

Article

Energy efficiency of housing in England and Wales: 2022

Insights on the energy efficiency, environmental impact, carbon dioxide emissions and central heating main fuel type for new and existing homes by property type, tenure and property age.

Contact:
Nikola Bowers, Craig Smith and
Tony Wilkins
better.info@ons.gov.uk
+44 2037 411789

Release date:
25 October 2022

Next release:
To be announced

Table of contents

1. [Main points](#)
2. [Energy efficiency of dwellings in England and Wales](#)
3. [Central heating fuel type for dwellings](#)
4. [Subnational statistics](#)
5. [Environmental impact and carbon dioxide emissions](#)
6. [Five year overlapping timeseries](#)
7. [Representativeness of dwellings covered by an EPC](#)
8. [Energy efficiency of housing in England and Wales data](#)
9. [Glossary](#)
10. [Data sources and quality](#)
11. [Related links](#)
12. [Cite this article](#)

1 . Main points

- England and Wales both have a median energy efficiency rating in band D, with scores of 67 and 65, respectively, where the most energy-efficient homes have an energy efficiency rating in band A and the least energy-efficient homes are in band G.
- Flats and maisonettes were the most energy-efficient property type in both England and Wales, with a median energy efficiency score of 72 in England and 73 in Wales, equivalent to band C.
- Social rented dwellings had the highest median energy efficiency score across all property tenures in both England and Wales.
- In both countries, four in five dwellings used mains gas as a main fuel source for central heating.
- Of local authority districts, 15% had more than half of their dwellings at energy efficiency band C or above; two-thirds of these local authorities were in London or the South East.
- The median energy efficiency score has risen over time in England and Wales.

2 . Energy efficiency of dwellings in England and Wales

Several factors affect the energy efficiency of housing, including property type, tenure and when it was constructed. This article highlights the types of dwellings typically associated with high and low energy efficiency scores.

Energy Performance Certificates (EPCs) indicate the energy efficiency of dwellings. They are based on data about a building's energy features, for example, the building materials used, the heating systems and insulation. These are collected by an accredited energy assessor and entered into government-approved software to generate an EPC score, typically ranging from 0 to 100. Domestic EPCs are banded from A to G, where A is the most energy efficient.

EPC data for England and Wales are available from the Department for Levelling Up, Housing and Communities (DLUHC) [Open Data Communities website](#).

The scores associated with each energy efficiency band are:

- band A – 92 plus (most efficient)
- band B – 81 to 91
- band C – 69 to 80
- band D – 55 to 68
- band E – 39 to 54
- band F – 21 to 38
- band G – 1 to 20 (least efficient)

This analysis uses EPC data to present energy efficiency, the main fuel type used in central heating, environmental impact, and the carbon dioxide (CO₂) emissions of dwellings with an EPC for England and Wales separately. It is based on one record per dwelling, using records from April 2012 to March 2022. This is because EPCs are only valid for 10 years from when dwellings are constructed, converted, sold or let.

Following feedback from the 2021 release, we have changed our methodology slightly for this year. This means that 2022 figures should not be compared with last year's figures because of the change from all records to only valid records. For this release, we have included data that are grouped into five year overlapping groups (that is, Quarter 2 (Apr to June) 2016 to Quarter 1 (Jan to Mar) 2021 and Quarter 2 2017 to Quarter 1 2022). These give an indication of change over time.

This analysis does not cover all dwellings in England and Wales because not every dwelling has an EPC and so these statistics cannot be viewed as a full representation of the entire dwelling stock. However, they are still useful to provide insight into the energy efficiency of housing, as they include the most recent data available for each dwelling that has an EPC. More information on our base population can be found in [Data sources and quality](#).

In December 2022, the Office for National Statistics (ONS) will publish an article on the UK coherence of domestic energy efficiency data, considering the availability and comparability of EPC administrative data and household survey data across the four UK countries.

Energy efficiency by region

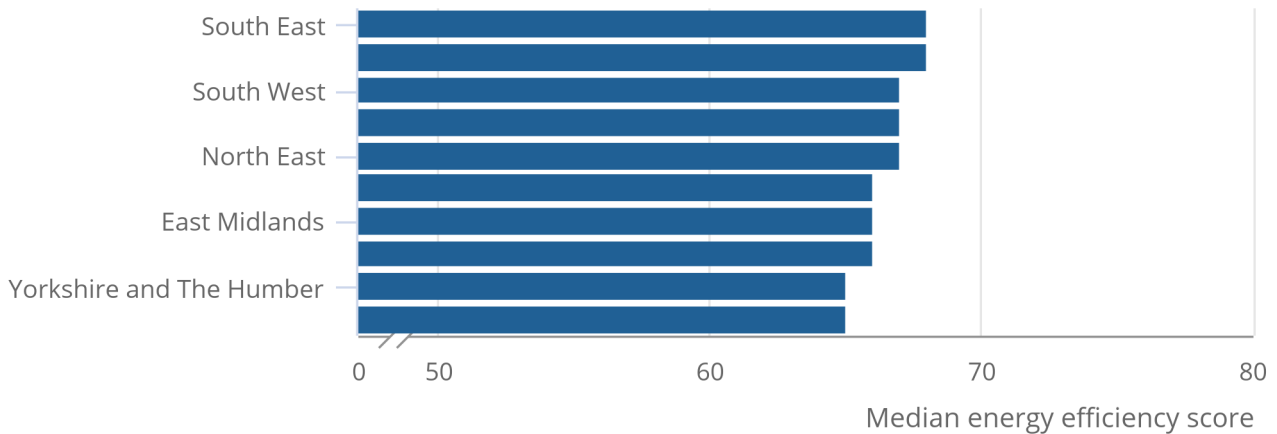
The housing stock across England and Wales varies, and this is reflected in median energy efficiency scores. The median energy efficiency score was 67 in England and 65 in Wales for all records up to March 2022, which are equivalent to band D. Within England, Yorkshire and The Humber had the lowest average score (65, equivalent to band D). London and the South East had the highest median energy efficiency out of all English regions, with a score of 68 (band D).

