

Distributed Solar Financing

Unlocking Investments for a Greener Future

The proliferation of distributed solar energy in India faces significant challenges, primarily due to the high initial investment costs of setting up a solar energy system. Also, the motivation to invest in these solutions is often found lacking, despite government subsidy schemes like the Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyaan (PM-KUSUM) and the PM Surya Ghar: Muft Bijli Yojana. This is because the sectors for which these schemes are applicable already enjoy electricity subsidy: electricity for the agriculture sector is subsidised across India, while more and more states are providing subsidised electricity to residential consumers. Thus, to augment investments in distributed solar energy, innovative financing approaches need to be implemented.

One such mechanism involves aggregating local demand and installing distributed solar energy systems at centralised locations. Third parties can invest in such a model and leverage innovative metering solutions like virtual net metering or group net metering to achieve economies of scale. However, protecting the interests of third parties is a challenge, necessitating robust frameworks for contracts and power purchase agreements to ensure mutual benefits.

Another effective strategy is presented by the community solar model, which encourages groups of consumers to collectively invest in distributed solar installations at a centralised location. Besides providing the benefits of economies of scale to the consumers, this approach enables risk-sharing, thus fostering community development, particularly in rural areas where co-operatives can be formed. The main challenge here lies in maintaining harmony among community members, since a collaborative spirit is essential for this model to thrive and deliver its full potential.

To attract investment in distributed solar energy from consumers that have electricity subsidy support, further innovations are needed. Some states are providing subsidies in addition to the central financial assistance available under the PM-Surya Ghar and PM-KUSUM schemes. This minimises the initial investment needed from consumers. Since such mechanisms require coordination between the central and state subsidy schemes, streamlining the processes is crucial for facilitating access and preventing delays.

States are also exploring schemes that oversize the solar system to a level that is slightly higher than the consumption of the households. The central financial assistance available is used as equity and the remaining investment is sourced as low-cost debts from nationalised banks or other institutions such as the National Bank for Agriculture and Rural Development (NABARD). Revenue generated from selling the surplus electricity to electricity distribution companies (DISCOMs) can be used to repay the debt. For these schemes, the limited availability of suitable rooftop spaces is a major issue. The variations in consumption and in the resultant surplus generation also poses a challenge. Designing flexible equated monthly instalments (EMIs) can help in dealing with this problem.

Finally, as carbon markets mature in India, introducing carbon credits for distributed solar projects could provide an additional revenue stream beyond electricity sales. This incentive would make distributed



solar more attractive to consumers and help in increasing its uptake. By monetising the environmental benefits of solar energy generation, this mechanism can further enhance the economic viability of distributed solar systems.

Enhancing consumer engagement through innovative financing solutions is crucial for scaling up distributed solar energy in India. Though these models come with their unique advantages and challenges, they collectively represent viable pathways to unlock investments in this area for a sustainable future. By prioritising their implementation and fostering collaboration among all the stakeholders, India can accelerate its transition towards a greener energy future.

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