

Energy Efficiency in Azerbaijan

A roadmap



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Explore how Azerbaijan could implement a range of policies to strengthen energy efficiency across its energy sectors while meeting its carbon emissions reduction commitments.

Experience the full roadmap at [iea.org/programmes/eu4energy](https://www.iea.org/programmes/eu4energy)

Azerbaijan's energy landscape is at a crossroads



Seeking to abandon its near-total dependence on natural gas while meeting its carbon emissions reduction commitments under the Paris Agreement, the government of Azerbaijan launched efforts in recent years to improve energy efficiency, including a legal framework to enforce standards and other measures.

Fossil fuel represent

\$ 90%
of Azerbaijan export revenues

 30-50%
of GDP

Energy subsidies

 6%
of GDP



have disincentivised energy efficiency

Natural gas, diesel and gasoline consumption

 x2

has doubled in the last 10 years

Reflects strong demand growth in key sectors and drive emissions

CO₂ emissions grew by



70%
in industry



48%
in transport

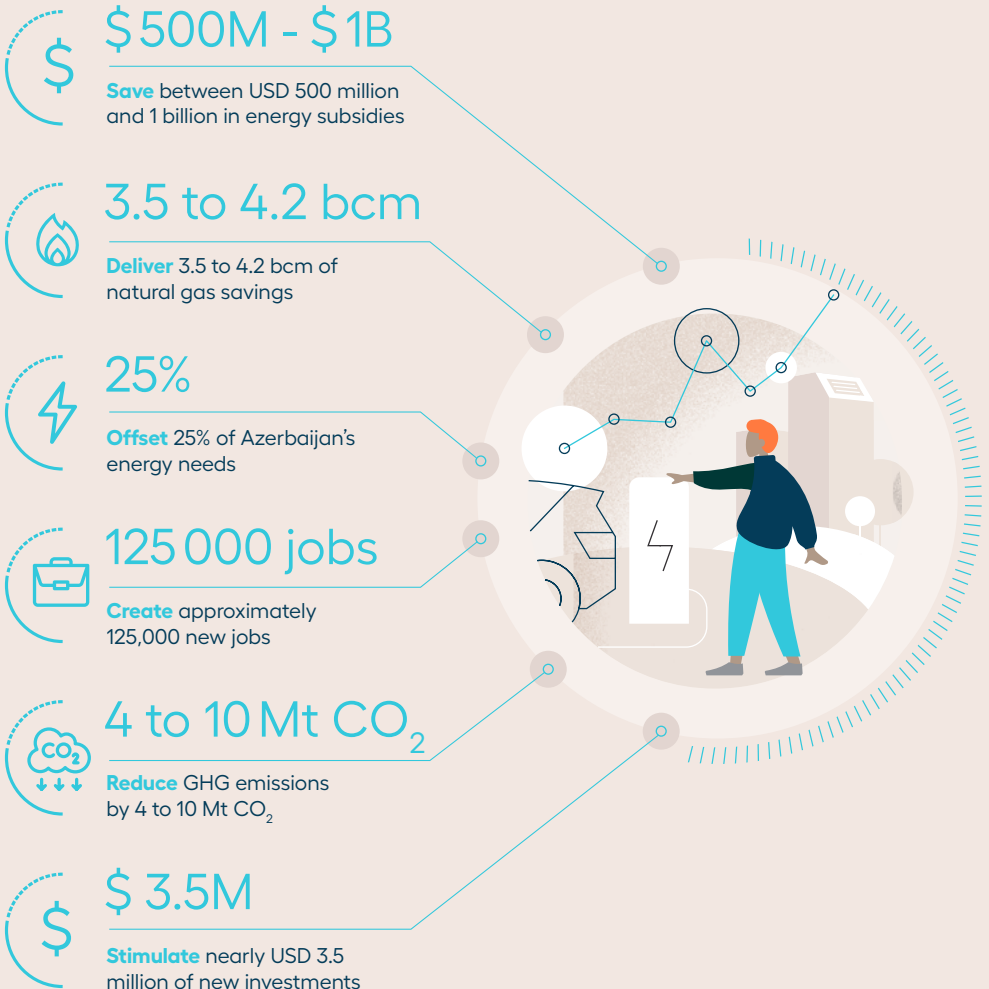


33%
in buildings

The case for energy efficiency

Azerbaijan has an opportunity to develop targeted actions on energy efficiency, which could help protect the country from fluctuations on global fossil fuel markets, increase energy security, demonstrate leadership on climate (particularly as the host of COP 29), and support long-term economic development.

Estimates indicate that over the next decades energy efficiency could:



Key Policy Levers

Several policy levers and measures to enhance energy efficiency are available to policymakers in Azerbaijan, such as:



Development of a national energy efficiency action plan (NEEAP)



Economy-wide and sector-specific targets for energy efficiency



Subsidy and tariff reforms with mechanisms to protect vulnerable consumers



Finalisation of the legal framework for energy efficiency notably the adoption and enforcement of secondary legislation



Institutional capacity-building, including the creation of a dedicated energy efficiency agency, and public awareness raising



Dedicated funding mechanisms for energy efficiency including performance-based schemes for energy services companies (ESCOs)



Improved data collection, including through digital tools such as metering, to inform policy-making

Seizing the residential buildings opportunity

A targeted renovation strategy, with increasing annual rates of energy refurbishments, has a huge potential for energy efficiency improvements in Azerbaijan's residential building stock.

