

BRUNEI DARUSSALAM

1.0 GOALS FOR EFFICIENCY IMPROVEMENT

1.1. Overall Energy Efficiency Improvement Goals

As part of the Energy Efficiency and Conservation (EEC) initiatives, Brunei Darussalam has set a target to achieve 45% energy intensity reduction by 2035 (baseline 2005), which is in line with the target of Asia-Pacific Economic Cooperation (APEC) declared in Honolulu, Hawaii in 2011. In addition, at the United Nations Climate Change Summit 2014 in New York, Brunei Darussalam announced that it plans to reduce total energy consumption by 63% by 2035 with 2009 as the baseline (compared to business-as-usual (BAU)).

1.2. Sectoral Energy Efficiency Improvement Goals

In order to ensure that the target reduction of energy intensity to 45% is met, Brunei Darussalam has already established the EEC roadmap. Through rigorous implementation of energy efficiency and conservation programs, Brunei Darussalam will be able to reduce the nation's total energy consumption by up to 63%, primarily from a reduction of fossil fuel supply for inland energy use via five major sectors, namely, the power, commercial, residential, transport, and industrial sectors. Relevant government agencies, industries, and individuals are collaborating to evaluate legislative, financial, and fiscal policy measures that promote energy efficiency and low-energy intensive industries. The industries' role includes the identification of technical levers that may assist the reduction of energy usage over time, while individuals shift consumption behaviors toward energy efficiency, including making choices on high energy-efficient appliances.

1.3. Action Plans for Promoting Energy Efficiency

1.3.1

a) Name

Electricity Tariff Reform ó New Electricity Tariff Structure

b) Objective

To help low-income citizens through a minimum charge of 1% per kWh for basic electricity consumption, while simultaneously promoting energy saving and avoiding energy waste.

c) Applicable sectors

Residential.

d) Outline

The new electricity tariff carries a progressive structure as opposed to the former regressive regime. The tariff came into effect on January 1, 2012.

e) Financial resources and budget allocation

The government is switching all residential electricity meters from post-paid meters to prepaid meters so that consumers can plan their energy usage better.

f) Method for monitoring and measuring the effects of action plans

The total consumption of the residential center is monitored by the Department of Energy and Industry, Prime Minister's Office (DEIPMO), and the Department of Electrical Services on a monthly basis.

g) Expected results

New progressive tariff structure ó January 1, 2012.
Replacement of meters ó 97% completed (as of Q3 2015).

h) Future tasks

To implement electricity tariff reform (the new electricity tariff structure) to other sectors, i.e., commercial, government, and industrial sectors.

1.3.2**a) Name**

Improvement of Power Plant Efficiency

b) Objective

Improving the overall existing power generation efficiency to more than 45% by replacing a simple-cycle power plant with a more efficient combined-cycle or co-generation plant and by having a structured maintenance program in place.

c) Applicable sectors

Power sector.

d) Outline

- Maximize utilization of the combined-cycle power plant (by 2012).
- The new power station shall have power generation efficiency > 45%.
- Replacement of the existing simple-cycle power station to the combined-cycle plant (by 2015).
- Expansion of the existing co-generation plant (by 2014).
- Introducing ORegen technology.

e) Financial resources and budget allocation

Government and private sectors.

f) Method for monitoring and measuring the effects of action plans

The action plan for the power plant will be implemented by the Department of Electrical Services and monitored by the DEIPMO.

g) Expected results

By 2020.

h) Future tasks

Expansion and improvement of power plant efficiency.

1.3.3**a) Name**

EEC Building Guidelines for the Non-Residential Sector

b) Objective

To establish energy efficiency and conservation standards as well as a regulatory mechanism for buildings in Brunei Darussalam.

c) Applicable sectors

Government and commercial sectors.

d) Outline

- A collaboration project with the Ministry of Development.
- The guidelines were launched on May 14, 2015, by the Minister of Development.
- The guidelines are mandatory for all government buildings and voluntary to all commercial buildings. Regarding the latter, it will become mandatory upon notification by government authorities.

e) Financial resources and budget allocation

Government and building owners.

f) Method for monitoring and measuring the effects of action plans

Energy consumption for buildings shall be closely monitored by both the Ministry of Development and the DEIPMO, using the Automated Meter Reader (AMR).

g) Expected results

Beyond 2016.

h) Future tasks

- To expand the guidelines to other sectors i.e., commercial and industrial sectors.
- To create an Energy Manager position for each building.

