

# PERU

## 1. GOALS FOR EFFICIENCY IMPROVEMENT

### 1.1. Overall Energy Efficiency Improvement Goals

The National Energy Plan 2014-2025 (NEP) includes the key target of reducing energy demand by 12.5% (if the GDP grows at 6.5%) or by 14.8% (if the GDP grows at 4.5%) by 2025 compared to business-as-usual (BAU).

### 1.2. Sectorial Energy Efficiency Improvement Goals

This plan considers energy efficiency programs in four sectors: residential, public, productive, and service and transport. The NEP does not consider a specific goal for each sector, but it estimates an expected reduction in energy demand after implementation for each sector from 2014 to 2025 (see Table 1).

**Table 1. Reduction of energy demand by sectors**

Sector	Reduction (PJ)
Residential and commercial	18.7
Manufacturing and services	22.7
Public	0.09
Transport	187.6
TOTAL	229.2

Source: PEN 2014-2025.

### 1.3. Action Plans for Promoting Energy Efficiency

The key document for promoting energy efficiency is the National Energy Plan 2014-2025. Under this document, the Referential Plan for the Efficient Use of Energy 2009-2018 was approved in 2009 by The Ministry of Energy and Mines (MINEM). By 2012, the MINEM developed a strategic review of energy for Peru from which two important documents emerged: the New Sustainable Energy Matrix for Peru (NUMES) and the Strategic Environmental Assessment (SEA). The NUMES includes nine policy objectives with the 2040 vision of having an energy system that meets energy demand in a reliable, regular, and efficient way that is supported by planning, ongoing research, and technological innovation. This study updated the Referential Plan for the Efficient Use of Energy 2009-2018.

#### 1.3.1 Energy Efficiency Monitoring and Reporting

The General Direction of Energy Efficiency (GDEE) implemented the reports on energy efficiency. At the macro level, the GDEE prepares the annual energy balance, whereas at the micro level, the GDEE prepares statistical information regarding market trends and projections in home appliances, air conditioners, refrigerators, laundry appliances, etc.

### 1.4. Institutional Structure

#### 1.4.1 Central Institutional Structure

##### a) Name of organization

The Ministry of Energy and Mines (MINEM) ó Energy Efficiency General Directorate

##### b) Status of organization

The Ministry of Government.

**c) Roles and responsibilities**

The MINEM has the overall responsibility for the energy policy in Peru, while the General Directorate of Energy Efficiency is in charge of the following:

- Proposing the energy policies.
- Proposing the energy efficiency policies.
- Promoting the culture regarding the rational and efficient use of energy.
- Designing and proposing energy efficiency programs.
- Incentivizing the energy efficiency and renewable energy market.
- Other aspects indicated in DS N° 026-2010-EM.

**d) Covered sectors**

All economic sectors.

**e) Date of establishment**

2010.

**f) Number of staff members**

The General Directorate of Energy Efficiency includes 20 staff members. More government staff members carry out energy efficiency activities in regional offices and project implementation teams.

**g) Description of the Ministry of Energy**

The Ministry of Energy and Mines aims to develop and evaluate policies of economy-wide scope regarding the sustainable development of mining and energy activities. It is also the competent authority in environmental issues related to mining and energy activities. The Deputy Minister of Energy directs, monitors, reports, and proposes policies for the sustainable development of the energy sector. In addition, the Deputy Minister directs and evaluates the activities of the energy sector at the economy-wide level according to the directives given by the Minister of Energy and Mines.

**1.4.2 Implementing Institution Structure****a) Name of organization**

The Energy Efficiency Directorate.

**b) Status of organization**

See Section 1.4.1.

**c) Roles and responsibilities**

See Section 1.4.1.

**d) Covered sectors**

See Section 1.4.1.

**1.4.3 Information Dissemination, Awareness Raising, and Capacity Building****a) Information collection and dissemination**

According to the NEP, during the next 10 years, Peru will implement a standard and labeling scheme for household appliances, including water heaters, lighting, electric motors, and boilers.

**b) Awareness raising**

The Energy Efficiency Directorate is carrying out an educational campaign through media, including newspapers, television, and radio. The campaign titled, "The Power of Change is in You" (*La Energía del Cambio está en Ti*), promotes the responsible use of energy. This program is aimed toward residential consumers and school-aged children.

**c) Capacity building**

No information is available.

## 2. MEASURES FOR ENERGY EFFICIENCY IMPROVEMENTS

### 2.1. Government Laws, Decrees, and Acts

**a) Name**

Promotion Law of Efficient Use of Energy (Law No. 27345) (released on September 8, 2000)

**b) Purpose**

National involvement in energy efficiency promotion in order to guarantee energy supply, protect the final consumer, encourage the competitiveness of the economy, and mitigate negative environmental impacts from energy consumption.

