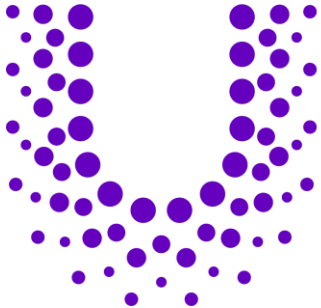


User-Centred Energy Systems

userstcp.org

International Energy Agency

Energy Efficiency 2023 Briefing

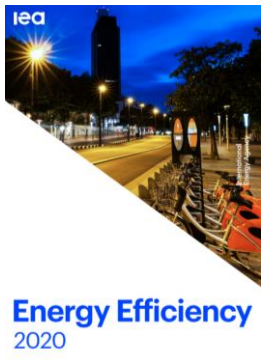
Office of Energy Efficiency and Inclusive Transitions

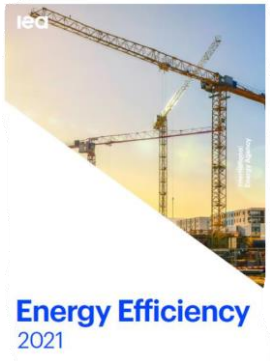
December 13, 2023, Paris

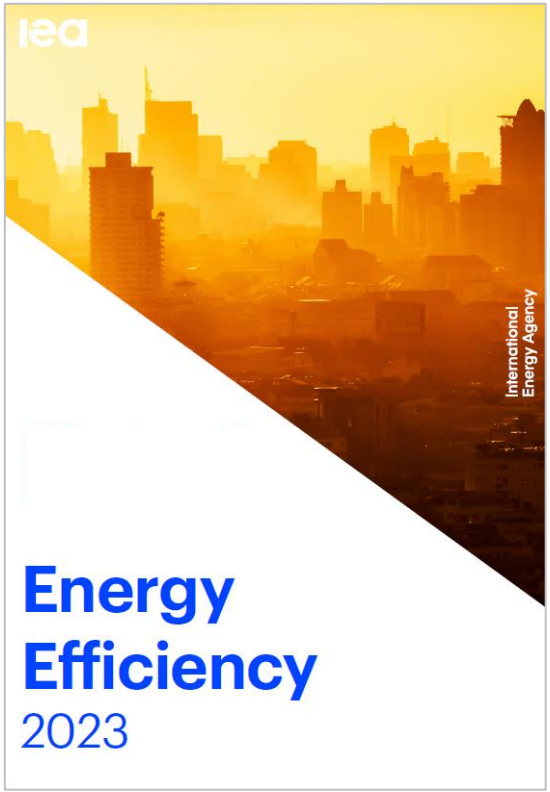
Jack Miller and Natalie Kauf

Overview

- The IEA's primary annual analysis of global developments on energy efficiency markets and policy
  - Relevant and timely – tracking progress on key trends and topics in the current year and going forward
  - Resource for policy learning and exchange between countries
  - Platform to increase the profile of efficiency policies



