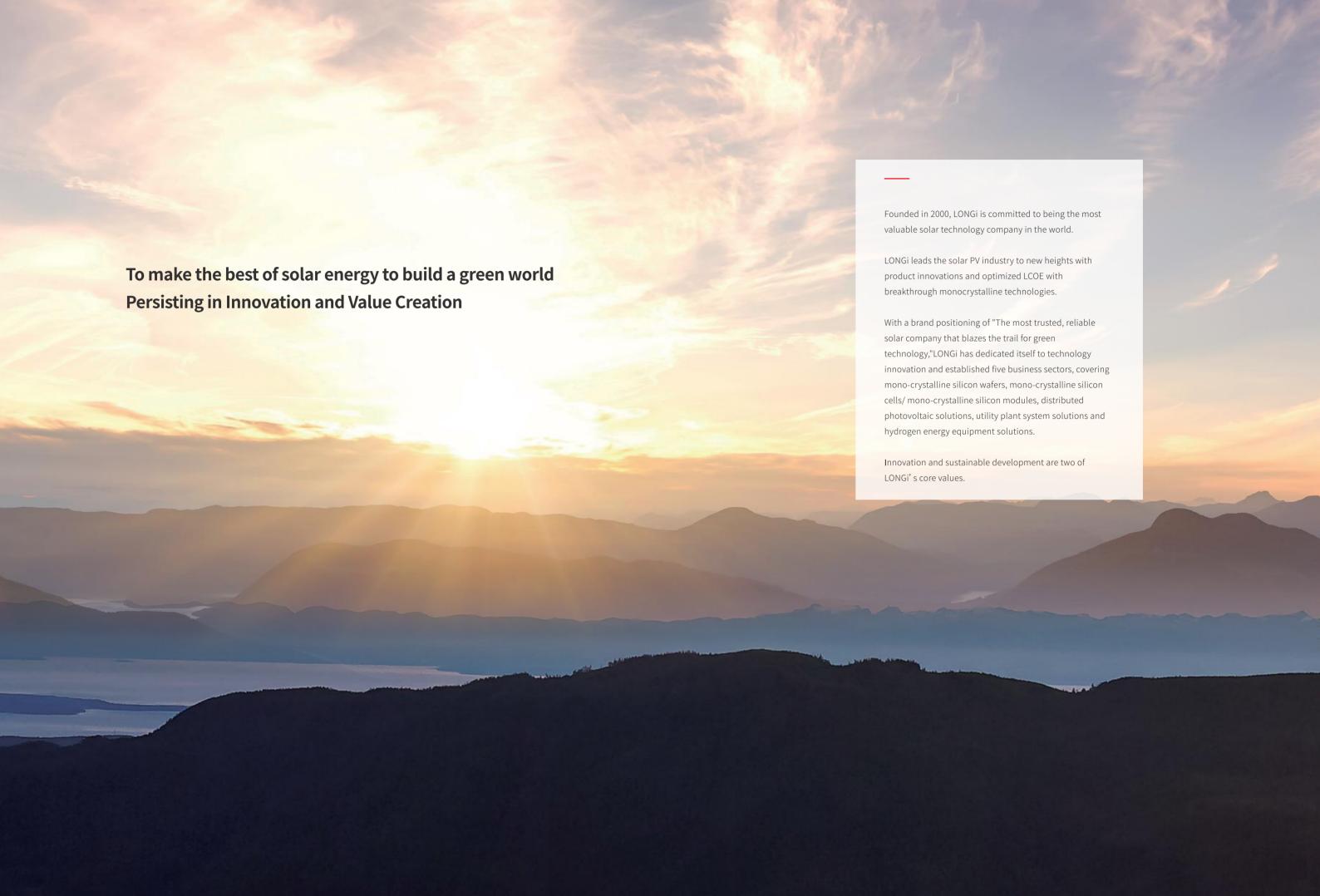
# LONG

# CUSTOMER DRIVEN VALUE CREATION

FOR FULL SCENARIO ENERGY TRANSFORMATION

The World Leading Solar Technology Company

LONG!