**c) Applicable sectors**

All economic sectors.

**d) Outline**

Law No. 27345 gave power to the Ministry of Energy and Mines and made it responsible for the following energy efficiency issues in Peru:

- Promote the establishment of a culture that focuses on the efficient use of energy resources in order to enhance the sustainable development of the economy and find equilibrium between environment conservation and social and economic development.
- Promote the creation of Energy Service Companies (ESCOs).
- Coordinate with the rest of the sector and public and private entities to develop energy efficiency policies.
- Other applicable aspects.

According to Law No. 27345, all equipment sold in Peru must include energy consumption information (promotion of eco-labeling), under the responsibility of producers and importers.

Currently, the General Directorate of Energy Efficiency is responsible for Energy Efficiency and all matters indicated in Law No. 27345.

**e) Financial resources and budget allocation**

Law No. 27345 does indicate budgetary allocations.

**f) Expected results**

Utilization of energy efficiency to contribute to energy security, improve competitiveness, mitigate environmental impacts, protect the energy consumer, and raise people's awareness on this subject.

### 2.2. Regulatory Measures

#### 2.2.1. Energy Efficiency – Regulatory Measures.

**a) Name**

Regulatory Measures of Law No. 27345, Law for the Promotion of the Efficient Use of Energy – Supreme Decree No. 053-2007

**b) Purpose**

To promote energy efficiency, secure the energy supply over the long term, improve international competitiveness in all sectors, mitigate the environmental impact from energy production and demand, protect energy users, and raise awareness regarding the efficient use of energy.

**c) Applicable sectors**

The measures are applicable to the production, transport, transformation, distribution, trading, and consumption of energy. It also involves the economic sectors.

**d) Outline**

In order to develop a culture that efficiently uses energy, the MINEM will organize activities to promote awareness of such use, in coordination with public and private institutions. These actions are aimed at all educational levels, including teachers.

The MINEM organizes activities to create awareness of energy efficiency in the different segments of students and populations in various regions. For instance, October 21 has been designated "National Saving Energy Day." The MINEM also coordinates with Peruvian universities about the development of undergraduate and postgraduate courses related to energy efficiency and the development of programs about scientific and technological research applied to energy efficiency.

Energy efficiency must be applied in four main sectors:

- Residential sector: Improve efficient consumption and equipment use, release publicity, organize informative and demonstrative campaigns related to energy efficiency, conduct surveys, and utilize other methods of obtaining information.
- Productive sector: Promote the creation of an energy efficiency market, form ESCOs, elaborate energy efficiency indicators, and establish energy efficiency limits through productive activities in order to avoid obsolete technology.
- Public Sector: Approve the criteria to develop energy audits in public entities with bills over 4 UIT (tributary unit), focus on regions where there is natural gas for vehicles, suggest that public vehicles have to shift its fuel from gasoline to natural gas, and develop energy indicators in the sector to evaluate the best practices of energy efficiency.
- Transport Sector: Provide incentives for the best practices and programs that promote energy-efficient use in vehicles; promote training in driving habits, engines, and fuel use for taxi drivers, public transport drivers, and truck drivers; and improve traffic management.

The MINEM will implement these actions in coordination with regional governments.

**e) Financial resources and budget allocation**

According to Law No. 27345, the Ministry of Energy and Mines will coordinate funding with participating domestic and international entities in the development of energy efficiency projects. Furthermore, the law allows the MINEM to gather donations and international cooperation on energy efficiency and renewable energy issues.

**f) Expected results**

Energy efficiency culture improvement.

**2.2.2. Promotion with Renewable Electricity Production****a) Name**

Promotion of Electricity Generation with Renewable Energy through Legislative Decree No. 1002

**b) Purpose**

To promote energy renewable resources that can generate electricity.

**c) Applicable sectors**

All energy sectors.

**d) Outline**

Declare, as a security interest, the participation of renewable energy in the electricity generation matrix. Every five years, the MINEM establishes the share (percentage) for the electricity generated from renewable resources, with this percentage being fixed at 5% for the first five years. Renewable resources to be considered include biomass, wind, solar, geothermal, and tidal energy. As for hydro energy, it is only considered for power plants whose capacity is equal or less than 20 MW. Electricity from renewable energy has priority in the daily electric dispatch planned by the COES (responsible for the operations of the electricity system), and its variable cost is considered to be zero.

