Sri lanka solar energy policy



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The Sri Lankan government set a goal of achieving 70% renewable energy generation by 2030 and becoming carbon neutral by 2050. The Ministry of Power and Energy, Public Utilities Commission of Sri Lanka (PUCSL), and electricity sector service providers take measures to achieve these targets.

In order to achieve Sustainable Development Goal 7, which focuses on affordable and clean energy, Sri Lanka is implementing its Nationally Determined Contributions (NDCs) to reduce greenhouse gas (GHG) emissions. As part of its NDC plan, Sri Lanka aims to develop an additional capacity of 3,867MW of renewable energy by 2030. Given its abundant renewable energy sources such as solar, wind, hydro, and biomass, Sri Lanka has the potential to meet this target. As the country is rich in renewable energy sources such as solar, wind, hydro, and biomass, the approved LTGEP base case plan outlines a target of 4,705MW of solar power, 1825MW of wind power, 195MW of mini-hydro, and 200MW of biomass power.

The renewable energy plants that have obtained a generation license from PUCSL have been added to the following MAP. The Renewable Plant Map of Sri Lanka enables the public to easily locate these plants and understand the resources being utilized based on the available potential.

Sri Lanka is located close to the equator and receives abundant sunlight throughout the year, making it an ideal location for solar energy generation. According to a 2017 study by the Asian Development Bank (ADB), Sri Lanka has a high potential for solar power with an average solar insolation of 4-6 kWh/m2 per day.

Solar energy is harnessed by converting sunlight into electricity using photovoltaic (PV) cells. PV cells are made of semiconducting materials like silicon that absorb photons from sunlight and release electrons, generating an electric current. This current is directed into an inverter which converts the DC output into AC electricity that can be used for power needs.

Sri Lanka is an island nation located in the Indian Ocean, southeast of the Indian subcontinent. It lies between 5?55? and 9?51? N latitude and between 79?41? and 81?53? E longitude, just north of the equator. This tropical location provides high solar irradiation throughout the year.

Monocrystalline and polycrystalline silicon panels are well-suited for Sri Lanka"s climate. Monocrystalline panels made from a single silicon crystal tend to be slightly more efficient in high temperatures. Polycrystalline panels with silicon fragments are cheaper but marginally less efficient. Thin-film panels can work but have shorter lifespans in hot, humid climates. Proper solar panel selection, cooling, and cleaning help optimize energy yield.

Solar power is an emerging energy source in Sri Lanka. According to the Ceylon Electricity Board (CEB), the installed solar capacity was around 164 MW as of 2018, contributing 0.4% of total electricity generation.



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However, solar adoption is rapidly increasing driven by favorable policies.

As per the Sustainable Energy Authority of Sri Lanka, the installed solar PV capacity increased over 10 times from 12 MW in 2015 to around 164 MW by 2018. Grid-connected rooftop solar accounted for 147 MW while large-scale solar farms contributed 17 MW. The government aims to achieve 1,000 MW of solar capacity by 2030.

The government has introduced several policies to accelerate solar deployment including net metering, net accounting, and standardized power purchase agreements. Import duty concessions, loans, and tax holidays have improved the economics of solar projects. The CEB launched a small power producer program welcoming private investment in solar farms.

Sri Lanka has abundant solar energy potential, with average solar insolation of 4-6 kWh/m2/day. Adopting solar energy brings several key advantages for the country:

Solar PV systems generate electricity without any air or water pollution during operation. According to a 2020 study by Rodrigo et al., solar energy in Sri Lanka can potentially avoid over 6.5 million tons of CO2 emissions per year by 2030. This helps mitigate climate change and other environmental concerns.

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