



# TSEC Corporation (6443) Investor Conference



Date: 2022/9/14



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# Topics

- 1. Company Introduction**
- 2. PV Market Overview**
- 3. Financial Info.**

# 1. Company Introduction



深耕台灣 持續創新

屏東六塊厝為元晶太陽能首座 1.96 MW 地面與屋頂棚架型太陽能電站，  
模組全面採用杜邦太陽能解決方案，確保電站的可靠運行與持續發電。



# Company Profile

<b>Established</b>	<b>Jun 24<sup>th</sup>, 2010</b>
<b>Company Name</b>	<b>TSEC Corporation</b>
<b>Logo</b>	<b>Taiwan Solar Energy Corporation</b>
<b>Paid-in-Capital</b>	<b>NTD 5.02 billion (including Preferred Stock)</b>
<b>Plant Locations</b>	<b>HsinChiu (Cells) / PingTung (Panels)</b>
<b>Products</b>	<b>1.Solar Cell 2.Solar Panel 3.PV Project Installation &amp; Development</b>
<b>Annual Capacity</b>	<b>Solar Cell 1.41GW / Panel 1.53GW</b>
<b>Employees</b>	<b>Appx. 1,825 (Sep 2022)</b>
<b>Sales Offices</b>	<b>New Taipei / Hsin-Chiu / ChungHwa / Tainan / PingTung</b>

Module Plant



Cell Plant



Headquarters





# tSEC Business across PV sectors



Polysilicon  
結晶矽



Wafer  
矽晶片



Solar Cell  
電池



Solar Module  
模組



Systems  
系統安裝與維運



# HsinChiu Solar Cell Plant

## Largest in Taiwan





# PingTung Solar Panel Plant

## Largest in Taiwan





# Annual Capacity

		Unit	DEC 2022	Jun 2023
Solar Cell	Annual Max. Capacity	MW	1,410	1,802
	G1 Capacity		44%	35%
	M6/M10 Capacity		56%	65%
Solar Panel	Annual Max. Capacity	MW	1,534	1,534
	G1 Capacity		34%	34%
	M6/M10 Capacity		66%	66%

- 4Q2022 Evaluating CAPEX for purchasing additional new cell production line
- New cell production line is mainly for the demand from the overseas
- Whether additional CAPEX for Solar Panel depends on the market situation



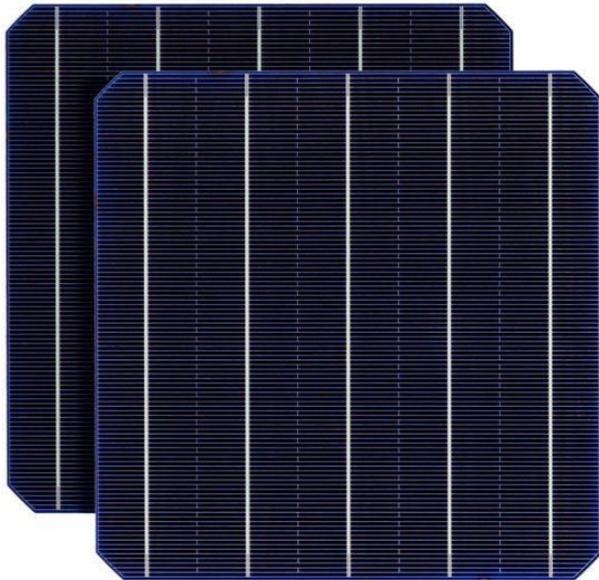
## Global Mainstream (M10/G12)

- M6 product is considered as a transition period for Taiwan Market.
- M10/G12 are currently the mainstream solar products around the globe.
- The larger the wafer the lower the production yield ratio is. G12 is deemed as the final size for silicon-based solar cell/panel.

Wafer Type Code Name	Size cm	Cell/pc Watt	Comparison %	6X10 Watt/panel
<b>G1</b>	<b>15.875</b>	<b>5.6</b>	<b>100%</b>	<b>340</b>
M6	16.6	6.15	<b>110%</b>	<b>375</b>
<b>M10</b>	<b>18.2</b>	<b>7.5</b>	<b>134%</b>	<b>445</b>
G12	21	9.85	<b>176%</b>	<b>580</b>



# Solar Cell Size Comparison



VS.



