



**An
Phríomh-Oifig
Staidrimh**

Central
Statistics
Office

Single Integrated Metadata Structure (SIMS) Report

For

Household Gas Consumption by Building Energy Ratings 2021



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This documentation applies to the reporting period:
2021

Last edited: 15/09/2022



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2. Introduction

This release combines microdata from building energy ratings with microdata from metered gas consumption. The main purpose of the release is to examine how gas consumption varies by type of dwelling and by energy rating. Only dwellings that used natural gas as their main space heating fuel have been included in the analysis.

3. Contact

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4. Metadata Update

4.1. Metadata last certified

15/09/2022

4.2. Metadata last posted

19/09/2022

4.3. Metadata last update

15/09/2022



5. Statistical Presentation

5.1. Data Description

Data on energy use are important for environmental, social, and economic purposes.

The building energy rating microdata were obtained from the Sustainable Energy Authority of Ireland (SEAI). A Building Energy Rating (BER) is an *indication* of the energy performance of a dwelling and is measured in kilowatt hour per square metre of floor area of the dwelling per year (kWh/m²/year). The BER certificate indicates the annual primary energy usage associated with the provision of space heating, water heating, ventilation, lighting, and associated pumps and fans. The energy use is calculated based on a notional family with a standard pattern of occupancy.

The gas consumption data from Gas Networks Ireland (GNI) includes all connections to the mains gas network. The data are gross calorific values expressed in kilowatt hours. A kilowatt hour is a unit of energy equivalent to one kilowatt of power sustained over an hour.

5.2. Classification System

The BER rating scale is divided into categories from G (largest primary energy usage) to an A1 rating (lowest primary energy usage). The full range of categories is described in Table A. For the purposes of this release the categories have been combined to A/B, C, D, E, F/G.

Category	kWh/m ² /year
A1	≤ 25
A2	> 25
A3	> 50
B1	> 75
B2	> 100
B3	> 125
C1	> 150
C2	> 175
C3	> 200
D1	> 225
D2	> 260
E1	> 300
E2	> 340
F	> 380
G	> 450

Table A: BER categories

5.3. Sector Coverage

This analysis was restricted to BER audits using mains gas as their main space heating fuel. Dwellings with less than 10 square metres of total floor area were excluded. Dwellings using less than 1 kWh or more than 250 kWh per square metre were excluded.



5.4. Statistical Concepts and definitions

The data cover all dwellings connected to the natural gas network.

Networked gas consumption: gross calorific values expressed in kilowatt hours and Eircode. DBER: Energy rating, main space heating fuel, total floor area, type of dwelling, period of construction and Eircode.

Gross Calorific Value (GCV) is the amount of heat released by the complete combustion of a unit of natural gas.

BER is an indication of the energy performance of a dwelling (represented in units of kWh/m²/year). Actual energy performance will depend on how the occupants operate the dwelling. A BER is based on the characteristics of major components of the dwelling including wall, roof, and floor dimensions; window and door sizes and orientations, as well as the construction type and insulation, ventilation, and air tightness features; the system for heat supply (including renewable energy), distribution, and control; and the type of lighting.

Main Space Heating system: The main space heating system heats the largest proportion of the dwelling. This proportion is calculated using a count of the habitable rooms. It often provides hot water as well as space heating.

Total Internal Floor Area of the dwelling: the total area of exposed and semi-exposed floors. It excludes any unheated areas that are thermally separated from the dwelling. The total energy usage is divided by the dwelling floor area to determine the BER.

Type of dwelling: Apartment; Mid-terrace house; End-of-terrace house; Semi-detached house; and Detached house.

Period of construction: Period when the dwelling was originally built.

Eircode: Eircode is Ireland's postcode system, launched in July 2015. An Eircode is a seven-character alphanumeric postcode. Each Eircode is unique to a postal address and its geographic location.

5.5. Statistical Unit

Domestic dwellings

5.6. Statistical Population

Domestic dwellings that have had a BER audit carried out with natural gas as their main space heating fuel and a total floor area of 10 or more square metres.

