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Creating a balanced energy mix in Southeast Asia


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By Melissa Low, Energy Analyst, Energy Studies Institute, National University of Singapore | 12 June 2012


ASEAN's effort towards creating a balanced energy mix and sustainable energy for all is multifaceted.

A rapidly-developing region, Southeast Asia is characterised by increasing energy demand, but at the same time is plagued by growing environmental pressures, low rural electrification levels, and heavy reliance on fossil fuels and traditional biomass.

ASEAN demonstrates that high economic growth comes with a high need for energy supply. Thus, ensuring a secure supply is a significant though often overlooked overriding concern.



ESI is the Singapore Energy Summit 2012 Co-Organiser. More details to be found [here](#).



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Why is there a need for a "balanced" energy mix in ASEAN?

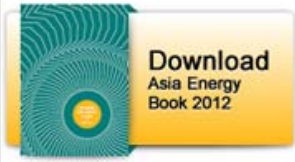
ASEAN has an energy "trilemma", which has to be tackled at both the regional and national levels.

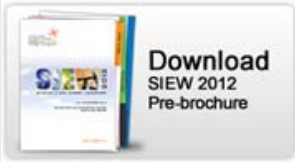
Member countries need to deliver on energy security, economic growth and development, in an environmentally-sustainable way. Renewables currently contribute just a small portion of required electricity, with fossil fuels leading the mix (at 74 percent). The rest are made up of combustible biomass and waste (22 percent), mostly traditional, inefficient and environmentally-unsustainable; geothermal (3 percent) and hydro (1 percent).


The challenge for the region is to create a balanced energy mix through putting in place policy frameworks for renewable energy. With ASEAN gearing up for the formation of an Economic Community in 2015, an important part of this agenda will be driving greater energy integration. Furthermore, socio-economic issues such as energy poverty eradication have been placed on the

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agenda, with the UN General Assembly having designated 2012 as the UN Year of Sustainable Energy for All.

**At the regional level**

The ASEAN Vision 2020, operationalised by the ASEAN Plan of Action for Energy Cooperation (APAEC), could enable interconnecting arrangements in the field of energy and utilities for electricity, natural gas and water. This also encompasses mechanisms for sustainable development to ensure the protection of the region's environment, sustainability of its natural resources, and the high quality of life of its peoples.

ASEAN is in the midst of implementing its third plan of action, all of which pursue sustainable energy development based primarily on individual sectoral plans of action and roadmaps. This includes, but is not limited to, the ASEAN Power Grid, Trans-ASEAN Gas Pipeline, Coal and Clean Coal Technology, Energy Efficiency and Conservation, Renewable Energy and Regional Energy Policy and Planning. Regional cooperation should set out to tackle incompatible goals and energy potentials of ASEAN countries.

A successful showing here by ASEAN in achieving this vision is essential to cope with the increasing energy demand woes and in providing greater stability and security of energy supply in the ASEAN region.

Yet, throughout ASEAN, member countries have different primary energy consumption patterns, generation capacity (by fuel type), end-user power costs, and are at various stages of electricity sector market reforms. These can affect the pace of implementation of the APAEC and ASEAN Vision 2020.

Nonetheless, ASEAN recognises the critical role of an efficient, reliable and resilient electricity infrastructure for stimulating regional economic growth and development and to improve access to affordable energy to eradicate energy poverty.

**At the national level**

Several ASEAN countries recently introduced price support systems for renewable energy or are about to do so. Feed-in tariffs (FITs) are long-term guaranteed purchase agreements for green electricity at a price, providing project developers and individuals a reasonable return on investment. FITs were introduced in Thailand and Indonesia in 2007 and 2010, respectively. Malaysia and the Philippines have also started drafting guidelines for the introduction of FITs.

Other financial incentives for renewable energy include tax exemptions for certain renewable energy technologies in Malaysia, the Philippines and Indonesia, capital cost grants in Thailand, and R&D incentives in Singapore. Malaysia, Indonesia and Thailand have also introduced non-financial support mechanisms, including standard power purchase agreements (PPAs), preferential arrangements for small generators and information support.

These initiatives help independent power producers enter the market more easily and reduce barriers specific to non-liberalised energy markets. FITs need to be crafted carefully to be more flexible and intelligent to respond to future price adjustments in order not to undo the years of good work that have been invested in skills, infrastructure and businesses.

FITs, in general, while having proven effective at encouraging the uptake of targeted technologies such as solar PVs in Germany, can be considerably difficult to implement due to their function as a cross-subsidy. This can alter the structure of the market, causing some difficulty in competition and consumer protection legislation and uncertainty as to its uptake.

**So are renewables the answer for Southeast Asia?**

Despite improvements in the environment for the investing and financing of renewables in ASEAN in recent years, current levels of renewable energy-related investment fall far short of those required to achieve a low-carbon energy revolution. Substantial non-economic barriers, such as infrastructure and grid-related problems and regulatory and administrative hurdles, continue to be a major impediment to the deployment of renewables.

An International Energy Agency (IEA) report on renewable potentials in Southeast Asia found that technical/infrastructure barriers (including grid-related barriers) rank highest in obstacles identified in ASEAN countries, followed by administrative and market-related hurdles.

In order to achieve large-scale diffusion of renewables, IEA recommends that ASEAN member states reduce as much as possible non-economic barriers to the diffusion of renewable energy. IEA also suggests removing distortionary subsidies for fossil fuel consumption and production to help level the

playing field so that renewable energy technologies can compete with other energy carriers.

ASEAN member states are also advised to ensure that renewable energy incentives do not shift a disproportionate share of the additional financial burden to the poorest households. To do this, governments must devise renewable energy policies that are predictable and consistent with the overall energy policy framework and design, and to implement well thought-out incentive schemes important to effectively foster market uptake rather than a specific type of incentive.

What about nuclear?

With the exception of Brunei and Lao PDR, every other ASEAN nation has announced plans to undertake nuclear feasibility studies or have started investing in nuclear technology and capacity building to meet their country's growing energy needs. In particular, Vietnam, the Philippines, Malaysia and Indonesia are moving full steam ahead regardless of international scrutiny and concerns around safety and risks, while the rest have opted to proceed with caution.

There is much work to be done among ASEAN member states, especially in capacity building, strengthening public information and education, and institutional, legal and regulatory capabilities on nuclear energy for power generation, so as to secure a safe, nuclear future for the region.

Creating a balanced energy mix in ASEAN

ASEAN countries are diverse in terms of their renewables potentials when calculated on a per-capita or per-GDP basis. Furthermore, the level of achieved deployment influences the realisable potential over a specific time period. ASEAN countries currently have lower deployment, thus lower potential.

Since ASEAN's inception in 1967, member states have struggled to cooperate and integrate as one community with issues on the table as wide-ranging as political security, economic integration and socio-cultural enhancement. Fundamental principles of ASEAN member states' relations with one another, such as mutual respect for independence, sovereignty, equality, territorial integrity and national identity of all nations, further inhibit countries from interfering with one another's domestic policies.

Therefore, in order to achieve a balanced energy mix in ASEAN, it is necessary to continue promoting ASEAN-led energy initiatives, in cooperation with relevant Dialogue Partners, international organisations and the private sector. In the networking of ASEAN research and development centers, effective project management processes should be developed so as to ensure that the relevant outcomes and recommendations from the various projects are translated into practical policy and regulatory options, especially when building on success cases from APAEC or the APEC Energy Working Group.

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