

INDONESIA

1. GOALS FOR EFFICIENCY IMPROVEMENT

1.1. Overall Energy Efficiency Improvement Goals

- The National Energy Conservation Master Plan (2005)—RIKEN (Rencana Induk Konservasi Energi Nasional) states that Indonesia's goal is to decrease energy intensity by around 1% per year on average until 2025.
- The National Energy Management Blueprint—PEN (2006)¹ explains that the goal of RIKEN is to realise Indonesia's energy saving potential through energy efficiency and conservation (EE&C) measures, and thus avoid wasteful energy use in Indonesia. Energy use is projected to increase rapidly under a base case to 41% of total primary energy supply (TPES) in 2025, without RIKEN.
- The National Energy Policy (2006)² states that Indonesia's goal is to achieve energy elasticity of less than 1 in 2025. Note: energy elasticity is defined, in this case, as the rate of change of total primary energy supply, over the rate of change of GDP.

1.2. Sectoral Energy Efficiency Improvement Goals

RIKEN identified sectoral energy saving potential as follows:

- Industry sector (for select industries)—15% to 30%
- Commercial building sector—electricity savings of 25%
- Residential sector—10% to 30%.

1.3. Action Plans for Promoting Energy Efficiency

a) Objectives

The principle objective of Indonesia's energy conservation program is 'to conserve natural energy resources and increase resilience in energy supply to support sustainable development'.³

b) Applicable sectors

Industry, commercial buildings and households, as well as buildings and vehicles of government departments and agencies, regional governments, and state-owned enterprises (SOE)

c) Outline

Energy programs:

- *Mandatory energy conservation of government office buildings*: Government departments and agencies and regional governments are mandated to implement best-practice energy saving measures as explained in the government's guidelines and directives on energy saving in government buildings, and are mandated to report their monthly energy use in buildings to the National Team on Energy and Water Efficiency every six-months.⁴
- *State-owned energy service company (ESCO)*: The state-owned ESCO (established in 1986) is expected to take a leading role in providing energy conservation related services, particularly to industry. The government expects its ESCO to maintain

¹ Ministry of Energy and Mineral Resources (2005), Blueprint Pengelolaan Energi Nasional (PEN) 2006-2025, in accordance with Presidential Regulation No. 5/2006 regarding National Energy Policy.

² Presidential Regulation No.5/2006 regarding National Energy Policy.

³ Chapter 2, Article 2 – Presidential Decree (KEPRES) No. 43/1991 regarding Energy Conservation.

⁴ Presidential Decree No. 2/2008 on Energy and Water Efficiency.

forefront expertise in the field of energy efficiency and conservation in Indonesia, and to encourage a greater role for private-sector ESCOs in the future.⁵

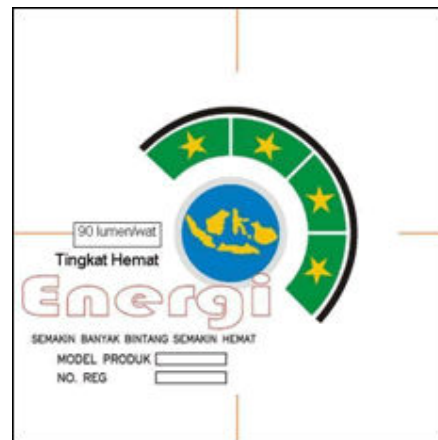
- *Public—Private Partnership Program on Energy Conservation*: The Partnership Program on Energy Conservation is a government-funded energy audit program that is available to industries and commercial buildings. Participating industries and commercial buildings are required to implement the recommended energy saving measures identified in the energy audit.
- The *Energy Conservation Clearinghouse* was created for the purpose of data and information exchange on energy efficiency and conservation, particularly for the industry sector and commercial buildings.
- *Energy benchmark and best practice guide* for specific industrial energy use, and energy use in commercial buildings.
- *Energy Labelling*

Indonesia's energy labelling program began in 1999. A dual energy rating system was considered for electrical appliances, initially for refrigerators. The energy labelling system design shows: (1) information about the kWh per year energy consumption of a product and its relative position on a line from the lowest to highest case of kWh per year of similar products in the market (Indonesia), and (2) an energy consumption star rating—of four stars—that shows the product's energy efficiency rank, relative to similar products in the market (Indonesia) at the time of assessment.⁶



This energy labelling system was discontinued, however, to be replaced by a new energy labelling system and design.