# Steadfast and Reliable 7



### **Each Milestone Has Become A Key Force** to Promote the Development of the Industry

2000

STAGE 1

2005

STAGE 2

Semiconductor technology accumulation

2000

LONGi established

2005

Formation of annual production capacity of 30 tons silicon ingot

Technological revolution in monocrystalline silicon wafers

2012

A-share market listing

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

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

STAGE 3

2014

Promoting monocrystalline to the mainstream

2015

Entered solar cell and modules marke

World's No.1 in shipment of monocrystalline modules

2018

The world's most valuable PV manufacturer

- PERC
- LIR Technology
- Bifacial Technology

STAGE 4

2019

Utilizing solar technology to change the earth

2019

Low carbon footprint certified by CERTISOLIS

Set another standard for ultra high efficiency module

M6 Silicon Wafer Standard

2020

2020

standard

Set a new industry

Selected as sole

dubai expo 2020

Climate Group's

M10 Silicon Wafer Standard

photovoltaic sponsor

for china pavilion at

Officially joined the

RE100, EV100, EP100

initiatives to achieve carbon neutrality

2021

LONGi Hydrogen

BU established

LONGi set three world records

n-type TOPCon Cell Efficiency

p-type TOPCon Cell Efficiency

n-type HJT Cell Efficiency

2022

**STAGE 5** 

LONGi, solar for all

2022

LONGi set six world records

HJT Cell Efficiency

Indium-free HJT Cell Efficiency

p-type HJT Cell Efficiency

HJT Silicon Cell Efficiency

2023

The conversion efficiency for silicon-perovskite

tandem solar cells exceeds 33.5%

Launch of LONGi Green Energy Innovative **Ecological Collaboration** Platform

Y2022

Operating Income

Net Profit Attributable to Shareholders

\$18.85B \$2.16B

\$1,044M

**R&D Investment** 

Global Employees

60000+



Manufacturers













Global Top 500 New Energy Enterprises

\*Notes: The financial figures are based on the exchange rate at the end of the reporting period.

**133**GW

Wafer Capacity (2022)

\* LONGi took the industry lead in standardizing wafer size and achieving 100% diamond wire cutting of mono silicon wafer.

LONGi has held the top position in global monocrystalling silicon wafer shipments for 9 consecutive years.

**46.76**GW

Module Shipment (2022)

\* In 2020, 2021 and 2022, LONGi ranked world No.1 in three consecutive years in terms of shipment volume and market share.

