



Pairi Daiza, Belgium  
The World's Largest Solar Parking Lot

# LONGi Solar Company Presentation



# About LONGi

The world's leading solar technology company

LONGi leads the solar PV industry to new heights with **product innovations** and **optimized power-cost ratio** with breakthrough monocrystalline technologies. LONGi supplies more than **30GW** of high-efficiency solar wafers and modules worldwide yearly, about **a quarter of global market demand**. LONGi is recognized as the world's most valuable solar technology company with the highest market value. **Innovation and sustainable** development are two of LONGi's core values.



**Y2000**  
Established



**40000+**  
Employees



**\$242.5 Million**  
R&D Investment  
(5.10% of revenue, Y2019)



**\$4.76 Billion**  
Revenue  
(Y2019)



**\$763.5 Million**  
Net Profit  
(Y2019)



MIT Science and Technology Review  
50 Smart Companies



Forbes 2020 Global 2000  
World's Largest Public Companies



Fortune Magazine  
China's Top 500



Goldman Sachs  
New China NIFTY 50  
(\*The Only New Energy Enterprise on the list)

# Leadership

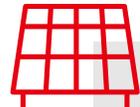
## World's leading capacity of monocrystalline solar products

World's record for **P-Type monocrystalline** cell and module efficiency. World's largest scale in monocrystalline silicon wafers, monocrystalline modules and bifacial modules deliveries. World's healthiest solar company in financial strength, according to the latest BloombergNEF report. LONGi demonstrates its leadership in the PV industry in energy transformation. LONGi's products fulfilled **15% of new energy installations** in the world each year, and is the **world's largest supplier of power generation equipment in the PV sector**.



**40%**

Total capacity of monocrystalline silicon wafers, ranked No. 1 worldwide in 2019



**9.08GW**

Total shipment of monocrystalline cell and modules in 2019



**5.0GW +**

Total shipment of bifacial modules, ranked No.1 worldwide by 2020.05



**BloombergNEF**

Altman-Z Score 3.27, highest of all manufacturers  
(Bloomberg NEF 2Q-2020 PV Outlook,)



**PVTECH**

AAA Rating in the new PV ModuleTech Bankability  
(AAA is currently the highest rating, and LONGi is the only one in this level)

# Leadership

## Industry leading financial health

Adhering to the philosophy of **stable operation** and **sustainable development**, LONGi has maintained a low asset-liability ratio through the years. The strong return on asset, **good profitability and proven bankability** has been validated and recognized by industry authorities.

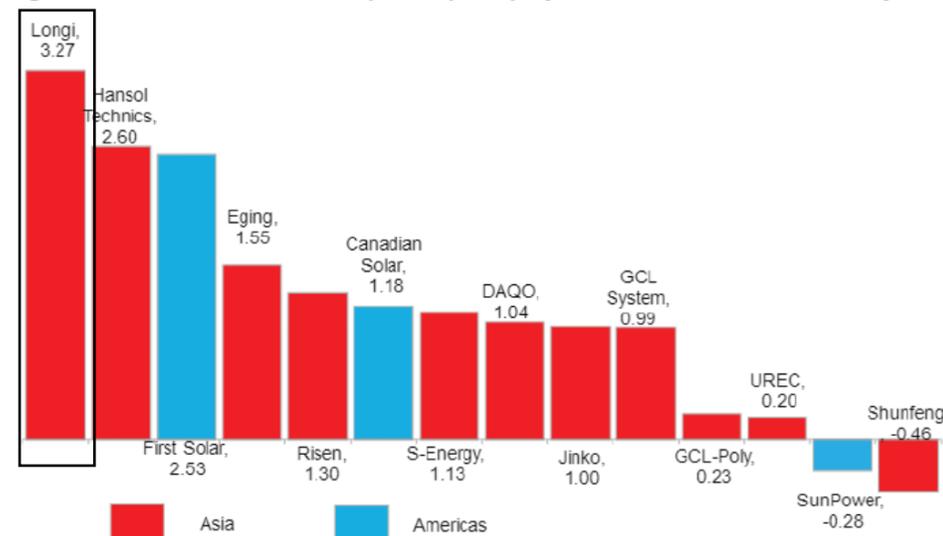
Table 3: Photovoltaic module manufacturers meeting BloombergNEF's tier 1 criteria as of 2Q 2020

