



**GlobalWafers Co., Ltd.**  
**環球晶圓股份有限公司**

**Global Family,  
Global Solutions!**

**GlobalWafers (6488TT)**

**2022 Earnings Call**

2023/03/14





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01

# Executive Comment



# Executive Comments

## ➤ Financial Highlights

### ● Revenue

- ✓ Q422<sup>1</sup> → NT\$18.4 billion, 16.7% YoY, record high!
- ✓ Continuous growth for 12 quarters since Q120!

(NT\$ mn)	Q419	Q120	Q220	Q320	Q420	Q121	Q221	Q321	Q421	Q122	Q222	Q322	Q422
Revenue	13,506	13,515	13,701	14,006	14,137	14,806	15,208	15,364	15,752	16,307	17,540	18,053	18,388

- ✓ 2022 → NT\$70.3 billion, 15.0% YoY, record high!

### ● Gross Profit (%)

- ✓ Q422<sup>1</sup> → 42.7%
- ✓ 2022 → 43.2%, record high!

### ● Operating Income (%)

- ✓ Q422<sup>1</sup> → 34.6%
- ✓ 2022 → 35.5%, record high!

Note: 1. Q422: the fourth quarter of 2022



## ➤ Financial Highlights

### ● Net Profit (%)

- ✓ Q422<sup>1</sup> → 31.5%, record high!
- ✓ 2022 → 21.9%

### ● EPS

- ✓ Q422<sup>1</sup> → NT\$ 13.31, record high!
- ✓ 2022 → NT\$35.31, record high!

### ● Prepayment

NT\$ 39,731 mn (US\$ 1,293.7 mn)<sup>2</sup>, record high!

Note: 1. Q422: the fourth quarter of 2022

2. FX Rate: NTD:USD = 30.71, including guarantee



## ➤ Industry & Overview

### ● Global Economy

- ✓ IMF has raised its 2023 global GDP forecast by 0.2% to 2.9%, the first time the forecast has been revised upward in more than a year. World economy continues to face significant recession risks, but start to show signs of bottoming out in 2023 and rebound in 2024.

### ● Semiconductor Industry

- ✓ 2023 is believed to have flat growth, but growth is anticipated to start again since 2024 underpinned by the burgeoning digital economy.
- ✓ Geopolitical factors are also expected to pose a risk to the semiconductor industry for the coming year from both the supply-side and demand-side.

### ● Inventory

- ✓ The upshot from COVID related demand seems to be coming to a natural end and the supply disruptions are likely to substantially improve throughout 2023.
- ✓ There is an oversupply in consumer electronics, but shortage exists in analog and MCU installed in the automotive and industrial sectors.



## ➤ Industry & Overview

### ● Compound semiconductor

- ✓ SiC is the fastest-growing product in the compound semiconductor market.
- ✓ As SiC has high efficiencies, low switching losses and high thermal conductivities when compared to Si devices, SiC are widely found in various power applications from renewable energy, power supplies for industrial equipment, and EV.

### ● Automotive

- ✓ COVID-19 and Net Zero have accelerated the future of mobility. New participants continue to enter the EV market and invest heavily in electrification.
- ✓ The legacy nodes, particularly those in the automotive industry, are expected to continue seeing disruption throughout 2023.



02

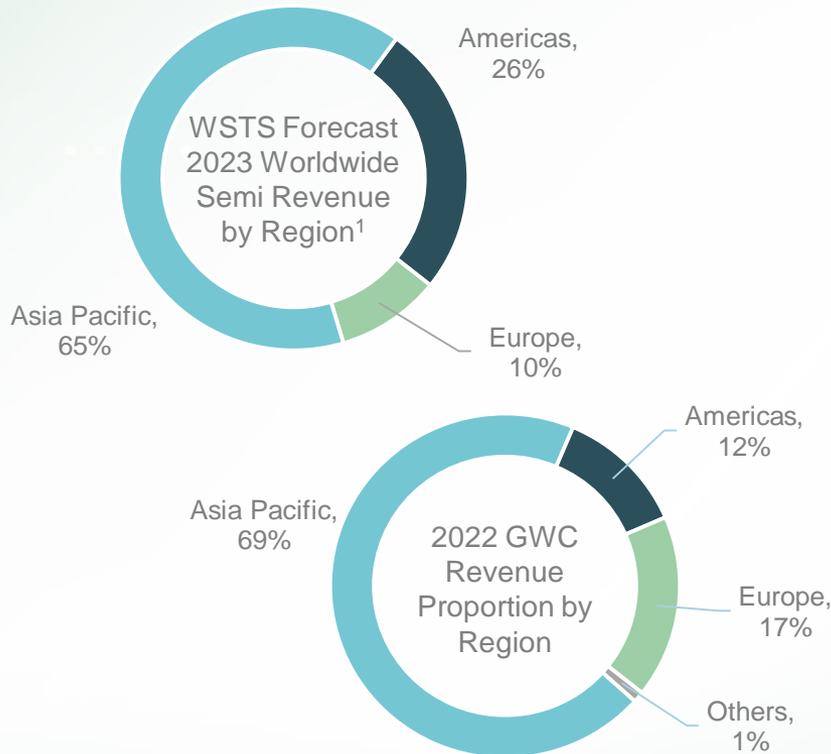
# GlobalWafers, Global Solutions



# GlobalWafers, Global Presence

- The intensified geopolitical tensions have reinforced the calls to reshape the global supply chain and have amplified the importance of global layout.
- With **17 production and operational sites in 9 countries 3 continents**, the global presence provides GlobalWafers unimpeded supply chain network, unmatched production and shipping flexibility.

