

ASEAN-INDIA RENEWABLE ENERGY COOPERATION: OPPORTUNITIES AND CHALLENGES FOR THE REGION AND THE PHILIPPINES

by Jemimah Joanne C. Villaruel

ASEAN countries have, for some time, embarked on energy cooperation, both internally and externally, realizing that overdependence on external energy sources will have negative implications to a state's own energy security. As such, ASEAN has pursued policy responses to address the region's energy supply and security, one of which is the promotion of renewable energy sources such as hydro, solar, wind, and biofuels from palm oil, sugar cane, and coconut.

Prime Minister Narendra Modi, who has been very vocal about his goal to claim India's place in the world stage, understands the great significance of energy in fulfilling India's development goals. India has also made a mark in developing its energy security by embarking on partnerships and collaborative efforts, both on bilateral and multilateral platforms, as well as exploring renewable sources of energy to complement its vastly growing energy needs.

ASEAN-India relations reached a level of strategic partnership in 2012 given that both parties have shared numerous convergent interests encompassing their political, economic, and security objectives. ASEAN and India are also dealing with energy concerns, which can be an area for further cooperation. It has been noted that despite the Act East policy under Prime Minister Modi, India's renewable energy cooperation with ASEAN has been lackluster.

The paper argues that while renewable energy cooperation presents an opportunity to deepen ASEAN-India relations, an enabling environment is necessary to sustain cooperation in the medium to long term. This study also identifies the steps that can be done to foster energy security cooperation and examine the implications to the Philippines' own energy security plan.

India's Energy Security Policy

India is the fourth largest energy consumer in the world behind China, US, and Russia, importing 80 percent of its crude oil and 25 percent of its natural gas requirements.¹ According to the Indian Planning Commission, approximately 600 million Indians still have limited or no access to electricity and around 700 million Indians use biomass as their primary source of energy for cooking.² In this regard, Indian policy makers consider energy security as one of their foremost priorities given that the majority of its population lacks access to electricity.

Renewable energy, in particular, is one of the focus of Prime Minister Modi in addressing India's energy needs. At the inauguration of the first Renewable Energy Investors Meet (RE-Invest) in 2015, Prime Minister Modi spoke of the "seven horses of energy", which include thermal, gas, hydro, and nuclear power, with emphasis given on the development of solar, wind, and biogas.³ In 2015, India was among the top ten investing countries in renewable energy with an increase of 22 percent amounting to USD 10.2 billion, according to the United Nations Environment Programme (UNEP).

The Indian government has sought to develop renewable energy sources to aid its massive energy needs, while also mitigating the effects of climate change. India has made significant strides in solar and wind energy sources. It was one of the first countries to use hydroelectric power plants by constructing the Darjeeling and Shimsha (Shivanasamudra) power plants in 1898 and 1902, respectively.⁴ In a highly-populated country like India, hydropower is preferred since it has the capacity to start and shut down quickly and the flexibility to respond to electrical fluctuations even in different seasons and various times of the day. In addition, the World Bank's "India Hydropower Development" document stated that hydro-resources are largely available in some of the least-developed parts of the country; thus, hydropower can contribute to regional development and poverty alleviation if designed appropriately.

For solar energy, India stands as a low-cost destination for grid-connected solar power. According to the World Bank's "Transforming India's Future with Solar Power" document, it is projected that further development of solar power in India will help reduce emissions per unit of GDP by 20 to 25 percent in 2020 and produce clean energy for the country. In his previous capacity as Chief Minister of Gujarat, Prime Minister Modi had supported the construction of a 900-megawatt (MW) solar plant. Furthermore, Prime Minister Modi is also establishing policies that give incentives to domestic-made solar components and panels.⁵ In addition to funding and policy initiatives, the Ministry of New and Renewable Energy (MNRE) has also set up a Solar Energy Centre near Delhi with the state-of-art facilities used to test solar thermal and solar photovoltaic materials, devices, and systems in addition to its applied research and training on solar power development.