Figure 1: London and the South East had the highest median energy efficiency score, compared with all other regions in England and Wales

Median energy efficiency score, English regions and Wales, up to March 2022

Figure 1: London and the South East had the highest median energy efficiency score, compared with all other regions in England and Wales

Median energy efficiency score, English regions and Wales, up to March 2022



Source: Department for Levelling Up, Housing and Communities – Energy Performance Certificate data on Open Data Communities, Valuation Office Agency – Property Attributes data

Energy efficiency by property type

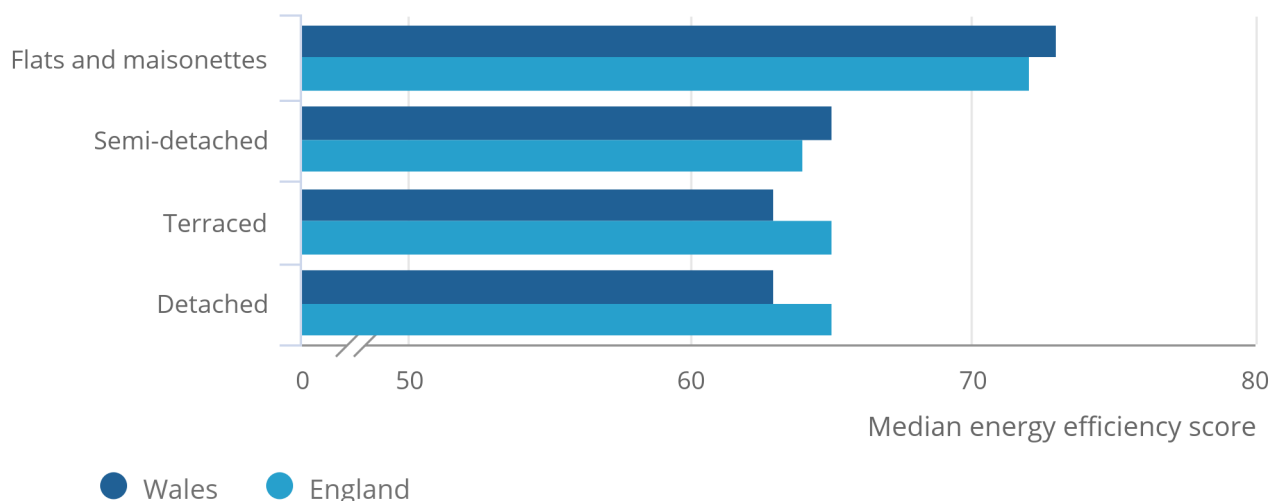
Property type has an effect on energy efficiency. Overall, flats and maisonettes were the most energy-efficient property type in both England and Wales, with a median energy efficiency score of 72 in England and 73 in Wales, both of which are equivalent to band C (see Figure 2). Detached and terraced dwellings scored the lowest in Wales (both 63), while in England, semi-detached (64) was the lowest. Both of these scores are equivalent to band D. This may be a result of external wall exposure being higher in detached properties, compared with flats and maisonettes, which are more likely to be grouped in blocks. While there is a large difference in energy efficiency between flats and houses, there was only a small difference between the different types of houses.

Figure 2: Flats and maisonettes were the most energy-efficient property type for all dwellings in both England and Wales

Median energy efficiency score by property type, England and Wales, up to March 2022

Figure 2: Flats and maisonettes were the most energy-efficient property type for all dwellings in both England and Wales

Median energy efficiency score by property type, England and Wales, up to March 2022



Source: Department for Levelling Up, Housing and Communities – Energy Performance Certificate data on Open Data Communities, Valuation Office Agency – Property Attributes data

Energy efficiency by property type and tenure

Looking at dwellings solely by tenure, social rented dwellings had the highest median energy efficiency scores of 70 in England and 71 in Wales, equivalent to band C. Owner-occupied dwellings scored the lowest in both England and Wales, with scores of 64 and 62, respectively, equivalent to band D. However, this does not account for property type.

By combining property type and tenure, a more detailed picture of the energy efficiency of housing appears. Social rented dwellings scored the highest median energy efficiency across all property types in England and Wales (Figure 3).

When housing type and tenure are accounted for together, energy efficiency scores across England and Wales were more similar.

Figure 3: Social rented dwellings were more energy efficient for all property types, in both England and Wales

Median energy efficiency score by tenure and property type, England and Wales, up to March 2022

Download the data

[.xlsx](#)

Energy efficiency by property age

The age of a dwelling affects the energy efficiency, as building techniques and regulations have changed over time, in addition to the effects of wear and tear. Dwellings in both England and Wales constructed after 2012 had a median energy efficiency score of 83, which is equivalent to band B (Figure 4). In contrast, dwellings constructed before 1930 had a median score of 59 in England and 57 in Wales, equivalent to band E.