## Global Presence Corresponds to the Distribution of Major Customers

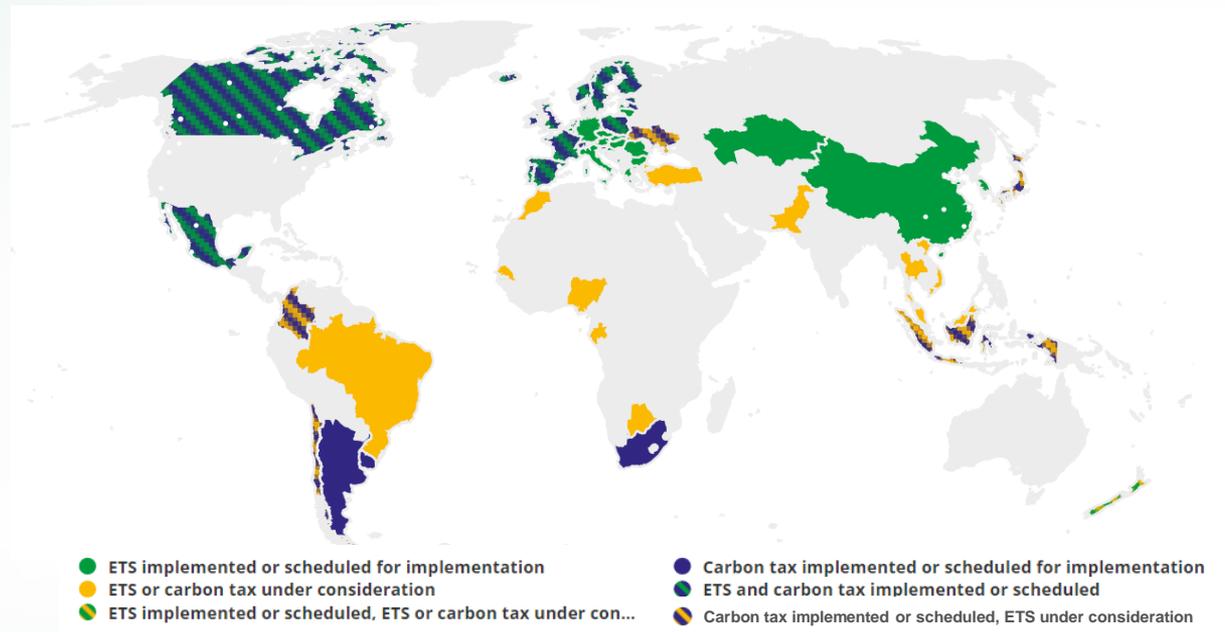


Resource: 1. WSTS, November 2022

# GlobalWafers, Green Solutions

- A growing number of countries are considering implementing carbon pricing instruments (CPI). As of April 2022, **81 regions\*** are covered by **70 carbon pricing initiatives**, representing **11.86 Gt CO<sub>2</sub>e / 23.17% of global GHG emissions**.
- With the comprehensive supply chain network weaved by operating bases all over the world, GlobalWafers is very attractive to the customers owing to its low carbon footprint derived from local production, making it a great ESG partner.

Map of Carbon Pricing Initiatives



## GlobalWafers' Operational Sites

### Europe

- Denmark
- Italy

### America

- USA

### Asia

- Taiwan
- Korea
- Japan
- Singapore
- Malaysia
- China

Resource: World Bank, April, 2022

Note: 81 nations include: 47 national jurisdictions and 34 subnational jurisdictions



03

## Industry Overview



# Global GDP Growth Forecast

- IMF January 2023 World Economic Outlook projects that global growth will fall to 2.9% in 2023 but rise to 3.1% in 2024. The 2023 forecast is 0.2% higher than predicted in the October 2022. The first time the forecast has been revised upward in more than a year.
- Rising interest rates and the war in Ukraine continue to weigh on economic activity. China's recent reopening has paved the way for a faster-than-expected recovery.

## 2023 Economic Outlook

(Unit: %)

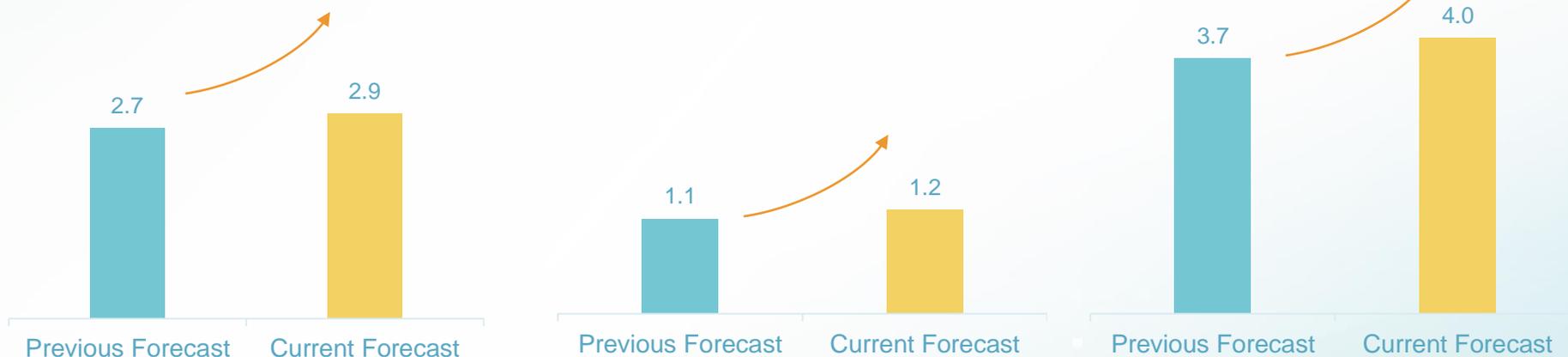
■ Previous Forecast (2022-Oct)

■ Current Forecast (2023-Jan)

World

Advanced Economics

Emerging Markets &  
Developing Economics



Source: IMF, October 2022 & January 2023.



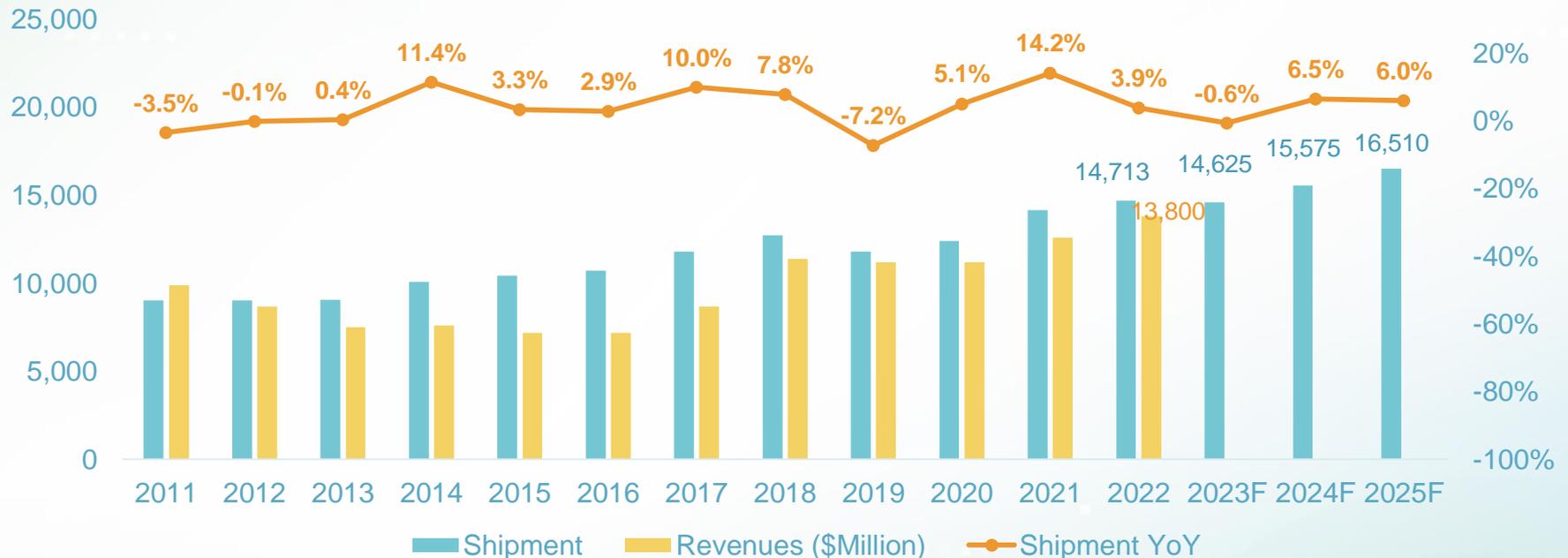
# Worldwide Semiconductor Forecast (By Shipment & Revenue)

- According to SEMI, worldwide silicon wafer shipments in 2022 increased 3.9% to 14,713 million square inches (MSI) while wafer revenue rose 9.5% to \$13.8 billion over the same period, setting new all-time highs.
- Despite the short-term outlook for semiconductor revenue has worsened, the growth of digital economy driven by 5G convergence, EV and data center underpins the long-term momentum of the semiconductor industry.

