LONGi Solar is a world leading manufacturer of high-efficiency mono-crystalline solar cells and modules. The Company, wholly owned by the LONGi Group (SH601012), has focused on p-mono for 19 years and is today the largest supplier of mono-crystalline products in the world, with total assets above $5.71 billion (2018Q3). LONGi Group has plans to reach 45 GW mono-crystalline wafer production capacity by 2020.

LONGi Solar’s module shipment in 2018 ranked top 4 in the world, and mono module shipment has remained No.1 in the world from 2016 to 2018. The Company has its headquarters in Xi’an, China and branches in Japan, Germany, America, India, Malaysia, Australia.

With strong focus on R&D, production and sales & marketing of mono-crystalline silicon products, LONGi Solar is committed to providing better LCOE solutions and promoting worldwide adoption of mono-crystalline technology.

Gross revenue in 2018Q3 was $2.1 billion. Net profit was $242.82 million.

The Debt Asset ratio was 59.07%.

Research and development investment accounted for 7.18% of revenue.

WORLD RECORD HOLDER
Mono PERC cell efficiency of 24.06%

January 17, 2019
Source: National Center of Supervision and Inspection on Solar Photovoltaic Product Quality (CPVT) Report

WORLD RECORD HOLDER
Mono PERC module efficiency of 20.83%

November 6, 2018
Source: TÜV-SÜD

LONGi has 38% market share of the global mono wafer capacity.

Source: PV-InfoLink 2018 global PV manufacturers capacity, production statistics

Till 2018H1, the cumulative shipment of mono module has over 10 GW.

Source: LONGi Annual Report

LONGi has 38% market share of the global mono wafer capacity.

Source: PV-InfoLink 2018 global PV manufacturers capacity, production statistics

TIER 1

Financial Health Index - LONGi Solar on Bloomberg (BNEF) PV Module Maker Tier 1 List ! No.2 in the world NO.1 in China

Source: Bloomberg New Energy Finance

TOP INVESTMENT IDEAS

April 16, 2019
Source: Morgan Stanley Research

Prefer Cost and Technology Leaders Amid Dark Times for Solar

TOP MODULE SUPPLIER

LONGi Solar is the member of ‘Solar Module Super League’ (SMSL) and becomes the world’s largest module

Source: PV-TECH

24.06%
INDUSTRY CHAIN

STRENGTH
FINANCIAL

The Photon Financial Health Index of LONGi Solar rank first in PV industry

STRENGTH
CAPACITY & NETWORK

CAPACITY PLAN (GW)

Source: LONGi 2018 Annual Report. April 28, 2019
MONO PERC

BETTER LOW IRRADIANCE PERFORMANCE
Higher efficiency under low irradiation
Higher efficiency in the infrared wavelength

LOWER NOCT
Mono-C-Si modules generate less heat than multi-c-Si modules. Therefore, the nominal operating cell temperature (NOCT) for a mono cell is lower than for a multi-cell. By operating at a lower temperature, mono cells and modules generate more energy.

LOWER LID
Lower initial light induced degradation (LID), means higher reliability and more energy generated than standard mono or multi-crystalline modules.

BIFACIAL MONO PERC
Additional energy yield from backside light absorption

≥75%
Bifaciality

R & D Team
More than 450 of the 1,700 technical professionals force devoted to the R & D of ingot, wafer, cell and module

Patents
Has developed 407+ patents on ingot, wafer, cell and module technology

LOWER TEMPERATURE COEFFICIENT
High Efficiency → Low thermal loss
Higher Voc → Lower TempCo
Lower Power loss under high temperature environment
**HIGHER POWER**

