 9: Pilot – Sweden

Metric 9	**Availability of a variety of pricing and billing options**
Description	On a well-functioning market there is a range of products and services offered to the customers. Suppliers work on the competitive market with products asked for by customers and also with new innovative products. Such innovation does not only apply to the offered contracts but also to the different possibilities to bill.

[4] The Single Euro Payments Area (SEPA) aims to create a true European Single Market for retail payments in euro, and makes all electronic payments in the euro area as easy as cash payments. SEPA enables fast and secure transfers between bank accounts anywhere in the euro area. With SEPA a household customer can use their home bank account to pay bills in any eurozone country. Shopping abroad, a household customer can use their own bank debit card to make a payment in euro, as they would in their home country. The SEPA Regulation (EC 260/2012) was adopted in 2012, and 1 February 2014 was originally set as the implementation date for all countries within the eurozone. The Regulation was amended in January 2014 (IP/14/6) to extend the deadline to 1 August 2014. Non-eurozone countries have until 31 October 2016 to implement SEPA for their transfers in euro.

Purpose	Innovation on the market may create benefits for the customers. If the market is open for a variety of products and billing options this enables innovation not only for established suppliers but also for new entrants to the market.
Source of data	Ei monitors the development of different contracts on the market.
Quantification	Below Ei has ticked boxes for the yes options with black and left the no boxes empty. Variable price set and announced ahead of time (ex-ante). Example: Price is changed every month and announced before the start of the month. ☐ Variable price that changes 4-12 times per year ■ Variable price that changes more than 12 times per year Wholesale-based price announced ex-post plus fee and/or mark-up announced ex-ante. Example: The wholesale price changes every month and is announced after the month has ended, when the supplier knows what it paid on average during the previous month. ■ Price settled against monthly average wholesale ☐ Price settled against daily/weekly average wholesale ■ Price settled against hourly average wholesale Fixed price stipulated in the contract ahead of time. Example: Price and fee for the following 12 months are announced in the offer before the customer signs the agreement. ■ Fixed 3-11 months ■ Fixed 1-3 years ■ Fixed 4 years or longer Mixed price based on both fixed and variable components. Example: 50% of the consumption is billed according to fixed rate (winter) and 50% according to a variable price (summer) component. ■ Mix of variable and fixed price ■ Pricing method varies between seasons 3) Are there a variety of billing options? Tick boxes for the yes or no options available below. ■ Direct debit ■ Bank transfer

	☐ SEPA[5] ■ Credit card ☐ Cash ☐ Pre-payment ☐ Other (specify) _____
Unit of measure	There is a wide variety of offers on the Swedish market. The billing offers available are fewer, this is due to the Swedish way of paying all bills. Most everyone in Sweden has access to their bank online and their own bank web on which all activities are shown, and where bills are payed. Bills are received either through post (paper bills) or electronic bills and payed directly online. Very seldom the paper bill is taken to a bank or post office to be paid through a cashier. You never pay the bill in cash directly to the supplier, this does not exist. Pre-payment is prohibited through law. The bill shall only consist of actual consumption and represent consumption on the past.
Data completeness	

1.25 Metric 10: Pilot – Great Britain

Metric 10	**Availability of value added services for implicit demand response and self-generation.**
Description	As part of its wider monitoring of retail offers, Ofgem monitors the availability of Time of Use tariffs (ToU) and their attributes. Static ToU tariffs, involving differentiated peak/off peak or day/night rates, have been available for a long time to electricity customers in GB with ToU, non-smart, meters (around 17% of all meter points in GB have this functionality). Customers on ToU tariffs can use less electricity at times of higher prices and hence reduce their cost. The most common types are Economy 7 and Economy 10. The cheaper night time rate usually applies from about 1am to 8am for Economy 7 and for an additional period for Economy 10, usually in the evening, but it may vary depending on the geographic location of the consumer.

[5] The Single Euro Payments Area (SEPA) aims to create a true European Single Market for retail payments in euro, and makes all electronic payments in the euro area as easy as cash payments. SEPA enables fast and secure transfers between bank accounts anywhere in the euro area. With SEPA a household customer can use their home bank account to pay bills in any eurozone country. Shopping abroad, a household customer can use their own bank debit card to make a payment in euro, as they would in their home country. The SEPA Regulation (EC 260/2012) was adopted in 2012, and 1 February 2014 was originally set as the implementation date for all countries within the eurozone. The Regulation was amended in January 2014 (IP/14/6) to extend the deadline to 1 August 2014. Non-eurozone countries have until 31 October 2016 to implement SEPA for their transfers in euro.

	These traditional ToU tariffs are not usually accompanied by any added services for implicit demand response or self-generation. However, suppliers are increasingly offering programs for customers looking to proactively manage energy usage which may provide additional long-term savings (e.g. to reduce energy consumption and reduce peak load) and are assisting customers looking to include renewable options in their portfolio. In addition, suppliers are increasingly offering service that enable customers to control electric appliances or heating and hot water remotely from mobile, tablet or laptop (e.g. British Gas's 'Hive Active Heating'). The development of more dynamic and sophisticated implicit demand response products for domestic consumers is at an early stage. Recent examples include smart pay-as-you-go tariffs for PPM customers with smart meters, which are often cheaper than their traditional PPM tariffs. Significant progress is expected with the roll-out of smart meters (gas and electricity suppliers are required to install smart meters for all domestic and smaller non-domestic consumers by the end of 2020). Another critical factor will be the move away from existing settlement rules based on estimated consumption profiles to settlement based on half-hourly measured values. The combination of smart and half-hourly settlement can provide the right incentive for suppliers to offer dynamic pricing contracts. In GB both domestic and non-domestic customers have the possibility to self-generate electricity and feed the surplus into the system under the Feed in Tariff (FIT) scheme. This is described in more detail under the pilot for metric 22 (percentage of prosumers).
Purpose	Monitoring the availability of FIT tariffs, ToU tariffs and related value added services, as well as the number of consumers using them, can provide an indication of the size of implicit demand response. Jointly with metric 9 on pricing and billing options it can also help assess the degree of innovation in the market. The evolution of this metric over time will allow Ofgem to better understand how smart meter roll-out and settlement reforms can help drive innovation and consumer engagement in the market.
Source of data	Ofgem collects some of this data already through a mix of sources: Energylinx (a price comparison website), network operators and suppliers (for the meter types) and Ofgem's own market intelligence research. As the smart meter roll-out progresses the collection of this information will become more structured and systematic. FIT data is obtained on a quarterly basis from electricity suppliers.
Quantification	This metric entails a quantification element (the number of ToU tariffs, smart or non-smart related, and the percentage of consumers on them), as well as a more qualitative element (a description of the most relevant value added services available).
Unit of measure	Number and %
Data completeness	Monitoring of tariff and meter types has been carried out at Ofgem since 2004 and FIT data has been available since April 2010 on a regular basis. Nevertheless, specific monitoring dedicated to smart related tariffs has started only recently and will be enhanced further as the market for these products develop.

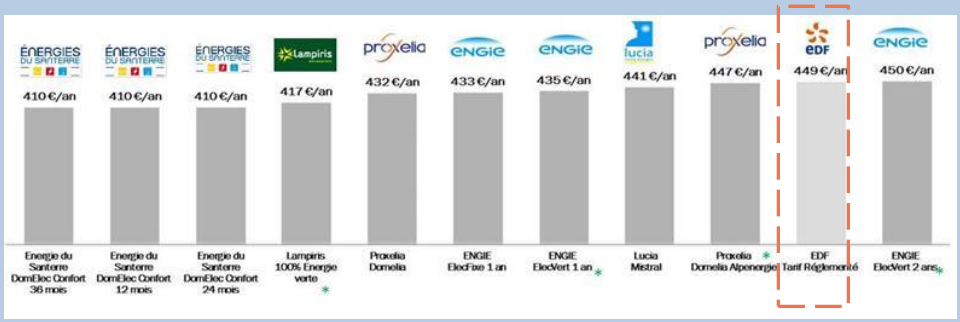
1.26 Metric 11: Pilot – France

Metric 11	**Availability of online offers**
Description	The availability of online offers is linked with the consumer empowerment. There are two sides of this metric: 1) The knowledge by the consumers that different offers are available online at the market 2) The knowledge by the consumers of where to find and compare these offers (linked to the price comparison tool metrics) The availability of online offers goes along with the possibility for a consumer to participate in the market and by this go towards the innovation tools in the retail market. In France, consumers can subscribe an offer online via the websites of the suppliers as well as via other channels (telephone, mail) which is different from the online offers which can be subscribed only on the website of the supplier. Even when the consumer uses the PCT for comparison and would like to subscribe, the PCT redirects the consumer towards the suppliers' webpage.
Purpose	The availability of different online offers shows the wide range of options to a consumer, so the possibility for the consumer to choose. The possibility for consumers to make their choice shows their ability to participate in the market. But also, the offers need to be presented by suppliers in a clear manner using a price comparison tool which should be available for the market segments that do not need a tailor made offer (medium and large industrial consumers). Therefore, the price comparison tool in France compares offers for households and for small businesses for which regulated tariffs still exist. The relevant price comparison tool should present all the available offers to consumers with up to date information with no fees or commercial advertising.
Source of data	The source of data is the price comparison tool put in place by the Energy Ombudsman and representing the official price comparison tool.
Quantification	The availability of offers is linked to the nature of offers which CRE is monitoring. CRE compares the offers available on the market with the regulated tariff (being the most subscribed offer) in order to compare what consumers can gain by subscribing other offers with alternative suppliers. CRE monitors quarterly in electricity and in gas - The number of offers available to household consumers and their range of prices. - The nature of these offers whether they are with fixed or variable prices. - The number of offers proposed by one supplier. We do not specifically present in our reports figures regarding online offers only, but it might be an indicator we consider putting in place in the future in the context of the development of these offers. But, we mention the online offers in our indicator showing all the available offers and prices on the market as shown below. The online offers are usually the cheapest ones. They are available for all household consumers and can be subscribed only online, as they provide only online services (online bill, online consumption levels, payments etc).

Price/offer (variable) comparison in electricity for a Base type of client (2 400 KWh/year)

- Cheaper offers than regulated tariffs
- Same price offers as regulated tariffs
- More expensive offers than regulated tariffs

Fixed price/offer comparison in electricity for a Base type of client (2 400 KWh/year)



Price/offer (variable) comparison in gas for a type of client with heating use (17 000 KWh/year)

- Cheaper offers than regulated tariffs
- Same price offers as regulated tariffs
- More expensive offers than regulated tariffs

Fixed price/offer comparison in gas for a type of client with heating use (17 000 Kwh/year)

	
Unit of measure	Number
Data completeness	Data complete.

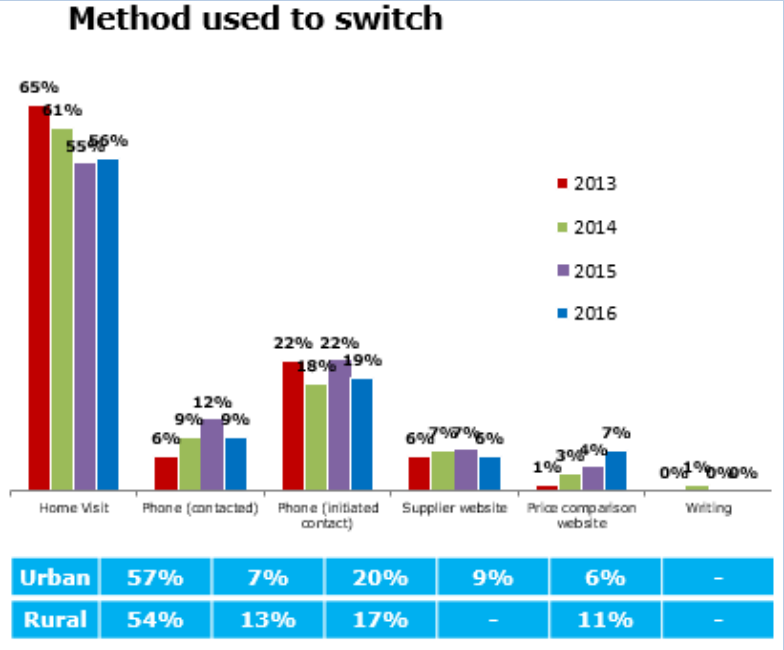
1.27 Metric 11: Pilot – Great Britain

Metric 11	**Availability of online offers.**
Description	In GB, most electricity and gas offers available in the market can be seen, compared and signed-up to online by consumers, either through suppliers' webpages or through third party intermediaries, including price comparison websites (PCWs). The main exception is a reduced number of customers on bespoke ToU meters (around 700,000, representing 2% of the total number of electricity meters). Suppliers typically do not advertise these tariffs online and they are not available on PCWs either. This is an engagement barrier noted by the Competition Market Authority in its recent energy market investigation Some offers are actually available only online and/or may require an online account management. The importance of the latter has grown substantially during the last 2-3 years, with around 40% of customer accounts being online managed in 2015. This trend is closely related with the recent growth of new entrants, which tend to offer more online products.
Purpose	Ofgem monitors the availability of online offers as an element that can facilitate the customer's ability to compare and assess tariffs available in the market. In addition, as part of its regular tariff monitoring, Ofgem also looks into the variety of paperless/online management account offers and the related discounts as a sign of product differentiation and innovation in the market.
Source of data	Ofgem collects this data through a mix of sources: Energylinx (an accredited price comparison website), regular information requests to suppliers (to establish the number of customers on online vs offline accounts) and Ofgem's own market intelligence research.
Quantification	For Ofgem the quantification of this metric includes: the number/% of customers for which online offers are not available, the number/% of electricity/gas online accounts, the discount available for offers available only online and/or with online account management.