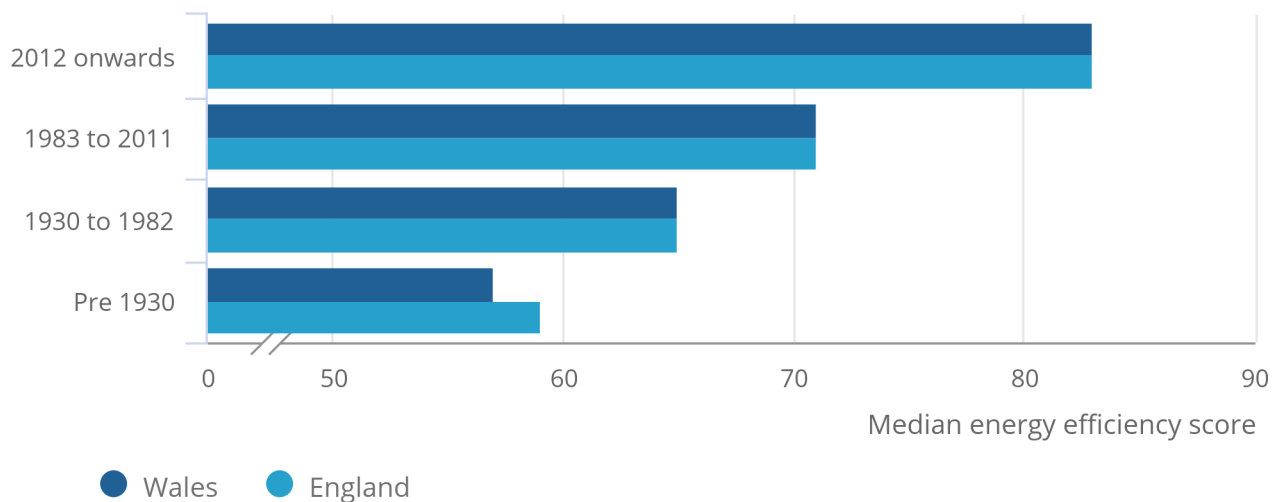
The proportion of older dwellings can differ across areas, which can influence energy efficiency median scores. For instance, in the EPC records we analysed, Wales had a higher proportion (33%) of older dwellings (built pre-1930) than England (23%). This may have had an impact on national level medians.

Figure 4: Dwellings that were constructed more recently had higher median energy efficiency scores than older dwellings

Median energy efficiency score, by property age, England and Wales, up to March 2022

Figure 4: Dwellings that were constructed more recently had higher median energy efficiency scores than older dwellings

Median energy efficiency score, by property age, England and Wales, up to March 2022



Source: Department for Levelling Up, Housing and Communities – Energy Performance Certificate data on Open Data Communities, Valuation Office Agency – Property Attributes data

Energy efficiency for new and existing dwellings

EPCs were introduced in 2007 and the EPC register is continually updated. For instance, in the financial year ending March 2022, around 1.1 million dwellings were added to the register. This is a mix of newly built or converted dwellings and existing properties that did not previously have an EPC. New and existing dwellings are assessed using slightly different methodologies (the [standard assessment procedure](#) and the reduced data standard assessment procedure). For more information about the number of properties added to the EPC register, see the GOV.UK [UK climate change statistics portal](#).

The median energy efficiency score of new and existing buildings can differ because of the use of modern techniques and materials. The scores for new dwellings in both countries were equivalent to band B (83 for both countries), compared with the scores existing dwellings that were equivalent to band D (65 for England and 64 for Wales), indicating that existing dwellings had a lower level of energy efficiency.

The median energy efficiency score for new properties was similar across all housing types and tenures (ranging from 80 to 84). However, as existing dwellings make up the majority of the EPC records we analysed (87% in England, 91% in Wales), the energy efficiency patterns shown in the existing dwellings have a greater impact on the overall figures for all dwellings.

Figure 5: Median energy efficiency scores for new dwellings were higher than existing dwellings

Median energy efficiency score for new and existing dwellings, by property type and tenure, England and Wales, up to March 2022

Download the data

[.xlsx](#)

3 . Central heating fuel type for dwellings

One of the main contributors to energy use in the home is central heating, with different sources of central heating seen as more or less energy efficient. As part of the Energy Performance Certificate (EPC) assessment, the main fuel type of central heating is recorded. This article focuses on the fuel type that directly powers a dwelling’s central heating. This means that someone who is on a 100% renewable tariff for their electricity will be categorised as using electricity as their central heating fuel type, rather than renewable energy. If there was no central heating recorded, for this analysis we grouped these dwellings in the “others and unknown” category.

As of March 2022, 80% of dwellings with an EPC analysed in both England and Wales used mains gas to fuel the central heating.

Electricity was the second most common fuel type used to fuel central heating in England (11%). In Wales, oil and electricity (both around 7%) were joint second.

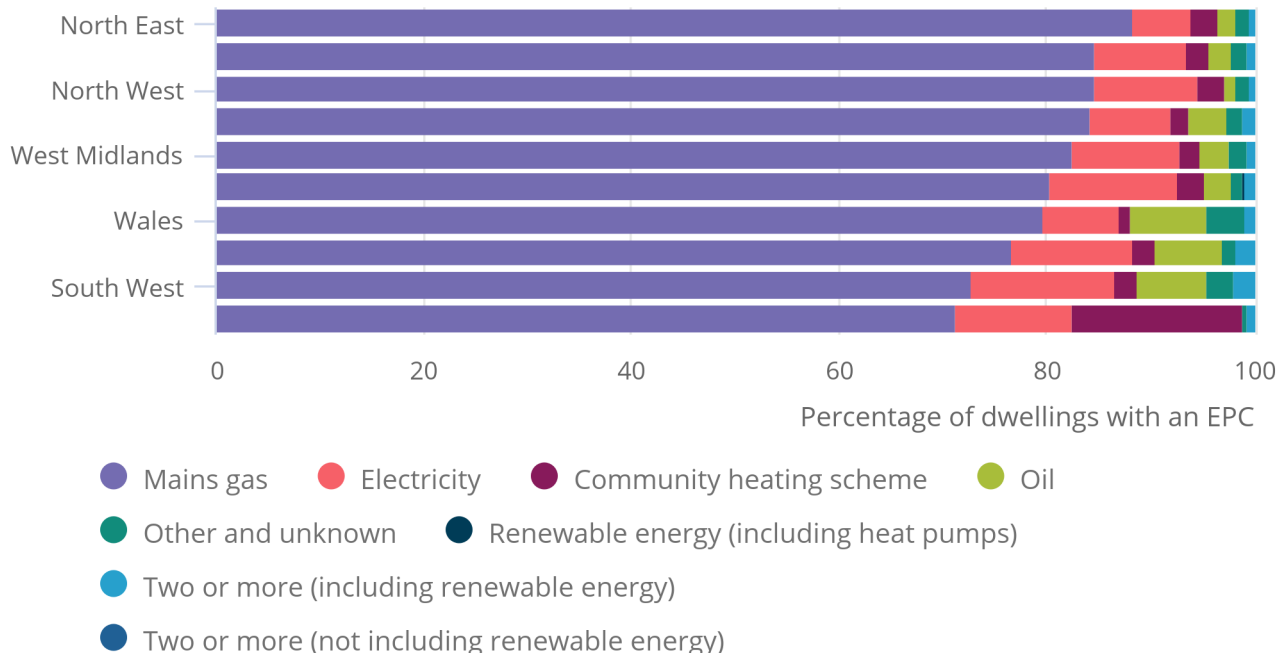
Among English regions and Wales, the North East had the highest estimated proportion of dwellings that used mains gas (88%) and London the lowest (71%). London also had the highest proportion of dwellings using community heating schemes (16%), around eight times that of any other region.

