



Policy Toolkit

International
Energy Agency

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Introduction

Energy efficiency is centrally important to improving the lives of all people, providing affordable and reliable energy access, supporting economic growth and resilience, enhancing security of supply and accelerating clean energy transitions. A strong, early focus on energy efficiency is essential for delivering a net zero energy system by 2050.

To support stronger action on efficiency the IEA has designed a policy toolkit for governments, launched at the IEA's 7th Annual Global Conference on Energy Efficiency in June 2022. The toolkit provides a practical approach to accelerate action on energy efficiency by guiding governments in the design of effective policy measures, the support of policy decisions and the delivery of policy actions.

The toolkit comprises two parts: The first is ten strategic principles, based on the recommendations of the Global Commission for Urgent Action on Energy Efficiency, that bring together key learnings from global experience as to how maximise the positive impact of all energy efficiency policies and programmes. The second is a set of sectoral policy packages that highlight the key policies available to governments, how they can be integrated into an effective overall coherent suite of policies and actions to deliver faster and stronger efficiency gains.

The policy packages present a practical approach to policy design and implementation built on the foundation of three essential elements: Regulation, information and incentives. They highlight how combinations of these three types of measures can combine into the most effective package.

Implementing Energy Efficiency via Strategic Principles and an effective coordinated Policy Packages Toolkit

Ten Strategic Principles

Based on IEA analysis of best practice and the work of the Global Commission for Urgent Action on Energy Efficiency¹ the following ten strategic principles can help guide policy makers to enhance and expand their energy efficiency policies and programmes, and to quickly accelerate energy efficiency gains through new and stronger policy actions.

1. Prioritise cross-cutting energy efficiency action for its economic, social and environmental benefits

An all-of-government approach, prioritising cross cutting action, will maximise energy efficiency gains throughout all sectors of society, enhancing social and economic development, energy security and resilience, and accelerating decarbonisation of the energy sector.

2. Act to unlock efficiency's job creation potential

Energy efficiency can quickly deliver job growth and can continue to be a long-term, sustainable employment sector. Capacity building and skills development are essential to effective policy implementation.

3. Create greater demand for energy efficiency solutions

Efficiency action will be most rapidly scaled up through a focus on increasing demand for efficient products and services and enabling greater levels of market activity.

4. Focus on finance in the wider context of scaling up action

Mobilising finance is an essential element of efficiency action, and policies aiming to do so will be most effective if they are part of a broad, coherent approach to driving market scale, combining measures to increase demand with actions to remove investment barriers, creating market conditions to attract and increase private sector investment.

5. Leverage digital innovation to enhance system-wide efficiency

Policymakers can take advantage of the potential of digital innovation to enable smart control, better energy management and wider energy system optimisation. Policies can enable and incentivise new solutions while also protecting consumers and system security.

6. The public sector should lead by example

Governments leading through investment in public sector efficiency and driving innovation and higher standards will build experience, markets, knowledge and confidence in energy efficiency solutions.

7. Engage all parts of society

Implementation of energy efficiency action needs to happen at all levels of society, with cities, businesses, and local communities all playing a particularly important role in its success.

8. Leverage behavioural insights for more effective policy

People are at the centre of energy efficiency action, benefitting from greater access, lower costs and more comfortable, healthier environments. Consumer behaviour plays an important role and insights from behavioural science can help design smarter, more effective policies.

9. Strengthen international collaboration

International collaboration and exchange of best practice allow countries to learn from each other and to harmonise approaches and standards where appropriate. This can speed up implementation of energy efficiency policies and transformation of markets.

10. Raise global energy efficiency ambition

Benefits from energy efficiency policies are greatest when the ambition is high, capturing the significant untapped potential to deliver economic, energy and environmental benefits.

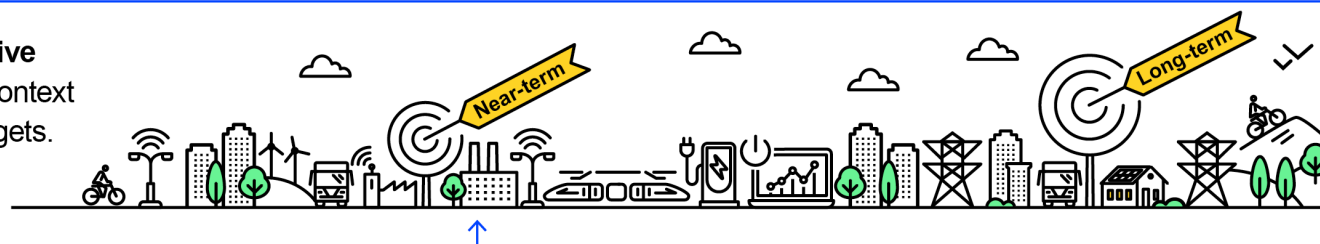
¹ The Global Commission for Urgent Action on Energy Efficiency was established in June 2019 by the Executive Director of the IEA and was chaired by the Prime Minister of Ireland, Mr Leo Varadkar. The Commission's 23 members included national leaders, energy ministers, top business executives and global thought leaders, who worked together to identify global best practice and agree ten key strategic recommendations, which were published at the IEA's 5th Annual Global Conference on Energy Efficiency in 2020.

