

The background of the slide is a composite image. It features an aerial view of a city, likely Tokyo, with a prominent green and blue gradient overlay. The gradient is darker at the top and lighter at the bottom. There are also some abstract white lines and dots in the top left and top right corners, suggesting a network or data theme.

Investor Presentation



**SOLAR APPLIED
MATERIALS TECH. CORP.**
(1785 TT/TW)

Nov 2024

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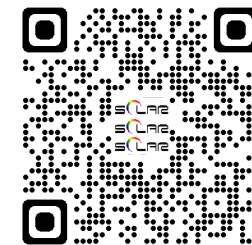
Understandings

PART 2

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Measurement



About SOLAR2

Press Center

Products & Services

Technology Competency

Careers

Investors

ESG

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PART 1

About SOLAR2

A world-leading manufacturer of precious and rare metals for industry application

HOME > About SOLAR2

Company Info

Organization and Executives

Policy

Milestones

CORE COMPETENCY

World-leading manufacturer of precious and rare metal materials

>3000 types

Alloys Developed

>3000 types

Alloys Developed

>50 types

Elements Used

7 types

Functional
Materials

10 types

Applications in Major
Industries

Precious/Rare Metals
Recycling & Refining
Platform

SOLAR2

營運總部・研發中心

Led by a strong team of experienced professionals

Chairman/President



C.F. Huang

黃啟峰

*30 of years
of industry experience*

- Vice President, Operations & Engineering, **Continental Teves Taiwan**

VP
Thin-film & Electronic
Materials BU



Gary Chung

鍾怡歡

*25 of years
of industry experience*

- General Manager, **Life Fusion Inc.**
- Sales Manager, **Applied Materials Taiwan**

AVP
Functional Ceramics &
Compound BU



Seward Hu

胡書華

*20 of years
of industry experience*

- Assistant Vice President, **Topview Optronics Corp.**

AVP
Precious metals & Green
Management BU



Vincent Huang

黃明山

*25 of years
of industry experience*

- Manager, **ChipMOS Technologies Inc.**
- Deputy Director, Precious Metal BU, **SolarTech**

VP
Intelligence Operations
Center



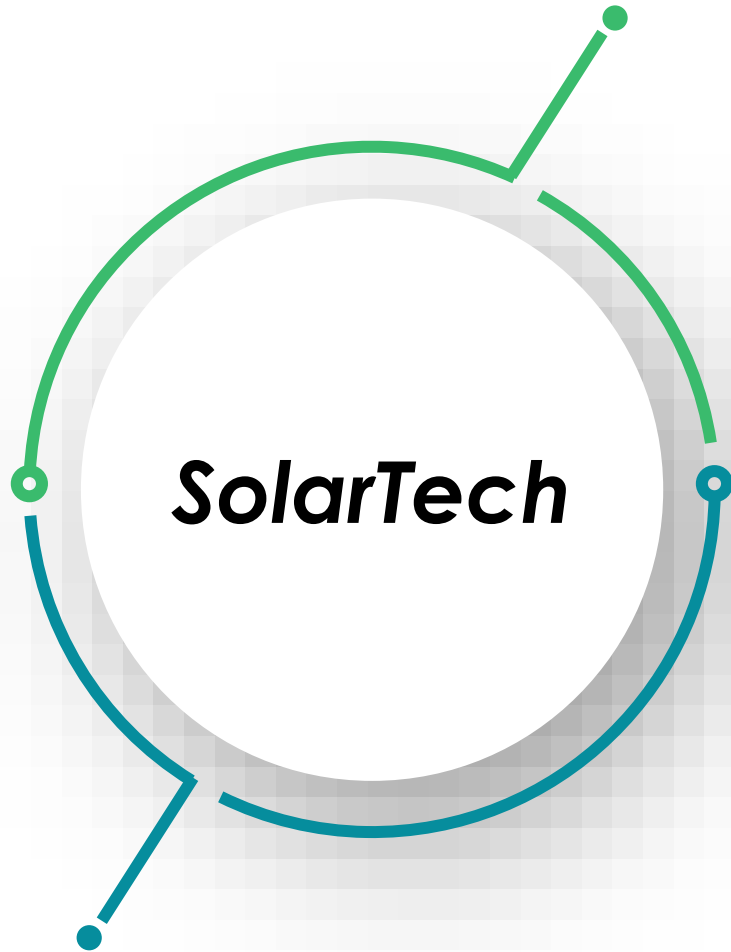
Ben Hong

洪本展

*30 of years
of industry experience*

- Vice President, **Quanta Computer Inc.**
- Executive Vice President, **Inventec Multimedia & Telecom Corporation**

Circular Economy



Advanced Material Solutions

We are

A Leading Circular Materials Technology Company

with an extensive expertise in the fields of
material science, chemistry and metallurgy

We are **UNIQUE**

because we provide truly innovative material solutions
to solve our customers' most complex
technical challenges