Wind power dominates the renewable energy industry of India, representing 70 percent of its total renewable energy capacity. This can be attributed to the considerable support from government by providing significant tax incentives that have induced substantial investments in wind energy projects. The provision of preferential tariffs has also accelerated the development of the industry. As stated in "Unleashing the Potential of Renewable Energy in India" by the World Bank, MNRE has also given ample support to the wind power industry by establishing the Center for Wind Energy Technology as the focal point for research and development on wind energy, and investing in the Wind Resource Assessment Program. According to the Global Wind Report 2015, India stands as the second largest wind market in Asia, and fifth largest in terms of total wind power capacity.

Biomass energy, utilized from organic matter to produce heat and electricity, also remains a vital source of energy for India. Approximately 32 percent of the total primary energy use in India is still derived from biomass, and more than 70 percent of the country's population depends upon it for their energy needs. Biomass energy, according to MNRE, is widely used because it is renewable, widely available, and carbon-neutral.

Despite these advancements, India is still dealing with factors that hinder renewable energy development. Even with Prime Minister Modi's tremendous support for its development, the complete shift to the use of renewable energy will still take time. Factors such as regional concentration of renewable energy potential, regulatory issues, financial barriers, and limited urban and industrial applications for renewable energy, constrain the full and efficient utilization of renewable energy in the country. For regional concentration of renewable energy potential, the challenge lies in the uneven distribution and location-specific nature of renewables. This makes it difficult to scale up grid-connected renewable power. Financial barriers, meanwhile, are brought about by the need for large capital investment (compared to conventional sources) and the difficulty of obtaining low-cost technology and long-term funding due to project risks perceived by financiers.

ASEAN Initiatives on Renewable Energy

In 2011, the Asian Development Bank (ADB) dubbed the 21st century as the Asian century with Asia's GDP expected to quadruple from 2010 to 2035 and generate half of global GDP by 2050. This growth has lifted millions out of poverty in Asia and elevated the quality of life in the region. However, one urgent concern on this remarkable growth is securing energy to sustain Asia's economic expansion. Half of Asia's population live without access to electricity and majority of the population relies on traditional fuels such as wood, charcoal, and animal manure. These traditional fuels provide low-quality energy and destroy natural ecosystems.

In terms of energy consumption, the ASEAN region is projected to double its energy usage between 2010 and 2035. Fossil fuels will remain the dominant source of energy, with oil consumption projected to double; while the use of natural gas expected to triple. Coal consumption is also projected to rise to over 80 percent during the same period.⁶ Studies indicate that continued reliance on fossil fuels to meet energy demands will have serious environmental consequences, affecting air and water quality, water availability, land use, and even the global climate. Hence, there is a crucial need to ensure that energy sources will not only be affordable but also environmentally sustainable in the long run.

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One of the ways in which ASEAN Member States may avert irreversible damage to the environment is through openness to diversify sources of energy mix. Given the abundance of renewable energy sources in ASEAN, renewable energy is perceived as a viable option with many ASEAN countries already establishing renewable energy policies and targets. These steps are in line with the ASEAN Economic Community Blueprint 2015 that emphasizes the need to strengthen renewable energy

development and promote open trade, facilitation, and cooperation in the renewable energy sector in a bid to mitigate greenhouse gas emissions and abate global climate change.

Recognizing the urgency of the ASEAN region's energy predicament, the ASEAN Plan of Action for Energy Cooperation 2010-2015 (APAEC) was prepared to serve as a blueprint on ASEAN cooperation on energy. The APAEC is under the ASEAN Vision 2020 adopted in 1997 by ASEAN leaders as means of creating a stable, prosperous, and highly competitive ASEAN economic region.

ASEAN-India Renewable Energy Cooperation: Issues and Prospects

As current global conditions demonstrate, few countries have the capacity to confront the gamut of traditional and non-traditional challenges – including energy scarcity – unilaterally. Developing countries, especially, will benefit the most from a multilateral approach in addressing such challenges.