Policy Packages for Energy Efficiency

In all sectors the greatest efficiency gains are achieved by a package of policies that combine three main types of mechanisms: **Regulation**, **information** and **incentives**. Careful design and implementation will deliver efficiency's full potential to enhance energy security, create jobs, increase living standards, cut energy bills and reduce emissions.

Targets

Policies are more effective when they are set in the context of clear strategies and targets.

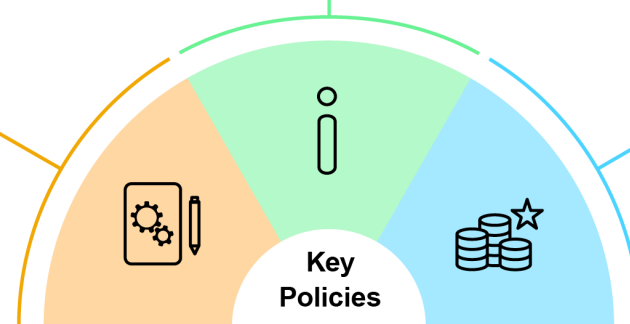


Essential elements

Regulation is essential to exclude the worst performing equipment and practices from the market, to drive average efficiency levels up, and to set rules for measurement of performance.

Information helps people make more efficient choices in what they buy and how they use energy.

Incentives make efficient options more attractive and speed up the upgrade and replacement of appliances, buildings and vehicles. They also encourage the use of new technologies and practices.



Implementation is as important as policy design.



Ensuring that the **resources** are in place to put policies into action.



Address **vital elements** such as capacity building, enforcement, monitoring.



It is important to continually assess **policies and programmes** so as to keep up to date with technology developments.

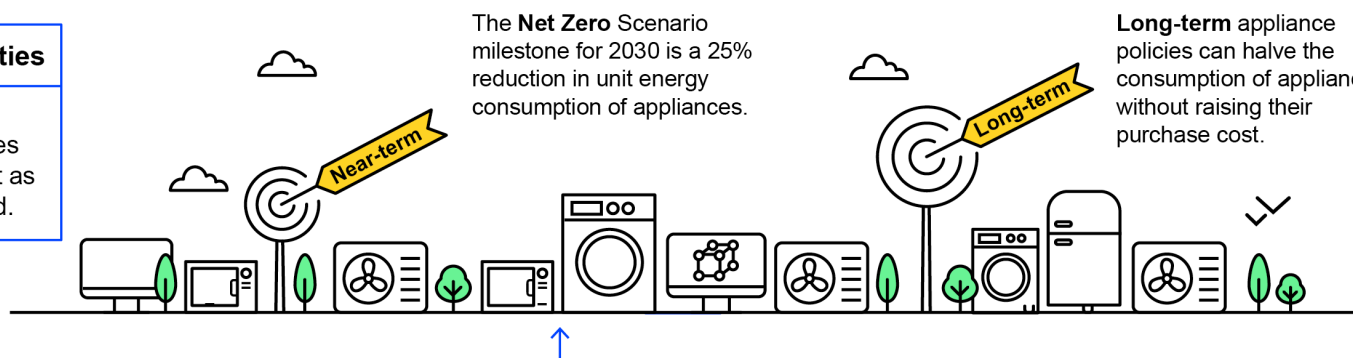
Appliance Energy Efficiency Policy Package

Immediate opportunities

In most markets, it is possible to buy appliances that are twice as efficient as those typically purchased.

The **Net Zero** Scenario milestone for 2030 is a 25% reduction in unit energy consumption of appliances.

Long-term appliance policies can halve the consumption of appliances without raising their purchase cost.



REGULATION

- **Minimum Energy Performance Standards** exclude the least efficient products from the market; they should be in line with international best practice, while reflecting good understanding of local circumstances; and be regularly updated. Regulations are essential for moving the market towards the best available technology in line with achieving net zero targets.
- **Regulation** can ensure that new appliances are “demand response ready” in order to offer flexibility to the end-user and the overall system and reduce peak demand.