in the most **SUSTAINABLE** way

Company milestone

Alloy design and target manufacturing for thin film applications



PGC / PSC

Taiwan No.1



Gold / Silver
Chemicals and
Refining

1978



ODS

**(Optical Data Storage)
Sputtering Target**

World Leading

**Sputtering target
manufacturing**

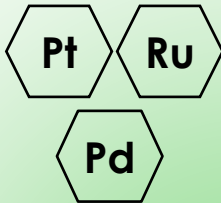
1998



MDS

**(Magnetic Data Storage)
Sputtering Target**

World Leading



Complex alloy
design and
manufacturing

2004



**OE (Optoelectronics)
Sputtering Target
(FPD / PV / LED)**



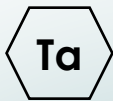
**Ceramic target
manufacturing**

TCO (Transparent
Conductive Oxide)
materials design

2008



SEMI



Ultra high purity
semiconductor
materials

2016



SEMI



1st in SEMI industry
**Copper Circular
Economy**

2018



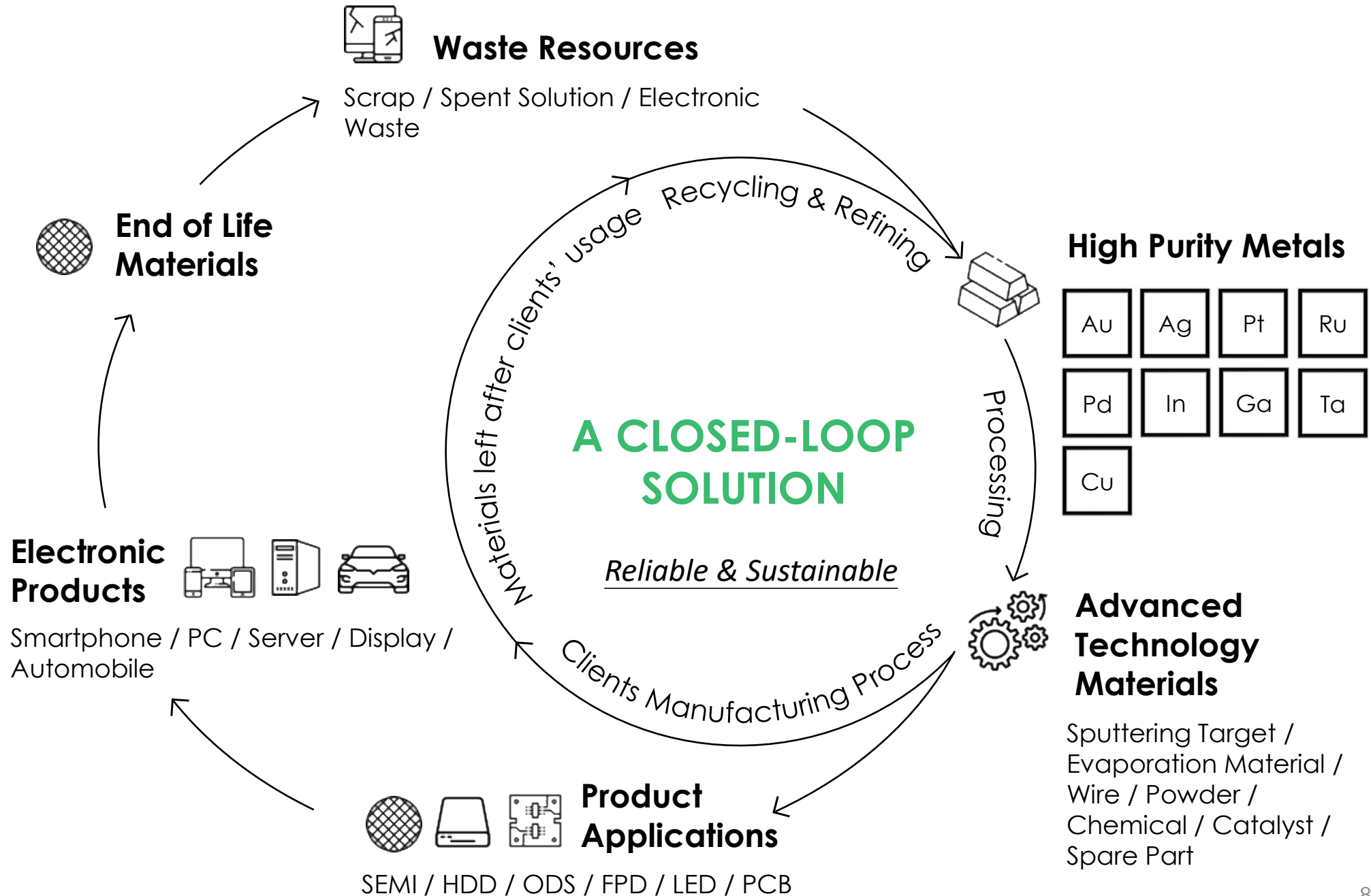
Digital Transformation

Drive Digital
Transformation to
Expand Margin



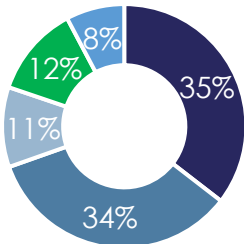
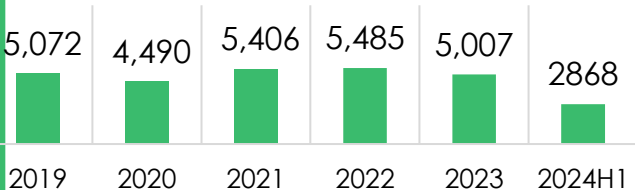

2021

**Recycling & Refining of
precious / rare metals**

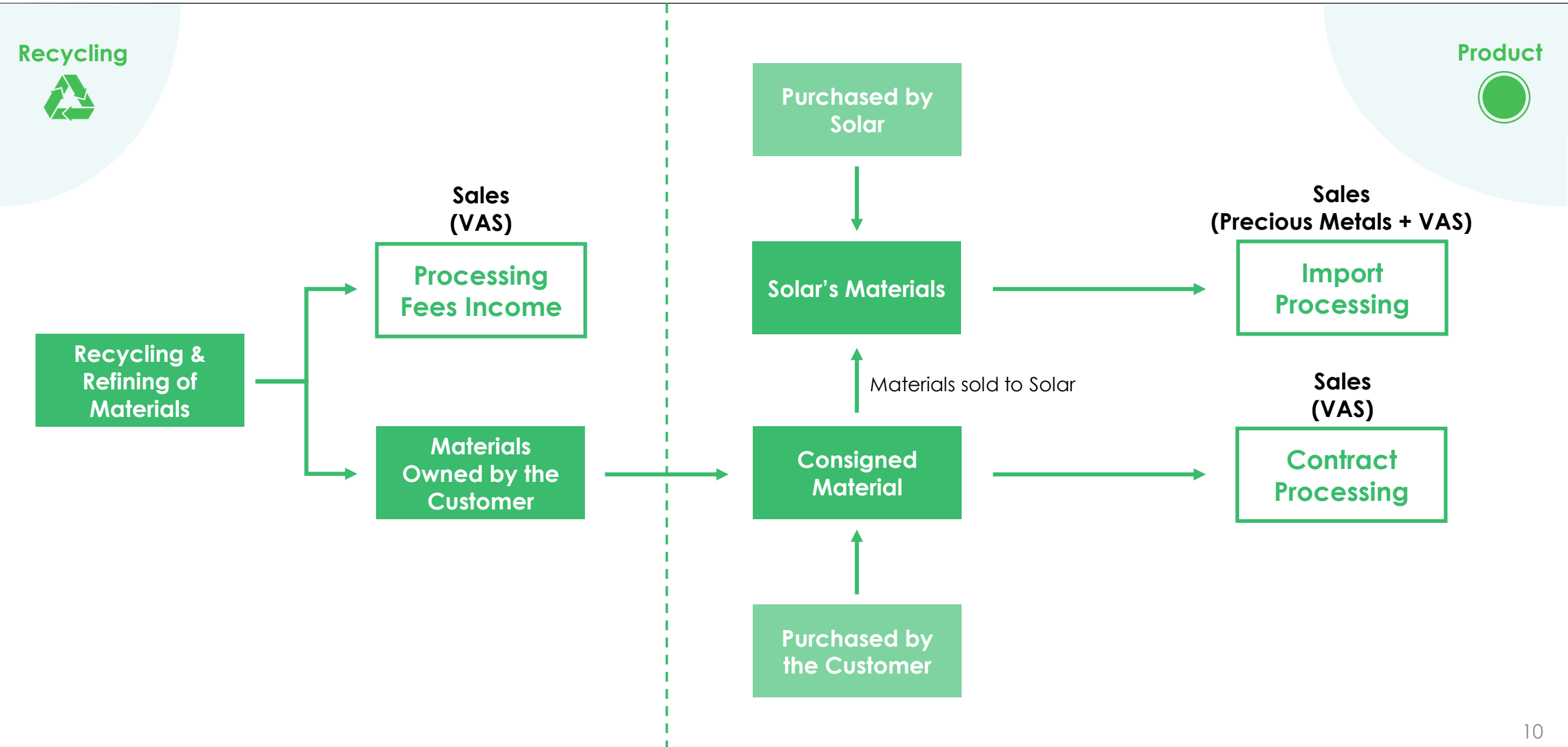
Enabling circular economy



SOLAR at a glance

<div><div>1978</div><div>Founded</div></div> <div><div>2005</div><div>Listed (1785 TT)</div></div>	<div><div>1,487</div><div>Employees (2023)</div></div> <div></div>	<div><div>NT\$ 13.9 Bn</div><div>Total Sales in 2024 H1</div><div>+31.30% YoY</div></div>	<div><div>NT\$ 39.0 Bn</div><div>US\$ 1248 Mn</div><div>Market Cap as of Nov, 2024</div></div>															
<div><div>Tainan, Taiwan</div><div>Headquarters</div><div></div></div>	<div><div>NT\$ 2.9 Bn</div><div>Value Added Sales in 2024H1</div><div>+10.48% YoY</div></div> <div><div>Value Added Sales Breakdown by Applications (2024 H1)</div><div><div><div>Storage</div><div>Semiconductor</div><div>Display</div><div>Automotive</div><div>Others</div></div></div></div> <div><div>VAS (NT\$mnn)</div><div><table><tr><th>Year</th><th>VAS (NT\$mnn)</th></tr><tr><td>2019</td><td>5,072</td></tr><tr><td>2020</td><td>4,490</td></tr><tr><td>2021</td><td>5,406</td></tr><tr><td>2022</td><td>5,485</td></tr><tr><td>2023</td><td>5,007</td></tr><tr><td>2024H1</td><td>2868</td></tr></table></div></div>			Year	VAS (NT\$mnn)	2019	5,072	2020	4,490	2021	5,406	2022	5,485	2023	5,007	2024H1	2868	<div><div>SolarTech's Industry Position</div><div>World No.1</div><div>Hard Disk Drive</div><div>Data Storage Sputtering Target</div><div>Taiwan No.1 Semiconductor</div><div>Precious Metal Sputtering Target</div><div>Taiwan No.1 Precious Metals Recycling</div><div>Precious Metal recycling and high purity refining</div></div>
Year	VAS (NT\$mnn)																	
2019	5,072																	
2020	4,490																	
2021	5,406																	
2022	5,485																	
2023	5,007																	
2024H1	2868																	
<div><div><div>5 Factories</div><div>Located in Taiwan and Mainland China</div></div></div>																		

