

**LESSO**

STOCK CODE: 2128.HK

# **LESSO SOLAR**

## **SOLAR SOLUTIONS MANUFACTURER**



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**HERITAGE**

**INNOVATION**

**SUSTAINABILITY**



**LESSO**

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# **HERITAGE**

**LESSO Group | LESSO Solar | Development Course | Honors | Manufacturing Giant**



**LESSO**

Envisioning the better,  
Building the future.

**4.57 billion**

2022 Revenue

**37**

Years Heritage

**30<sup>+</sup>**

Production Bases

**10000<sup>+</sup>**

Product Categories

**2200<sup>+</sup>**

Patents Applied

LESSO Group is a Hong Kong-listed (2128.HK) manufacturer of building materials with an annual revenue of over USD4.57 billion from its global operations.





## LESSO Solar

**LESSO Solar**, a flagship division of LESSO Group, specialises in manufacturing solar panels, inverters, and energy storage systems, and providing solar-energy solutions.

Founded in 2022, LESSO Solar has been growing with spectacular pace. We have a production capacity of 7GW for solar panels in early 2023, and expect a global capacity of over 15GW by the end of 2023.



**40**

Wholly Owned Subsidiary



**5**

Production Bases



**15GW**

Annual Production Capacity



1980

## 1986

The Xixi Plastic Hardware Factory was founded in Shunde, Guangdong.



## 1996

The company LIANSU was founded with its trademark registered and it began its brand development.



2000

## 2001

The first subsidiary outside Guangdong Province was built in Wuhan, Hubei Province.



## 2010

China Lesso was listed on the Mainboard of Hong Kong Stock Exchange. ( Stock name: China LESSO, Stock code: 2128.HK)



2010

## 2011

Its sales volume exceeded RMB 10 billion and expanded its business to the building materials and home furnishings industry.



## 2012

It implemented the parent brand and sub-brand operation model.



2013

## 2013

LESSO started to provide customers with integrated solutions from design / production / installation / decoration to services.



## 2015

It further developed its major business and made the strategic plans for the environmental protection industry.



2016

## 2016

It built a global platform to provide channels and services.



## 2019

In March, LESSO's first automated workshop was put into operation, a shift to intelligent manufacturing. LESSO Tianying was established in Sept, marking LESSO's first step into the agriculture sector.



2021

## 2021

The injection molding workshop of LESSO Indonesia, LESSO's first overseas self-built factory, was put into operation, improving the global layout of overseas markets.



## 2022

LESSO Solar was founded as LESSO's official reach out to the new energy sector.



# Honors

Over the past 37-year history of pressing forward, LESSO has won many honors and certificates for its careful management and outstanding performance.

