GLOBAL SOLAR COUNCIL

Distributed Solar In India

Short overview of status and permitting procedures, based on a survey results.

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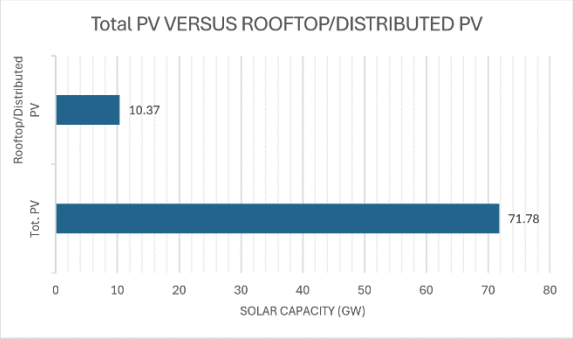
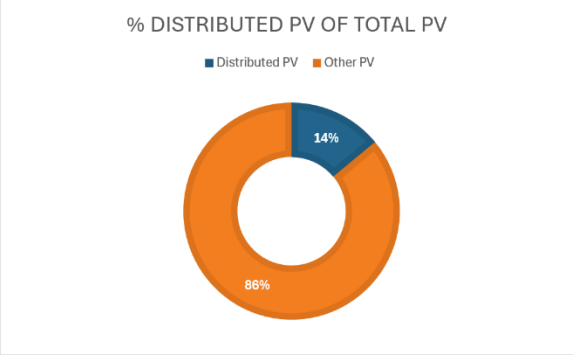
In cooperation with:

NSEFI
MAKING SOLAR ENERGY AFFORDABLE

Having experienced some difficult years regarding their solar development (solar demand was on a constant decline from 2017 to 2020 Solar Power Europe 2023,) the market has since been rebounding with 17.4 GW added in 2022 and a further 12.76 GW added in 2023, bringing the country's total capacity to 71.78 GW.



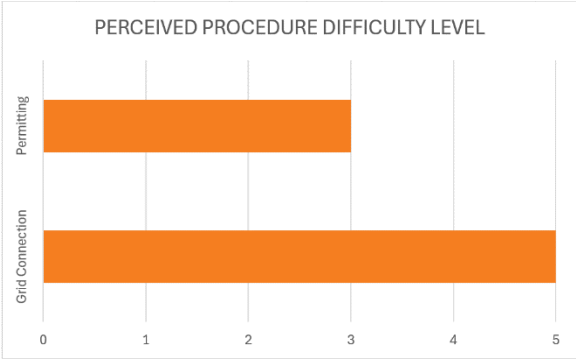
Of its total installed capacity around 10.4 GW of solar PV comes from rooftop/ decentralised solar PV, around 14% of the total solar output. Their current target for rooftop PV is to reach 40,000 MW by 2026, which would require an addition of 29.6 GW across the next 6 years at a rate of just under 5GW of addition per year. Meanwhile, the residential-specific target is set to reach 16,200 MW of residential rooftop solar by 2030.



The National Institute of Solar Energy (NISE) has assessed India's solar potential to be about 748 GW assuming 3% of the waste land area can be covered by solar photovoltaic modules. As of 2022, India is fifth in solar deployment in the world, and aims to generate 500 GW in solar power by 2030 (India Ministry of New and Renewable Energy).

PERMITTING AND GRID CONNECTIO

Like many other countries, the issue of grid connection leads to bottlenecks in India, NSEFI rates it as 5/5 in terms of difficulty and time consumption as well as citing it as the most complex stage in the approval of solar projects. The country also has differing authorization procedures at a local level which is likely to complicate this issue.



Each state in India also has its own net metering policy or rooftop solar policy, vary the process and limitations for grid connection, and compensation for excess electricity produced that is exported to the grid (Centre for Energy Finance).

There are two main types of metering arrangements that states have: net and gross,

or in some occasions, both. 19 states offer both, while 17 only permit net metering. In the case of net metering, the resident user directly consumes electricity from their solar panel, and the excess electricity is injected into the grid. With gross metering, all electricity is injected into the grid, and consumers import electricity from it for consumption (Centre for Energy Finance).

Limitations on system sizes and transformer capacity, and types of compensation mechanisms also vary by state, further complicating the process of grid connection (Centre for Energy Finance).

POLICY AND INCENTIVES

There are few Incentive mechanisms in India to drive the installation of rooftop PV, the first and foremost being the Solar Rooftop Subsidy, or PM Surya Ghar Muft Pijli Yojana, approved February 2024 (The Economic Times). This project aims to provide financing of up to 30% of the benchmark cost to residential buildings, institutions and social sector buildings in 'general category states' and 'Union Territory states' meanwhile in north-eastern states or 'special category states' the programme can avail up to 70% of the benchmark cost. This 'benchmark cost' is a price set and updated by the Ministry of New and Renewable Energy on a yearly basis, allowing it to be relevant to market trends. Not only does this policy subsidize the installation of rooftop solar panels for residential houses, it promote India's goal of generating 500 GW of renewable energy by 2030.

PV systems can also take advantage of net metering in several ways. Firstly, any energy fed into the grid can be recompensated with renewable energy credits which can later be exchanged for financial incentives which come in two forms, either; a reduction in the owner's electricity bill, or a special tariff for the number of units fed into the grid by the state government.

With an objective of reaching 40,000 MW in grid-connected rooftop solar projects, the rooftop solar. The centralized platform allows interested parties to register, apply, take a feasibility test, and finally install a solar rooftop system. Through this platform, parties can apply for Central Financial Assistance which provides financial support for residential projects with the following breakdown:

Capacity	Applicable Subsidy
Up to 3 kW	Rs. 14588/kW
3-10 kW	Rs.14588/kW for the first 3 kW, then Rs. 7294/kW
Over 10 kW	Rs. 94822 total contribution

The payable amount is provided directly to the applicant upon completion and connection of the solar project.

Otherwise, applicants can use the state DISCOM portal whereby applicants only pay the remaining balance of a solar project once the subsidy value has been deducted from the price, allowing those who do not have the capital to pay directly for the project to take advantage of the price reduction.