A new energy labelling system is currently being developed. The design will provide information on: (1) the absolute energy efficiency or performance of a product; and (2) an energy efficiency star rating of four stars. The star rating is to be assigned by an independent and accredited test facility that tested the product. The new energy label design is shown (right). It shows an example for the case of an energy label for compact fluorescent lamps—CFLs; the energy label provides information on the lumens produced per watt.



- *BRESL*: To remove barriers in implementing energy standards and labelling (ES&L), Indonesia is currently participating in a UNDP-GEF project: Barrier removal to the cost effective development and implementation of energy efficiency standards and labelling project—BRESL. The program involves six developing economies of Asia. BRESL has five major programs in promoting ES&L. The programs are: (1) policy making, (2) capacity building, (3) manufacture support, (4) regional cooperation, and

⁵DJLPE (2009).

⁶CLASP (2008).

(5) pilot projects.⁷

- *Energy efficient lighting program in the residential sector*: The lighting program in the residential sector is primarily demand-side management (DSM), in addition to energy savings. There are two lighting programs. They are: (1) the Caring Program (Program Perduli)—a program of the state owned electricity company—PLN and (2) Brightness Program (Program Terang)—a government program. The programs provide subsidised, and in certain cases, free CFLs to eligible households.
- *Energy Awards*: Indonesia is an active participant in the ASEAN Energy Award program, specifically the Best Practice Competition for Energy Efficient Buildings and Best Practice Competition for Energy Management in Buildings and Industries. Indonesia has won several awards in these programs.

d) Financial resources and budget allocation

An annual government budget is allocated for energy conservation programs and R&D. The government budget for the Energy Conservation Partnership Program—energy audit was USD 400 000 in FY2009.

e) Method for monitoring and measuring effects of action plans

Energy consumption data is obtained on a regular basis by the Central Statistical Agency—BPS. Moreover, the government has specific programs for data collecting. Data on energy intensity is collected through programs such as the partnership program organised by the Directorate General of Electricity and Energy Utilization. As at 2009, around 292 industries and commercial buildings had been audited in the program. Data on energy use in buildings of government departments and agencies and regional governments is obtained regularly. Voluntary reporting within the activities of the Energy Conservation Clearinghouse provides further information and data on the effect of measures.

f) Expected results

Indonesia's energy conservation program expects to realise the potential energy savings identified in RIKEN, which was based on energy efficiency studies and energy audits.

g) Future tasks

On 16 November 2009, the government issued Governmental Regulation No. 70/2009 regarding Energy Conservation. It is the implementing legislation on energy conservation with regard to the Energy Law. The Governmental Regulation No. 70/2009 calls for:

- Drafting and adoption of a new National Energy Conservation Master Plan—RIKEN (Rencana Induk Konservasi Energi Nasional), which is to be updated every five years, or annually, as required
- Mandatory assignment of an energy manager, to implement energy auditing, and energy conservation program for users of final energy of more than 6000 tonnes of oil equivalent
- Voluntary energy efficiency standards and energy labelling
- Implementing government incentives, which includes tax exemption and fiscal incentives on imports of energy saving equipment and appliances, and special low interest rates on investments in energy conservation
- Implement government disincentives for non-compliance parties that include written notices to comply, public announcements of non-compliance, monetary fines, and reductions of energy supply.

⁷Han Wei, UNDP-GEF (2009).

1.4. Institutional Structure

Under the Energy Law, energy policies are formulated by the National Energy Council—DEN (Dewan Energy Nasional), established in 2008. DEN consists of stakeholders of energy that includes seven ministers and high-rank government officials, and eight stakeholder members from industry, academia, technology experts, representative of environmental concerns, and consumers.

Presidential Decree No. 43/1991 mandates relevant government departments and agencies to coordinate in issuing government rulings and to develop programs within their respective jurisdictions and regulatory roles⁸. Ministerial coordination is relevant in the implementation of incentives and disincentives for energy conservation.