No. **375**

**Fortune China TOP 500 in 2022**

Fortune China

No. **361**

**TOP 500 Chinese Enterprises in 2022**

China Enterprise Confederation / China Enterprise  
Directors Association

No. **227**

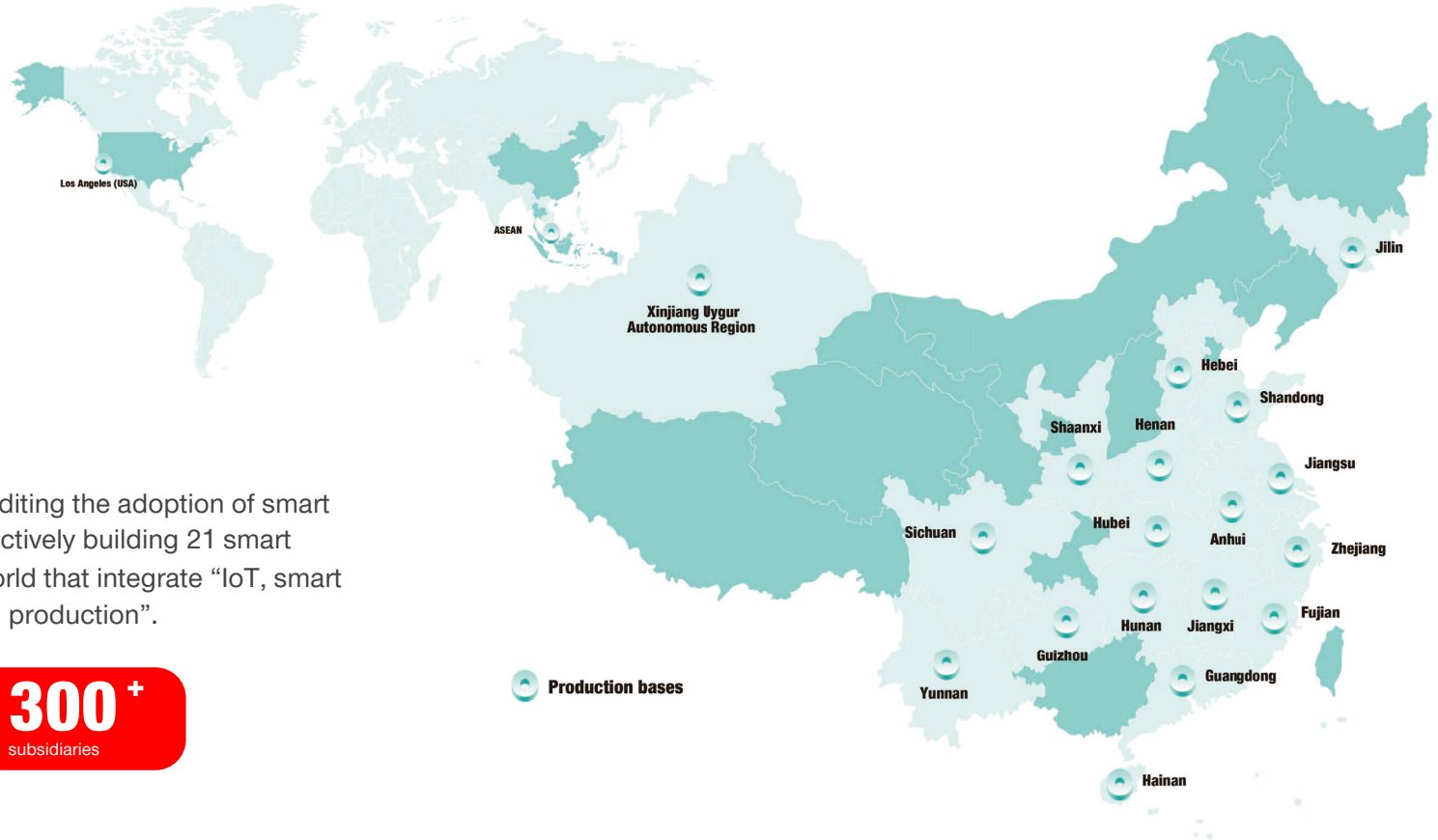
**China's TOP 500 Manufacturers in 2022**

China Enterprise Confederation / China Enterprise  
Directors Association

**2022 Capital Market  
Influential Enterprise**

on the list of **"China's Top 500 Brand Value"**  
for **nine consecutive years**





LESSO has been expediting the adoption of smart manufacturing by proactively building 21 smart factories across the world that integrate “IoT, smart control and automated production”.

**30<sup>+</sup>**  
Production Bases

**300<sup>+</sup>**  
subsidiaries

# LESSO Solar Global Production

This map illustrates global locations where LESSO Solar owns or plans a factory for solar-power products and their annual production capacity.