## Semiconductor Shipment & Revenue Forecast

(Shipment: Msi)  
(Revenue :USD \$mn)

(Shipment YoY %)



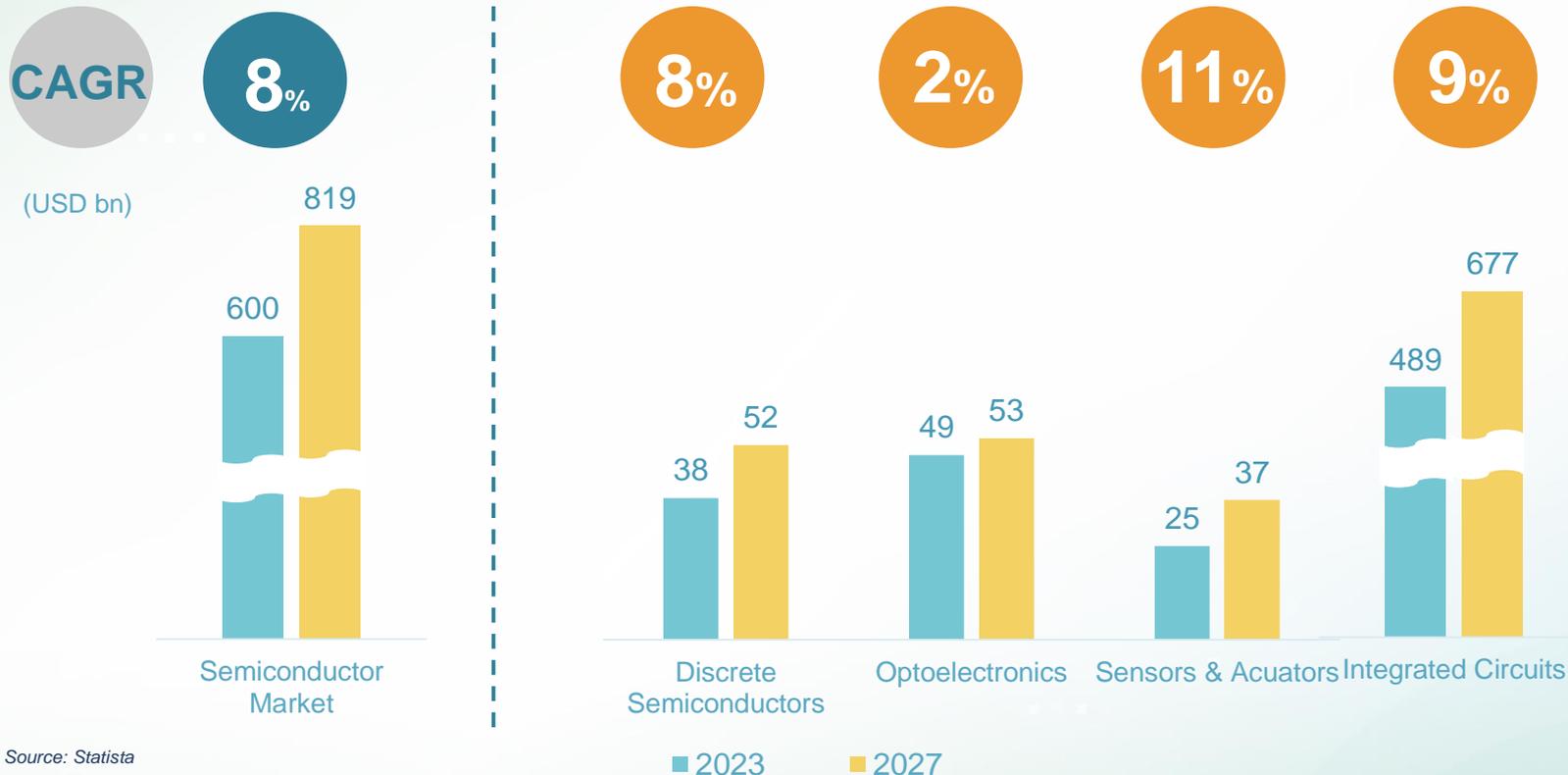
Source: SEMI, Gartner, IDC, SIA, WSTS and financial analysts, GWC estimates, February, 2023



# World Semiconductor Market Forecast (By Device Type)

- The semiconductor industry is forecast to have a 8% CAGR in 2023 ~ 2027 with growths among all device categories, the major growth comes from sensors/actuators with a 11% CAGR.