Unit of measure	Number, %, £
Data completeness	Ofgem has been monitoring online offers for a long time. Data is generally available since 2004.

1.28 Metric 11: Pilot – Ireland

Metric 11	**Availability of online offers**
Description	Easy access to neutral, objective information is crucial to the development of the electricity and gas retail markets in Ireland. It is important that customers have a trusted place to go in order to evaluate the information that is presented to them. Price Comparison Tools can help to compile information on unit charges, standing charges and other associated charges and tailor plans to a customer's current supplier and consumption level.
Purpose	The purpose of this metric is to monitor innovation related to the use of ICT. There is a free and easy switching process in place in Ireland which facilitates customers that wish to switch their supplier.
Source of data	Accredited Price Comparison Tools, Supplier websites, CER Consumer Survey - The Consumer Survey is an important tool used by the CER each year to measure customer experiences and attitudes within the energy market. This research has been ongoing since 2011.
Quantification	• **Do all customers in Ireland have the possibility to compare offers online?** **Yes:** The CER has put in place an accreditation framework for Price Comparison websites (CER/11/144). This framework is based around a set of principles which are designed to ensure that the websites are easy to use, accurate and impartial. To date two price comparison websites have been accredited by the CER: Bonkers.ie and Switcher.ie. The CER monitors and audits these websites to ensure their continued compliance with the accreditation rules. These price comparison websites provide information on the domestic electricity, gas and dual fuel plans offered by all suppliers currently in the market. The websites are impartial and provide accurate information on all offers available in the market. Though price comparison websites are very useful in assisting customers in choosing the offer that is right for them, their reach is naturally limited by being web-based. A nationally representative survey carried out by the Commission for Communications Regulation (ComReg) found that 15% of households did not have a broadband service (either fixed or mobile) – see ICT Consumer Survey Reference: ComReg 15/123a. • **Do all customers have the ability to sign contracts online through a Price Comparison Tools or otherwise?**

	Yes: Most suppliers in Ireland provide the option of customer sign up via a price comparison tool or by being redirected to their website. Customers can also sign contracts online directly through supplier's websites. From the chart below it is clear that only a minority of customers who switched in Ireland between 2013 and 2016 used a price comparison website to do so. This has increased from 1% of customers in 2013 to 7% of customers in 2016. This is based on a results of a nationally representative consumer survey carried out by the CER. In the 2016 consumer survey, 11% of customers claimed to have used a price comparison website to compare offers. Of customers who said they had switched in the last 12 months, 23% had used a price comparison tool. In 2016, 8% of customers switched via a supplier's website.  **Most popular methods of switching supplier, 2013-2016**
Unit of measure	All questions: Yes/No and possible qualitative explanations
Data completeness	Information gathered through the CER's accreditation process of price comparison websites and questions relating to online offers and price comparison tools from the consumer survey.

	Home Visit	Phone (contacted)	Phone (initiated contact)	Supplier website	Price comparison website	Writing
Urban	57%	7%	20%	9%	6%	-
Rural	54%	13%	17%	-	11%	-

1.29 Metric 11: Pilot – Sweden

Metric 11	**Availability of online offers**
Description	The availability of different user-friendly channels through which a customer can interact is a sign of innovation in the retail market.
Purpose	A sign of innovation and progress in the market is a customer who can interact with market actors through signing up to an offer and comparing different offers.

Source of data	Eis knowledge of the market and the different PCTs available online.
Quantification	All customers in Sweden who has access to an online connection have the possibility to compare offers online. All customers in Sweden who has access to an online connection have the possibility to sign contracts online either through the suppliers web page or through commercial PCTs. An offer cannot be signed through the regulated PCT but there is always a link to the different suppliers' web page where this normally is possible.
Unit of measure	Yes Yes
Data completeness	Complete data.

1.30 Metric 12: Pilot – Great Britain

Metric 12	**Availability of contracts guaranteeing the origin of energy**
Description	Ofgem carries out regular administrative duties with regard to the GB Renewable Energy Guarantees of Origin (REGO) scheme and issues REGO certificates to accredited generating stations which guarantee that the electricity was produced from eligible renewable energy sources, whether purely (i.e. 100%) or partly (< 100 The primary use of REGOs is for Fuel Mix Disclosure (FMD), which requires licensed electricity suppliers to provide customers on their bill, and potential customers, with details of the mix of fuels used to produce the electricity supplied to them along with certain environmental information. Ofgem published guidelines on green supply since 2002, and has recently enhanced the licence conditions requiring that all domestic tariffs that make environmental claims based on the supply of renewable energy meet certain conditions. Details of the Guarantees of Origin recognised by Ofgem are published annually. As part of its regular tariff monitoring, Ofgem monitors the existence of green offers in the market. Some suppliers offer domestic customers green tariffs which emphasize the environmental benefits of their product, most commonly via the proportion of electricity sourced from renewable sources in the supplier's overall generation mix, but also as a contribution towards environmental schemes on consumer's behalf. In some cases, green products may also be available to non-domestic customers, who may have a further incentive (e.g. reputational) to source their electricity from renewables. The penetration of green tariffs is currently limited, with only a few independent suppliers, including those with an explicitly green business model, offering green tariffs to domestic customers. In relation to the availability of green tariffs, Ofgem monitors the the number of green tariffs on the market and the number/percentage of consumers on green tariffs Ofgem also monitors the price difference between green and other tariffs on the market (i.e. whether these tariffs are offered with premium/discount or cost the same as standard electricity tariffs).

Purpose	Ofgem monitors the availability of contracts guaranteeing the origin of energy as a sign of product differentiation and innovation in the market, as well as an indicator of the degree of consumers' environmental awareness.
Source of data	Ofgem collects this data through a mix of sources: Energylinx (an accredited price comparison website), electricity generators, suppliers and Ofgem's own market intelligence research.
Quantification	For Ofgem the quantification of this metric includes: the number of REGO certified generators and the number of green tariffs on the market. Below Ofgem has filled in with black the contracts that are available. Guarantees for energy sources (exclusively) ■ Hydro ■ Wind ■ Solar ■ Bio ☐ Nuclear ☐ Fossil (any) ■ Specific plant (any type) ☐ Other (specify) Guarantees for energy sources (in combination) ■ Hydro ■ Wind ■ Solar ■ Bio
Unit of measure	Number and percentage.
Data completeness	From 2005 when the Fuel Mix Disclosure (FMD) regulation come into effect.

1.31 Metric 12: Pilot – Sweden

Metric 12	**Availability of contracts guaranteeing the origin of energy**
Description	In Sweden there are guarantees of origin for all sources of electricity. Since 2013 all electricity must be disclosed with the origin and also the impact on co2. The disclosure is done by the supplier on the electricity mix sold the previous year. Only guarantees of origin and the so cold residual mix (the part that is not guaranteed with guarantees of origin) can be used for disclosure. Information on origin is also required on the regulated price comparison tool.

Purpose	The purpose is to give the customer a possibility to choose a contract on other criteria than price. Sweden has approximately 120 suppliers. More than 70 suppliers automatically gives consumers renewable contracts, more than 30 has renewable offers.
Source of data	Ei price comparison tool.
Quantification	Ei is the responsible authority for disclosure. Only 20 % of all electricity sold in Sweden is non-guaranteed. Below Ei has filled in with black the contracts that are available. Guarantees for energy sources (exclusively) ■ Hydro ■ Wind ☐ Solar ■ Bio ■ Nuclear ☐ Fossil (any) ■ Specific plant (any type) ☐ Other (specify) Guarantees for energy sources (in combination) ■ Hydro ■ Wind ■ Solar ■ Bio
Unit of measure	Yes there are contracts available. Solar is combined with other sources such as wind since there is yet not enough solar in Sweden. Fossil is sold mostly as residual mix, e.g. residual mix contains renewable, nuclear and fossil sources. There are no contracts with fossil only. There are also contracts with electricity from specific plants such as CHP plants.
Data completeness	Data is complete.

1.32 Metric 12: Pilot – the Netherlands

Metric 12	**Availability of contracts guaranteeing the origin of energy**

Description	In the Netherlands there are specific contracts available, containing information on the source and origin of electricity and gas. ACM checks whether Guarantees of Origin (GO) match with the contracts.
Purpose	Customers demand more contracts guaranteeing the origin of energy, given the increasing environmental awareness.
Source of data	ACM collects all GO's annually and checks whether they match with the contracts of the suppliers. Moreover, these contracts are to be found in the tariff regulation, since all new contracts need to be administered in here.
Quantification	There are contracts for hydro, wind, solar and biomass. For both Dutch as non-Dutch energy source there are contracts available. Nuclear and fossil are marked as 'grey' energy and are not differentiated upon.
Unit of measure	Answers to questions.
Data completeness	ACM collects data on GO's, in order to check the suppliers.

1.33 Metric 13: Pilot – Great Britain

Metric 13	**Availability of explicit demand response offers**
Description	The availability of explicit demand response offers in GB is limited to customers that are half-hourly settled, ie to those customers who have meters that record electricity use on a half-hourly basis and for whom these half-hourly readings are used to determine the volume of electricity attributed to their supplier in each settlement period. This means that explicit demand response offers are not yet available to households. Large industrial and commercial (I&C) customers that are half-hourly settled can already offer explicit DSR services and receive a market-based compensation, either directly or through aggregators[6]. This is typically done for system balancing. A wide range of opportunities have become available recently, including the provision of frequency response and reserve services to the system operator (National Grid), as well as participation in several capacity market auctions.[7]

[6] Aggregators are third party intermediaries specialising in coordinating or aggregating demand response from individual consumers, to better meet the needs of agents that are procuring flexibility for the electricity system. The system operator is currently the greatest user of flexibility, which is provided through balancing services for reserve and frequency management purposes, as well as for system security. It is expected that in the future DNOs, generators and suppliers could also become important users of flexibility.

[7] There are transitional arrangement auctions for small amounts of capacity, specifically put in place to help demand side providers enter the capacity market. They work in the same way as the main capacity market auction, but for a much shorter term. The first transitional arrangement auction ran in January 2016, for delivery in winter 2016/2017.

	Only some I&C customers at the moment have the opportunity to shift or temporarily reduce their electricity demand. Shifting demand without adverse impact to businesses typically requires that the activity is either discretionary, or inherently includes some form of energy storage (e.g. heating, ventilation and air conditioning). Electricity usage for heating, ventilation and air conditioning might change over time and contribute to a greater uptake of explicit demand response by I&C consumers. In October 2014, we approved a modification to the Balancing and Settlement Code known as P272. This change introduced a requirement that consumers in profile classes 5 to 8 (generally medium to large business consumers) should be settled using their actual half hourly consumption data. P272 has an implementation date of 1 April 2017. As of 31 March 2016, around 6% of customers in profile classes 5 to 8 had been migrated to half-hourly settlement. For all domestic and small business customers, settlement is still based on estimated consumption profiles and work is ongoing to identify and overcome barriers to half-hourly settlement[8].
Purpose	By looking at information on explicit DSR we aim to understand to what extent the existing retail market arrangements can provide opportunities to customers that promote efficient and sustainable energy use. This is also an element helping to assess the degree of innovation happening in the market. The value of flexibility of this type is becoming increasingly important as the share of intermittent renewable sources in the energy system grows. Therefore, the explicit demand response is very relevant for retail market functioning
Source of data	Some information on explicit DSR is currently available from Elexon (the company that manages the balancing and imbalance settlement of the wholesale electricity market in GB) and the TSO (see 'Profiting from Demand Side Response' National Grid, 2016). However, we do not yet collect this data on a systematic basis.
Quantification	Availability of explicit demand response offers, number of consumers on them and contribution to lowering the peak demand.
Unit of measure	Numbers and percentages.
Data completeness	Historic data not available at the moment.

1.34 Metric 14: Pilot – Austria

Metric 14	**Percentage of consumers knowing they can switch supplier**

[8] 'Elective half-hourly settlement: conclusions paper', May 2016, Open letter on mandatory half-hourly settlement: intention to launch a Significant Code Review, June 2016.