ZHAOQING

## CHONGKOU FACTORY

FOSHAN, GUANGDONG, CHINA

2022 500MW SOLAR MODULES

## JIULONG FACTORY

FOSHAN, GUANGDONG, CHINA

2024 5GW SOLAR MODULES

2024 10GW SOLAR CELLS

## HESHAN FACTORY

JIANGMEN, GUANGDONG, CHINA

2023 6GW SOLAR MODULES

2023 2GW P-TYPE SOLAR CELLS

2023 4GW N-TYPE SOLAR CELLS

2023 10,350,000 SOLAR MODULE FRAMES

## DABA FACTORY

FOSHAN, GUANGDONG, CHINA

2023 INVERTERS

2023 ENERGY STORAGES

2023 EV CHARGERS

## LONGJIANG FACTORY

FOSHAN, GUANGDONG, CHINA

2023 6,000KM ELECTRICAL WIRES

2023 2,000KM ELECTRICAL CABLES

## HUANGPU FACTORY

ZHONGSHAN, GUANGDONG, CHINA

2022 10GW SOLAR MOUNTING SYSTEMS

## WUSHA FACTORY

FOSHAN, GUANGDONG, CHINA

2023 6.4GW SOLAR MODULES

2022 13,800,000 SOLAR MODULE FRAMES

2023 300,000 INVERTERS

2023 300,000 ENERGY STORAGES

GUANGZHOU

DONGGUAN

JIANGMEN

ZHONGSHAN

PEARL RIVER

ZHUHAI

MACAO

## LESSO GROUP HQ

HONG KONG, CHINA

HONG KONG

## LESSO NEW ENERGY HQ

RAFFLES QUAY, SINGAPORE

MALAYSIA

## INDONESIA FACTORY

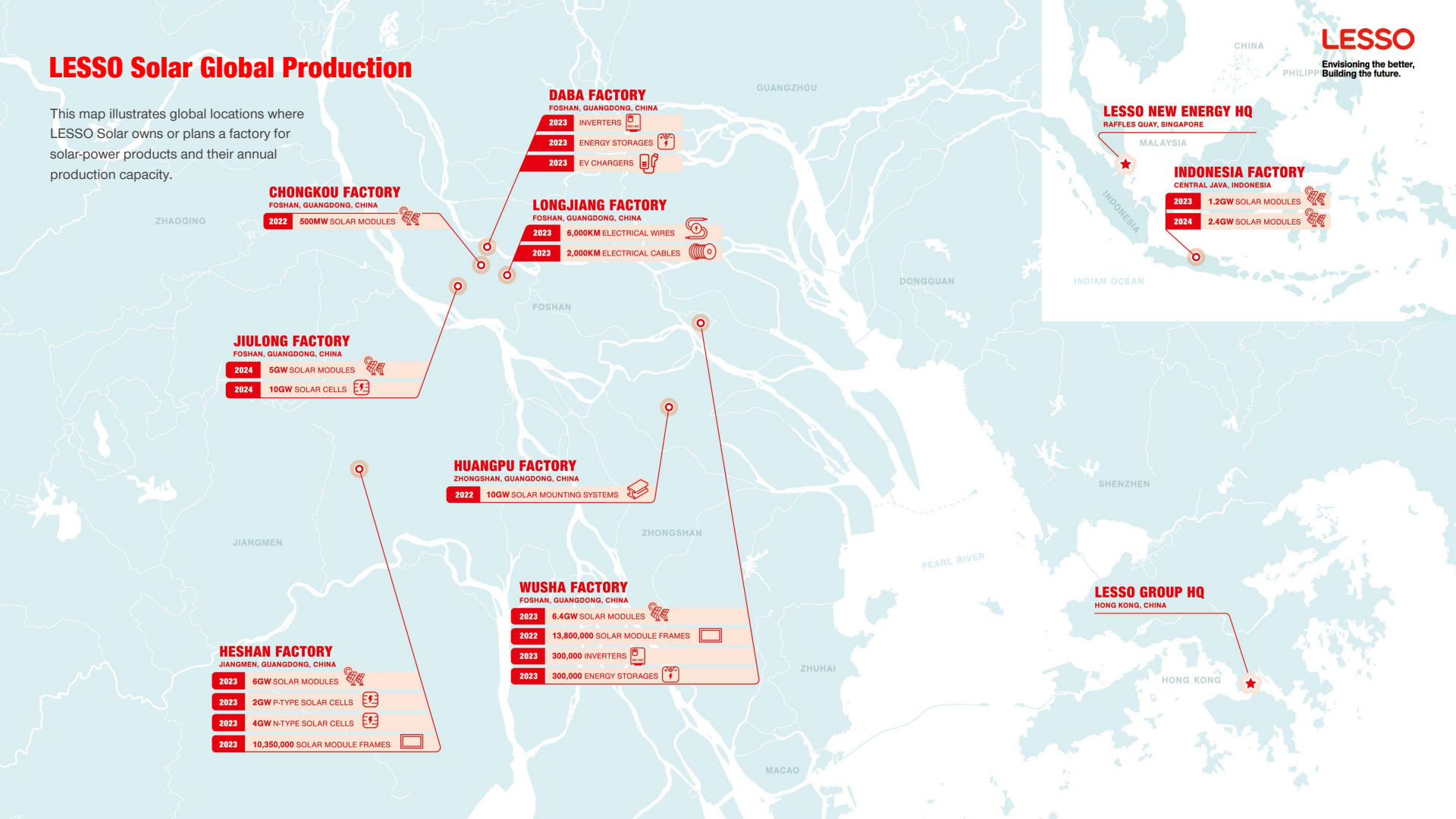
CENTRAL JAVA, INDONESIA

2023 1.2GW SOLAR MODULES

2024 2.4GW SOLAR MODULES

INDIAN OCEAN

SHENZHEN





# LESSO Solar Production Bases



**Wusha Factory**  
Foshan, China

**6.4GW** in Solar Modules



**Heshan Factory**  
Jiangmen, China

**6GW** in Solar Modules **6GW** in Solar Cells



**Chongkou Factory**  
Foshan, China

**500MW** in Solar Modules



**Indonesia Factory**  
Central Java, Indonesia