Firm/ brand	Annual module capacity, MW/year	Firm/ brand	Annual module capacity, MW/year
ZNShine	3,500	Jolywood*	3,000
Wuxi Suntech*	4,500	Jinneng/ Jinery	2,700
Waaree*	2,000	Jinko*	16,000
Vietnam Sunergy (VSUN Solar)*	1,500	Jetion	2,500
Ulica Solar	800	JA Solar*	15,000
Trina Solar*	10,500	Hyundai*	600
Talesun*	6,200	HT-SAAE*	1,500
Swelect	140	Hengdian DMEGC	1,000
SunPower/ Moxeon*	2,800	Heliene*	390
Sumec/ Phono Solar*	2,000	Hanwha Q-Cells*	10,700
Sharp	210	Goldi Solar	500
Seraphim / SEG*	5,000	First Solar*	6,200
S-Energy	530	Eging	5,200
Risen Energy	11,100	Chint/Astronergy*	4,200
Recom Solar	730	Canadian Solar	13,000
Neo Solar Power/ URE	1,800	BYD	2,400
Longi*	20,000	Boviet*	1,000
LG Electronics*	2,400	Adani/Mundra*	1,500
Leapton Energy	600	<b>Total</b>	<b>163,700</b>

Source: BloombergNEF Note: Methodology [here](#). Note: \* denotes a company for which technical due diligence reports are available from PVEL. Contact [Tara.Doyle@pvel.com](mailto:Tara.Doyle@pvel.com) for details.

This quarter, BNEF is displaying the Tier 1 list in reverse alphabetical order.

Figure 11: Altman-Z scores of quoted pure-play PV makers, 1Q 2020 or full-year 2019



Source: BloombergNEF

## □ 2000~2005

Era: Accumulation of Semiconductor Technology

### 2000

Established

### 2005

Formation of annual production capacity of 30 tons silicon ingot

## □ 2006~2014

Era: Promoting Monocrystalline Silicon Wafers Technological Innovations

### 2012

A-share market listing

### 2014

World's No.1 in production of monocrystalline silicon wafer

- RCz Ingot pulling
- Diamond Wire Slicing Technology
- M1/M2 Silicon standard

# History

## Propelling the transformation

From its humble beginnings in Y2000, LONGi progressed from the first era of developing expertise in semiconductor technology, to the 2nd era of promoting technological innovations in monocrystalline silicon wafers; then to the 3rd era of promoting monocrystalline to the mainstream and finally to today's new era of using solar energy technology to re-green the earth's ecology. Every of **LONGi's successive technological innovations** brought about **industrial transformations**.



□ 2015~2018

Era: Promoting Monocrystalline to the Mainstream

**2015**

Entered solar cell and module market  
World's No.1 in shipment of monocrystalline module

**2018**

The world's most valuable PV manufacturer

- PERC Trend
- LIR Technology
- Bifacial Technology

□ 2018~Current

Re-Greening Earth's Ecology with Solar Energy Technology

**2019**

Certified the low carbon footprint by CERTISOLIS  
Set another standard for ultra high efficiency module

- M6 Silicon Standard

**2020**

Selected as Sole Photovoltaic Sponsor for China Pavilion at Dubai Expo 2020

Officially joined the Global Initiative RE100

# History

## Propelling the transformation

With every milestone achieved, LONGi has driven the industry forward, **propelling the transformation** of the PV industry through innovations and sustainable developments.



# Global Reach

## Real-time solutions for local markets

Customer satisfaction is one of LONGi's core values. LONGi has photovoltaic manufacturing bases for **global scale in production** and a **worldwide marketing network** that provide customers with **localized services and support**, such as project design, product specifications, cooperation planning, business support, logistics and on-site services.



