



IS RESIDENTIAL ROOFTOP SOLAR READY TO TAKE OFF POST SUBSIDY AND FALLING EQUIPMENT COSTS?

Annual installation of residential rooftop solar has declined from 199 MW in FY 2017 to 93 MW in FY 2020 despite attractive subsidy and falling equipment cost. Lack of consumer awareness, limited rooftop space and shortage of financing options are the main cause of this fall. However the increased power consumption in the residential segment, highly affordable and financially attractive schemes, falling prices, low EPC cost, remote site surveys and standard designs for reduced installation time etc will help take off the residential rooftop market. MNRE has already sanctioned the subsidy of 833 MW. Overall there is great optimism about prospects and the residential rooftop solar market should grow rapidly in the coming years



SAPTAK GHOSH
Research Scientist, Energy and Power sector, CSTEP

Residential Solar—Thinking beyond Capital Subsidies and Lower Equipment Costs

The Sustainable Rooftop Implementation for Solar Transfiguration of India (SRISTI) scheme was announced in early 2019. It was expected to rejuvenate the rooftop photovoltaic (RTPV) sector, which by then had achieved only ~1.2 GW of the 40 GW target for 2021–22. SRISTI targeted the underserved residential category by offering attractive capital subsidies of up to 40% for 1–3 kW systems and 20% for 3–10 kW ones. The scheme also had a subsidy component of 20% for large apartment complexes and group housing societies.

Despite this scheme and falling equipment costs, the residential category continues to underperform, currently accounting for only ~1 GW (total: ~6.1 GW). The primary reason behind this tepid growth is the lack of information available to prospective consumers. This information gap can be addressed through awareness programmes that can communicate the immense financial benefits of RTPV. A typical 5 kW system costs around INR 1.7 lakhs with a payback period of less than 4 years. The return on investment is approximately 650% under net metering over the 25 years lifetime of the system. RTPV yields savings through reduced electricity bills with tax-free returns, thereby making it a unique investment opportunity. When communicated adequately, these benefits will resonate with the public, helping them make informed investment decisions.

Liaising with the distribution company (DISCOM) and vendor to obtain clearances and commissioning should not be a deterrent either. Residential consumers have often complained that this is the most cumbersome step. To redress this grievance, some DISCOMs are proactively trying to assemble residential consumers through "one-stop-shop" online portals. For instance, Bangalore Electricity Supply Company (BESCOM) is aggregating ~300 MW of residential RTPV capacity. Economies of scale and marginal customer acquisition charges reduce RTPV costs drastically.

Tendering processes become smoother when empanelled vendors are allotted capacity chunks in their respective locations. These vendors need to be reliable and responsible. They should provide quality equipment to last 25 years and inform consumers about maintenance schedules and inverter replacement timelines. More importantly, they should discourage interested consumers from installing RTPV in case of shading issues on their roofs. Shadows from even the most innocuous obstacle can reduce generation by more than 60% in urban areas.

Lastly, residential consumers should have access to low-cost finance for RTPV installations. Most dedicated lending lines for RTPV in India focus on commercial and industrial consumers. Banks perceive residential RTPV to be a high-risk asset; moreover, multiple residential consumers mean numerous small loan accounts. Innovative schemes such as consumer aggregation and linking RTPV loan EMI with monthly DISCOM bills can reduce transaction costs for banks. Further, working with only one entity—the DISCOM—instead of several homeowners also mitigates risk for banks by ensuring timely payments.

Capital subsidies and falling equipment costs are not enough to reinvigorate the residential RTPV sector. Concerted and coordinated efforts are required from DISCOMs, vendors, and banks to stimulate this sector and achieve the ambitious targets.

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