During the first meeting on ASEAN-India renewable energy cooperation in 2012, both parties signified their interest to explore ways to complement their respective renewable energy policies to mutually address their energy needs. At the same time, the meeting also brought to light constraints that India and ASEAN will face in fully collaborating on renewable energy. During the workshop that took place just before the Meeting, ASEAN and India also recognized the mechanisms that must be put in place for renewable energy cooperation to succeed.

Since the ministerial meeting took place only five years ago, it would be premature to expect its immediate impact on ASEAN-India cooperative efforts given the difficulty of navigating structural and systemic intricacies in each ASEAN Member State. Thus, it is important for the two parties to address the challenges associated with renewable energy cooperation.

First, while ASEAN as an organization has the mechanism for a unified energy policy through the APAEC, implementation of these energy policies in each ASEAN Member State is another matter altogether. ASEAN Member States have varying levels of political and economic development, making the process of harmonizing energy policies and projects a daunting task.

To illustrate this, individual countries have different starting points in their natural conditions and potentials, whether they are endowed with solar, wind, biomass, or geothermal resources, as well as differing political and regulatory frameworks for renewable energy.⁷ Countries like Indonesia, Malaysia, the Philippines, Thailand, and Vietnam have introduced medium to long term renewable targets; however, these targets differ greatly in quantitative objectives, time, and specificity due in part to their varying levels of economic development. For example, Thailand and Malaysia have the same level of renewable electricity potential, but Thailand has introduced more ambitious targets even though its GDP per capita level is only half of Malaysia's GDP per capita.⁸

ASEAN Action Plan on Renewable Energy (APAEC)

The APAEC is a blueprint for enhancing energy security and sustainability in the ASEAN region. The APAEC aims to enhance regional energy security and sustainability through aggressive implementation of the different program components – (1) ASEAN Power Grid, (2) Trans-ASEAN Gas Pipeline, (3) Coal and Clean Coal Technology, (4) Renewable Energy, (5) Energy Efficiency and Conservation, (6) Regional Energy Policy and Planning, and (7) Civilian Nuclear Energy. Through APAEC, ASEAN Member States can cooperate bilaterally and multilaterally to pursue their energy security agenda. APAEC programs are funded by Member States, ASEAN Dialogue Partners, aid and donor agencies, and relevant agencies and organizations. At the ASEAN-India Ministerial Meeting in 2012, former Indian Minister of External Affairs S.M. Krishna noted the full potential of ASEAN-India partnership and the need to improve connectivity.

ASEAN-India Workshop on Renewable Energy

The 2012 workshop highlighted India's successes in developing renewable energy, resources citing coordinated and targeted R&D programs to ensure the efficient application of renewable energy. The workshop provided invaluable information on how ASEAN member countries may learn and benefit from India's policies and programs. Fiscal incentives, depreciation allowance and remunerative returns for power fed into the grid were also discussed as ways to entice companies into investing in renewable energy. The workshop also produced concrete proposals, with participating countries sharing experiences on development and deployment of renewable energy, as well as identifying institutions and mechanisms by which ASEAN Member States and India can cooperate.

The following are the areas where ASEAN and India agreed to share experiences and ideas: (1) renewable energy resource assessment using GIS and remote sensing technologies; (2) renewable energy equipment calibration and testing facilities; (3) protocol and evaluation methods; (4) standards and certification procedures; (4) off-shore power supply and transmission technology utilizing wind and ocean technologies; (5) R&D regional network on renewable energy technology; (6) energy access to rural population through promotion of micro-grids/off-grids based on renewable technologies; and (7) financing of renewable energy projects.

