



White paper:

## **Energy efficiency and fuel poverty**

By Puneet Khurana, Application Engineer, Beanbag Care (Assisted Living Services), Secure

September 2023

Energy efficiency and fuel poverty are closely related concepts that affect the way we consume and manage energy resources in society.

**Fuel poverty:**

Fuel poverty refers to a situation where a household struggles to afford adequate heating to maintain a reasonable level of comfort and well-being in their home. It occurs when a household’s income is insufficient to cover the costs of necessary energy services, such as heating and lighting.

In England, the Government introduced a new definition of fuel poverty in 2021. This is the ‘Low Income Low Energy Efficiency’ (LILEE) definition of fuel poverty. Here a household is fuel poor if:

- They are living in a property with an energy efficiency rating of band D, E, F or G19
- Their disposable income (income after housing costs and energy needs) would be below the poverty line

National Energy Action (NEA) has estimated that the total number of households across the UK in fuel poverty increased from around 4 million in summer 2020 to 6.7 million in October 2022, and they expect it to reach 7.5 million households April 2023. This is more than double the official estimate for England. The NEA define a household as fuel poor if it needs to spend more than 10% of its income on energy to provide a satisfactory heating regime.

The Government has estimated that 8.8 million households in England could be classed as fuel poor in 2023.

**Factors contributing to fuel poverty:**

- Low income: Low-income households often spend a significant portion of their income on energy bills, leaving little for other essentials.

- High energy prices: Rising energy costs can make it difficult for some households to afford basic energy services.
- Poor energy efficiency: Inefficient homes with inadequate insulation and heating systems can lead to higher energy bills.
- Climate: Harsh weather conditions in certain regions may increase the energy demand for heating.

**Health risks due to living in cold homes**

Having a cold house increases the condensation which collects on walls, increasing the chances of developing damp and mould patches. Mould spores can irritate the throat, and eventually lead to serious damage to the respiratory system when inhaled.

Living in a cold home can worsen asthma and other respiratory illnesses and increase the risk of heart disease and cardiac events. It can also worsen musculoskeletal conditions such as arthritis.

Each year, the NHS spends an estimated £1.4 billion annually on treating illnesses associated with living in cold or damp housing. When wider societal costs are considered, such as healthcare, that figure rises to £15.4 billion.

The Office of National Statistics (ONS) released figures showing there were 13,400 more deaths in England and Wales in the winter period (December 2021 to March 2022) compared with the average of the non-winter months.

Fuel poverty charity National Energy Action has said that up to 4,020 of these deaths were preventable and were caused by the impact of cold homes. That’s 45 people dying per day in the winter months last year – 42 in England and 3 in Wales. (see table)

	Winter deaths		Winter deaths	
	2021/22 (incl. COVID)	Number attributable to cold homes*	2021/22 (excl. COVID)	Number attributable to cold homes*
England	12700	3810	8800	2640
Wales	800	240	800	240
England and Wales	<b>13400</b>	<b>4020</b>	<b>9400</b>	<b>2820</b>

Source: NEA using ONS 2021-22 (Provisional, rounded to nearest 100 – may not sum) (2023) data

\* Based on World Health Organisation(2011) 30% estimate and rounded to nearest 10

### Energy efficiency:

Energy efficiency refers to the efficient use of energy to achieve a desired output while minimising waste and reducing energy consumption. In practical terms, it means using less energy to perform the same tasks, which can be achieved through various technological, behavioural, and policy interventions.

### Why is energy efficiency important?

- **Economic benefits:** Energy efficiency can lead to cost savings for consumers and businesses by lowering energy bills.
- **Sustainable development:** Enhancing energy efficiency contributes to the overall sustainability of societies and economies.
- **Energy security:** Improving efficiency reduces dependence on imported energy sources and increases energy independence.
- **Environmental benefits:** Reducing energy consumption helps to decrease greenhouse gas emissions and combat climate change.