**G1 (2018)**

Watt/pc: 5.6W  
Efficiency: 22.45%

**M10 (2022)**

7.5W  
22.8%

## 2. PV Market Overview



挑戰今日 創造未來



# Global Overview

➤ **1H2022 Global Installation :**

**China 30.9GW / Other Nations 75GW**

**Global cumulative solar PV capacity amounted to 106GW**

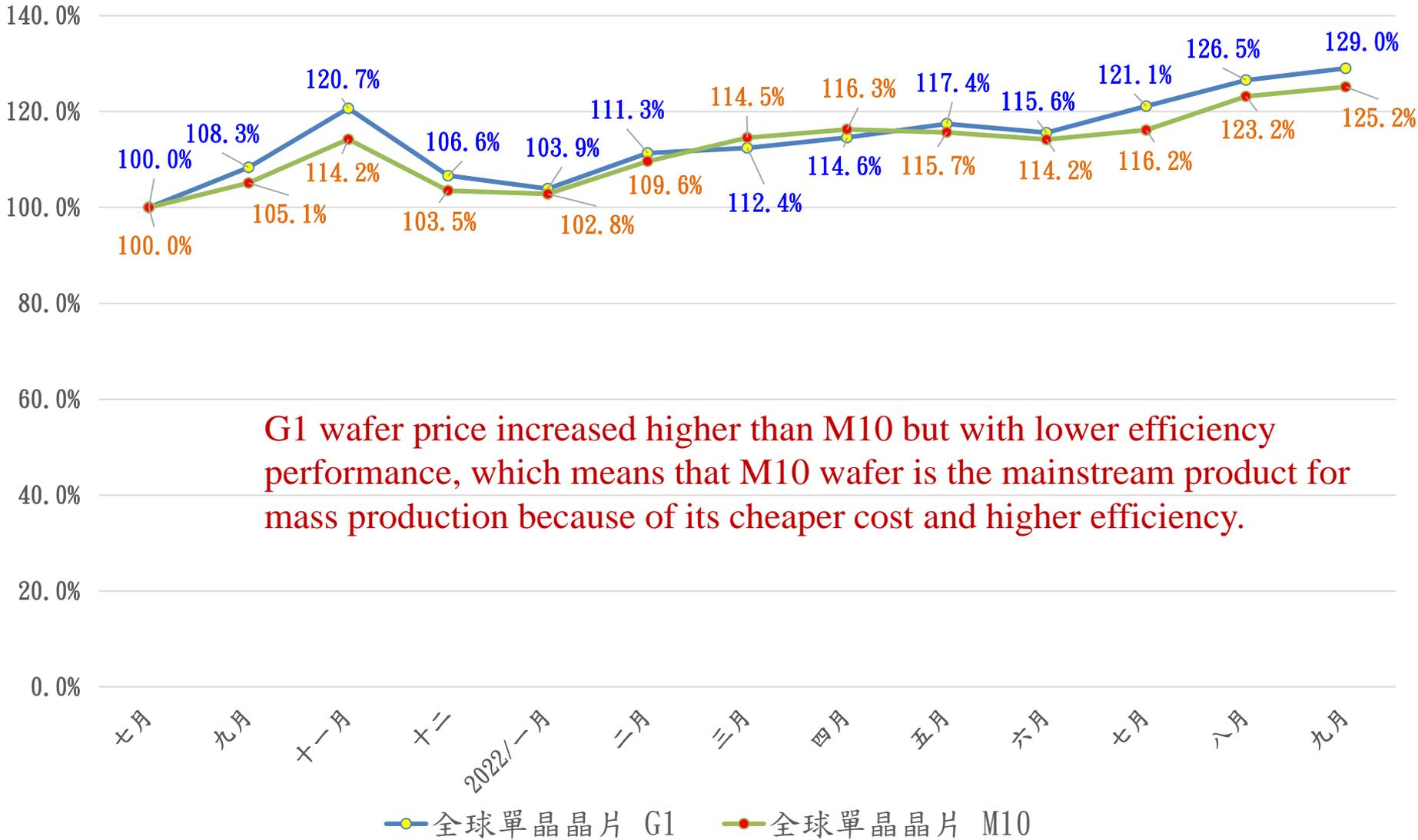
➤ **2022 Estimation: Chance of over 200GW to 240GW**

➤ **USA : Installation with only 4.2GW in the 1stHalf 2022. According to EIA, the market will reach to 17.8GW by the end of this year of which 13.6GW will be installed in the 2<sup>nd</sup> Half.**

➤ **The Russo-Ukrainian War has triggered natural gas and other energy issues in Europe. Demand for renewable energy is stronger than ever. Germany installed 3.2GW PV systems in the 1<sup>st</sup>Half, with 16% growth higher than 2.75GW last year. (Total of 55.9GW being installed)**



# 2022 Wafer Price gone up and stabilized



G1 wafer price increased higher than M10 but with lower efficiency performance, which means that M10 wafer is the mainstream product for mass production because of its cheaper cost and higher efficiency.



# Polysilicon Volume vs Global Needs

**Production Capacity of Polysilicon vs Downstream Demands**  
**are the two main factors that affects the wafer cost.**

Polysilicon	Sep-22	Dec-22
<b>Annual Capacity (1000 ton)</b>	<b>860</b>	<b>1000</b>
<b>Annual Capacity in GW</b>	<b>336</b>	<b>390</b>

Source: TSEC Marketing、「全球光伏」微信公眾號

According to the research, the current polysilicon has around 450GW of annual capacity worldwide, which is more than enough for fulfilling the global demands. The reason the wafer price is still sky-high is mainly due to the oligopoly of wafer makers Long-Ji and ZongHuan. The two companies accounted for 70% of wafer market share. Hence, a dramatic drop of wafer price won't be seen in the near future.