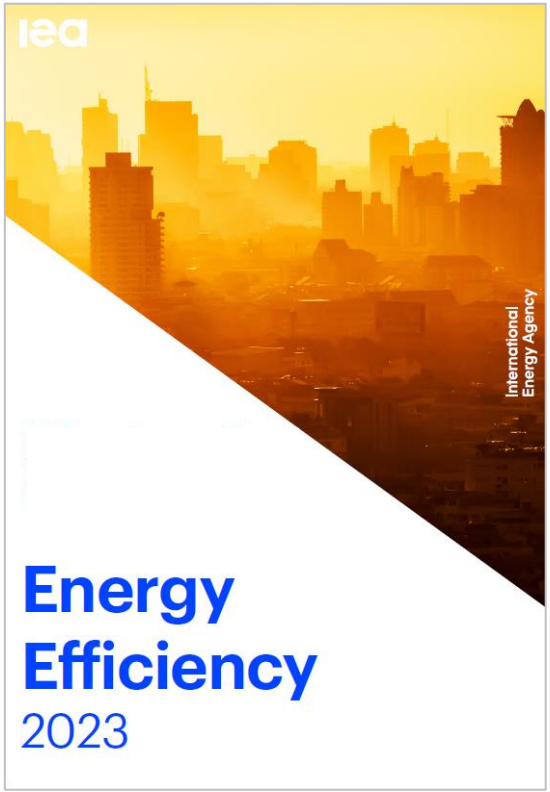




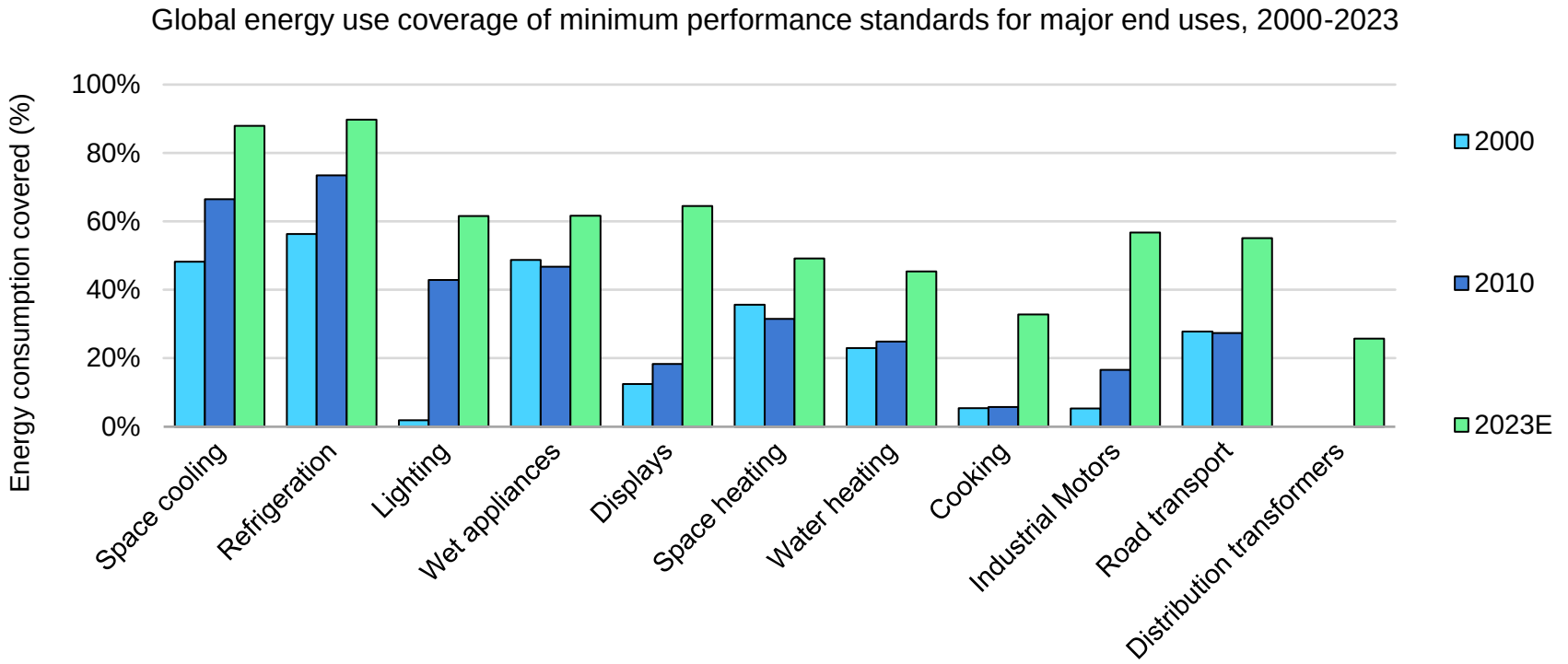
Energy Efficiency 2023 overview

1. Recent trends in energy efficiency markets
   - Energy intensity and demand
   - Energy prices and affordability
   - Sector and system-wide trends
   - Investment and employment
   - Policy progress updates

2. Key issues facing policy makers this year
   - Why is intensity progress slower this year?
   - What does doubling efficiency entail?
   - Record heat driving urgency for efficiency
   - Energy crisis and gas in residential heating
   - Consumer benefits from system efficiency
   - Cooling in India and thermal comfort for all



Policy coverage has been expanding rapidly

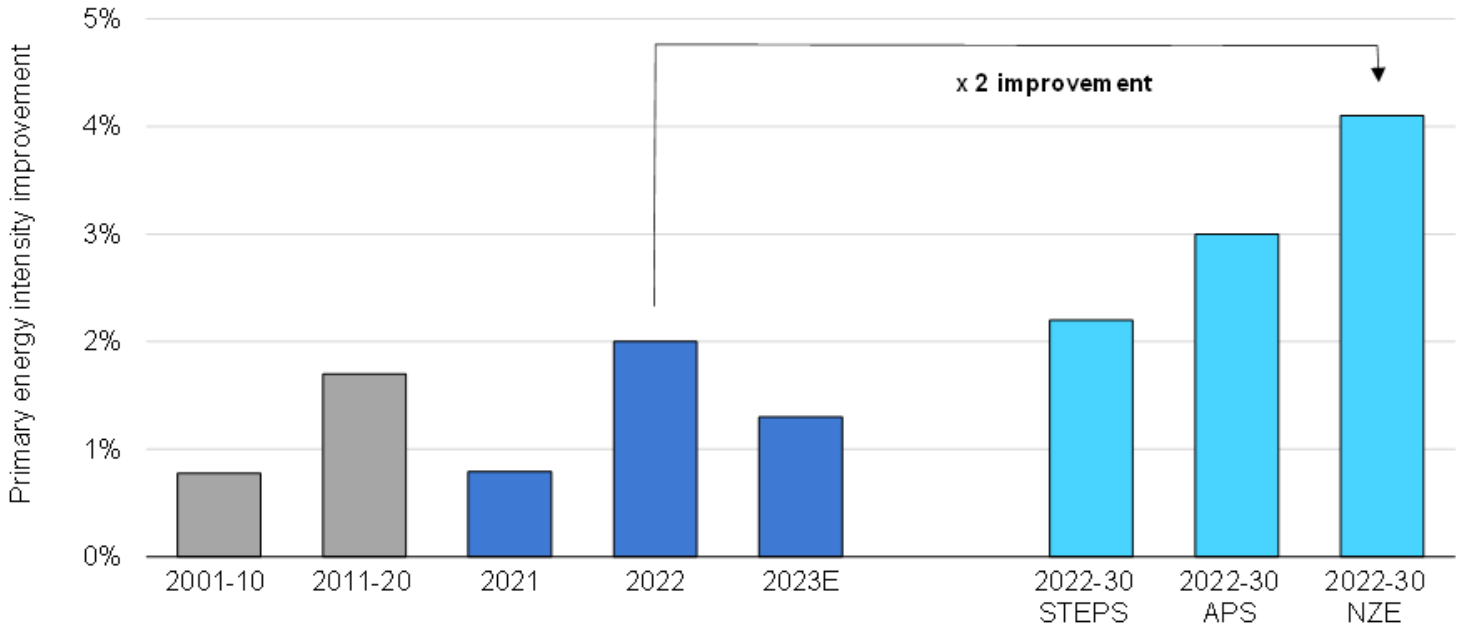


Major efficiency policy announcements have been made by countries covering over 70% of global energy demand; investment in efficiency is 40% higher than pre-pandemic levels

 Source: IEA (2023), Policies and measures (PAMS) database

Efficiency policy momentum builds but energy intensity progress slows

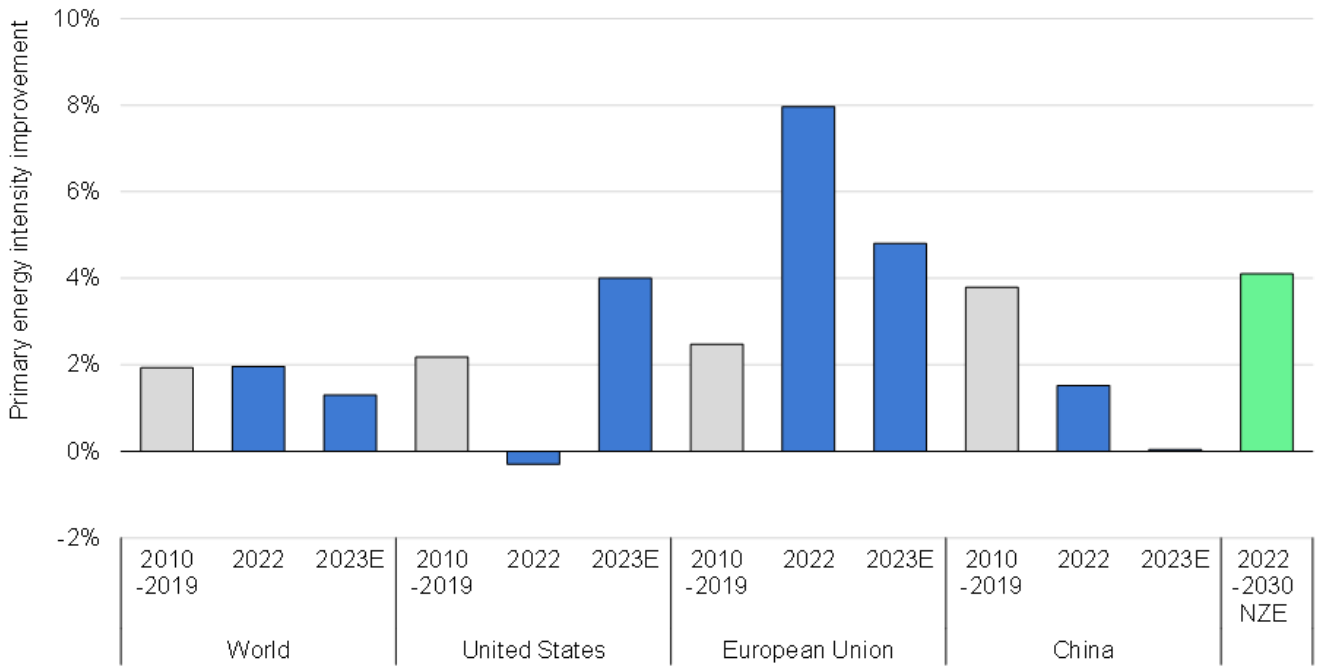
Annual global primary energy intensity improvement, 2001-2022, 2023E, and by scenario, 2022-2030