Sales model



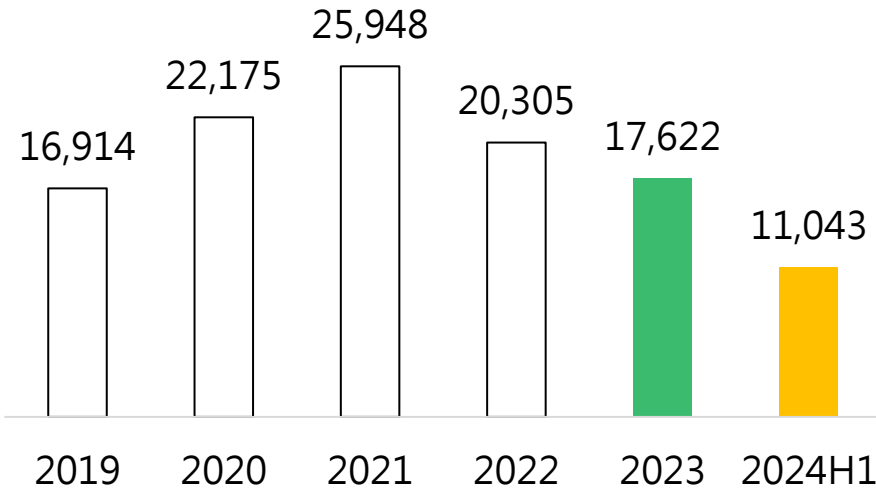
Track record

Precious Metals Sales

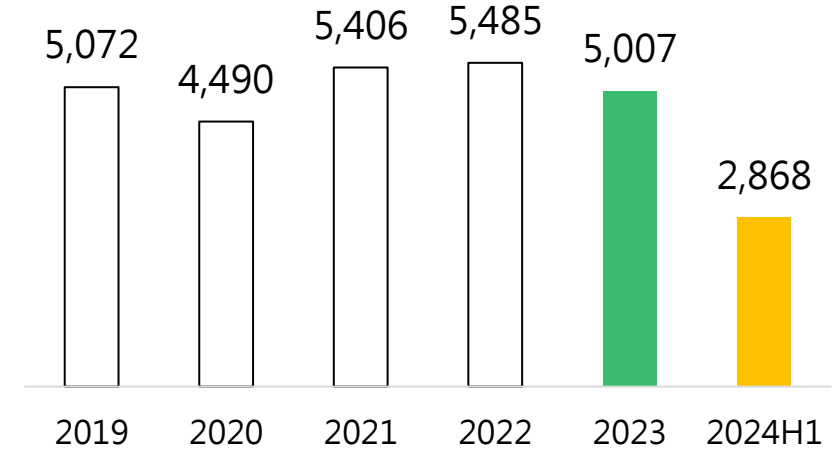


Precious metals are sold mainly as part of raw materials in products. In addition to the growth of business volume, revenue is also subject to changes in precious metal price trends (depending on if the materials are on consigned basis or not).

Precious Metals Sales (NT\$m)



Value Added Sales (NT\$m)



Value Added Sales (VAS)



Value-added sales (VAS) reflect the true value of the products that we deliver to our customers, regardless of the precious metal prices.

- VAS Result

- 1H 2024 YoY : +10.48% ; QoQ : +19.41%

- EPS

- 2024 H1 EPS=1.34

Why invest in SolarTech ?

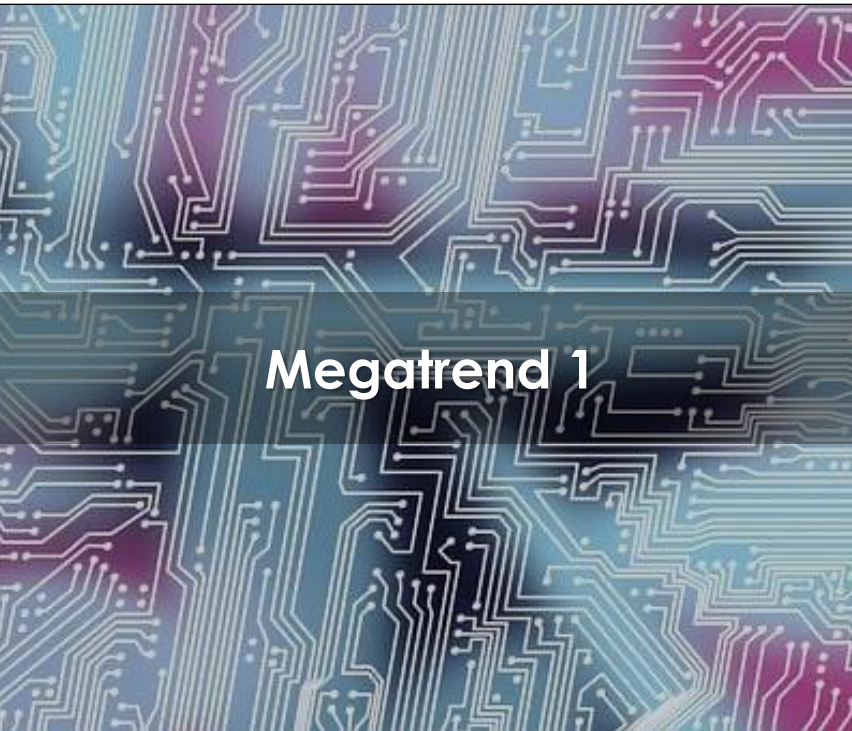
- We are a global leader in advanced materials solutions. We are the world's largest manufacturer of sputtering targets for hard-disk drives (HDD), as well as Taiwan's largest manufacturer of sputtering targets for semiconductors. Our unique foundation as a **circular** materials company and our ability to provide our customers with **mission-critical solutions** have allowed us to emerge as a preferred partner throughout our customers' technology roadmap.
- We are well-positioned to benefit from several megatrends in the industry, including
 - 1) **Increasing complexity in electronic devices requires more sophisticated chips and solutions, leading to a rise in demand for advanced materials;**
 - 2) **The growing importance of local supply chains and substitutes; and**
 - 3) **Companies' shift towards a circular economy.**These trends are expected to enhance the competitiveness of our company and will provide a significant growth opportunity for our revenues and earnings.
- In light of these factors, we aim for a **50% CAGR** in our front-end semiconductor materials value-added sales (VAS) in the next five years, which should result in **double-digit growth** in value-added sales and earnings to support further value-enhancing investments and sustained dividend payout to our shareholders.

PART 2

Trends & Technologies



Key megatrends that propel our growth



Increasing complexity of
electronic devices
requiring new solutions and
more varieties of alloy materials

More Volumes

The growing importance of
local supply chains
and substitutes

More Shares

Companies' shift
towards a
circular economy

More Needs

Scale Up

- Capacity investments synchronized to customers' expansion plans.
- Ability to tackle industry challenges & supply reliability.
- Continue localizing footprint close to customers in Taiwan and elsewhere in the world.

Optimize our Portfolio

- Commitment to relevant portfolio breadth in high-growth areas.
- Targeted expansion of portfolio into other adjacencies.

Level up in Tech

- Further sharpen focus on profitable innovation, addressing key inflection points.
- Address sustainable innovation and continue to invest in R&D.

Achieve Operational Excellence

- Digital transformation to deliver maximum value.
- Accelerating our strategy to deliver breakthrough operations performance