5.7. Reference Area

State

5.8. Time Coverage

Gas meter file: 2015 – 2021. Domestic BER file: audits that were undertaken in 2009 - 2021. For dwellings with more than one energy audit, only the latest was used.

5.9. Base period

Not applicable.



6. Unit of Measure

A kilowatt hour is a unit of energy equivalent to one kilowatt of power sustained over an hour.

The building energy rating is expressed as kilowatt hours per square metre floor area per year (kWh/m²/year). Total floor area is taken into account by publishing an indicator on mean kilowatt hours per square metre (kWh/m²).

The gas consumption data are gross calorific values expressed in kilowatt hours (kWh). The gas consumption data were originally collected as meter readings.

7. Reference Period

2021

8. Institutional Mandate

8.1. Legal Acts and other agreements

S.I. 243 of 2012 which makes provisions for the inclusion of BER information in property sale and rental advertisements.

National reporting of networked gas consumption data is done on a voluntary basis.

8.2. Data Sharing

The CSO obtained access to the BER data collected by the SEAI and the networked gas consumption data from GNI under Section 30 of the Statistics Act, 1993.

9. Confidentiality

9.1. Confidentiality – policy

All information supplied to the CSO is treated as strictly confidential. The Statistics Act, 1993 sets stringent confidentiality standards: Information collected may be used only for statistical purposes, and no details that might be related to an identifiable person or business undertaking may be divulged to any other government department or body.

These national statistical confidentiality provisions are reinforced by the following EU legislation: Council Regulation (EC) No 223/2009 on European statistics for data collected for EU statistical purposes.

Further details are outlined in the CSO's Code of Practice on Statistical Confidentiality.

For more information on the CSO confidentiality policy please visit:

<https://www.cso.ie/en/aboutus/lgdp/csodatapolicies/statisticalconfidentiality/>

9.2. Confidentiality – data treatment

All confidential data are treated in accordance with Part V of the Statistics Act, 1993.

10. Release Policy

10.1. Release Calendar

The date of dissemination of all statistics released by the CSO can be found in the Release Calendar published by the CSO. This calendar is regularly updated.



10.2. Release calendar access

The release calendar can be accessed via the CSO website, www.cso.ie, or directly from this link: <https://www.cso.ie/en/csolatestnews/releasecalendar/>

10.3. User access

In accordance with Principle 6 of the European Statistics Code of Practice all users of CSO statistics have equal access via the CSO website at the same time of 11 am. Any privileged pre-release access to any outside user is limited, controlled, and publicised. If leaks occur, pre-release arrangements are revised to ensure impartiality.

The CSO recognises that in very limited circumstances a business need for pre-release access may be substantiated. Any form of pre-release access is a privilege and a strict CSO pre-release access policy is adhered to for these special requests. The full pre-release access policy can be accessed at: <https://www.cso.ie/en/aboutus/lgdp/csodatapolicies/csopolicyonpre-releaseaccess/>

The various results are published nationally in statistical release format as well as on the CSO website (www.cso.ie). Selected extracts from the results are posted on the CSO's data dissemination database, PxStat.

11. Frequency of Dissemination

Annual

12. Accessibility and clarity

12.1. News release

Not applicable.

12.2. Publications

The data is made available on the CSO website at 11am on the day of publication. The most recent releases can be found via this link: <https://www.cso.ie/en/statistics/energy/>

12.3. On-line database

BER data (BER rating, Dwelling type, Main space heating fuel, Period of construction, County and Dublin postal district and Year) are also accessible from the CSO dissemination database, PxStat, via this link: <https://data.cso.ie/table/EBA02>

Metered gas consumption data (County and Dublin postal district, Sector and Quarter) are also accessible from the CSO dissemination database, PxStat, via this link: <https://data.cso.ie/product/mgc>

12.3.1. AC 1. Data tables -consultations

Not calculated.

12.4. Micro-data Access

Links to a National BER Research Tool is available on the SEAI website at:



<https://ndber.seai.ie/BERResearchTool/Register/Register.aspx>

The SEAI have extensive documentation. The CSO may compile special analyses if requested.