Energy intensity progress slows to 1.3% in 2023 driven by higher global energy demand of 1.7%
Momentum builds around a global target to double 2022 rate of progress each year this decade to 4%

Slower global progress hides transformations underway at country level

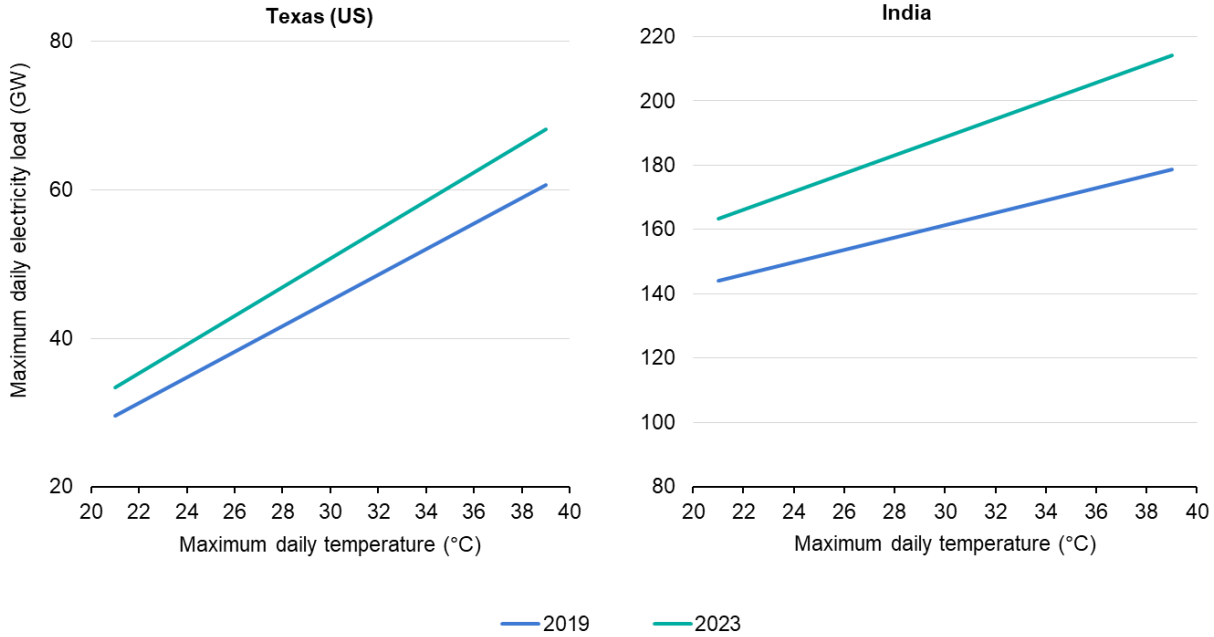
Annual primary energy intensity improvement, 2010-2023, NZE scenario 2022-2030



Since the crisis over 40 countries have reached or moved beyond the 4% level in the IEA Net Zero Scenario