Fuel poverty is a significant issue in the UK, especially for vulnerable households and low-income families. Measures to improve energy efficiency are essential in the fight against fuel poverty. By improving the energy efficiency of homes and buildings, households can reduce their energy consumption and lower their energy bills. Implementing energy efficiency upgrades, such as insulation, efficient heating systems, smart heating controls, and energy-efficient appliances, can significantly alleviate the burden of fuel poverty for vulnerable households.

Energy efficiency and heating controls go hand in hand when it comes to optimising energy consumption and reducing heating costs. Heating controls refer to the various devices and systems used to regulate and manage the heating in buildings efficiently. By implementing effective heating controls, individuals can improve comfort levels while minimising wasted energy.

The Energy Saving Trust in the UK says that turning your thermostat down by one degree can save you up to 10% off your heating bill.

In the latest “Winter 2022/23 fuel bills savings using heating controls report”, BEAMA states that a typical household can save from 6% to 12% by replacing old timeclocks/programmers with smart thermostats.

A study by the Association for Decentralised Energy (ADE) in the UK found that smart heating controls (including smart thermostats) could save an average of 11.6% on heating costs.

### Here are some key aspects of energy efficiency and heating controls:

- **Thermostats:** Thermostats are essential heating controls that monitor and regulate indoor temperatures. Modern thermostats, especially smart thermostats, allow users to set specific temperature schedules, adjust heating remotely, and learn from user behaviour to optimise heating patterns automatically.
- **Remote monitoring and control:** Many modern heating controls can be accessed and adjusted remotely through smartphones or other devices. This feature allows users to control heating while away from home, ensuring comfort upon arrival and avoiding unnecessary heating.
- Additionally, older people may face several difficulties in controlling their heating, which can exacerbate fuel poverty and contribute to health problems. They may benefit from tailored support and assistance, such as installation of one touch easy-to-use heating controls with inbuilt safe temperature limits, and home environment monitoring systems.

By combining energy efficiency measures with effective heating controls, individuals can achieve significant energy savings and contribute to environmental sustainability. Investing in modern, smart heating controls and adopting energy-saving behaviours can make a substantial difference in reducing heating costs and alleviating fuel poverty.

Beanbag Care offers a service called “assisted comfort” which addresses the above issues. It provides simple and easy to use one touch controls to manage the heating within the home, and a mobile app to control the heating outside of the home. It also provides carbon monoxide and humidity monitoring and generates alerts if the levels are unsafe for a person.

## References

### Energy Saving Trust

[energysavingtrust.org.uk/10-ways-to-save-energy-this-winter/](https://energysavingtrust.org.uk/10-ways-to-save-energy-this-winter/)

### Which

[www.which.co.uk/news/article/how-to-save-on-your-heating-bill-this-winter-azmsq5x9hzuc-aZmsQ5X9hzUc](https://www.which.co.uk/news/article/how-to-save-on-your-heating-bill-this-winter-azmsq5x9hzuc-aZmsQ5X9hzUc)

### National Energy Action

[www.nea.org.uk/news/fuel-poverty-charity-reveals-45-people-per-day-die-from-cold-homes/](https://www.nea.org.uk/news/fuel-poverty-charity-reveals-45-people-per-day-die-from-cold-homes/)

### House of Commons Library

#### Fuel Poverty by Suzanna Hinson and Paul Bolton

(March 2023) - [researchbriefings.files.parliament.uk/documents/CBP-8730/CBP-8730.pdf](https://researchbriefings.files.parliament.uk/documents/CBP-8730/CBP-8730.pdf)

Research briefing - Health inequalities: Cold or damp homes (Feb. 2023) - <https://commonslibrary.parliament.uk/research-briefings/cbp-9696/>

Beanbag Care is an assisted living platform by Secure.

We provide technology and services in over 60 countries, enabling our customers to reduce energy consumption, move towards net zero and live in comfort.

[www.securemeters.com/uk/beanbagcare](https://www.securemeters.com/uk/beanbagcare)