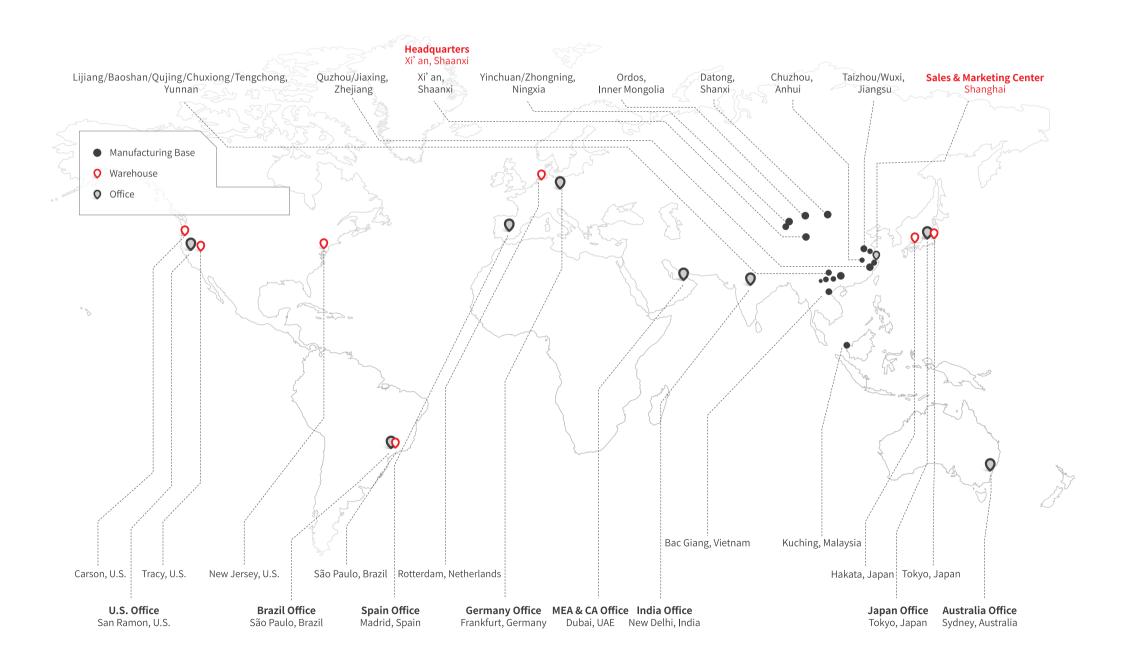
**85**<sub>GW</sub>

Module Capacity (2022)

140<sub>GW+</sub>

→ Total Module Shipment

# The World Leading Mono Silicon Wafer Manufacturer Leading Capacity and Shipment



asset-liability ratio at a low level compared to other global PV manufacturers. TIER 1

Tier 1 PV Module
Manufacturer

\*Source: BNEF Q1 2023 Global PV Market Outlook

100%

100% Bankable PV Module Brand

\*Source: BNEF PV Market Module & Inverter Bankability 2022

AAA

PV Module Tech Bankability Rating

\*Source: PV Module Tech Bankability Quarterly Report Q1 2023 We Embrace
Innovations with Our Global Customers

150+
Countries and Regions

5000+

Global Customers and Partners

# Technology Leadership /

LONGi Innovation: The Benchmark **For The Entire Industry** 



Monocrystalline

Improved RCz Diamond Wafer Cutting



2016

High Efficiency

Low Degradation

Hi-MO 1

PERC



**Bifacial PERC** 

Significant Energy Yield Increase that Lowers LCOE





Hi-MO3

Half-cut

Increasing

Efficiency

and Power

2018

Hi-MO 4

M6 Standard Wafer

Global Bestseller, Full Replacement of M2 Module





Hi-MO 5

**M10 Ultimate Size** 

Designed for PV Ultra-large Stations, **Increasing Module** Efficiency by Smart Soldering

2020



Hi-MO 7

**New Generation Module HPDC Cell Technology** 

Innovative Bifacial Dual-junction Cell Technology, Bringing Higher Value to Customers

2023



Hi-MO6

High-efficiency HPBC Cell Technology

Designed exclusively for **Global DG Customers** 



LONGi

**Lifecycle Quality** 

Management

Product Lifecycle Quality

2021

**Continuous Technology Innovations** on Open Platforms

\$1,044M 2022 R&D Investment

Proportion of Operating Income Invested in R&D

Solar for all

### **Customer Driven Value Creation**



Solar for all

1 1 1

### LONGi Module Design and Planning

Production and Technology with Highest Customer Value

### High Optical Utilization

- . Bifacial power generation
- . Innovative interconnection materials
- . Zero shielding on front



### **Low Degradation**

- . LID , LeTID , PID
- . Gallium doped, hydrogen passivation
- . HPBC,HPDC cell technology

# Prudent Electrical Design

- Current: wire loss, safety
- Voltage: maximum design capacity



### **Stable Supply Chain Guarantee**

. Glass, junction box, etc.