Responsible Business

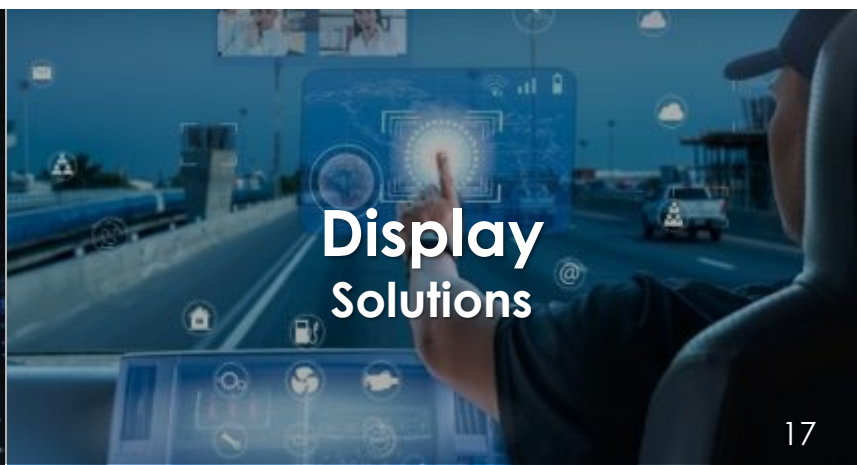
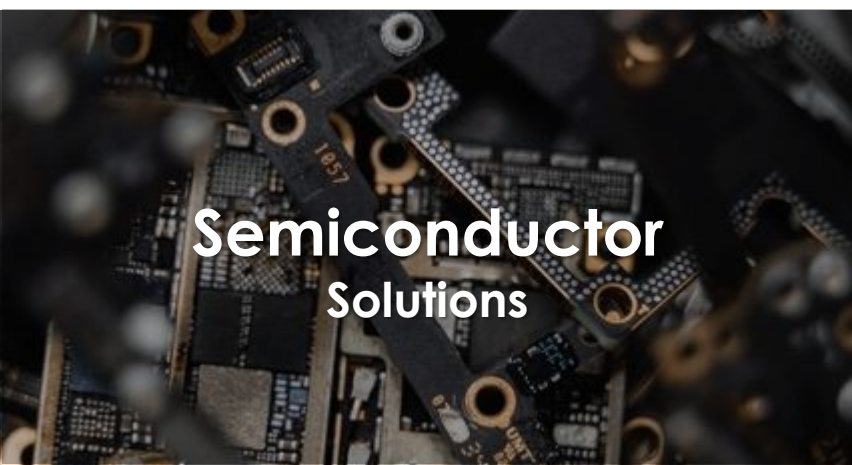
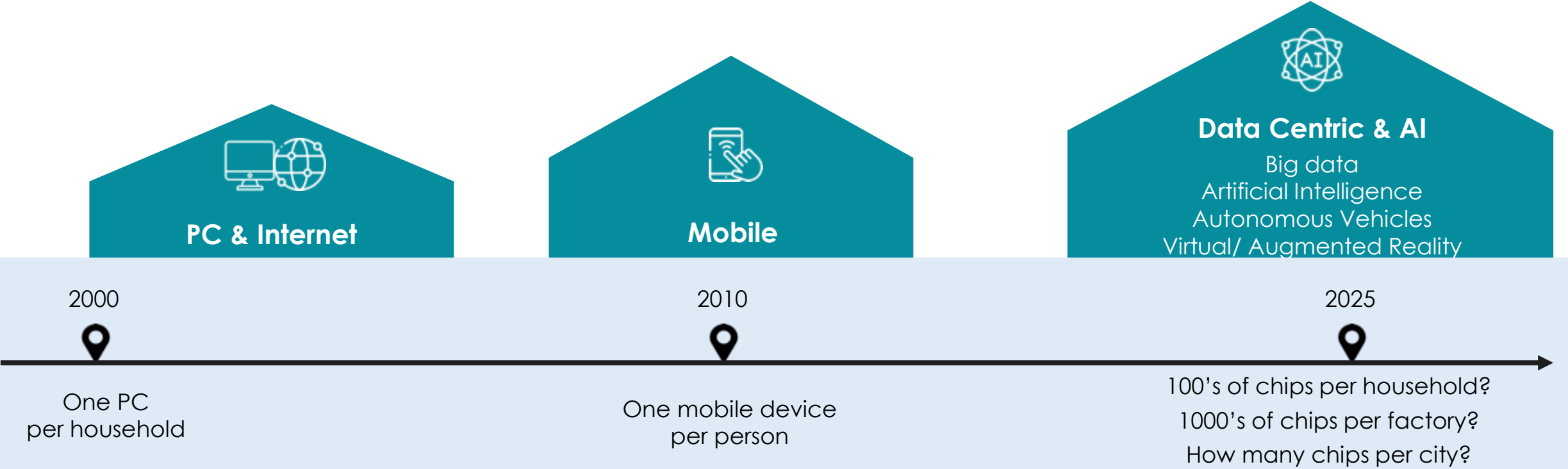
- Closed-loop metal recycling solution support climate change mitigation.
- Committed to continued advancing ESG initiatives.

Megatrend 1

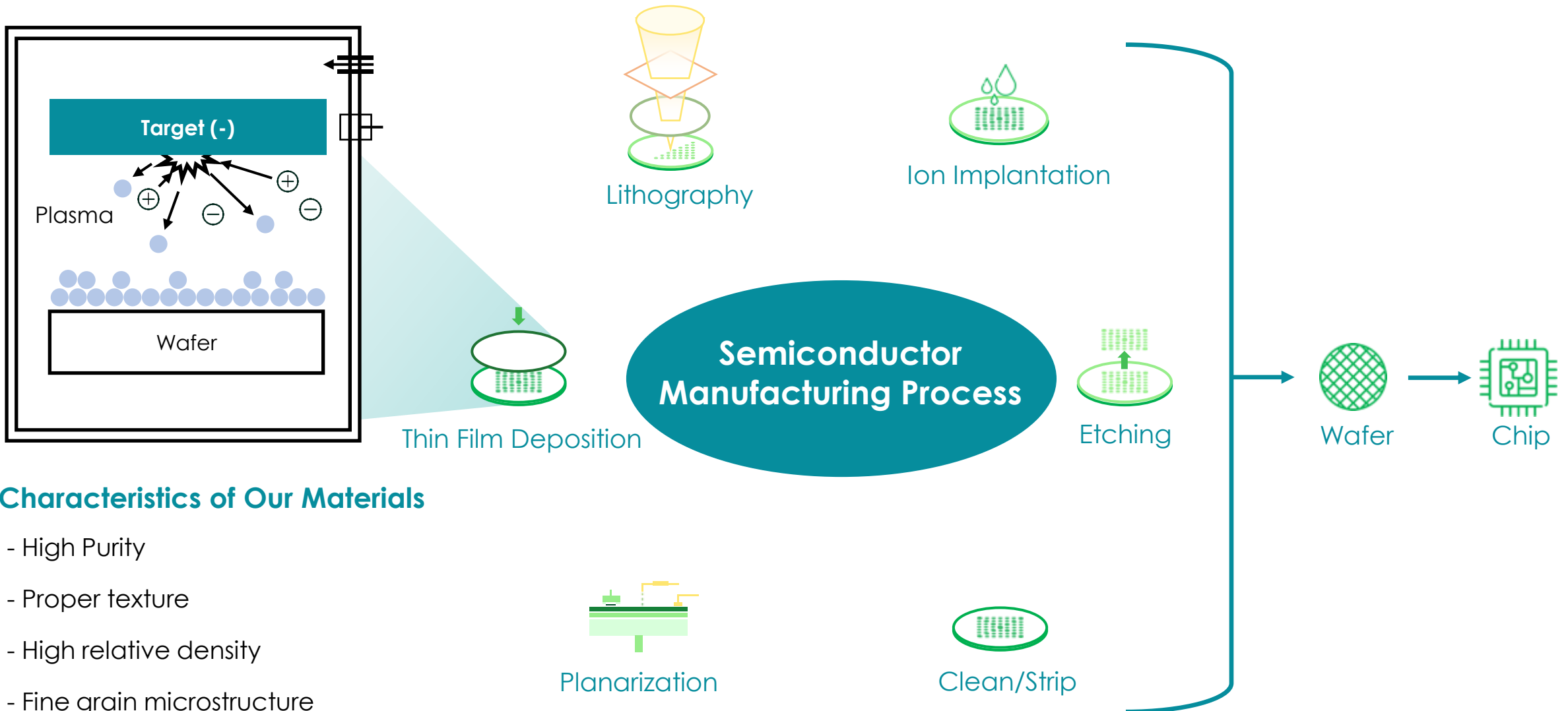
Increasing complexity of
electronic devices
requiring new solutions
and more varieties of
alloy materials

- The era of the Data-Centric Environment requires a wide range, and a large quantity of chips, storage, and display solutions to deliver the myriad functions and applications being designed.
- With these new drivers, there comes an expectation for higher-quality, higher-performing materials at a faster pace.
- As application nodes advance, increased purity and alloy varieties are essential to customers' requirements.

Industries driven by the era of AI and the data-centric environment



Our products are used in thin film deposition processes



Characteristics of Our Materials

- High Purity
- Proper texture
- High relative density
- Fine grain microstructure
- Uniform microstructure

Establish partnership with customers to develop “designed-in” solutions

4 - We provide customers the best solution to solve function & manufacturing bottleneck

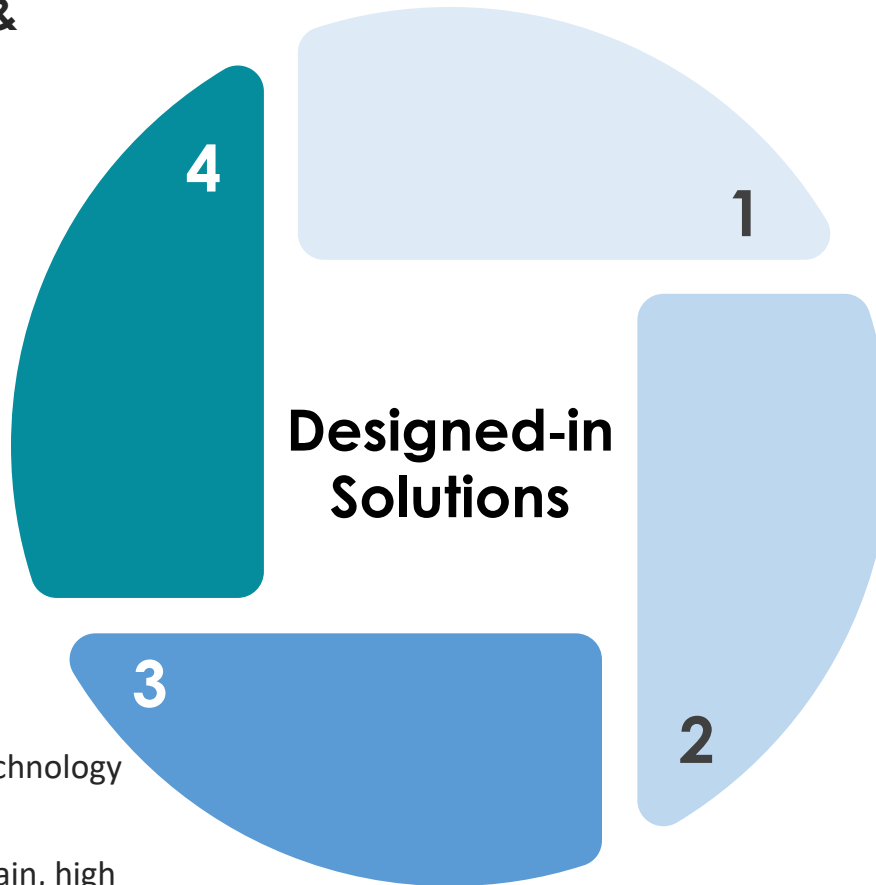
High Performance Products

Rapid Engineering Response
(Time to Market)

