



Commission for Energy Regulation
An Coimisiún um Rialáil Fuinnimh

Review of Typical Domestic Consumption Values for Electricity and Gas Customers

Consultation Paper

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Regulating Water, Energy and Energy Safety in the Public Interest

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Executive Summary

The CER currently requires price comparison websites and suppliers to use a common industry figure for the annual average consumption values for both gas and electricity. These figures can be used to calculate the estimated annual average bill of a gas or electricity customer. This is especially the case where a customer has not provided their own actual consumption and a generic quote for an energy tariff offer is then calculated, either by a supplier or a price comparison web site. The estimated annual average bill from such a calculation can be used by customers, price comparison websites or suppliers to compare tariff offers or other marketing comparisons across different suppliers.

Typical consumption values can provide a useful idea of the level of energy costs faced by customers. The CER also uses this figure in its quarterly and annual retail market reports to provide comparisons of standard and discounted plans across suppliers, and as part of its review of the domestic threshold for debt flagging based on a typical customer's annual average bill. These values are also used for internal market monitoring reporting in the CER.

The current industry figures required by the CER are 5,300 kWh for domestic electricity customers and 13,800 kWh for domestic gas customers. Trends based on CER's market monitoring suggest that these figures have reduced in recent years and therefore a review of the typical consumption figures and the methodology used to calculate them is merited.

The CER has conducted this review with the assistance of the the electricity Meter Registration System Operator (MRSO), the Meter Data Services (MDS) department within Gas Networks Ireland (GNI) and the Gas Point Registration Operator (GPRO).

This paper presents a review of the methodology provided by the Meter Registration System Operator (MRSO) and the Meter Data Services department within GNI to calculate revised figures for typical annual consumption levels in the domestic gas and electricity sectors. It also sets out proposals on the preferred methodology and the results of the new proposed figures.

The review recommends that a median value is used to calculate the typical annual consumption figure, and recommends that the figures are reduced as follows; to 3,500kWh for electricity and 11,150kWh for gas. These will be effective from **3rd of April 2017**.

The review also recommends that price comparison web sites provide a low, medium and high consumption value for customers. This is to enable ranking of tariffs for customers across various consumption bands.

The time line for this will be subject to discussion with currently accredited price comparison web sites and feedback received through this consultation. The CER also intends to review the current accreditation framework for price comparison web sites, with a view to consider how more customers can avail of its services and if improvements can be made to the framework and price comparison tools. This work will be progressed in 2017.

The final outcome of this process will result in obligations being placed on CER accredited price comparison web sites and relevant industry stakeholders, to update the current industry figures to the revised figures. These proposals are made in view of the CER's responsibilities concerning the protection of retail customers and the promotion of competition.

It is proposed that the new values are used from the **3rd of April 2017**, to allow time for some practical considerations regarding issues that may arise during the transition to the use of new figures. However pending the feedback to this review, the implementation date can be revised.

Views are invited on the implementation date and also the issue of practical considerations or questions that need to be addressed. Interested stakeholders are invited to respond to the proposals in this paper up to the **13th of February 2017**.

Public/ Customer Impact Statement

The CER currently provides typical annual consumption values which can be used on price comparison websites and to compare tariff offers across different suppliers. These figures are currently 5,300 kWh for electricity customers and 13,800 kWh for gas customers.

The use of a common energy consumption figure that is uniformly used by all suppliers and (accredited) price comparison websites can assist customers to compare the supplier's tariff offers and in turn select a supplier tariff offer that best meets their preference. The annual consumption value is used by the CER price comparison web sites and often used by suppliers, to calculate the estimated annual bill or the saving a customer can make on a particular tariff offer. The CER also uses these values for internal market monitoring of prices and in its' retail market reports.

For many reasons, customers may not be aware of their current annual consumption values. Customers can obtain their annual consumption (or an estimate) by looking at their electricity and gas bills, or by reading their meter. In the event that a customer does not know or have access to their actual consumption details or values, the typical consumption value can provide a useful tool, to determine the tariff offer that best meets their requirements.