### **High Encapsulation Density**

. High power output& high efficiency

### **High Logistic Compatibility**

. Handling, packaging and transportation

. Large-scale Application of Gallium-doped Silicon Wafers

. Leading the Efficiency Improvement of Mono PERC Cells

Solve PERC LID
Problem and Remove
Application Barriers

. Verification of the Advantages of Mono PERC Modules

. Bifacial PERC and Module Design

## Bifacial Technology for Hi-MO Series

Establish Guidance or Bifacial System Design Optimization

Global Verification of Bifacial Energy Gain and Reliability

Establishing Bifacial Module Bankability

Large Scale Application of Half-cut Technology

Reducing Hot Spot Temperature and Improving Energy Yield

### Smart Soldering Technology

A Balanced Choice of Overall Efficiency, Cost and Reliability

Launch of 166mm Wafer Standard

Support All Applications, the Best Size Selection of Existing Capacity Optimal Size Design 182mm Optimal Size with Systematic Consideration

> otimal Large Size Module for Large Flat Terrain Power Station

1.

Solar for all

**Hi-MO** 5 Delivering True Value

### · M10 wafer with gallium-doped technology · P-mono PERC cell technology · Half-cut cell with multi-busbars

# LONGi Hi-MO Series Unlock More Application Scenarios

# **Hi-MO** 5. New Choice for Rooftop Solar System

- M10 gallium-doped wafer · Compatible with most standard mounting systems
- Excellent energy generation under low light

### **Hi-MO** 6 High-efficiency HPBC Cell Technology

- · M10 gallium-doped wafer
- · Aesthetic · Efficient · Reliable · Intelligent

# **Hi-MO 7** HPDC Cell Technology Featuring High Power Generation Performance and High Reliability

- · M10 (182mm) N-type monocrystalline silicon wafer · Better bifacial power generation performance
- Product life-cycle reliability assurance

### **Applications**



Best LCOE

Hi-MO 5 Hi-MO 7



# **Product Quality and Performance Guarantee**

### Design ←

- · Established models of optics, electricity, mechanics and heat
- · Combines theories with experimental results and historical experience
- · Comprehensive analysis of product value based on application scenarios

### Material ←

- Specific tests based on material properties
   Suppliers with high financial health
   Thresher reliability test
  - Plan ←
- Product and Material Standard
   Ensure the continuity of production and the versatility of materials



Quality

Management

ISO 9001 IEC TS 6294 MES System ERP System

### → Reliability Tests

- · Advanced lab recognized by the third party
- · Passed the internal thresher reliability test
- Excellent performance in the test of third party organizations

### Manufacturing

- · Highly automated production lines
- · Quality assurance (Manufacturing bases, headquarters, marketing)

### → Outdoor Power Generation

- The power generation performance and reliability are verified by theory and demonstration
- · Joint demonstration with authoritative third party institutions and customers

# **Professional Reliability Assessment Methods**

Based on the research results of well-known research agencie standards and third-party institutions in the industry, LONGi has established a variety of differentiated reliability testing methods to evaluate product and material reliability more quickly and effectively.

- Highly Accelerated Thermal Cycling(HATC)
- · DH+UV Aging
- · Thermal Cycling (TC) + Ultraviolet (UV) Aging
- · Low Irradiance Testing
- Dry Cold + Dry Heat + Damp Freeze Sequence Testing
- UV + TC + HF Sequence Testing
- LeTID Testing
- · PID Testing
- · Salt Spray and Ammonia Testing
- Hail Testing
- · Low-temperature Mechanical Load Performance
- Longi Wind Tunnel Foundation & Ultimate Testing
- · Fire Resistance Testing



### LONGi Standardized BOM

LONGi is committed to the standardization of materials.

Materials meeting the high standards LONGi are unified as

LONGi brand, which further improve the consistency of

manufacturing process and product quality.



# The Third-party Evaluation of Product Quality & Performance

**Efficiency Records and Awards** 

### TÜV Rheinland All Quality Matters



2017, 2018, 2021, 2022 Energy Yield Simulation Winner

2019, 2020, 2021 "PV Module Outdoor Power Generation" Winner







Precisely Right.

Incident angle effect

### **RETC High Achiever for 4 Years**

LONGi is recognized as a 2022 Top Performer, gaining the High Achiever status in RETC (Renewable Energy Test Center)'s PV Module Index Report for the fourth consecutive year.

