

FACT SHEET: CLIMATE

Sustainably Made American Solar Panels Benefit People and the Planet

Why Solar Energy?

- The primary climate benefit of solar energy is that it produces zero greenhouse gas emissions when generating electricity, directly contributing to mitigating climate change by reducing reliance on fossil fuels. Additionally, solar energy improves air quality by not emitting pollutants like sulfur dioxide and nitrogen oxides, which benefits the environment (source: EPA's Climate Change Indicators in the United States, 2024).
- The electric power sector contributes 25% of all greenhouse gas emissions in the U.S. Both concentrating solar power (CSP) and photovoltaic (PV) technologies produce clean, emissions-free electricity that can reduce these emissions. Solar heating and cooling systems can provide about 80% of the energy used for space heating and water heating needs (source: EPA's Climate Change Indicators in the United States, 2024).

Key Climate Benefits of Solar Energy

- **Zero Emissions:** Solar panels generate electricity from sunlight without direct greenhouse gas emissions during operation, making it a clean energy source (source: EPA's Climate Change Indicators in the United States, 2024).
- **Reduced Air Pollution:** By displacing fossil fuels, solar energy decreases emissions of sulfur dioxide and nitrogen oxides, which contribute to respiratory issues and smog (source: EPA's Climate Change Indicators in the United States, 2024).
- **Lower Carbon Footprint:** Even accounting for manufacturing and disposal, solar panels have a significantly smaller carbon footprint compared to fossil fuels (source: Cornell University Study on Onshoring Solar Manufacturing, 2023).
- **Water Conservation:** Solar energy requires far less water compared to coal or nuclear power, reducing strain on water resources (source: Cornell University Study on Onshoring Solar Manufacturing, 2023).
- **Grid Stability:** Solar power can stabilize voltage and improve grid resilience (source: EPA's Climate Change Indicators in the United States, 2024).



The Urgency of Strengthening American Solar Manufacturing

- The Inflation Reduction Act has made historic investments in domestic clean energy manufacturing, accelerating climate goals and fostering a robust solar industry for future generations (source: EPA's Climate Change Indicators in the United States, 2024).
- In 2024, the U.S. experienced its hottest year on record, with global temperatures reaching 1.4°C above pre-industrial levels (source: NASA, 2024).
- Climate-related disasters cost the U.S. \$165 billion in 2023, including wildfires, hurricanes, and floods (source: EPA's Climate Change Indicators in the United States, 2024).
- Renewable energy contributed 23% of U.S. electricity generation in 2024, with solar accounting for 5% (source: EPA's Climate Change Indicators in the United States, 2024).

Accelerating Climate Goals Through Domestic Manufacturing

- A Cornell University study found that onshoring the solar supply chain could cut global solar manufacturing emissions by 30% and reduce global energy consumption from panel production by 13% (source: Cornell University Study on Onshoring Solar Manufacturing, 2023).
- Chinese-owned solar manufacturers dominate 99% of wafer production, 80% of cell production, and 90% of polysilicon production, key components in 95% of all solar panels (source: Clean Energy Buyers Institute, 2024).
- Polysilicon and wafers are energy-intensive components, and Chinese factories' reliance on coal results in a much higher carbon footprint compared to U.S. solar products (source: Cornell University Study on Onshoring Solar Manufacturing, 2023).

A Just and Equitable Clean Energy Economy

- U.S. labor protections ensure fair wages and safe working conditions, unlike forced labor practices associated with some Chinese manufacturers. The Uyghur Forced Labor Prevention Act, enacted in December 2021, has led to the detention of \$3.17 billion worth of imports suspected of violating forced labor rules (source: U.S. Customs and Border Protection, 2022).
- Coal dominates energy generation in regions of China where polysilicon refining is concentrated. These areas report elevated death rates due to ambient particulate matter pollution (source: Cornell University Study on Onshoring Solar Manufacturing, 2023).



Energy Security and Domestic Industry Development

- Dependence on Chinese companies for clean energy components leaves the U.S. vulnerable to supply chain disruptions from natural disasters, pandemics, or geopolitical conflicts. Establishing a strong domestic solar manufacturing base is critical to energy security and meeting climate goals (source: EPA's Climate Change Indicators in the United States, 2024).

Building Consensus Through Clean Energy Manufacturing

- Clean energy manufacturing jobs, supported by the Inflation Reduction Act, garner bipartisan support. States like Georgia, Ohio, and Texas have made significant investments in solar manufacturing, creating thousands of jobs and fostering sustainable energy policies (source: EPA's Climate Change Indicators in the United States, 2024).