Propelling the transformation

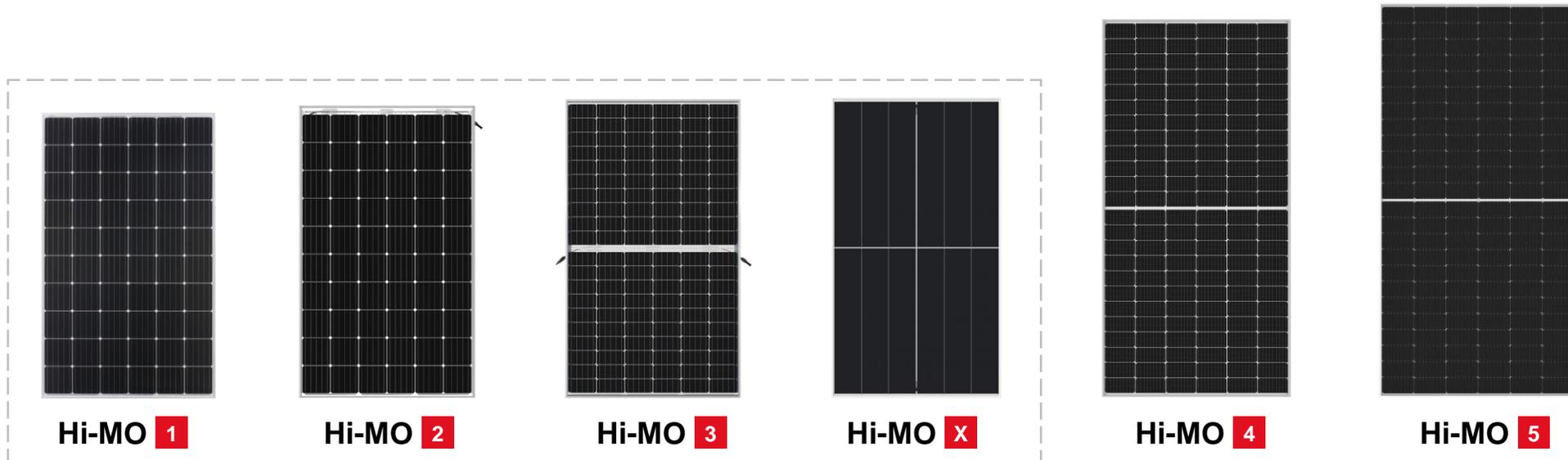


# Product Portfolio

## Industry Benchmark

From standard monocrystalline, PERC monocrystalline, bifacial, to the Hi-MO 4 modules with the new M6 (166mm) wafer, every of LONGi's new product spearheads **the transformation of the PV industry**.

### Hi-MO Series | Leading the industry with Mono PERC technology



Hi-MO 1

Hi-MO 2

Hi-MO 3

Hi-MO X

Hi-MO 4

Hi-MO 5

*Products off the market*

# Product Portfolio

For a wide range of applications

Hi-MO 5 extends the Hi-MO series of LONGi's high performance module products.

Concurrently available with Hi-O 4, LONGi's product portfolio is suited for a wide range of photovoltaic applications.



**Hi-MO 4**  
60c

Best for rooftop  
DG projects



Residential rooftop



C&I rooftop

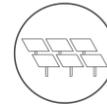


**Hi-MO 4**  
72c

Most cost-effective  
mainstream product



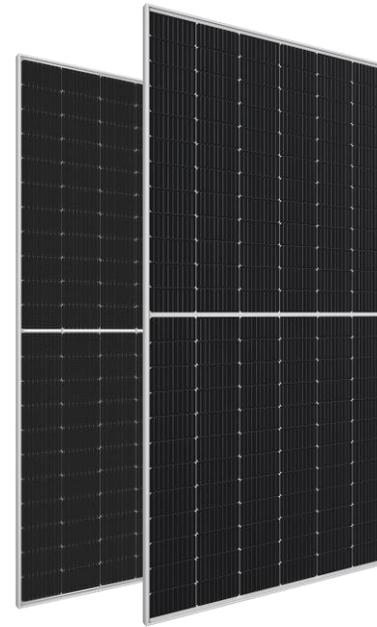
C&I rooftop



Large ground  
power station

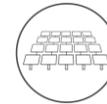


Floating  
power station



**Hi-MO 5**  
66c/72c

Optimal choice  
for ultra-large  
Power plants



Ultra-large  
power station

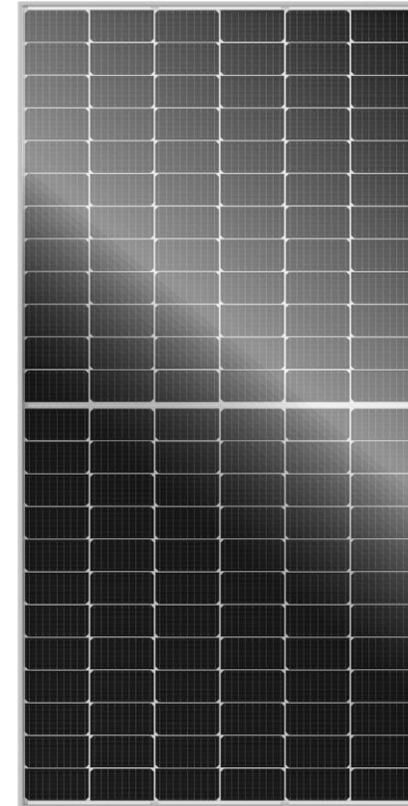
# Hi-MO 4

## Higher power, lower LCOE

LONGi Hi-MO 4 series products are monocrystalline bifacial modules using the new **M6 (166mm) silicon wafer** that delivers the highest power in the modules. LONGi's advanced R&D technology led the upgrade of silicon wafer size from M2 to M6, and ushers in the era of the 166mm standard. LONGi M6 silicon wafer technology enhances the power of the modules, with front side power up to **450W**. The results are BOS savings and the lowest LCOE for the photovoltaic project.