Azerbaijan's residential buildings

2M

There are nearly 2 million residential buildings in Azerbaijan

32%

Account for 32% of the country's TFC in 2022



Are the largest consumers of energy

83%

of the residential buildings TFC in 2022 came from gas



Average intensity : 250-260 kWh/m²

compared to 160 kWh/m² in the EU

50%

energy savings achievable, especially in multi-unit buildings



Population and economic growth will boost energy demand in homes

Getting the most out of appliances and equipment

Combined with efficiency gains in other sectors, efficient appliances and equipment can deliver over 1.2 TWh and USD 60 million of annual electricity savings by 2040, while reducing carbon emissions equivalent to nearly 500,000 passenger cars annually.

Going forward, rapid and robust adoption and implementation of Minimum Energy Performance Standards (MEPS) will be a critical lever for Azerbaijan.

Residential heating and cooling present a particular opportunity for efficiency gains in Azerbaijan, with potential measures including:



The development of a national heating and cooling strategy, including gradual phase outs and bans of gas boilers for heating and gradual tightening of MEPS for ACs.



Modernisation of out-dated Soviet-era district heating systems in urban centres, including the piloting of smaller, compact district heating systems.



Large-scale promotion of heat pumps and efficient ACs featuring financial incentives and coupled with improved building insulation measures.

Addressing transport sector demand and emissions

Vehicle ownership rates doubled between 2005 and 2018 in Azerbaijan, where nearly 80% of cars are older than 10 years. This has led to a significant increase in gasoline and diesel consumption, and GHG emissions.



Azerbaijan's transport sector energy consumption more than tripled between 2000 and 2022, the strongest growth in energy demand compared to other sectors.



Over the same period, gasoline demand in road transport increased by 381% while diesel and light fuel oil demand increased by 242%.

While Euro-4 emissions standards have been in place since 2014 and tax incentives have been introduced for electric vehicles (EVs), which are starting to appear on Azerbaijan's roads, additional policy levers are available:



Expanding charging infrastructure to promote EV uptake and procuring electric buses and taxis for urban transport.



Deploying urban planning measures such as bicycle lane development and expansion of public transport infrastructure along with incentives for public transport use.



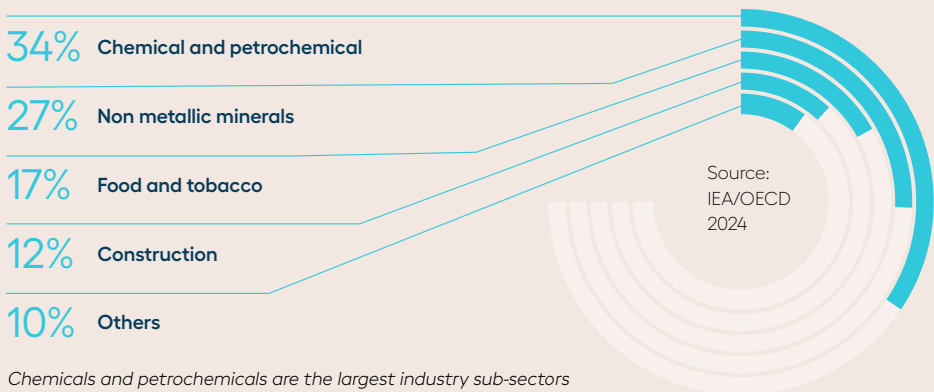
Increasing taxes for diesel and gasoline vehicles, enforcing older vehicles import control, etc.

Making key industry sectors more efficient



In Azerbaijan, industry consumes only 16% of TFEC, matching transport, with gas being the predominant fuel used in the sector, even if electricity has surged since 2000. The chemicals and petrochemicals sub-sector, driven by the country's oil and gas industry, consumes 34% of industrial energy.

Share of final energy consumption in industry sub-sectors – 2022



Key measures to improve Azerbaijan's industrial efficiency include:

- 1 Efficiency target setting** based on global best practice benchmarks
- 2 Training of energy** auditors and incentives for the implementation of energy management systems such as ISO 50001
- 3 ESCO schemes** with investments in efficiency recuperated through energy savings
- 4 Bulk procurement and deployment** of energy efficient motors
- 5 Automation and software** including artificial intelligence applications to optimise processes
- 6 A carbon credit and/or trading** scheme for heavy industries, including carbon taxation and related obligations
- 7 Development of a dedicated sub-sector strategy** targeting petrochemical industries

An energy efficiency roadmap for Azerbaijan

The following roadmap recommends key measures and milestones that can help chart a path towards a more energy efficient Azerbaijan over the period to 2040.

2024 - 2030

2030 - 2040

- Cross-Sector**
- Set energy efficiency targets and implement adopted programmes and strategies
 - Complete legal framework & adopt secondary legislation
 - Reform tariffs
 - Develop data collection & tracking methodology

- Dedicated financing mechanisms for energy efficiency and ESCOs
- Expand data collection and tracking
- Establish dedicated agency for energy efficiency

- Buildings**
- Implement and enforce MEPS
 - Set annual renovation targets

- Achieve at least 1.5% annual renovations of existing buildings
- All new buildings nearly or net zero

- Appliances & Equipment**
- Implement MEPS and labelling schemes
 - Ban incandescent lighting & imports
 - Develop heating and cooling strategy

- Phase out / ban of gas boilers in new buildings
- Heat pumps and efficient ACs widely installed in new buildings and during retrofits

- Transport**
- Collect data to enable enhanced vehicle efficiency standards and related fiscal policies
 - Introduce mandatory vehicle inspection regimes
 - Increase fuel taxes along with appropriate social compensation mechanism

- EV share increases significantly
- Most urban buses are electric
- 500 000 or more EV charging points are deployed

- Industry**
- Deploy MEPS for industrial motors and equipment
 - Set targets based on benchmarks and indicators

- Chemical and petrochemical efficiency strategy development and launch
- Training of energy auditors
- Development of a carbon credit / trading scheme



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