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Glossary of Terms and Abbreviations

Abbreviation	Meaning
MRSO	Meter Registration System Operator
GPRO	Gas Point Registration Operator
MDS	Meter Data Services Department
Mean	The average value of a set of numbers
Median	The value separating the higher half of a data sample, a population, or a probability distribution, from the lower half

1. Introduction

1.1 Background

1.1.1 Introduction

The Commission for Energy Regulation (CER) is Ireland's independent energy and water regulator. The CER was established in 1999 and now has a wide range of economic, customer protection and safety responsibilities in energy. The CER is also the regulator of Ireland's public water and wastewater system.

The CER's primary economic responsibilities in energy cover electricity generation, electricity and gas networks, and electricity and gas supply activities. As part of its role, the CER jointly regulates the all-island wholesale Single Electricity Market (SEM) with the Utility Regulator in Belfast, Northern Ireland.

The SEM is governed by a decision-making body known as the SEM Committee, consisting of the CER, the Utility Regulator (Northern Ireland) and an independent member. The overall aim of the CER's economic role is to protect the interests of energy customers. The CER has an important related function in customer protection by resolving complaints that customers have with energy companies.

The CER's core focus in safety is to protect lives and property across a range of areas in the energy sector. This includes safety regulation of electrical contractors, gas installers and gas pipelines. In addition the CER is the safety regulator of upstream petroleum safety extraction and exploration activities, including on-shore and off-shore gas and oil.

In 2014 the CER was appointed as Ireland's economic regulator of the Irish public water and wastewater sector.

Further information on the CER's role and relevant legislation can be found on the CER's website at www.cer.ie

The purpose of this information paper is to present the results of the review the typical annual domestic consumption values for electricity and gas customers.

Currently, the value for estimated annual average consumption for electricity is 5,300 kWh and for gas the value is 13,800kWh. These values are used by accredited price comparison websites to compare typical annual average bills where customers are not aware of their actual annual consumption values. The annual average consumption figure is also a commonly used industry figure to assist with various customer engagement and retail issues, such as the calculation of an estimated annual average bill, and to compare and rank tariff plans offered by suppliers.

The CER uses typical consumption figures to compare standard and discounted plans across suppliers for its quarterly and annual retail market reports. It also uses typical consumption figures as part of its reviews of debt flagging thresholds for domestic customers, for example see the CER's Debt Flagging Review from 2013 [CER/13/135](#) and recent Debt Management Decision Paper [CER/16/014](#). Typical consumption figures will also be used in the revised Supplier Handbook to be published in 2017.

Typical consumption values can serve to promote transparency by ensuring that customers have a common reference point when engaging with suppliers and price comparison websites.

The methodology for calculating revised annual consumption figures for electricity and gas and potential improvements in future are outlined in this paper. MRSO, the MDS department within GNI and the GPRO were consulted on the current methodology and provided data and calculations on the revised figures. They also provided the CER with very useful feedback on the methodology of the calculation and potential future improvements, given the significant value of metering data sets. .

This paper recommends the use of a median figure for both electricity and gas and the rationale for this is explained in detail in section 2.1.1. The paper also sets out figures for small, medium and high consumption customers for electricity and gas. A methodology for all updated figures is provided in the paper. Options for an improved methodology in future are also considered and it is proposed that these figures will be updated every two years.

The outcome of this paper is a revised figure for typical annual consumption for both electricity and gas, which will replace the current figures from next year.

The CER has placed an obligation on all suppliers in its Decision and further Consultation Paper on the Supplier Handbook which states that all suppliers must place an annual average bill based on typical consumption values on all advertising material. This annual average bill will use the typical consumption values as recommended by the CER.

In addition, the CER's market monitoring analysis suggests that it is possible that customers with low consumption are less likely to switch supplier and are less likely to be on the best available tariff. The assessment also suggests that low consumption customers in particular may not have competitive offers available or developed for them. Through the introduction of a low and high consumption values, and the ability of price comparison web sites to provide a consistent ranking of the best available offer, customers may be in a better position to either negotiate a better deal or switch to a better offer. The CER expects that in turn suppliers may also start competing to offer tariffs for such customer groups.