Semiconductor Market Forecast by Device Type



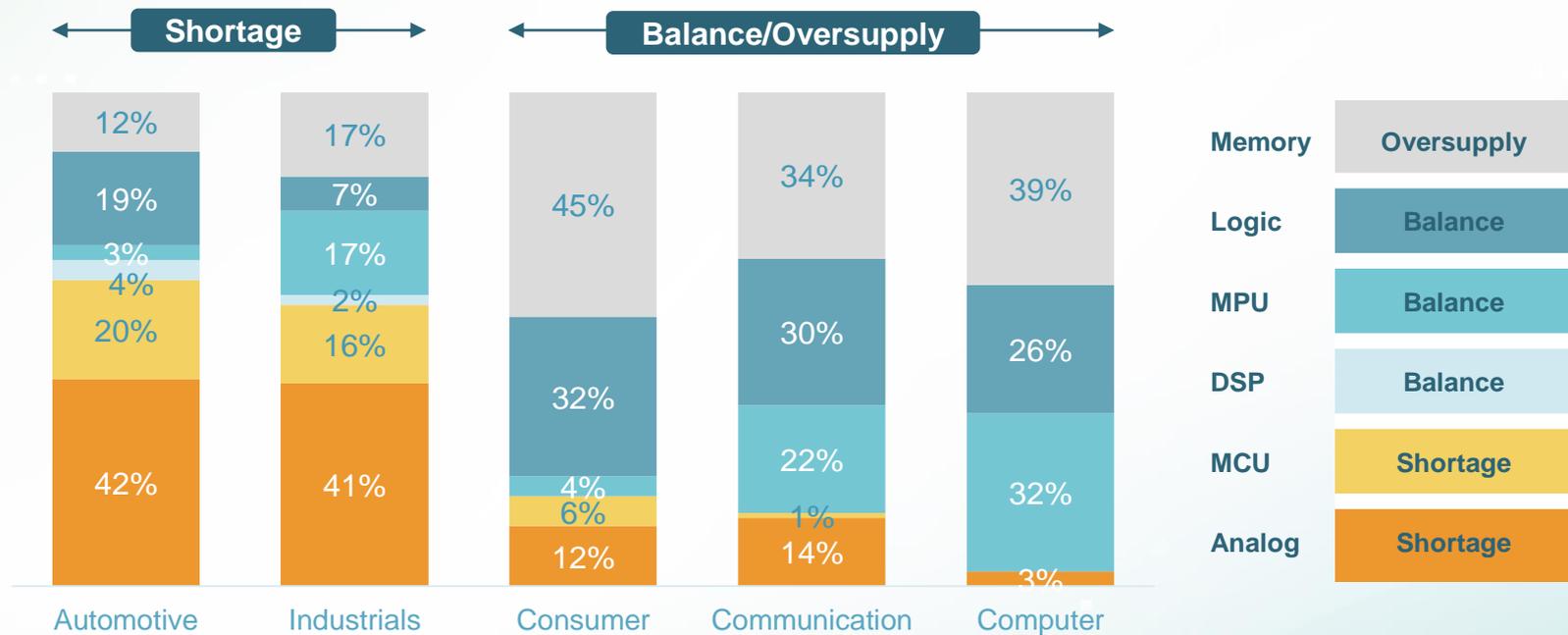
Source: Statista



# Inventory Status (By Type)

- The pandemic led to a surge in demand for consumer market and high end chips and those markets are experiencing oversupply, especially in memory.
- Older-generation semiconductors that are often still used in automotive and industrial electronics – are set to remain in short supply for the foreseeable future.

## Projected Worldwide Semiconductor Inventory



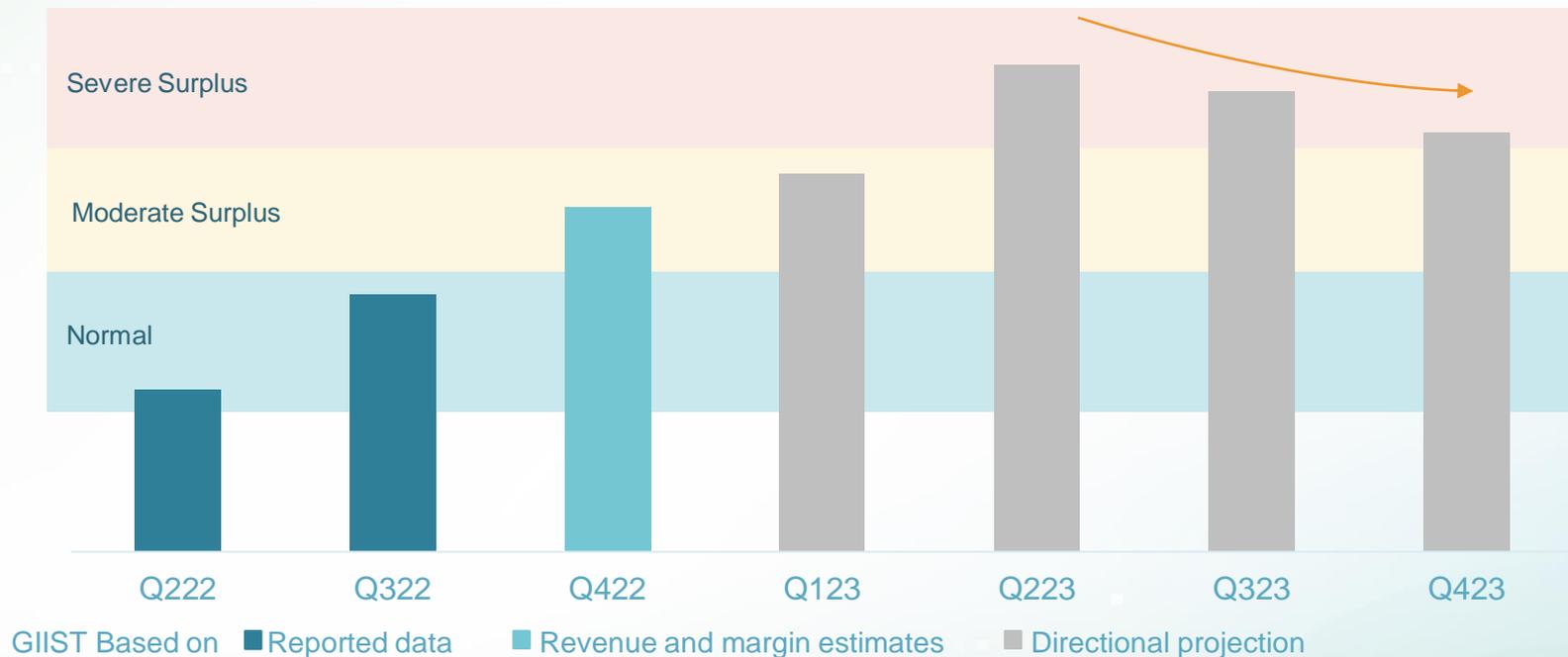
Source: IC Insights (the McClean Report), Roland Berger, November, 2022.  
Note: MPU = Microprocessor Units / DSP = Digital Signal Processors / MCU = Microcontroller Units



# Semiconductor Inventory Status (By Time)

- Research shows that semiconductor demand from consumer markets continues to deteriorate due to the weakening macroeconomy. The inventory index is expected to continue increasing until the second quarter of 2023, and starts to recede as demand picks back up.