**3.6GW** in Solar Modules



**Jiulong Factory**  
Foshan, China

**5GW** in Solar Modules  
**10GW** in Solar Cells



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# **INNOVATION**

**Research & Development | Advanced Manufacturing | Quality Certification | Solar Solutions Manufacturer**



**1**  
One national accredited  
enterprise technology  
center

**32**  
Thirty-two national  
high-tech enterprises



**1000**  
More than 1,000 scientific  
researchers



**2**  
Two post-doctoral  
workstations

**2900**  
Over 2,900 patents

**1**  
One key enterprise laboratory  
of plastics molding and  
processing technology in  
Guangdong Province

**6**  
Six China national  
accredited laboratories  
authorized by CNAS



**1**  
One union of technical innovation  
of plastic pipe industry in  
Guangdong Province

## Advanced Manufacturing

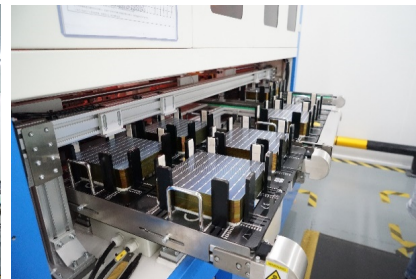
· Strict Quality Control

· Digital Intelligent Manufacturing

· Management System Certification

· 24 Hours Operation

· Constant Temperature Workshop





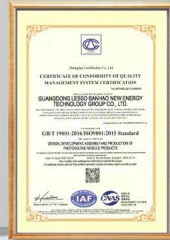
# Quality Certification

LESSO

Envisioning the better,  
Building the future.



هيئة كهرباء ومياه دبي  
Dubai Electricity & Water Authority



## Solar PV Modules

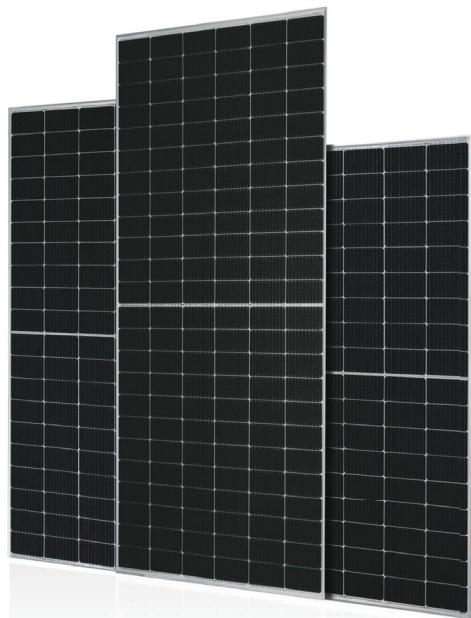
Cutting-edge technology, advanced intelligent manufacturing



## Smart Energy Solutions

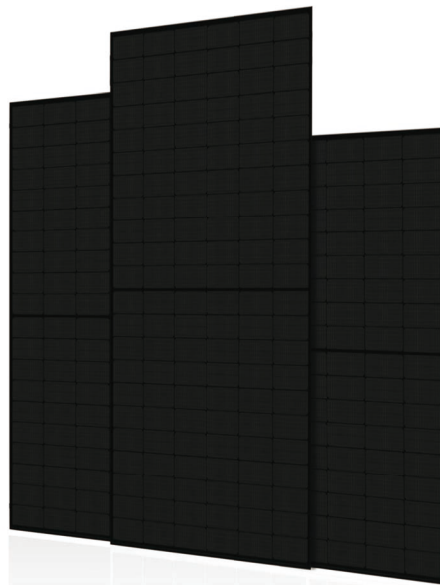
New energy, new lifestyle, anywhere, anytime





