

## **Report Summary: Solar Listed Company Climate Action Transparency Index (CATI) Evaluation Report 2024**

As one of the key pathways to achieving global net-zero emissions, the new energy sector, including solar power, is rapidly advancing under the global zero-carbon push. According to the International Energy Agency's (IEA) report *Renewables 2023*, the global newly installed renewable energy capacity in 2023 reached nearly 510 GW, with solar power accounting for three-quarters, primarily driven by China's contributions. Following the first global stocktake after the Paris Agreement at COP28, it was established that the world must transition away from fossil fuels and aim to double the global installed renewable energy capacity by 2030. This significantly improves the predictability of renewable energy and creates new opportunities for related industries.

Over the past few decades, China's solar industry has experienced many ups and downs, facing numerous challenges. However, this has been accompanied by continuous updates and improvements in China's industrial policies and the relentless efforts of Chinese entrepreneurs in the solar industry. Currently, China's solar industry has become the undisputed global leader, dominating the global supply chain of this crucial industry from R&D to manufacturing, effectively supporting the growth of the domestic solar market and meeting global new energy demands. Moreover, some leading Chinese solar companies are simultaneously expanding their overseas capacities, further capturing market share for solar products.

However, this emerging industry, crucial to the success of the global energy transition, also inevitably becomes a focus of global industrial competition. Many countries have introduced incentive mechanisms aimed at incentivizing local solar supply chains. In the context of rising geopolitical tensions, supply chain security has also gained unprecedented importance, reflected in trade policies, with protectionist tendencies emerging in key regions worldwide. Some areas have tightened "green" barrier for solar products through carbon footprint limits, eco-design, and eco-labeling.

The production and manufacturing of solar products, such as silicon materials and solar cells, as well as upstream and downstream transportation, distribution, and the disposal of discarded solar panels, consume large amounts of energy and water, resulting in substantial

carbon and pollutant emissions, along with significant waste generation. In the context of low-carbon transition, Chinese solar companies need to pay attention to both domestic and international environmental and climate-related regulations and standards and accelerate the green and low-carbon transformation of their industrial chains. As Dr. Mao Tao from Center for International Economic and Technological Cooperation of Ministry of Industry and Information Technology has written in his article: “leading companies needs to transition from only ‘manufacturing green products’ to both ‘green manufacturing’ and ‘manufacturing green products’.”

To quantitatively assess the progress of the solar industry in low-carbon transformation and promote the construction of green and low-carbon supply chains, the Institute of Public & Environmental Affairs (IPE) and Lvse Jiangnan (PECC) launched the Solar Listed Company Climate Action CATI Index Evaluation Project at the beginning of 2024.

The evaluation shows that many solar companies are actively responding to carbon peaking and carbon neutrality policy requirements, implementing energy-saving and emission-reduction projects, and advancing the green transformation of their industrial chains. Leading companies are responding to the market demand for low-carbon solar products, conducting life cycle assessments and promoting green supply chain construction. However, most solar companies still need to benchmark against the best practices to enhance their climate governance levels.

Among the 42 listed solar companies covered in the first evaluation, LONGi Green Energy Technology (601012) received an A rating. The company has begun to calculate and disclose Scope 3 emissions data, set and track Scope 3 emission reduction targets, and collaborate with key suppliers to reduce emissions, guiding their suppliers to conduct carbon disclosure.

JinkoSolar (688223), CSI Solar (688472), Trina Solar (688599), and JA Solar Technology (002459) were rated BB, as they have started setting green procurement requirements and gradually implementing supply chain emission reduction actions.

Tongwei Co. (600438), TCL Zhonghuan Renewable Energy Technology (002129), Sungrow Power Supply (300274), GCL Technology Holdings (03800), and Xinyi Solar Holdings (00968) were rated B, as they performed well in designing low-carbon supply chain

pathways and empowering suppliers to account for carbon emissions. Companies rated B or above accounted for 24% of the total evaluation sample.

Despite the progress of leading companies, over 60% of the evaluated solar companies were rated C, with an average score of only 3.38 points, indicating that most solar companies need to improve their climate performance. Most companies are currently primarily focused on calculating and reducing Scope 1 & 2 emissions, and have yet to clarify low-carbon transition pathways for their value chains, while continuing to improve the transparency of supply chain climate information.

The current evaluation shows that in terms of governance and management, 33 solar companies have started formulating and publishing climate policies, and 17 have incorporated climate-related topics into the responsibility of the board's highest decision-making level. Regarding calculation and disclosure, 18 companies have calculated and disclosed Scope 1 & 2 emissions, and six have started calculating and disclosing Scope 3 emissions. Ten companies have calculated and disclosed product carbon footprint information.

Regarding target setting, eight solar companies have set and disclosed Scope 1 & 2 emission reduction targets, and three companies' climate targets include Scope 3. LONGi Green Energy Technology (601012) and JinkoSolar (688223) have received Science-Based Targets Initiative (SBTi) approval; three companies have set targets to achieve Scope 1 & 2 carbon neutrality by 2050; JinkoSolar (688223) has committed to achieve net-zero emissions across its entire value chain by 2050. Six companies have committed to using 100% renewable energy in their operations by 2030.

The current evaluation also shows that 29 solar companies are actively increasing the proportion of renewable energy utilization through on-site solar projects at their plants, directly signing green electricity procurement agreements with suppliers, and purchasing energy attribute certificates. A field survey by Lvse Jiangnan on 61 subsidiaries of participating solar companies shows that 70% have built rooftop solar projects at their plants. 28 companies are carrying out energy efficiency improvements, optimizing production process, or reducing emission from mobile sources, and 18 companies are conducting systematic energy management for energy saving and carbon reduction.

In promoting low-carbon supply chain construction, six solar companies have publicly disclosed efforts to encourage suppliers to conduct corporate carbon accounting or energy

management projects. Among them, LONGi Green Energy Technology (601012), JA Solar (002459), and TCL Zhonghuan (002129) further disclosed their emission reduction projects carried out in cooperation with their product manufacturing and logistics suppliers.

Despite this, most solar companies still score significantly lower. As a "green manufacturing" industry, solar power generation is far from "zero emissions" from a life cycle perspective. This evaluation shows that 80% of solar companies have yet to implement green supply chain management. Some solar companies that have already committed to Scope 3 climate targets have yet to effectively carry out supply chain emission reduction actions. Downstream in the value chain, the emission reduction potential of recycling discarded solar products has yet to be effectively tapped, and a standardized disposal and recycling system urgently needs to be established.

In addition, as representatives of an export-oriented economy, solar companies need to improve their climate information disclosure at both the corporate and supply chain levels to meet sustainability disclosure requirements while enhancing corporate competitiveness in both the international and domestic markets. Recent regulations passed by the European Union, such as the Corporate Sustainability Reporting Directive (CSRD), and the climate-related disclosure standards issued by the International Sustainability Standards Board (ISSB), as well as the climate information disclosure and sustainability disclosure frameworks formulated by the Hong Kong Stock Exchange and the Shanghai, Shenzhen, and Beijing Stock Exchanges, all require companies to improve their climate information disclosure.

IPE and Lvse Jiangnan thus call on leading solar companies, industry coalitions and key institutions that influence supply chain and climate ambition to lead in the low carbon transition. We also look forward to attention and support from all sectors of society to jointly advance the decarbonization of solar supply chains.

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