



Energy and Water Use in the English Countryside



A Report for Rural England CIC by Professor Martin Phillips, School of Geography, Geology and Environment, University of Leicester

Overview

This short overview summarises some facts, findings, and implications from the **Rural England C.I.C** report *Energy and Water Use in the English Countryside*. It is intended as a brief snapshot finding from the full report. The full report should be referred to for detailed analysis, data tables, and methodological discussion.

Scope And Evidence Base

The report examines domestic energy and water consumption in rural England using:

- Analysis of secondary datasets from government departments and public bodies, including Defra, DESNZ, the Office for National Statistics, the Environment Agency, and Ofwat.
- An online questionnaire survey of 80 residents living in a wide range of rural locations across England.

The analysis explores:

- Rural–urban and intra-rural variations in energy and water consumption.
- Technologies and practices used by rural households to reduce consumption.
- Motivations and barriers shaping household behaviour.
- Energy and water challenges faced by low-income and vulnerable rural households.

Key Findings: Water Consumption

Limited Availability Of Rural Water Data

There is extremely limited publicly accessible, spatially detailed data on water consumption compared to energy use. National datasets do not routinely distinguish between rural and urban water consumption at a fine geographical scale.

Indicative Evidence Of Lower Rural Consumption

Analysis of data from ten water companies suggests that per capita water consumption in rural areas may be lower than in urban areas, although evidence remains limited and more comprehensive datasets are required before definitive conclusions can be drawn.

Water Metering

Survey findings indicate that water metering is more common in newer properties, though some residents of older homes have moved onto metered billing after occupation.

Key Findings: Energy Consumption

Higher Electricity Consumption In Rural Areas

Rural England has higher average per capita and per household electricity consumption than urban areas. This pattern is consistent over time and remains evident despite overall reductions in electricity use since 2016.

Strong Intra-Rural Variation

Electricity consumption is highest in smaller and more remote rural settlements. These areas also tend to have higher proportions of:

- Properties that are not connected to the mains gas grid.
- Dwellings with low energy efficiency ratings (Bands F and G).

Gas Consumption Patterns Differ By Measure Used

Average per capita and per household gas consumption is lower in rural areas than in urban areas. However, this largely reflects the high proportion of rural households that are not connected to the gas grid. When measured per meter, gas consumption is higher in rural areas, particularly in smaller and more remote settlements.

Off-Gas-Grid Reliance Is Rural Focused and Increasing

Rural households are far more likely than urban households to rely on alternative fuels such as oil, LPG, solid fuels and electricity for heating. Some are also adopting renewable energy and heating systems, often alongside other measures to reduce overall energy use.

Household Practices, Technologies And Constraints

Active Efforts To Reduce Consumption

- Many rural residents report actively seeking to reduce both energy and water use through a combination of technologies and everyday practices.

Common Technologies

- Widely used measures include roof insulation, double glazing, and energy-efficient boilers. Smart electricity meters are used by over half of survey respondents, although coverage remains incomplete, partly due to connectivity issues in rural areas.

Renewable Energy Adoption

- Around one in six survey respondents reported using some form of domestic renewable energy, most commonly solar. Where installed, renewables are often combined with other conservation measures and, in some cases, battery storage.

Behavioural Change Remains Important

- Many households rely on changes to everyday practices—such as limiting heating, using eco settings on appliances, reducing oven use and managing water use—particularly where technological solutions are unaffordable or unsuitable.



Costs, Affordability And Vulnerability

Energy And Water Costs Are A Significant Concern

Around one-third of survey respondents expressed moderate or high concern about their own ability to pay energy and water bills. Concern rose to over 80% when respondents were asked about other households' ability to pay.

Constraints On Low-Income And Vulnerable Households

The report identifies groups whose ability to reduce consumption or invest in efficiency measures may be limited, including:

- Low-income households.
- Older residents.
- People with health conditions.
- Households living in older, hard-to-treat, or off-gas-grid properties.

Many rural households are described as being “asset rich but cash poor”, limiting their capacity to fund up-front investments even where long-term savings are possible.



Attitudes, Trust And Wider Concerns

Strong Support For Conservation In Principle

- Most survey respondents view reductions in energy and water consumption as important, and expect their significance to increase over the next decade, with climate change cited as a major driver.

Concerns About Water Company Performance

- There is widespread concern among respondents about water company performance, particularly in relation to leakage, pollution, infrastructure investment, and perceived failures of accountability. The report highlights that public trust in the water system is an important contextual factor shaping responses to water conservation initiatives, a concern also reflected in the Government's recent *New Vision for Water* white paper.