The Ministry of Energy and Mineral Resources is responsible for implementing energy efficiency and conservation programs. The regional governments are responsible for implementing energy efficiency/conservation programs within their jurisdiction in the regions.

a) Name of organisation

Ministry of Energy and Mineral Resources (MEMR), Directorate General of Electricity and Energy Utilization (DGEEU), Directorate of New Renewable Energy and Energy Conservation, and the Sub-Directorate of Energy Conservation

The following refers to the Sub-Directorate of Energy Conservation:

b) Status of organisation

Government

c) Role and responsibility

To develop energy conservation programs and to implement energy conservation

d) Covered sectors

Industry, transport, commercial sector, and the residential sector

e) Established dates

The Directorate General of Electricity and Energy Utilization, formerly the Directorate General of Power, and its Sub-Directorates, was established in 1978

f) Number of staff

The Sub-Directorate of Energy Conservation has about 12 permanent government officials and administrative staff members

1.5. Information Dissemination, Awareness-raising and Capacity-building

a) Information collection and dissemination

The Clearing House of Energy Conservation (CHEC) is the centre for data and information related to energy efficiency and conservation activities. However the operation of the CHEC is still inadequate because of limited capacity. The Government of Indonesia, assisted by Danida, are cooperating with the CHEC.

b) Awareness-raising

The 'National Energy Efficiency Movement' implemented by the Ministry of Energy and Mineral Resources promotes energy conservation awareness through seminars and workshops, talk shows, public advertisements, brochures and leaflets; it is directed to households, specific industries and transport. The state-owned electricity company PLN

⁸ Presidential Decree (KEPRES) No. 43/1991 on Energy Conservation.

promotes energy conservation in electricity use. Other institutions that promote awareness include the Agency for the Assessment and Application of Technology (BPPT).

c) Capacity-building

Formal training of energy managers and the accreditation of energy managers is being developed. Training is given to government officials responsible for mandatory energy savings and reporting of energy use in government office buildings. Voluntary capacity building on energy efficiency in industry and commercial buildings is being implemented. The Centre of Education and Training on Electricity and Renewable Energy within the Ministry of Energy and Mineral Resources actively organises training related to energy efficiency and conservation activities. The centre is also responsible for training energy managers and energy auditors.

1.6. Research and Development in Energy Efficiency and Conservation

The Agency for Assessment and Application of Technology (BPPT) had developed an energy audit mobile unit, for energy auditing and assessment of energy efficiency in industrial energy use and energy use in commercial buildings. The Centre of Education and Training on Electricity and Renewable Energy conducts testing of compact fluorescent lamps.

2. MEASURES FOR ENERGY EFFICIENCY IMPROVEMENTS

2.1. Government Laws, Decrees, Acts

a) Name

Republic of Indonesia, Law No. 30/2007 regarding Energy (The Energy Law)

b) Purpose

The Energy Law is the legally binding legislation on energy, including energy conservation.

c) Applicable sectors

All sectors of the economy, government departments and agencies, and regional governments

d) Outline

The Energy Law outlines the economy's philosophy on the management of energy resources, the environment and energy, energy conservation, energy pricing, international cooperation, institutional aspects with regard to formulation of energy policy, business in energy, and rights and responsibilities.

e) Financial resources and budget allocation

Sourced from the Government budget

f) Expected results

Under Energy Law No. 30/2007, Indonesia will draft a new National Energy Policy and a new National Energy Conservation Master Plan (RIKEN) and implement measures under Governmental Regulation No. 70/2009 regarding Energy Conservation.

2.2. Regulatory Measures

On 16 November 2009, the government issued Governmental Regulation (*Peraturan Pemerintah*) No. 70/2009 on Energy Conservation, as called for by the Energy Law.

Regulatory measures addressed included:

- the formulation of a National Energy Conservation Master Plan (RIKEN, *Rencana Induk Konservasi Energi Nasional*), which is to be updated every five years, or annually, as required

- the mandatory assignment of an energy manager, energy auditing, and the implementation of an energy conservation program for users of final energy of 6000 toe (tonnes of oil equivalent) or more
- mandatory energy-efficiency standards and energy labelling
- the implementation of government incentives, including tax exemptions and fiscal incentives for imports of energy-saving equipment and appliances, and special low interest rates for investments in energy conservation
- the implementation of government disincentives, including written notices to comply, public announcements of noncompliance, monetary fines, and reductions in energy supply for noncompliance.

