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Nuclear Energy: Political Will Most Crucial

By Alvin Chew

SYNOPSIS

Nuclear energy is not a nascent topic in Southeast Asia, with some countries having started their capacity building almost 50 years ago. But, why have none of the ASEAN countries adopted nuclear for electricity generation?

COMMENTARY

SOUTHEAST Asia does not operate any Nuclear Power Plant (NPP), but the landscape is about to change as the region grapples to meet global targets of greenhouse emissions. While the region has pushed strongly for renewables in the form of solar energy, it is inevitable that nuclear will feature as an alternative option to replace fossil fuels as a sustainable baseload generation of electricity.

In the race to tackle the adverse effects of climate change, the question remains 'When will Southeast Asia embrace nuclear energy?' Will the region continue to dither as the world gradually turns to nuclear power in view of the challenges posed by climate change?

Lessons from Europe

The European Union (EU) has been the stalwart to curb carbon emissions. Some of the EU nations have 'green' ambitions to electrify a large percentage of their grids with renewable energy. For example, Denmark currently has 80% of its electricity generated primarily from wind energy and plans to fully rely on renewables by 2030. Germany is progressively pushing for renewables to completely phase out its dependence on fossil fuels.

The EU model of a 'fairy tale' for renewable energy hinges greatly on the fact that most

of its advanced economies, will collectively enable the region to have resources to deal with the transition of fossil fuels to clean renewables. Furthermore, energy flows among its Member States will mean that a shortfall of electricity in Germany can be supplemented by importing more electricity from France.

This inter-dependence of energy among the EU countries not only strengthens energy security within the region, but also romanticised that those intermittent renewables could become a sustainable source of energy.

The concept of energy security is founded on the supply of baseload energy and not on intermittent sources. The EU has switched from coal to natural gas as the latter is considered a cleaner form of fossil fuel. Notwithstanding the present Russia-Ukraine crisis whereby the EU has been held hostage with its reliance on Russian gas, there is an underlying baseload energy that the region can depend on which is completely clean and sustainable, i.e., Nuclear Energy.

France, with 70% of its power generated via nuclear, has one of the lowest electricity prices in Western Europe. With nuclear energy, France is able to export electricity to EU countries at stable prices. In addition, France is one of the lowest carbon emitter (1% share of global CO₂ emission) with nuclear energy.

Small Nuclear Reactors

Despite nuclear energy being touted as a solution to energy independence as well as abating effects of climate change for the future, Southeast Asia has yet to embark on nuclear energy. Indonesia, considered having the largest nuclear infrastructure in the region, started its atomic energy research in the 1950s for medical and agricultural purposes.

The Philippines built an NPP in late 1970s as a response to the global oil crisis then, but never operated it and was shut down due to public pressure. Vietnam came close to building one in 2015 but cited rising inflationary cost as the primary factor to ditch their nuclear plans. Malaysia has deferred its timeline several times, the latest to 2030, to start thinking about building one.

Perhaps, it may seem that the message on the devastating impacts of climate change isn't an urgent one to the region. However, it is imperative to have a stable regime so that there is sustained political commitment to adopt nuclear energy. The issue of regime change is not unique to Southeast Asia, but it certainly contributed to the on-off status of some of its Member States' nuclear plans.

Nevertheless, the discourse on NPPs have been thriving, ironically in a region that does not operate an NPP. In particular, the advent of newer and safer technologies in future reactors has renewed interests in nuclear energy. Small Modular Reactors (SMRs) are attractive options for newcomer states because it offers several attractive features over a conventional large reactor.

SMRs offer economic prudence with a smaller upfront cost while Member States have the flexibility to scale up their operational needs later. In addition to having smaller

power outputs which lead to smaller grid disruptions, the advanced safety features in SMRs can potentially allow them to be located closer to population centres.

Most Crucial: Political Will

Not surprisingly, the knowledge on the state-of-the-art technology of NPPs is immense in the region. However, it will always remain an academic discourse if countries in the region remain on the trajectory to pursue more advanced and safer technologies to come.

The reality is that the adoption of nuclear energy and its capacity building effort cannot be realised immediately. Once the country makes the political commitment and decides to embark on nuclear energy, the technology set forth will be one that is presently available.

The capacity building over the next 10 years or so for the development of the operational and safety guidelines will therefore be based on present technology. If the region is mulling over the possibility of fusion power, then countries are unknowingly being drawn into the relentless pursuit of technological advancement.

In hindsight, Southeast Asia can ask itself how the region could have fared if it has nuclear energy now. Surely, the region will be more resilient to any global oil shocks, but more importantly, the transition to a carbon-free region will certainly be less disruptive. While the region adopts a sanguine and technology-driven approach to nuclear policies, let's not be over-reliant and neglect the critical aspect of 'Political Will' in decision-making.

As the Austrian management guru, Peter Drucker, says: "*The best way to predict the future is to create it.*" And the creation starts today, not a year or a decade later, because our environment is deteriorating every moment due to our inaction.

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