1.1.2 Related Documents

Information on the CER's role and relevant legislation can be found on the CER's website at www.cer.ie

- Decision on CER Accreditation Framework for Price Comparison Websites CER 11/144
- Consultation on Accreditation Process for Price Comparison Websites CER11/085
- Consultation Paper Review of the Supplier's Handbook CER 16/031b

2 Typical Consumption Figures

Typical annual consumption values are required to enable customers to compare prices between suppliers more accurately. This is governed by Section 2.4 of the CER's Decision on the Accreditation Process for Price Comparison Websites ([CER 11/144](#)), which states that '*Where a consumer is unable to provide their annual consumption figure the website provider must use an average annual figure of 5,300kWhs for electricity and 13,800kWhs for gas.*'

Currently, the typical consumption value for electricity is 5,300 kWh. A review of the process for the calculation of a revised figure led to two options being considered. The first option uses median typical consumption values, while the second option calculates average consumption values per domestic customer segment.

2.1.1 Median Vs Mean consumption values

In revising the current values for typical electricity and gas consumption, consideration has been given to the advantages and disadvantages of using a mean figure for typical consumption in comparison to a median figure.

The mean value is the average consumption of all customers in the domestic market and the median value is the level of consumption of most customers in the market. The median value reflects the consumption of an average customer whereas the mean reflects the average consumption of all customers.

The advantage of using a median value for the purpose of this review, is that it represents the consumption value of the majority of customers in the market, and is not skewed by a minority of high consumption customers as with the average value. If a typical customer uses a price comparison website with little or no knowledge of their individual consumption habits or how they compare with other customers, the median value would likely be more applicable to that typical customer.

By using the average, a closer value of typical consumption would be provided for high consumption customers, and the typical value for customers who fall outside of the median range would be closer to their consumption value as an average. As the median value for consumption may be appropriate for the largest number of customers, it is considered that this may be the best value to use. Nonetheless, both values have been calculated for the

purposes of this paper, and a decision will then be made on the appropriate figures to use for price comparison websites and supplier advertising. Low, medium and high median consumption values have also been calculated for electricity and gas customers.

As part of this review, further differences in consumption figures were considered which may help customers self-identify and lead to more accurate typical consumption values for particular classes of customers. The aim of this was to see if these figures could be further refined if customers could self-identify when using a price comparison tool as a PAYG customer or customer on a day/night tariff, if they did not have information available at the time concerning their actual consumption.

For the purpose of this review, differences in customer consumption figures based on their meter type were limited by data availability and differences in the type of meter information for electricity and gas and are discussed further below.

2.1.2 Review of typical electricity figure

Option 1

The first option for the electricity market is to calculate a median consumption value.

Due to the large volume of data to be processed, which comprised of information for each domestic electricity customer in Ireland (>2 million MPRNS), consumption information for each MPRN was grouped into smaller bands by MRSO based on Eurostat data. Estimated values for low, medium and high consumption were then calculated based on 2015 consumption data for all customers.

An exact solution would involve downloading all 2.1 million domestic customer annual consumption values and sorting them in a list from low to high consumption. The median or middle item lies at the mid-point of the list, the value of the middle point is the median and represents a typical domestic consumption value. Likewise, lower and upper quartiles can be found as the values of the items at one quarter and three quarters of the way through the list or distribution. The lower and upper quartiles represent values for low and high domestic consumption respectively.

While the exact solution requires working with large data files, a good estimate for typical domestic consumption can be derived by creating a grouped frequency distribution of

domestic consumption values. The median can then be estimated by computing the probable location of the median within the consumption band, assuming an even spread of items across the consumption band.

For example, if there are 100 items in the band 3,000kWh to 3,500kWh and the median is 20 items from the bottom of the band, then 20/100 multiplied by the band interval of 500kWh gives an adjustment of 100kWh to be added to the lower band value of 3,000kWh. Therefore in this example 3,100kWh would be the estimated median or typical domestic consumption value.

An estimate of the median value across each consumption band was calculated by taking the lower and upper cumulative number of MPRNs for each class, as shown in the table below. The bands have been grouped into smaller bands to enhance the estimation. The value of 500kWh bands was used for data processing purposes, and provides a reasonable basis to calculate a reasonable proxy.

The CER acknowledges that while the proposed calculation does not cover every single meter point, the methodology provides a practical option to calculate a proxy figure and provides an industry figure that is more reflective of current typical consumption levels.