At the time of writing, the government was drafting specific rulings and regulatory frameworks to implement Governmental Regulation No. 70/2009 regarding Energy Conservation in Indonesia.

Regulations on energy conservation that were issued prior to the Energy Law that may still apply or provisionally apply include:

- Presidential Instruction No. 9/1982 on Energy Conservation (in government departments and agencies, and state owned enterprise office buildings and official vehicles).
- Presidential Decree No. 43/1991 on Energy Conservation.
This Presidential Decree calls for inter-ministerial coordination on policies and programs on energy conservation that includes, policy on investment, funding of energy conservation programs and pricing of energy in relation to achieving energy conservation goals. The contents of this regulation appear in Government Regulation No. 70/2009.
- Ministerial Decree No. 100.k/48/M.PE/1995 National Energy Conservation Master Plan (RIKEN) and revision in 2005. RIKEN was revised in 2005. RIKEN is an economy-wide plan on energy conservation.
- Ministerial Decree No. 0002/2004 regarding Development Policy on Renewable Energy and Energy Conservation - *The Green Energy Policy*. The Green Energy Policy is an economy-wide policy.
 - Presidential Instruction No. 10/2005 regarding Energy Saving (for government and regional government office buildings).
 - Ministerial Regulation No. 0031/2005 regarding Process of Energy Saving, which is the guidelines of implementation of Presidential Instruction No. 10/2005.
- Presidential Regulation No. 5/2006 regarding National Energy Policy.
- Blueprint National Energy Management 2008 – (Blueprint Pengelolaan Energi Nasional – Blueprint PEN) revises the National Energy Policy of Presidential Regulation No. 5/2006. Blueprint PEN elaborates on the energy policy, including on energy conservation.
- Presidential Instruction No. 2/2008 regarding Conservation of Energy and Water as revised version of Presidential Decree No. 10/2005 on Energy Efficiency. Under the Instruction, government agencies should report energy and water use twice a year.

2.2.1. Minimum Energy Performance Standards and Labelling

a) Name

Indonesia has some minimum energy performance standards (MEPS) for electrical appliances based on the Standar Nasional Indonesia (SNI) and other technical standards on energy performance testing standards (EPTS) for electrical appliances.

b) Purpose

To specify the general requirements for energy labelling and to improve energy efficiency and conservation

c) Applicable sectors

Appliances, lighting and equipment

Table 1: MEPS and EPTS

	Product	EPTS
1.	Ballast (magnetic)	SNI IEC 60929-2009
2.	Fluorescent lamps	SNI IEC 60901-2009
3.	Incandescent lamps	SNI IEC 60432-1-2009
4.	Room air conditioners—split type	ISO 5151
5.	Room air conditioners—window	ISO 5151
6.	Household refrigerators	SNI IEC 15502-2009
7.	Clothes washers	SNI IEC 60456-2009
8.	Electric irons	SNI IEC 60311-2009
9.	Vacuum cleaner	SNI IEC 60312-2009

d) Outline

SNI is drafted and registered under the strict system and guidelines of the National Standardization Agency (Badan Standardisasi Nasional—BSN). Additional energy standards on electrical appliances are being developed.

2.2.2. Building Energy Codes

Government Regulation No. 36/2005 explains that under Law No. 28/2002 on Buildings all buildings must comply with existing standards. Indonesia has four energy standards (SNI) for buildings, the standards cover: (1) the building envelope, (2) air conditioning, (3) lighting, and (4) building energy auditing. Energy building standards have yet to be mandated. However, voluntarily energy conservation and efficiency measures in commercial buildings are widely implemented.

a) Name

SNI for buildings

b) Purpose

To improve energy efficiency performance of existing and new buildings and structures

c) Applicable sectors

Residential and commercial

d) Outline

The standards outline:

- *building envelope*: design criteria, design procedures, energy conservation
- *air conditioning systems*: technical calculation, selection, measurement and assessment, energy conservation
- *lighting systems*: lighting guidelines for optimal and efficient operation
- *energy audit procedure*: energy audit procedures for offices, hotels, shopping centres, hospitals, apartments and residences.

The standards also provide recommendations that take into account productivity, comfort and cost.