Value-Added Solution
(Green Circular Economy)

3 - To develop advanced materials with high-end manufacturing technology

- High purity material refining technology
- Advanced smelting, sintering and molding technology (low gas content, high density)
- Advanced texture control technology (fine grain, high uniformity, specific texture)
- High-end diffusion bonding technology
- High-end sputtering target cleaning technology



1 - We work with our customers to understand their current and future challenges



Customer
Technology
&
Product
Roadmaps

2 - Applying our core competencies and expertise

Materials Science

Alloy Design
> 3000 alloys

Applications and
Process Know-How

Commitment to relevant portfolio breadth in high growth areas

Strong portfolio of metallurgies technologies empowering today's application

Solutions empowering customers to make smaller, faster, more energy efficient, and more sustainable devices in various applications across the entire data sphere

And enabling tomorrow's leading-edge technologies

High-Tech Applications

Data Processing

Logic chips: CPUs, GPUs

Critical Alloy Materials Needed



Solar's Focus

Ultra-high purity (UHP) alloys for **advanced nodes front-end process**

Data Storage

Storage System: HDD, MRAM



New alloys materials for **HAMR** technology and critical memory platters in storage

Data Interface

Displays: TV, mobile, AR/VR, Foldable



Broad set of materials in the **Mini/Micro-LED** layer stack

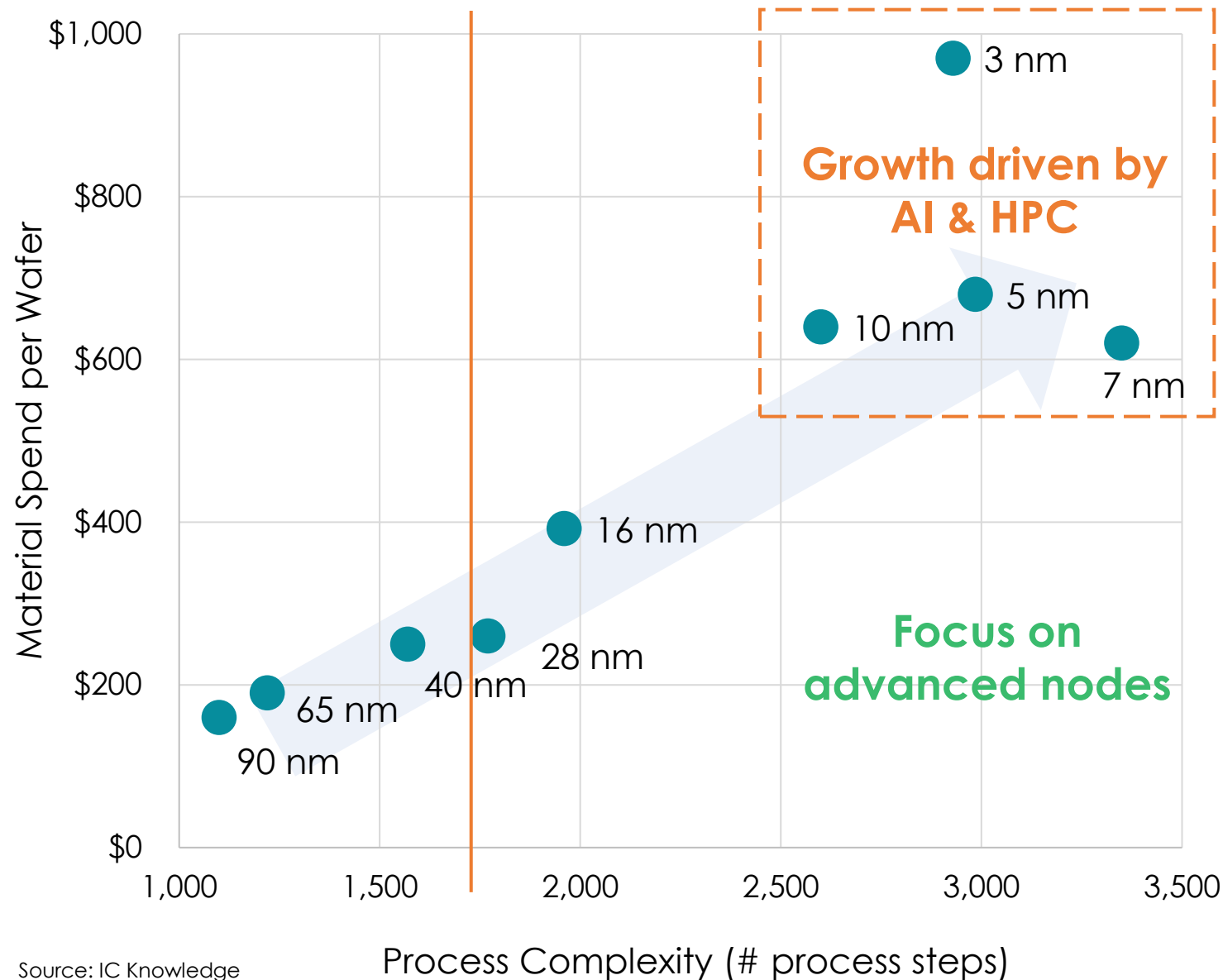
Data Transfer

5G, Network chips, interconnects, IC substrates

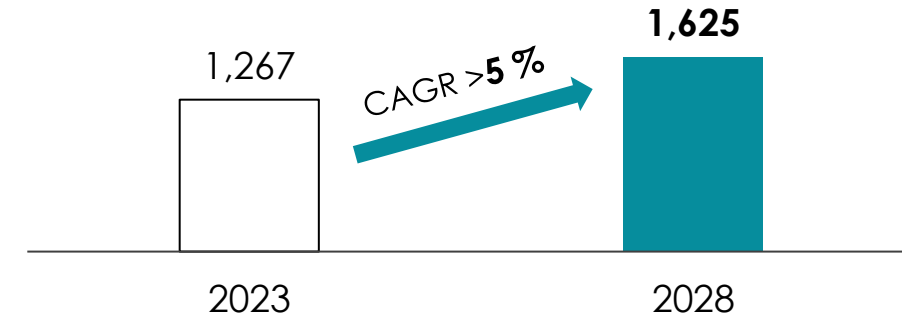


New alloys for optimized chip packaging and connectivity

More complex chip drive more materials demand

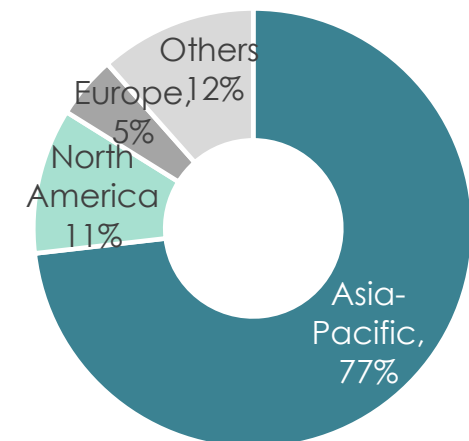


Global Sputtering Target for Semi (Value in US\$m)