Description	Switching supplier is one of the key, if not *the* key action of consumers to engage in a (newly) liberalized market. Knowing that switching supplier is possible and being aware that switching supplier brings benefits are milestones for functioning retail energy markets – otherwise consumers are not aware of a market at all and thus unable to reap potential benefits at a time when – at the same time – market liberalization (and competition) has not found its way into the minds of the people and lead competitors without potential customers.
Purpose	- to assess the level of awareness of supplier as *the* key consumer action - to gauge consumer knowledge about their opportunities to engage in newly liberalized energy markets - to evaluate market potentials for current and future competitors
Source of data	Representative consumer survey, Austrian total population, household heads (responsible for energy matters), ages 18+.

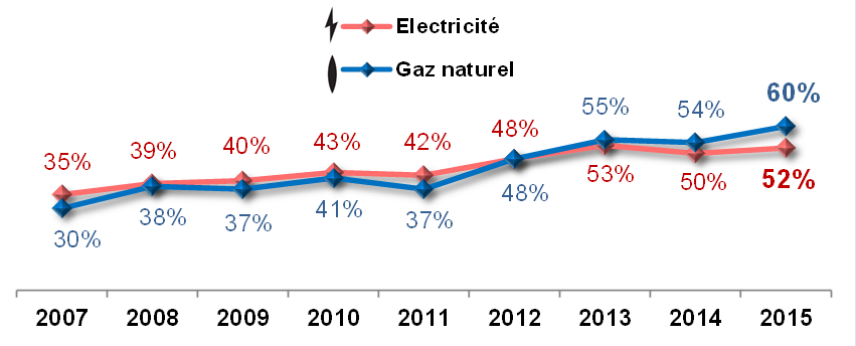
Quantification	Multiple survey questions with corresponding answer categories are as follows (own English translation):
	- Have you already once or more often switched your electricity or gas supplier (multiple answers)?
	  ○ Once electricity
	  ○ Once gas
	  ○ Electricity twice or more often
	  ○ Gas twice or more often
	  ○ None
	  ○ No answer
	  ○ Do not know
	- Have you ever considered switching your electricity and/or gas supplier?
	  ○ Electricity: Yes/no/no answer
	  ○ Gas: Yes/no/no answer
	- Which electricity/gas suppliers do you know; which ones come to your mind?
	  ○ Names of suppliers as mentioned by respondent
	German wording:
	- Haben Sie bereits ein- oder mehrmals Ihren Strom- oder Gaslieferanten gewechselt?
	  ○ Einmal Strom
	  ○ Einmal Gas
	  ○ Strom zwei- bzw. mehrmals
	  ○ Gas zwei- bzw. mehrmals
	  ○ Keines von beiden
	  ○ Keine Antwort
	  ○ Weiß nicht
	- Haben Sie schon einmal überlegt Ihren Strom- oder Gaslieferanten gewechselt?
	  ○ Strom: Ja/Nein/keine Antwort
	  ○ Gas: Ja/Nein/keine Antwort
	- Welche Stromanbieter sind Ihnen bekannt, welche fallen Ihnen da ein?
	Namen alternativer Lieferant wie vom RespondentIn genannt

Unit of measure	Percentage of answers pointing towards having considered switching/having switched.
Data completeness	Figures available for national level.

1.35 Metric 14: Pilot – France

Metric 14	**Percentage of consumers knowing they can switch supplier**
Description	In order to have more active consumers that can participate in the market, they need to know the options that are available to them. CRE is not monitoring directly this indicator, but is using in its publications the data from the Energy Ombudsman. The French Energy Ombudsman is running annual surveys called "Barometer of market opening"[9] done by the énergie-info service that is also responsible for the PCT and is the single point of contact. The survey is based on a questionnaire asked to a representative sample of households (in terms of gender, age, location, income). The typical question is "Are you aware that you can change your supplier in gas/electricity?" In the last survey from autumn 2015, used by CRE in the latest yearly Market Monitoring Report, the results are showing that the awareness of the ability to change supplier is rising overtime for both energies. The results are showing that 60% of gas household consumers know that they can change supplier (+ 4 points compared to 2014). In electricity the rate is more stable, with 50% of the households knowing that they can change supplier.

Figure 1. Percentage of households knowing they can change supplier



[9] http://www.energie-mediateur.fr/fileadmin/user_upload/Publications/Synthese_Barometre_ouverture_marches_MNE_2015.pdf

Purpose	This metric is used to measure the awareness of consumers. This is necessary for the consumers to be engaged in the market and participate actively which can boost competition between suppliers and drive the market forward.
Source of data	Consumer yearly surveys run by the Energy Ombudsman.
Quantification	Percentage of customers knowing/beinig aware that they can change supplier. The CRE is monitoring the evolution of this percentage over time.
Unit of measure	Percentages.
Data completeness	Data is complete. CRE is publishing the results of the survey since the first edition of the Retail Market Monitoring Report in 2012/2013. The data is available by the Energy Ombudsman since 2006.

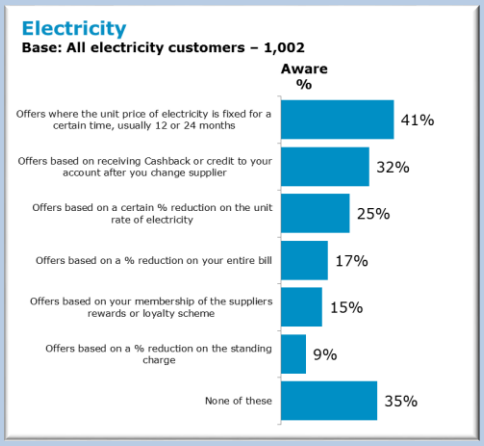
1.36 Metric 14: Pilot – Great Britain

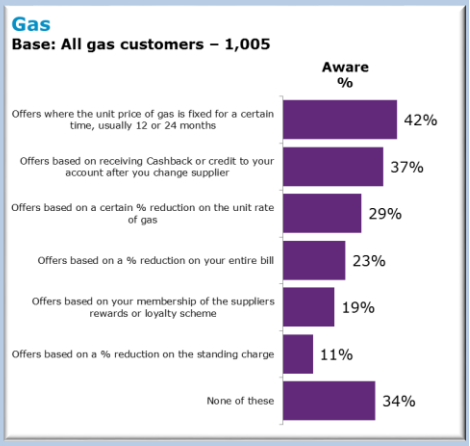
Metric 14	**Percentage of consumers knowing they can switch supplier**
Description	To engage in the market, consumers must be aware of the options that are available to them. Ofgem has been monitoring this metric through consumer surveys since the opening of the market to competition. Since 2014, Ofgem has been monitoring this metric, together with others, through an annual domestic consumer engagement survey that has maintained the same consumer segmentation approach over time (see 'Consumer engagement in the energy market since the Retail Market Review: 2016 survey findings').The survey involves face-to-face interviews with 6000 domestic customers in GB. The evidence over the period 2014-2016 shows that consumers' awareness of their ability to switch is improving over time. Most domestic consumers are aware that they can switch supplier, or change tariff or payment method with their current supplier. Over the last two years we have observed a five-percentage point increase in the number of consumers who are aware of all of these potential actions (80% in 2016, up from 75% in 2014). Just 5% of consumers' report being unaware of any of these options to engage. In addition, we also look at engagement of business consumers through surveys specifically targeted to small and microbusinesses (see 'Micro and small business engagement in the energy market 2016 - quantitative research report', BMG/Ofgem, May 2016)
Purpose	Consumers' awareness of alternative options is a prerequisite for their engagement in the market which in turn incentivise the rivalry and drives the competition between suppliers.
Source of data	Several consumer surveys.
Quantification	Percentages of consumers that are aware they can switch supplier and change tariff or/and payment method with their current supplier.

Unit of measure	Percentages
Data completeness	Since the full opening of market to competition in 1999.

1.37 Metric 14: Pilot – Ireland

Metric 14	**Percentage of customers knowing they can switch supplier**
Description	Consumers' willingness to switch if a better offer is available on the market is a key driver of competition. However, customers need to be aware of the choices that are available to them and be able to select the appropriate supplier and tariff offer that meets their needs.
Purpose	This metric is used to measure the awareness of consumers about a key consumer right and how this varies over time. Widespread awareness of this right facilitates market participation, which is key to well-functioning retail energy markets.
Source of data	CER Consumer Survey- The Consumer Survey is an important tool used by the CER each year to measure customer experiences and attitudes within the energy market. This research has been ongoing since 2011.
Quantification	The data collection methodology for the CER's Consumer Survey follows best practice methods and processes executed under internationally recognised quality standards (ESOMAR). The 2016 Consumer Survey was based on a representative sample of the consumer population in Ireland in terms of gender, age, location and socio-economic background. Separate panels were surveyed for gas and electricity. **1. Awareness of electricity and gas offers available in the market.** The graphs below set out consumers' awareness of alternative offers in the market and their ability to compare offers. The CER's 2016 Consumer Survey found that over 30% of respondents in both the domestic electricity and gas markets stated that they were not aware of alternative offers available in the market. These levels are consistent with the results of previous surveys.





Awareness of types of offers currently on the domestic market

These findings indicate a significant gap in customer awareness of alternatives available to them, and customers find it difficult to understand supplier's offers and compare them.

The CER has therefore proposed actions to address consumer awareness and information, in its review of the Supplier Handbook. The Supplier Handbook sets out minimum standards of protection that suppliers are required to provide to their electricity and gas customers. In addition the CER is also planning enhanced consumer engagement initiatives, to improve consumer awareness and initiatives.

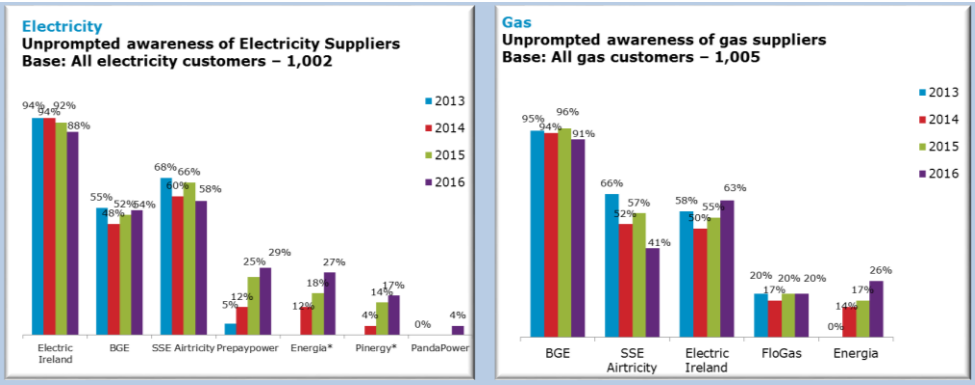
The actions mentioned above will include the following obligations on suppliers:

i) to issue a written prompt or notification on an annual basis, to prompt customers who have been on the same tariff or a non-discounted tariff for more than 3 years to switch,
ii) to issue a written notification to customers 30 days prior to the expiry of a fixed term contract.

2. Customer awareness of electricity and gas suppliers

Customers were asked to name electricity and gas suppliers that are active in each market. The consumer survey results from 2013-2016 indicate that overall, customers have a much higher awareness of incumbent suppliers for electricity and gas, compared to new entrant suppliers.

However between 2013 and 2016, customer awareness of smaller suppliers including PrePayPower, Energia, Pinery and PandaPower has increased year on year. Unprompted awareness provides a good estimate of perception of competitive activity in a market.



Unprompted recall of suppliers in the domestic electricity (left) and domestic gas (right) markets

3. Awareness of the role of companies that are not electricity/gas suppliers.

In consumer surveys between 2013 and 2016, customers were asked about their understanding of the roles of electricity suppliers and Distribution System Operator's. Customer awareness of the DSO's role in repairing power failures and maintenance of the distribution system is gradually improving. For example, the number of customers stating that it is ESB Networks' role to maintain the electricity grid rose from 58% in 2013 to 70% in 2016, and the number of customers stating it is their role to repair power failures also rose from 58% in 2013 to 70% in 2016.

In Gas, customer understanding of the role of suppliers and Gas Networks Ireland is also improving, however the aspect which continues to cause the most confusion is the responsibility for reading the meter. Customer understanding on Gas Networks Ireland's role in maintaining the network and transmission and distribution of gas rose from 59% to 74% between 2013 and 2016 and 59% to 73% respectively.

Unit of measure	Percentages of consumers choosing different possible answers from the consumer survey.
Data completeness	

1.38 Metric 14: Pilot – the Netherlands

Metric 14	**Percentage of consumers knowing they can switch suppliers**
Description	In order to have a competitive market, consumers need to know that they can switch suppliers.
Purpose	This metric is used to measure the awareness of consumers about a key consumer right, namely switching suppliers.