Projected Worldwide Semiconductor Inventory



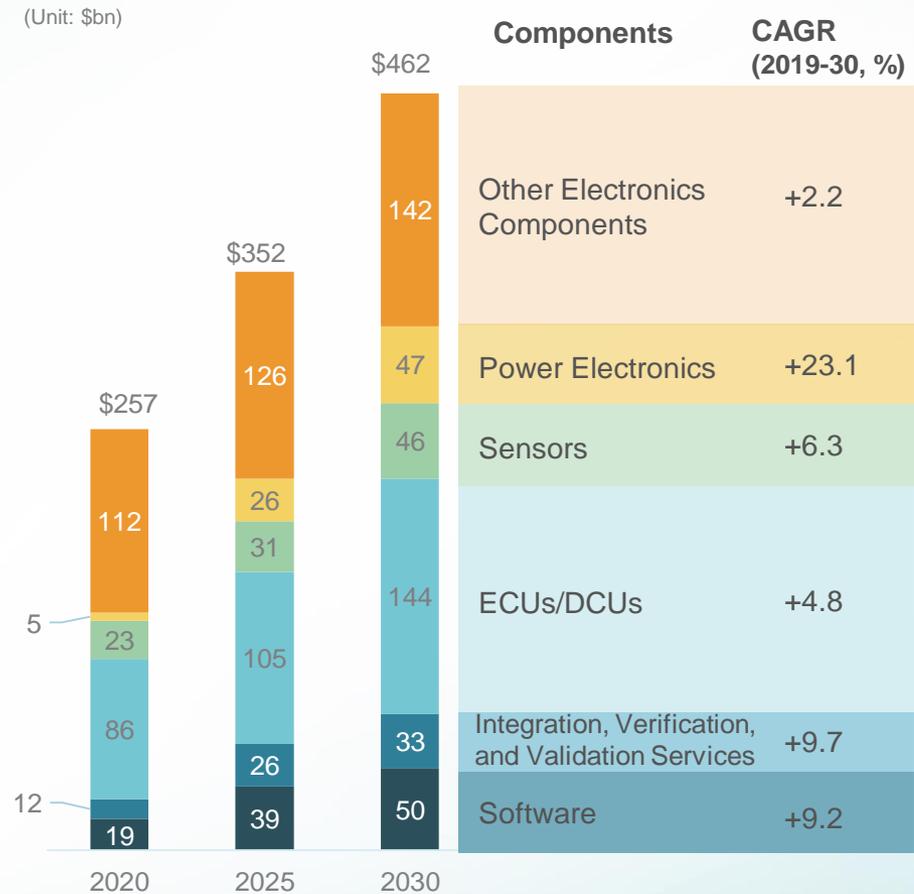
Source: Gartner, January, 2023



# Automotive Market Landscape

- Driven by application requirements, technology development continue to advance the silicon content per component.
- By 2030, the global automotive software and electronics market is expected to reach \$462 billion, representing a 5.5 % CAGR from 2019 to 2030.
- Power electronics is by far the fastest-growing component market, with EV adoption fueling an expected CAGR of 23% through 2030. Sensors are projected to grow at a compound annual rate of 6 %, driven by AD/ADAS sensors.

## Automotive Software and Electronics market



Resource: Mckinsey, January 2023



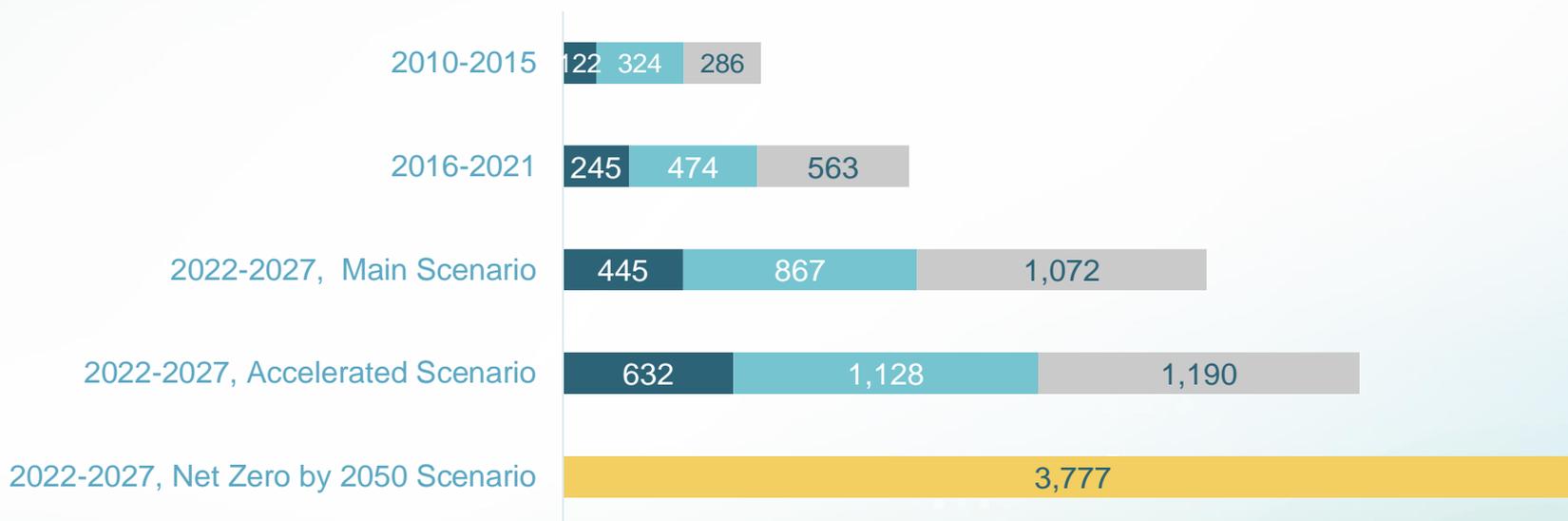
# Renewable Capacity Growth

- Global renewable capacity is expected to increase by almost 2,400 GW (almost 75%) between 2022 and 2027 in the IEA (International Energy Agency) main-case forecast. Renewables growth is propelled by more ambitious expansion policies in key markets, partly in response to the current energy crisis.
- Capable of reducing energy loss by up to 90%, compound semiconductors are deployed in a wide range of power applications, and are fundamental to renewable energy generation and help integrate renewable energy onto the electric grid.

Renewable Capacity Growth in the Main and Accelerated Cases, 2010-2027

(Unit: GW)

■ World ■ Emerging and Developing Economies ■ Advanced Economies ■ China



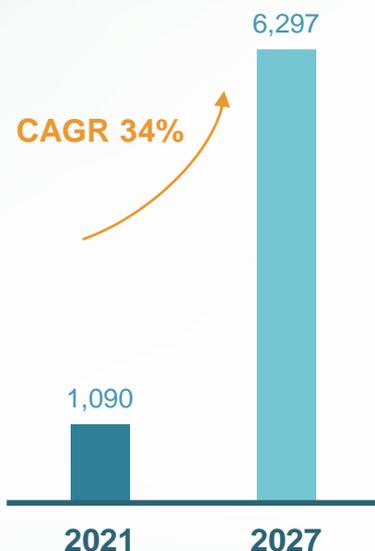
Resource: International Energy Agency, December, 2022

# SiC Power Device Market

- The accelerating adoption of SiC results in a CAGR of 34% in the forecast period of 2021 ~2027.
- Silicon carbide is perfectly suited to power applications. The main applications of SiC devices, such as Schottky diodes and FET/MOSFET transistors, include converters, inverters, power supplies, battery chargers and motor control systems.

