

Rooftop solar panels could power one third of US manufacturing sector, claims study

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Array of tightly-packed solar panels in neat rows stretching into the distance.
Credit: IOP Publishing

Mounted on the rooftops of industrial buildings, solar panels could meet the entire electricity demand of up to 35% of U.S. manufacturers. A new study, published in *Environmental Research: Infrastructure and Sustainability*, investigates the feasibility of meeting these electricity demands through on-site solar panel installations for different regions

and manufacturing sectors across the United States.

The study, led by researchers from Northeastern University, uses the U.S. Department of Energy Manufacturing Energy Consumption Survey to compare the potential electricity generation of rooftop solar arrays against the [electricity demand](#) per unit of floor space for the average manufacturing building. The results show that rooftop solar arrays could completely fulfill the electricity requirement of 5%–35% of U.S. manufacturing sectors depending on the season, with companies producing furniture, textiles, and apparels set to benefit most.

Dr. Matthew Eckelman, Associate Professor of Civil and Environmental Engineering at Northeastern University, says, "Currently, less than 0.1% of the electricity required by the [manufacturing sector](#) in the U.S. is generated through renewable, on-site sources. This must change if we are going to meet decarbonization goals, and in many cases rooftop [solar panels](#) are now a feasible option for supplying low-carbon energy."

Globally, the industrial sector represents a large contributor to energy usage, and associated greenhouse gas and carbon emissions. As such, manufacturing has become an important target for global decarbonization efforts, with many companies switching to lower-carbon energy sources.

The new study shows that rooftop solar panels could now be a feasible option for many manufacturing units due to their large, flat rooftops alongside falling prices, improved efficiencies, and flexibility in installation. Seasonally, manufacturing companies across nearly 40% of U.S. locations could fulfill their electricity needs in the spring and summer time with rooftop solar arrays.

Eckelman concludes, "Greater policy attention on the feasibility and potential benefits of rooftop solar panel arrays will help industries to

achieve renewable energy and greenhouse gas emissions goals. Our research provides an indication of the locations and sectors for which rooftop [solar arrays](#) could significantly help manufacturing firms to reach these goals."

More information: Amir T Namin et al, Technical feasibility of powering U.S. manufacturing with rooftop solar PV, *Environmental Research: Infrastructure and Sustainability* (2023). [DOI: 10.1088/2634-4505/acb5bf](#)

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