Renewable Energy Test Center (RETC) is a leading engineering service and certification testing provider for photovoltaic & renewable energy, who broadly organize test protocols and reported data according to three interrelated and essential disciplines: module quality, performance, and reliability.



### Reliability

· DH2000 Test · DMLTest · PID-Free



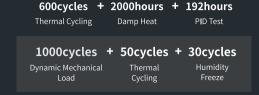
### Performance

· Module Efficiency · PTC-to-STC Ratio · PAN File · LID · LeTID **Quality**Thresher Test
(HF30, TC600,

DH2000, DML, UVSoak)

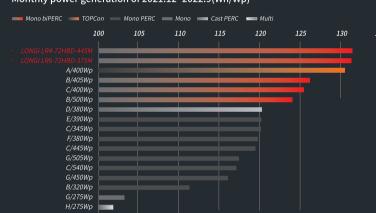
# Top Performer in PVEL's PV Module Reliability Scorecard 6 Times





# **Excellent Performance in Energy Yield Test Conducted by pv magazine**

Monthly power generation of 2021.12~2022.9(Wh/Wp)



- Organized by the German-based pv magazine Group, in cooperation with CEA in the United States and GSolar in China, sampled by CEA.
- LONGi modules were ranked top in the outdoor category.



# The Only Module Manufacturer Achieving '2021 Intersolar Award'

The annual Intersolar award is arguably the most authoritative solar photovoltaic award in Europe, based on only the most innovative and disruptive products and technologies in the industry over the year. In terms of impact and price assessment, the winners are all innovators, leading the development of the photovoltaic industry.

'The only module manufacturer achieving 'Intersolar award' Demonstration of LONGi' s advanced technology and innovation

### Intersolar Award



### The Future of LONGi **Sustainable Development Roadmap**

With "Solar for Solar", LONGi officially joined the Global Initiatives RE100, EV100, EP100, 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.

### **RE100**

Committed to 70% renewable electricity by 2027. Committed to 100% renewable electricity by 2028.

- In 2022, the proportion of green power use reached 47.18%, and the use of green power will increase by 38.21% compared with 2021.
- In 2022, the proportion of green power use of Baoshan LONGi has reached 99.09%, and energy-saving technology improvement projects are steadily progressing.

### **EV100**

Committed to installing charging infrastructure at all production and operational sites by 2030.

• Organized group-wide centralized procurement of charging piles, involving 7 provinces, 13 cities and 23 business sites, and the first charging piles planned for "EV 100" are expected to be put into use in 2023.

### **EP100**

Committed to completing the installment of energy management systems (enms) by 2025 and improving energy efficiency by 35% compared to the baseline year of 2015.

- By 2022, a total of eight production bases have completed the construction of energy management information system; 1 new production site was added in 2022.
- 66.64% improvement in overall group-wide energy use efficiency in 2022 compared to 2015
- Construction of 'Zero Carbon Theme Park' in the factory, greening and beautifying the factory, raising the awareness and participation of all employees in green and low carbon



Committed to setting a greenhouse gas (GHG) emission reduction target, aligned with the global 1.5°C temperature increase goal.

- Group-wide greenhouse gas reduction of 2.01% compared with 2021
- LONGi launched the 'Supply Chain Green Partner Empowerment Program' and provided carbon empowerment to over 480 suppliers.



Sustainable **Development** Philosophy of LONGi



**FSG Sustainable Development Vision** 

Lead for the clean energy world



energy and ensure access to solar-powered energy for all. In 2023, the company set up its sustainable development philosophy, known as LIGHT.

With the mission of "Making the best of solar energy to build a green world", LONGi promotes energy equity and strives to leverage solar technology to reshape the future of

Taking into account our development strategy, industry features, national development plan, and the United Nations Sustainable Development Goals, we have established five factors-"Lead", "Innovative", "Green", "Harmonious", and "Trustworthy".



### Affordable for All



**ESG Sustainable Development Goal** 

Affordable for all









# DEVELOPMENT G ALS





