Figure6: Mains gas was the most common source of central heating fuel in all English regions and Wales

Main fuel type used in central heating, English regions and Wales, up to March 2022

Figure 6: Mains gas was the most common source of central heating fuel in all English regions and Wales

Main fuel type used in central heating, English regions and Wales, up to March 2022



Source: Department for Levelling Up, Housing and Communities – Energy Performance Certificate data on Open Data Communities, Valuation Office Agency – Property Attributes data

Notes:

1. “Other” includes B30K (blended biofuel), bioethanol, biogas, biomass, dual fuel (mineral and wood), liquid biofuel, solid fuel (for example coal), tank or bottled gas (like liquefied petroleum gas), wood and when the fuel source is unknown.

In most regions, except for London, the proportion of mains gas for new dwellings is similar to those for all dwellings. In London, only 28% of new dwellings used mains gas, compared with 71% for all dwellings. In London, more new dwellings used community heating schemes (63%). In the North West, 19% of new dwellings used electricity as their main fuel source, the most of any region. 6% of new dwellings in the South West and East of England used two or more methods including renewable energy.

4 . Subnational statistics

Local authority areas and middle layer super output area level

Looking at smaller geographical areas provides a local picture of energy efficiency. There is a much greater variation at the local authority level than at the region level.

For local authority areas across England and Wales, Energy Performance Certificate (EPC) data up to March 2022 showed the following trends.

- In England, the median energy efficiency scores ranged from 77 for Tower Hamlets in London to 47 in the Isles of Scilly in the South West.
- In Wales, median scores ranged from 68 for Newport, Monmouthshire, Torfaen and Cardiff to 58 for Gwynedd and Ceredigion.
- Of local authority districts, 15% had more than half of dwellings at energy efficiency band C or above; two-thirds of these local authorities were in London or the South East.
- In England, Tower Hamlets and City of London had the highest percentage of dwellings in energy efficiency band C or higher (76% and 65%, respectively), while the Isles of Scilly and Pendle had the lowest percentage (14% and 22%, respectively).
- In Wales, Monmouthshire had the highest percentage of dwellings in band C or higher (49%) and Gwynedd and Ceredigion had the lowest percentage (24% and 26%, respectively).
- The median energy efficiency of new dwellings was higher than existing dwellings in all local authorities in England and Wales.
- Gwynedd and Ceredigion in Wales had the largest difference (26 points) in median energy efficiency score between new and existing dwellings, while Tower Hamlets in London and Stevenage in the East of England had the smallest difference (12 points).
- In Newham in London, 91% of new dwellings were heated mainly by a community energy scheme.
- Ceredigion (in Wales) and Kings Lynn and West Norfolk (in the East of England) both had around a third of their new dwellings mainly heated with two or more fuel types, including renewable energy.

To explore the energy efficiency of dwellings in local areas, use our interactive tool (Figure 7).

Figure7: Energy efficiency of dwellings in your area

Download the data

[.xlsx](#)

5 . Environmental impact and carbon dioxide emissions

Median environmental impact score for new and existing dwellings

Energy Performance Certificate (EPC) assessments include an environmental impact score based on expected carbon dioxide (CO₂) emissions. The higher the rating, the less impact it has on the environment. Figure 8 shows new dwellings had a substantially lower impact on the environment than existing dwellings in both England and Wales.

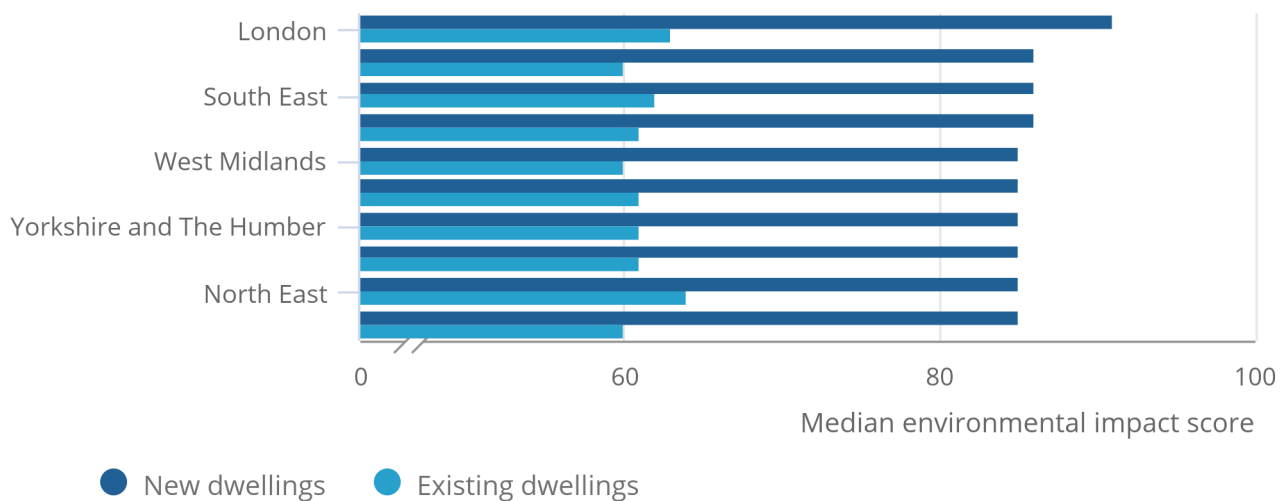
EPC data on estimated CO₂ emissions are based on standardised assumptions about how residents will use the dwelling (such as number of occupants, heating patterns and lighting and hot water usage). As such, the environmental impact score is related to the dwelling's regular assumed impact on the environment and does not include any environmental impact during construction.