1.3.4**a) Name**

Standard and Labeling Order (Air conditioning ó Phase 1)

b) Objective

To restrict or halt the importation of non-efficient electrical appliances and products into the economy, while educating and encouraging people to opt for more energy-efficient electrical appliances and products.

c) Applicable sectors

All sectors.

d) Outline

- It is a collaborative project between the DEIPMO and the Brunei National Energy Research Institute (BNERI). The Attorney General Chambers (AGC) has provided the first clean copy of the draft order (to be further revised by the DEIPMO).
- For the first stage, the order would only focus on air-conditioning systems. Subsequently, it will be extended to other appliances or products i.e., refrigerators, lighting systems, rice cookers, water heaters, etc.

e) Financial resources and budget allocation

Supported by the government.

f) Method for monitoring and measuring the effects of action plans

The initiative will be regulated by the DEIPMO.

g) Expected results

The order is expected to be implemented in Q3/4 2016, after a one-year grace period.

h) Future tasks

To expand the order to other appliances, i.e., lighting, refrigerators, rice cookers, water heaters, etc.

1.3.5**a) Name**

Energy Management Policy

b) Objective

- To create a clear picture of the status regarding current energy use after which new goals and targets can be set.
- To help reduce energy usage and carbon emissions in a more systematic manner.

- To evaluate and prioritize the implementation of new energy-efficient technologies and measures.
- To provide a framework to promote energy efficiency throughout the supply chain.
- To offer guidance on how to benchmark, measure, document, and report corporate energy use.
- To make better use of energy-consuming assets, thus identifying the potential to reduce maintenance costs or expand capacity.
- To demonstrate to the stakeholders that corporate commitment that complies with their best practices can help protect the environment.

c) Applicable sectors

All sectors, but more focus will be placed on the commercial and industrial sectors.

d) Outline

- Brunei Darussalam is considering adopting an Energy Management Policy that is compatible with the ISO 50001 standard.
- Building owners will be encouraged to introduce management systems that include equipment to monitor energy consumption, such as Building Automation Systems (BASs), Controllers (i.e., demand controllers), and Building Energy Management Systems (BEMS).
- The DEIPMO will be preparing the paperwork for the establishment of Energy Managers for all buildings belonging to government ministries in Brunei Darussalam.
- In order to demonstrate the effectiveness of energy management systems, a number of government, commercial, and industrial facilities should be selected to participate in an energy management pilot program in line with ISO 50001 criteria.
- In support of the energy management policy, a sufficient number of qualified external auditors should be trained to conduct monitoring and verification exercises in order to ensure compliance.
- To continue to work closely with ASEAN-Japan Energy Efficient Partnership (AJEEP) and seek assistance from international experts (ECCJ, Japan, ACE, etc.).

e) Financial resources and budget allocation

Supported by the government.

f) Method for monitoring and measuring the effects of action plans

The initiative will be regulated by the DEIPMO.

g) Expected results

Expected to be implemented by 2018.

h) Future tasks

To continuously conduct audits of buildings in all sectors.

1.3.6

a) Name

Introduction of Energy-Efficient Vehicles
Implementation of Fuel Economy Regulation

b) Objective

- Part of the EEC initiatives to reduce energy intensity by 45% by 2035.
- To establish a cleaner, greener, and more sustainable transport system.

c) Applicable sectors

Transport.

d) Outline

- To set 17.2 km/l by 2020 and 21.3 km/l by 2025.
- Hybrid vehicles, electric vehicles (EVs), and fuel-efficient vehicles (FEVs) shall be introduced as well as the deployment of public transport.

e) Financial resources and budget allocation

Government and private sectors (key industrial players).

f) Method for monitoring and measuring the effects of action plans

The initiative will be facilitated by the DEIPMO and implemented by the Ministry of Communication.

g) Expected results

By 2020 and 2025.

h) Future tasks

- To increase the number of hybrid vehicles, FEVs, and EVs available in the market.
- To further improve the Fuel Economy Regulation beyond 21.3 km/l.

1.3.7**a) Name**

Financial Incentives

b) Objective

- To support cost differences that may be incurred when purchasing more efficient equipment.
- To encourage end-users (consumers) to opt for more energy-efficient electrical appliances and products.

c) Applicable sectors

All sectors, but more focus will be placed on the residential and transport sectors.

d) Outline

- To discuss with the Ministry of Finance suitable financial incentives that can be introduced to the public, such as tax exemptions, tax reductions, or tax rebates, on energy-efficient appliances and products.
- To explore several options in order to provide appropriate financial incentives on the transport sector, especially regarding hybrid vehicles and FEVs.

e) Financial resources and budget allocation

Supported by the government.

f) Method for monitoring and measuring the effects of action plans

The initiative will be facilitated by the DEIPMO and endorsed by the Ministry of Finance.

g) Expected results

Beyond 2018.

h) Future tasks

- To further improve and expand the financial incentives for any new appliances and products with highly energy-efficient technologies.
- To provide continuous support to the transport sector by providing financial incentives to FEVs in line with the Fuel Economy Regulation being implemented.