Second, the use of renewable energy in ASEAN has also been intermittent due to constraining factors such as lack of infrastructure and other technical barriers such as grid access. Certain parts of the region have more renewable energy resources, but load centers are usually in different areas, making it difficult to interconnect energy grids for more efficient delivery of energy.⁹

Third, renewable energy development in ASEAN is hampered by the lack of financing and investments for renewable energy, limited experience and technology in renewable energy design, and lack of appropriate mechanisms to support renewable energy projects.¹⁰ Renewable energy policy is notoriously difficult to implement given its differing mechanism from conventional energy sources. It is also capital intensive and suffers from insufficient financial incentives that limit investments.¹¹

ASEAN must therefore endeavor to tackle these barriers and promote renewable energy development through sharing of expertise among ASEAN Member States. Due to the unique physical, socioeconomic, and energy landscape of each ASEAN Member State, the robustness and effectivity of renewable energy development will also vary.¹² For its part, India must keep in mind the divergent renewable energy policies of ASEAN Member States when formulating collaborative projects. While energy cooperation between ASEAN and India is still in its nascent stage, it presents an opportunity to explore ASEAN's vast potential on renewal energy. It also highlights India's possible contribution to the region's energy development.

One of the ways by which regional cooperation can strengthen national policies on energy security is through information and knowledge sharing to be able to create sound policies. ASEAN Member States stand to benefit from India's expertise on wind and solar energy. In this case, ASEAN and India should establish a coordinating mechanism through which energy experts from ASEAN and India will be able to share knowledge and expertise necessary in formulating sound, feasible, and practical policies on energy collaboration.

ASEAN-India Ministerial Meeting on Renewable Energy

During the ASEAN-India Ministerial Meeting on Renewable Energy, the participants expounded on the status of renewable energy utilization in their respective countries. The meeting also provided an opportunity for many ASEAN countries to seek cooperation with India on solar, wind, biomass, micro-hydro technologies, and capacity building.

India, for its part, proposed a Special Training Program in Wind Turbines Technology and Applications at the Center for Wind Energy Technology in Chennai and a Special Training Program on Solar Energy Technologies and Applications at the Solar Energy Center in Gurgaon for ASEAN Member States pending approval from the ASEAN Committee of Permanent Representatives.

It would also be beneficial to conduct a comprehensive study on ASEAN-India energy commonalities based on the outcome of the workshop, which may be jointly undertaken by the ASEAN Center on Energy (ACE) and MNRE of India, to examine the challenges and issues of implementing cooperative mechanisms.

The real test of ASEAN-India renewable energy cooperation will be its contribution to fulfilling the energy needs of local communities in a sustainable and efficient way. The documents and pledges for energy collaboration should not be an end in itself. The ministerial meeting and workshop on ASEAN-India renewable energy cooperation in 2012 illustrated the urgency of the issue and the common interest to address it, but initial efforts must translate to actions. It is crucial, now more than ever, to demonstrate the willingness and determination of both ASEAN and India to develop this collaborative venture given the concrete gains it can offer to the people and the environment.

Opportunities for Philippines-India Cooperation On Renewable Energy

Since cooperation on renewable energy between ASEAN and India has its own set of challenges, many ASEAN Member States have taken a bilateral approach in shoring up their renewable energy needs through agreements and joint projects.

Realizing the benefits of such arrangements, the Philippines has entered into a Memorandum of Agreement with India on Enhanced Cooperation in the Field of Renewable Energy in 2007. The memorandum of agreement provides for collaboration in research, design, development, and demonstration of renewable energy technologies through activities such as technical experts exchange program, sponsorship, training, conferences, and other activities.¹³

The enactment of the Renewable Energy Law (Republic Act 9513) in 2008 increased the renewable energy projects in the country from 22 in 2008 to 406 projects in 2016, and has created three million jobs throughout the country, according to Sen. Juan Miguel Zubiri who authored the said law. The National Renewable Energy Program (NREP) was also established on 14 June 2011 to assist in the full implementation of the renewable energy law and strengthen the energy plan of the country. The Department of Energy (DoE) also established policy mechanisms, such as Renewable Portfolio Standards (RPS),

