

## Energy security through nuclear power?

By LATIFAH AZLAN



*(File pix) Wind turbines at a wind park in Bac Lieu province, Vietnam. Vietnam has abandoned a nuclear energy project signed in 2010 for economic reasons. Reuters photo*

THE nuclear crisis that occurred in Fukushima, Japan, six years ago globally reignited the debate over the viability of nuclear power as an energy source.

Citing widespread safety concerns, nuclear-established countries seemed to either shift their policies towards reducing dependence on nuclear energy or phase out the option completely.

Yet, for emerging countries and those facing few or depleting fuel resources, nuclear energy could become an important component of their future energy mixes.

Supporters argue that nuclear energy may prove to be a more reliable source of power compared with other forms of renewable energy. Unlike solar or wind, nuclear energy is not season-dependent, and one nuclear reactor is capable of continuously generating power for at least 12 months once it is loaded with its base fuel of uranium.

They also point to the low-carbon nature of nuclear power as another desirable aspect of the energy source. Thus, the introduction of nuclear power as an alternative energy source can help address growing concerns over energy security as well as climate change mitigation.

Several countries in Southeast Asia have begun discussing the possibility of introducing nuclear power to their energy portfolios to meet future energy demands and reach carbon emission targets.

To date, there are no operating nuclear power plants in the region. However, many countries have included nuclear power in their long-term energy plans.

In addition to conducting feasibility studies, several states, such as Thailand and the Philippines, have even signed nuclear cooperation deals with countries like China and Russia for financial, technological and training assistance.

Even in Malaysia, there is talk of tapping into nuclear sources for future energy needs. The development of nuclear energy is mentioned as an entry-point project in the New Energy Policy, and the exploration of nuclear energy for power generation is mentioned in the 10th and 11th Malaysia Plans.

The government is taking the necessary steps to lay the groundwork for a potential nuclear-powered future. An assessment initiated by the International Atomic Energy Agency concluded in early March that Malaysia is “thoroughly prepared” to make an informed decision about introducing civilian nuclear power to the country’s power grids.

The zeal for nuclear energy is starting to pick up in the region. However, there is an extremely high risk of failure if such a project is not meticulously planned and executed.

One need only look at Vietnam’s proposed nuclear power programme to understand the stakes involved when embarking on such a large-scale project.

Prior to November 2016, Vietnam was one of the regional frontrunners in establishing civilian nuclear power. In 2010, the Vietnamese government signed two separate intergovernmental agreements with Russia and Japan for the construction of four reactors that were to be commissioned and connected to its national grid by 2020 at the earliest.

There was even a groundbreaking ceremony at one of the reactor sites before the project was delayed in 2014, and then abandoned following a vote by the National Assembly on Nov 22 last year.

The decision to completely scrap these plans was primarily economic. According to Vietnamese authorities, the estimated cost of four reactors at the two identified sites had nearly doubled since the agreements were signed, while the estimated price of nuclear-generated electricity had increased.

There were also concerns that Vietnam would not be able to meet international safety standards due to the lack of legal and regulatory frameworks to monitor the use of nuclear energy.

If Southeast Asia is seriously committed to pursuing nuclear energy in the future, we must begin by being realistic about our ambitions. Thorough surveys and studies are essential to accurately predict future energy needs.

Overestimation of future public energy demands was cited as a reason for the cancellation of Vietnam’s nuclear plans, with latest surveys reducing the predicted power growth rate from 11 per cent to seven to eight per cent in the 2021-2030 period. These projections were revised downwards only after significant amounts of investment had been made to the programme, including investments in the development of human resources.

As it stands, all of South-east Asia's nuclear-interested countries face significant challenges in deploying nuclear power. Some of the bigger questions surrounding the deployment of civilian nuclear power in the region revolve around the procurement of nuclear fuel, disposal of nuclear waste and compliance of facilities with international norms alongside long-standing fears over the safety of nuclear facilities.

One of the most important elements in nuclear power management is the establishment of a regulatory body that is separate from and independent of the influence of promoters of nuclear technology.

Such an entity is important to honestly inspect nuclear plants and ensure that these facilities meet international safety standards. To date, none of the Southeast Asian countries that are considering nuclear power have been able to meet this requirement. Accordingly, it is crucial to have strong legal and regulatory frameworks before developing the required infrastructure.

Although nuclear power is often touted as one of the cheapest forms of energy on the market, it is hard to overlook the fact that massive start-up costs are required to properly assemble the infrastructure and skills needed to safely run a nuclear plant.

One nuclear reactor is expensive enough to build, let alone several, and as an industrialising region, many countries cannot afford to sink money and human resources on failed projects.

Nuclear energy is not and should not be the panacea to the region's energy needs. The debate around nuclear energy has become so polarised that it is often difficult to find a middle ground among either proponents or critics of the issue.

Despite safety concerns, there are benefits to nuclear energy that make it worthy of serious consideration.

Advocating the introduction of nuclear energy for power generation does not necessarily mean a shift to dominate the energy mix with nuclear power. Rather, it should be viewed as a potentially convenient and reliable alternative in a diversified energy portfolio that is serviced by all types of fuel sources.

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