**EFFICIENCY**

- $\geq 21.5\%$ Cell
- $\geq 18.34\%$ Module

**POWER**

- $\geq 300\text{W} \ 60\text{pc}$
- $\geq 360\text{W} \ 72\text{pc}$

**GAIN**

<table>
<thead>
<tr>
<th>Backside Power Gain</th>
<th>300W/60pc</th>
<th>360W/72pc</th>
</tr>
</thead>
<tbody>
<tr>
<td>+5%</td>
<td>315W</td>
<td>378W</td>
</tr>
<tr>
<td>+10%</td>
<td>330W</td>
<td>396W</td>
</tr>
<tr>
<td>+15%</td>
<td>345W</td>
<td>414W</td>
</tr>
<tr>
<td>+25%</td>
<td>375W</td>
<td>450W</td>
</tr>
</tbody>
</table>

**HIGHER ENERGY YIELD**

**HIGHER SIMULATED POWER GENERATION**

Simulated Power Generation (kWh/kWp/year)

- Hi-MO2
- Winner in Multi Gap

Pan files generated by TÜV Rheinland with randomly selected modules samples from production shipment.

Simulated energy yield in five different cities globally.

Mono PERC Module of LONGi Solar won first place in mono group and among all modules.

March 15, 2018

Source: TÜV Rheinland

**CASE**

- **Pucheng, Shaanxi, China**
  - Power generation by bifacial module + fixed tilt is $12.4\%$ higher than Multi Module

- **Kubuchi, Inner Mongolia, China**
  - Power generation by bifacial module + tracker + sand is $17.31\%$ higher than Multi Module

- **Taizhou, Jiangsu, China**
  - Power generation by Hi-MO2 + fixed tilt is $11.5\%$ higher than Hi-MO1;
    Hi-MO2 + 1-axis tracker is $21.67\%$ higher;
    Hi-MO2 + 2-axis tracker is $26.20\%$ higher.
HIGHER RELIABILITY

30-Year Power Warranty  <2% First Year Linear Power Degradation  -0.45% Linear Power Degradation

WARRANTY

10Y MATERIAL & CRAFTWORK / 30Y 84.95% POWER-OUTPUT / 30Y PG

BIFACIAL TECHNOLOGY

Will enable PV LCOE to drop below $0.05/kWh for most regions sooner

Source: ITRPV 2017
LCOE = \frac{\text{Total System Cost}}{\text{Total Generation}} (\$/MWh)

\[ \sum \text{System costs} \]
- Capital costs
- O&M costs, etc.

\[ \text{kWh Generated} \]

LOWER BOS
LOWER EPC COSTS

- LOWER MODULE COSTS
- LOWER INVESTMENT COSTS

BIFACIAL PERC MODULE IS THE SOLUTION

- PRODUCT WARRANTY
- HIGH EFFICIENCY
- HIGH ENERGY YIELD PRODUCTION
- HIGH RELIABILITY (STABLE HARVEST)
**BETTER LCOE**

<table>
<thead>
<tr>
<th>MODULE TECHNOLOGY</th>
<th>MULTI</th>
<th>MONO</th>
<th>PERC</th>
<th>BIFACIAL PERC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module Pmax (W)</td>
<td>320</td>
<td>340</td>
<td>360</td>
<td>360</td>
</tr>
<tr>
<td>System lifetime (yr)</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>Annual degradation</td>
<td>0.70%</td>
<td>0.55%</td>
<td>0.55%</td>
<td>0.45%</td>
</tr>
<tr>
<td>System cost (cent / W)</td>
<td>100</td>
<td>99</td>
<td>99</td>
<td>103</td>
</tr>
<tr>
<td>Module cost (cent / W)</td>
<td>X</td>
<td>X+1</td>
<td>X+3</td>
<td>X+7</td>
</tr>
<tr>
<td>BOS cost (cent / W)</td>
<td>Y</td>
<td>Y-2</td>
<td>Y-4</td>
<td>Y-4</td>
</tr>
<tr>
<td>Average peak sun hour per day (Hr)</td>
<td>6.5</td>
<td>6.6</td>
<td>6.7</td>
<td>7.2</td>
</tr>
</tbody>
</table>

Calculated based on California, USA.

**PARTNER**

LONGi Solar has established strong strategic partnerships with equipment and material suppliers, leading research institutes and universities, as well as customers, to advance the development of ingot, wafer, cell and module technology.

1st-class Partners