1.3.8

a) Name

Brunei Darussalam Energy Consumption Survey (BDECS) 2015

b) Objective

The key objectives of the survey include the following:

- To quantify and characterize energy end-use efficiency and improve the basis for government policy planning and implementation.
- To provide new insights on energy consumption and eventually identify which energy efficiency policies or measures will have the greatest impact.

c) Applicable sectors

Residential sectors (Phase 1).

d) Outline

This is the first comprehensive energy-consumption survey that initially covers the residential sector (Phase 1) and then focuses on the commercial, government, and industrial sectors in Brunei Darussalam.

This project is the result of international cooperation between the Brunei Government, the Economic Research Institute for ASEAN and East Asia (ERIA), and the Institute of Energy Economics, Japan (IEEJ).

This survey includes a random sample of 5,000 households of which 1,000 were collected by interviewers and the remaining 4,000 were collected online through DEIPMO's website. The survey was completed in October 2015.

e) Financial resources and budget allocation

No information available.

f) Expected results

End of 2015.

g) Future tasks

To expand the survey to other sectors (commercial, government, and industrial sectors).

1.4. Information Dissemination, Awareness Raising, and Capacity Building

The DEIPMO holds an annual energy awareness campaign titled, "Energy Week," to continually increase the public's awareness of the subject. It also works closely with educational stakeholders through its "Energy Club," which is held at schools to educate students about energy efficiency and conservation.

Information on energy efficiency and conservation is continuously disseminated through briefings, seminars, workshops, reference books, energy-saving booklets and posters, the official website, and the media. This information and knowledge sharing has permeated all sectors and every level of society not only in urban areas but also in rural areas.

Capacity-building and energy efficiency and conservation activities have been going on for the past few years. To enhance competency, seminars/workshops have also been conducted in collaboration with local and international organizations.

1.5. Research and Development in Energy Efficiency and Conservation

Research and development on EEC projects in Brunei Darussalam are currently being planned and conducted by the Brunei National Energy Research Institute (BNERI), which was established in April 2012. Research and development of energy efficiency programs are also being carried out by the UBD|IBM Center, which is a research collaboration between the University of Brunei Darussalam and the International Business Machines (IBM) Corporation.

2.0 MEASURES FOR ENERGY EFFICIENCY IMPROVEMENTS

2.1. Government Laws, Decrees, and Acts

a) Name

Energy White Paper (EWP) ó a policy paper with detailed strategies on energy efficiency and conservation that was introduced on March 24, 2014

b) Purpose

The EWP is a long-term policy document with directives in order to achieve and fulfill the objectives of Wawasan 2035. It establishes a framework for action in order to address energy challenges and manage future risks to the economy. To ensure that all initiatives are translated into real action, the outcomes achieved are continuously generated, evaluated, and implemented.

c) Applicable sectors

The industrial (oil and gas industries), power, and transport sectors.

d) Outline

The EWP consists of three strategic goals, of which the EEC initiatives fall under the second goal, which focuses on ensuring safe, secure, and reliable supply and use of energy. In addition, the key initiatives that shall be undertaken by the government are as follows:

- Reduction of the total primary energy supply (TPES) to 63% and energy intensity to 45% through EEC initiatives by 2035.
- To have a secure and reliable domestic energy supply, less power outage, and a consistent supply of petroleum products.
- Deployment of renewable energy.

e) Financial resources and budget allocation

Supported by the government.

2.2. Legislative Measures

Implementation of the comprehensive set of supportive policies and regulatory frameworks regarding EEC initiatives, which includes the following:

Policy 1 ó Electricity Tariff Reform (Implemented: January 1, 2012)

Policy 2 ó EEC Building Guideline for Non-Residential Building (Launched: May 14, 2015)

Policy 3 ó Standards and Labeling Order (Currently in progress)

Policy 4 ó Energy Management (Project kick-off in Q1 2016)

Policy 5 ó Financial Incentives (Ongoing discussion).

Policy 6 ó Awareness-Raising (Ongoing discussion).

