

Singapore must act decisively to safeguard energy security

As trading relationships and relevant technologies take years to mature, how Singapore responds in the next few years to ensure energy security will be critical. **BY PAUL CHEUNG AND QUAH SAY JYE**

RUSSIA'S invasion of Ukraine has caused chaos in international energy markets, sparking a global rethink of the fundamentals of energy security. As European Commission president Ursula von der Leyen stated, "We simply cannot rely on a supplier who explicitly threatens us."

This has led to the rediscovery of the importance of locally-produced and owned energy. Special attention has been given to renewable energy, as the European Union has said that it will do "whatever it takes" to rebuild solar energy manufacturing locally, and is looking to increase its renewable energy targets.

Yet, for "alternative energy disadvantaged" Singapore, the pathway is not straightforward. While the challenges are by no means insurmountable, they require swift and decisive action, driven by aggressive targets.

EMA report: Finding lessons for energy security

Net-zero and energy security are neighbouring issues, finding common focus on renewable energy. The Energy Market Authority (EMA)'s recently released Energy 2050 Committee Report therefore comes at an opportune time. While not an official policy document, it usefully lays out the different pathways via which Singapore can transition to renewable energy.

The report puts forward three scenarios based on different assumptions of the geostrategic context and level of development of technological innovation, with the foreseeable energy mix pegged to the assumptions of each pathway.

"Clean Energy Renaissance" optimistically pictures rapid developments in energy and digital technologies, as well as strong global cooperation. "Climate Action Bloc" is pessimistic about technology, but optimistic on the geopolitical environment and therefore allocates a large budget to energy imports.

Lastly, "Emergent Technology Trailblazer" assumes a fractured world order and thus leans heavily on Singapore's ability to eventually develop technologies that spur local renewable energy production.

With the developments in Ukraine, the assumptions of this last scenario are becoming increasingly likely. This is alarming for Singapore, which requires greater technological innovation to compensate for its relative lack of resources.

The EMA report could benefit from broadening its focus to explicitly discuss energy security. Nevertheless, it signals the areas where Singapore needs to redouble its efforts to secure its future energy supplies.

Investing in a strong Asean

The EMA report emphasises that the development of an Asean regional grid would represent a major step for Singapore to secure its energy supplies. This is an objective that the Singaporean leadership has pursued for decades, with gradual but not insignificant progress.

Pathfinder projects, like the trial to import renewable hydropower from Laos via Thailand and Malaysia, are important steps for-



Ensuring energy security demands decisive action and ambition.

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ward. However, they do not tackle the root issue behind Asean's slow progress on renewable energy – financing.

To develop the requisite infrastructure and manpower just to reach current renewable energy targets, Asean governments need to invest an additional US\$14 billion a year on top of existing plans. Amidst inflation and economic downturns, Asean has struggled to reach this goal.

As private investors and large countries demur for reasons of profit and politics, Singapore can help fill this gap. In this regard, there is wisdom in Singapore's recent moves to invest heavily in Indonesia to develop solar energy, a large proportion of which will be exported back to Singapore.

Diversifying sources of local production

Yet, Singapore must not put all of its eggs in this basket. In the medium-to-long term, Asean countries might decide to first divert more renewable energy inwards to fulfil their own national objectives.

It is therefore a policy imperative for Singapore to reduce its energy dependence by rapidly expanding local renewable energy production, ideally diversified across different sources.

Ramping up local production would be facilitated by accelerating investment into technological research. Seemingly minor breakthroughs in technological advancement could pay major dividends in energy security by allowing Singapore to diversify its energy sources.

Increasing the efficiency of solar panels from the present rate of 15 to 20 per cent to 25 per cent could greatly increase the ability for Singapore to generate solar energy. We may also see game-changing advancements in nuclear energy on the horizon, as small modular reactors would minimise human error and make the technology considerably safer.

Steps have been taken to explore all possible options. For example, the EMA is also assessing Singapore's geothermal potential, looking to utilise recent advances in technology to exploit geothermal heat deep beneath the ground.

These initiatives should be applauded, but are insufficient to match the scale necessary.

Major investments into energy research are necessary to bring Singapore closer to the finish line.

Drawing from our water story to set ambitious targets

While safeguarding energy security is a challenge, Singapore has previously faced and overcome similar obstacles.

As Minister Chan Chun Sing has previously highlighted, Singapore's energy challenges are analogous to the country's experiences with water.

At the start of its water journey, Singapore was precariously dependent on imports from its neighbours. Hardly anyone could foresee that with hydraulic engineering and desalination technologies, Singapore would become effectively water self-sufficient.

Like water, energy is an existential issue. Singapore must leave no stone unturned in looking to seriously develop a programme towards greater energy self-sufficiency.

Energy security demands not just baby steps but decisive action and ambition. Is Singapore's current target to have just 4 per cent of its electricity demands met by solar energy in 2030 aggressive enough to stir the requisite urgency?

Like how NEWater meets 40 per cent of Singapore's water demand in 2022, Singapore should consider a more ambitious target of having locally-produced renewable energy make up 40 per cent of our energy mix by 2035. This goes with the target of importing 30 per cent of its electricity needs from clean energy sources by 2035.

The EMA report ends by suggesting that Singaporeans should be optimistic about the future. It is important that this optimism translates to strong action. As trading relationships and relevant technologies take years to mature, how Singapore responds in the next few years to ensure energy security will be critical.

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