INDONESIA

1. GOALS FOR EFFICIENCY IMPROVEMENT

1.1. Overall Energy Efficiency Improvement Goals

- The National Energy Conservation Master Plan (2005)ð (*Rencana Induk Konservasi Energi Nasional,* or RIKEN*)* states that Indonesiaôs goal is to decrease energy intensity by an average of 1% per year to 2025.
- The National Energy Management Blueprint (2006)ð (*Blueprint Pengelolaan Energi Nasional*, or PEN)[1] states Indonesiaôs goal of achieving 41% reduction of total primary energy supply (TPES) in 2025 against TPES forecast in the business as usual case, though measures of RIKEN in energy efficiency and conservation (EE&C).
- The National Energy Policy (2006)[2] states that Indonesiaôs 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 energy saving potential in the sectors, as follows:

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

1.3. Action Plans for Promoting Energy Efficiency

a) Objectives

The objective of Indonesiaôs energy conservation program is ñto conserve natural energy resources and increase energy supply resilience to support sustainable developmentò.[3]

b) Applicable sectors

Industry, commercial building, households, and vehicles; beginning with those buildings and vehicles of government departments and agencies, provincial governments, and state-owned enterprises.

c) Outline

Energy programs:

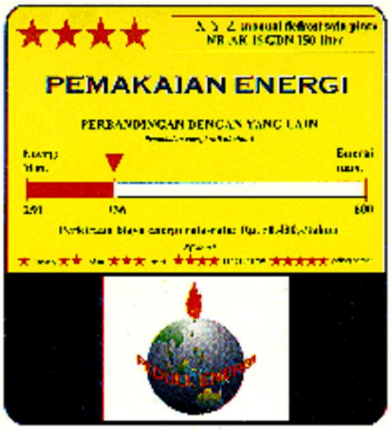
- *Mandatory energy conservation of government office buildings*: Government departments and agencies and regional governments are mandated to implement best-practice energy saving measures as explained in the governmentôs guidelines and directives on energy saving in government buildings, and are required 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 forefront expertise in the field of energy efficiency and conservation in Indonesia, and

[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 ï Presidential Decree (KEPRES) No. 43/1991 regarding Energy Conservation.
[4] Presidential Decree No. 2/2008 on Energy and Water Efficiency.

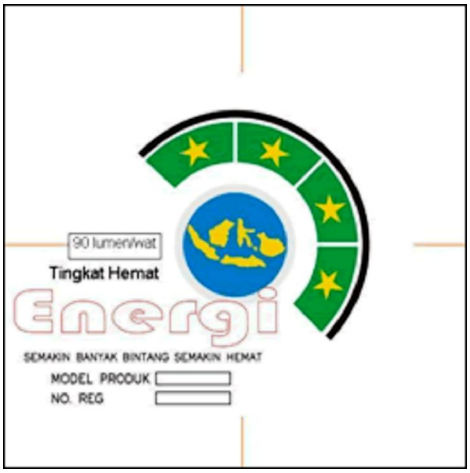
to encourage a greater role for private-sector ESCOs in the future.[5]

- *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*

  Indonesiaôs 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 consumption of similar products in the market (Indonesia), and (2) an energy consumption star ratingô of four starsô that shows the productôs 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 lampsô 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 projectô 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 (5) pilot projects.[7]

[5]DJLPE (2009).
[6]CLASP (2008).
[7]Han Wei, UNDP-GEF (2009).

