

ASEAN, China in clean energy vision

Emerging partnership seeks to tap region's ample renewable sources to meet the rising demand for power

By WILLA WU and DARA WANG

China is seen by the Association of Southeast Asian Nations (ASEAN) as a valuable partner in the field of renewable energy. Together with its geographic proximity to ASEAN, the country also possesses advanced experience in exploiting new energy.

Similar to ASEAN's 10 member states, China too faces a rising demand for energy.

When it comes to renewable energy, ASEAN has set itself an ambitious goal: To secure 23 percent of its primary energy from clean and sustainable sources by 2025. In comparison, renewables accounted for 9.4 percent of its primary energy in 2014.

Achieving this goal in the coming years certainly looks promising.

Data from The 5th ASEAN Energy Outlook 2015-2040 report show the region will face great demand for energy. Energy consumption is projected to escalate from 427 million tons of oil equivalent in 2015 to 2,673 MTOE in 2040 — a rise of nearly 526 percent.

A view held by all member states is that renewable sources are an effective means to address the soaring energy need.

ASEAN enjoys abundant renewable energy resources. The Philippines has the world's second-largest geothermal production facilities, while Thailand, Indonesia and Vietnam are well-recognized for their hydropower installations.

The region is also known for its untapped renewable energy potential. According to the International Renewable Energy Agency, solar irradiance is strong in the region, reaching more than 1,500-2,000 kilowatt-hours per square meter annually. Assuming just 20 percent efficiency, each square meter could churn out between 300 and 400 kWh a year.

"ASEAN is committed to a future of renewables," said Philippine Energy Secretary Alfonso G Cusi at the opening of the 35th ASEAN Ministers on Energy Meeting on Sept 27 in Manila.

In addition to integrating and coordinating member states for overall renewable energy development, ASEAN is taking a proactive attitude to attract foreign investment to the sector.

Renewable energy cooperation between China and ASEAN is booming.

UK-based oil and gas major BP forecasts that China and India alone are expected to account for half the 30 percent increase in global energy demand between now and 2035.

Research by the Australia and New Zealand Banking Group shows



The dam of the Jinghong Hydropower Station in Southwest China's Yunnan province, pictured on March 20 last year. It has been used to help alleviate drought in Laos, Myanmar, Thailand, Cambodia and Vietnam with emergency water supply. XINHUA

most foreign investment by the Chinese mainland in the ASEAN region has gone into three major sectors — energy, transport and real estate.

From 2005 to the first half of 2017, the three sectors accounted for 78 percent of cumulative investment and construction contracts from China in ASEAN members.

Challenges remain

"Even though the prospect for China and ASEAN in energy cooperation is bright, challenges are encountered," said Li Yanfei, energy economist of the Jakarta-based Economic Research Institute for ASEAN and East Asia (ERIA).

In particular, some domestic business environments lack networks and policy coordination. Li noted such problems could not be tackled simply by the energy companies themselves.

If communication is weak between Chinese companies and non-governmental organizations before energy projects begin, the NGOs would definitely stand in the way, objecting to projects that would affect the natural environment, Li noted.

He suggested that Chinese authorities establish liaison offices in ASEAN countries, in a bid to gather business-related information for energy companies that desire to enter ASEAN markets, and most importantly, to build a long-term communication mechanism with local NGOs.

From a more macro perspective, the central government could establish an international organization that focuses on policy coordination

in ASEAN energy cooperation, Li said.

The economist referred to the China-led Asian Infrastructure Investment Bank (AIIB) as a good example of bringing countries together to address problems that exist in investing in Asia Pacific.

Li added that AIIB-assisted cooperation is also a practical way to carry out projects under the Belt and Road Initiative, the China-led trade and infrastructure plan to revive the ancient Silk Road routes.

"The Belt and Road Initiative highlights policy coordination. ASEAN countries never fail to provide energy projects with great potential. The key lies in how to translate such projects into reality with the least risks. And that relies on policy assistance," Li explained.

Zhang Jincan, assistant president with the Yunnan Provincial Energy Investment Group, has engaged in energy investment in ASEAN countries for a decade.

Among the first Chinese provincial enterprises to penetrate the overseas market under the "go global" strategy, the company invested about \$163 million in the Xe La Nong 1 hydropower project in Laos.

The hydropower plant, with a generation capacity of 270 million kWh per year, is set for completion in 2020.

Zhang said clean energy has a promising future. Power generation costs from some clean-energy sources, such as solar and hydro, are relatively low as the technologies have matured in recent years.

However, waste of electricity in

transmission and the instability of new energy sources, constrained by natural conditions, have increased the cost of upfront construction investment. And the consequent low return on investment frustrates some investors, Zhang said.

Regions rich in clean energy sources — such as wind power and hydropower — are usually remote from city centers that consume the most energy. The long transmission distances cause large power losses.

Li at ERIA said losses can be cut by using a high-voltage direct current (HVDC) transmission system, called the "power super highway". In contrast to the more common alternating current systems, HVDC suffers lower electrical losses. An HVDC breaker on large power grids can avert catastrophic breakdowns.

Secure sources

The power waste can be further reduced at the energy generation stage by facilitating pumped hydroelectric energy storage, Li said. The device pumps water from a lower elevation reservoir to a higher one at the peak of hydropower supply and releases the stored water through turbines to produce electric power during periods of high demand.

Li said that under the Belt and Road Initiative, the main goal of which is to divert excess Chinese capacity to overseas markets, energy investors can access the rich clean energy in the southwestern Yunnan province and the southern Guangxi Zhuang autonomous region, and sell it to neighboring countries.

"Some countries may have con-

cerns about their energy security if they buy power from China. Thus, we can find a country as a mediator in the energy transaction," Li said.

"We can sell the power residue to Laos at peak periods. Laos can resell the power to other ASEAN countries, such as Thailand, Cambodia and Vietnam, when the demand is high."

Zhang at Yunnan Provincial Energy Investment said the Belt and Road facilitates business connections among ASEAN countries, and China is making cross-country energy cooperation more feasible than it was 10 years ago.

"The initiative shows our nation's positive attitude towards overseas investment. With the overall strength of our country growing, local governments in ASEAN countries show more respect to Chinese enterprises, and the time (spent in) project examination and approval has been shortened by half a year generally from my experience," Zhang said.

Looking at trends in the clean energy industry, Zhang predicted the emergence of mobile banks for hydro or wind power sources. The power generated in one place can be stored in a mobile bank device and moved elsewhere, thus no longer relying on circuit transmission.

Zhang said that with the ongoing improvements in technology, the clean energy industry could rely less on high-end equipment, which in turn would enable costs to decrease in the coming 10 years.

Contact the writers at
willa@chinadailyhk.com
and dara@chinadailyhk.com