### Leading the era of M6 standard

- Backside power generation gain
- Good electrical performance under shaded conditions
- Resistant to hot spots
- Adapt to high temperature and high radiation environments



*Hi-MO 4 is available in bifacial and monofacial (Hi-MO 4m) variants*

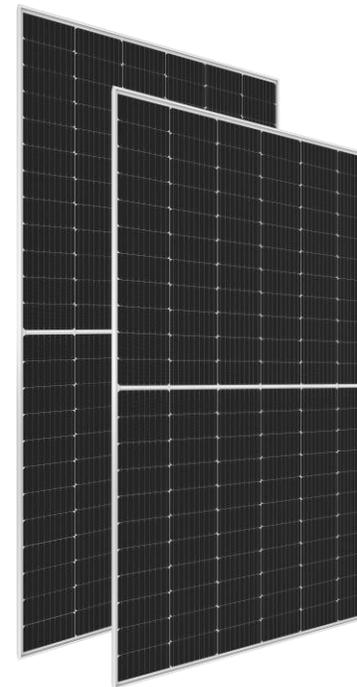
# Hi-MO 5

## Delivering true value

LONGi optimized gallium-doped M10 standard silicon wafers (182mm) to produce a P-Type Mono PERC module with the lowest LID, increased attenuation and power performance as well as long-term reliability.

Hi-MO 5 adopts “Smart Soldering” which uses integrated segmented soldering ribbons that maximize light capture and connect cells with reduced gap distance and reduce the tensile stress of the cell.

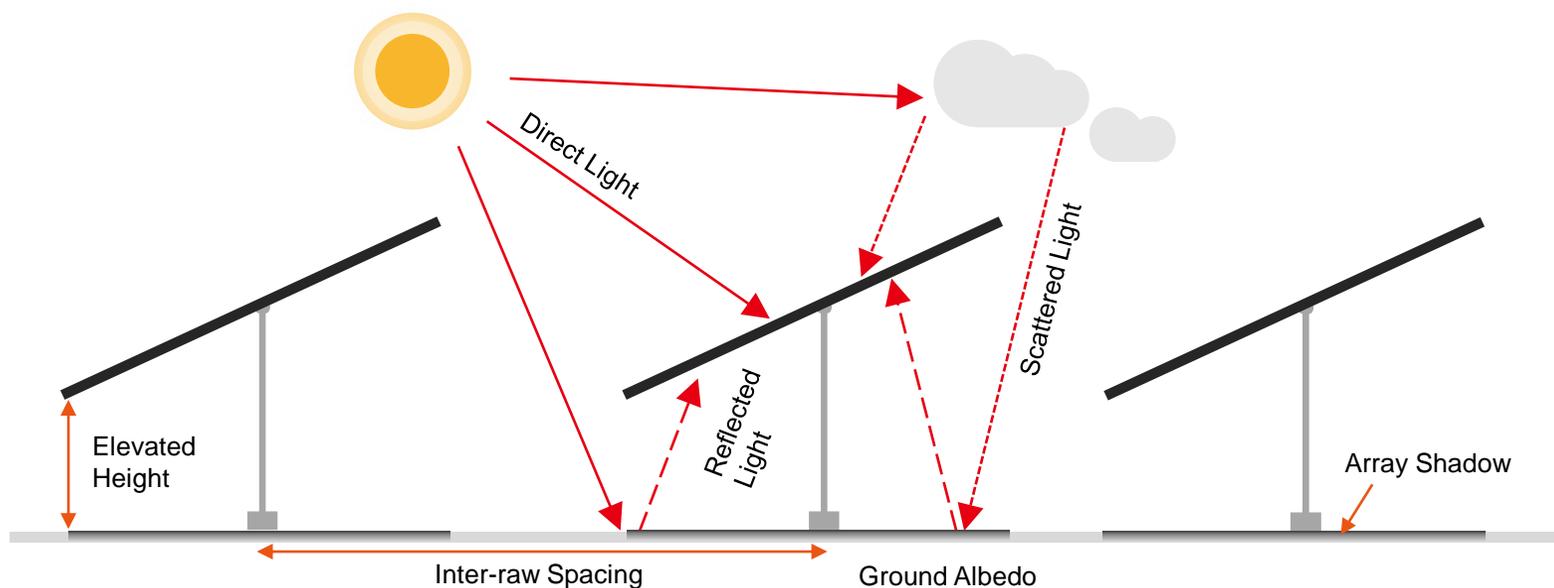
- M10 wafer with gallium-doped technology
- P-PERC cell technology
- Half-cut cell with multi-busbars
- 72-cell format