Residential kWh	
DA,	< 1,000
DB	1,000 < 2,500
DC	2,501 < 5,000
DD	5,001 < 15,000
DE	> 15,000

Similarly, estimates are derived for the lower and upper quartiles representing values for low and high domestic consumption respectively. The resulting figures derived from this calculation were for low, medium and high consumption customers based on consolidated consumption data for urban, rural, single and double tariff meters. These are shown in the table below.

Estimated values of low, medium and high annual domestic consumption in kWh	
Low	2,100kWh
Medium	3,500kWh
High	5,200kWh

Based on this methodology, the median consumption figure for a medium level of consumption in electricity is **3,500kWh**, as compared to the current figure of **5,300kWh**.

Option 2

The second option is to calculate average consumption values per customer segment. The simple average across all domestic customers was also calculated and was 4,127kWh for 2015.

Average consumption for a range of customer profiles was also calculated, showing that rural day/night tariffs had a considerably higher average consumption figure (11,959kWh per annum). Customers on day/night tariffs include high consumption customers such as farms with a maximum import capacity of up to 29kVA.

In comparison, the average annual consumption figure for a 24 hour urban profile was 3,595 kWh per annum, which is closer to the median value derived through the methodology described for Option 1.

The table below shows the average figures calculated for urban domestic 24 hour, rural domestic 24 hour, urban domestic day/night tariffs and rural domestic day/night tariffs.

	2015		Average annual consumption per site (kWh) for domestic customers
	MWh	Sites	
URBAN DOMESTIC 24HR	4,343,890	1,208,326	3,595kWh
URBAN DOMESTIC DAY TARIFF	541,249	183,417	6,197kWh
URBAN DOMESTIC NIGHT TARIFF	595,302		
RURAL DOMESTIC 24HR	2,251,441	582,304	3,866kWh
RURAL DOMESTIC DAY TARIFF	359,123	52,873	11,959kWh
RURAL DOMESTIC NIGHT TARIFF	273,209		
All Domestic Customers	8,364,214	2,026,920	4,127kWh

It can be seen that there are large differences between customers on 24 hour tariffs and customers on day/night tariffs in particular, and the average value for urban and rural domestic customers is close to the median value calculated for Option 1.

CER Proposal 1:

A median value should be used for typical annual consumption for electricity and gas. This will be used as the revised industry figure, to be used by accredited price comparison web sites and suppliers to calculate the typical annual estimated bill. A revised figure of 3,500kwh is proposed based on the above methodology. The time line for introducing this figure is the **3rd of April 2017**.

CER Proposal 2:

It is proposed that a low median consumption figure and a high median consumption figure is also introduced for typical annual consumption for electricity. A figure of 2,100kWh is proposed for low consumption customers and 5,200kWh is proposed for high consumption customers. The time line proposed to introduce these figures by accredited price comparison web sites is the **5th of June 2017**.

Views are invited on:

- The practical implementation of a low, median and high consumption figure.
- The time lines to introduce these figures.
- Other practical considerations of staggering the introduction of the figures.
- Any other comments.

Future refinements

As part of this review proposals have also been considered to refine these figures in future, with a view to review of these figures every two or three years (e.g. with a review commencing in 2018, for revision in 2019, or a review commencing in 2019 for revision of figures in 2020).

A balance will need to be made between moving to more accurate figures and promoting understanding of how the figures are calculated and how customers can identify their appropriate consumption level.

The CER has consulted with the MRSO on potential improvements to the calculation in future and has identified a number of areas which could be considered in the next review;

1. With more time and resources, the data processing calculation could use actual median values for low, medium and high consumption by using all MPRNs, rather than grouping them into 500kWh bands.
2. There are differences between the consumption values for rural and urban domestic customers. To help customers self-identify their consumption level, in future median consumption values may be calculated separately for rural and urban customers which could feed into price comparison websites.
3. There are large differences between the consumption profiles for customers on day/night tariffs and 24 hour tariffs. These may also be calculated separately and used as a recommended figure in future to help customers self-identify.
4. One year of data was used for these calculations, however in future the use of two years of data may be considered for the calculation.
5. The consumption profile specific to PAYG customers was not considered for this calculation.

2.1.3 Review of typical gas figure

The CER has consulted with the GPRO and MDS on the review of the average annual consumption figure for domestic gas users, which is currently 13,800kWh, and used information and analysis completed by the GPRO and MDS.