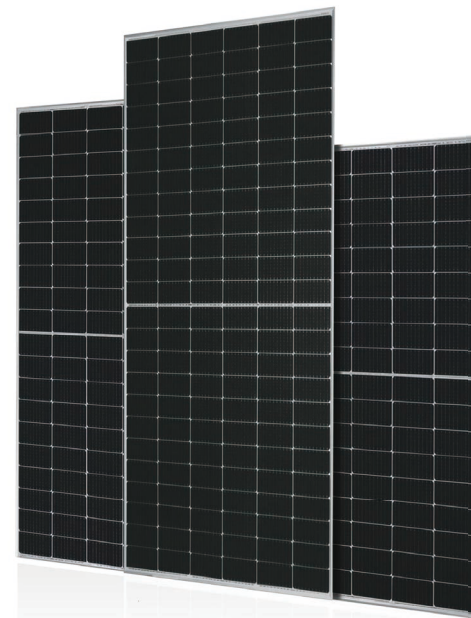
## **N-TopCon series**

Cutting-edge Technology,  
Leading Innovation



## **Pure Black P-type series**

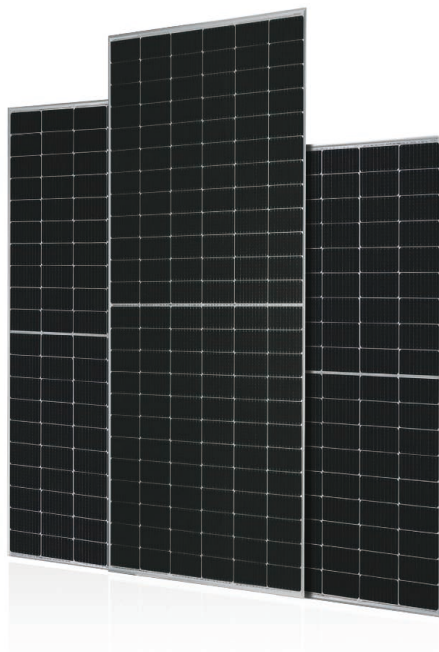
Aesthetic Design, Darker, Purer,  
Seamless Integration



## **P-type series**

Hardcore Energy,  
Reliable Technology





182 N-TopCon Technology Mono / Bifacial Module

## 410W-585W

Maximum Efficiency

# 22.65%

### Features and Benefits



10-30% Additional Power Generation



Better Temperature Coefficient



Better Weak Illumination Response



Lower LCOE



ZERO LID (Light Induced Degradation)



Wider Applicability

**12**

years product  
workmanship warranty

**30**

years linear power  
output warranty

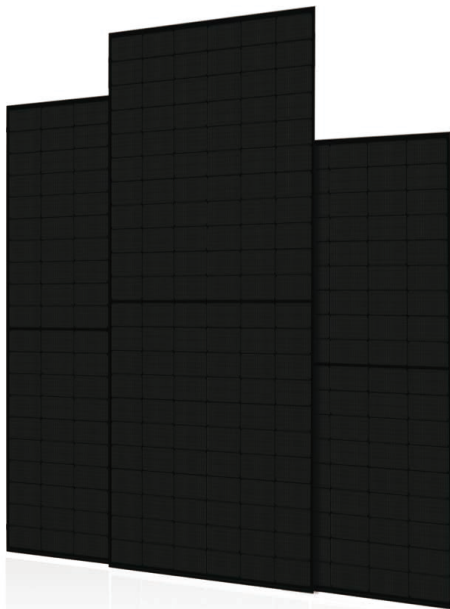
1st year power degradation  
no more than

**1%**

Subsequent annual power  
degradation no more than

**0.40%**

## Pure Black P-type series



\* Customizable with 15 days lead time

Pure Black 182 / 210 MBB Half-cell Technology Mono / Bifacial Module

# 390W-670W

Maximum Efficiency

# 21.6%

### Features and Benefits



The application of multi-busbar (MBB) half-cut cell technology brings stronger resistance to shade and lower risk of hot spot.