- *Energy efficient lighting program in the residential sector*: The lighting program in the residential sector is primarily a demand-side management (DSM) programme, in addition to energy savings. There are two lighting programs. They are: (1) the Caring Program (*Program Perduli*)ð a program of the state owned electricity companyð PLN and (2) Brightness Program (*Program Terang*)ð 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 Programð energy audit was 4 billion IDR in FY2009, 20 billion IDR each of FY2010 and FY2011.

e) Method for monitoring and measuring effects of action plans

Energy consumption data is obtained on a regular basis by the Central Statistical Agencyð (*Badan Pusat Statistik*, or BPS). Specific data are collected through various government programmes on EE&C. The Partnership Program of (the former) Directorate General of Electricity and Energy Utilization provides data on energy intensity and energy saving potential in industry and commercial buildings. As of 2009, 292 industries and commercial buildings had been audited by 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 effects of measures.

f) Expected results

Indonesiaôs energy conservation program expects to realise the goal of energy savings identified in RIKEN, which are based on studies on energy saving potential and energy audits.

g) Future tasks

Continuing the energy conservation program such as: implementation and completion of energy conservation policy, conduct activities related to public awareness, training, energy conservation partnership program, preparing the certification of energy managers and energy auditors and enhance international cooperation.

Institutional Structure

Under the Energy Law, energy policies are formulated by the National Energy Council (*Dewan Energy Nasional,* or DEN), established in 2008. DEN consists of stakeholders of energy that includes seven ministers and high-ranking 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 ministries and agencies to issue coordinated government rulings and programs within their respective jurisdictions and regulatory roles, to promote and encourage energy conservation[8]. This Decree is directed to establish cross-sector regulations to provide incentives and disincentives to conserve energy.

The Ministry of Energy and Mineral Resources is the focal-point of national energy conservation and energy efficiency programs. The regional governments are responsible for

[8] Presidential Decree (KEPRES) No. 43/1991 regarding Energy Conservation

implementing energy efficiency and conservation programs within their jurisdiction in the regions.

a) Name of organisation

The Ministry of Energy and Mineral Resources (MEMR), Directorate General of New Renewable Energy and Energy Conservation, Directorate of Energy Conservation

b) Status of organisation

Government

c) Role and responsibility

Formulation of energy conservation policies; implementation of energy conservation policies; establish norms, standards, process, and criteria regarding energy conservation; provide technical training and evaluation of energy conservation programmes.

d) Covered sectors

All economic sectors of industry, transport, commercial, and the residential sector

e) Established dates

August 2010.

f) Number of staff

The number of staff of the Directorate of Energy Conservation is to be established (information at time of writing, January 2011).

1.4. 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. The operation of CHEC is currently limited, its capacity as a data and information centre is being up-rated. The Government of Indonesia received bilateral assistance from the Danish International Development Agency (DANIDA) in the creation of CHEC.

b) Awareness-raising

The ôNational Energy Efficiency Movementôof 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 promotes energy conservation in electricity use. Other institutions also promote awareness, including the Agency for the Assessment and Application of Technology (BPPT).

c) Capacity-building

Indonesia is instituting mandatory training and accreditation for energy managers and energy assessors. In addition, training is given to government officials responsible for mandatory energy saving and reporting of energy use in government office buildings. The Education and Training Centre for Electricity and New Renewable Energy of the Ministry of Energy and Mineral Resources (*Pusdiklat Ketenagalistrikan dan Energi Baru Terbarukan,* or KEBT) actively organises training on energy efficiency and energy conservation, new and renewable energy technologies, and in energy planning and modelling. The centre will be responsible for training of energy managers and energy assessors.

Research and Development in Energy Efficiency and Conservation

PLN Electricity R&D Centre (PLN-LITBANG) conducts research and development related to the power industry and provides testing services for certain electric appliances, electric lighting, including compact fluorescent lamps (CFLs). The Agency for the Assessment and Application of Technology (BPPT) had developed an energy audit mobile unit, for energy auditing and assessment of energy saving potential in industrial energy use and energy use in commercial buildings.

2. MEASURES FOR ENERGY EFFICIENCY IMPROVEMENTS

2.1. Government Laws, Decrees, Acts

a) Name

Law No. 30/2007 regarding Energy (The Energy Law)

b) Purpose

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

c) Applicable sectors

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

d) Outline

The Energy Law elucidates principles regarding the utilisation of energy resources and final energy use, security of supply, energy conservation, protection of the environment with regard to energy use, pricing of energy, and international cooperation.

