

# **Solar industry value chain**





## Overview

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Although thin-film solar panels are produced under just one roof, China's solar industry has focused on the five-step value chain for classic solar cells made of crystalline silicon and then assembled into solar panels. Through rapid, state-sponsored expansion, China's manufacturers have reached.

Global solar PV manufacturing capacity has increasingly moved from Europe, Japan and the United States to China over the last decade. China has invested over USD 50 billion in new PV supply capacity – ten times more than Europe – and created more than 300 000 manufacturing jobs across the solar PV.

NREL conducts analysis of solar industry supply chains, including domestic content, and provides quarterly updates on important developments in the industry. These analyses draw from data collected through a combination of third-party market reports, primary interviews, and publicly available data.

This report reviews key quality infrastructure and ESG standards for solar PV supply, and represents IRENA's contribution to the Transforming Solar Supply Chain initiative of the Clean Energy Ministerial (CEM). Supply chain development is crucial for solar photovoltaic (PV) capacity growth;.

The main objective of this paper is to systematically review the “state-of-the-art” research on the solar PV value chain (i.e., from product design to product end-of-life), including its main stages, processes, and stakeholder relationships, in order to identify areas along the value chain where.

The solar value chain refers to the entire process involved in the production, distribution, and installation of solar energy systems. It encompasses all the



stages from the manufacturing of solar panels and components to the installation and maintenance of solar energy systems. The solar value. Should solar PV supply chains become more diversified and resilient?

Hence, from a sustainability perspective, it is critical that these supply chains become more diversified and resilient. Emerging markets and developing economies (such as India and Southeast Asian countries) are beginning to increase their engagement in solar PV supply chain activities.

Why is solar energy a key component of the PV value chain?

As the PV cell is the essential component of the PV value chain, converting sunlight into electricity by reduced cost and increased efficiency has been heatedly discussed in the existing literature. Technology innovation drives the development of competing or emerging technological trajectories.

What role will China play in the solar PV supply chain?

However, irrespective of European regional goals, China will maintain a predominant role in the solar PV supply chain due to the advantages of manufacturing capacity and costs, and the need to expand global capacity by over 1.5 times.

What is solar value chain?

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How has China shaped the global supply and demand of solar PV?

Government policies in China have shaped the global supply, demand and price of solar PV over the last decade. Chinese industrial policies focusing on solar PV as a strategic sector and on growing domestic demand have enabled economies of scale and supported continuous innovation throughout the supply chain.

What are conversion factors in solar PV supply chain?

Conversion factors between segments in PV supply chain, stocks of modules,



lead time for manufacturing investment by region and product, and job creation of the manufacturing by product are collected from the Special Report for Solar PV Global Supply Chain from IEA 4.



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