



# REPORTS | **ENERGY STORAGE** **MANUFACTURER RANKING**

EDITION 4/2025







Welcome to this Edition 4 - 2025 version of the **SINOVOLTAICS Energy Storage Manufacturer Ranking Report.**

The Altman-Z Scores in this report has been calculated from December 2022 until September 2025, and provide detailed insight how the financial strength of energy storage manufacturers has evolved over the past 3 years.

## What's the value of Altman-Z Scores?

Altman-Z Scores are calculated to understand which **energy storage manufacturers are financially stable**, and which players are **at risk of going bankrupt**.

For any stakeholder involved in solar projects, the financial stability of the manufacturer is of crucial importance.

Employing energy storage from financially stable manufacturers provides for a better hedge against the potential risks of collapsing return of investment (ROI) of any PV project.

## Why is financial stability important?

In this new emerging energy storage market, its grand variety of existing and research-in-progress technologies, purchasers face a grand and difficult choice of manufacturers, many of which only recently ventured into this market. In such a new market with average warranties that vary widely between 2-10 years, the financial stability of an energy storage manufacturer is crucial as it is geared to the validity and enforceability of the warranty policies on its products. Most people realize that today's energy storage manufacturers will probably not be around in 5 years. However for the short to medium term, you want to be sure that warranties are in place.

In many years to come, lots of solar PV & energy storage projects will likely face this tough question: whom to contact with performance complaints and replacement requests regarding a malfunctioning battery after 2, 5 or 10 years?



## **2022 - 2025: rating of energy storage manufacturers worldwide**

In this report we present you the **Altman Z-Scores of 50+ energy storage manufacturers**. This report can be used to see how one manufacturer matches up to the other, and can be an important indicator when selecting your energy storage manufacturer.

The Altman Z-Scores show you which energy storage manufacturers are **financially strong**, and which manufacturers are in the **risk zone of going bankrupt within the coming 2 years**.

On the following pages you find the full table showing the Altman Z-Scores of the major, publicly listed Asian, European and American manufacturers.

The scores have been calculated by team Sinovoltaics with the use of publicly available financial data.



MANUFACTURERS	RANKING	TREND	DEC22	MAR23	JUN23	SEP23	DEC23	MAR24	JUN24	SEP24	DEC24	MAR25	JUN25	SEP25	LISTING
TESLA	1	↑	8.93	12.44	14.97	14.54	14.21	9.6	10.86	12.73	17.52	11.3	14.41	19.13	NAS:TSLA
MUSTANG BATTERY	2	↓	7.72	9.17	9.1	8.48	7.47	7.33	7.71	7.15	7.36	7.85	14.05	13.72	SHSE:605378
SOLID POWER	3	↑	6.86	9.95	8.46	7.75	5.99	7.12	4.41	3.52	5.82	4.54	8.8	13.25	NAS:SLDP
HYUNDAI ELECTRIC	4	↑	1.66	1.85	1.83	2.11	2.31	3.83	5	5.57	6.44	4.87	5.84	7.05	XKRX:267260
SINEXCEL (SHENZHEN SINEXCEL ELECTRIC)	5	↑	5.41	5.23	7.37	5.57	4.9	4.86	4.28	4.9	5.08	5.32	5.39	6.09	SZSE:300693
KUNG LONG BATTERIES	6	↓	7.13	8	8	5.31	6.89	7.44	8.01	6.07	8.29	7.83	7.71	5.63	TPE:1537
EATON	7	↓	3.3	3.62	3.99	4.13	4.47	5.31	5.39	5.44	5.43	4.46	5.39	5.38	NYSE:ETN
YUASA BATTERY	8	↑	4.51	5.23	5.04	4.98	4.57	4.63	4.79	4.66	4.38	4.31	4.51	4.78	BKK:YUASA
SACRED SUN (SHANDONG SACRED SUN POWER SOURCES CO LTD)	9	↓	4.58	4.35	4.25	4.25	4.08	3.8	3.36	3.65	3.59	4.57	4.52	4.34	SZSE:002580
ENERSYS	10	↑	3.12	3.47	3.72	3.87	3.93	3.88	4.03	3.99	3.46	3.36	3.52	3.65	NYSE:ENS
SIMPLO TECHNOLOGY	11	↑	3.33	3.44	3.52	3.34	3.53	3.62	3.62	3.42	3.7	3.49	3.6	3.62	ROCO:6121
SANYO	12	↑	4.36	4.47	4.62	4.69	4.39	4.38	4.43	4.36	3.93	3.77	3.42	3.56	TSE:3176
SEBANG GLOBAL BATTERY	13	↑	2.88	3.38	3.23	3.45	3.3	3.77	3.79	3.39	3.45	3.54	3.47	3.54	XKRX:004490
CAMEL GROUP	14	↑	3.11	3.57	3.45	3.31	3.19	3.21	3.21	3.19	3.08	3.07	3.3	3.5	SHSE:601311
ZHONGTIAN TECHNOLOGY	15	↑	3.55	3.96	3.81	3.66	3.2	3.34	3.64	3.36	3.21	3.19	3.31	3.46	SHSE:600522
GREENSMITH ENERGY (WÄRTSILÄ)	16	↑	1.62	2.14	2.26	2.28	2.62	2.73	2.88	3.01	2.92	2.77	2.96	3.42	OHEL:WRTIV
CATL (CONTEMPORARY AMPEREX TECHNOLOGY CO)	17	↑	2.49	1.93	2.53	2.48	2.23	2.36	2.24	2.65	2.8	2.51	2.59	3.31	SZSE:300750
DMEGC SOLAR (DMEGC MAGNETICS GROUP)	18	↑	4.11	3.88	3.64	3.4	2.84	3.07	2.75	2.85	2.73	2.7	2.86	3.26	SZSE:002056
CENTER POWER	19	↑	2.14	2.91	2.78	2.59	2.97	2.95	2.46	2.37	2.39	2.62	2.85	3.22	SZSE:002733
LIVENT (RIO TINTO)	20	↑	4.49	5.36	6.25	4.74	3.17	3.17	4.33	1	0.93	2.91	2.89	3.09	LSE:RIO