Policy 7 ó Fuel Economy Regulation (To be implemented in 2020 and 2025)

2.3. Voluntary Measures

a) Name

ASEAN Energy Award (AEA) Competition

b) Purpose

- To promote regional cooperation in various fields of energy such as energy efficiency and conservation.
- To serve as a platform to generate opportunities in the private sector and allow them to participate in energy development in the ASEAN region (in partnership with the public sector).

c) Applicable sectors

The competition is open to the government, commercial, and industrial sectors.

d) Outline

This project is organized by the ASEAN Centre of Energy (ACE) in collaboration with the Energy Centre of Japan (ECCJ) and the Ministry of Economy, Trade and Industry (METI). The competition provides international recognition to entities that apply the concepts, systems, and technologies of energy efficiency and conservation. The three categories of the competition include the following:

- Energy-Efficient Building Competition.
- Energy Management Competition.
- Renewable Project Competition.

2.4. Financial Measures taken by the Government

Most EEC initiatives and programs, such as the Energy Week & Energy Exhibition, are fully funded by the government. A significant number of EEC activities are also being sponsored by the private sector, for example, the Energy Clubs Project Awards.

2.5. Energy Pricing

Energy pricing is regulated by the government (see Section 1.3.1)

2.6. Other Efforts for Energy Efficiency Improvements

The DEIPMO, in collaboration with the BNERI, are conducting an electricity tariff analysis survey for a sample of 200 high users (> 4,000 Kwh).

The DEIPMO, together with the Department of Electrical Services, are leading a discussion on energy savings and the new electricity tariff for residents in rural areas.

2.6.1. Cooperation with Non-Government Organizations

Both nongovernment organizations and private-sector organizations have shown support for all EEC initiatives and programs set by the DEIPMO. Some of these organizations have come forward with funding for EEC events such as the Energy Efficiency and Conservation video, energy club projects, and the energy exhibition. Private funding was also provided to sponsor EE technologies such as the inverter air-conditioning system for Energy Club activities at schools.

The DEIPMO is also working together with Earth Hour Brunei to implement the event on an annual basis.

The private sector has also made efforts to increase the awareness of energy efficiency and conservation as well as to implement their own EEC activities. The government has supported these initiatives and has brought different sectors to participate in workshops, seminars, and trainings such as energy auditing and energy management. Energy audits have also been conducted on selected companies.

2.6.2. Cooperation through Bilateral, Regional, and Multilateral Schemes

Brunei Darussalam has become involved in international and regional programs on EEC initiatives, under ASEAN and APEC, through the following major platforms:

Energy Efficiency and Conservation – Sub Sector Network (EEC-SSN)

The EEC-SSN is an important platform for all ASEAN member states to establish effective networks toward the development and implementation of various EEC programs and initiatives. All EEC programs that have been endorsed through EEC-SSN meetings have proven beneficial for Brunei Darussalam in narrowing down the gaps regarding the implementation of the EEC initiatives, especially in terms of policy and legal frameworks. All EEC programs that have been endorsed by the EEC-SSN shall be materialized under the AJEEP program.

ASEAN-Japan Energy Efficiency Partnership (AJEEP)

The AJEEP program is important for Brunei Darussalam since it provides an opportunity to seek assistance directly from Japan for the development of EEC programs, including policy and legal frameworks. For the past three years, experts from the Energy Conservation Centre of Japan (ECCJ), the Institute of Energy Economics, Japan (IEEJ), and the Economic Research Institute of ASEAN and East Asia (ERIA) have visited Brunei Darussalam to conduct training workshops and provide advice. Through AJEEP, Brunei Darussalam is able to participate in the Energy Conservation ASEAN Partnership (ECAP) workshop, which is jointly organized by the Ministry of Economy, Trade and Industry (METI) of Japan, the ASEAN Centre of Energy (ACE), and the ECCJ.

Brunei Darussalam's participation under the AJEEP program has yielded many benefits in the development of EEC legislative measures, which include the Standard and Labeling Order and the EEC Building Guidelines. Brunei Darussalam also sees the continued involvement with AJEEP as an effective platform to accelerate the development of other EEC initiatives/programs, especially the implementation of important legislative measures such as energy management policies and the expansion of the standards and labeling scheme.

Board of Judges on ASEAN Energy Awards (BOJ-AEA)

The Board of Judges on ASEAN Energy Awards (BOJ-AEA) is another important platform for Brunei Darussalam to learn all of the best practices in terms of building efficiency management, which can ultimately be implemented and widely adopted. In addition, this program has given Brunei Darussalam an opportunity to participate in building management and efficiency competitions at the ASEAN level.

APEC Expert Group on Energy Efficiency and Conservation (EGEEC)

The EGEEC promotes energy conservation and the application of energy-efficient practices and technologies through advancing demonstrated options. The EGEEC also aims to enhance trade between APEC economies in products and services as well as energy-efficient practices and technologies. Brunei Darussalam benefits from this work, especially toward the development of EEC programs and initiatives. However, Brunei Darussalam is not a regular participant in the EGEEC, and hence, receiving assistance from APEC experts is extremely limited.