The Energy Law defines the outline of the National Energy Policy (*Kebijakan Energi Nasional,* or KEN); the roles and responsibilities of the government and regional governments in planning, policy and regulation; energy development priorities; energy research and development; and the role of enterprises.

Under the Energy Law, the National Energy Policy will address the sufficiency of energy to meet the economyôs needs, energy development priorities, utilisation of indigenous energy resources, and energy reserves.

e) Financial resources and budget allocation

The Government allocates budget for its energy efficiency and conservation programmes.

f) Expected results

Achieve significant energy saving levels identified in the new National Energy Policy (KEN) and in the new National Energy Conservation Master Plan (*Rencana Induk Konservasi Energi Nasional,* or RIKEN).

Regulatory Measures

On 16 November 2009, the government issued Governmental Regulation No. 70/2009 regarding Energy Conservation.

Regulatory measures include:

- the formulation of a National Energy Conservation Master Plan (RIKEN), 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.

In 2011, Indonesia issued set of implementing regulations, such as:

- Presidential Instruction No. 13 year 2011 on Energy and Water Saving
- Presidential Regulation No. 61 year 2011 on National Action Plan on GHGs Emission Reduction and Presidential Regulation No. 71 year 2011 on National GHGs Emission Inventories.
- Ministry of Energy and Mineral Resources Regulation No 6/2011 on Sign-tagging of save energy for CFL
- Director General of Renewable Energy and Energy Conservation Regulation No. 1287.K/06/DJE/2011 concerning Codes of Conduct on Swabalast Lamp.

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 ï (Blueprint Pengelolaan Energi Nasional ï 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.

- Ministerial Regulation No. 13/2010 regarding Enactment of Mandatory Competency Standard for Energy Manager in Industry.
- Ministerial Regulation No. 14/2010 regarding Enactment of Mandatory Competency Standard for Building Managers in the Field of Management.

2.1.1. Minimum Energy Performance Standards and Labelling

a) Name

Indonesia has minimum energy performance standards (MEPS) for select electrical appliances based on the Indonesia National Standard (*Standar Nasional Indonesia,* or SNI) and other technical standards on energy performance testing standards (EPTS) for electrical appliances.

b) Purpose

Purpose of these standards is to specify technical requirements with regard to energy efficiency and to safety, and for purpose of energy labelling.

c) Applicable sectors

Applicable to residential and commercial 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 conditionersð split type	ISO 5151
5.	Room air conditionersð 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 standard on electrical appliances and equipments in general are drafted and registered under the strict system and guidelines of the National Standardization Agency (*Badan Standardisasi Nasional*, or BSN). Additional energy standards on electrical appliances are being developed.

2.1.2. Building Energy Codes

By Government Regulation No. 36/2005, under Law No. 28/2002 regarding 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

The building energy codes are designed to improve building energy performance.

c) Applicable sectors

Applicable sectors: residential and commercial buildings

d) Outline

The standards outline:

- *building envelope:* design criteria, design procedures, and energy efficiency standards
- *air conditioning systems*: technical calculation, selection, measurement assessment, and energy efficiency standards
- *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/codes provide recommendations that take into account productivity, comfort and cost effectiveness.

Table 2: SNI for Buildings

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

e) Financial resources and budget allocation

The Government provides funding for the Partnership Programme, while follow-up of the programme and voluntary EE&C measures are self and commercially financed.

f) Expected results

The standards are expected initiate construction of more energy efficient buildings and improved overall energy efficiency of existing buildings (through retrofit).

2.1.3. 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 compliance, 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.

2.2. Voluntary Measures

Voluntary energy efficiency and conservation measures are being implemented by industry and commercial buildings through commercial financing. Certain energy intensive industries such as the fertiliser, cement, pulp and paper and steel industries; and certain commercial buildings have implemented EE&C measures including installation of automated energy management.