\*The trend column in the table reflects a comparison of the current quarter score to the previous one.



MANUFACTURERS	RANKING	TREND	DEC22	MAR23	JUN23	SEP23	DEC23	MAR24	JUN24	SEP24	DEC24	MAR25	JUN25	SEP25	LISTING
NIDEC CORPORATION	21	↓	3.39	3.26	3.44	3.21	3	3.14	3.16	3.09	2.85	2.65	3.1	2.89	OTCPK:NJDCY
WUXI LEAD INTELLIGENT EQUIPMENT CO LTD	22	↑	2.89	3.11	2.92	2.71	2.17	2.04	1.82	1.66	1.62	1.58	1.8	2.87	SZSE:300450
DESAY BATTERY	23		3.68	4	3.77	3.44	3.02	2.63	2.7	2.78	2.46	2.44	2.63	2.63	SZSE:000049
EVE ENERGY	24	↑	3.23	2.56	2.26	1.95	1.85	1.83	1.73	1.87	1.79	1.77	1.76	2.49	SZSE:300014
JOHNSON CONTROLS	25	↑	1.87	1.71	1.82	1.7	1.74	1.84	1.71	1.99	1.93	1.84	2.33	2.36	NYSE:JCI
EAST GROUP	26	↑	2.48	2.97	2.68	2.69	2.77	2.72	2.23	2.02	2.3	2.25	2.15	2.36	SZSE:300376
FARADION (RELIANCE INDUSTRIES)	27	↑	2.19	1.98	2.07	1.97	2.1	2.31	2.33	2.53	1.91	1.91	2.01	2.24	NSE:RELIANCE
SONNEN (SHELL PLC)	28	↓	2.48	2.65	2.65	2.54	2.54	2.36	2.37	2.34	2.26	2.27	2.25	2.23	NYSE:SHEL
BASF	29	↑	2.5	2.51	2.46	2.3	2.28	2.52	2.31	2.15	2.23	2.2	2.18	2.2	XTER:BAS
BYD	30	↓	1.82	1.95	1.85	1.79	1.74	1.61	1.75	2	1.76	2.32	2.34	2.16	HKSE:01211
FESE (FAR EAST SMARTER ENERGY)	31	↑	1.86	1.85	1.84	1.69	1.68	1.67	1.66	1.63	1.68	1.68	1.74	2.02	SHSE:600869
FLUENCE ENERGY INC	32	↑	1.25	1.75	2.96	3.68	2.64	2.72	2.49	2.87	2.6	1.62	1.49	2.01	NAS:FLNC
LG ENERGY SOLUTION	33	↑	4.49	5.51	5.26	4.71	4.13	3.47	3.17	3.26	2.47	2.15	1.91	1.96	XKRX:373220
CHANGHONG	34	↑	1.36	1.51	1.51	1.47	1.55	1.56	1.46	1.53	1.7	1.71	1.66	1.68	SHSE:600839
ALBEMARLE	35	↑	3.64	3.82	3.8	3.15	2.83	2.29	1.97	1.81	1.5	1.25	1.25	1.62	NYSE:ALB
CSSC (CHINA SHIPBUILDING INDUSTRY GROUP POWER CO)	36	↓	1.41	1.51	1.72	1.55	1.49	1.56	1.53	1.6	1.62	1.56	1.58	1.56	SHSE:600482
GANFENG LITHIUM	37	↑	5.34	4.94	4.44	3.39	2.79	2.25	1.67	1.46	1.3	1.09	1.06	1.48	HKSE:01772
SUNWODA	38	↑	1.6	1.35	1.26	1.36	1.26	1.26	1.22	1.36	1.3	1.27	1.25	1.47	SZSE:300207
ENERGIZER HOLDINGS	39	↑	1.03	1.08	1.24	1.02	1.39	1.32	1.35	1.29	1.32	1.3	1.23	1.42	NYSE:ENR
GREAT POWER (GUANGZHOU GREAT POWER ENERGY&TECHNOLOGY CO LTD)	40	↑	3.93	3	2.24	1.9	1.56	1.37	1.12	1.51	1.38	1.34	1.26	1.4	SZSE:300438