Hot weather drives energy demand for air conditioning

Electricity load and maximum daily temperature, May-September, 2019 and 2023

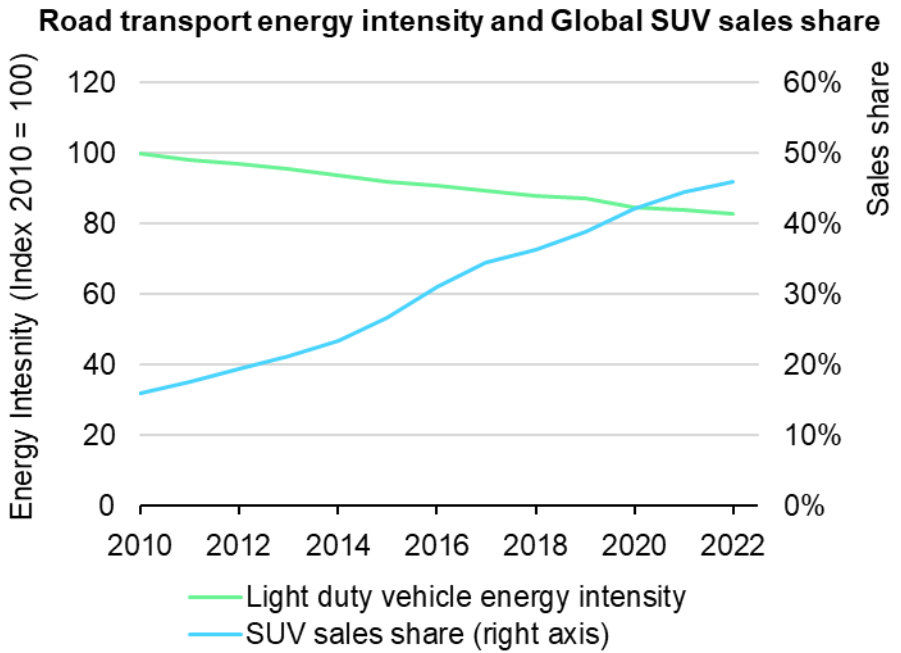


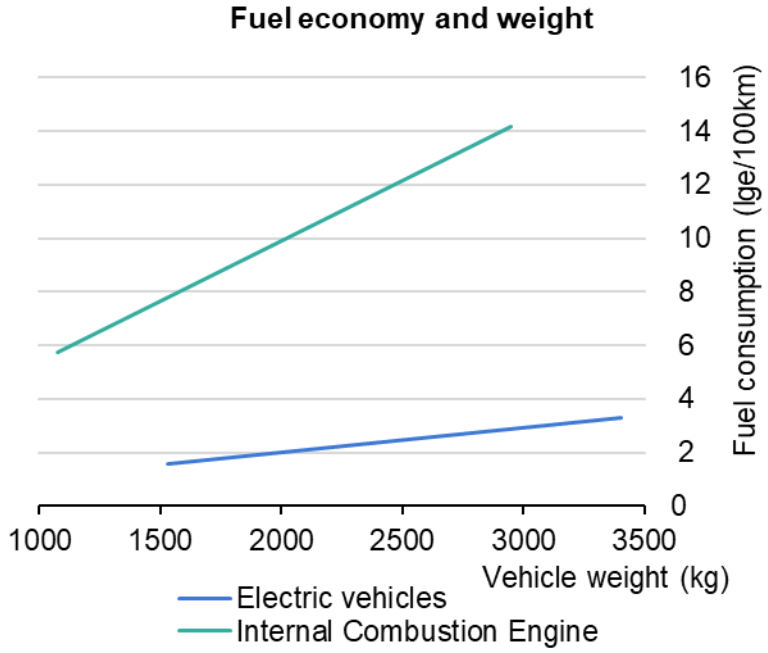
Every 1°C increase in the average daily temperature above 24°C drives a rise of about 4% in electricity demand in Texas, and a 2% gain in India, where air conditioner ownership is much lower.

 Sources: IEA (2023), Weather for Energy Tracker and IEA (2023), Real-Time Electricity Tracker.

Shift to larger vehicles is slowing faster transport efficiency progress

Share of SUV in total car sales and relationship between fuel economy and weight



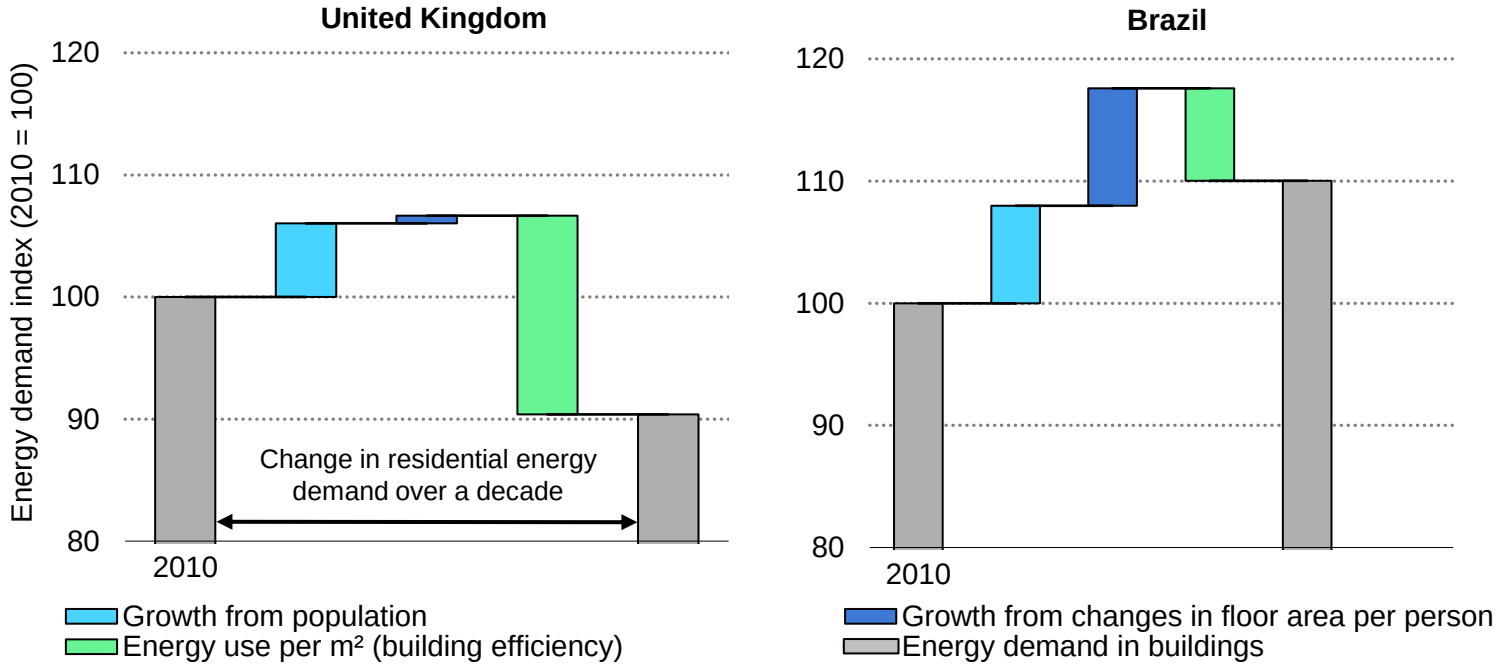


With larger vehicles more popular than ever electric vehicles offer radical efficiency breakthrough

 Sources: IEA (2023), Global EV Outlook 2023 and IEA (2023), Tracking Clean Energy Progress

Trends towards more intensive consumption drive demand growth

Decomposition of residential energy demand trends in Brazil and the United Kingdom, last decade

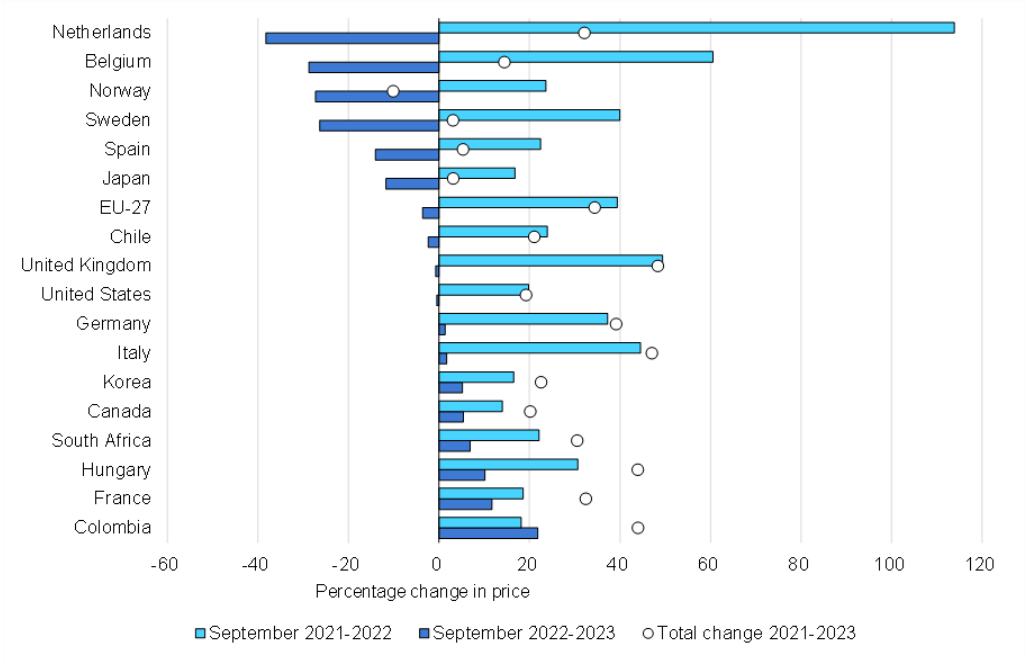


In fast-growing regions, more and bigger homes are being built, cancelling out improvements in building efficiency technology.

