Solar energy policy japan

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Solar energy in Japan is emerging as a cornerstone of Japan’s strategy to meet its ambitious long-term sustainability goals. The Sixth Strategic Energy Plan aims for carbon neutrality by 2050 with an interim goal of 36-38% of energy from renewables by 2030. This underlines a significant shift towards renewable energy, with a majority coming from solar power generation.

This goal reflects Japan’s acknowledgement of its significant solar energy potential, which is enough to produce four times the country’s current energy needs through PV system projects, including rooftops solar panels, floating and others in conjunction with agriculture. Furthermore, the country’s population is in decline, which will free up an additional 8,000 square km of agricultural land - an ideal amount for utility-scale solar facilities.

In 2022, solar energy accounted for 5.39% of Japan"s total energy mix and 9.91% of its electricity generation. In both cases, solar power in Japan holds the largest share of all renewable sources. This is a drastic contrast to even a decade ago when solar energy contributed less than 1% of the country’s energy. In total, solar energy in Japan grew from 11.05 TWh in 2010 to over 260 TWh in 2022.

However, even with this shift, the country must dramatically increase its solar energy infrastructure to meet its 2030 and 2050 targets. In 2022, Japan produced 4,956 TWh of energy. Assuming energy consumption remains relatively stable, renewable energy capacity will need to grow to 1,784 TWh by 2030. This growth relies on better government policy to incentivise renewable energy and grid infrastructure investment.

The steady growth of solar power in Japan is attributed to several factors, including the country’s focus on energy security, economic efficiency and environmental sustainability. Post-Fukushima, there was a national reevaluation of energy sources. Where nuclear power once previously accounted for around 13% of the country’s energy, within a year that dropped to less than 1%. This gap was filled with a mix of renewables and fossil fuels, coinciding with the growth of solar energy in the country.

Solar energy in Japan, with its relative ease of installation and support through governmental policies, such as generous feed-in tariffs, emerged as a popular choice. This allowed individual consumers to economically invest in residential solar arrays, while developers constructed large utility-scale facilities.

Moreover, initiatives like agrivoltaics and floating solar power plants are becoming more popular, allowing the country to capitalise on a growing portion of its potential solar capacity. Japan is home to over 50 of the world’s 100 largest floating solar facilities and around 2,000 agrivoltaic farms.

Japan’s renewable energy policy is primarily encapsulated in the country’s Sixth Strategic Energy Plan, which was released in 2021. It is the country’s basic guideline for medium to long-term

energy policy. The plan is updated every three to four years to align with the changing regional and global energy landscape. The plan calls for maximising the development of renewable energy infrastructure in harmony with local communities.

The Japanese government has introduced several specialised programs to facilitate this growth. One of the key existing programs is the feed-in tariff, which guarantees the purchase of electricity from a new solar energy facility at a set price for a number of years. This lets developers know they will recoup a significant portion of the upfront construction costs, lowering overall risk.

Another major step is the announcement of a national carbon pricing system that will come online in 2028. The system will tax fossil fuel importers, disincentivising fossil fuel use in favour of domestic low-carbon options.

Overall, the growth potential for Japan’s solar energy sector is immense, which will help spur the country’s domestic PV industry. Forecasts suggest the solar energy market will see a compound annual growth rate of 9.2% until 2029.

This contradicts the idea of a green energy transition and relies on untested clean fossil fuel technologies. Furthermore, it means a significant amount of funding will go towards these clean fossil fuel technologies rather than renewables. The data shows that the country can meet its energy needs with renewable energy options, even if they are more expensive than other nations.

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Web: https://www.sumthingtasty.co.za/contact-us/
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WhatsApp: 8613816583346