Strict control on raw materials and process optimization of high efficiency PERC ensure better resistance against PID of PV module.



Through harsh weathering tests of sand, dust, salt mist, ammonia, etc., to get stronger weather resistance of outdoor environment.



Double sides power output to reach higher comprehensive efficiency and get more profit.



Lower oxygen and carbon content result in lower LID.



By series and parallel design, to reduce the series RS and achieve higher power output and lower BOS cost.



Lower temperature coefficient and lower operating temperature can ensure higher power generation.

**12**

years product  
workmanship warranty

**25/30**

years linear power  
output warranty

1st year power degradation  
no more than

**2%**

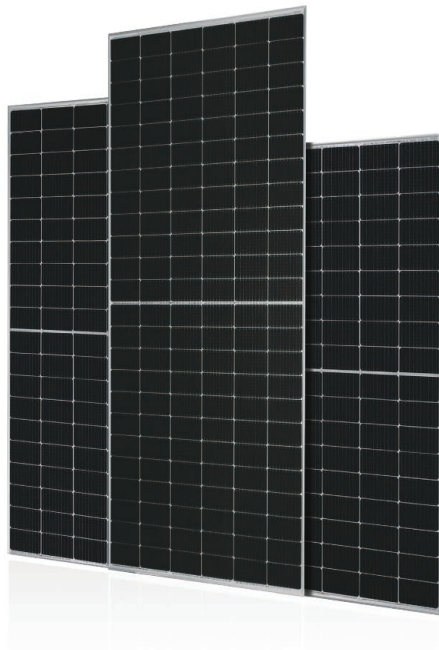
Mono glass subsequent annual  
power degradation no more than

**0.55%**

Bifacial glass subsequent annual  
power degradation no more than

**0.45%**

## P-type series



182 / 210 MBB Half-cell Technology Mono / Bifacial Module

**390W-670W**

Maximum Efficiency

**21.6%****Features and Benefits**

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**12**years product  
workmanship warranty**25/30**years linear power  
output warranty1st year power degradation  
no more than**2%**Mono glass subsequent annual  
power degradation no more than**0.55%**Bifacial glass subsequent annual  
power degradation no more than**0.45%**



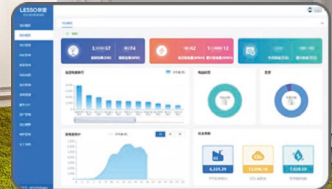
# Industrial and Commercial Solar Solution

Heat insulation -  
reduction of  
building  
temperature

Save energy  
and  
carbon  
emissions

Increase  
usable floor  
space

Generate  
additional  
profit





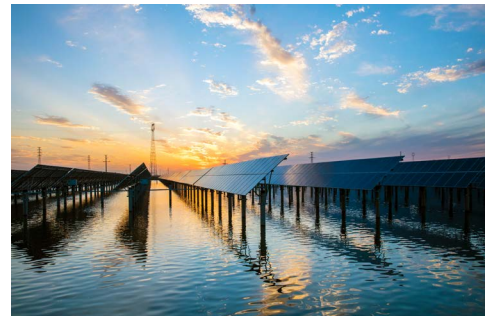
# Multiple Solar Solutions



**Residential Solar Power Solution**



**Utility Scale Solar Power Solution**



**Aquaculture-complementary Solar Solution**



**PV Plus Energy Storage Solution**



**Agriculture-complementary Solar Solution**



Project Capacity (Phase I)