How have prices affected consumers in 2023?

Energy crisis is ongoing as retail energy prices remain elevated

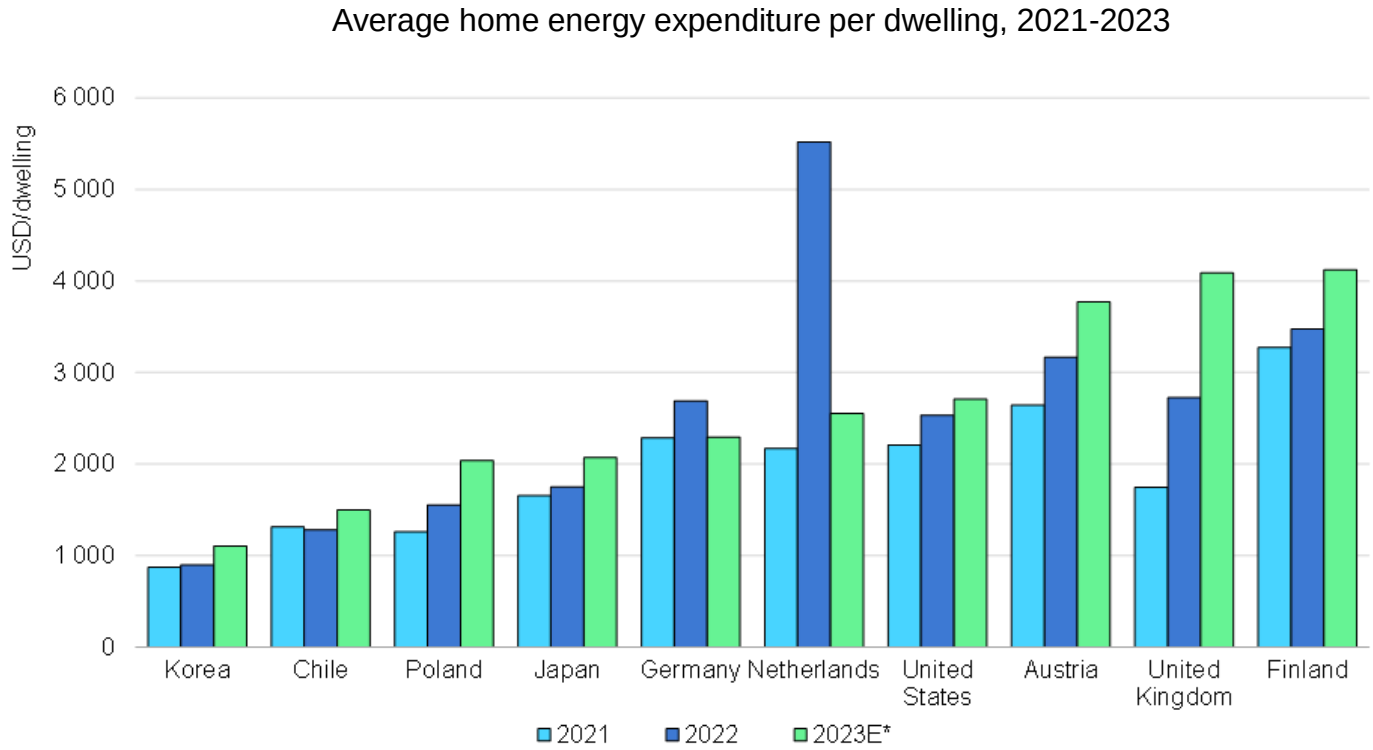
Percentage change in consumer energy prices, year on year, September, selected countries



While commodity prices have fallen, it can take time to feed through to energy bills. Cost of living pressures are still causing hardship for households and businesses.

 Source: OECD (2023), OECD Energy Consumer Price Index Database

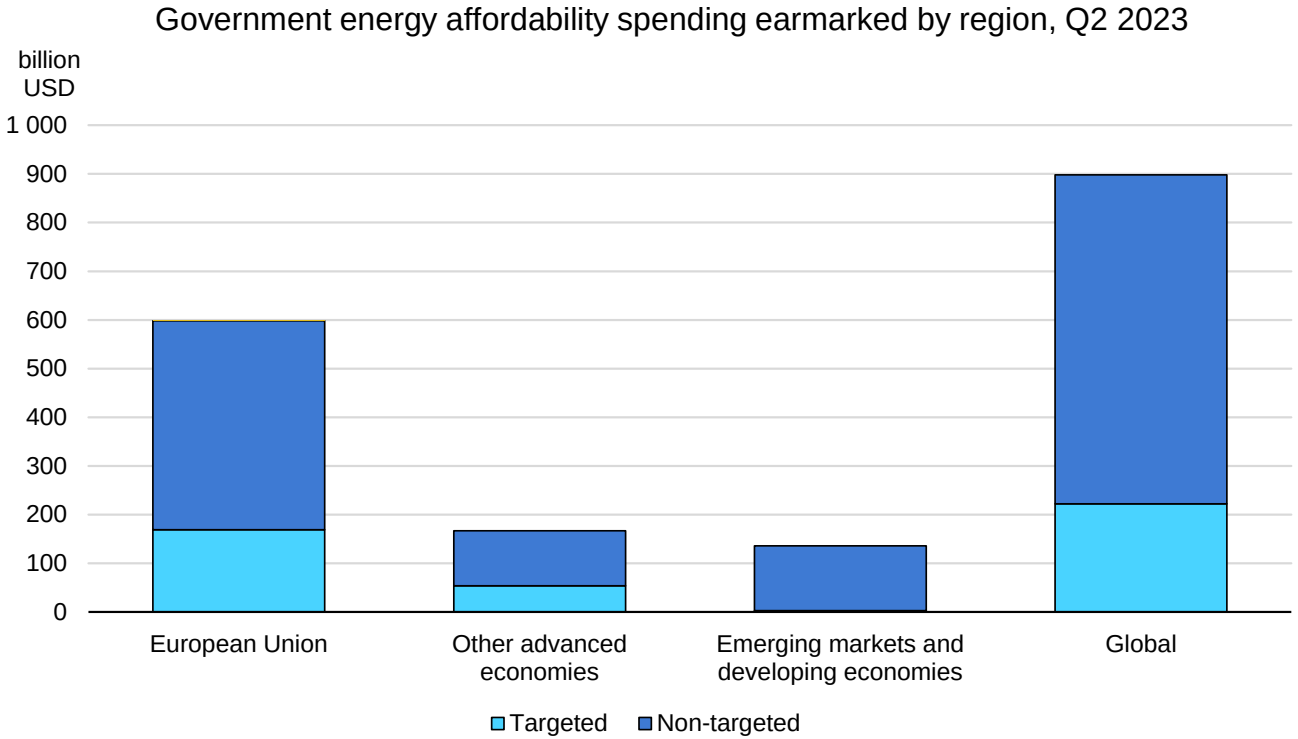
Higher retail prices are pushing up household energy expenditure