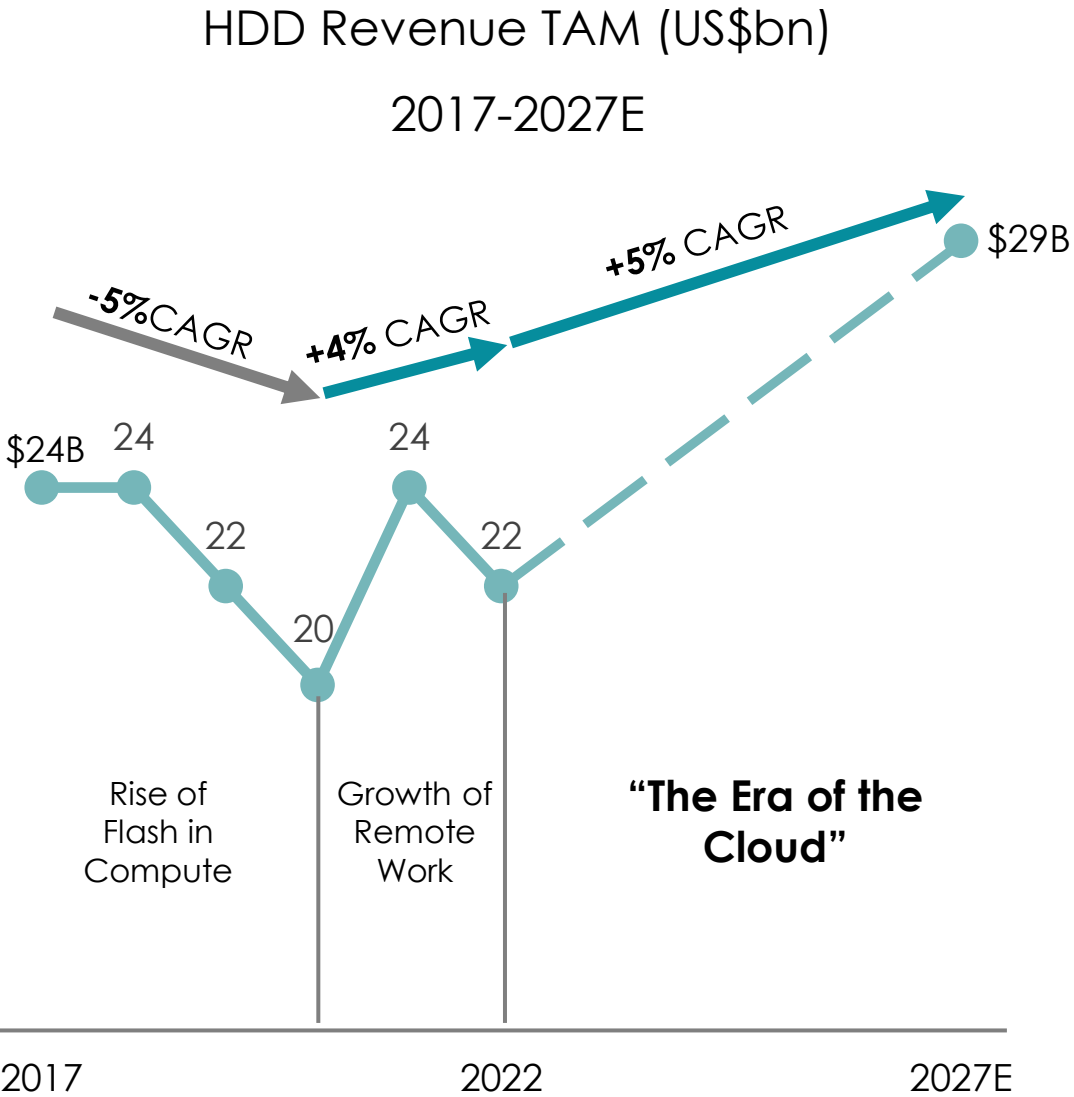
Source: : TECHCET, 2024/5

Sputtering Target Consumption

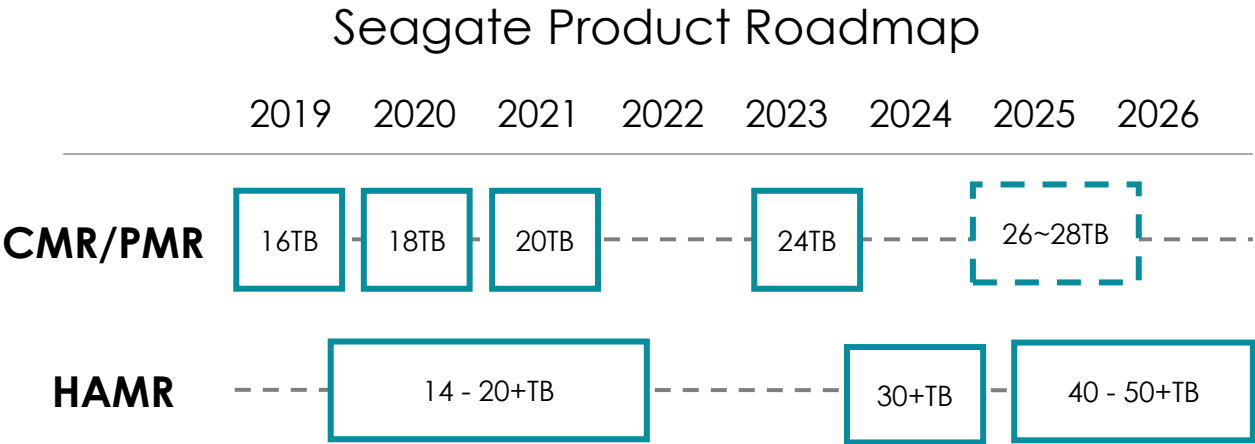
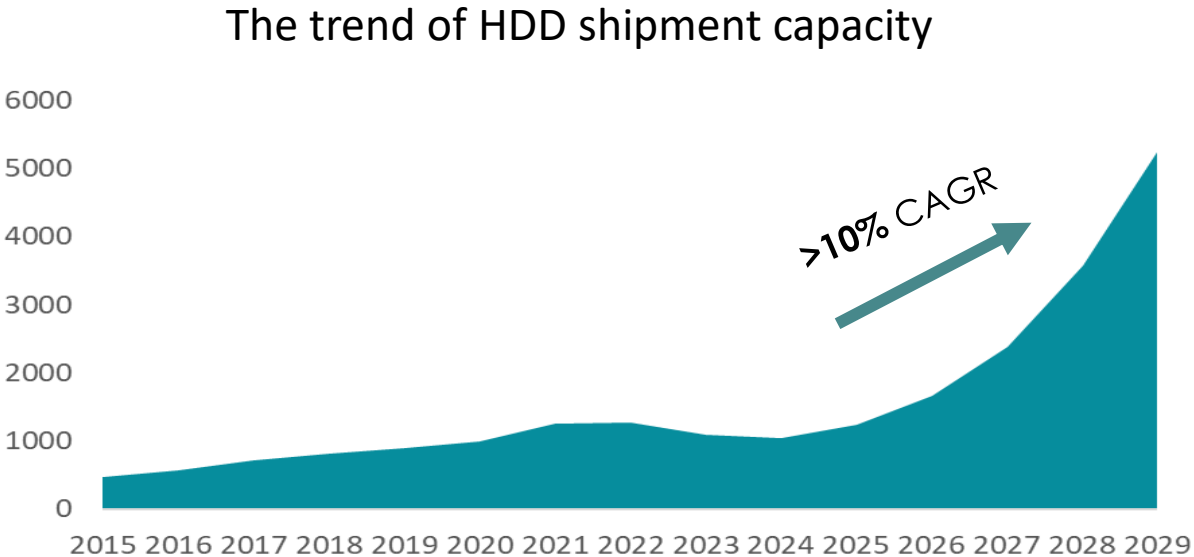


Source: Taipei Representative Office in Singapore, 2024/9

Data explosion drive higher HDD capacity demand



Source: WD Investor Day, 2022/5



Source: Seagate

HDD & SSD are highly complementary technologies

	HDD	SSD
Features	lower cost, mass capacity	High speed
Application	more storage volume	read/write faster

- HDD & SSD are highly complementary technologies, not substitutes
- HDD offers mass data storage at less than 1/5 the cost of comparable NAND solutions on a per bit basis. Relative to data center architectures, the value gap will not close over the next decade.*
- The significant cost differences make HDDs more attractive in scenarios where “mass storage capacity without the need for high speed” is required

