

**Report on the NACT Working Group on**  
**Regional Cooperation for Sustainable Energy Development**  
**Co-Hosted by NACT Vietnam and NACT China**  
**Hanoi, 16 April 2019**

**Background**

1. NACT Vietnam and NACT China co-hosted a working group (WG) meeting on the topic of Regional Cooperation for Sustainable Energy Development on 16 April 2019 in Hanoi. The topic is highly relevant for the ASEAN and China cooperation as all parties are looking forward to energy cooperation to meet the regional and national energy demands for sustainable economic growth and development.
2. The objectives of the WG are to (i) Review the current status of respective national energy development strategy/plan as well as major opportunities and challenges to achieve the strategy; (ii) Review current cooperation mechanisms, activities in energy sector among ASEAN member states and those with China; (iii) Propose new directions for regional cooperation for sustainable energy development. The list of participants to this WG is at **Annex.**

**Current status of national energy plans**

3. The WG underscored the importance of energy for supporting the targeted economic development. Specifically, reliable and affordable energy is fundamental to meet the need of rapid urbanization, modernization and industrialization. These are essential to lift people out of poverty and create prosperity.
4. The WG noted that the countries share common vision and objectives of providing sustainable energy development as mapped out in national power strategy plans. To this end, most remarkably, the countries have been focusing on ensuring secure, reliable and sustainable power supply by diversifying power supply, improving the energy efficiency, and increasing renewable energy supply.
5. Thailand, Philippines, Vietnam and Malaysia are adjusting their energy production structure toward higher portion of renewable energy (solar power, wind power, biomass power and hydro power). Specifically, Thailand has developed the Power Development Plan (PDP) 2018 to replace the PDP 2015, whereby in 2037, Thailand expects to reduce the share of coal/ignite energy from 23% to 12%, and increase that of renewable energy from 15-20% to 20%. Recently, Vietnamese Government has adjusted the Power Plan toward higher share of renewable energy in the energy mix. The Philippines has moved to finalize by 2019 the Implementing Rules and Regulations (IRR) for its Renewable Portfolio Standards (RPS). RPS is

mandated in the Philippine Renewable Energy Act of 2008. Under RPS, every distribution utility is required by law to gradually increase the percentage share of renewables in its electricity mix. The Department of Energy has proposed an additional 1% increase each year, and this number is expected to be finalized in the forthcoming IRR. To avoid sanctions, distribution utilities who are unable to meet the standard will have to buy renewable energy certificates from the other utilities who exceeded the standard. Vietnam's renewable energy production capacity (excluding large hydro) in 2030 was planned to double from 13,700 MW in Power Plan VII (2011) to 27,420 MW in Power Plan VII adjusted (March 2016). The Plan was later updated to more than 50,000 MW registered by November 2018. Malaysia's 11<sup>th</sup> Plan focuses on encouraging sustainable energy use to support growth. It sets out 5 strategies including market settings, energy security and growth in oil and gas, and electricity, energy diversification, efficiency and sustainability.

6. In China, the 19th National Congress of the Communist Party of China raised the construction of ecological civilization to a new height and regarded it as one of the goals of the 2050. The realization of this goal requires strong institutional reforms including the reform of the power system, promotion of renewable energy; enhancement of energy transformation at local level and government's leadership and supervision. In the field of renewables, China focuses on developing higher efficiency, lower cost, more flexible wind energy, solar energy technology, biomass energy, geothermal energy, ocean energy utilization technology, renewable hydrogen energy production, and heating technology.
7. In Singapore, to meet the objectives of energy efficiency and reliability, the Singapore government ventured into solar and other alternative fuels. The government has implemented this objective in some of its large-scale projects. The Government invests and incurs all costs of installing solar batteries into the Housing Development Board. Since 2017, Singapore has installed solar batteries at 1218 houses and 49 Government agencies. It is also on target to install solar power in 5500 HDB blocks by 2020.
8. In the Energy Vision to 2030, Laos focuses on ensuring sufficient and stable supply of electricity for domestic consumption, integrating and engaging in power exchange with neighboring countries and region, and developing the energy and mining sectors to make sure it is in parallel with the protection of green and fresh environment. Cambodian energy sector has made many positive progresses to better meet domestic demand. In 2016, the amount of imported electricity decreased, accounting for only 22% in total electricity consumption, compared to 60% in the 2009-2010 periods. In 2017, 81% of villages in Cambodia could access electricity network. Myanmar is among the countries which have the lowest power consumption level (ranked 134 in 143 countries). The number of Myanmar households with access to the electricity grid accounts for only 32% of total households. Myanmar needs about USD 30 to 40 billion in the next 15-20-year period to develop energy sector and this amount is expected to come mainly from foreign investment.