# 2022 Taiwan Market Overview

➤ **1<sup>st</sup> Half 2022 installed 1001MW is a 24% of growth compared to 806MW in the previous year.**

Taiwan PV Installation Record

Yr	2015	2016	2017	2018	2019	2020	2021	Jul-22	2022 (Est)
MW	248	361	523	970	1,412	1,667	1,883	1,101	>2000



# Taiwan Market Retrospect and Prospect

**MOEA targets to have a cumulative 11.25GW by the end of 2022 3.4GW new installation should be commissioned in this year in order to hit that target.**

## **Measures taken to increase installation:**

➤ Bureau of Energy announced same FiT for the 2<sup>nd</sup> Half of 2022 on Jun 24<sup>th</sup>.

➤ Increasing FiT:

If a project size over 10 MW or connected to a shared 69KV substation with size of 5~10MW and finished the project within 21 months is eligible for additional NT0.0538/kwh of FiT or finished the project within 18 months for additional NT0.1075/kwh.

**The demand in the 3<sup>rd</sup> quarter is considered stable. The forth quarter relies on the Gov't propulsion for the last mile of 2022.**



## 2023 Taiwan Market Prospect

- **Continuous growth in 2023 with at least 2.5GW to be installed**
- **Main propulsion comes from the government implementations (antinuclear, power shortage crisis, demand for green energy...etc)**
  1. **4.4GW of Fishery and Electricity Symbiosis is one of the main policy to support the growth of PV in several counties.**
  2. **Taiwan Sugar also released 226.47 hectares of land for bidding last month, which the PV projects over 100MW should be commissioned by 2023. While there are lots more land to be released in the coming months or the future years.**
- **Due to global inflation, cost of projects increased dramatically. The market expects the government will adjust the FiT for 2023 accordingly.**



# 2023 Clients and Prospects

➤ 2023 Over 1GW in talk with clients/prospects

➤ Over 930MW are in demand for M6/M10.

Clients/Prospects	Projects	Type	Panel	MW
CH	溫室漁電共生	G1	330	71
CZ	軍營專案	M6	370	7
ZH	大學屋頂專案	M6	370	8
YH	台中漁電專案	M6	370	12
YD	雲林地面型專案	M6	370	17
HD	古坑地面型專案	M6	370	29
CH	溫室漁電專案 二	M6	370	120
YS	屏東地面型專案	M10	530	20
MY	地面行專案 一	M10	530	24
MY	地面行專案 二	M10	530	62
MY	漁電專案	M10	440	160
YS	屋頂型專案	M10	440	4
BP	學甲漁電專案 一	M10	440	60
BP	國產屬地面型專案二	M10	440	52
BP	國產屬地面型專案三	M10	440	75
HS	彰濱水面型專案 一	M10	440	89
HS	彰濱水面型專案 二	M10	440	93
CY	漁電專案	M10	440	80
DT	智能屋頂型專案	M10	440	21
HN	地面型專案	M10	440	7
TOTAL				1011



## Overseas Market

- **Targeting solar cell in the niche market including telecommunication, transportation and new type of solar panel.**
- **Clients from the US are in the final stage for product mass production. The demand accounted for 20% of solar cell production.**
- **The new type of niche market including clients from USA, Japan and Europe.**



# Taiwan Panel Production Ranking (Sep 2022)

Company	Ranking	Original (G1)	Upgraded (M6)	New Line M6~G12	Total MW
tSEC	1	547		856	1,403
B	2	600		400	1,000
C	3		200		200
D	4		200		200
E	5		150		150
F	5		150		150
G	6	150			150
<b>TOTAL</b>		<b>1,297</b>	<b>700</b>	<b>1,256</b>	<b>3,253</b>

## 3. Financial Info.





# INCOME STATEMENT

Income statement

Q1~Q2,2022

In Thousands of New Taiwan Dollars

	Q1		Q2		Q1-Q2	
OPERATING REVENUE	2,005,719	100%	1,891,369	100%	3,897,088	100%
OPERATING COSTS	1,861,728	93%	1,766,426	93%	3,628,154	93%
UNREALIZED GAIN ON TRANSACTIONS WITH ASSOCIATES	(2,346)	0%	(77)	0%	(2,423)	0%
GROSS PROFIT	141,645	7%	124,866	7%	266,511	7%
TOTAL OPERATING EXPENSES	78,050	4%	103,763	5%	181,813	5%
INCOME FROM OPERATIONS	63,595	3%	21,103	1%	84,698	2%
TOTAL NON-OPERATING INCOME AND EXPENSES	(40,234)	-2%	(8,284)	0%	(48,518)	-1%
INCOME BEFORE INCOME TAX	23,361	1%	12,819	1%	36,180	1%
INCOME TAX EXPENSE	(5,516)	0%	(1,576)	0%	(7,092)	0%
NET INCOME	28,877	1%	14,395	1%	43,272	1%



# TSEC Corporation

*Taiwan Solar Energy*