Figure 8: New dwellings had less impact on the environment (higher environmental impact scores) on average than existing dwellings

Median environmental impact score, for new and existing dwellings, English regions and Wales, up to March 2022

Figure 8: New dwellings had less impact on the environment (higher environmental impact scores) on average than existing dwellings

Median environmental impact score, for new and existing dwellings, English regions and Wales, up to March 2022



Source: Department for Levelling Up, Housing and Communities – Energy Performance Certificate data on Open Data Communities, Valuation Office Agency – Property Attributes data

Median estimated CO2 emissions per year for new and existing dwellings

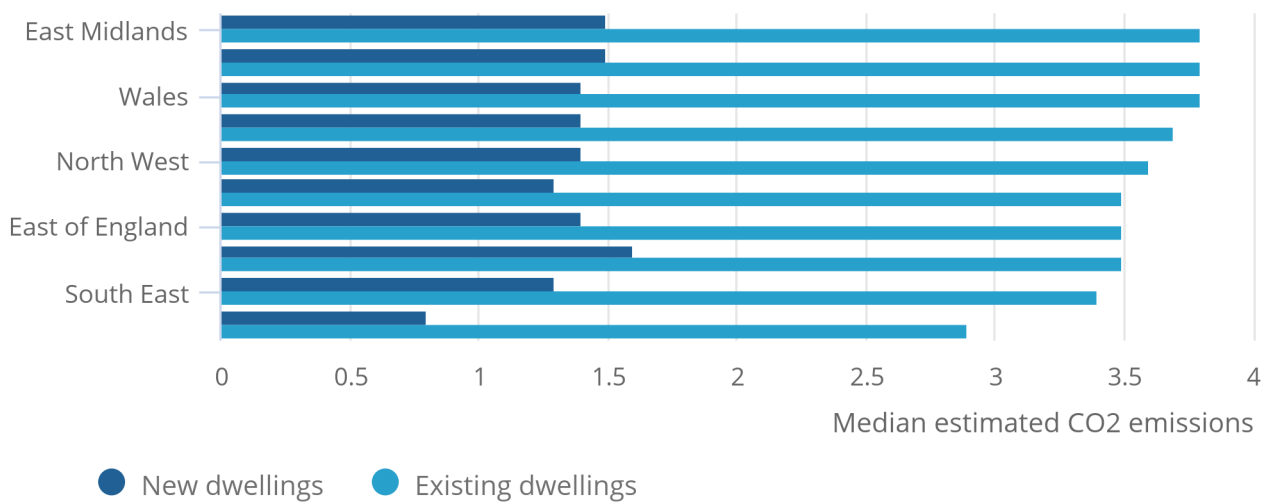
Figure 9 shows that for records up to March 2022, in all English regions and Wales, the median estimated CO2 emissions for existing dwellings were more than double the emissions of new dwellings in the same region.

Figure9: Carbon dioxide (CO2) emissions are far higher for existing dwellings than new dwellings

Median estimated CO2 emissions, for new and existing dwellings, English regions and Wales, up to March 2022

Figure 9: Carbon dioxide (CO2) emissions are far higher for existing dwellings than new dwellings

Median estimated CO2 emissions, for new and existing dwellings, English regions and Wales, up to March 2022



Source: Department for Levelling Up, Housing and Communities – Energy Performance Certificate data on Open Data Communities, Valuation Office Agency – Property Attributes data

6 . Five year overlapping timeseries

For this release, we have created a time series by creating groups of five years' worth of data. This gives a larger representation of the dwelling stock in England and Wales, with fewer biases than if analysis was carried out on Energy Performance Certificates (EPCs) recorded in a one year period. This is because aspects such as a large number of new build dwellings in a given year can introduce bias, as new builds are more likely to have a higher energy efficiency than older dwellings.

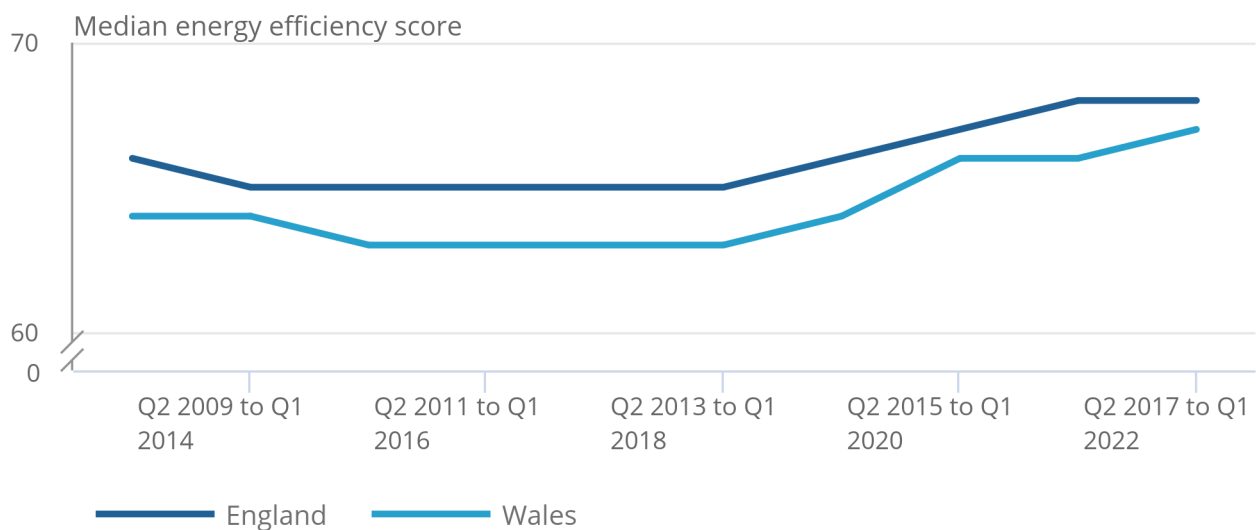
Figure 10 shows that the median energy efficiency score in England for the time period Quarter 2 (Apr to June) 2008 to Quarter 1 (Jan to Mar) 2013 was 66. In Wales this was 64. Both of these scores are equivalent to band D. In both countries, the median energy efficiency score decreased slightly and then remained stable, until Quarter 2 2013 to Quarter 1 2018 when it started to increase in both countries. By Quarter 2 2016 to Quarter 1 2021, the median energy efficiency score in England had risen to 68 and levelled off, which is still equivalent to band D. In Wales, the median energy efficiency score is continuing to increase, being 67 in Quarter 2 2017 to Quarter 1 2022.