INFORMATION

- **Labels** inform consumers, identifying the most efficient appliances and encouraging purchases based on life time costs.
- **High Efficiency Performance Specifications** identify the best performing products and are often used as the basis for labels and incentives.
- **Consumer information campaigns**, help people make informed decisions. These are most effective when based on behavioural insights and targeted strategies.
- **Smart meters** enable feedback and targeted guidance to consumers about their energy use and how they can make savings.



INCENTIVES

- **Rebates, grants and other financial offers** motivate consumers to buy highly efficient appliances.
- **Finance or taxation benefits** encourage manufacturers to produce appliances that are more efficient.
- **Well-designed procurement processes** can increase market share of highly efficient appliances and drive innovation.
- **Dynamic electricity pricing** helps incentivise flexible demand.

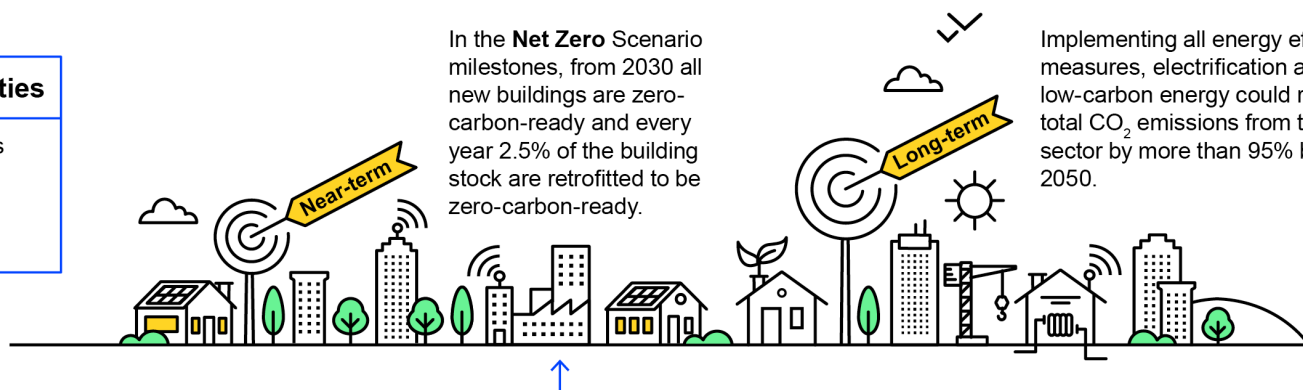
Buildings Energy Efficiency Policy Package

Immediate opportunities

Replacing fossil fuel boilers with high efficiency heat pumps can reduce energy use by up to 75%.

In the **Net Zero** Scenario milestones, from 2030 all new buildings are zero-carbon-ready and every year 2.5% of the building stock are retrofitted to be zero-carbon-ready.

Implementing all energy efficient measures, electrification and low-carbon energy could reduce total CO₂ emissions from the sector by more than 95% by 2050.



REGULATION

- **Targets for energy efficiency** in buildings, including for renovation rates, fosters market growth and facilitates long-term investment decisions.
- **Building energy codes** for new buildings and retrofits are essential to accelerate the transition to zero-carbon-ready buildings.
- **Minimum energy efficiency requirements** for renovation help guarantee performance and accelerate the process of renovation through instruments such as the standardisation of services.
- **Regulations** ensure that buildings can become “demand response ready” to enable future flexibility.



INFORMATION

- **Information on building performance** allows consumers to identify the most efficient options when buying or renovating buildings. Examples include energy performance certificates, disclosure programmes, one-stop shops for upgrades and renovation passports.
- **Smart interactive technologies** can show real-time energy performance and help adjust occupants’ behaviour.
- **Training and education programmes** for building sector workers are important to ensure a suitably skilled work force.
- **Public awareness campaigns** designed to include behavioural insights encourage low-cost actions, such as thermostat adjustment.



INCENTIVES

- **Financial incentives** such as green mortgages, energy performance-based preferential loans and tax rebates and grants can motivate consumers and developers to increase investment in energy efficient solutions.
- **Expedited administrative procedures**, including accelerated permitting, targeted at high performing new build or retrofit projects, encourage the implementation of energy efficient measures.
- **Award and recognition programmes** encourage the development of highly energy efficient buildings.