**e) Financial resources and budget allocation**

In order to sell (total or partial) electricity production, owners have to offer the energy in the short-term market at its price, plus a premium (in case the marginal cost is less than the tariff determined by OSINERGMIN, the regulatory body of the system). The tariff and premiums are determined in a way that guarantees the profitability established in the Concessions Law (Law No. 25844).

**f) Expected results**

The National Council of Science and Technology (CONCYTEC), in coordination with the MINEM and the regional governments, encourage research projects in order to increase the share of renewable energy in the energy matrix.

### 2.2.3. Minimum Energy Performance Standards and Labeling

The Law for the Promotion of the Efficient Use of Energy (Law No. 27345 in the year 2000) requires energy efficiency labeling for all energy-consuming equipment and appliances. The MINEM aims to develop and implement energy efficiency standards and labeling for a wider range of end-use appliances, and to develop and implement a comprehensive market transformation strategy, based on mandatory energy efficiency labeling, minimum energy performance standards (MEPS), and the development of testing infrastructure, procedures, and consumer awareness. There is a project (supported by the United Nations Development Program (UNDP) and the Global Environment Facility (GEF)) that provides assistance in developing and implementing all measures that are necessary to overcome the institutional, technical, and awareness-related barriers that prevent the implementation of this strategy. In particular, we have the following:

- 1) Increase the awareness and strengthen the technical and managerial capacities of the government and other key public and private agents.
- 2) Carry out a market study in order to establish a comprehensive and detailed database of energy end-uses and end-use technologies.
- 3) Develop a market transformation strategy for the introduction and dissemination of energy efficiency standards and labeling.
- 4) Design and implement market transformation instruments (additional technical and energy efficiency labeling standards and MEPS).
- 5) Foster the development of the required infrastructure and procedures for product testing and certification, especially test laboratories.

- 6) Develop and implement a legal and regulatory framework, especially government regulations for mandatory energy efficiency labeling and MEPS.
- 7) Develop a consumer communication strategy, including awareness campaigns, incentives to consumers, and training of equipment sales personnel.
- 8) Develop and implement an appropriate monitoring and evaluation system.

Furthermore, the establishment of the Regional Energy Efficiency Standards and Labeling Committee and the Regional Energy Efficiency Standards and Labeling Information System will foster exchanges of experiences and coordinate economy-wide programs with other economies in the region.

### 2.2.4. Energy Efficiency Labeling

#### a) Name

Guideline for Labeling

#### b) Level

Central.

#### c) Purpose

To gather information on the energy efficiency of households and their minimum performance standards, with the goal of promoting energy-efficient consumption.

#### d) Applicable sectors

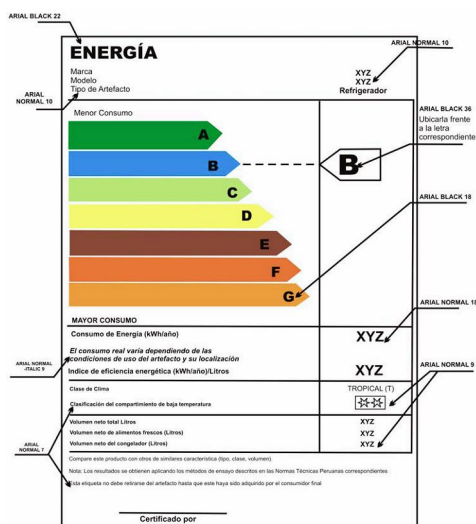
Appliances.

#### e) Outline

It is a voluntary measure that came into effect in January 2009.

The development of test procedures and energy efficiency labeling standards in Peru began in 1996 by the Technical Committee of Standardization for Rational and Efficient Use of Energy (CTNUREEE) and its respective subcommittees as well as the participation of relevant public and private agents. To date, energy efficiency test procedures have been developed for refrigerators and freezers, lighting equipment (lamps and ballasts), electric motors, electric water heaters, industrial boilers, and solar thermal and photovoltaic systems. Energy efficiency labeling standards are in place for refrigerators and freezers, household lamps, and electric motors, in addition to MEPS for compact fluorescent lamps (CFLs).

Figure 6. Energy efficiency label for appliances



### 2.2.5. Energy Saving in the Public Sector

**a) Name**

Supreme Decree on Energy Savings in Public Sector; D.S. No. 034-2008-EM.

**b) Level**

Central government.

**c) Purpose**

To encourage the public sector to reduce its energy demand through energy efficiency campaigns, and promote the use of more efficient equipment.

**d) Applicable sectors**

Public sector.

**e) Outline**

A mandatory measure that was published in June 2008. However, it is under review since it includes technology that is becoming obsolete.