*Source: Seagate Fiscal Q1 2024 Conference Call

3 Data storage places high demands on HDD

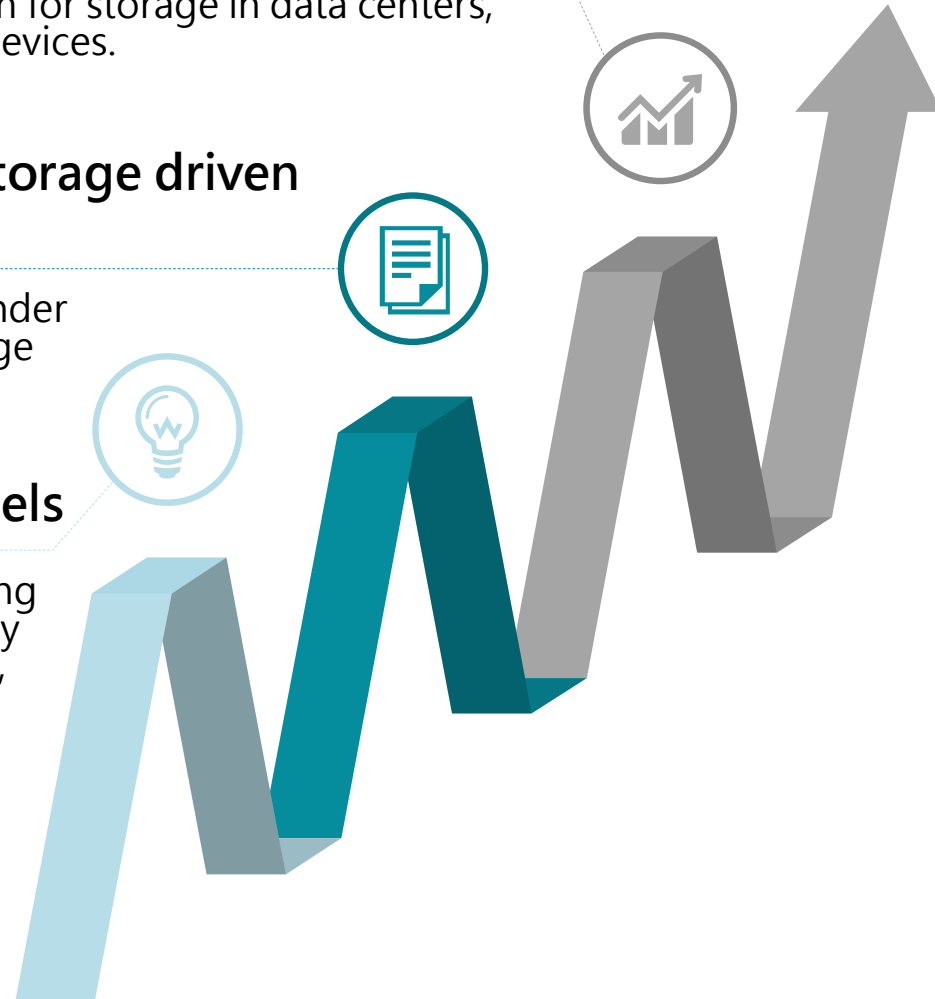
HDDs are designed for versatility in a variety of environments, making them a reliable and cost-efficiency solution for storage in data centers, enterprise servers, and personal storage devices.

2 Increased demand for data storage driven by AI growth

Many AI language models are currently under development, resulting in increased storage requirements from AI.

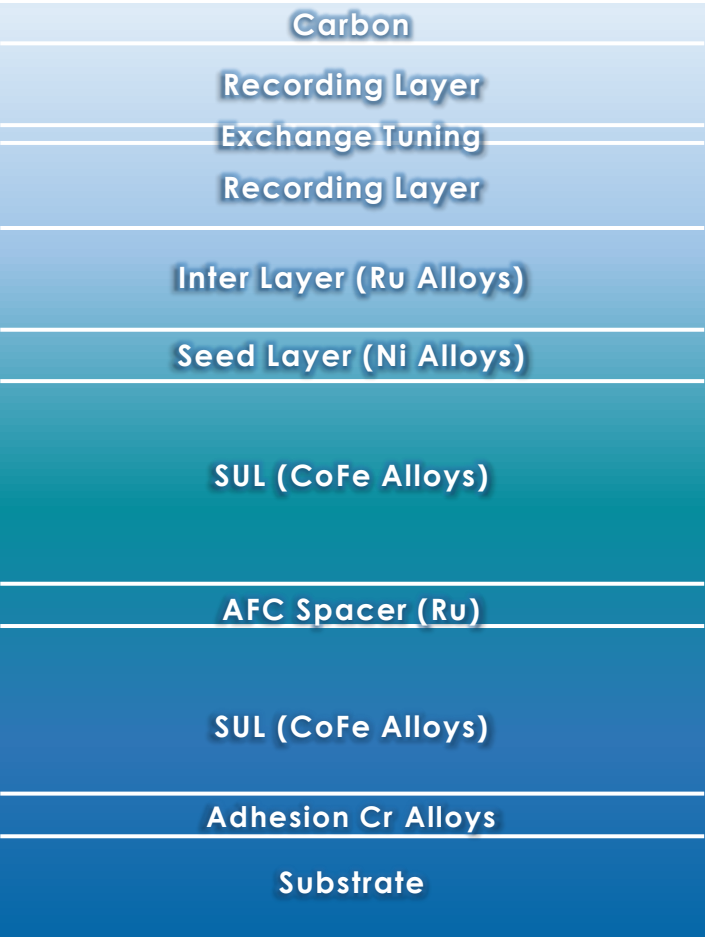
1 Growing demand for AI models

The market for generative AI is experiencing a surge in growth, driven by its increasingly diverse applications in text, images, music, and more.

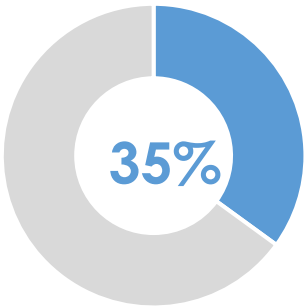


Solar is leading in HDD target supply

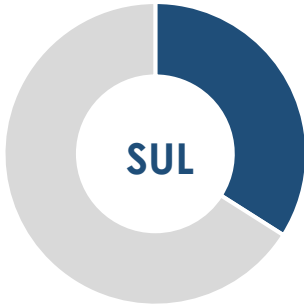
Layers layout of HDD



Solar is the **only full spectrum supplier**.
All global HDD companies are our customers
with one-third market share.

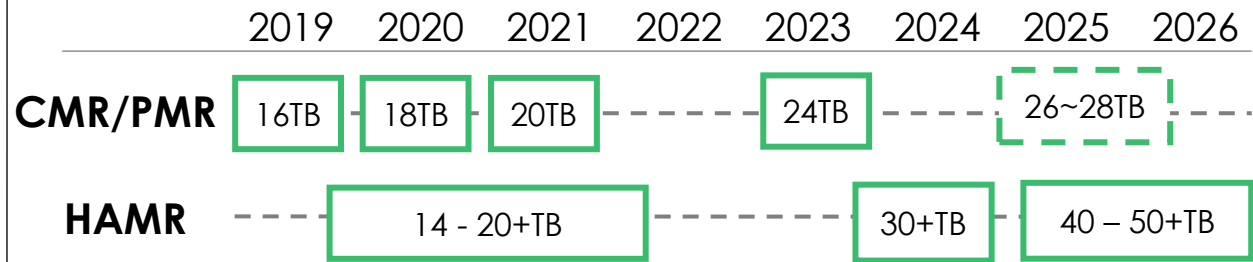


Main supplier
for different layers



Provide Best-fit Solutions to new HAMR recording technology

- **Rising demand for greater storage capacity**
 - Data growth fuel the demand for larger HDD Capacity.
 - HDD leading company actively moves toward new HAMR recording technology since PMR technology is reaching its limit.
- **Seagate has launched the industry's first 30+TB HDD that uses HAMR technology in 2024**



Source: Seagate



Megatrend 2

The growing importance of local supply chains and substitutes

- The pandemic and supply-chain disruption have inspired a build-out of local supply chains, particularly for critical materials and components.
- Taiwan remains the largest semiconductor hub in the world.
- Growing needs for finding local substitutes, particularly those previously dominated by foreign suppliers.
- Closer collaboration in the supply chain to develop mission-critical “designed-in” solutions.

Target industry at a glance – Chip Manufacturing

Upstream
Metal refining



Midstream
Target Manufacturing



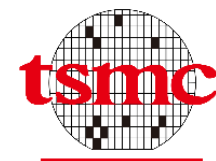
Downstream
Sputtering & Coating



End-Customers
Application



Honeywell



SAMSUNG



SAMSUNG



AMD



We are gaining market share



Megatrend 3

Companies' shift
towards a
circular economy

- Stricter legislation and pressure from society continue to push companies for a lower carbon footprint.
- Increasing resource scarcity and need for closing the loop.
- Growing complexity of materials to recycle, in particular end-of-life materials.
- Solutions to allow companies to provide higher recycled content and lower carbon footprint.

