# Sustainable means for Singapore's energy future

**Insight:**

Singapore does not have any natural resources and 95.2% of the electricity generation is by imported natural gas. The republic aims to reduce its emission intensity by 36% below 2005 levels by 2030 [1].

In recent Singapore budget 2018, carbon tax levied on facilities that produce 25,000 tonnes or more greenhouse gas emissions in a year, will initially be $5 per tonne of emission. The government will review the carbon tax rate by 2023, with plans to increase it to between $10 and $15 per tonne of mission by 2030 [2].

One method policymakers have adopted to reduce the city-state's carbon footprint is by moving away from fossil fuels as our primary energy source, and looking towards renewable energy primarily solar.

The growth of solar PV system has accelerated over the years. As of 1Q 2017, 99.9MWac of solar PV capacity has been installed. Only about 4.7MWac of solar PV capacity is installed in residential [3]. Most of the residential housing are high rise buildings and have limited areas for renewable technologies. Space is a constraint for Singapore thereby limiting the deployment of solar installation. In addition, Singapore is in the tropical region, and heavy cloud cover, monsoon and urban shading poses intermittency challenges.

Solar PV systems in tropical, urban regions like Singapore need to address the intermittency issues that come with heavy cloud cover, monsoons, and urban shading in order to be able to effectively enable policymakers to adopt solar PV as an alternative to fossil fuels as an alternative energy source.

**References**

[1] https://www.channelnewsasia.com/news/singapore/singapore-reaffirms-commitment-to-paris-climate-agreement-after-8905862
[2] https://www.straitstimes.com/politics/carbon-tax-will-affect-mainly-large-polluters
[3]https://www.ema.gov.sg/cmsmedia/Publications_and_Statistics/Publications/SES17/Publication_Singapore_Energy_Statistics_2017.pdf