Table 2: SNI for Buildings

1.	SNI 03-6389-2000	Energy conservation for building envelope of building structures (<i>Konservasi energy selubung bangunan pada bangunan gedung</i>)
2.	SNI 03-6390-2000	Energy conservation for air conditioning systems in building structures (<i>Konservasi energy system tata udara pada bangunan gedung</i>)
3.	SNI 03-6197-2000	Energy conservation for lighting systems in building structures (<i>Konservasi energy system pencahayaan pada bangunan gedung</i>)
4.	SNI 03-6196-2000	Energy auditing procedure for building structures (<i>Prosedur audit energy pada bangunan gedung</i>)

e) Financial resources and budget allocation

Funding from the Government budget and international donor agencies

f) Expected results

The construction of more efficient buildings and improved efficiency of existing buildings (through retrofit)

2.2.3. Fuel Efficiency Standards

Indonesia currently does not have minimum fuel efficiency standards; however, fuel efficiency standards are expected to be implemented in the near future, as they were confirmed at COP-15 in December 2009.

Current emissions standards are equivalent to Euro II, implemented in 2006. Indonesia expects to advance to Euro IV-equivalent emission standards by 2012. The state-owned oil company Pertamina is working on plans to upgrade their refineries to produce Euro IV compliant gasoline. The refinery upgrading projects are expected to be completed during 2014-16.

2.3. Voluntary Measures

Voluntary energy savings and conservation measures are being implemented by industry and commercial buildings that involve commercial financing. This implementation had involved energy intensive industries such as the fertiliser, cement, pulp and paper and steel industries. Commercial buildings have implemented various EE&C measures including installation of automated building energy management.

2.4. Financial Measures Taken by the Government**2.4.1. Tax Scheme**

The government currently does not have a tax scheme, such as tax deductions, in relation to investments in energy efficiency and conservation.

2.4.2. Low-Interest Loans

The government currently does not have low-interest loans for investments in energy efficiency and conservation measures, devices and equipment to reduce and conserve energy use.

2.4.3. Subsidies and Budgetary Measures

Government subsidies and budgetary measures are provided for energy conservation programs such as the (1) partnership program on energy conservation in energy auditing, (2) the lighting program—for eligible households in relation to demand-side management (DSM) programs and saving energy, (3) BRESL, and (4) other programs such as for information dissemination.

2.4.4. Other Incentives

In accordance with the action plan (Governmental Regulation No. 70/2009), the government is expected to introduce government incentives that include tax exemption and fiscal incentives on imports of energy saving equipment and appliances, and special low interest rates on investments in energy conservation in the near future.

2.5. Energy Pricing

The government seeks to gradually remove energy subsidies. However, substantial government subsidies continue to be applied with regard to: lower octane gasoline (RON 88 octane), which is the gasoline grade most consumed in Indonesia; diesel fuel for transport; kerosene for households, as the government is expanding the kerosene-to-LPG conversion program in households; and subsidies to certain classes of electricity of low capacity supply contracts in households and small businesses, this group constitute a large share of electricity demand. Direct government subsidies on fuels could total more than USD 6 billion, in 2010.

2.6. Other Efforts for Energy Efficiency Improvements

2.6.1. Cooperation with Non-Government Organisations

Non-government organisations (NGOs) are actively involved in the development of energy efficiency actions that could be considered as contributing to the general conservation of fossil energy use.

2.6.2. Cooperation through Bilateral, Regional and Multilateral Schemes

Examples of notable ongoing cooperation in energy efficiency and conservation are: (1) Indonesia-JICA (Japan): Study on Energy Conservation and Efficiency Improvement in the Republic of Indonesia; (2) Indonesia—Denmark: Energy Efficiency in Industrial, Commercial, and Public Sector (EINCOPS); (3) Indonesia—UNDP/GEF: Barrier Removal to the Cost-Effective Development and Implementation of Energy Efficiency Standards and Labelling (BRESL); (4) Indonesia—the Netherlands: Energy Efficiency Improvement in Industry; (5) Indonesia—ASEAN: Promotion of Energy Efficiency and Conservation; (6) Indonesia-UNIDO: Promoting Energy Efficiency in the Industries through System Optimization and Energy Management Standard.

2.6.3. Other Cooperation/Efforts for Energy Efficiency Improvements

Indonesia is considering hosting the APEC—Energy Working Group (EWG) Peer Review on Energy Efficiency.

REFERENCES

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