# 600MW

Karamay, Xinjiang, China

## Karamay Desert Solar Power Station

**Project Area:** 15,000,000m<sup>2</sup>

**Module Type:** P-type bifacial module - 540W

**Annual Average Power Generation:** 520,918MWh

**25-year Power Generation:** ≈ 13,022,964MWh

**Annual CO2 Emission Reduction:** ≈ 519,356t



## Project Highlights

Project Capacity

**9.75MW** Changsha, Hunan, China

### Changsha Roof Solar Power Station

Project Area: 36,288m<sup>2</sup>

Module Type: P-type module - 540W

Annual Average Power Generation: 8,106MWh

25-year Power Generation: ≈ 202,644MWh

Annual CO<sub>2</sub> Emission Reduction: ≈ 8,081t





Project Capacity

**6.14MW** Shunde, Foshan, China

### Foshan Haitian Roof Solar Power Station

Project Area: 44,145m<sup>2</sup>

Module Type: P-type module - 550W

Annual Average Power Generation: 5,733MWh

25-year Power Generation: ≈ 143,315MWh

Annual CO<sub>2</sub> Emission Reduction: ≈ 5,715t



## Project Highlights

Project Capacity

# 6MW

Dingan, Hainan, China

## Dingan Roof Solar Power Station

Project Area: 55,745m<sup>2</sup>

Module Type: P-type module - 540W

Annual Average Power Generation: 6,050MWh

25-year Power Generation: ≈ 151,253MWh

Annual CO<sub>2</sub> Emission Reduction: ≈ 6,031t





**Project Highlights**



Project Capacity

**5MW**

Yunan, Yunfu, China

**Ducheng Roof Solar Power Station**

**Project Area:** 45,484m<sup>2</sup>

**Module Type:** P-type module - 540W

**Annual Average Power Generation:** 4,600MWh

**25-year Power Generation:** ≈ 114,992MWh

**Annual CO2 Emission Reduction:** ≈ 4,586t



Project Capacity

**2.67MW**

Jinwan District, Zhuhai, China

**Zhonghang Tongfei Roof Solar Power Station**

**Module Type:** P-type module - 540W

**Annual Average Power Generation:** 2,798MWh

**25-year Power Generation:** ≈ 69,798MWh

**Annual CO2 Emission Reduction:** ≈ 2,784t



**Project Highlights**



Project Capacity

**1.28MW**

Gaoming, Foshan, China

**Genghe Rooftop Solar Power Station**

**Module Type:** P-type module - 550W

**25-year Power Generation:** ≈ 29,599MWh

**Annual Average Power Generation:** 1,184MWh

**Annual CO2 Emission Reduction:** ≈ 1,180t



Project Capacity

**0.8MW**

Mudanjiang, Heilongjiang, China

**Mulingke Kemian Wood Factory Roof Solar Power Station**

**Project Area:** 7,663m<sup>2</sup>

**25-year Power Generation:** ≈ 19,402MWh

**Module Type:** P-type module - 545W

**Annual Average Power Generation:** 776MWh

**Annual CO2 Emission Reduction:** ≈ 774t





**BePOSITIVE France**



**Solartech Indonesia**



**SNEC China**



**Italy K.e.y Energy**



**WFES Dhahi**



**InterSolar Europe**



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# **SUSTAINABILITY**

**Sustainable Development | Practicing Green Goals**

## Sustainable Development

Always adhering to the green development philosophy, LESSO advocates low energy consumption and high energy efficiency production.

# 2021 National Green Factory

The Group's Installed Capacity of PV Power Generation and Electric Bills Saved 2022

**27,330MWh = CO2 emission reduction 27,248 t = Planted 1,513,778 trees**



**We are committed to leading the industry towards green and sustainable development through technological innovation.**

**Practicing Green Goals**

**Creating Environmentally Friendly Products**

- Nano series of antibacterial PP-R pipes
- RTP glass fiber tape reinforced polyethylene composite pipe
- Fresh air management system
- Reusable smart all steel scaffolding
- Solar PV modules

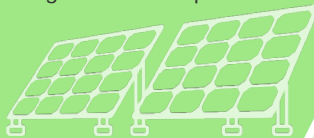
**Developing Green Industries**



Yongbao Environmental Technology has undertaken two national technology projects, with 39 self-developed patents, its comprehensive utilization technology of hazardous waste has attained advanced levels at home and abroad.

**Entire Solar Industry Chain**

In the future, LESSO Solar will build more new energy industries and supply chains will be cultivated in the new base, covering the whole industry chain ranging from battery materials to energy storage and inverter products .





As of 31 December 2022,  
LESSO Solar has participated in the construction of 90 solar power station projects.

Among them,  
**16 Solar power stations** have  
been connected to the grid for  
operation

Installed capacity  
**638.3 MW**

Annual average  
Power generation  
**556,174 MWh**





**16 LESSO**  
**Solar power stations**  
**Annual CO2**  
**emission reduction**  
**554,504 t**



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**THANK YOU!**

 [www.lessosolar.com](http://www.lessosolar.com)    **LESSO Solar**

**LESSO NEW ENERGY DEVELOPMENT PRIVATE LIMITED**

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