Source of data	A survey is done biannually by ACM in order to monitor the energy market on the consumer side, focusing on switching behavior and transparency. For this metric, the first two questions provided in the metric were used, but as statements. These first two statements were only used in the first round, where 523 Dutch habitants were asked to fill in the survey. The final question, concerning the names of different suppliers, is answered by 2750 Dutch habitants.
Quantification	The choice of a supplier is determined by the place where I live and every household can choose his supplier: 2 % of the 523 thinks that you cannot choose a supplier freely. 27% thinks it depends on the region where you live, which supplier can be chosen. 63 % knows that one can choose the supplier of preference and 8% indicated that they do not know this. Given the question on the names of suppliers: it was stated that there are now more than 50 suppliers in the Netherlands. The question following was: could you name 5 different suppliers? On average, consumers are able to state 3.6 suppliers.
Unit of measure	For the first: the choice of a supplier is determined by the place where I live. Concerning the second: every household can choose its supplier. Given the question regarding the name of three suppliers, we have changed it into 5.
Data completeness	Yes.

1.39 Metric 15: Pilot – Austria

Metric 15	**Percentage of consumers who know that DSOs are responsible for the continuity of supply and, where applicable, of metering**
Description	Liberalization of energy markets brought with it a split of responsibilities of market actors, some of which (=suppliers) to compete with each other. In Austria (and largely Europe), DSOs have taken over responsibilities for continuity of supply, ensuring steady access to energy for consumers. Additionally, DSOs are responsible for metering. Hence, another important (direct) contact to consumers is established. From a consumer perspective, being aware of DSO's duties concerning continuity and supply and metering (in Austria) helps households understand why switching supplier has no impact on continuity of supply, voltage quality, metering aspects and the like.
Purpose	- to get a better understanding of the extent to which the distinction supplier/DSO is known to consumers - to find out what household consumers "know" (or believe to know) about responsibilities of market players - to assess possible barriers to switching, as in fears of households concerning complicating energy consumption (metering, continuity of supply, quality of supply)
Source of data	Representative consumer survey, Austrian total population, household heads (responsible for energy matters), ages 18+.

Quantification	Multiple survey questions are as follows (own English translation):
	- Who is responsible for the electricity/gas meter, that is, maintenance of the meter, readings, activation etc…)?
	  ○ My energy supplier
	  ○ My DSO
	- What is the name of your electricity/gas DSO?
	  ○ Name of company mentioned by respondent
	
	German wording:
	- Wer ist, Ihrem Wissen nach, für Ihren Stromzähler zuständig (also für die Wartung, Ablesung, ggf Instandsetzung etc.)?
	  ○ Mein Energielieferant
	  ○ Mein NEtzbetreiber
	- Kennen Sie den Namen Ihres Strom-Netzbetreibers?
	  ○ Name des Unternehmes von RespondentIn genannt.

Unit of measure	Percentage of “correct” (=DSO, correct name) answers.
Data completeness	Figures available for national level.

1.40 Metric 16: Pilot – Austria

Metric 16	**Percentage of consumers trusting the energy market**
Description	Trust in the energy market is a rather complex and multidimensional concept since there are many players and institutions involved, including the state and regional governments as well as state-owned companies. The “attractiveness” of this market, and a potential “openness” of consumers towards engaging in such a market may also be based on consumers’ “image” of the whole industry where a positive image may be associated with higher levels of trust.
Purpose	- To better understand consumer perceptions about the whole energy industry; - To find out about consumer perceptions on trustworthiness, competence and business practices of the whole energy industry.
Source of data	Representative consumer survey, Austrian total population, household heads (responsible for energy matters), ages 18+.
Quantification	Survey question as follows (own English translation): - How do you assess the image of the energy industry in Austria? Do energy service companies have a very good, rather good, rather bad or very bad image? German wording: - Wie beurteilen Sie das Image der Energiebranche in Österreich? Haben die Energieversorger ein sehr gutes, eher gutes, eher schlechtes oder ein sehr schlechtes Image?
Unit of measure	Percentage of “very good” and “rather good” answers.

Data completeness	Figures available for national level.

1.41 Metric 16: Pilot – France

Metric 16	**Percentage of consumers trusting the energy market**
Description	This metric is used to measure the confidence of the consumer in the energy market. The trust of consumers in the market and in the suppliers can be translated in a more active market where consumers participate more. CRE is not monitoring directly this indicator, but is using in its publications the data from the Energy Ombudsman. The French Energy Ombudsman is running annual surveys called "Barometer of market opening"[10] done by the énergie-info service that is also responsible for the PCT and is the single point of contact. The survey is based on a questionnaire asked to a representative sample of households (in terms of gender, age, location, income).
Purpose	CRE is using occasionally the results from the surveys on market trust depending on the context of the publication. This metric should be interpreted with caution as not concreate questions are asked in the survey, but also consumer trust is something complex to measure, but also to compare across countries. Therefore, it is important that this metric is considered alongside with other metrics in this field in order to draw conclusions.
Source of data	Consumer yearly surveys run by the Energy Ombudsman.
Quantification	In order to obtain answers that can be translated into market confidence, few questions are asked: - Market opening led to: A better/worse/none quality of service situation - Market opening led to: a fall/increase/none in energy prices In the last survey from autumn 2015, results are showing that overall, the opinion on the opening of the market to competition is relatively favourable (70%) to households.
Unit of measure	Percentages
Data completeness	Data is complete. CRE is publishing the results of the survey since the first edition of the Retail Market Monitoring Report in 2012/2013. The data is available by the Energy Ombudsman since 2006.

[10] http://www.energie-mediateur.fr/fileadmin/user_upload/Publications/Synthese_Barometre_ouverture_marches_MNE_2015.pdf

1.42 Metric 16: Pilot – Great Britain

<table>
<tr><td>Metric 16</td><td>Percentage of consumers trusting the energy market</td></tr>
<tr><td>Description</td><td>
Since 2014, Ofgem has been monitoring this metric, together with others, through an annual domestic consumer engagement survey that has maintained the same consumer segmentation approach over time (see ‘Consumer engagement in the energy market since the Retail Market Review: 2016 survey findings’).The survey involves face-to-face interviews with 6000 domestic customers in GB.

The table below shows the questions regarding trust that are included in the survey. Overall, consumers’ trust and confidence in energy suppliers has remained broadly stable over the period 2014-2016, although there are some small positive signs. Levels of confidence and trust in the retail energy markets remain lower than in many other comparable industries (except insurance) but we have seen a small increase in consumers trusting their energy supplier to treat them fairly in their dealings with them and to charge a fair price.

Trends in indicators of domestic consumers’ trust
<table>
<tr><th>Indicator</th><th>Findings</th></tr>
<tr><td>Trust in suppliers to treat consumers fairly</td><td>In 2016, 66% (up from 62% in 2014), of consumers say they either completely trust or tend to trust their current energy supplier to treat them fairly. Consumers on a separate gas tariff are the least likely to say they trust their supplier (62% in 2016 and 56% in 2014).</td></tr>
<tr><td>Trust in suppliers to provide clear and helpful information</td><td>The majority of consumers (66%) trust their supplier to provide clear and helpful information. This has remained stable since 2014, when 65% of consumers also reported trusting their supplier with regards to the information provided.</td></tr>
<tr><td>Trust in suppliers to charge a fair price</td><td>Overall, there has been a notable increase in the proportion of consumers who trust their own energy provider to charge them a fair price; 58% of consumers tend to trust or completely trust their supplier to charge a fair price in 2016, up from 51% in 2014.</td></tr>
<tr><td>Trust in energy suppliers versus service providers in other markets</td><td>In 2016, around 44% of consumers trusted energy suppliers in general, only a small change since 2014 (43%). Energy consumers’ levels of trust in providers in other industries have also remained similar to 2014, with insurance companies still the least likely to be trusted (36%). Energy suppliers continue to fall behind the three other service sectors included in the survey: landline phone providers (48%), banks (55%) and water suppliers (63%).</td></tr>
</table>
</td></tr>
<tr><td>Purpose</td><td>
We monitor consumers’ level of trust in the market and in their own supplier as one of the attitudes that may affect the overall consumer engagement with the market.

We are aware of the special sensitivity of the results to how and when questions around trust are asked. Hence, whereas these results may be useful to understand a trend within a country, it may be more difficult to use them for cross-country comparisons.
</td></tr>
</table>

Source of data	Consumer survey
Quantification	Percentage of consumers that trust their current energy supplier and energy suppliers in general, broken down by different aspects of trust.
Unit of measure	Percentages
Data completeness	From early days of opening market to competition through annual consumer surveys which were not undertaken regularly, every year.

1.43 Metric 17: Pilot – Sweden

Metric 17	**Percentage having access to at least one independent and verified price comparison tool**
Description	Through a PCT the consumer has access to easy comparability on electricity offers. There are a few PCTs in Sweden. One is regulated and the others are commercial. Ei runs the regulated PCT. Since 2007 there is legislation in the electricity act which declares that suppliers are required to report prices and conditions to Ei. Ei published regulatory instructions in 2008. And the site www.elpriskollen.se was up and running in 2008. In the regulation Ei stipulates a certain number of contracts which are to be reported to the PCT. The suppliers report directly into the system, at the latest midnight the day the prices are changed. Ei monitors the PCT regularly.
Purpose	The following contracts must be reported - Fix price 6 months, 1-5 year binding, - Variable price with 12 month binding - Variable price without binding and - Mix 50/50 price 1 year binding There must be information about renewable energy offers. There must be information about terms and conditions. There is a possibility to add different rebate offers. The offers must be updated at latest 24.00 the day price are changed. All offers on the market are not available at the PCT.
Source of data	Ei
Quantification	All consumers have access not only to a PCT but also to offers from the Ei-run PCT. There is a PCT run by the NRA and therefore verified. Information in the PCT is available in 14 languages.

Unit of measure	100% of all consumers.
Data completeness	Complete

1.44 Metric 17: Pilot – Great Britain

Metric 17	**Percentage of consumers having access to at least one independent and verified price comparison tool**
Description	Intermediaries such as price comparison websites (PCWs) are increasingly helping domestic consumers to engage. For example, our 2016 consumer engagement survey (see 'Consumer engagement in the energy market since the Retail Market Review: 2016 survey findings') found that 51% of consumers who switched or compared in the last 12 months found out about their deal through an online price comparison website (up from 39% in 2014). In GB there is a large variety of intermediaries offering energy price comparison services, most of them run by private companies and one, launched in 2015, managed by Citizens Advice, the statutory body representing the interests of consumers. Ofgem is responsible for the Confidence Code, a voluntary code of practice for domestic energy PCWs. The Code aims to help consumers to feel confident that they are receiving an independent, transparent, accurate and reliable service when using an accredited site which displays the Ofgem Confidence Code logo. There are currently 12 price comparison websites accredited under the Code. This sets out minimum requirements that an accredited price comparison website for domestic gas and electricity consumers must meet in order to be, and remain, accredited by Ofgem. Ofgem monitors compliance with this voluntary Code via an auditing programme, and the ultimate sanction for non-compliance is removing accreditation (as documented under the application agreement between Ofgem and the accredited price comparison websites). All relevant offers for all domestic customers tend to be shown on accredited PCWs and on the PCW managed by Citizens Advice, with the exception of a small percentage (around 2% in 2015) who are on bespoke heating tariffs and special restricted meters (these are meters such as Economy 10 and Dynamically Teleswitched meters with the capability to record consumption separately for different times and heating usage and allow for cheaper rates at certain off-peak times).
Purpose	Monitoring the number of Confidence Code accredited price comparison sites and their market coverage provides an insight into availability of adequate information for consumer to engage with market. Following the recently-concluded energy market investigation, the Competition Market Authority has established remedies aimed at enhancing PCWs' ability to offer attractive and innovative deals, as well execute faster and more reliable switches. Ofgem is currently consulting on changes to the Confidence Code (see Confidence Code review 2016 consultation) that should help to stimulate competition among PCWs.