A decline in wholesale prices has not been enough to lower energy bills overall

 Sources: IEA (2023), Energy Prices; IEA (2023), Energy End-uses and Efficiency Indicators and IEA (2023), World Energy Balances

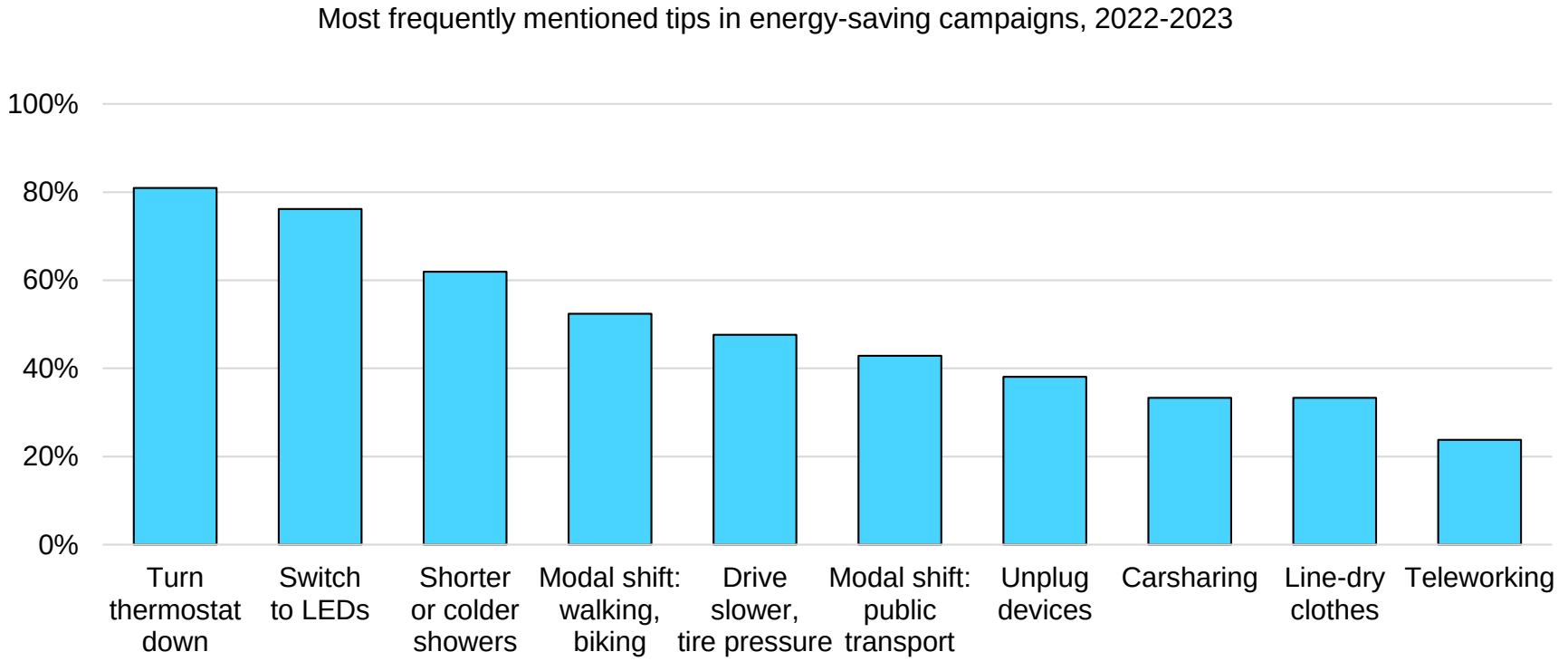
Governments shielded consumers with record affordability spending



With 75% of affordability spending nontargeted, the issue of transitioning to more structural efficiency support is an important consideration going forward

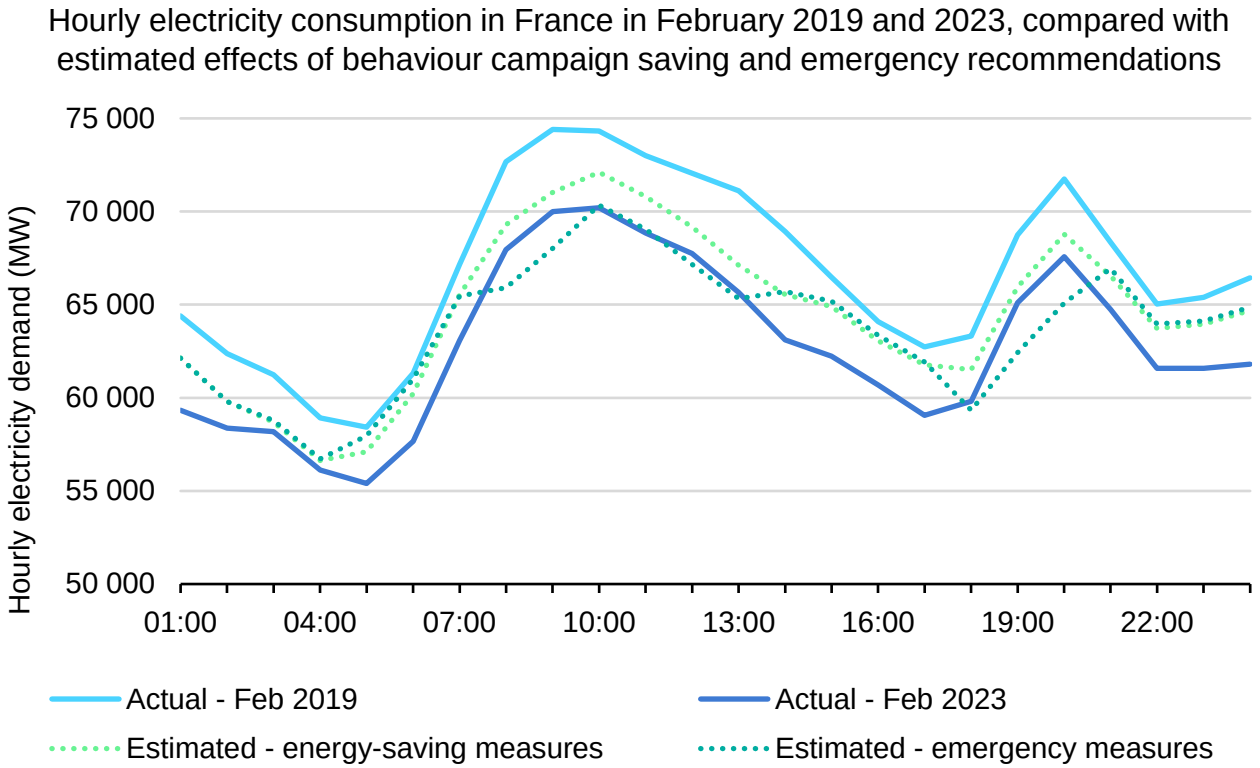
 Source: IEA (2023), Government Energy Spending Tracker: Policy