Figure10: Median energy efficient score has risen over time in England and Wales

Median energy efficiency score, England and Wales, up to Quarter 2 (Apr to June) 2017 to Quarter 1 (Jan to Mar) 2022

Figure 10: Median energy efficient score has risen over time in England and Wales

Median energy efficiency score, England and Wales, up to Quarter 2 (Apr to June) 2017 to Quarter 1 (Jan to Mar) 2022



Source: Department for Levelling Up, Housing and Communities – Energy Performance Certificate data on Open Data Communities, Valuation Office Agency – Property Attributes data

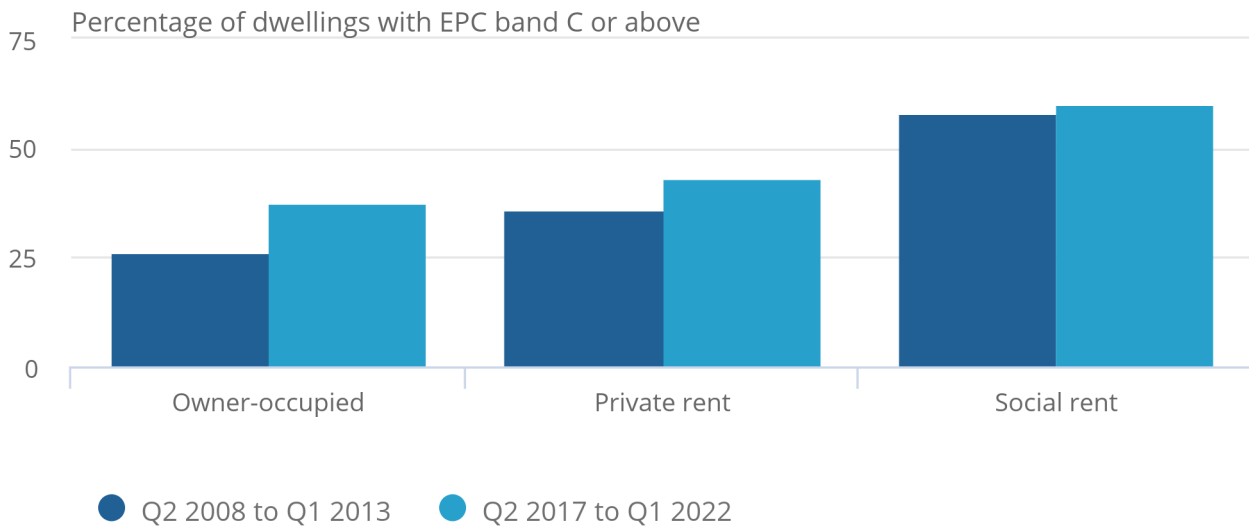
Using the time series data broken down by tenure, we can see that in England, the percentage of dwellings scoring EPC band C or above rises between Quarter 2 2008 to Quarter 1 2013 and Quarter 2 2017 to Quarter 1 2022 for all dwellings.

Figure 11: The percentage of social rented dwellings with an energy performance certificate (EPC) rating of C or above has fallen over time in England

Percentage of dwellings with EPC band C or above by tenure, England, Quarter 2 (Apr to June) 2008 to Quarter 1 (Jan to Mar) 2013 and Quarter 2 (Apr to June) 2017 to Quarter 1 (Jan to Mar) 2022

Figure 11: The percentage of social rented dwellings with an energy performance certificate (EPC) rating of C or above has fallen over time in England

Percentage of dwellings with EPC band C or above by tenure, England, Quarter 2 (Apr to June) 2008 to Quarter 1 (Jan to Mar) 2013 and Quarter 2 (Apr to June) 2017 to Quarter 1 (Jan to Mar) 2022



Source: Department for Levelling Up, Housing and Communities – Energy Performance Certificate data on Open Data Communities, Valuation Office Agency – Property Attributes data

The trend for owner-occupied and privately rented dwellings in England is replicated in Wales, although the percentage of socially rented dwellings with EPC band C or above rises by almost 20 percentage points between Quarter 2 2008 to Quarter 1 2013 and Quarter 2 2017 to Quarter 1 2022. This is in line with the introduction of a number of initiatives in Wales including:

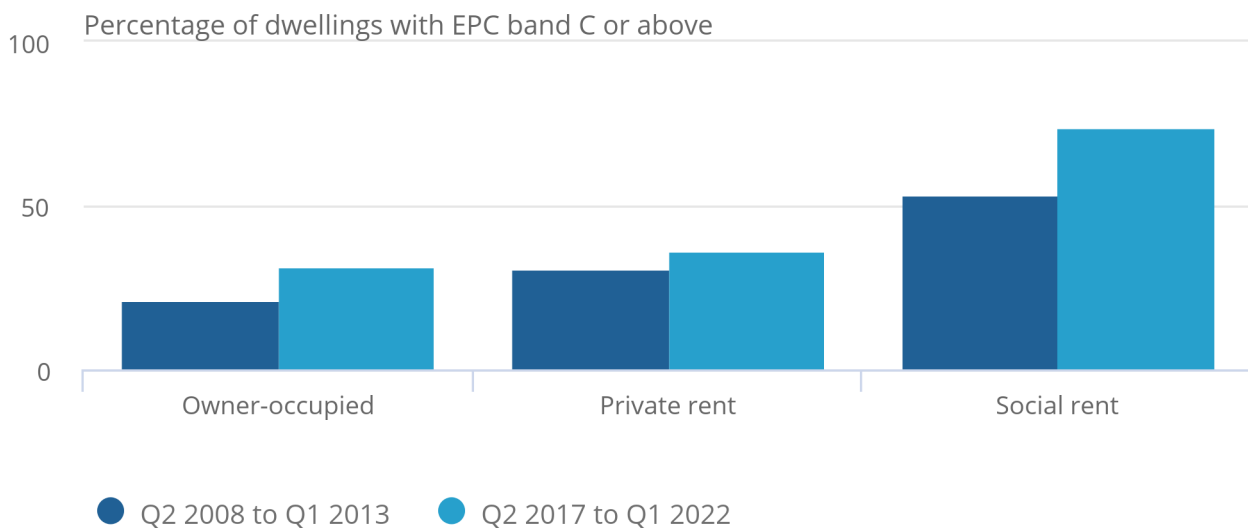
- the [Innovative housing programme](#), developed to help inform the Welsh Government about the type of homes it should financially support in the future; the scheme seeks to support innovation in a broad context, covering construction techniques, delivery pathways and housing types across all tenures
- the [Optimised RetroFit Programme](#), a whole house, pragmatic, approach to decarbonising existing homes, taking into account the fabric or materials homes are made from, the way energy and heat are stored, and how energy reaches homes
- the [Warm Homes Programme](#), comprised of the Nest and Arbed schemes, which is designed to reduce energy bills for those living in fuel poverty by installing energy efficiency measures

Figure12: The percentage of social rented dwellings with an energy performance certificate (EPC) rating of C or above has risen over time in Wales, more than other types of tenure

Percentage of dwellings with EPC band C or above by tenure, Wales, Quarter 2 (Apr to June) 2008 to Quarter 1 (Jan to Mar) 2013 and Quarter 2 (Apr to June) 2017 to Quarter 1 (Jan to Mar) 2022

Figure 12: The percentage of social rented dwellings with an energy performance certificate (EPC) rating of C or above has risen over time in Wales, more than other types of tenure

Percentage of dwellings with EPC band C or above by tenure, Wales, Quarter 2 (Apr to June) 2008 to Quarter 1 (Jan to Mar) 2013 and Quarter 2 (Apr to June) 2017 to Quarter 1 (Jan to Mar) 2022



Source: Department for Levelling Up, Housing and Communities – Energy Performance Certificate data on Open Data Communities, Valuation Office Agency – Property Attributes data

7 . Representativeness of dwellings covered by an EPC

To analyse the representativeness of dwellings covered by Energy Performance Certificates (EPCs), we compared these with the addresses available in the Valuation Office Agency's (VOA's) Property Attributes data. Around 64% of all residential dwellings in England and 62% in Wales (as at March 2022) had at least one EPC registration since records began. There was a similar proportion across all regions in England, but London had the highest coverage, with 67%.

In both England and Wales, flats and maisonettes had the highest coverage out of all property types (81% and 86%, respectively). Detached houses had the lowest coverage, with 57% in England and 56% in Wales.

When looking at the age of property bands, generally the newer the property, the higher the coverage in EPC certificates. In England, the coverage of those built before 1929 was 55%, while those built 2012 onwards had a coverage of 95%. In Wales, 54% of those built before 1929 were covered by an EPC, and 90% of those built 2012 onwards.

8 . Energy efficiency of housing in England and Wales data

[Energy efficiency of Housing, England and Wales, country and region](#)

Dataset | Released 25 October 2022

Data on the energy efficiency of dwellings, environmental impact score and estimated carbon dioxide (CO₂) emissions in England and Wales at the country and region level. These are broken down by property type, tenure, age of property and whether a dwelling is new or existing.

[Energy efficiency of Housing, England and Wales, local authority districts](#)

Dataset | Released 25 October 2022

Data on the energy efficiency of dwellings, environmental impact score and estimated CO₂ emissions in England and Wales at the local authority district level. These are broken down by property type, tenure, age of property and whether a dwelling is new or existing.

[Energy efficiency of Housing, England and Wales, middle layer super output area](#)

Dataset | Released 25 October 2022

Data on the energy efficiency of dwellings, environmental impact score and estimated CO₂ emissions in England and Wales at the middle layer super output area (MSOA) level. These are broken down by property type, tenure, age of property and whether a dwelling is new or existing.

[Energy efficiency of housing, England and Wales, five rolling years](#)

Dataset | Released 25 October 2022

Data on the energy efficiency of dwellings, environmental impact score, estimated CO₂ emissions and estimated energy costs in England and Wales for five year groups. These are broken down by property type, tenure and whether a dwelling is new or existing.

9 . Glossary

Community heating scheme

A community heating scheme is a distribution system of insulated pipes that takes heat from a central source (usually in the form of hot water or steam) and delivers it to different buildings or dwellings within the same building.

Dwelling

A dwelling is an address containing a unit of accommodation that can comprise one or more household spaces.

Energy efficiency

Energy efficiency relates to the concept of efficient energy use, which means using less energy to provide a given amount of heating or lighting. Using less energy reduces emissions of carbon dioxide.