Source of data	Ofgem
Quantification	Number of accredited price comparison websites and their market coverage.
Unit of measure	Numbers and percentages.
Data completeness	N/A

1.45 Metric 17: Pilot – the Netherlands

Metric 17	**Percentage of consumers having access to at least one independent and verified price comparison tool (PCT)**
Description	The metric shows how easily consumers can identify the best offers, in this case using PCTs. These PCTs need to be independent and verified by the NRA.
Purpose	This metric shows how many customers can identify the best offers easily using a PCT. By having access to a PCT in order to check the best offers, consumers are able to easily find a supplier that has a better offer than their current one.
Source of data	The PCTs claim to be independent. Websites are checked by ACM.
Quantification	In the Netherlands there are multiple independent and verified price comparison tools. All individuals that have access to the internet have access to the PCT. Examples are gaslicht.com, pricewise.nl, and energievergelijken.com.
Unit of measure	Percentage is 100%, everyone that has access to the Internet has access to independent and verified PCTs.
Data completeness	

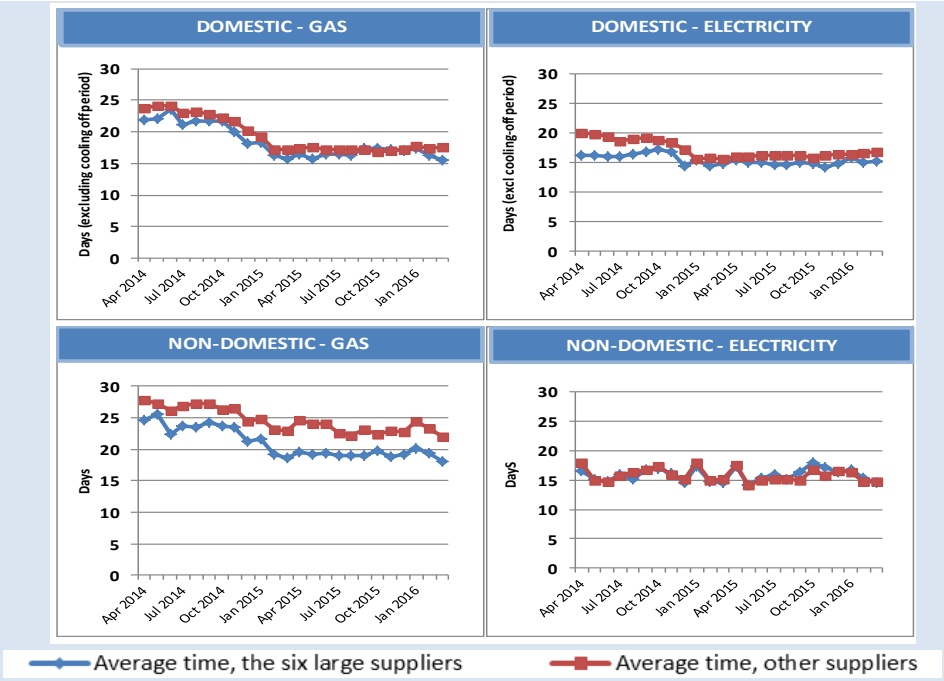
1.46 Metric 18: Pilot – Finland

Metric 18	**Percentage of consumers having access to online historical consumption information**
Description	In Finland, the DSOs are responsible for reporting of metering data and making the metering data available to the market participants, including consumers. DSOs' obligations on reporting of metering data in the electricity market are provided in the Government Decree on determination of electricity supply and metering. According to the decree customers have a right to their own consumption data free of charge. Furthermore, electricity consumption data gathered by an hourly metering equipment must be provided for the customer's use no later than it is transferred or completed for transfer to the customer's supplier, i.e. the day after delivery.

	In practice, this means customers have access to their hourly measurements via online service by DSOs as it would otherwise be impossible to comply with the legislation. The Energy Authority (EV) has also aligned that consumption data should be given to the consumers via internet services. As to EV's knowledge all DSOs act accordingly. Finland has been active in roll-out out of smart meters and in using hourly data in balance settlement. The percentage of consumers having access to online historical consumption data is thus near to 100% in the electricity market as the share of final household customers with smart meter is 97.8 %. The natural gas market is narrow in Finland and smart meters have not really been installed to consumers. Due to this the natural gas market legislation does not include similar obligation in relation to the DSOs.
Purpose	This metric is used to measure the possibility for consumers to access their consumption data through online tools. Online consumption reporting services make it easier and even more tangible and interesting to consumers to follow their energy consumption at any time of the day at free of charge. In order to further ease and speed up the use of online services DSOs may also provide customers with mobile applications. The knowledge of own consumption is a prerequisite for efficient use of energy. It enables consumers to change their consumption habits and save on their energy bills. Online consumption reporting services also facilitate DSOs' own work to provide in the most convenient way the data that is frequently requested for by the consumers.
Source of data	It has been arranged by the existing legislation that all DSOs have to provide customers with the access to online historical consumption information. Thus, EV has not seen necessary to separately collect this information. If needed EV may request further information on compliance with the legal obligations from an individual DSO.
Quantification	Where the hourly metering equipment is in place, the DSOs have obligation to make the metering data available to the consumer at the same time it is passed to the supplier, i.e. daily. In general, the online consumption reporting services show consumption broken down into annual, monthly, weekly, daily and hourly data. Each day's electricity consumption is updated in the service the day after. Accurate consumption data is available to the customers in kWhs. Some DSOs also provide customers with consumption data in euros. It is also possible to consumers to compare their energy consumption in different point of times. The consumer specific consumption data normally covers the period starting at the latest from the day the DSO implemented an hourly registering meter and even a few previous years.
Unit of measure	Percentage of consumers having access to online historical consumption information relative to the total number of consumers.
Data completeness	There is no collected data available. However, EV has not received any complaints nor through its own investigations become aware of any non-compliance with the legal obligations to arrange the access to consumption data.

1.47 Metric 19: Pilot – Great Britain

Metric 19	**Percentage of consumers having access to standardized supplier switching process (and its duration)**
Description	All domestic and business consumers in GB have an access to standardized supplier switching process, for both gas and electricity. Ofgem is currently working on a switching programme that will make the switching process faster and more reliable. Since September 2014, a licence condition requires suppliers to take all reasonable steps to complete a transfer 21 days after the end of the 14-day cooling-off period, or an earlier date agreed with the customer. In most cases the switch is completed quicker but in some cases it takes longer. In 2016 suppliers launched the Energy Switch Guarantee (the Guarantee), an industry-led initiative to address consumer concerns with the switching process. As of July 2016, nine suppliers had signed up to the Guarantee, covering 64% and 69% of the domestic electricity and gas markets respectively, and more are expected to follow. Under the Guarantee, suppliers have committed to completing switches in no more than 21 days after they have received the completed switch application. Note that Suppliers typically receive the application the day after the consumer submits the request to switch. Therefore suppliers who sign up to the Switch Guarantee commit to switching consumers in no more than 3 working days plus the 14 calendar days of the cooling-off period (i.e. two weeks quicker than required by licence). Our regular monitoring of the switching duration measures the time between a supplier switching request and the transfer taking place. This data is sourced from network operators at the supplier and industry level. It does not measure the full switching time from when a customer enters into a contract, but rather the time from when the switching request is submitted by the supplier to the system. More specifically, it does not incorporate any time in advance a supplier may take to process the contract or as part of the cooling-off period. In the future, we plan to monitor also the time to complete a switch from when the supplier agrees the sale with the consumer, using information provided by suppliers. Figure 1 shows that average switching times (in calendar days) for domestic gas and electricity consumers remained almost unchanged compared to last year and converged for the six large suppliers and other suppliers that entered the market after liberalization. On average, from a system perspective, it took 15 days for a domestic electricity switch to be completed by the six large suppliers in March 2016 and 16 days for a domestic gas switch. For other suppliers, it took on average a day longer to complete a switch in March 2016 compared to one year earlier (up from 16 to 17 days for electricity and from 17 to 18 days for gas). Non-domestic switches were more likely to take longer than domestic switches. However, in most cases suppliers reported that the longer timescales were because customers on fixed-term contracts had requested that their transfer be completed at a later date when their contract ended. FIGURE 1. **Average switching times**



Source: Ofgem analysis of data provided by network operators. Note: switching times reflect the time between a supplier switching request and the transfer taking place, and include all switches, including those with a legitimate cause for delay. There is no cooling-off period requirement for business contracts.

In addition to the length of the switching process, we also consider important to monitor its reliability, through metrics such as erroneous transfers, objections sent by the old suppliers to block a switch and delays in sending the final bills after a transfer has been completed (see Chapter 5 of our report Retail Energy Markets in 2016 for switching reliability figures).

Purpose	Switching is an important element in any competitive market. The switching process in the gas and electricity markets is currently complex, prone to delays and errors, and is consequently a significant source of customer complaints and a barrier to engagement. Monitoring of both length and reliability of the switching process is therefore crucial to understand barriers to engagement.
Source of data	Network operators and suppliers
Quantification	Average time for a switch to be completed (at the industry and supplier level). Other measures of switching process reliability
Unit of measure	Number of days
Data completenss	Since April 2014.

1.48 Metric 20: Pilot – Finland

Metric 20	Supplier switching rate
Description	The Energy Authority (EV) collects data on supplier switching in the electricity market only. Due to a derogation in the directive, natural gas market has not yet been opened and it is not possible to switch gas supplier. Supplier switching activity is followed on regular basis in many European countries. In general, the number of supplier switches has considered to be one of the key indicator describing the market functioning and competitiveness and progress in the energy market. However, supplier switching rate alone does not show the degree of market functioning. EV does not collect data on the number of renegotiated contracts. There is no legislation to oblige suppliers to report this kind of contractual details.
Purpose	EV publishes a summary of nationwide switching statistics once a year. This serves as one indicator describing the functioning of electricity markets. The data is also used to fulfil EV's obligations as a regulator to announce switching rates in the yearly national report to the ACER and the EC. Furthermore, the media and market actors including electricity users have been interested in receiving this information.
Source of data	EV maintains the information system for monitoring (VATI) into which DSOs are obliged to report switches in their geographical area of responsibility. This applies to all DSOs. The data regarding the previous calendar year has to be provided yearly by the end of May. The Finnish TSO Fingrid Oyj has been assigned to develop and implement a Datahub, a centralised information exchange system for the electricity retail market. The Datahub has been planned to be in operation in 2019 and it will enable gathering the switching data.
Quantification	EV gathers the number of consumption points where electricity supplier has been changed and a new supplier has started to supply during one calendar year. Switches are measured separately for a) consumers (household customers) and b) other electricity users. All switches in one consumption point during a reviewed period are summed up. The data does not take into account moving situations. For instance, if a previous and a new customer in a consumption place have the same supplier it is not counted as a switch and vice versa.
Unit of measure	Percentage of consumption points that switched supplier in one calendar year relative to the number of all consumption points.
Data completeness	EV has been collecting supplier switching data for electricity since 2007. The data collecting method has been revised from 1 January 2016 to better respond to the needs and facilitate both the DSOs' and EV's work of reporting and collecting the data. In 2015, the overall supplier switching rate was 11.4 %.

1.49 Metric 20: Pilot – France

Metric 20	Supplier switching rate

Description

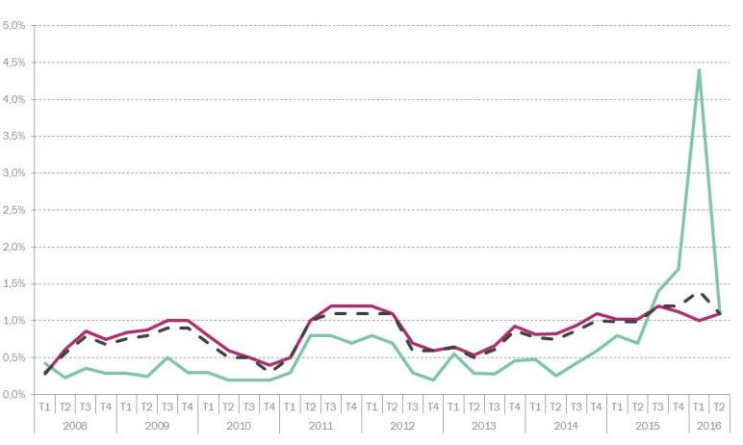
The supplier switching rate is a metric that measures the active engagement of consumers in the retail energy market. By monitoring this indicator, the consumer participation in the market can be observed, but also this is linked to the competition and development of the retail market. The switching rate affects the market shares of suppliers and thought the development of competition.

A switch, as defined by CEER, is counted when a consumer moves from one energy supplier to a competing energy supplier.

CRE follows the definition and the methodology of CEER and monitors the so called external switching rate, which means only the switch from one supplier to another. The internal switching rate or the renegotiating of contracts is not monitored by CRE for now, but the monitoring team is working on this to put it in place as it is an interesting indicator that is complementary to the external switching rate. The internal switching rate is particularly interesting for France in the case of the removal of regulated prices as it shows the movements within the incumbent supplier where a majority of the consumers just changed their contract from regulated to market based price contract within the incumbent supplier.

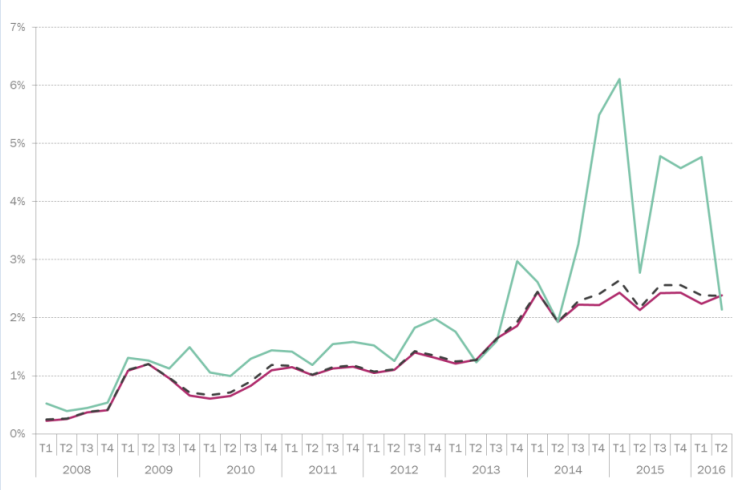
The figure below shows the external switching rate per quarter, where an increase can be noted for non-household consumers, in the last quarter of 2015 by approaching the period of regulated prices removal as of January 1st 2016 in electricity. In gas, important movements can be noticed at each stage of regulated price removal beginning in 2014.

