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## 2Q 2024 PV Module Maker Tier 1 List

BloombergNEF has developed a tiering system for PV module makers based on bankability, to create a transparent differentiation between the hundreds of manufacturers of solar modules on the market. This basic categorization has been used as an advertisement by certain manufacturers, but should never replace a proper due diligence process in product selection.

### 1. Why divide the PV market into tiers?

BloombergNEF is frequently requested by clients for a list of 'major' or 'bankable' suppliers - in common industry parlance, tier 1 suppliers - for use in manufacturing forecasts, preliminary competitor analysis, and other internal comparisons. It is very common for industry players to refer to 'tier 1' players, but these terms are seldom defined or described, which is unhelpful for firms outside the solar industry trying to get a basic overview.

We strongly recommend that module purchasers and banks do not use this list as a measure of quality, but instead consult a technical due diligence firm such as **Edif ERA, Wood Plc, PVEL, RETC LLC, Black & Veatch, TUV, E3, ATA Renewables, STS Certified, Clean Energy Associates (now part of Intertek), PI Berlin, Pvbuyer, Enertis, Oravia** or **Leidos Engineering**. These would usually consider what factory the module comes from, as well as the brand, and give an informed opinion on whether the modules will perform as expected.

### 2. Definitions

'Bankability' - whether projects using the solar products are likely to be offered non-recourse debt financing by banks - is the key criterion for tiering. Banks, and their technical due diligence providers, are extremely unwilling to disclose their whitelists of acceptable products.

BloombergNEF therefore bases its criteria in what deals have been closed in the past, as tracked by our database – 40,000 financings for PV projects worldwide as of July 2023.

We only tier manufacturers which actually own production facilities and sell under their own brands. Companies which outsource production under brand names are not tiered. We do not publish a tier 2 or 3 list.

### 3. Tier 1

Tier 1 module manufacturers are those which have provided own-brand, own-manufacture products to **six** different projects, which have been financed non-recourse by **six** different (non-development) banks, in the past two years. These deals must be over 5MW (a change in 1Q 2024 from 1.5MW in previous quarters) and tracked by our database, ie the project location (sufficiently to identify the project uniquely), capacity, developer, bank and module maker must be in the public domain. One exception is manufacturers which have filed for bankruptcy or a form of insolvency protection, or experienced a major default on bond payments; these are removed from the tier 1 list until further notice. Full methodology [here](#).

For this quarter, the threshold for project size was increased from 1.5MW to 5MW. This is due to the increasing size of the solar industry, where 5MW is no longer a particularly large project, and projects below 5MW are extremely difficult to crosscheck with independent data sources when claimed by module manufacturers. The change unsurprisingly reduces the number of companies

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on the tier 1 list, but total capacity is still 783GW/year, far more than global installation expected in 2024.

#### 4. Can I share this list on the internet?

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Table 1 shows the module makers which, as of 2Q 2024, meet our criteria of supplying projects with non-recourse financing from six different commercial banks in the last two years, as tracked by our database.

**Table 1: PV module manufacturers meeting BNEF's Tier 1 criteria as of 2Q 2024**

Firm/brand	Annual module capacity, MW/year	Firm/brand	Annual module capacity, MW/year
ZNShine*	10,000	Luxen Solar	3,000
Yingli*	19,200	Longi Green*	120,000
Waaree*	12,000	Leapton Energy*	3,000
VSUN*	4,000	Jollywood*	10,000
Vikram Solar	3,500	JA Solar*	95,000
Trina*	95,000	HT-SAAE*	5,000
Tongwei*	75,000	Hanwha Q CELLS*	9,100
Taoistic Solar	25,000	Hanersun*	5,000
Suntech*	25,000	GCL System*	27,000
Sunpro Power/YH Solar	2,000	First Solar	14,400
Sunova Solar/Thornova*	5,500	ET Solar Inc./Elite Solar*	3,500
Sumec/Phono Solar*	4,000	Eging*	10,000
Solarspace*	6,000	DMEGC (Hengdian Magnetics)*	12,000
Seraphim†	13,000	Chint/ Astronergy*	56,000
Runergy/Hyperion*	21,000	Canadian Solar	51,000
Risen Energy*	48,000	BYD	4,000
Renesola*	5,000	Anhui Daheng (DAH Solar)	5,000
Osda Solar	5,650	Akcome	13,900
Neo Solar Power/URECO	1,800	AESolar*	2,000
Maxeon*	10,100	Adani/Mundra*	4,000
		<b>Total</b>	<b>834,650</b>

Source: BloombergNEF Note: Methodology [here](#). \* Denotes a company for which at least one Kiwa PVEL (formerly PV Evolution Labs) Product Qualification Program has been initiated in the past 18 months. Contact [pvel@kiwa.com](mailto:pvel@kiwa.com) for access to the reports.. Brands are shown in reverse alphabetical order. Companies can download the dataset of financings [here](#).

New companies on the list are Yingli, Waaree, Suntech, Sunpro Power/YH Sunpro, Osda Solar, Sumec/Phono Solar, VSUN, Solarspace, Luxen Solar, Leapton Energy, Taoistic Solar, Hanwha Q CELLS, Jolywood, Anhui Daheng (DAH Solar) and Akcome.

Jinko Solar, the world's largest module maker by shipment in 2023, is off the list for 2Q 2024 because it has a debt record from May 16, 2024, under the subsidiary “晶科能源（滁州）有限公司”, accessed on May 22 shortly before publication.

## About us

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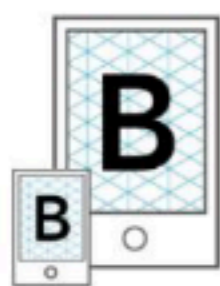
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