\*The trend column in the table reflects a comparison of the current quarter score to the previous one.



MANUFACTURERS	RANKING	TREND	DEC22	MAR23	JUN23	SEP23	DEC23	MAR24	JUN24	SEP24	DEC24	MAR25	JUN25	SEP25	LISTING
CORUN NEW ENERGY	41	↑	3.29	2.13	1.83	1.54	1.24	1.16	0.85	0.93	0.9	1.05	1.26	1.28	SHSE:600478
GENERAL MOTORS	42		1.18	1.23	1.23	1.25	1.25	1.24	1.29	1.29	1.33	1.22	1.26	1.26	NYSE:GM
SAMSUNG SDI	43	↑	3.13	3.53	3.32	2.91	2.81	2.74	2.35	2.13	1.73	1.32	1.25	1.26	XKRX:006400
JINKOSOLAR	44	↓	1.92	2.21	2.21	2.02	2.07	2.03	1.85	1.91	1.73	1.68	1.31	1.2	SHSE:688223
FARASIS ENERGY (GAN ZHOU)	45	↑	1.32	1.33	1.24	1.2	0.85	0.71	0.67	0.96	0.97	1.07	0.9	1.16	SHSE:688567
GOTION HIGH-TECH CO	46	↑	1.12	1.08	1.02	0.96	0.88	0.88	0.71	0.77	0.73	0.74	0.88	1.04	SZSE:002074
FORD	47	↓	1.2	1.16	1.19	1.18	1.15	1.09	1.07	1.06	1.01	1.08	1.06	1.01	NYSE:F
VOLKSWAGEN	48	↓	1.23	1.17	1.16	1.13	1.17	1.18	1.12	1.1	1.07	1.09	1.05	1.01	OTCPK:VWAPY
SK INNOVATION	49	↑	1.78	1.49	1.69	1.58	1.47	1.43	1.32	1.28	1.23	0.87	0.87	0.89	XKRX:096770
GUANGDONG LYRIC ROBOT AUTOMATION CO LTD	50	↑	2.09	1.77	1.4	1.2	1.04	0.76	0.72	0.41	0.12	0.26	0.51	0.85	SHSE:688499
TRINA SOLAR	51	↓	2.61	2.2	2.03	1.83	1.75	1.69	1.51	1.4	1.24	1.2	0.92	0.81	SHSE:688599
SHENZHEN HYMSON LASER INTELLIGENT EQUIPMENTS CO LTD	52	↑	1.87	1.66	1.56	1.51	1.24	1.25	1.27	1.42	1.22	1	0.67	0.76	SHSE:688559
JIawei	53	↑	2.99	4.14	3.01	2.48	1.74	1.48	1.27	1.08	0.65	0.71	0.59	0.61	SZSE:300317
NARADA	54	↑	1.82	1.95	1.76	1.56	1.5	1.46	1.1	1.29	1.26	1.3	0.44	0.61	SZSE:300068
CALB Group Co Ltd	55	↑							0.53				0.35	0.6	HKSE:03931
CBAK ENERGY	56	↓	0.74	0.3	0.44	0.02	0.15	0.19	0.53	0.78	0.49	0.22	0.12	-0.2	NAS:CBAT
MICROVAST	57	↓	-0.24	-0.56	-0.38	-0.37	-0.61	-0.85	-1.06	-1.42	-0.43	-1.11	0.19	-0.39	NAS:MVST
DRAGONFLY ENERGY	58	↑	3.5	1.28	0.75	0.34	-0.48	-0.52	-0.02	-0.8	-0.95	-1.48	-1.52	-1.09	NAS:DFLI
TIGO ENERGY INC	59	↑	2.91	3.82	4.3	5.44	2.36	1.09	1.32	-0.76	-3.08	-3.8	-3.45	-2.18	NAS:TYGO
ROMEO POWER (NIKOLA)	60		-3.26	-3.98	-3.8	-3.23	-4.65	-3.61	-5.59	-6.15	-6.52	-6.6	-6.61	-6.61	NAS:NKLA

