

Solar Energy South Africa

Solar photovoltaic power generation downstream industry



Overview

What is the upstream and downstream of PV?

According to the division of the PV industry, the upstream is composed of crystalline silicon raw materials and the preparation of silicon rods and silicon wafers. The midstream is the manufacturing of cell sheets and cell modules, and the downstream is mainly related to the application of PV products, such as PV power stations and distributed PV.

Does solar PV power have economic potential?

Although solar PV power accounts for a small percentage of the global renewable energy flows, many countries are currently focused on its economic potential. As presented in Fig. 1, the global cumulative capacity of solar PV power continues to rise.

How has global solar PV manufacturing capacity changed over the last decade?

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 value chain since 2011.

What was the global PV production capacity in 2023?

Accessed March 21, 2024 ; EIA “Annual Energy Outlook 2023.” Accessed March 21, 2024. At the end of 2023, global PV manufacturing capacity was between 650 and 750 GW. 30%-40% of polysilicon, cell, and module manufacturing capacity came online in 2023. In 2023, global PV production was between 400 and 500 GW.

What percentage of PV production came online in 2023?

30%-40% of polysilicon, cell, and module manufacturing capacity came online

in 2023. In 2023, global PV production was between 400 and 500 GW. While non-Chinese manufacturing has grown, most new capacity continues to come from China. Analysts project that it may take years for production to catch up with capacity.

Which areas are promoting the development of PV power generation?

Certain areas have adopted both methods of promoting the development of PV power generation, such as in Jiangxi. A number of the leading PV product manufacturing enterprises are located in Jiangxi Province. The subsidies have also promoted the rapid development of these manufacturing enterprises.

Table 1. Summary of the provincial PV subsidies.

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Executive summary - Solar PV Global Supply Chains

Today, coal generates over 60% of the electricity used for global solar PV manufacturing, significantly more than its share in global power generation (36%). This is largely because PV production is concentrated in China - mainly in the ...

Executive summary - Renewables 2023 - Analysis

In 2023, an estimated 96% of newly installed, utility-scale solar PV and onshore wind capacity had lower generation costs than new coal and natural gas plants. In addition, three-quarters of new wind and solar PV plants offered cheaper ...



Analysis and Investment Recommendations of the Photovoltaic Industry ...

The construction of photovoltaic power plants downstream of the industry chain mainly includes two forms: centralized photovoltaic power plants and distributed photovoltaic power plants. In ...

Solar Photovoltaics Supply Chain Review Report

The Solar Photovoltaics Supply Chain Review

explores the global solar photovoltaics (PV) supply chain and opportunities for developing U.S. manufacturing capacity. The assessment concludes that, with significant ...



Revenue of global solar photovoltaic industry. Upstream: silicon

The downstream industry then has the second highest profits through warranty maintenance and device installation, with the global solar photovoltaic installation revenue estimated to grow to ...

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