# Bifacial Technology for Hi-MO series

No. 1 in bifacial modules worldwide shipments

The highest cost-performance ratio of bifacial modules is achieved with **P-type mono PERC technology** of which LONGi has led in large-scale commercialization.

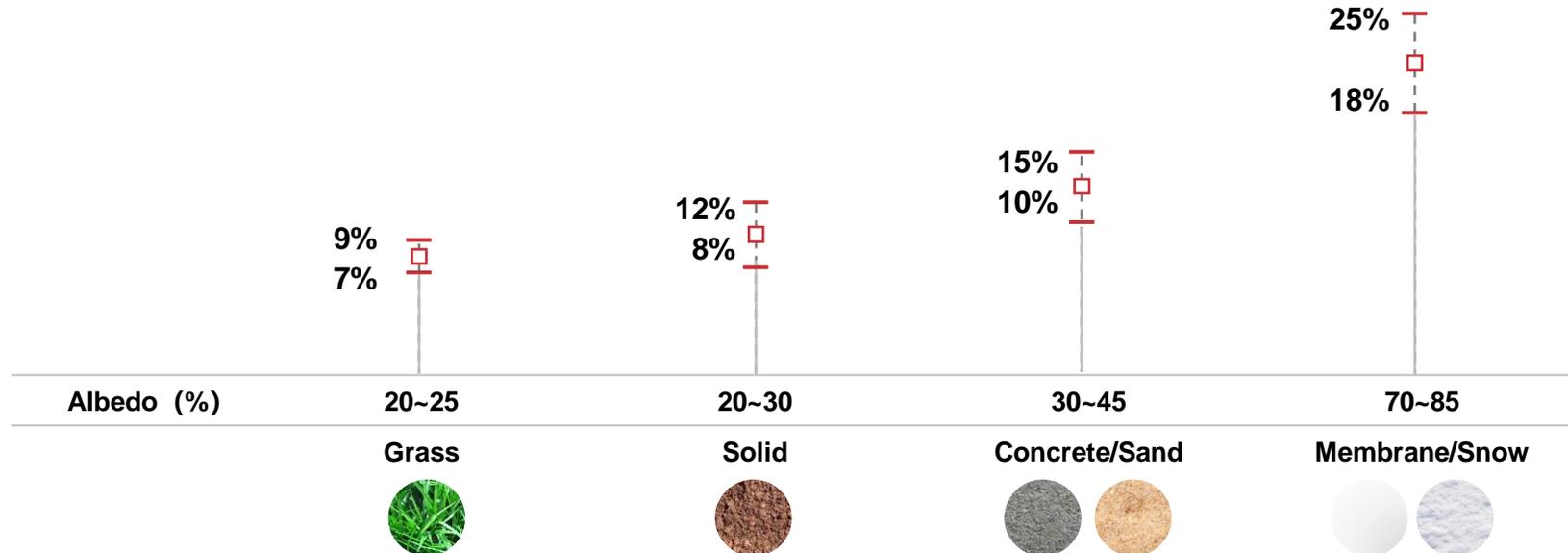


# Bifacial Technology for Hi-MO series

No. 1 in bifacial modules worldwide shipments

Bifacial modules' low attenuation, high rearside energy and the **additional albedo gain** provide the optimal cost-performance ratio, making this one of the standardized product types today. As of May 2020, LONGi's shipments of bifacial PERC modules have exceeded **5.0GW**, ranking **1st** in the world.