\*The trend column in the table reflects a comparison of the current quarter score to the previous one.



# Graph overview

**Graph #1** - The latest energy storage manufacturers ranking, recorded September 2025

**Graph #2** - Energy storage manufacturers that are currently in the Safe Zone

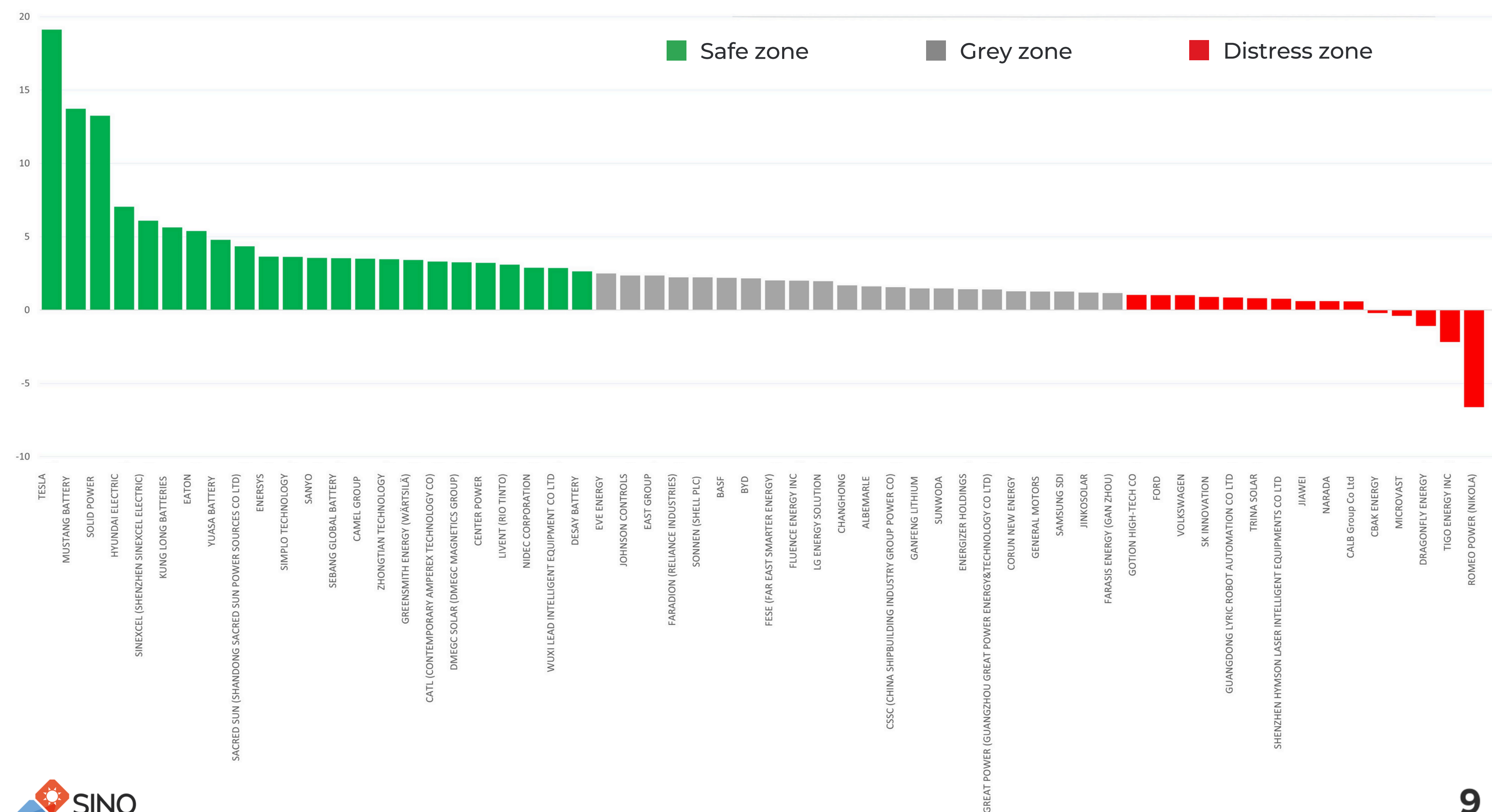
**Graph #3** - Energy storage manufacturers that are currently in the Grey Zone