2.3. Financial Measures Taken by the Government

2.3.1. Tax Scheme

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

2.3.2. 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 energy use and conserve energy.

2.3.3. 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 programð 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.

2.3.4. Other Incentives

However, 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. The Indonesia government through the Ministry of Industry has provided funding for the industry sector in order to improve the efficiency of plants and the Ministry of Energy and Mineral Resources are proposing similar financing through the government budget to promote and accelerate energy efficiency achievement.

2.4. Energy Pricing

The government seeks to gradually remove fuel and electricity subsidies, and to bring their retail price to reflect the cost of supply.

Government subsidy for gasoline RON 88 octane and diesel oil, which are most consumed in transport sectors are expected to be reduced this year. There is remaining government subsidy in gasoline RON 88 octane, automotive diesel oil for transport, some part of kerosene for households, LPG in the government kerosene-to-LPG conversion program for households; and electricity price for small households and small businesses.

In renewable development, just recently, the Government has issued the Ministry of Energy and Mineral Resources Regulation number 4 year of 2012 concerning Renewable Energy Based as Power Plant that mandated a Feed-in Tariff on Biomass, Biogas, and Municipal Solid Waste Based Power Plants. Based on the regulation, the PT. PLN Persero as the utility is obligated to buy the electricity from biomass, biogas and municipal solid waste based power plant up to 10 MW capacity with feed-in tariffs as follows:

- If interconnected to the medium voltage the feed-in tariff:

Biomass	Rp. 975/kWh[9] x F
Biogas (non municipal solid waste)	Rp. 975/kWh x F
Municipal Solid Waste (Zero Waste Technology)	Rp. 1050/kWh

[9] Rp 975/kWh around 10.7 cent US$/kWh

Municipal Solid Waste (Landfill Gas)	Rp. 850/kWh

- If interconnected to the low voltage the feed-in tariff:

Biomass	Rp. 1325/kWh x F
Biogas (non municipal solid waste)	Rp. 1325/kWh x F
Municipal Solid Waste (Zero Waste Technology)	Rp. 1398/kWh
Municipal Solid Waste (Landfill Gas)	Rp. 1198/kWh

Which F is incentives factor for:

- Java, Bali and Sumatera region F = 1
- Kalimantan, Sulawesi, NTB and NTT region F = 1.2
- Maluku and Papua region F = 1.3

In addition, the Ministry of Finance issued Regulation No. 130 year of 2011 concerning Tax Exemption or Reduction for Renewable Development.

In the electricity development, the Government just recently also issued the Government Regulation no. 14 year of 2012 concerning Electricity Business Activities. This regulation mandated among others the business regulation of electricity business for public use and own use, business license and electricity tariff.

2.5. Other Efforts for Energy Efficiency Improvements

2.5.1. Cooperation with Non-Government Organisations

Currently, most non-government organisations (NGOs) that are working in the field of energy are involved in small scale new and renewable energy development, their programmes are nonetheless contributing to conservation of fossil energy reserves, through use of locally available energy resources.

2.5.2. Cooperation through Bilateral, Regional and Multilateral Schemes

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) Indonesiað Denmark: Energy Efficiency in Industrial, Commercial, and Public Sector (EINCOPS); (3) Indonesiað UNDP/GEF: Barrier Removal to the Cost-Effective Development and Implementation of Energy Efficiency Standards and Labelling (BRESL); (4) Indonesiað the Netherlands: Energy Efficiency Improvement in Industry; (5) Indonesiað ASEAN: Promotion of Energy Efficiency and Conservation; (6) Indonesia-UNIDO: Promoting Energy Efficiency in the Industries through System Optimization and Energy Management Standard.

2.5.3. Other Cooperation/Efforts for Energy Efficiency Improvements

Indonesia has reviewed the APECð Energy Working Group (EWG) Peer Review on Energy Efficiency in 2011.

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