 Additional power gain from bifacial module based on background type (%)

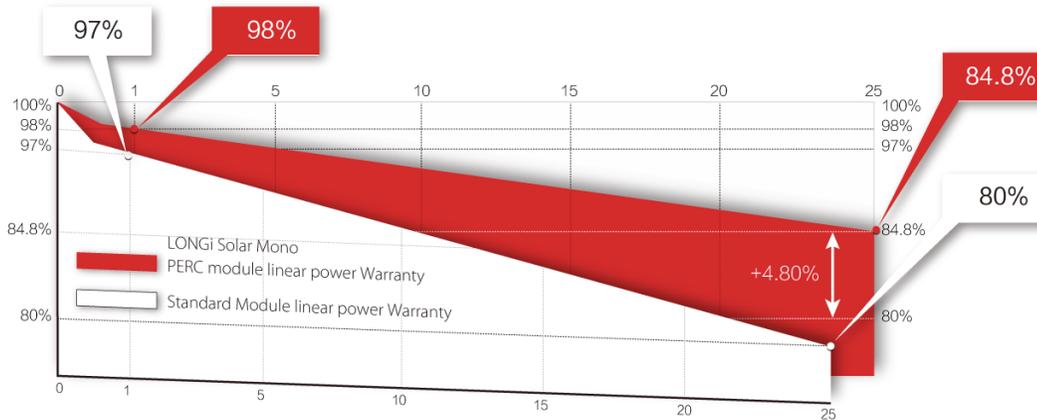


# Quality

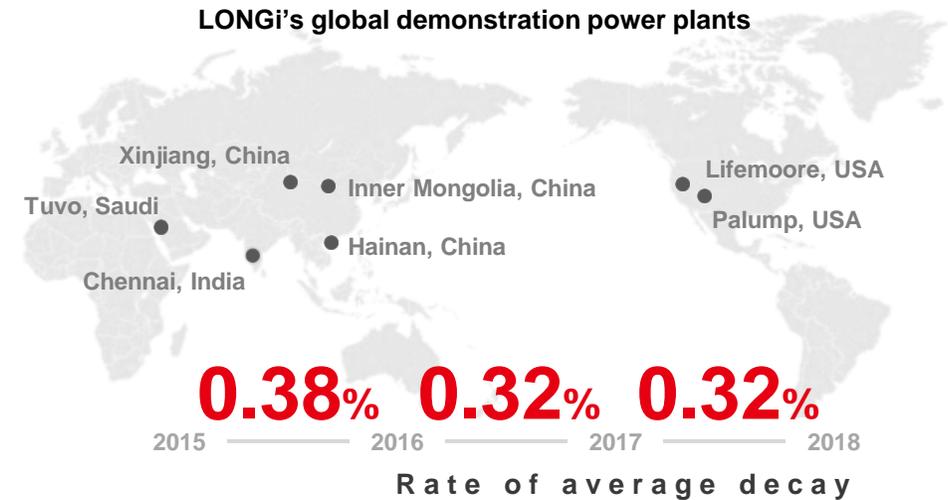
## Proven Value

**High power generation** and **excellent reliability** throughout the product life cycle are fundamental to LONGi's products. From silicon wafer technology with lowest degradation to module design technology that can resist the harshest environments, LONGi tests product quality rigorously and validate them independently. LONGi works with third-party organizations, set up demonstration power stations around the world and continuously tracks the performance of every product in their lifecycle.

LONGi offers a first-year power warranty of  $\geq 98\%$  for PV modules



LONGi's global demonstration power plants



# Quality

## Proven Value

In addition to standard tests, LONGi's photovoltaic products demonstrated **excellent performance** in rigorous stress tests conducted by independent third parties.



Ranked first in TÜV Rheinland PV module power generation simulation for two consecutive years 2016, 2017

First place in TÜV Rheinland PV energy simulation in the Monocrystalline group in 2018



RETC 2019 High Achievement Manufacturers



First rank in empirical power generation in PV Magazine outdoor power generation evaluation



Highest score in Module manufacturing technology (2019, PV-TECH)



Top Performers for All extended reliability tests

# Innovations

## Continuous technology innovations on open platforms

LONGi's innovations are not just limited to technology. The company hopes to **integrate innovations and create an open, collaborative platform**. This is essentially a new way to connect with industrial partners, universities, research institutes, PV start-ups, as well as customers and colleagues. In a **ecosystem**, all elements come together in active collaboration and interaction that enables us to design **innovative solutions** to drive **the solar-led energy transformation**.