12.5. Other

Background notes are provided with each release on the CSO website.

12.5.1. AC2. Metadata consultations

Not calculated.

12.6. Documentation on Methodology

Further information on the methodology used for this release can be found in the CSO methods page:
<https://www.cso.ie/en/methods/climateandenergy/>

12.6.1. AC3 – Metadata completeness – rate

Not calculated.

12.7. Quality Documentation

Metadata information on the quality of this release is available from the CSO methods page:
<https://www.cso.ie/en/methods/climateandenergy/>

13. Quality Management

13.1. Quality Assurance

Quality Management Framework

The CSO avails of an office wide Quality Management Framework (QMF). This framework allows all CSO processes and outputs to meet the required standard as set out in the European Statistics Code of Practice (ESCAP). The QMF foundations are based on establishing the UNECE's Generic Statistical Business Process Model (GSBPM) as the operating statistical production model to achieve a standardised approach to Quality Management. All and any changes implemented to CSO processes and outputs require adherence to the QMF.

13.2. Quality Assessment

Quality assessments are carried out on the Domestic BER and Networked Gas Consumption microdata. Outliers were excluded and categories were aggregated.

14. Relevance

14.1. User Needs

Data on energy use are important for national environmental, social, and economic purposes.

14.1.1. Main National Users

SEAI, Government, policy makers, energy sector, researchers, academics, media, and the public.



14.1.2. Principal External Users

SEAI, Government, policy makers, energy sector, researchers, academics, media, and the public.

14.2. User Satisfaction

Not measured.

14.3. Data Completeness

Similar analyses will be published combining metered electricity consumption with domestic and non-domestic building energy ratings.

14.3.1. Data Completeness rate

Not measured.

15. Accuracy and reliability

15.1. Overall accuracy

Domestic BER data is collected and produced using standardised software to estimate energy performance.

The gas consumption data are considered reliable. The meter readings data were converted to monthly and quarterly consumption estimates by GNI. Meter readings can be actual or estimated. In some cases, an estimated reading that was too high results in a negative reading for a subsequent period i.e., no attempt was made to adjust the earlier over- or under-estimate. The data file provided to the CSO did not provide information on whether the consumption in a period was based on an estimated reading.

15.2. Sampling Error

Not applicable.

15.2.1. A1. Sampling error indicator

Not applicable.

15.3. Non-sampling Error

Not applicable.

15.3.1. Coverage error

Not applicable.

15.3.1.1. A2. Over coverage rate

Not applicable.

15.3.1.2. A3. Common units – proportion

Not applicable.

15.3.2. Measurement error

Not applicable.



15.3.3. Non-Response Error

Not applicable.

15.3.3.1. Unit non response rate

Not applicable.

15.3.3.2. Item non response rate

Not applicable.

15.3.4. Processing error

Not applicable.

15.3.5. Model assumption error

Not applicable.

16. Timeliness and punctuality

16.1. Timeliness

The DBER release is published on a quarterly basis and the Networked Gas Consumption release is published on an annual basis. The results of the annual Household Gas Consumption by Building Energy Rating release have a target timeliness of 90 days after the receipt of the annual gas consumption file.

16.1.1. TP1. Time lag – First results

Not applicable.

16.1.2. TP2. Time lag – Final results

DBER data is received on a quarterly basis and Networked Gas Consumption data is received on an annual basis. The annual Household Gas Consumption by Building Energy Rating release will be published within t+90 days of the receipt of the annual gas consumption file.

16.2. Punctuality

This release was published on time in accordance with the time frame specified in the CSO release calendar.

16.2.1. TP3. Punctuality – Punctuality - delivery and publication

0 days.

17. Comparability

17.1. Comparability – Geographical

Not applicable.



17.1.1. CCI. Asymmetry for mirror flow statistics

Not applicable.

17.2. Comparability over time

No break in the series has occurred to date however possible changes in the legislative basis for the collection of the Domestic BER data or changes to the software collecting the data could introduce a break in the series in the future.

17.2.1. Length of Comparable Time series

7 years.

17.3. Coherence – cross domain

Not applicable.