Policy Implications Highlighted In The Report

The report identifies three interrelated implications for policy and practice:

1. Recognition Of Existing Household Action

Many rural households are already taking steps to reduce energy and water use. Policies may be more effective if they recognise and build on these diverse existing practices rather than assuming inaction.

2. Need For Better Water Consumption Data

The lack of publicly accessible, spatially detailed water consumption data significantly limits understanding and policy development, particularly in rural areas. Improved data availability is identified as a priority.

3. Importance Of Trust And Wider System Performance

Responses to energy and water conservation initiatives are shaped by wider assessments of system performance, including concerns about leakage, water quality and infrastructure. Addressing these issues, and communicating progress, may be central to the success of future demand-reduction efforts.

The Headline Patterns

ENERGY USE IN RURAL ENGLAND

- Rural areas have around one-third higher electricity consumption per person and per household than urban areas.
- In 2023, average electricity consumption was approximately: 4,170 kWh per meter in rural areas, compared with around 3,180 kWh in urban areas.
- The highest levels of electricity use are found in smaller and more remote rural settlements, where average consumption rises to around 4,900 kWh per meter.
- These differences persist despite overall reductions in electricity consumption across both rural and urban areas since 2016.

OFF-GAS-GRID LIVING SHAPES RURAL ENERGY USE

- A major feature of rural energy use is the high proportion of households without access to mains gas.
- Around 21–22% of rural households are not connected to the gas grid, compared with around 9–10% in urban areas.
- In smaller and more remote rural settlements, over 30% of households are off the gas grid.

ENERGY EFFICIENCY OF RURAL HOUSING

- Housing characteristics play an important role in shaping rural energy demand.
- Approximately 7–8% of rural dwellings are rated in the lowest energy efficiency bands (EPC F or G), compared with under 2% of urban dwellings.
- Poor energy efficiency is most prevalent in smaller rural settlements, particularly those further from major towns and cities.

WATER USE: MORE LIMITED EVIDENCE, INDICATIVE PATTERNS

- Compared with energy, publicly accessible data on water consumption is limited.
- Nationally, average household water use in England is around 136 litres per person per day.
- Analysis of data from ten water companies suggests that per capita water consumption in rural areas may be lower than in urban areas, with noticeable regional variation.

HOUSEHOLD ACTION TO REDUCE CONSUMPTION

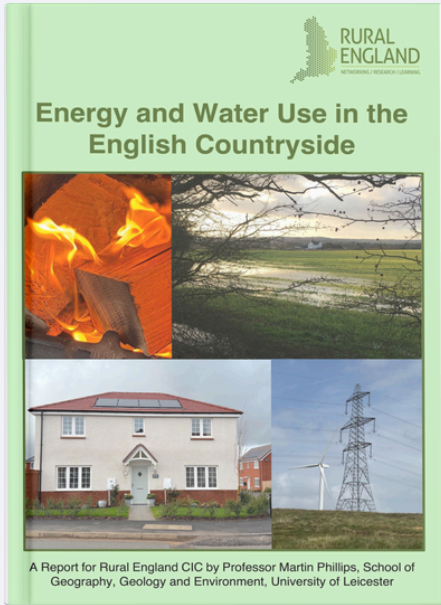
- Over 95% of respondents lived in homes with roof insulation and double glazing.
- Around three-quarters had an energy-efficient boiler.
- Around two-thirds used smart electricity meters and were on metered water billing.
- Around 17% reported using some form of domestic renewable energy, most commonly solar.
- Alongside technology, households reported behavioural changes such as limiting heating, using eco settings on appliances, reducing oven use and managing water consumption.
- Further analysis of consumer behaviour and household responses to changes in energy systems is set out in the Rural England CIC report ***The Challenges for Rural Electrification*** (August 2025).

COSTS, AFFORDABILITY AND VULNERABILITY

- Energy and water costs remain a significant concern for rural households (see also the Government's recently published ***Fuel Poverty Strategy for England***).
- Around one-third of survey respondents were moderately or very concerned about their own ability to pay energy and water bills.
- Concern rose to over 80% when respondents were asked about other households' ability to pay.

For More Information

This summary provides a overview only. For full analysis, evidence and references, please see the full report at www.ruralengland.org



[Download the full report here.](#)



Utility Companies Rural Research Panel

