

INDIA LACKS SOLAR WASTE HANDLING POLICY

Relevant for: Indian Economy | Topic: Infrastructure: Energy incl. Renewable & Non-renewable

Not a sunny prospect: Photovoltaic modules had so far generated a waste of nearly 2.85 lakh tonnes. G.N. Rao | Photo Credit: RAO GN

While India ramps up its solar power capacity, the nation does not yet have a firm policy on managing waste that results from used solar panels or from the manufacturing process.

The International Renewable Energy Agency (IRENA) last December estimated that the global photovoltaic waste will touch 78 million tonnes by 2050, with India expected to be one of the top five generators of such waste.

India currently considers solar waste a part of electronic waste and does not account for it separately, according to a response to a question in the Rajya Sabha. Minister for New and Renewable Energy (MNRE) R.K. Singh said a committee had been constituted under the chairmanship of the Ministry's Secretary to propose an action plan to evolve a "circular economy" in solar panel, through reuse/recycling of waste generated. There was no commercial raw material recovery facility for solar e-waste operational in India, but a pilot facility for solar panel recycling and material recovery had been set up by a private company in Gummidipoondi in Tamil Nadu. India has set a target of producing 100 GW of solar energy by 2022.

The cumulative capacity of grid-connected solar photovoltaic (PV) installations is around 40 GW and of the current capacity, about 35.6 GW, is generated from ground-mounted plants and 4.4 GW from rooftop solar. A gigawatt is a 1,000 megawatt.

Solar panel's life

Solar panels have an estimated life of 25 years, and given that India's solar manufacturing industry took off around 2010, most of the installed systems were new and early in their calendar lifecycle and therefore unlikely to generate a large quantity of solar waste.

That, however, is only partially accurate, according to the Council for Energy, Environment and Water (CEEW), a Delhi based think-tank. End-of-life was only one of the possible waste streams for PV modules and there were several other stages where modules could get damaged. Additionally, modules could develop defects during the plant operations and be discarded even before their scheduled life span.

In the CEEW's reckoning, PV modules had so far likely generated a cumulative waste of nearly 2,85,000 tonnes, as of FY21, from the early-life loss of the installed 40 GW grid-connected solar capacity.

Despite its ambitious expansion plans, much of India's solar PV manufacturing uses imported components with parts mostly sourced from China.

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