17.3.1. Coherence – Sub annual and annual statistics

Not applicable.

17.3.2. Coherence with National Accounts

Not applicable.

17.4. Coherence – internal

Not applicable.

18. Cost and Burden

The Domestic Building Energy Rating and Networked Gas Consumption release reuses data collected by the SEAI under S.I. 243 of 2012 and gas meter data collected by GNI. There is no additional cost and burden.

19. Data Revision

19.1. Data Revision Policy

Revisions refer to changes made to published statistical data when the information used in its production has been updated or corrected. This information includes all data used in compiling the statistic e.g., respondent data, administrative data, weights and factors, methodology, classifications, definitions, modifications to survey questionnaires, survey scope and data collection methods.

The data revision policy that CSO statistics adheres to can be found via the following link:

<https://www.cso.ie/en/methods/quality/treatmentofrevisions/>

19.2. Data Revision Practice

Revisions are made quarterly to Domestic BER data if updated assessments are performed on a previously assessed dwelling.



19.2.1. Data Revision – Average size

Not calculated.

20. Statistical processing

20.1. Source Data

SEAI BER administrative data and GNI gas meter data which are based on a mixture of actual and estimated meter readings.

20.1.1. Population and sampling frame

Domestic dwellings that have had a BER assessment carried out and use natural gas as their main space heating fuel.

20.1.2. Sampling design

Not applicable.

20.1.3. Survey size

Not applicable.

20.1.4. Survey technique

Domestic BER data was collected and produced by the SEAI using standardised software.

20.2. Frequency of data collection

Domestic BER data is collected each time an audit is carried out on a dwelling. Gas consumption data is collected each time a meter reading is taken or estimated.

20.3. Data Collection

The collection of the Domestic BER data is the responsibility of the SEAI and the collection of the gas consumption data is the responsibility of GNI. GNI gas meter data are based on a mixture of actual and estimated meter readings.

20.3.1. Type of Survey/Process

Administrative data based on the assessment of the energy performance of a domestic dwelling and gas meter data based on usage.

20.3.2. Questionnaire (including explanations)

<https://www.seai.ie/home-energy/building-energy-rating-ber/support-for-ber-assessors/domestic-ber-resources/deap4-software/>

20.3.3. Survey Participation

Domestic BERs are mandatory for all dwellings offered for sale or rent since 2009 and required when applying for some grants to improve energy performance. Gas meter data is collected for all dwellings that use gas as their main space heating fuel for billing purposes.



20.3.4. Data Capture

Data on the dwelling is collected by the SEAI using standardised software:

<https://www.seai.ie/home-energy/building-energy-rating-ber/support-for-ber-assessors/domestic-ber-resources/deap4-software/>

20.4. Data Validation

Not applicable.

20.5. Data Compilation

The Eircode was used as the matching variable between the building energy ratings and gas consumption files. The CSO supplemented the building energy ratings file with Eircodes from an ESB Networks electricity customer file. This was possible because the meter point reference number (MPRN) was in both files. This step added more Eircodes to the BER file.

The networked gas microdata contained an Eircode and geo-coordinate linking variables to GeoDirectory, which is a national register of post delivery points. The gas meter data were matched by the CSO to GeoDirectory using the X/Y coordinates. The Eircode in GeoDirectory was compared with the Eircode in the gas meter microdata as a data quality check. Additional Eircodes were added from GeoDirectory if possible.

The building energy ratings file contained audits that were undertaken in 2009 to 2021. For dwellings with more than one energy audit, only the latest was used. Only dwellings with natural gas as their main space heating fuel and a total floor area of 10 or more square metres were used.

20.5.1. Imputation (for Non-Response or Incomplete Data Sets)

No imputation is done, only matched records are used to produce the tables in the release.

20.5.1.1. A7. Imputation rate

Not applicable.

20.5.2. Grossing and Weighting

Not applicable.

20.6. Adjustment

Not applicable.

20.6.1. Seasonal Adjustment

No adjustment was made for variations in the annual temperature. A cold Winter is likely to cause an increase in gas consumption.

21. Comment