**Graph #4** - Energy storage manufacturers that are currently in the Distress Zone



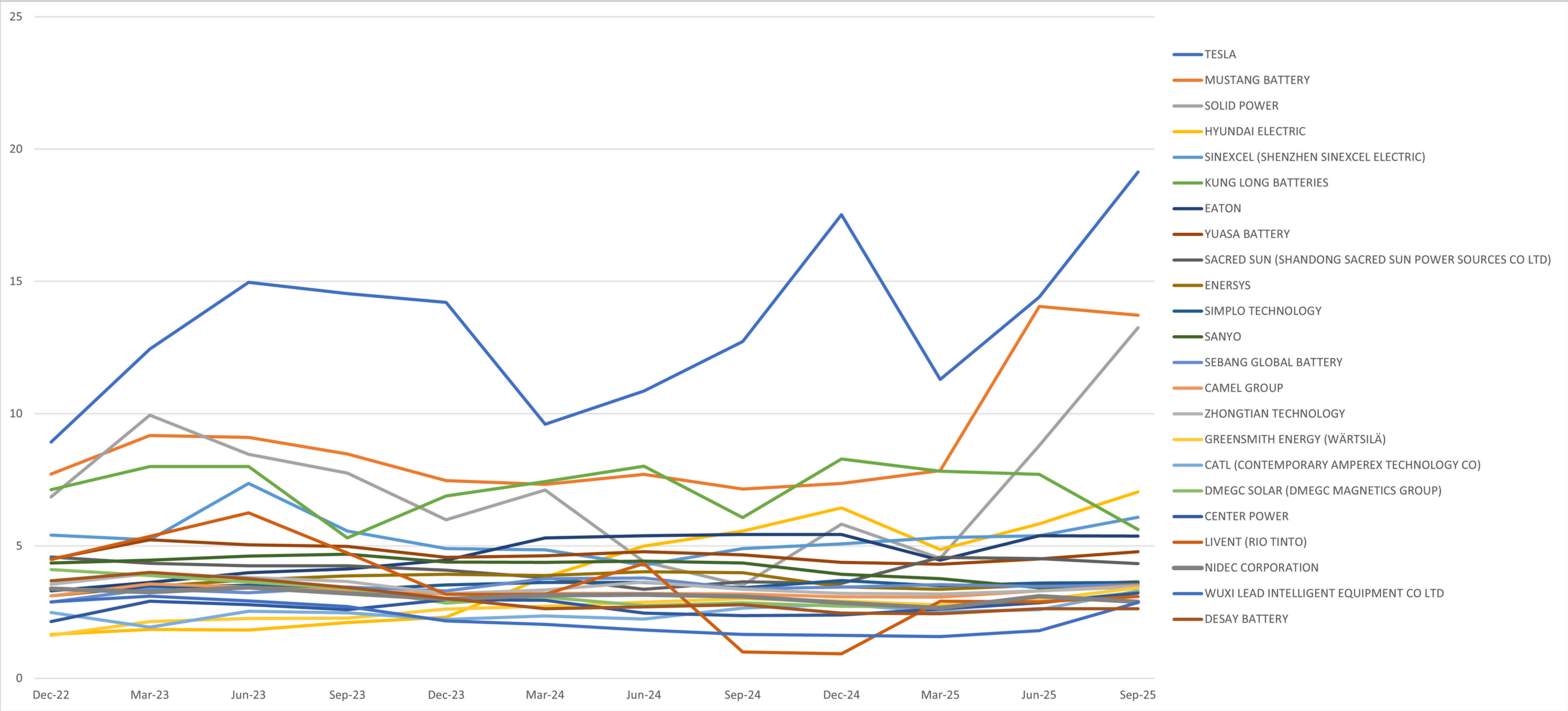
# Graph #1 - Full ranking overview of energy storage manufacturers