## SiC Power Device Market

(Unit: \$mn)



Source: Yole, June, 2022  
Note: PFC = Power Factor Correction

## SiC Applications

### Low-Voltage



PFC / Power Supply



Audio Amplifier

<200V

### Medium-Voltage



PV Inverter Motor Control



EV / HEV

600V

### High-Voltage



Vessels Power Grid



Wind Turbine



Rail



UPS

1.7KV

3.3KV

6.5KV +



# GaN Power Device Market

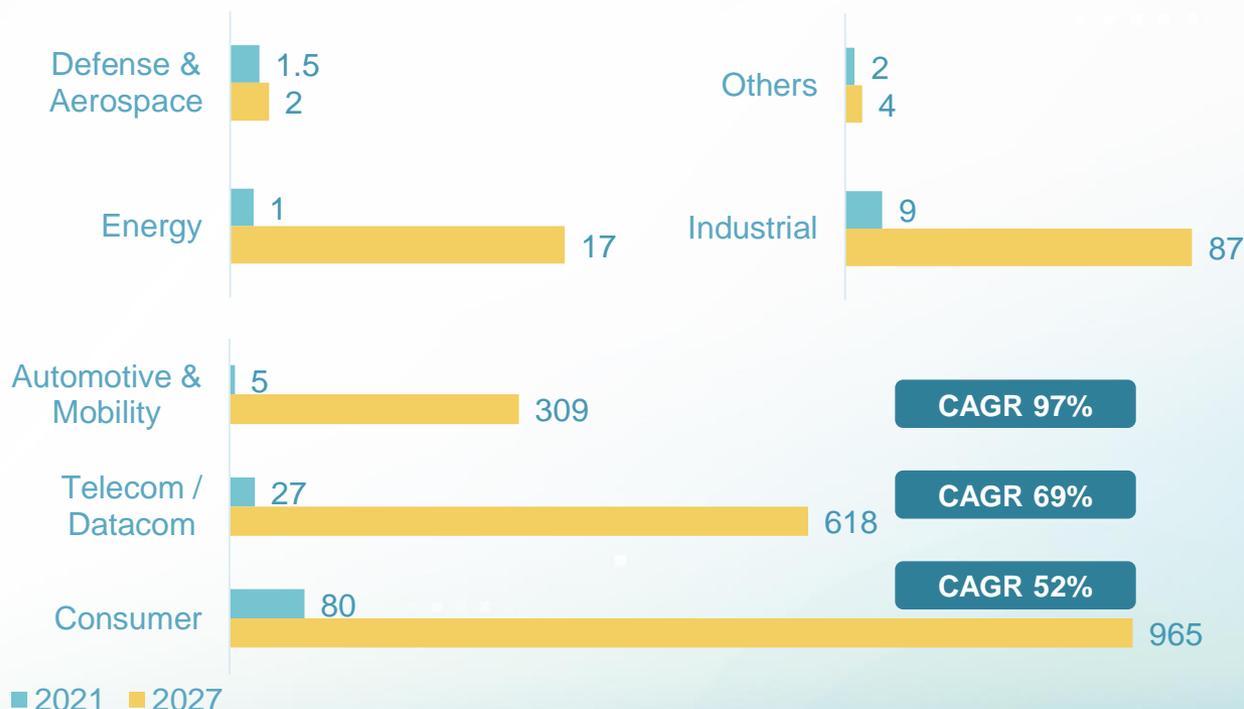
- The GaN power device market will grow with a CAGR of 59% in 2021 ~ 2027, from just \$126mn in 2021 to \$2bn in 2027.
- Consumer fast-charger applications will drive the GaN market in the short term, while volume shipments will ramp up in datacenters and EVs/HEVs in the mid to long term. Automotive segment is expected to register a 97% CAGR during 2021 ~ 2027.

GaN Power Device Market (Total)



GaN Power Device Market (By Applications)

(Unit: \$mn)



Source: Yole, June, 2022



# 04

## Financial Performance



## Financial Highlight : Q422 vs. Q322 vs. Q421

(NT\$ mn, except EPS)	Q422	Q322	Q421	QoQ	YoY
Revenue	18,388	18,053	15,752	1.9%	16.7%
Gross Profit %	42.7%	43.7%	41.3%	-1.0%	1.4%
Operating Income	6,362	6,329	4,819	0.5%	32.0%
Operating Income %	34.6%	35.1%	30.6%	-0.5%	4.0%
Net Profit	5,794	5,111	2,120	13.4%	173.3%
Net Profit %	31.5%	28.3%	13.5%	3.2%	18.0%
EPS	NT\$13.31	NT\$11.74	NT\$4.87	NT\$1.57	NT\$8.44
EBITDA* <sup>1</sup>	9,910	8,326	5,144	19.0%	92.7%
EBITDA %	53.9%	46.1%	32.7%	7.8%	21.2%
EBIT	8,311	6,814	3,689	22.0%	125.3%
ROE* <sup>2</sup> (annualized)	44.4%	43.1%	18.2%	1.3%	26.2%
ROA* <sup>3</sup> (annualized)	14.4%	13.3%	6.0%	1.1%	8.4%

1. EBITDA = Net Profit + Tax + Interests + Depreciation + Amortization.  
2. ROE = Net Profit / Average Shareholders Equity  
3. ROA = (Net Profit + Interest\*(1- Effective Tax Rate))/Average Asset



## Financial Highlight : 2022 vs. 2021

(NT\$ mn, except EPS)	2022	2021	YoY
Revenue	70,287	61,131	15.0%
Gross Profit %	43.2%	38.1%	5.1%
Operating Income	24,983	17,693	41.2%
Operating Income %	35.5%	28.9%	6.6%
Net Profit	15,367	11,870	29.5%
Net Profit %	21.9%	19.4%	2.5%
EPS	NT\$35.31	NT\$27.27	NT\$8.04
EBITDA* <sup>1</sup>	25,526	22,507	13.4%
EBITDA %	36.3%	36.8%	-0.5%
EBIT	19,445	16,610	17.1%
ROE* <sup>2</sup> (annualized)	30.7%	26.4%	4.3%
ROA* <sup>3</sup> (annualized)	9.8%	9.9%	-0.1%