**f) Financial resources and budget allocation**

Funding from the Ministry of Energy and Mines.

**g) Expected results**

Implemented with public entities, while a new supreme decree is being issued. This activity is implemented since it is part of the Law on Promotion of Energy Efficiency and its Regulations (legal dispositions approved in 2007).

### 2.2.6. Technical Standards on Energy Efficiency

**a) Name**

Technical Standards on Energy Efficiency (Essays, Limits, and Labels)

**b) Level**

Central.

**c) Purpose**

To provide minimum energy efficiency standards (especially norms, limits, and labels) for lighting, water heaters, heater boilers, motors, solar energy, etc.

**d) Applicable sectors**

All economic sectors.

**e) Outline**

There are 59 voluntary norms (standards), all of which have been approved and published from 2000 to the present.

**f) Financial resources and budget allocation**

Funding from the Ministry of Energy and Mines and the National Institute of Quality.

**g) Expected results**

Increased knowledge of those interested who can apply the information for different purposes.

## 2.3. Financial Measures Taken by the Government



### 2.3.1. Tax Scheme

No information is available.

### 2.3.2. Low-Interest Loans

The Financial Corporation for Development (COFIDE) has a Bio-business Program with capital funded from the German Kreditanstalt für Wiederaufbau (KfW) institution. This program aims to foster energy efficiency and renewable energy projects by giving low-interest loans to project promoters and developers. The loans will be given through Peruvian commercial banks and all sectors are included.

### 2.3.3. Subsidies and Budgetary Measures

No information is available.

### 2.3.4. Other Incentives

No Information is available.

## 2.4. Energy Pricing

Pricing is based on marginal costs in the electricity market.

## 2.5. Other Efforts for Energy Efficiency Improvements

### 2.5.1 Cooperation with Non-Government Organizations

In July 2014, the Mining Council and Codelco signed energy efficiency agreements with the Ministry of Energy on measures toward continuous and systematic advancements in energy efficiency. The mining industry will subject itself to independent energy audits that will identify opportunities for greater energy efficiency related to operational and maintenance improvements as well as equipment replacement and instruction of new technologies. Based on the results of these audits, energy efficiency plans will be prepared and implemented in the short, medium and long term, and the progress will be publically reported.

### 2.5.2 Cooperation through Bilateral, Regional, and Multilateral Schemes

Peru undertakes cooperation through bilateral schemes with various international organizations, including the following:

- Japan International Cooperation Agency (JICA)
- German Technical Cooperation (GTZ)
- United Nations Development Program (UNDP)
- Inter-American Development Bank (IADB)
- The Global Environment Facility (GEF) Trust Fund of the UNDP.
- United States Agency for International Development (USAID)

### 2.5.3 Other Cooperation/Efforts for Energy Efficiency Improvements

The Ministry of Housing has elaborated the Standard for Bioclimatic Building with Energy Efficiency. The MINEM and other relevant stakeholders also participated in this effort. The aim of the new standard is to increase comfort, save energy, and mitigate greenhouse gas emissions by designing buildings according to local climate and using local construction materials. The Peruvian Bioclimatic Map foresees nine bioclimatic regions.

## 3. PROJECTS UNDER EXECUTION

### 3.1. Norms Project and Energy Efficiency Labeling

The Regulations and Energy Efficiency Labeling project was initiated in 2013 with UNDP/GEF cooperation in order to make mandatory the use of energy labels on household appliances and other energy-consuming equipment. This project aims to provide consumer information regarding the energy consumption of appliances or equipment, along with ways



to reduce energy consumption in the economy, contribute to energy security, improve coverage in energy supply, and reduce emissions of greenhouse gases.

To date, nine drafts of technical rules have been pre-published and are awaiting approval. At the same time, a series of actions have been conducted to enable their implementation.

### 3.2. Lighting Market Transformation Project

The Lighting Market Transformation in Peru project was also introduced in 2013 with UNEP/GEF cooperation in order to accelerate the transformation of the lighting market in the economy through enhanced promotion and implementation of energy saving lamps (ESLs) and the phasing-out of incandescent lamp (ILs) imports and sales, thus reducing greenhouse gases emissions. It includes the following outcomes:

- 1) Reduced the peak demand of up to 484 MW in the best-case-scenario, which saved up to USD 600 million in investments toward new power plants.
- 2) Enhanced the sales of energy-saving lamps by 3.5 million for CFLs and 1.2 million for linear fluorescents. The use of energy-saving bulbs and LED lamps has resulted in the reduction of 282.8 ktCO<sub>2</sub>.

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