Switching rate in electricity



--- Industry --- Households - - All combined

Swithing rate in gas

	 --- Industry --- Households - - All combined
Purpose	The rate of switching is an important measure to see how consumers act in the market and to see their level of engaging in the market, and if they do so, how this plays a part on competition level. It is important to understand these movements of consumers by monitoring this metrics over time in order to better understand the market developments that are linked to.
Source of data	The source of data is collected by CRE on a regular monthly basis from gas and electricity DSOs and TSOs. The data used for this metric is the number of switches per month from one supplier to another broth to the total number of consumers. The rate is calculated for households and non-households.
Quantification	In order for this metric to be complete, there is a need of monitoring both the external and the internal switching rate, in order to obtain the full picture of the consumer movements and its contribution to competition. The metric should be calculated for household and non-household consumers separately.
Unit of measure	Percentage
Data completeness	Data is not complete, only the external switching rate is available at the moment, but during 2017 the internal switching rate metric should be in place and CRE will monitor that as well.

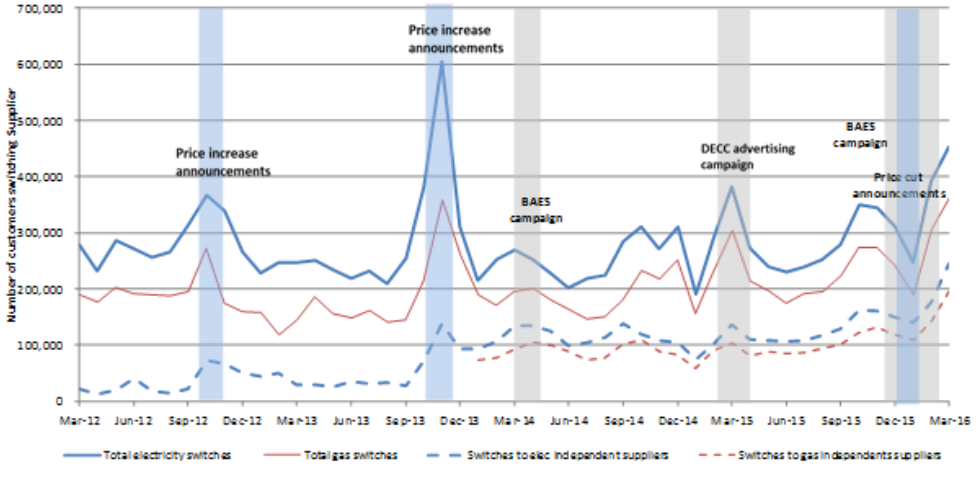
1.50 Metric 20: Pilot – Great Britain

Metric 20	**Supplier switching rate**
Description	**Domestic switching** Ofgem closely monitor the extent to which domestic consumers are participating in the retail markets by switching supplier or changing their tariff with their existing supplier, reasons for switching, method of switching supplier and switching flows (i.e. between incumbents and new entrants and within these groups). The monitoring of switching is part of Ofgem's broader approach to understand the overall domestic consumer engagement with the market, which uses consumer research and survey data.

We have observed an increase in domestic electricity and gas switching rates in 2015 relative to 2014, which reverses a trend of decline that started in 2008. In 2015, approximately 3.3 million domestic consumers switched their electricity supplier and 2.6 million their gas supplier. This represents an annual switching rate of 12% for electricity and 13% for gas, respectively one and two percentage points higher than in 2014. The increase was relatively uniform across GB, although regional differences remain especially for electricity (eg Scotland showed an electricity switching rate of 10% in 2015).

As shown in Figure 1, switching rates have continued to rise in early 2016, reaching levels last seen over four years ago. Several factors are likely to have contributed to this increase, including the continued emergence of cheaper fixed tariffs following the downward trend of wholesale prices (often driven by new entrants' offers), the information campaigns led by Ofgem[11] and DECC[12] and the announcement of price cuts by suppliers in late January.

FIGURE 1. **Number of domestic consumers switching each month**



Source: Ofgem analysis of data provided by network operators and suppliers.

In addition to switching supplier, consumers can switch tariff and other contractual elements with their existing supplier. Rates of such 'internal' switching continued to be higher than switching between suppliers during the past year. We monitor the internal switching rates for the six large suppliers' domestic gas and electricity customers. This measures the proportion of domestic consumers switching to an alternative tariff, payment method or online/offline account management while staying with the same supplier. It also shows tariff changes where a consumer made an active choice (as distinct from a potentially passive move from a fixed or dead tariff onto the relevant cheapest standard variable tariff).

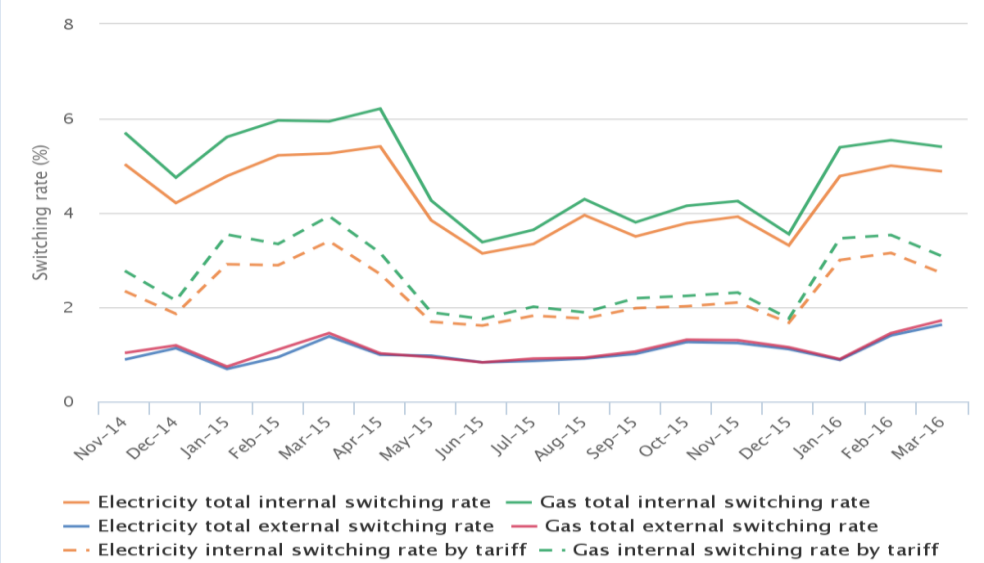
The proportion of consumers making any change to their tariff with their existing supplier in a given month varied between 3% and 6% over the period April 2015 - March 2016, while 1.5% to 4% made an 'active' switch between tariffs each month. Internal switching only reflecting an active tariff choice was mainly driven by engaged consumers moving between fixed tariffs.

[11] 'Be an Energy Shopper Campaign 2015-2016', February 2016

[12] 'Power to Switch Campaign 2015', DECC, February 2015

Overall, internal tariff switching has remained approximately twice as high the rate of switching between suppliers.

FIGURE 2. **Monthly internal and external switching rates by fuel type**

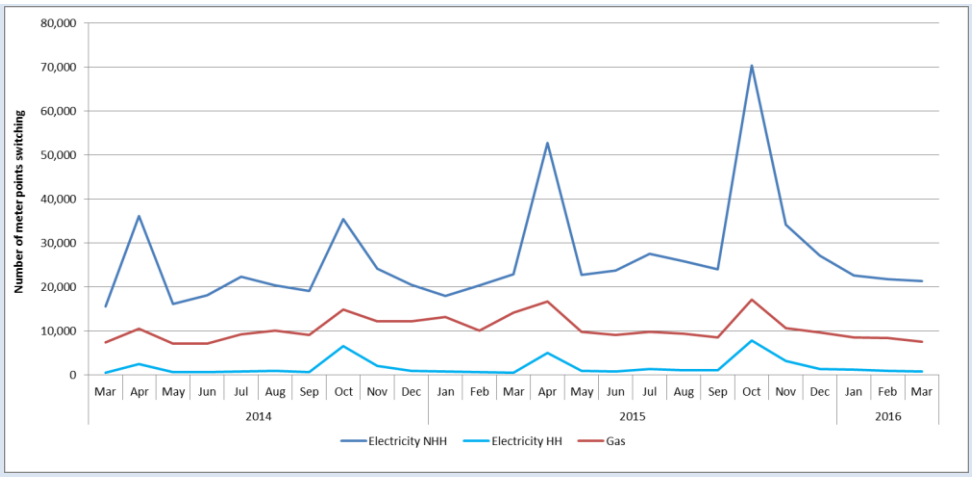


Source: Ofgem analysis of data provided by the six large suppliers.

Non-domestic switching

We also monitor switching for the segment of business consumers. Figure 3 shows an upward trend in non-domestic switching for electricity and a more stable pattern for gas. The big spikes in April and October coincide with the typical renewal periods for business contracts. Approximately 374,000 non-domestic non-half hourly (nHH) electricity meter points and 25,000 half-hourly (HH) electricity meter points switched suppliers between April 2015 and March 2016, and 125,000 switched gas suppliers. This represents an annual switching rate of 16% for nHH electricity and 18% for HH electricity, respectively four and five percentage points higher than the same period last year. By contrast, the annual switching rate for gas over the same period was one percentage point lower, at 16%.

FIGURE 3: **Non-domestic meter points switching by month**

	 *Source: Ofgem analysis of data provided by network operators.*
Purpose	The rate of consumer switching to alternative suppliers is one of the key measures of competition in market. Effective competition between suppliers is driven by consumers that are sufficiently engaged to incentivise rivalry for their business.
Source of data	Data provided by network operators, suppliers and consumer surveys.
Quantification	Absolute numbers of external and internal switchers and annual/quarterly/monthly switching rates expressed as percentages of these who switched compared to the total number of consumers.
Unit of measure	Percentages and number of external and internal switchers.
Data completeness	Domestic switching data is available from early days of market opening, while the internal switching data and the non-domestic switching data are available from 2014.

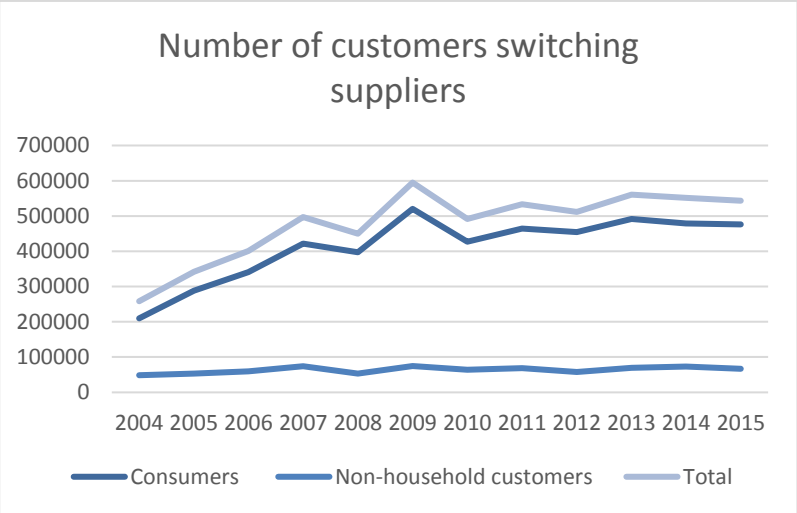
1.51 Metric 20: Pilot – Sweden

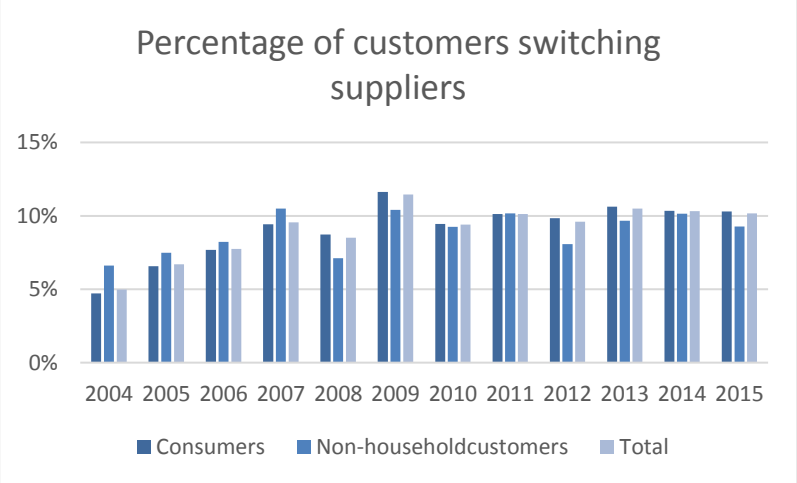
Metric 20	**Supplier switching rate**
Description	The rate at which consumers switch or engage with energy suppliers measured on a yearly basis. Sweden measures switching rates and also renegotiation rates within the present supplier.
Purpose	Through information about the switching and renegotiation rates the regulator can monitor and follow the engagement and activity level of the consumers in the energy retail market. Switching and renegotiation rates have been measured since 2004 and 2007 in Sweden. Approximately 10 percent switch supplier every year and around 25 percent of all contracts are renegotiated each year.
Source of data	In Sweden it is the administrative agency “Statistics Sweden” that collects and publishes this data. Statistics Sweden is mainly assigned these tasks by the government and different agencies.