Governments use campaigns to encourage behaviour change



Most initially offered a set of practical low-cost tips but are increasingly focusing on structural energy efficiency measures such as insulation and heat pumps

Behaviour change has a significant impact on energy consumption



Peak electricity consumption was around 6% lower on a cold day in 2023 compared to a similar day in 2019

 Source: IEA analysis based on data from RTE.

What does doubling global progress on energy efficiency entail?

Doubling at COP28

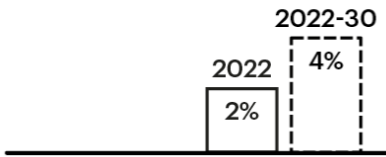
Global Renewables and Energy Efficiency Pledge:

- “Double the global average annual rate of energy efficiency improvements from around 2% to over 4% every year until 2030.”
- “Put the principle of energy efficiency as the ‘first fuel’ at the core of policymaking, planning, and major investment decisions.”

Doubling goal reflected in the final Global Stocktake text and endorsed by 130+ countries in the Global Pledge

What does doubling involve?

What is doubling?



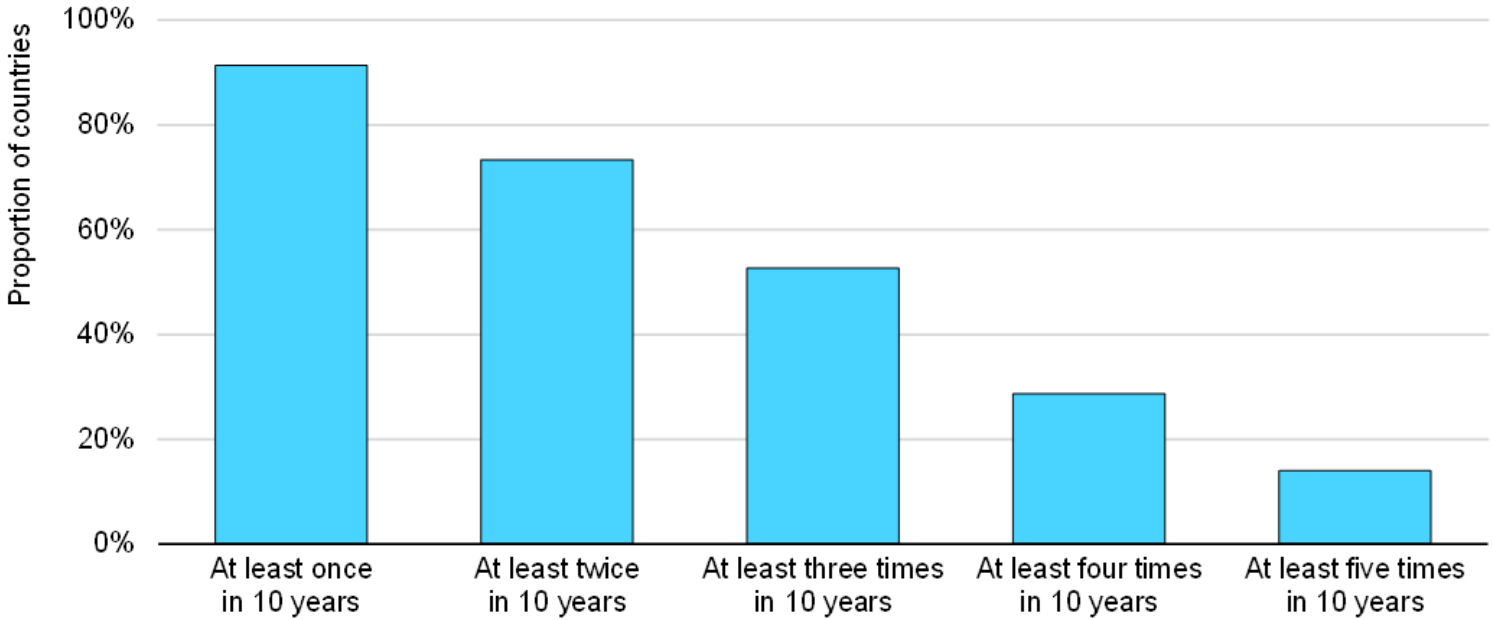
Global annual progress on energy intensity doubles this decade

The target is global, all countries have a part to play

The target will be formally considered at COP28

Doubling is within reach of all countries

Proportion of countries to surpass a 4% annual energy intensity improvement one or more times, 2012-2021

