

Chapter 6

Policy Implications

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CHAPTER 6

POLICY IMPLICATIONS

The study provides the following policy implications:

• **Energy efficiency in buildings:** Although some Association of Southeast Asian Nations (ASEAN) member states, including Brunei Darussalam, have adopted building policies and regulations, there is need to put policies into concrete energy efficiency and conservation (EEC) action plans to be implemented, which include building design and replacement of existing facilities and equipment with more efficient ones. For the building sector, both passive and active design policies such as the following will need to be considered:

- Identify and establish a green building rating system for the eco town project.
- Then, regulate "green building rating system" and apply it to the new buildings under the regulation.
- Use advanced design software that has simulation capabilities.
- Set up building codes and rewards for green buildings and enforce by law.
- Provide government financial support to implement building energy efficiency measures for both new buildings and existing buildings (retrofit).
- Establish government funds such as an energy service company (ESCO). Consider ways to raise funds such as levies on petroleum.
- Explore and establish a good and practical green building business model that meets the context and situation.
- Enforce energy building codes and designate large consumers and green buildings for energy audits.
- Consider other energy saving measures along with energy-efficient buildings, including demand management systems such as household energy management systems (HEMS), building energy management systems (BEMS), and factory energy management systems (FEMS).
- Improve thermal efficiency in the power generation sector by constructing or replacing existing facilities with new and more efficient generation technologies.

Energy efficiency in transport: In order to promote the 'Avoid, Shift, Improve' (ASI) approach, all stakeholders, including the ministries of energy, transport, and national

development, should collaborate with each other to implement it. The road transport sector will need to consider measures to reduce energy consumption per unit of transport activity through model shift approaches such as the following:

- Improve the use of high-efficient fuel economy. Introduce policies to encourage the use of new and high-efficient fuel economy technologies.
- Promote and implement 'Shift' policy measures with higher efficiency as an alternative to using private vehicles, i.e. the shift in behaviour from personal to mass transport modes.
- Promote and implement 'Improve' policy measures through higher penetration rate of greener and more efficient technologies. Also, encourage the shift to more efficient technologies such as hybrid vehicles and clean alternative fuels.
- Promote and implement 'Avoid' policy measures through compact city design or change of lifestyle.
- For other related fuel use for transport, hydrogen fuel development is very important in the future. Thus, continue research and development of fuel cells for future clean fuel utilisation for transport and other purposes.

Smart grid: Smart grid deployment requires policy and regulatory interventions in terms of funding, standards, and policies that affect consumers. In order to achieve energy consumption and carbon emissions reduction and use of more renewable energy, governments should pay attention to the following three points: (i) funding smart grid investment, (ii) smart grid standards, and (iii) smart consumer policies. Public utilities must be assured of financial and regulatory support allowing them to recover their investments. Any smart grid deployment should refer and conform to smart grid standards that are developed by international standards institutes or agencies. Furthermore, public awareness of smart grids is important so that customers can fully capture the incentives and service options that warrant behavioural changes. To fully deploy a smart grid for an eco town, the following policy actions need to be considered:

- Establish an electricity market to support the effectiveness of the smart grid in terms of a mechanism for demand response.
- Develop a smart grid road map to identify necessary actions to be taken for the smart grid including the investment, risks, costs, and potential barriers.
- Develop functional applications of the smart grid and identify challenges associated with smart grid implementation which need to be addressed in each local context. These include policies on cost recovery mechanisms, standardisation and interoperability of technologies, customer feedback mechanism including automated end-user demand, and energy efficiency response.

- Develop metrics and monitoring, and support policy and implementation in place.
- Consider renewable energy electricity for the smart grid. An eco town could be attained by increasing the share of new and renewable energy in the energy mix. Several policies and actions will need to be considered including the backup capacity for the stability of grid.
- Ensure customer protection.
- Consider other policies in promoting renewable technologies in the eco town. These include energy policies and financial policies, such as a feed-in-tariff (FIT), a renewable portfolio standard (RPS), net metering, carbon tax, or carbon cap and trade. Financial policies include public financing, carbon financing, and banking regulations with sustainability requirements.
- Offer government investment in electricity storage technologies, especially for solar and wind power as the intermittent nature of renewable energy sources poses significant challenges in integrating renewable energy generation with existing electricity grids.

The Economic Research Institute for ASEAN and East Asia (ERIA) is committed to supporting the future development and study of Temburong district in Brunei Darussalam. In 2017, ERIA and the Brunei National Energy Research Institute (BNERI) will look more closely into climate data in Temburong district and conduct a simulation model to optimise the size of renewable electricity sources such as solar/PV, wind, biomass, and backup power generation facilities. Based on the renewable electricity plan, ERIA and BNERI will also come up with a design for smart city development in the Temburong area in the next stage.