Quantification

Switching rate

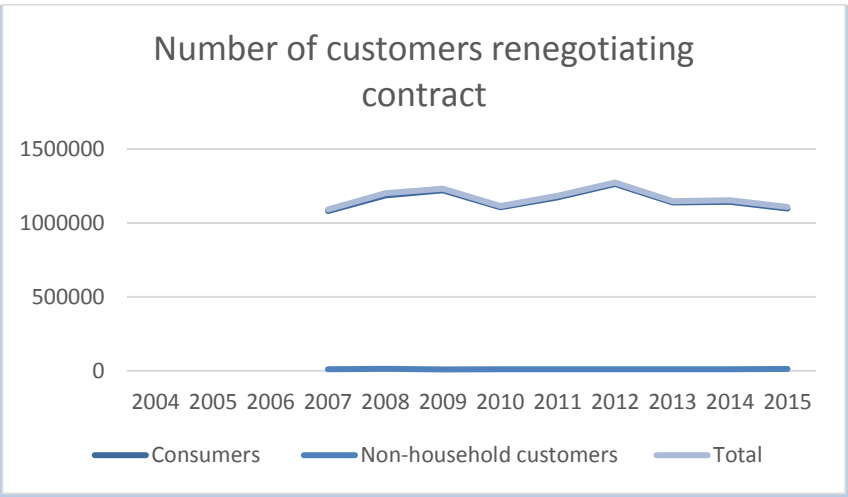
- Approx. 10% or 480,219 non-household customers switched supplier 2015.
- 2011-2015 in total 2,364,955 non-household customers switched supplier.

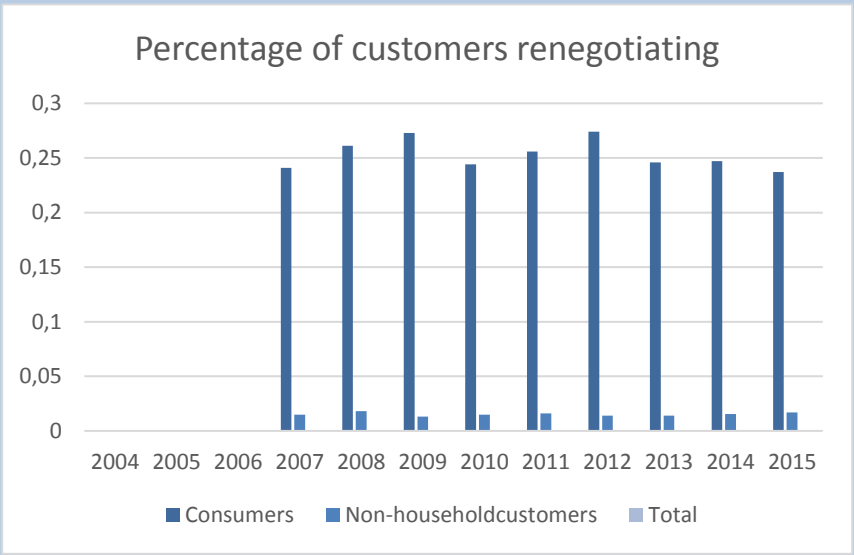




Renegotiation rate

- In total 25,6% or 1,096,358 non-household customer renegotiated their contract in 2015.
- Between 2011 and 2015 there were 5,815,074 renegotiations among non-household customers.





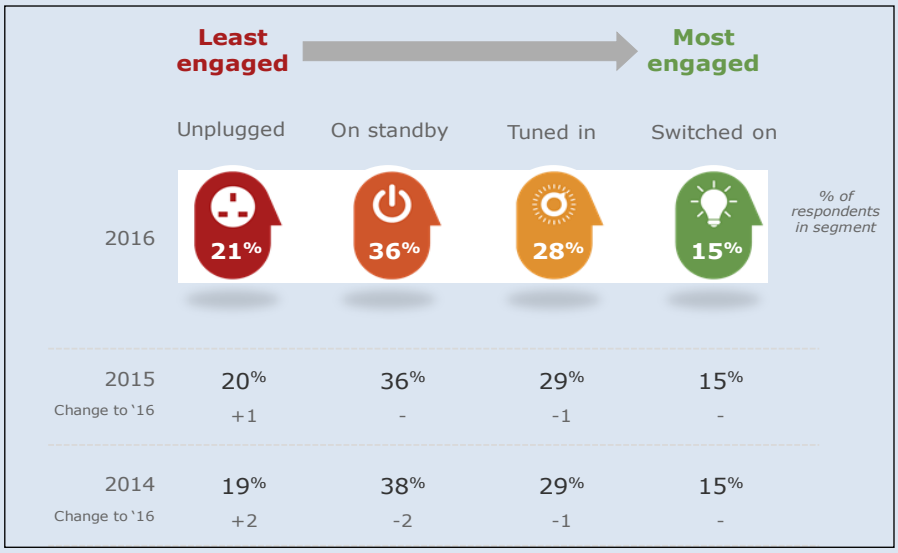
Unit of measure	Switching rate 2015 10 % Renegotiating rate 2015 25,6 %
Data completeness	

1.52 Metric 21: Pilot – Great Britain

Metric 21	**Percentage of inactive consumers**
Description	Measuring the degree of customer disengagement with the market is a complex task. There are various ways to define/consider (in) activity and our approach is likely to evolve over time. Ofgem has monitored several metrics to this purpose, including the number of customers on standard variable tariffs (currently around 66%) and the number of customers with the historic incumbent supplier (currently around 34%). The Competition and Markets Authority has recently used a metric given by the percentage of customers who have been on a standard variable tariff (SVT) with one of the six large suppliers for more than 3 years (the latter leads to the result that around 55% of customers should be considered disengaged).

Consumer research can provide more insight into this area. Since 2014 Ofgem has used the same consumer segmentation approach to monitor changes in levels of engagement over time and has created an 'index of engagement'. The index scores consumers on their awareness and activity across a range of indicators, and places them in different engagement segments depending on their score. Typically those at the more engaged end of the spectrum regularly compare and switch tariffs or suppliers, and read routine communications in detail. Those that are less engaged tend to have glanced at a bill, for instance, but have not had any interactions with the energy market beyond that.

FIGURE 1. **Consumer engagement segments in 2016**



Source: '[Consumer engagement in the energy market since the Retail Market Review: 2016 survey findings', August 2016]' The findings are based on a large nationally representative face-to-face sample of approximately 6,000 respondents.

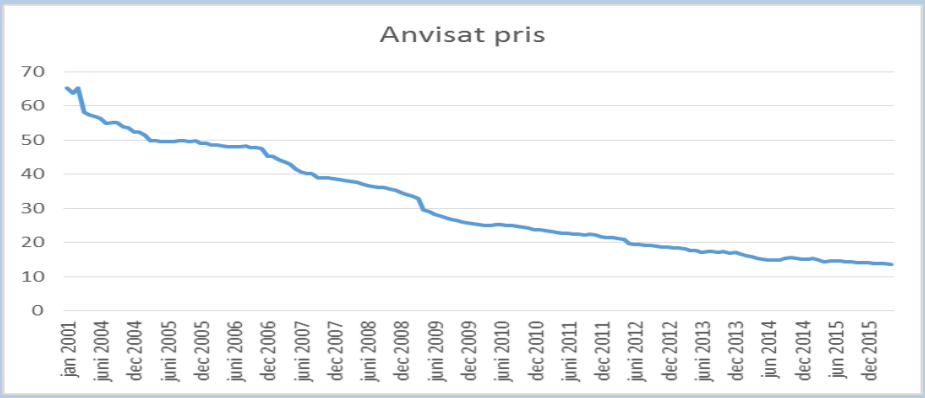
Figure 1 shows the proportion of domestic consumers falling into each segment. The distribution of consumers between the four segments in 2016 is broadly similar to those observed in 2014 and 2015. It continues to show that there is a substantial proportion of customers who are disengaged (the slight increase in the size of the 'Unplugged' segment may be explained by an overall downward shift in some of the behaviours that make up the index, such as contacting previous suppliers and reading communications in detail).

Consumers in certain socio-demographic groups continue to be disproportionately represented in the less engaged segments. For example, 'Unplugged' consumers (making up around a fifth of all consumers) are more likely to be in vulnerable situations, in social grade DE, to live in rented accommodation and to be on a prepayment meter. The age profile of this group has changed since 2014, with more consumers now falling into the middle age bracket. Less than two-thirds were regular internet users. Nearly four in five (79%) are on standard variable tariffs, and report higher average energy spend than other groups, underlining the link between being disengaged from the energy market and getting a poorer deal. In contrast, the more engaged groups are more likely to be from higher social grades, to be home owners and regular internet users.

Purpose	To understand how domestic consumer engagement and, in particular, the proportion of inactive consumers is changing over time and whether inactive consumers and specifically vulnerable among them, need any additional measures to help to improve their engagement.
Source of data	Data from network operators and suppliers and consumer surveys.
Quantification	Proportion of inactive/disengaged consumers.
Unit of measure	Percentages
Data completeness	Market monitoring data from the time of market opening to competition. Regular consumer survey from 2014.

1.53 Metric 21: Pilot – Sweden

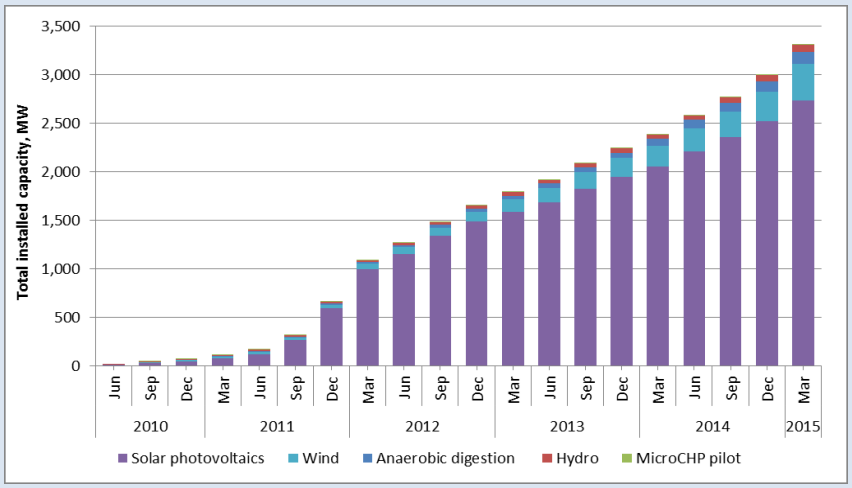
Metric 21	**Percentage of inactive consumers**
Description	An inactive consumer is a consumer who have neither switched supplier or renegotiated a contract nor actively searched for better deals.
Purpose	The amount of inactive consumers can be used to measure the lack of consumer involvement in the market. An inactive consumer may lack the opportunity to participate in the market or just not see the gain in being active on the market. If the customer live in an apartment the monetary gain might not be high enough to engage the customer in the market. In Sweden the customer can fall into a designated contract if you move and has not made an active choice for a new supplier. A customer in a designated contract pays about 20 percent more than customers that choose supplier and contract themselves. Between February 2008 and February 2014 average designated price was 21 percent higher than average fixed price 1 year.
Source of data	In Sweden it is the administrative agency Statistics Sweden that collects and publish this data. Statistics Sweden is mainly assigned these tasks by the government and different agencies. The regulator monitors the differences in price for different contracts.
Quantification	Percentage of consumers on designated contracts. As seen in the graph below the percentage of consumers on designated contracts has decreased steadily. In April 2016 13,7 percent of the consumers were on designated contracts.