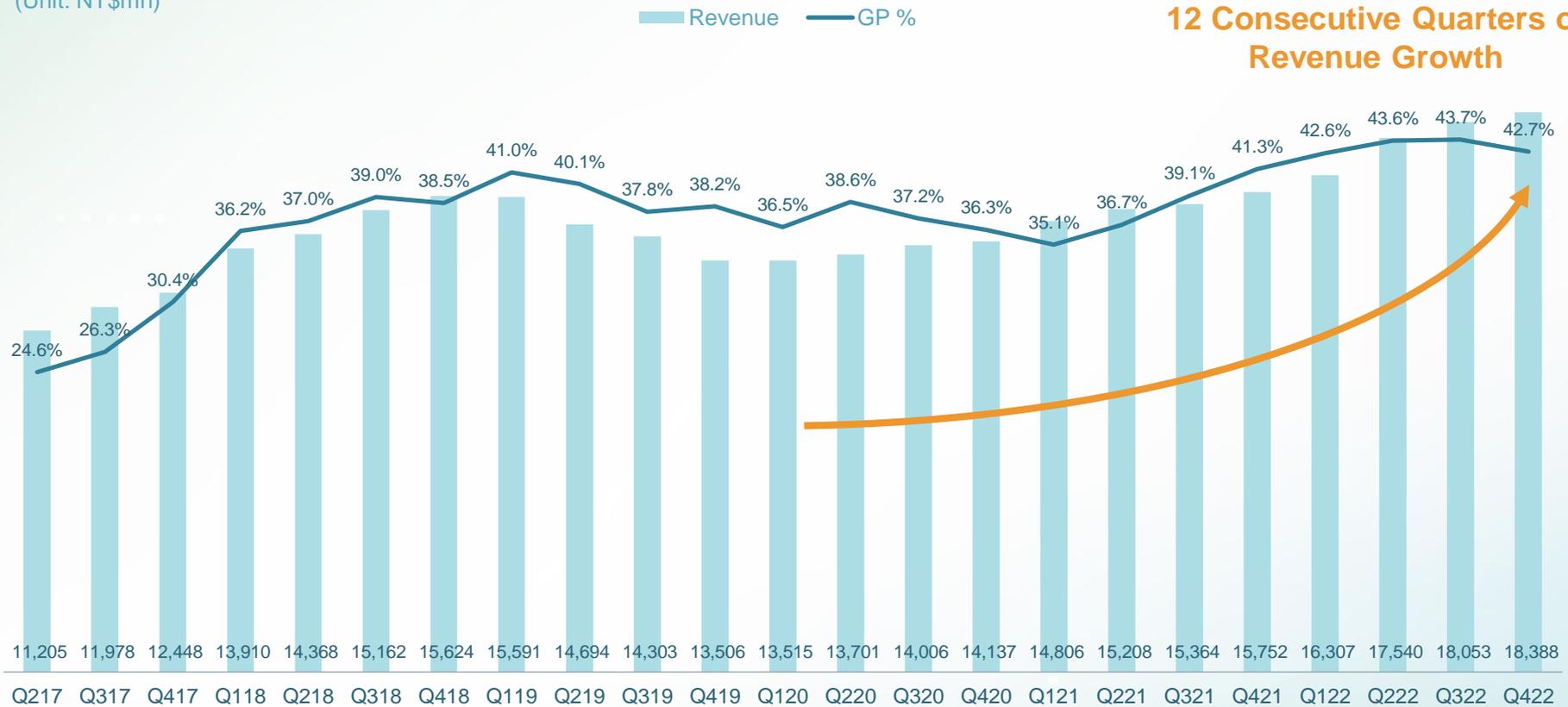
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2. ROE = Net Profit / Average Shareholders Equity  
3. ROA = (Net Profit + Interest\*(1- Effective Tax Rate))/Average Asset



# Revenue & Gross Profit (%)

Revenue & Gross Profit (%)

(Unit: NT\$mn)





# EBITDA & EPS

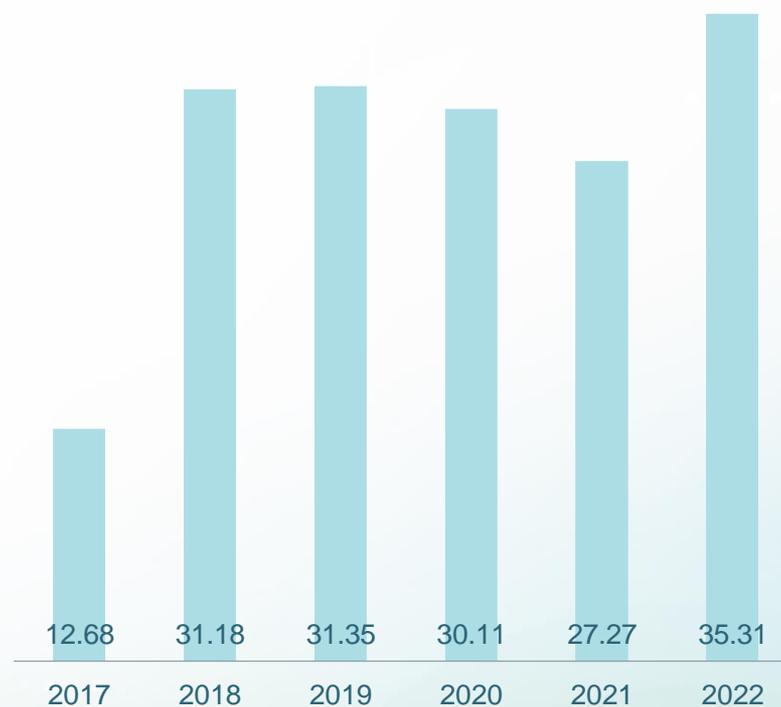
## EBITDA

(Unit: NT\$mn)



## EPS

(Unit: NT\$)





# Income Statement

## Income Statement

(NT\$m)	2019	2020	2021	2022
<b>Revenue</b>	<b>58,094</b>	<b>55,359</b>	<b>61,131</b>	<b>70,287</b>
<i>Growth (%)</i>	-1.6%	-4.7%	10.4%	15.0%
<b>Gross Profit</b>	<b>22,847</b>	<b>20,568</b>	<b>23,286</b>	<b>30,342</b>
<i>Gross Profit (%)</i>	39.3%	37.2%	38.1%	43.2%
<b>EBITDA</b>	<b>22,648</b>	<b>21,967</b>	<b>22,507</b>	<b>25,526<sup>1</sup></b>
<i>EBITDA (%)</i>	39.0%	39.7%	36.8%	36.3%
<b>Operating Income</b>	<b>17,897</b>	<b>15,287</b>	<b>17,693</b>	<b>24,983</b>
<i>Operating Income (%)</i>	30.8%	27.6%	28.9%	35.5%
<b>Profit before Tax</b>	<b>18,554</b>	<b>16,615</b>	<b>16,445</b>	<b>20,107<sup>1</sup></b>
<i>Profit before Tax Margin (%)</i>	31.9%	30.0%	26.9%	28.6%
<b>Net Profit</b>	<b>13,636</b>	<b>13,104</b>	<b>11,870</b>	<b>15,367<sup>1</sup></b>
<i>Net Profit (%)</i>	23.5%	23.7%	19.4%	21.9%
<b>EPS (NT\$)</b>	<b>31.35</b>	<b>30.11</b>	<b>27.27</b>	<b>35.31<sup>1</sup></b>

1. Due to realized gains/loss of Siltronic shares measured at fair value through profit or loss and impacts from other factors.