## Sinovoltaics Energy Storage manufacturer ranking - Edition #4 - 2025



# Graph #2 - Energy storage manufacturers – Safe Zone

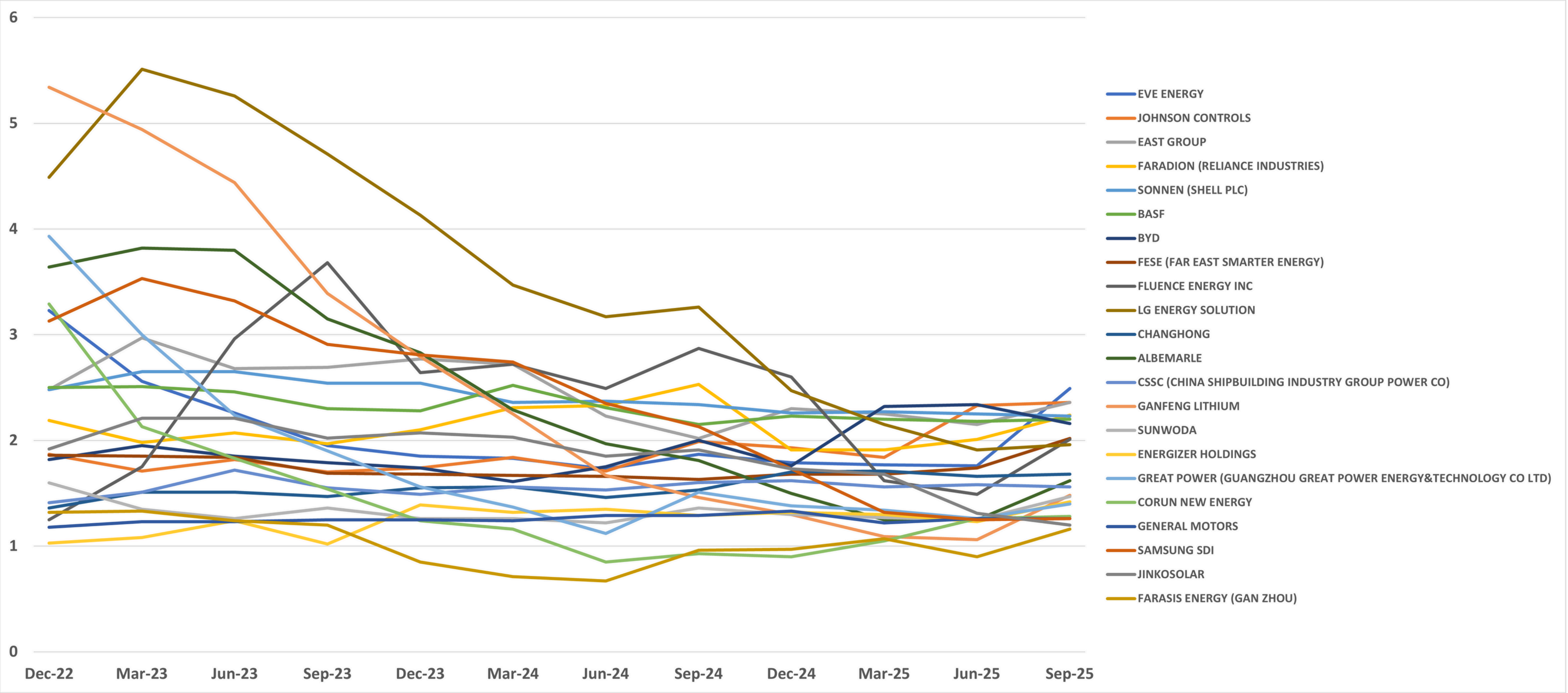
## Sinovoltaics Energy Storage manufacturer ranking - Edition #4 - 2025 - Safe Zone