### Industrial Partner



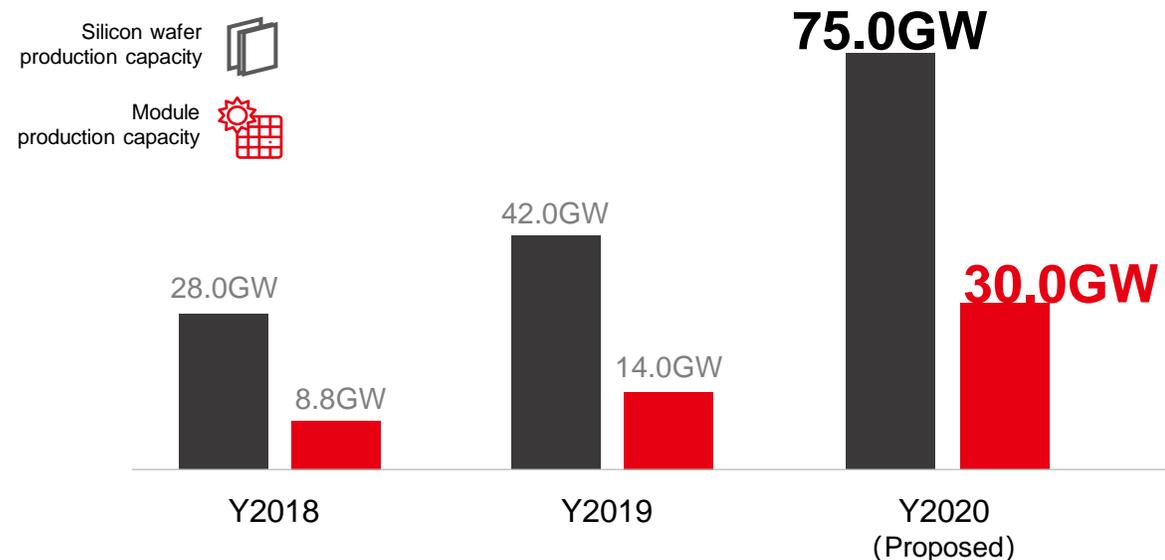
### Research Institute



# The Future of LONGi

## Expansion to meet the needs of energy reform

Solar power has become the largest new source of electricity installed each year since grid parity is achieved in many regions. **The trend is accelerating.** As the pace of transition from fossil fuels to electricity increases, the world's demand for electric energy is also undergoing a new round of transformation. In order to meet this strong, continuous demand brought by the energy transformation, LONGi has made **an ambitious capacity expansion plan**, adhering to the business philosophy of "**leading, expanding production with advanced technology**", where every new production capacity is a new upgrade of product technology.