# Balance Sheet

## Balance Sheet

(NT\$mn)	2019	2020	2021	2022
<b>Assets</b>				
Cash and cash equivalents	32,822	22,439	65,894	80,491
Account receivable	8,140	8,037	9,118	10,160
Inventories	6,849	7,208	7,295	8,535
Property, plant and equipment	34,697	37,111	33,943	39,487
Other assets	14,078	20,056	34,395	30,823
<b>Total assets</b>	<b>96,586</b>	<b>94,852</b>	<b>150,645</b>	<b>169,496</b>
<b>Liabilities</b>				
Short-term loan	9,886	9,871	6,264	6,544
Account payable	3,837	3,895	4,340	4,176
Long term loan	-	-	45,125	42,780
Other liabilities	37,789	36,930	49,284	61,672
<b>Total liabilities</b>	<b>51,513</b>	<b>50,697</b>	<b>105,013</b>	<b>115,172</b>
<b>Shareholder equity</b>	<b>45,073</b>	<b>44,155</b>	<b>45,632</b>	<b>54,324</b>

1. Increase in LTA prepayment and EBITDA



05

ESG

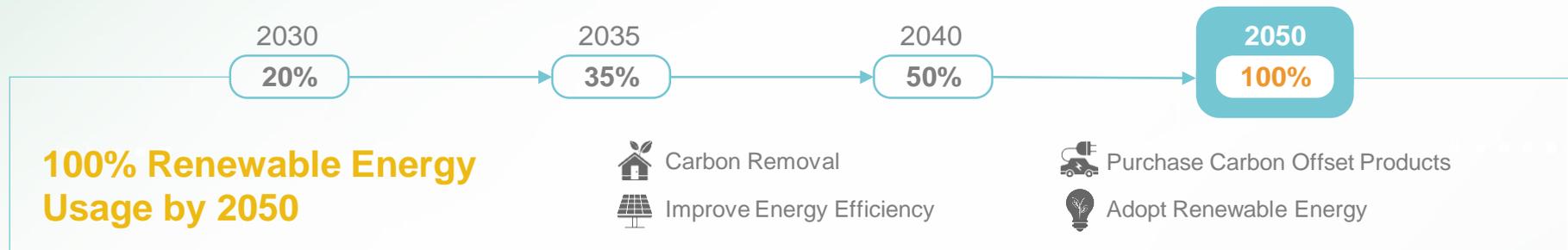
## ESG Highlights – Sustainable Environment

- GlobalWafers' efforts in green manufacturing and its sustainable development are deeply recognized and wins the **National Enterprise Environmental Protection Award** from the Executive Yuan and the **Taiwan Enterprise Sustainability Award** from the Taiwan Academy of Corporate Sustainability (TACS).
- GlobalWafers Chunan plant is awarded as **2022 prominent manufacturer with remarkable energy-saving results** by actively assisting Hsinchu Science Park in realizing green promise.
- GlobalWafers is committed to shaping a sustainable environment by upholding "responsible growth" as its long-term development policy.

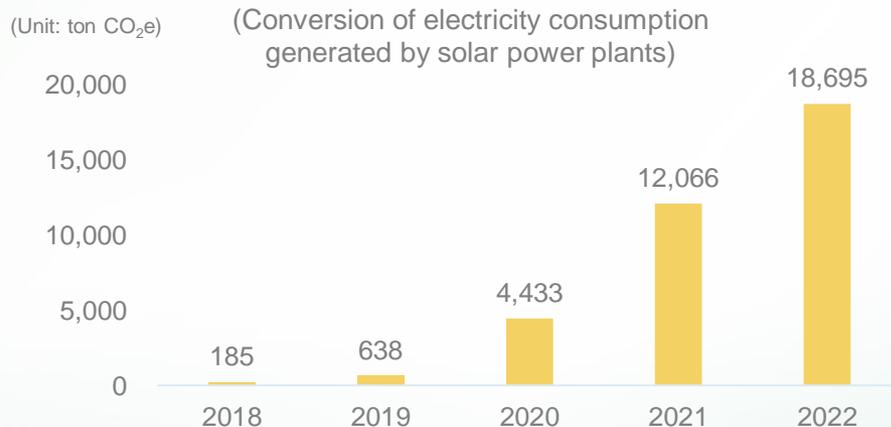


# ESG Highlights – Sustainable Environment – Power

- By formally joining **RE100 initiative**, GlobalWafers strengthens its green promise to achieve the long-term goal of 100% renewable energy usage by 2050.
- As of December 2022, cumulative solar capacity reached **31.1 MW**, which **generated 36.7 million kWh electricity**, equivalent to **reducing 18,695 tons of CO<sub>2</sub> emissions**.

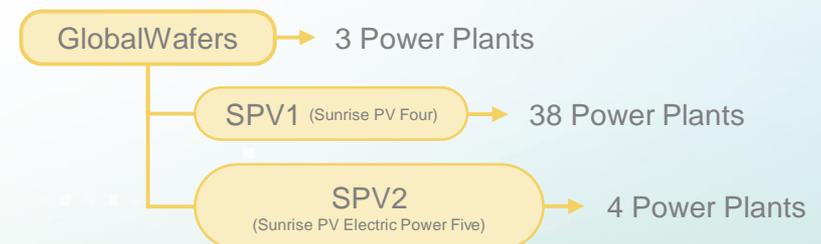


## CO<sub>2</sub> Emission Reduction (Accumulated)



## Solar Power Plant

With **2 Solar Power Related SPVs** and **45\* Solar Power Plants**, GlobalWafers secures power supply and expands green energy weight.





## ESG Highlights – Corporate Governance

- GlobalWafers has been awarded **top 5% corporate governance among all listed companies for 4 consecutive years** and selected in the **2022 Taiwan Best-in-Class 100**.
- GlobalWafers is dedicated to embodying transparency and ethical management to build up a high-level governance structure and to fulfill its social responsibility.

### Corporate Governance

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- Awarded **Top 5% corporate** governance among all listed companies in Taiwan.

### Honor

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- Selected in the **2022 Taiwan Best-in-Class 100** by Taiwan Institute of Directors.

### Independent Directors & Functional Committees

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#### Board of Directors

Among 7 directors, **3 seats are independent directors**, bringing balance and new perspective to the board.

#### Functional Committees

**Audit Committee, Remuneration Committee, Nominating Committee, and Sustainability Development Committee** are established to enhance independence and ESG responsibility.



## ESG Highlights – Employee Welfare

- By attaching great importance to employee care, covering **workplace, health, life resources and welfare**, GlobalWafers creates higher self-worth and a joyful working atmosphere for our employees.
- GlobalWafers Taiwan introduced **Employee Assistance Program Center (EAPC)** to provide diversified consultation services and to fulfill the mission of “Unity GlobalWafers, Sustainable Future”.
- To promote smoke-free environment, GlobalWafers’ Hsinchu and Chunan plants were both awarded the Badge of Accredited Healthy Workplace by Health Promotion Administration.

### Workplace Environment

Create a flexible and positive work environment

### Life Resources

Legal advice, group insurance, and allowances are provided

### Physical and Mental Health

Maintain the physical and mental health of employees

### Welfare Measures

Ample welfare measures, increase the economic security of employees, and enhance the motivation of work and life



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Q&A



**GlobalWafers Co., Ltd.**  
**環球晶圓股份有限公司**



**Thank You**



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