### **Regional cooperation in energy development**

9. Regional energy cooperation in ASEAN dated back more than 20 years ago, starting with the harmonization of legal regulations and framework in order to establish and connect the regional transmission system. In 1997, leaders of ASEAN countries proposed the ASEAN Power Transmission Line initiative, which introduced numerous transmission lines such as those between Vietnam and Cambodia, Vietnam and Laos, Laos and Thailand. Meantime, although the initiative of building a trans-ASEAN gas pipeline has been proposed for many years but has been implemented only at a limited level. At the regional level, ASEAN member countries have been planning to develop GMS and ASEAN power grid to enhance the energy interconnection and cooperation.
10. At a broader level, the WG noted that there have been mechanisms to strengthen cooperation in energy sector between China and ASEAN Member States, such as ASEAN+3 (China, Japan and Korea) Minister on Energy Meeting, East Asia Summit Energy Ministers Meeting, China-ASEAN Science and Technology Partnership Program.
11. At the bilateral level, the WG noted that there have been several cooperation initiatives between China and individual ASEAN Member States. Some examples were wind power project agreement between Myanmar and the China Three Gorges Corporation in 2016, MOU for wind power cooperation between Vietnam and China. China has worked with Laos to develop the latter's national power infrastructure, with an end to connect China's grid network with that of Vietnam, Laos, Myanmar, Thailand and Cambodia.

### **Opportunities for regional cooperation**

12. The WG noted that China and ASEAN Member States have great opportunities for cooperation as both parties have shared objectives of enhancing energy efficiency and increasing the uptake of renewable energy. ASEAN has set the objectives for the Action Plan phase I (2016-2025) to increase the component of renewable energy to 23% by 2025. China has implemented the energy cooperation framework within the BRI, expanding the international cooperation in conventional energy and non-conventional energy and renewable energy. China has established 56 bilateral energy cooperation mechanisms, 19 multilateral energy cooperation mechanisms, and signed more than 100 energy cooperation agreements. Since 2003, China has invested \$66 billion on the Southeast Asia's energy sector, accounting for 48% of total China's investment in this region. Thus, China and ASEAN member countries have great potential to tap on energy cooperation, especially renewable energy.
13. The production cost of many renewable energy sources has declined sharply and steadily over the past few years, creating favorable conditions for the sustainable energy development for countries in the region. It is shown that in the Philippines, rooftop levelized cost of energy is cheaper than any distribution utility or electric cooperative anywhere in the country. This declining trend is expected to continue even further in the future. The Philippines reached this landmark event earlier than

other countries

because it had the highest electricity rates among the countries that attended the meeting. With the declining trend in solar prices expected to continue even further into the future, other countries will soon reach this landmark too.

14. Digital technology and Internet of Things open new areas for cooperation to enable digitalization of the energy system that leads to higher energy efficiency.

### **Challenges**

15. Besides, the WG noted three categories of common challenges in energy development and energy cooperation in the region. The first category of challenge is the fiscal and financial barriers, especially for renewable facilities. Most countries still have limited financial resources to invest in renewable energy when the initial cost of investing in this kind of energy is still high. At the regional level, countries face shortage of financial capacity as the region needs approximately USD 2.7 trillion for investment by 2040, in which nearly \$400 billion is needed for renewable energy for the period of 2016-2030.
16. The second category of challenge is technological barriers. Infrastructure is often not available to deploy, transmit and distribute renewable energy. In addition, countries lack innovative, sustainable energy generation technologies to increase energy efficiency.
17. The third category of challenges is the absence of institutions, policy and legal regulations to promote energy investment and trade, foster market for energy and encourage engagement of private sector. In some countries, fossil fuel energy is still subsidized by the state. For most countries, fossil fuel energy prices do not take into account its environmental loss. Besides, ASEAN and China have no common regulations or agreements on investment in the energy sector to protect investors while there are still numerous barriers in market access with regard to energy sector.

### **Recommendations**

18. Due to the significance of energy for the regional development, as well as the challenges that the region is facing and potentials for cooperation between ASEAN and China, the WG noted some suggestions for further ASEAN-China energy cooperation as follows:

- (i) Facilitating renewable energy development and sharing experiences, lessons learnt, and capacity building to improve the regional competitive advantages in order to attract investment;
- (ii) Improving technology transfer to enhance efficiency in energy supply and demand, especially renewable energy technology;

(iii) Harmonizing financial and legal framework to facilitate energy trade and sustainable energy investment, improving the tariff system, and favorable market conditions for energy development.

(iv) Developing regional grid network from the current cross-border grid networks such as those between Vietnam and Cambodia, Vietnam and Laos, Laos and Thailand;

(v) Cooperating in developing and exploiting alternative options such as biomass gasification, hydrogen gas;