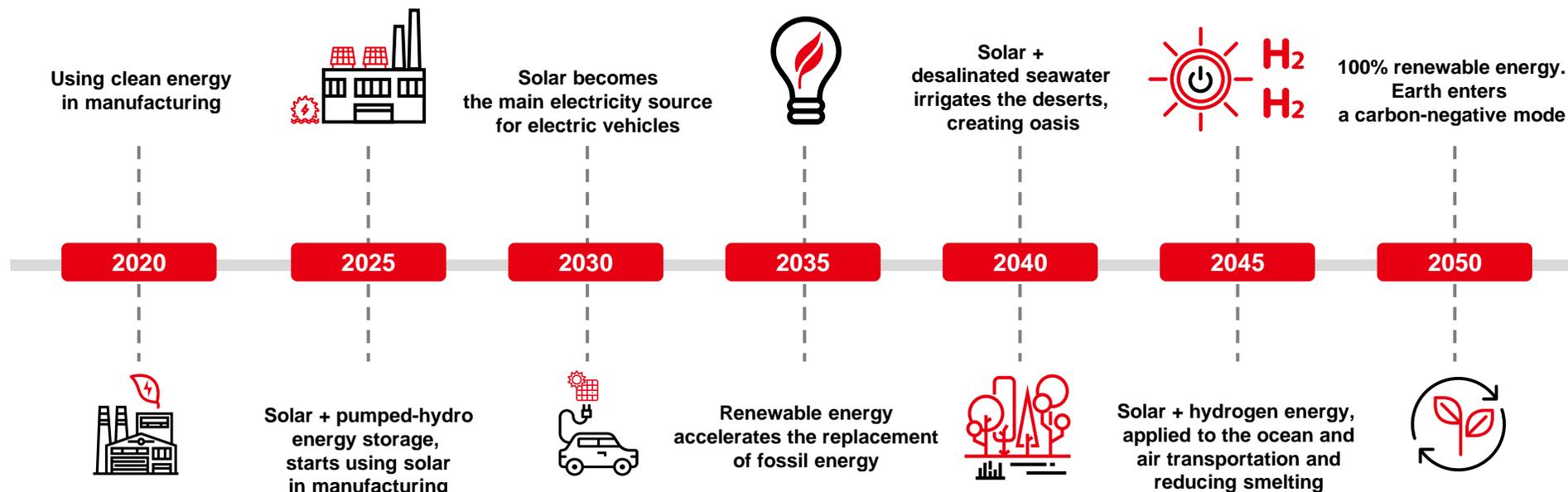


# RE 100

## The Future of LONGi

### Sustainable Development Strategy

With “Solar for Solar”, LONGi officially joined the Global Initiative RE100, and will keep building towards achieving **100% in clean energy consumption**. LONGi always had **sustainable management** as a core criteria for business decision-making, including continuous investments in innovation and research, advocating an open corporate culture and promoting scientific institutional research. At the same time, LONGi has been leading continuous changes in electric power and energy, promoting the **sustainable development of the planet and mankind**. It is LONGi’s vision and roadmap that Earth will be completely green and self-sustainable in the first half of this century.





**208MW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**Altiplano, Argentina**



**33.60MW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**Pernambuco, Brazil**



**191MW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**Aguascalientes, Mexico**



**3.60MW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**San Felipe, Chile**



**251MW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**Nevada, USA**

**120MW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**Concord, USA**



**25.5MW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**Alberta, Canada**



**7.50MW**

**Project Type**  
**Ground-mounted Solar Plant**

**Project Location**  
**Fertőd, Hungary**



**63.8MW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**Chmelnyzki, Ukraine**

**13.89MW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**Shika Machi, Japan**



**168MW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**NinhThuan, Vietnam**



**72.5MW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**Maharashtra, India**



**170MW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**Karnataka, India**



**250MW**

Project Type **TOP RUNNER**  
**Ground-mounted Solar Plant**

Project Location  
**Shaanxi, China**



**210MW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**Qinghai, China**



**40.0MW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**Shaanxi, China**



**336kW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**Inner Mongolia, China**



**80.0MW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**Guangxi, China**



**200MW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**Ningxia, China**



**100MW**

Project Type  
**Ground-mounted Solar Plant**

Project Location  
**Shanxi, China**



**102MW**

Project Type  
**Solar Floating System**

Project Location  
**Anhui, China**



**150MW**

Project Type  
**Solar Floating System**

Project Location  
**Anhui, China**



**112MW**

Project Type  
**Solar Floating System**

Project Location  
**Hunan, China**



**275MW**

Project Type **TOP RUNNER**  
**Solar Fishery**

Project Location  
**Jiangsu, China**

**LONGi** Propelling the transformation



**7.50MW**

**Project Type**  
**Commercial Rooftop**

**Project Location**  
**California, USA**



**177kW**

Project Type  
**Commercial Rooftop**

Project Location  
**Buenos Aires, Argentina**



**4.26MW**

**Project Type**  
**Commercial Rooftop**

**Project Location**  
**Noord-Brabant, the Netherlands**



**899kW**

Project Type  
**Commercial Rooftop**

Project Location  
**Hapert, Netherlands**



**1.05MW**

Project Type  
**Commercial Rooftop**

Project Location  
**Bladel, the Netherlands**

**529kW**

Project Type  
**Commercial Rooftop**

Project Location  
**Oostende, Belgium**



**20.0MW**

Project Type  
**Solar Parking Lot**

Project Location  
**Brussels, Belgium**



**1.03MW**

Project Type  
**Commercial Rooftop**

Project Location  
**Beirut, Lebanon**



Propelling the transformation



**42.0kW**

**Project Type**  
**Commercial Rooftop**

**Project Location**  
**Auckland, New Zealand**



**1.26MW**

Project Type  
**Commercial Rooftop**

Project Location  
**Asan City, Korea**



**855kW**

**Project Type**  
**Commercial Rooftop**

**Project Location**  
**Tianjin, China**



**12.0MW**

Project Type  
**Commercial Rooftop**

Project Location  
**Guangzhou, China**



**20.0kW**

Project Type  
**Commercial Rooftop**

Project Location  
**Hong Kong, China**



**50.0kW**

**Project Type**  
**Commercial Rooftop**

**Project Location**  
**Hong Kong, China**



**160kW**

Project Type  
**Commercial Rooftop**

Project Location  
**Hongkong, China**

**LONGi**

Propelling the transformation