Solar energy united states

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Solar power includes solar farms as well as local distributed generation, mostly on rooftops and increasingly from community solar arrays. In 2023, utility-scale solar power generated 164.5 terawatt-hours (TWh), or 3.9% of electricity in the United States. Total solar generation that year, including estimated small-scale photovoltaic generation, was 238 TWh.[2]

The Carter administration provided major subsidies for research into photovoltaic technology and sought to increase commercialization in the industry.[23]: 143

In the early 1980s, the US accounted for more than 85% of the solar market.[23]: 143

During the Reagan administration, oil prices decreased and the US removed most of its policies that supported its solar industry.[23]: 143 Government subsidies were higher in Germany and Japan, which prompted the industrial supply chain to begin moving from the US to those countries.[23]: 143

Another report in 2008 by research and publishing firm Clean Edge and the nonprofit Co-op America found that solar power"s contribution could grow to 10% of the nation"s power needs by 2025, with nearly 2% of the nation"s electricity coming from concentrating solar power systems, while solar photovoltaic systems would provide more than 8% of the nation"s electricity.Those figures correlate to nearly 50,000 megawatts of solar photovoltaic systems and more than 6,600 megawatts of concentrating solar power.[25]

In 2015 an article reported that utilities in the United States have led a largely unsuccessful campaign to slow the growth of solar.[30][clarification needed]

Solar is expected to account for 51 GW (or 48%) of the new installed generating capacity in the United States from 2022 to 2023.[43]

The table above gives an indication of the spread of solar power between the different types at the end of 2021. Capacity figures may seem smaller than those quoted by other sources and it is likely that the capacities are measured in MW AC rather than MW DC, the former of which gives a lower reading due to conversion losses during the process by which power is transformed by inverters from direct current to alternating current.

Large-scale photovoltaic power plants in the United States often consist of two or more units which correspond to construction stages and/or technology-improvement phases of a particular development project. Typically these units are co-located in the vicinity of the same high-capacity transmission substation, and may

also feed that substation with other large PV plants which are adjacently sited but separately developed.

Within the cumulative PV capacity in the United States, there has been growth in the distributed generation segment, which are all grid-connected PV installations in the residential and non-residential markets. Non-residential market includes installations on commercial, government, school and non-profit organization properties.

Between 2000 and 2013 there was 2,261 MW of residential solar and 4,051 MW non-residential solar installed.[88] After years of cost reduction, the average US price per watt was between $2.51 to $3.31 in 2020 for 10 kW systems,[89] and $1.05/W for utility systems.[90]

Another type of distributed generation implemented by a utility company was the world"s first grid-connected pole-attached solar panels of Public Service Enterprise Group in New Jersey. More than 174,000 PV panels are mounted on utility poles along streets of New Jersey with aggregated capacity of 40 MW.[91][92]

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