Gas Networks Ireland have an established methodology to prepare customer profiles for domestic customers. Each year, data is downloaded from their FAR database, which includes a list of all active gas points. Active gas points are defined as having an active shipper on the date data is downloaded. For 2015 this was approximately 670,800 active gas points, of which approximately 645,200 were residential customers. The gas points are identified as domestic based on their Annual Quantities (AQ) which is the estimated amount of gas in kilowatt-hours (kWh) that a gas point will use in a gas year and based on their registration as either Domestic or Industrial & Commercial customers.

Option 1:

The median annual quantity value for each domestic GPRN was calculated, along with the median value broken down into Eurostat consumption bands, to give a value for low, medium and high consumption customers¹.

2015 Median consumption values, broken down by Eurostat bands	
All customers	10,010
Low: 0-5,600 kWhs (Eurostat band D1)	3,630
Medium: 5,600-56,000 kWhs (Eurostat band D2)	11,150
High: >56,000 kWhs (Eurostat band D3)	62,250

¹ Sites with an AQ value of 0 were not included in the median consumption analysis

Option 2:

The average annual quantity value for each domestic GPRN was calculated, along with the average value broken down into Eurostat consumption bands, to give a value for low, medium and high consumption customers.

2015 Average consumption values, broken down by Eurostat bands	
All customers	10,998
Low: 0-5,600 kWhs (Eurostat band D1)	3,320
Medium: 5,600-56,000 kWhs (Eurostat band D2)	12,710
High: >56,000 kWhs (Eurostat band D3)	62,820

For 2015, total consumption per category was estimated and this was subsequently divided by the number of gas points per category to give average consumption per gas point per category.

CER Proposal 3:

- It is proposed that the median methodology is used to determine the typical gas consumption value. A figure of 11,150kWhs is proposed for the median value.
- Similar to electricity, it is proposed that low consumption and high consumption median values are also provided by price comparison websites.
- The low consumption value is 3,630kWhs and the high consumption value is 62,250 kWhs

Views are invited on:

- The use of a median consumption figure, to be introduced by the **3rd of April 2017** by price comparison web sites.
- The use of low and high consumption figures, to be used by the **5th of June 2017** by price comparison web sites.
- The time lines for introduction of these figures.

Future Refinements:

As part of this review proposals have also been considered to refine these figures in future, and move to a review of these figures every two years. Future considerations for improved figures include;

1. A different breakdown of consumption figures to be considered, as opposed to the current breakdown into bands defined by Eurostat.
2. Inclusion of different types of customers (such as PAYG) to help customers self-identify and use a more accurate consumption value, which could potentially be incorporated into price comparison websites.
3. Analysis of two years of data rather than one year to derive mean and median values.

3. Conclusions and Proposals

The CER proposes to update its typical annual consumption figure for electricity from 5,300kWh to a median value of 3,500kWh as the revised industry figure. This is the figure that will be required by price comparison web sites and suppliers as the input to calculate the estimated cost of a bill.

The findings of the low and high median consumption values are provided below;

Estimated values of low, medium and high annual domestic consumption in kWh	
Low	2,100kWh
Medium	3,500kWh
High	5,200kWh

Suppliers, third party agents and price comparison web sites, will be required to use the revised industry figure of 3,500kWh, from the **3rd of April 2017**. It is proposed that suppliers, third party agents and price comparison web sites will be required to use the low and high consumption figures from **the 5th of June 2017**.

The CER proposes to update its typical annual consumption figure for gas from 13,800 kWh to a median value of 11,150 kWh. The results for low and high consumption customers are also provided below.

2015 Median consumption values, broken down by Eurostat bands	
All customers	10,010
Low: 0-5,600 kWhs (Eurostat band D1)	3,630
Medium: 5,600-56,000 kWhs (Eurostat band D2)	11,150
High: >56,000 kWhs (Eurostat band D3)	62,250

Interested stakeholders are invited to respond to the proposals in this paper up to the **13th of February 2017**.

Suppliers, third party agents and Price Comparison web sites, will be required to use the revised industry figure of 11,150 kWh, from the **3rd of April 2017**. It is proposed that Suppliers, third party agents and Price Comparison web sites will be required to use the low and high consumption figures from **5th June 2017**.

These revised values should lead to more representative figures for customers to enable them to choose the right supplier and lead to more transparency in the market.