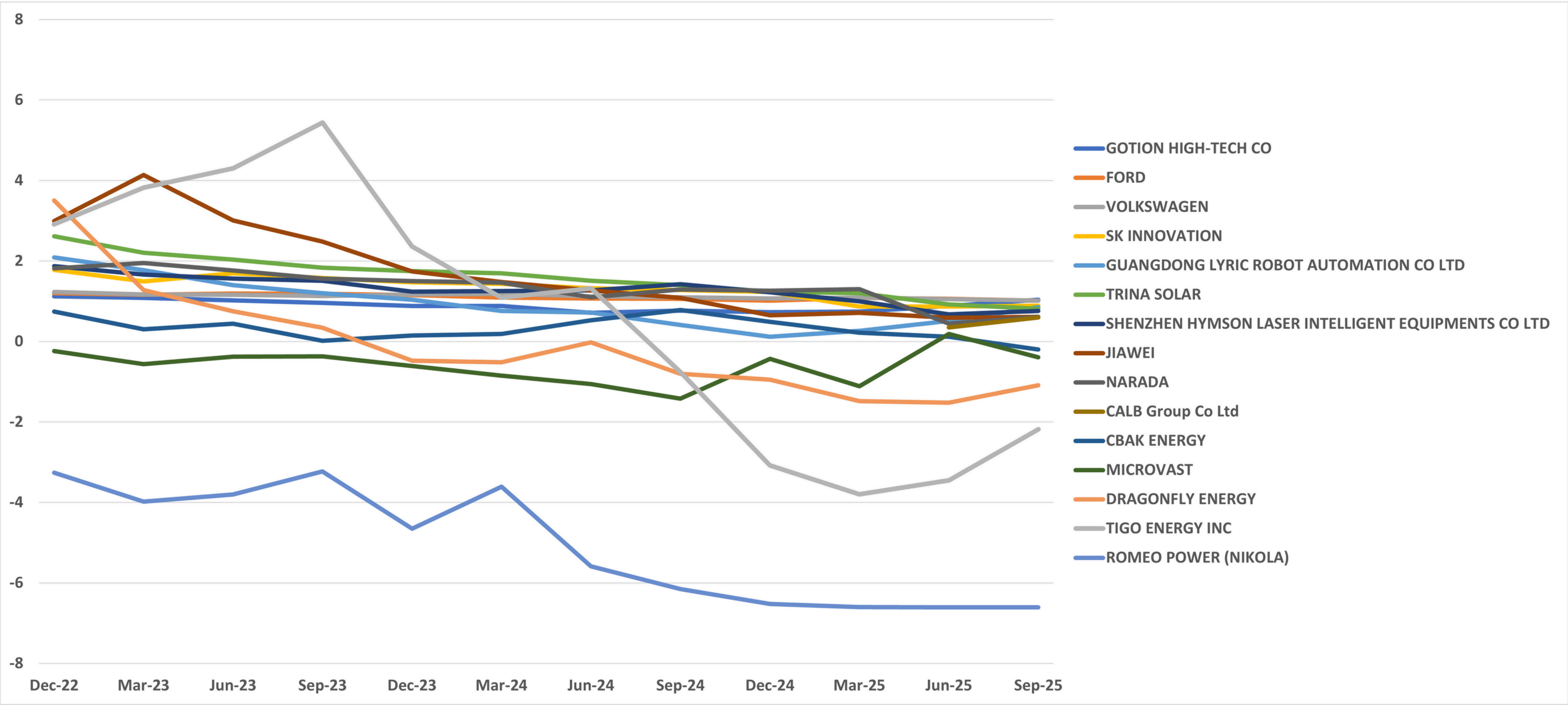
# Graph #3 - Energy storage manufacturers - Grey Zone

Sinovoltaics Energy Storage manufacturer ranking - Edition #4 - 2025 - Grey Zone



# Graph #4 - Energy storage manufacturers – Distress Zone

Sinovoltaics Energy Storage manufacturer ranking - Edition #4 - 2025 - Distress Zone





## How is the Sinovoltaics Ranking Score calculated?

The Sinovoltaics Energy Storage Manufacturer Ranking Score is based on the Altman Z-Score

$$\text{Altman Z-Score} = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E$$

The original formula is broken down as following:

<b>A</b>	Working Capital/Total Assets: measures liquid assets in relation to the size of the company.
<b>B</b>	Retained Earnings/Total Assets: measures profitability that reflects the company's age and earning power.
<b>C</b>	Earnings Before Interest & Tax/Total Assets: measures operating efficiency apart from tax and leveraging factors. It recognizes operative earnings as being important to long-term viability.
<b>D</b>	Market Value of Equity/Total Liabilities: adds market dimension that can show up security price fluctuation as a possible red flag.
<b>E</b>	Sales/Total Assets: a standard measure for total asset turnover.

# How are the Altman Z-Scores interpreted?

The scores are categorized into 3 zones called the Safe Zone, Grey Zone and Distress Zone:

$Z > 2.6$	Safe Zone
$1.1 < Z < 2.6$	Grey Zone
$Z < 1.1$	Distress Zone

# How to interpret companies in the ‘GREY ZONE’?

With a large number of companies in the 'Grey Zone', how to interpret these scores when selecting a manufacturer?

While ideally a manufacturer is in the 'Safe Zone', some companies have been consistently in the 'Grey Zone' for years.