Feed-in Tariff (FiT)¹⁴, Green Energy Option Program, and Net-Metering for Renewable Energy, in order to support and increase investment and development of renewable energy.¹⁵ The Investment Priority Plan (IPP) includes renewable energy as a priority investment sector, and the Board of Investment (BoI) has approved 144 renewable energy projects worth approximately PHP 17 billion from 2010 to 2015.¹⁶

The Philippine Energy Plan 2012-2030 aims to triple the country's renewable energy capacity by 2030. Wind and solar energy are currently the least utilized renewable energy sources in the country. The National Renewable Energy Board (NREB) stated that private sector interest in renewable energy is on the rise prompting the government to endorse more solar and wind projects.

For solar power development, the NREB proposed the FiT rate of PHP 7.66 per kWh for another round of 500 MW installation target for solar energy, subject to the approval of the DoE and Energy Regulatory Commission (ERC) under the Duterte administration. As a sign of the Philippines' growth in solar power, the 132.5 MW solar farm in Cadiz City, Negros Occidental was inaugurated in March 2016, the largest in the country and in Southeast Asia.

Meanwhile, the exploration and development of wind power in the country has also yielded positive results. The Philippines is now the largest and fastest-growing producer of electricity from wind energy among ASEAN nations. According to a study by the US National Energy Laboratory, the Philippines has an estimated 10,000 square-kilometer land area with good to excellent wind resources, and the country's extensive coastline and elevation also contribute to a rich wind energy potential.

Despite these advancements, the contributions of wind and solar power to the total energy mix of the country remain minimal. In a presentation by Mario Marasigan at the Asian Clean Energy Forum 2016, it was shown that of the 25.64 percent share of renewable energy in the total generation mix of the country, wind energy accounted for only 0.20 percent while solar energy accounted for 0.02 percent for 2014.

Mr. Sanjayan Velautham, Executive Director of the ASEAN Centre for Energy, stated that while the Philippines has vast potential for clean energy, much of the renewable sources are still largely untapped. He also observed that since solar and wind power are relatively new in the country, it will take time before these sources can be fully harnessed.

Dr. Yongping Zhai, technical advisor for energy at the ADB, observed that the billions of investments on renewable energy in the country are still too small since majority of funds still go to fossil fuels. He also believes that the country is a good place for renewable energy investment due to its growing economy. However, he lamented that the Philippines implements many restrictions to foreign investors, making it difficult for them to enter the market.

The same sentiments were echoed in the Philippine Energy Plan, indicating that at least PHP 3 trillion in fresh investments are needed for the country to attain energy security.¹⁷ Sen. Sherwin Gatchalian, Chair of the Senate Committee on Energy, also called for more competition among foreign and domestic players to lower power costs in the country.

The Philippine Energy Plan also cites several development challenges on solar and wind energy. For wind power, major concerns include the high cost of development and lack of updated data. There is also a need to enhance local technical capability and access to new and emerging technologies. For solar power, barriers include high upfront cost for technological requirements, large land area, as well as the need for additional research and development and capacity building on other technologies such as the concentrating solar thermal power and solar thermal cooling/heating technology.

The DoE also acknowledges that renewable energy development in the country is faced with complex procedures in obtaining permits that contribute to project delays. In addition, there is a lack of harmonization and standardization of administrative processes at the national and local levels, causing even more delays for developers.¹⁸ It is also imperative that the Philippine government streamline and organize its processes to reduce bottlenecks and entice more investments.

As the Philippines puts in more effort into developing renewable sources of energy, it can explore further cooperation with India by encouraging more investors and private energy companies to examine possible renewable energy collaboration given ripe market conditions and growing energy demand. With India willing to train and share expertise on wind and solar energy, it is a prime opportunity for the Philippines to work with India on further developing wind and solar capacities to achieve energy security. 

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Endnotes

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