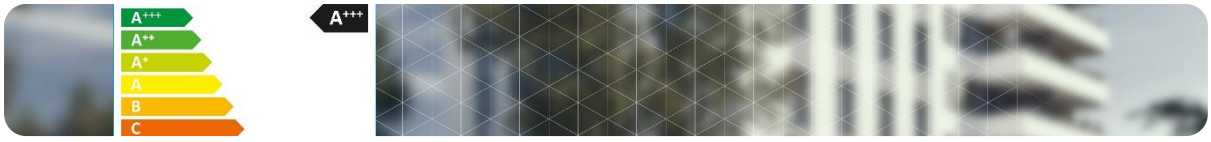

Buildings energy standards and labels

Buildings account for 30% of global energy consumption and 26% of energy-related emissions. Improving building energy efficiency is essential for achieving the IEA's Net Zero Emissions Scenario, which requires all new buildings to be zero-carbon-ready by 2030 and a rapid scale-up of deep retrofits across the existing stock through 2050. Energy performance standards and labels help drive efficiency, guide consumer choices, and accelerate retrofits. They also support transparency and promote financing, while improving health, comfort, and productivity.

Among the barriers to developing energy performance standards and labels are performance gaps between theoretical ratings and actual energy use, limited consumer awareness or trust in labels, lack of label harmonisation, weak access to data for benchmarking, a skills shortage for implementing standards, and financial constraints for deep retrofits, particularly among small buildings owners.

Selected lessons

- Reliable standards and labels, and publicly disclosed data related to buildings performance can incentivise owners to implement long-term energy efficiency improvements.
- Clearly communicating the benefits of standards and labels helps increase consumers' acceptance.
- Integrating smart meter data in energy performance assessments can help close the gap between assessed and actual energy performance.
- Mandatory ratings and disclosure mechanisms for building sales and rentals, including for zero energy buildings, can help stimulate demand for high energy performance buildings.
- Capacity building and technical assistance, including training for workers and support to local authorities, are key for effective implementation of buildings standards and labels.
- Collaboration and alignment among different levels of authority is essential to drive change.

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Examples of relevant policies adopted by Hub Members include the following:

Australia developed the National Australian Built Environment Rating System (NABERS), which assesses energy performance of buildings, focusing on sectors with many medium and large buildings. NABERS-certified buildings in Australia show reductions of about 33% in energy use within ten years. A NABERS tool, Sustainable Finance Criteria, assesses green loans eligibility based on the demonstration of significant environmental achievement.

Brazil utilises PBE Edificia labels for residential and non-residential buildings, published in 2009 and 2010. In addition, the PROCEL seal recognises top performing non-residential buildings and residential buildings. Brazil has plans to make labelling compulsory by 2026, beginning with public buildings.

Canada developed EnerGuide, a rating system measuring energy performance in homes, supported by a national network of energy advisors. Canada also incentivises the building of new homes to outperform minimum required codes by 20% through the ENERGY STAR programme. The ENERGY STAR Portfolio Manager allows users to share data on energy performance of large buildings. Canada's latest National Energy Code of Canada for Buildings 2025 will progressively integrate more stringent tiers of performance and a framework for jurisdictions and builders to achieve even higher levels of energy efficiency.

The **European Union**'s Energy Performance of Buildings Directive emphasises minimum energy performance standards and energy performance certifications (EPCs). They support EU Member States in translating these provisions into their national legislations.

France developed EPC class ratings for dwellings in 2021, covering both energy consumption and greenhouse gas emissions. Minimum Energy Performance Standards ban rental of G-rated dwellings from 2025, and will extend to E and F classes by 2034. Its incentive scheme, MaPrimeRenov, focuses increasingly on comprehensive renovations, offering higher levels of financial support—especially for deep energy retrofits—and prioritising the installation of low-carbon heating systems such as heat pumps and biomass boilers. France also developed the BBC Renovation 2024 label, which promotes high-performance heating systems, in force since 1 January 2024.

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In **Japan,** Energy Saving Labelling Program mandate compliance with energy efficiency standards for new construction and large non-residential buildings. Since 2024, owners are obliged to disclose energy labels when selling or renting. Japan also provides subsidies for building renovations that target the improvement of energy conservation performance.

Korea developed the Building Energy Efficiency Grade Certification, which rates building energy performance based on primary energy consumption. An additional certification, the Zero Energy Building (ZEB) certification, assesses primary energy consumption and renewable integration and became mandatory for all buildings in 2024. Certifications are published online to ensure market transparency.

In the **United States**, over 40 jurisdictions have adopted building performance standards for large buildings, and more are expected by 2024. The federal government has provided support through technical assistance, peer exchanges, and funding programmes via the Inflation Reduction Act and Infrastructure Investments and Jobs Act.

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Resources

- IEA report that highlights measures, including for buildings, to accelerate energy efficiency progress.
- The Energy Efficiency in Buildings Task Group is a collaborative platform to exchange policy insights and promote best practices to improve energy efficiency in buildings.

These policy insights are derived from Members' exchanges during Policy Exchange Workshops. Hub Members regularly exchange knowledge and practical experience through the Energy Efficiency Hub's Policy Exchange Workshop series. These closed-door sessions provide a platform for experts nominated by Member governments to explore specific energy efficiency topics in greater depth across sectors such as buildings, transport, and industry. Each workshop features national policy presentations, peer-to-peer discussion among officials responsible for design and implementation, and scene-setting contributions from IEA experts.

Findings presented in this Policy Insight are drawn from the discussions that took place during the following Policy Exchange Workshops: 16 November 2023 (Brazil, Canada, France, United States) and 31 January 2024 (Australia, Japan, Korea).

For more information, please contact the Energy Efficiency Hub Secretariat at secretariat@energyefficiencyhub.org.

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