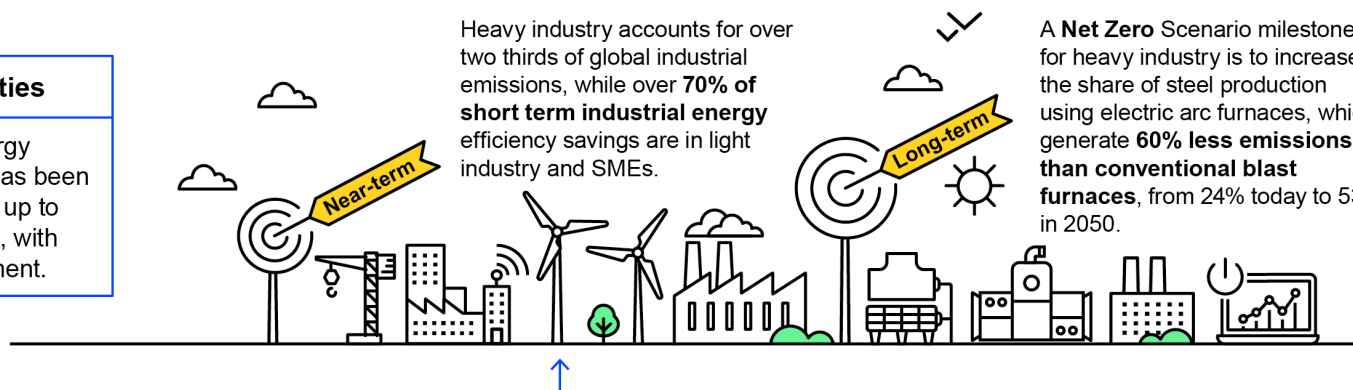
Industry Energy Efficiency Policy Package

Immediate opportunities

Implementing better energy management practices has been shown to deliver savings up to 15% in the first 1-2 years, with little or no capital investment.

Heavy industry accounts for over two thirds of global industrial emissions, while over **70% of short term industrial energy efficiency savings** are in light industry and SMEs.

A **Net Zero** Scenario milestone for heavy industry is to increase the share of steel production using electric arc furnaces, which generate **60% less emissions than conventional blast furnaces**, from 24% today to 53% in 2050.



REGULATION

- **Minimum Energy Performance Standards** for key equipment, such as motors and pumps, can drive up overall industrial efficiency levels.
- **Regulation to reduce energy use** extends beyond technology to target areas such as research and development, energy auditing, mandatory consumption reporting, energy management systems, and upskilling of the workforce.
- **Regulatory Instruments** yield best results when rooted in a good understanding of local context and include ambitious, regularly updated, standards.



INFORMATION

- **Benchmarking, indicators and other forms of detailed data**, allow governments to track the progress and success of policies and allow industries assess their energy performance, compare it to that of their peers and establish key areas for intervention.
- **Digital technologies** enable industries to track energy use in real time and unlock substantial energy and cost saving opportunities.
- **Sharing information on energy efficiency best practice** and industrial energy transition, through industry networks, helps industries raise ambition and improve energy performance.



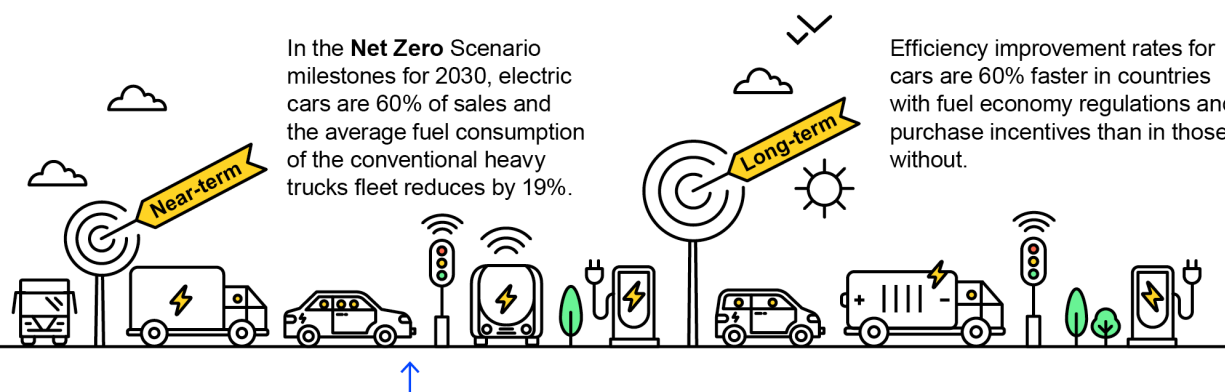
INCENTIVES

- **Incentives** such as preferential finance, links to carbon trading, obligations and tax based measures can motivate crucial energy efficient decisions at the process design and equipment selection stage, supporting industry transition to near zero emission technologies.
- **Free or subsidised energy audits**, often targeted at SMEs and other sectors of strategic importance, can help rapidly increase energy efficiency.
- **Policies to foster Energy Service Companies** provide industry with access to significant external energy expertise and attractive structured financial packages.

