

Affordability

Why is energy efficiency important for affordability?

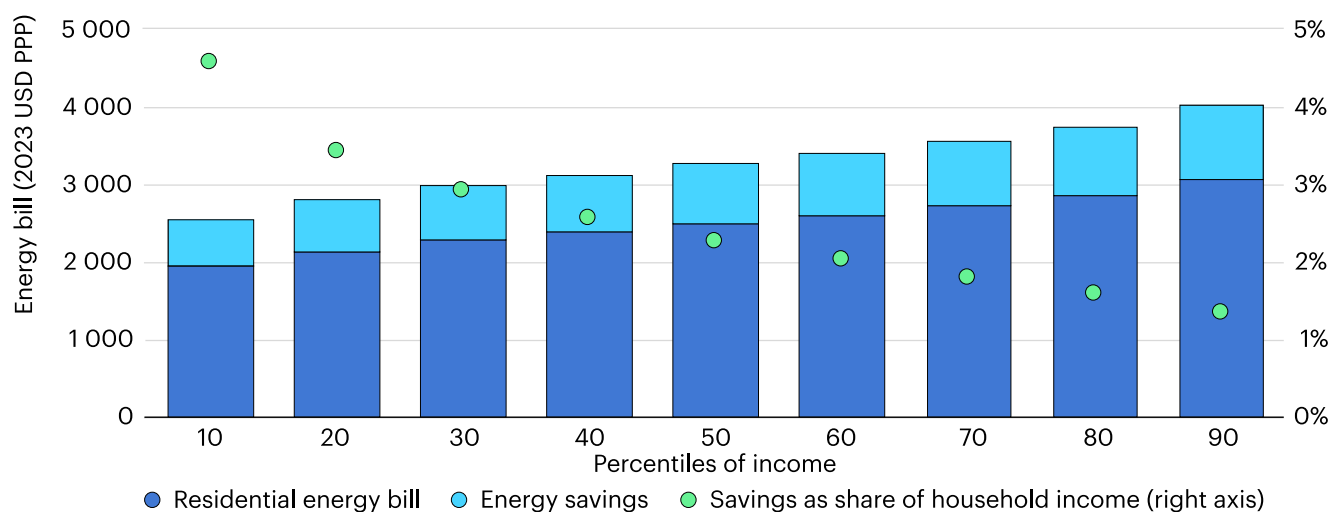
Energy efficiency measures can **reduce energy bills for households**, decrease energy poverty, and make access to energy services more affordable.

- Energy efficiency measures can reduce average household energy bills in advanced economies by up to **one-third**. In emerging economies, they can also improve access to energy services.
- For many products, such as refrigerators, highly efficient models use less than half of the energy of inefficient models. A best-in-class model **can save up to 40% in total lifetime cost** (purchase and energy) compared with an inefficient one.
- Energy efficiency can lead to an **improved quality of life**. For instance, in sub Saharan Africa, 80% of the population could afford to buy and use all key appliances – including lights, TV, fans and a refrigerator – when choosing high efficiency models, provided there is sufficient access to electricity. This figure drops to 50% when choosing low efficiency models, leading many households to live without some appliances like a refrigerator.

Key analysis

Energy efficiency lowers energy bills for all households. These savings represent a higher proportion of disposable income for lower-income households, who spend more on energy. Policies can consider these distributional effects and explicitly target lower-income households, in an effort to tackle energy poverty and ensure that a larger share of the benefits accrue to them.

Average annual household savings on residential energy bills due to efficiency gains since 2000 and share of household income saved, by income decile, advanced economies



Notes

Residential energy expenditure excludes transport expenditure by households. PPP = purchasing power parity.

Source

IEA (2025), [IEA Energy Prices](#) (accessed on 06 April 2025); [IEA Energy End-uses and Efficiency Indicators](#) (accessed on 07 April 2025).