Energy efficiency score

The energy efficiency score (SAP score) is a measure of the overall efficiency of a building. This score is based on the performance of the building and its fixed services (such as heating and lighting). The higher the score, the more energy-efficient the home. The score is produced during an Energy Performance Certificate (EPC) assessment and is based on standardised assumptions for occupancy and behaviour. This enables a like-for-like comparison of a dwelling's energy efficiency performance.

Environmental impact rating

An environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO₂) emissions. The higher the rating, the less impact it has on the environment. This rating is based on the performance of the building and its fixed services (such as heating and lighting).

Energy Performance Certificate

Energy Performance Certificates (EPCs) are required for all buildings (domestic and non-domestic), when constructed, sold or rented. There are some exemptions, for example for buildings used as places of worship. EPCs are valid for 10 years. The EPC records how energy efficient a property is as a building. The EPC uses an A to G rating scale, where A is the most efficient and G is the least efficient. The certificate also lists the potential rating of the building if all the cost-effective measures are installed.

Existing dwelling

Statistics for existing dwellings were created using data from the latest EPC record available for existing dwellings in a financial year. Existing dwellings are those that are required to undergo an energy performance assessment as they are either being sold or let and are not newly constructed or converted.

Heat pump

A heat pump is a device that absorbs heat from one environment and transports it into another using electricity. For example, an air-source heat pump extracts heat from the air outside and transfers it into the home. This heat can then be used to warm radiators and underfloor heating systems.

New dwelling

Statistics for new dwellings are generated using data from new dwelling EPC records. A new dwelling is any dwelling that has been newly constructed, created by conversion or has undergone a change of use and is now required to have an energy performance assessment.

10 . Data sources and quality

How we used the Energy Performance Certificate (EPC) data

This article contains analysis of the EPC data from the [Department for Levelling up, Housing and Communities \(DLUHC\) Open Data Communities website](#) for England and Wales.

Much of this article uses analysis of the stock of dwellings with a valid EPC. This gives a good indication of the current situation across England and Wales. The five year overlapping time series allows for some limited comparison of change over time.

EPCs are valid for up to 10 years, so for our analysis we used all valid EPC lodgements (the latest record for each dwelling) from April 2012 to March 2022. For the time series data, we grouped the EPC records into overlapping five year time periods, then carried out the quality checks within those time periods. This may mean that there are records in previous time periods that are no longer valid or have been superseded. Only the latest record for each dwelling is included in each five year group, but that record could appear in more than one group.

Further details are available in our [Energy Efficiency of Housing in England and Wales Quality and Methodology Information \(QMI\) report](#).

How we used the property attributes data

To quality check the EPC records used for analysis, the EPC data were linked to Valuation Office Agency (VOA) property attributes data at the address level. This enabled us to check that the dwelling with an EPC record still existed, and that there was consistent property information (property type and age of property band) across both data sources. We excluded records that had a direct contradiction between data sources on these property variables from the analysis. After we applied these quality assurance checks, 47.1% of the original EPC dataset remained, upon which we conducted most of our analysis.

The following is an overview of the data parsing process. This includes the number of records removed, as a percentage of the original 22,700,160 records and the type of remaining record.

- EPC records for properties that no longer exist are filtered out of the dataset (5.0% of original records).
- Records with implausible values on key variables are filtered out (less than 0.1%).
- EPC records where there is direct contradiction between the property types provided in the EPC and VOA property attributes (where both have property type information available) are removed (6.0%).
- EPC records where there is direct contradiction between the age of property band provided in EPC and the VOA property attributes, where both have age of property information available, are removed (11.5%).
- Duplicated EPC records based on multiple variables including Unique Property Reference Number and inspection date are removed (0.2%).
- EPC records that have been superseded by a later record for the same dwelling are removed (17.9%).
- EPC records that are older than 10 years are removed (11.7%).
- 10,830,661 EPC records are retained and used for analysis (47.7%).

For the five year overlapping timeseries, we did similar cleaning but for each five year grouping. This meant that we could have multiple EPC records over the course of the timeseries but only one within each five year grouping. It also meant that the overall number of records that we analysed is larger than the main analysis.

Interpreting these statistics

The analysis in this article does not cover all dwellings in England and Wales because not every dwelling has an EPC (as these are only required when a dwelling is constructed, converted, sold or let). EPCs are valid for 10 years, so do not necessarily reflect energy efficiency improvements. Dwellings can have more than one record, but we kept only the latest record for our analysis, so dwellings are not double counted in any time period we analysed.

Some dwellings included in our statistics may have changed tenure since the date of their latest EPC. For instance, dwellings that had an EPC for reasons other than being let may have since entered the private or social rented sector.

11 . Related links

[Energy Performance of Buildings Certificates](#)

Collection | Last updated 28 July 2022

The Department of Levelling Up, Housing and Communities (DLUHC) publish quarterly Energy Performance Certificate (EPC) statistical releases. These focus primarily on describing the EPCs themselves, presenting timely information for domestic and non-domestic buildings in England and Wales.

[Welsh Housing Conditions Survey \(energy efficiency of dwellings\)](#)

Statistics | Released 23 October 2021

The Welsh Government also provides analysis on the energy efficiency of dwellings in Wales, based on data from the [Welsh Housing Conditions Survey](#).

[Scottish house condition survey](#)

Statistics | Released 1 December 2020

The Scottish house condition survey contains statistics on energy efficiency, based on an annual survey sample of around 3,000 dwellings. This is the primary source of data at a national level on the energy efficiency of the Scottish housing stock.

[Northern Ireland Housing Statistics](#)

Report | Last updated 4 February 2021

The Northern Ireland Housing Statistics report contains information and statistics relating to domestic energy and energy efficiency of homes in Northern Ireland.

[UK climate change statistics portal](#)

Statistics Dashboard | Updated regularly

A prototype portal for data and insights on climate change.

12 . Cite this article

Office for National Statistics (ONS), released 25 October 2022, ONS website, article, [Energy efficiency of housing in England and Wales: 2022](#)