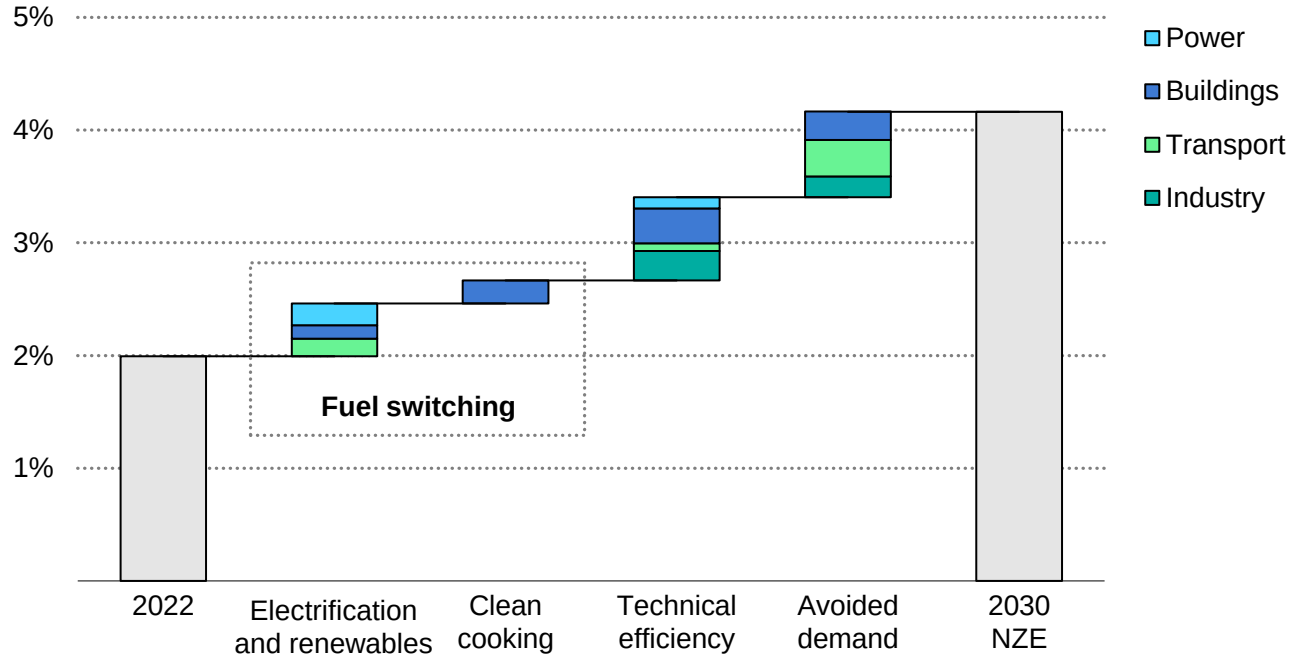


During the past 10 years, more than 50% of countries have surpassed an annual 4% Energy Intensity improvement at least three times.

 Source: IEA (2023), World Energy Balances

Reaching the doubling requires action across a range of fronts

Groups of actions contributing to a doubling in the rate of annual primary energy intensity improvements in the NZE Scenario

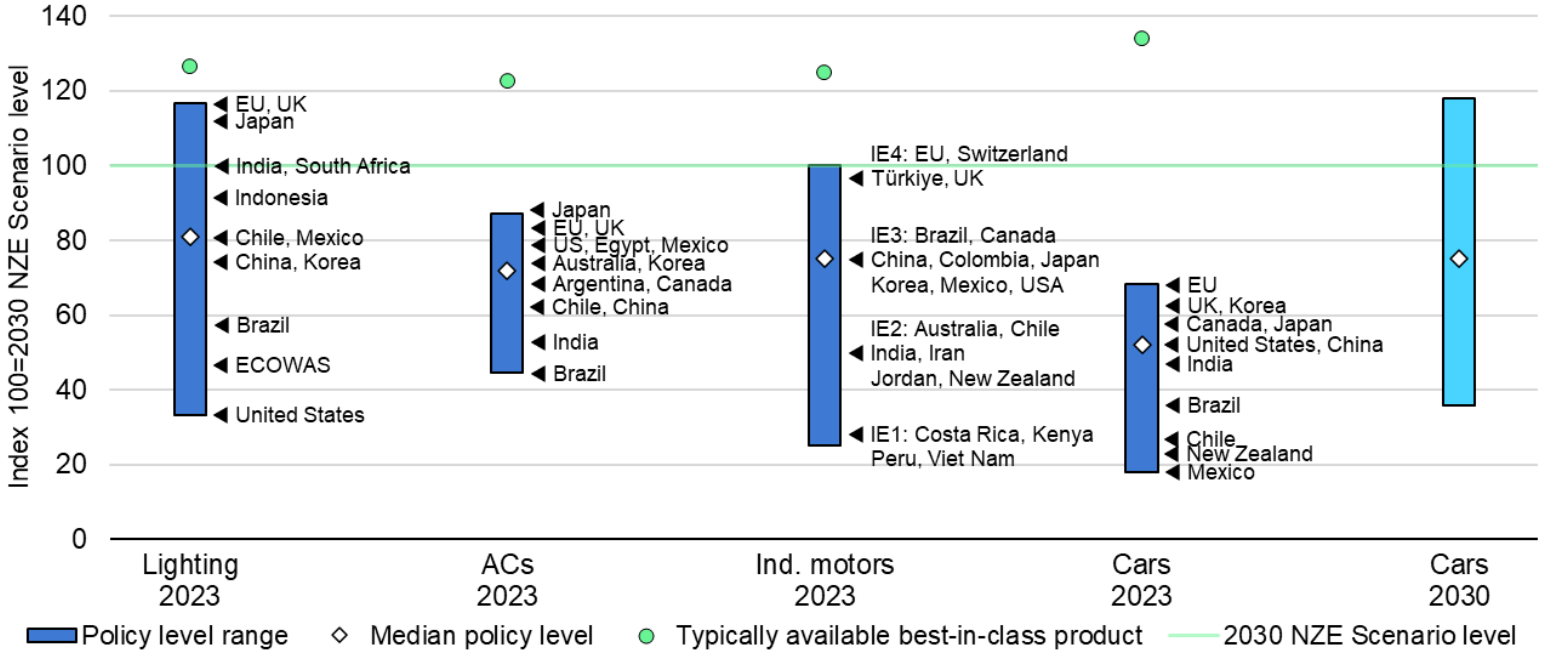


Several equally important actions will help governments and industry double energy intensity – fuel switching, including electrification; improving the technical efficiency of products and buildings; and avoided demand through behaviour change and materials efficiency

 Source: IEA (2023), Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach: 2023 Update.

Policies and technologies for doubling already exist

Minimum Energy Performance Standards, IEA Efficiency Policy Level Index end uses, global country range, 2023 and 2030



The technologies needed to achieve a doubling already exist, and policy thresholds are rapidly moving towards the required level.

Doubling offers substantial rewards

Why should we double?

A critical step on the path to net zero

Over 7 Gt CO_2 emissions savings in 2030

Today's home energy bills in advanced economies lowered by a third

4.5 million more jobs than today

Energy savings equivalent to twice the EU's consumption in 2022

IEA has led the call for a global target to double energy efficiency progress this decade.

IEA Annual Global Conference on Energy Efficiency

- The 8th conference held in Versailles, June 2023
- 46 governments endorsed the goal of doubling global energy efficiency progress by 2030

9th conference in Nairobi, 21-23 May 2024

Contact us for more information

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UsersTCP

Contact: admin@userstcp.org

CampaignXchange Task

Overview

Task Duration:
1 June 2023 – 31 May 2024

Participating Countries:
Australia, Belgium, Canada, Finland, Ireland, Netherlands, Sweden, Switzerland, United Kingdom

Task Leaders:
International Energy Agency, Energy Efficiency Division

Webinars

User-Centred Energy Systems Academy

Tasks

UsersTCP | Social License to Automate

UsersTCP | Public Engagement for Energy Infrastructure

UsersTCP | Peer-to-Peer Energy Trading

UsersTCP | Hard-to-Reach Energy Users

UsersTCP | Behavioural Insights Platform

UsersTCP | Gender and Energy