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2016

Trajano, J. & Vineles, P. (2016). Road To Low-Carbon ASEAN Community. (RSIS Commentaries, No. 149). RSIS Commentaries. Singapore: Nanyang Technological University.

https://hdl.handle.net/10356/81301

RSIS S. RAJARATNAM SCHOOL OF INTERNATIONAL STUDIES
Nanyang Technological University

RSIS COMMENTARY

www.rsis.edu.sg No. 149 – 17 June 2016

Road To Low-Carbon ASEAN Community

By Julius Trajano and Phidel Vineles

Synopsis

Adopting energy efficiency, investing in renewables and building capabilities on nuclear energy safety may be crucial for Southeast Asia to realise a low-carbon ASEAN Community consistent with the goals of the Paris Climate Agreement.

Commentary

THE NEED to mitigate climate change has never been more apparent. This is particularly so in Southeast Asia, which is both severely affected by the impact of global warming and a rapidly increasing emitter of greenhouse gases. The Paris Agreement on Climate Change has set a global action plan that participating countries, including the ten ASEAN Member States (AMS), need to implement to realise a low-carbon future.

With Southeast Asia's increasing energy demand, carbon emission reductions will become a huge challenge for the region. According to International Energy Agency (IEA) and Economic Research Institute for ASEAN and East Asia (ERIA), Southeast Asia's energy demand is projected to grow to under 1,100 Mtoe (million tonnes of oil equivalent) in 2040. Driven by economic growth, Southeast Asia's energy demand has increased by more than 50% between 2000 and 2013. Hence, future prospects of energy markets in the region must be examined to identify what energy policies are needed for low-carbon ASEAN Community.

ASEAN Energy Landscape

The power sector shapes the energy outlook of Southeast Asia, with a shift towards intensive coal-based electricity generation, despite the pledges of AMS to reduce their carbon emissions. According to IEA and ERIA, the coal demand expands at the

fastest rate among all other energy sources in the region, which is projected to reach 440 Mtce (million tonnes of coal equivalent) in 2040. This entails the need to accelerate the use of clean coal technologies.

Renewables-based electricity is seen to make inroads in the region's energy mix, as it is projected to increase three and a half times from 2013 to 2040. However, according to IEA and ERIA, the overall contributions of renewables to energy mix will decline from 26% in 2013 to 21% in 2040 due to the decreasing use of traditional biomass.

Southeast Asia is also set to lose its role as a major gas supplier to international markets as domestic demand outpace production. By 2040, the region is projected to turn into a net importer of gas of around 10 bcm (billion cubic metres), and the region's net oil and gas import bill is set to triple to US$320 billion.

Towards Low-carbon ASEAN Community

Accelerating the use of low-carbon technologies will help to mitigate the rise of energy demand and carbon emissions without harming the region's economic prospects. For that, ASEAN must step up to employ energy efficiency technologies that improve power use.

First of all, to encourage energy efficiency, governments need to completely eliminate fossil fuel subsidies which indirectly inhibit investments in energy-efficient goods, services and infrastructure. However, the region spent US$36 billion on fossil-fuel subsidies in 2014 despite subsidy reforms in Indonesia, Malaysia, Thailand and Myanmar.

Promoting efficient energy resource development and utilisation can be done by enhancing the region's cross-border energy trade. The ASEAN Power Grid facilitates cross-border electricity purchases and exchanges within the region and has 11 operating cross-border grids. The Trans-ASEAN Gas Pipeline aims to interconnect the gas pipeline infrastructure of AMS. As of 2015, 13 bilateral gas connections have already been established with a total of 3,600 kilometres of pipeline connections.

Since it is projected that the energy use patterns are moving towards the increased use of coal, carbon capture and storage (CCS) is considered an essential component of curbing carbon emissions. CCS is an energy efficient technology that can cut up to 90% of emissions from coal-fired power plants. The application of this technology will help to mitigate the carbon emissions threat in Southeast Asia, which is projected to be 60% higher in 2050 than in 2010. However, the use of CCS requires huge investments due to its high operating costs.

Expanding the use of renewable energy sources would also help drive ASEAN's transition to low carbon economy. Presently, renewables, such as hydropower, bioenergy and solar, serve as an important component of Southeast Asia's future energy mix. Technical potential for modern renewables is significantly large. For example, hydropower energy is the largest source with technical potential at 170 GW (gigawatt), compared with the already installed of 37 GW in 2014. Aspiring to be the 'battery' of Southeast Asia, Laos has massive hydropower development plan which

includes 72 new large dams, 12 of which are under construction. There is also a strong potential for solar development in Cambodia, Indonesia, Malaysia, Thailand, and southern Vietnam. This potential, however, remains untapped.

Nuclear Energy in Southeast Asia

But some countries in the region foresee that renewable energy will not be enough to meet the rising demand for base-load electricity. Hence, they have been considering to integrate nuclear power into their long-term energy plans, reflecting their governments' view of nuclear power as an alternative energy source that can help address the dual objectives of energy security and mitigation of climate change effects.

Vietnam is scheduled to complete construction of its first nuclear power plant (NPP) by 2026 while Indonesia is still planning to build a small experimental power reactor to increase its technical expertise in using nuclear power for the future. Malaysia has started to conduct a feasibility study on exploiting nuclear energy that includes addressing public acceptance. Just recently, Cambodia and Russia signed two deals to set up a nuclear energy information centre and a joint working group on peaceful uses of atomic energy.

However, there is still a tremendous need to educate young people and enhance the skills of older professionals in the nuclear field, especially nuclear safety. The region currently does not have enough human resources that can safely operate NPPs.

Southeast Asia is uniquely placed to contribute to achieving the ambitious goals stipulated in the Paris Agreement. Countries across the region must lead efforts to achieve these goals. This entails countries taking strong policy commitments and adopting innovative solutions to revolutionise energy systems both domestically and regionally.

The regional approaches towards decarbonisation through energy efficiency, renewables, and building capabilities on nuclear energy have all been stated in the ASEAN Economic Community Blueprint 2025 and the ASEAN Plan of Action for Energy Cooperation 2016-2025. The region's specialised energy bodies such as the ASEAN Centre for Energy, ASEAN Network of Regulatory Bodies on Atomic Energy (ASEANTOM), the Nuclear Energy Cooperation Subsector Network, and the Renewable Energy Subsector Network can facilitate enhanced cooperation on clean energy sources, through knowledge sharing and institutionalising regulatory safety norms. The ASEAN Centre for Energy, for instance, assists AMS by offering innovative solutions for ASEAN energy challenges on policies, legal and regulatory frameworks, and technologies.

Addressing the region's carbon emissions requires ASEAN to jointly examine its future energy patterns, and actively pursue energy efficient technologies and clean energy sources needed towards a low-carbon ASEAN Community. At the same time, intensified and creative public education across ASEAN is needed to galvanise people support for region-wide policy initiatives on decarbonisation.

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