Take for instance **CATL (CONTEMPORARY AMPEREX TECHNOLOGY CO)**. Here’s a number of Altman Z-Scores over the years:

**2.49 on Q4 2022**

**1.93 on Q1 2023**

**2.24 on Q2 2024**

**3.31 on Q3 2025**



### Currently stands at 3.31 (September '24)

The energy storage and battery manufacturing sector continues to demonstrate steady financial improvement, with **23 manufacturers** now within the **safe zone**, defined as companies maintaining **AZ scores of 2.6 or higher**, up from **21 in the previous edition**. This reflects ongoing strengthening of balance sheets and operational resilience across the global battery supply chain.

**CATL (Contemporary Amperex Technology Co)**, headquartered in Ningde, Fujian Province, China, holds an **AZ score of 3.31 (Sept 2025)**, remains one of the most stable and financially sound companies in the sector. Its gradual upward trend since 2022 highlights **strong liquidity management, sustained profitability**, and a **prudent capital structure**, positioning CATL among the most financially sound players in the market.

Peer comparison with **EVE ENERGY** and **ALBEMARLE** further reinforces this trend of stability. While EVE ENERGY exhibits moderate fluctuations but stays largely within the safe range, ALBEMARLE shows a more noticeable downward movement, indicating tightening margins or increased leverage pressures in recent quarters.

EVE ENERGY	ALBEMARLE
3.23 Q4 2022	3.64 Q4 2022
2.56 Q1 2023	3.82 Q1 2023
1.73 Q2 2024	1.97 Q2 2024
2.49 Q3 2025	1.62 Q3 2025





# **SINOVOLTAICS** ENERGY STORAGE MANUFACTURER RANKING

---

**CONTACT US:** [contact@sinovoltaics.com](mailto:contact@sinovoltaics.com)

# Discover our **ZERO RISK SOLAR & BESS SERVICES**

## QUALITY ASSURANCE



### PV QUALITY INSPECTIONS

Hire our **PV specialized quality engineers** to inspect your PV components on-site at the factories in Asia.

#### TEST ALL PV COMPONENTS, INCLUDING:

- Solar modules
- Inverters
- BOS components
- Solar cells
- Energy Storage



### FACTORY AUDITS

Make a **fully informed decision** on the factories you're procuring from. Our accredited auditors provide you with **full insights** in the manufacturing capabilities of any PV factory worldwide. Use our **audit scoring card** system to manage and compare your factory selection.

#### FACTORY AUDITS INCLUDE:

- Pre-manufacturing audit
- General qualification audit
- Factory benchmark
- Factory background check
- Financial audit



### LABORATORY TESTING

**Thoroughly test** your solar PV components at our **accredited PV lab**. Inform about country and climate specific test procedures for your region

#### A SELECTION OF LAB TESTS:

- Potential Induced Degradation (PID) test
- Light Induced Degradation (LID) test
- EVA gel content test
- Damp heat testing
- Thermal cycling testing



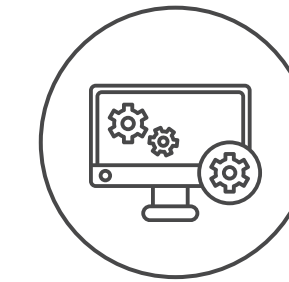
### SOLAR FARM INSPECTIONS

On-site solar farm **inspections** and **troubleshooting** worldwide. Assess your existing solar farms and optimize performance.

#### SOLAR FARM INSPECTIONS INCLUDE:

- Drone infrared thermography
- I-V measurement
- Electroluminescence imaging
- Electrical safety tests
- Commissioning checks

## SINOVOLTAICS EL MASS ANALYSIS (SELMA)



Eliminate **micro-cracks** and other cell-inherent defects and boost your solar power plant performance with **Sinovoltaics EL Mass Analysis (SELMA)**, our AI-driven electroluminescence Testing Software.

#### WHY CHOOSE SELMA FOR EL TESTING?

- Up to 99.9% accuracy
- Inspection of ALL modules (no sampling!)
- High-speed and on-the-fly analysis: avoid delays and easily keep up with the factory's production speed
- Identification and classification of up to 15 cell-inherent defect types
- Replace defective PV modules before shipment

## QUALITY GUARANTEE

#### QUALITY ASSURANCE MEETS INSURANCE:

- With our Quality Guarantee, Sinovoltaics becomes a shared risk partner in our clients' PV projects.
- The Quality Guarantee enables the client to claim Liquidated Damages in case of a valid Warranty Claim with the factory.
- Eligibility: after performing our regular, 100% pre-shipment inspection on the client's PV modules at the factory, the client will be eligible for our Quality Guarantee for 3 years.
- Industry-wide unique protection and based on Sinovoltaics' Zero Risk Solar® framework the Quality Guarantee is backstopped by Munich Re.