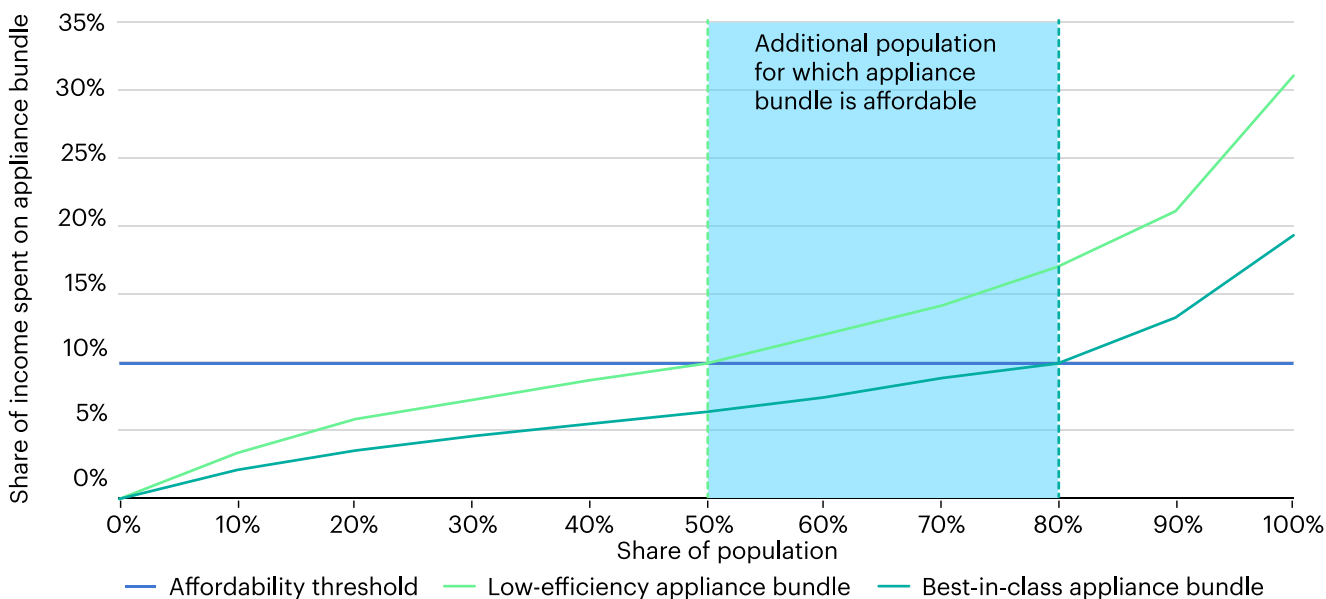


A closer look at affordability in emerging economies

In emerging and developing economies, improved efficiency can increase the use of energy services as more disposable income becomes available. Improved access to services such as air conditioners, lighting, and clean cooking can lead to higher comfort and quality of life. As a result, the energy savings of efficiency measures can be initially lower than expected. In India, time-saving appliance ownership, such as of washing machines or refrigerators, is associated with a 15% increase of employment among women and an increased school attendance by older children.

As people gain access to electricity, they acquire new equipment, often starting with light bulbs, followed by televisions, and finally fans, particularly in hot locations. As available power increases and electricity becomes more reliable, refrigerators are installed as well. For many products, such as refrigerators, highly efficient models use less than half of the energy of inefficient models. Efficiency can thus lead to improved access to affordable energy services. IEA analysis shows that only 50% of the population in sub-Saharan Africa could afford key appliances when using low efficiency models, while 80% could afford them when using best-in-class models.

Affordability of an extended bundle of appliances for low efficiency and best-in-class efficiency levels, by share of population in sub-Saharan Africa



Notes
Upfront cost is annualised by average lifetime. Average income per decile is used to determine the share of expenses. Appliance bundle includes four lightbulbs operating four hours per day, one fan running six hours per day, one TV running four hours per day and one refrigerator. Affordability is given when annualised upfront cost and energy cost are up to 10% of annual household income.

Source
IEA (2024), [Energy Efficiency 2024](#).

Need more information?

- IEA (2024), [Strategies for Affordable and Fair Clean Energy Transitions](#).
- IEA (2025) - [Designing Energy Efficiency Policies to Enhance Affordability: Examples from G7 Countries](#)



Multiple Benefits of Energy Efficiency
iea.li/MultipleBenefitsEE

