



Singapore: How to Attract More Investment in Renewable Energy?

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Action plan to attract investment in renewable energy in Singapore

- Develop incentive and regulatory support mechanisms
- Consolidate solar energy governance
- Mobilise equity investors and lenders
- Specialise in the long-distance trade of renewable energy, especially in the form of hydrogen

Singapore has limited renewable energy potential due to its small surface area and the limited space available. Solar power has the greatest potential. Given the country's limited spare land, rooftops and vertical spaces on high-rise buildings are of particular importance. Singapore set a target of producing solar energy to cover 350,000 households in 2030 that would be equivalent to 4% of the country's current electricity demand [1]. In 2019, solar energy accounted for less than 1% of Singapore's total energy mix.

Singapore has rich human and financial resources that could potentially be channelled to develop its renewable energy sector. It could use this and its position as a trading and shipping hub to develop a niche for itself in technologies and infrastructure for long-distance transport of renewable energy, for example in the form of hydrogen.

During the 2019–2020 period, the political signals from the government of Singapore were supportive of renewables, yet renewable energy deployment remained relatively slow. In light of this, we propose four actions to improve the investment climate for renewable energy in Singapore.

Action 1: Develop incentives and regulatory support mechanisms

Renewable energy is part of Singapore's Nationally Determined Contribution (NDC) under the Paris Agreement [2]. According to the World Bank, Singapore has the least developed incentive mechanisms and regulatory support system for renewable energy of the ASEAN countries [3]. The first measures to improve the situation could include the introduction of production tax credits, tax reductions and energy production payments (see Table 1). Next, the government could outline clear guidelines for solar projects. It could also specify the types of permissions needed for different types of solar power projects. Although the two countries are very different, Vietnam could serve as a reference point for sequencing the adoption of incentive measures.

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Table 1. Singapore’s regulatory framework compared to other ASEAN countries (2020)

Type of policy		Philippines	Vietnam	Indonesia	Malaysia	Thailand	Singapore	Myanmar	Lao PDR	Cambodia	Brunei Darussalam
Regulatory policies	Renewable energy in INDC or NDC	•	•	•	•	•	•	•	•	•	•
	Renewable energy targets	•	•	•	•	•	•	•	•		•
	Feed-in tariff/auctions/premium payment	•	•	•	•	•				•	
	Net metering/billing/direct consumption-supply	•	•	•	•		•				
	Biofuel blend obligation/mandate/target	•	•	•	•	•					
	Electric utility quota obligation/RPS	•	•	•	•						
	Tradable REC		•								
	Renewable heat obligation/mandate										
Fiscal incentives and public financing	Tax incentives	•	•	•	•	•		•	•	•	
	Public investment/loans/grants/subsidies/rebates	•	•	•	•	•	•		•		
	Reductions in sales, CO ₂ , VAT or taxes	•	•	•	•	•		•			
	Tendering	•		•	•		•				
	Investment or production tax credits	•	•	•							
	Energy production payment	•				•					

Sources: [4,5].

Action 2: Consolidate solar energy governance

Currently, solar power falls within the scope of two ministries and four other government bodies. Thus, the regulation of solar energy is scattered across the Energy Market Authority, the Economic Development Board and the National Environment Agency. This leads to the fragmentation of responsibilities among government bodies. Investors also perceive that the solar market regulations are excessively burdensome and the sector is less open and competitive than other sectors in the country [6]. To streamline the governance of solar power, Singapore could establish a separate government body (e.g. a Solar Power Agency) and concentrate the regulatory and controlling responsibilities and decision-making power under its umbrella. This would improve transparency and reduce transaction costs for investors. Establishing a more dedicated institution for governing solar energy would also show that the country prioritises solar power and could help attract more domestic and foreign investors [7].

Action 3: Mobilise equity investors and lenders

Singapore has highly developed financial and equity markets. The government could provide a range of incentives to mobilise equity investors and lenders to explore and invest in rooftop solar projects and a variety of building-integrated photovoltaic applications in industrial and commercial buildings. The country has a high share of public or heavily subsidised high-rise housing. The government could invest in maximising the potential of those buildings to produce as much electricity as possible to enable excess production to offset the use of gas in commercial buildings during peak hours. This should be easier to achieve if incentive and regulatory support mechanisms are further developed and supported by effective governance (see Actions 1 and 2).

Action 4: Specialise in the long-distance trade of renewable energy, especially in the form of hydrogen

Singapore imports most of its energy in the form of fossil fuels from remote countries and plays a role as a regional hub for trade in oil and liquefied natural gas as well as for shipping more broadly. It could leverage this position, as well as its capacity for high-level research and innovation, to build a niche for itself in the long-distance transport of renewable energy, for example in the form of hydrogen.

References

- [1] Min AH. Singapore sets solar energy target for 2030 that would provide enough power for 350,000 homes. Channel News Asia (CNA); 2019.
- [2] ACE. Singapore. Country Profile. Jakarta: ACCEPT. ASEAN Centre for Energy (ACE); <https://accept.aseanenergy.org/country/Singapore/>; 2020.
- [3] World Bank. Regulatory Indicators for Sustainable Energy. The World Bank Group; 2018.
- [4] REN21. Renewables 2019 Global Status Report. Paris: Renewable Energy Policy Network for the 21st Century (REN21); 2019.
- [5] ACE. ACCEPT-Renewable Energy & Energy Efficiency Policy Database. ASEAN Energy Database System. Jakarta: ASEAN Centre for Energy (ACE); 2020.
- [6] Solar Magazine. Singapore Solar Energy Profile. 2019.
- [7] Vakulchuk R, Hlaing KK, Naing EZ, Overland I, Suryadi B, Velautham S. Myanmar's Attractiveness for Investment in the Energy Sector: A Comparative International Perspective 2017. <https://doi.org/10.2139/ssrn.3023133>.


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