

Indian start-ups have a solution for city-dwellers who can't install solar panels on their rooftops

To beat the space crunch, city residents can invest in solar power production elsewhere in return for green electricity credits.

Anuradha Nagaraj, Thomson Reuters Foundation

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Representational image. | Sam Panthaky/ AFP

Suraj Vallamkonda, 29, bought a new electric scooter as a step towards reducing his carbon footprint and tackling climate change. But when he plugged it into recharge, he realised he was using fossil fuels to power his scooter, not green energy.

One solution, he knew, would be to install solar panels on his rooftop. But his home terrace, with its thriving herb garden, did not have enough space for panels, so he decided to invest instead in “solar biscuits”, or portions of panels in an existing system.

Vallamkonda tapped into solar power produced miles away via a start-up business that helps meet individuals’ clean energy needs at home with power produced by solar panels mounted on big malls, schools and other sites across India. The Bengaluru resident invested in solar panels virtually, earning him credits that offset his electricity bill at home.

Start-ups like [SundayGrids](#) are making rooftop solar power accessible to urban Indians like Vallamkonda and boosting India’s ambitious renewable energy programme, which aims to move the nation away from its reliance on fossil fuels like coal.

“The idea for the start-up came from the fact that most of us did not have access to a rooftop,” said young entrepreneur Mathew Samuel, 24, co-founder of SundayGrids. “We were mostly living in rented apartments, often moving cities – and as an individual, the economics of it and how to install [panels] were also a challenge. But we wanted our say in climate action, like so many other people do.”

Rooftop solar is seen as a cost-effective, efficient and easy-to-implement way to meet India’s rising energy demands. More than 70 crore Indians have gained access to electricity since 2000, with about 97% of the population now connected to on- or off-grid power, according to the International Energy Agency.

An expanding economy, growing population, urbanisation and industrialisation mean India will see the largest increase in energy demand of any country in the next two decades, according to an International Energy Agency report on the country’s 2021 energy outlook. At present, 40% of India’s installed electricity capacity comes from renewable sources like solar, wind and hydro.

But, according to India’s Ministry of New and Renewable Energy, only 5.7 gigawatts of [solar rooftop projects](#) had been set up by last November – just a fraction of the 40-GW rooftop solar target for the end of 2022.

That points to major scope to expand rooftop solar fast.

“[It] will be a consumer utility in 10 or 15 years, just like a fridge or washing machine,” said Martin Scherfler, co-founder of Auroville Consulting, who works on power-sector reforms. “Right now, however, it is a very bumpy ride with a lot of resistance from old power distribution companies, for whom the consumer was never supposed to be a producer.”

Scarce rooftops

According to a 2021 Asian Development Bank report, of the total rooftop solar energy deployed in India, the [residential sector has been the worst performer](#), compared to other industrial and commercial spaces.

Researchers link this to low awareness, limited financing options and roof ownership, and piecemeal implementation of net metering, a billing mechanism that credits solar-system owners for the electricity they add to the grid.

“In a five-city survey we found most residents did not know where to find relevant information on setting up rooftop solar,” said Deepak Sriram Krishnan, associate director for the non-profit World Resources Institute India’s energy programme.

“A lot of people want to make the switch, but also want it to be economically viable,” he said. “There are very few banks financing rooftop solar – and in most cases, the collateral is the entire house.” In apartments, rooftops are usually shared property also housing television antennas and water tanks.

In individual houses, rooftops are spaces where clothes are hung out to dry, terrace gardens bloom, spices are sun-dried, children play and family get-togethers are held.

“A digital platform is a win-win situation,” said Vallamkonda, noting his mother, who he lives with, “cannot wait to invest a lot more” in the project’s next phase.

Digital solar

In the city of Hyderabad, young software engineer Sandeep Menon, 25, was first introduced to the idea of rooftop solar at an apartment block owned by a friend.

“Normally when looking for an apartment, we look at the rent, location and basic amenities,” he told the *Thomson Reuters Foundation* by phone.

“But access to green energy might soon find its way onto that list,” he said. “Till then, digital solar is bridging the gap. It is a starting point for many who want to make the switch.”

Menon made an initial investment of Rs 15,000 and saves roughly Rs 1,000 on his quarterly electricity bills, for a 15-year period.

Within six months of launching with seed money from a fintech fund, SundayGrids sold out its 5-kilowatt first-phase project and is now launching a second tranche of 100 kilowatt-200 kilowatt, which will produce much more power.

Consumers also pay an on-boarding fee while sites hosting the panels are billed for the solar power produced on their premises, which still works out cheaper than conventional grid electricity.

“We are tying up with more solar installers and also hosts or people who have ample space to set up rooftop solar panels,” Samuel said.

From shopping malls to schools, hospitals and industrial hubs, Samuel and his team scout for hosts and do deals with installers to set up and maintain panels.

They also draw up agreements with power companies to discount customer bills in return for credits.

Rising demand

The Tata Power Company Limited, an India-based integrated energy firm, has emerged as one of the biggest players in the rooftop solar sector, with its CEO Praveer Sinha saying it is the only way to “get away” from large coal power plants.

The company, which offers a one-stop service for setting up rooftop solar, uses satellite images to assess the rooftop capacity of a property and maintains the panels. It is now developing thin-film strips that can be stuck onto a surface to generate solar power.

“We are also working on a do-it-yourself solar power-generating kit that will allow individuals to set up on their own,” Sinha said, adding the company was toying with the idea of selling panels in various colours other than the standard blue.

Tata has seen a huge uptake from consumers for its one-stop service, he said, calling for more financing options and tighter regulation to keep out “fly-by-night” operators.

Power-sector consultant Scherfler said it was up to the government to put in place market conditions and rules to encourage citizens to use green energy.

The government already provides a subsidy of up to 40% for rooftop solar, and this year has further simplified procedures to make installation easy.

To encourage individuals to invest in rooftop solar, it is setting up a web portal for residents to register and promising approval within 15 days.

It has also committed to the early installation of net-metering systems, provision of authorised vendor lists and creation of a complaints mechanism.

“Centralised facilities are not the solution – individuals can be,” said Scherfler.

This article first appeared on [Thomson Reuters Foundation News](#).