Vehicle Energy Efficiency Policy Package

Immediate opportunities

Significant reductions in fuel demand are available through immediate actions including lowering speed limits and the adoption of best practices for driving and vehicle maintenance.



REGULATION

- **Vehicle fuel economy standards** result in greatly reduced fuel use provided they are kept up to date, well monitored and properly enforced.
- **Regulatory and market signals**, such as through stringent standards and target setting, help bring electric vehicles to the market, by providing an impetus to manufacturers to develop these technologies.
- **Regulation** can also help ensure the required infrastructure, such as standardised charging, is in place.



INFORMATION

- **Information campaigns** on carsharing practices and more fuel-efficient driving help people take informed action relating to energy and cost savings. Campaigns are more effective when based on behavioural insights and targeted strategies.
- **Labels inform consumers**, identifying the most efficient vehicles allowing people to choose vehicles that cost less to run.

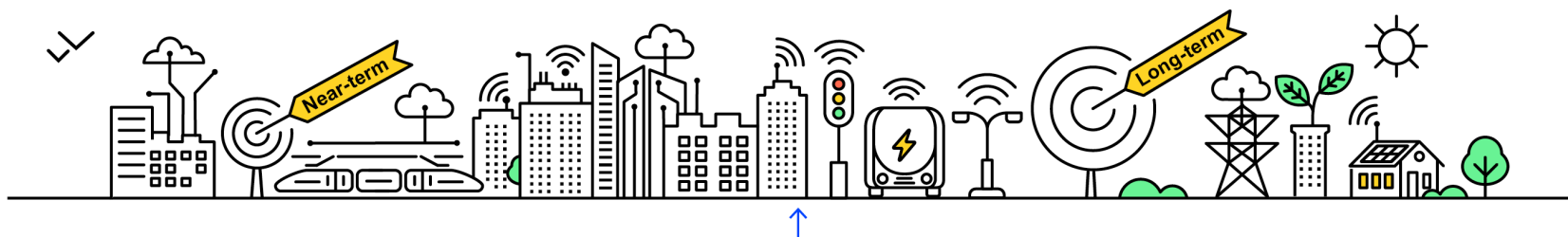


INCENTIVES

- **Incentives** can make vehicle costs cheaper at point of purchase, for example through grants or lower registration fees. They can also reduce on-going costs, through for example free parking and exemptions from congestion tolls.
- **Government grants** for strategic charging infrastructure, for example charging stations in homes and workplaces or fast charging along expressways, encourage the adoption of electric vehicles reflecting that purchase decisions are influenced by the availability of infrastructure.
- **Incentives** facilitate the early adoption of electric vehicles and can be phased out as uptake grows.
- **Vehicle taxation and duties**, can be structured to incentivise the purchase of more efficient vehicles.

Energy Efficiency Policy Package for Smart and Efficient Cities

National policy makers play an important role in accelerating urban energy transitions. Cities connect directly with communities and people to enhance implementation and better inform policy. Smart cities use digital means to improve planning, design and operations of energy services.



REGULATION

- **National Governments** help create the environment for energy efficient cities by setting an overall vision and targets and empowering cities to take action.
- **Cities accelerate clean energy transitions** by incorporating smart, clean energy solutions into urban planning, local regulations and codes, and unlocking system wide efficiencies.
- **National and local policies**, with people at their core, ensure fair access to energy services especially for vulnerable and marginalised groups.
- **National Regulation** that enables business models for clean energy services, such as Public Private Partnerships and ESCOS, enable the delivery of energy efficiency.
- **International standards and benchmarks** are key to enabling seamless communication across technologies and applications, critical for successful urban energy systems.



INFORMATION

- **National initiatives can be used to build energy efficiency capacity in cities** through creating training opportunities and partnerships, informed by international best practice.
- **Digital solutions for energy efficiency in cities**, including data analytics to ensure system flexibility and optimised city services, require open, transparent access to data, with privacy protected. National governments can facilitate by developing guidelines and mechanisms to enable data use and sharing across all levels of government.



INCENTIVES

- **Investing in city level action and enabling funding to flow** from national to local level, through targeted funding models, can give the best return on investment and accelerate inclusive clean energy transitions.
- **National government can use its influence to leverage international programmes** aimed at cities, for example by creating innovation areas in cities to attract digital and clean energy technology talent.
- **Seed funding, and complementary finance from national government**, can mobilise and help scale up private capital for investment in smart cities.

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