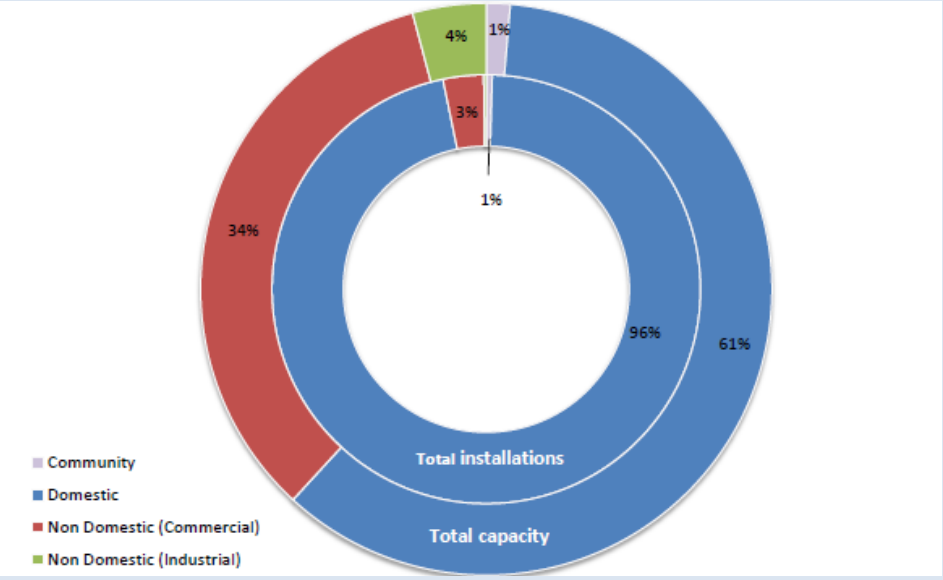
	
Unit of measure	By 2015, a total of 14 percent of the consumers had not been active on the market.
Data completeness	

1.54 Metric 21: Pilot – the Netherlands

Metric 21	**Percentage of inactive consumers**
Description	Inactive consumers are consumers that have not switched the past three years, nor have actively searched for better deals.
Purpose	This metric shows the involvement of the consumers, as inactive consumers do not participate in the liberalised market processes.
Source of data	Biannually ACM publishes a report concerning the developments in the energy market. The basis of this report is a questionnaire, where it is also switching behavior of the consumers is also asked. These questions are the source of this metric. In this case, 579 respondents indicated on how often they have switched their energy supplier and how many are willing to switch within the next three years.
Quantification	A rising number of consumers has switched in the past three years, namely 42%. Moreover, consumers switch more often than before. 31% of the consumers has never switched since the liberalization of the energy market (in 2004). For 12%, it has been more than 3 years since the last switch. 5% has done some orientation, but did not switch. 10% changed contracts within the same supplier, 42% of the consumers has switched in the past three years. Concerning the answers given, one in five consumers expects to switch suppliers within three years. One in four consumers will compare suppliers in the upcoming year. In total, 43% is classified as inactive consumers, as they have never switched, or have not switched in the previous three years.
Unit of measure	Questions, answers in percentages.
Data completeness	The numbers are collected in June 2016, concerning the second part of 2015.

1.55 Metric 22: Pilot – Great Britain

Metric 22	Percentage of prosumers
Description	Under the existing Feed-in Tariff (FIT) scheme (administered by Ofgem), owners of small-scale renewable and low-carbon electricity generation technologies are eligible to receive payments for the energy they generate and the electricity that they export back to the grid. FITs payments are made at least quarterly by licensed electricity suppliers that participate in the scheme (known as FIT Licensees) to households, businesses, industry and community organisations that have eligible installation. Ofgem regularly publishes a range of reports on FIT and its associated activity (e.g. FIT quarterly and annual reports which provide an oversight of the scheme activity and costs over the period; FIT installation report showing a breakdown of accredited installations under the scheme). Since the introduction of the Feed-in Tariff (FIT) scheme in 2010, an increasing number of consumers have installed renewable electricity generating equipment, such as solar photovoltaic (PV) at their homes or premises. As shown in the figure below, there has been an important expansion in installed capacity under the Feed-in Tariff scheme since 2012, with solar (and particularly the smallest installations) making up the largest part of installed capacity **Total capacity installed on the central Feed-in Tariff register**  Source: Ofgem analysis of data from DECC A total of 592,065 installations were registered under the scheme on 31 March 2015, at the end of Year Five of the scheme. Of these, domestic installations make up the largest proportion of installations (96%) and make up 61% of the total installed capacity. Commercial installations make up only 3% of the total number of installations registered, but make up 34% of the total capacity. **Total installed capacity by installation type since the start of the scheme**

	 Source: Ofgem Ofgem also collects the information on the number of meters that are capable to export electricity. Every customer with an installed self-generation will have also two meters installed for the feed-in tariff: one to measures the total amount of electricity generated and the other to measure the amount of electricity exported.
Purpose	Ofgem does not have an established prosumer monitoring as such. However, through the administration of the FIT scheme it can obtain a proxy of the number and percentage of prosumers as a sign of their degree of engagement with the market.
Source of data	Department of Energy and Climate Change (DECC) and Elexon (a not-for-profit company which procures and provides services to administer and implement the balancing and settlement rules that enable and support the wholesale market in electricity .
Quantification	Ofgem currently monitors the number of FIT installations that are capable of producing electricity, which can be used as a proxi for the number of prosumers. Furthermore, Ofgem monitors the number of FIT installations by type of consumer (e.g. households, businesses, and industry and community organisations) and the related installed generation capacity by technology type.
Unit of measure	Number and %.
Data completeness	Data on the installations under the Ofgem's administered FIT scheme has been available since the introduction of the scheme in 2010.

1.56 Metric 22: Pilot – the Netherlands

Metric 22	Percentage of prosumers
Description	Most prosumers in the Netherlands follow from roof solar panels, allowing consumers to engage actively in the market. Consumers and organisations have to register their solar panels at a website, an initiative of in metric 5 described EDSN. With this overview, there can be a better equilibrium between demand and supply.
Purpose	This metric shows the engagement in the market concerning the participation in the energy transition.
Source of data	The information is gathered at energieleveren.nl, a website of EDSN.
Quantification	From the end of 2011 until the end of 2015, 326.284 balancing installations have been registered. Registration is not obligatory, but actively promoted. The estimation of percentage is 7%.
Unit of measure	The number of installations is concerning households, not consumers.
Data completeness	Since registration is not obligatory, the data is probably not complete. Moreover, the percentage is an estimate. Lastly, the numbers of 2016 are not yet included.

1.57 Metric 24: Pilot – Great Britain

Metric 24	Number of disconnections due to non-payment
Description	Ofgem monitors closely the number of disconnections for non-payment. In GB, there are strict rules about who can or cannot be disconnected from their gas or electricity supply for non-payment of debt. Disconnection should be only used as a last resort. Suppliers are required not to disconnect customers in debt unless they have taken all reasonable steps to recover debt by offering the consumer a range of repayment options. They are also prohibited from knowingly disconnecting consumers of pensionable age (where they live alone, with other pensioners or with children) during winter months, and to take all reasonable steps during winter to avoid disconnecting premises where the occupants include a person who has a disability, a chronic sickness or is of pensionable age. PPMs may be installed by suppliers to limit customer debt and/or oblige customers to repay past debt. This allows continuity of supply, but opens up the possibility of “self-disconnection” by consumers themselves. The data Ofgem collects from suppliers shows that in 2015 the number of electricity and gas disconnections for debt continued a long-term falling trend. There were 204 electricity customers and 49 gas customers disconnected for debt, compared to 261 and 88 respectively in 2014. In 2015, approximately 360,000 PPMs were installed for electricity customers, with 41% of these being installed for debt. This represents a decrease of 15% relative to the number of PPMs that were installed for debt in 2014.

Purpose	The data on disconnections and PPM installation is an important tool for Ofgem's work concerning consumer protection. We use this data to inform our work protecting the interests of energy consumers, especially those in vulnerable situations, as set out in our 'Consumer vulnerability strategy'. We do this by monitoring supplier practices, identifying good practice and areas for improvement, evaluating the effectiveness of our policies, and ensuring compliance with our rules.
Source of data	Quarterly data submissions by suppliers.
Quantification	Number of disconnections and number of prepayment meters installed for debt.
Unit of measure	Number
Data completeness	Since early days of privatisation opening market to competition.

1.58 Metric 25: Pilot – Sweden

Metric 25	**Existence of minimum standards for key information in advertising and bills and percentage of suppliers complying with this information**
Description	Consumers need to be provided with the means of assessing the offers against each other in a transparent and clear manner. As a first step minimum standards should be developed and required in legislation or applied through self-regulation. The percentage of suppliers complying with these standards can then be computed accordingly. Ei has supervised the compliance of eight chosen statues. Below the specific case is described.
Purpose	Ei received complaints from household customers about difficult and incorrect information from suppliers and DSOs. Due to this Ei in 2015 focused on information obligations, according to the Electricity Act. The purpose of these regulations is to strengthen the position of the household customers on the electricity market. A prerequisite for an efficient market is that household customers get accurate information that is easy to understand. Therefore Ei started a project to see whether 24 chosen suppliers and 151 chosen DSOs comply with the regulation. In total the supervision included eight statutes of the regulation (which consists of more statutes of different importance). Supplier related regulation: - Information in contracts about the provisions applicable regarding extension of a contract with a fixed term. - Information to consumers that have a fixed-term contract about the expiry date of the contract and the consequences of the expiry of the contract. The supplier shall no earlier than 90 days and no later than 60 days prior to the expiry of the contract inform the consumers. DSO related regulation:

	- Information about security of supply in the electricity network and of the right to compensation for outages and damages. - Information about the network tariffs. DSOs shall publish their network tariffs to the extent that it relates to charges and other conditions for transmission of electrical power. - Information about consumption data. - Information in contracts. For example; where the household customers can find information on the DSO´s pricing and other conditions and the conditions for invoicing and payment. - Information to consumers that have been assigned a supplier (default supplier/supplier of last resort) about the name of the assigned supplier, of what this assigning entails and of the possibility to switch supplier. DSO and supplier related regulation: - How DSOs and suppliers on their websites and bills and on request in other ways provide consumer related information.
Source of data	A questionnaire was sent to the participants and then the answers were evaluated by Ei. The participants were chosen according to the following. - Companies not supervised lately or never - Companies which cover a large share of the market - Companies connected to complaints
Quantification	List of minimum standards for key information in advertising and bills For each of the listed minimum standards, the proportion of active suppliers using it out of the total number of active suppliers. Specific results of this case: The overall result shows that there was a lack of information and the information was quite difficult to understand for the consumers. Approximately 96 percent of the 24 suppliers and approximately 50 percent of the 151 DSOs had incomplete information of different level. Some lacked intended statute information as a whole and others had incomplete information. All these companies received an injunction from Ei to provide the consumers the right information within a specific time period. None of the companies have so far appealed the decisions.
Unit of measure	% of supervised suppliers and DSOs complying with the chosen statutes. Ei has used a list of minimum standards but not all existing statutes and the quantification above is based only on the suppliers and DSOs included in the supervision.
Data completeness	Swedish legislation has implemented a broad set of standards for key information in advertising and bills, though Ei does not regularly monitor the compliance on all these. The supervision is indicative.

Annex 1: List of Abbreviations

Abrreviation	Definition
ACER	Agency for Cooperation of Energy Regulators
ACM	Authority for Consumers and Markets (Netherlands)
BNetzA	Regulatory Authority for Industries: Telecommunications, Postal Services, Railways, Electricity (Germany)
CEER	Council of European Energy Regulators
CEER GGP	CEER Guidelines of Good Practice
CER	Commission for Energy Regulation (Ireland)
CEREMP	Centralised European Register of Energy Market Participants
ComReg	Commission for Communications Regulation
CRE	Commission de régulation de l'énergie (France)
CREG	Electricity and Gas Regulation Commission (Belgium)
DD	Direct Debit
DECC	Department of Energy and Climate Change (UK)
DG COMP	Director General Competition (European Commision)
DSO	Distribution System Operator
DSR	Demand Side Response
EC	European Commission
EDSN	Energie Data Services Nederland (Netherlands)
Ei (Sweden)	Energy Market Inspectorate, the Swedish Energy Market Regulator
ERO	Energy Regulatory Office (Czech Republic)
ERU	Energy Regulatory Office (Czech Republic)
EV	Energy Authority (Finland)
FIT	Feed-in Tariff
FMD	Fuel Mix Disclosure
GGP	Guidelines of Good Practice
GO	Guarantees of Origin
HHI	Herfindahl-Hirschman Index
MS	Member States
MWh	Megawatt hour
NEMO	Nominated Electricity Market Operator
nHH	non-Half Hourly
NRA	National Regulatory Authority
NVE	Norwegian water resources and energy directorate (Norwegian energy regulator)
Ofgem	Government regulator for gas and electricity markets (UK)
OTE	Czech electricity and gas market operator
PCT	Price Comparison Tools
PCW	Price Comparison Website
PPM	Pre-payment meter

Abrreviation	Definition
PV	Photovoltaic
REGO	Renewable Energy Guarantees of Origin
REMIT	Regulation on Wholesale Energy Market Integrity and Transparency
RES	Renewable Energy Source
SC	Standard Credit
SMEs	Small and medium size enterprises
SVT	Standard Variable
TenneT	National electricity transmission system operator of the Netherlands
ToU	Time of Use
TSO	Transmission System Operator
VIU	Vertically Integrated Undertakings

About 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 SC TF Task Force of CEER's Customers and Retail Markets Working Group.

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More information at www.ceer.eu.