Geopolitics raise the importance of the circular economy – Reliable Sourcing

China has started restricting exports of Gallium and Germanium in August 2023

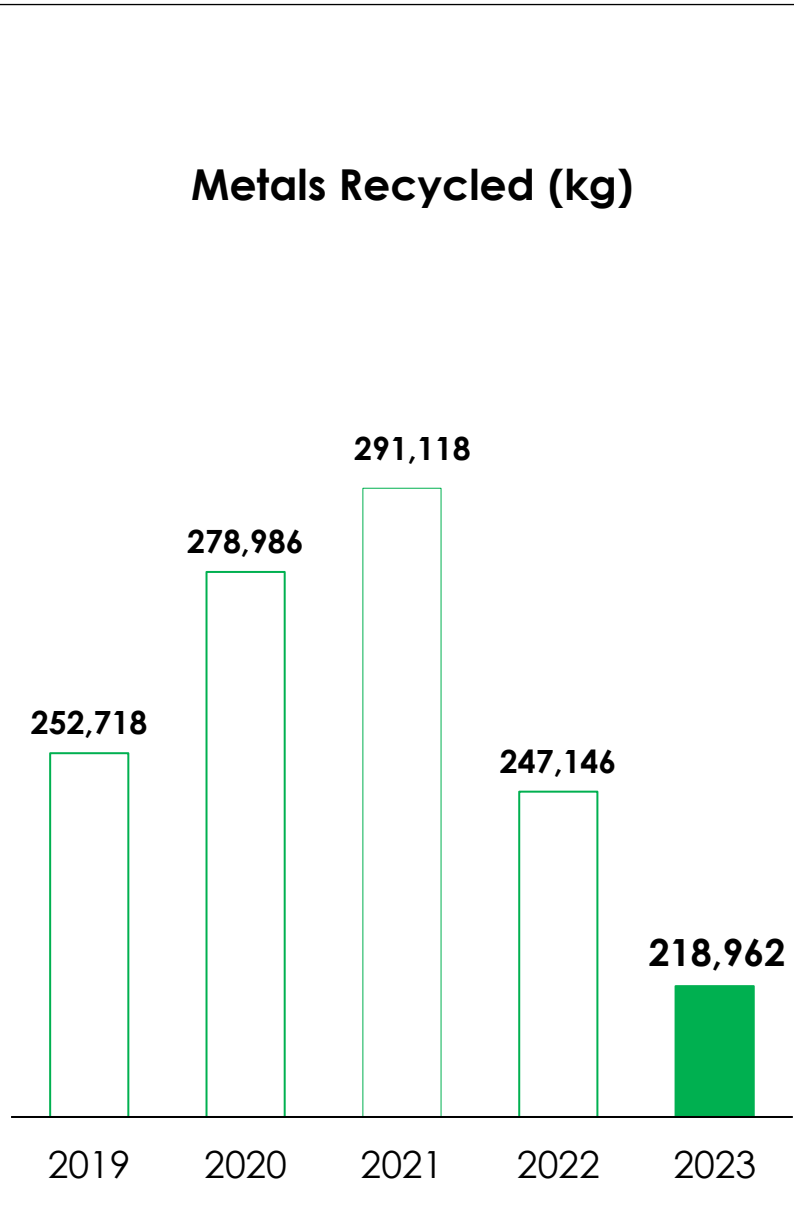


China is the largest producer of Gallium and Germanium worldwide, exporting to many countries. These rare metals are key materials for semiconductors, which are widely used in various applications

With China's export restrictions on Gallium and Germanium, global semiconductor manufacturers may face potential supply chain risks for raw materials. Therefore, the circular economy will gradually receive greater attention

Our capability for rare metal recycling can position us as a local partner for global clients. By our recycling and refining processes, we're able to mitigate the impact of supply chain uncertainties.

Reducing carbon emissions through material recycling – Sustainable sourcing



357,422 tons

of carbon emissions saved
per year
equivalent to
carbon footprint generated by

29,785 people

per capita carbon emission
(12 ton per person in Taiwan)

equivalent to

914 central park

in New York

Source: Solar ESG Report

Digital transformation to deliver maximum value

Connecting Our Factories...



...To Capture the Data

One Standard



... Based Upon Lean Workflow

Transformed With Automation



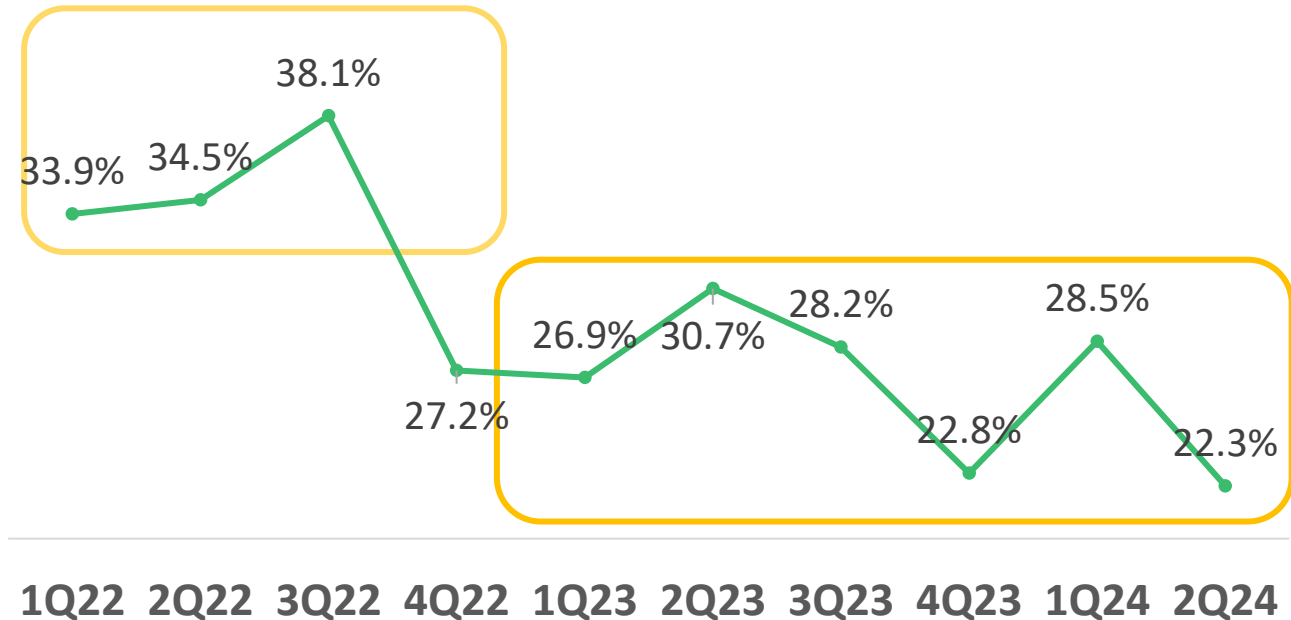
- Yield optimization
- Predictive algorithms
- Proactive maintenance work
- Real-time fault detection & resolution
- Real-time carbon footprint monitoring
- Remote problem-solving expertise

Project ONE (Operation aNd Erp)

Integration of operational processes and systems

- Efficient and reliable sourcing
- Better execution
- Leaner, simpler product line-up

— Operating expense/VAS



Ready for Future Growth

➤ Achieve Operational Excellence

- Digital transformation to build resilience

➤ Optimize our Portfolio

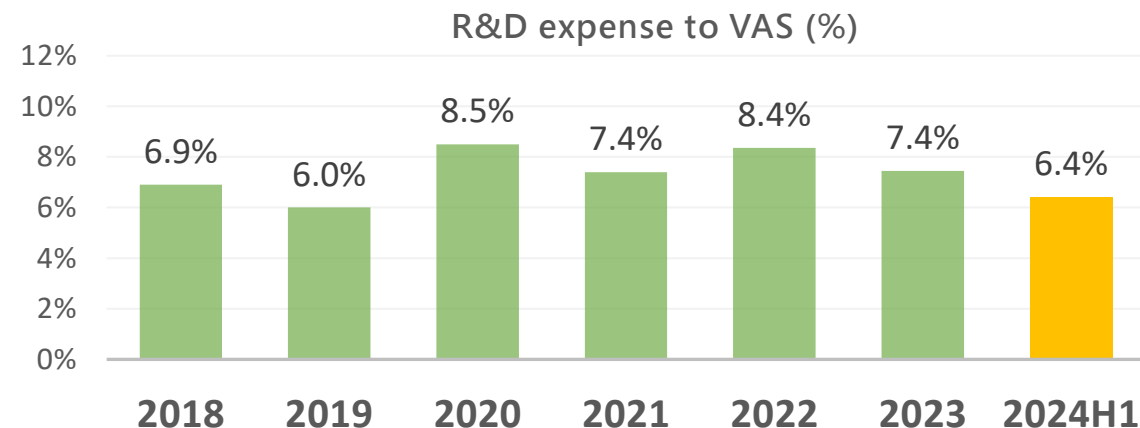
- Enhancing R&D Strengths
- Expanding new applications for materials

Digital Transformation : Project ONE

- Establish a “visible manufacturing scene” ERP system; strengthen smart manufacturing, moving towards “**manufacturing excellence**”
- Enhance operational efficiency and reduce costs; in 2024H1, the OPEX to VAS decreased by 3.7 percentage points compared to 2023 H1.

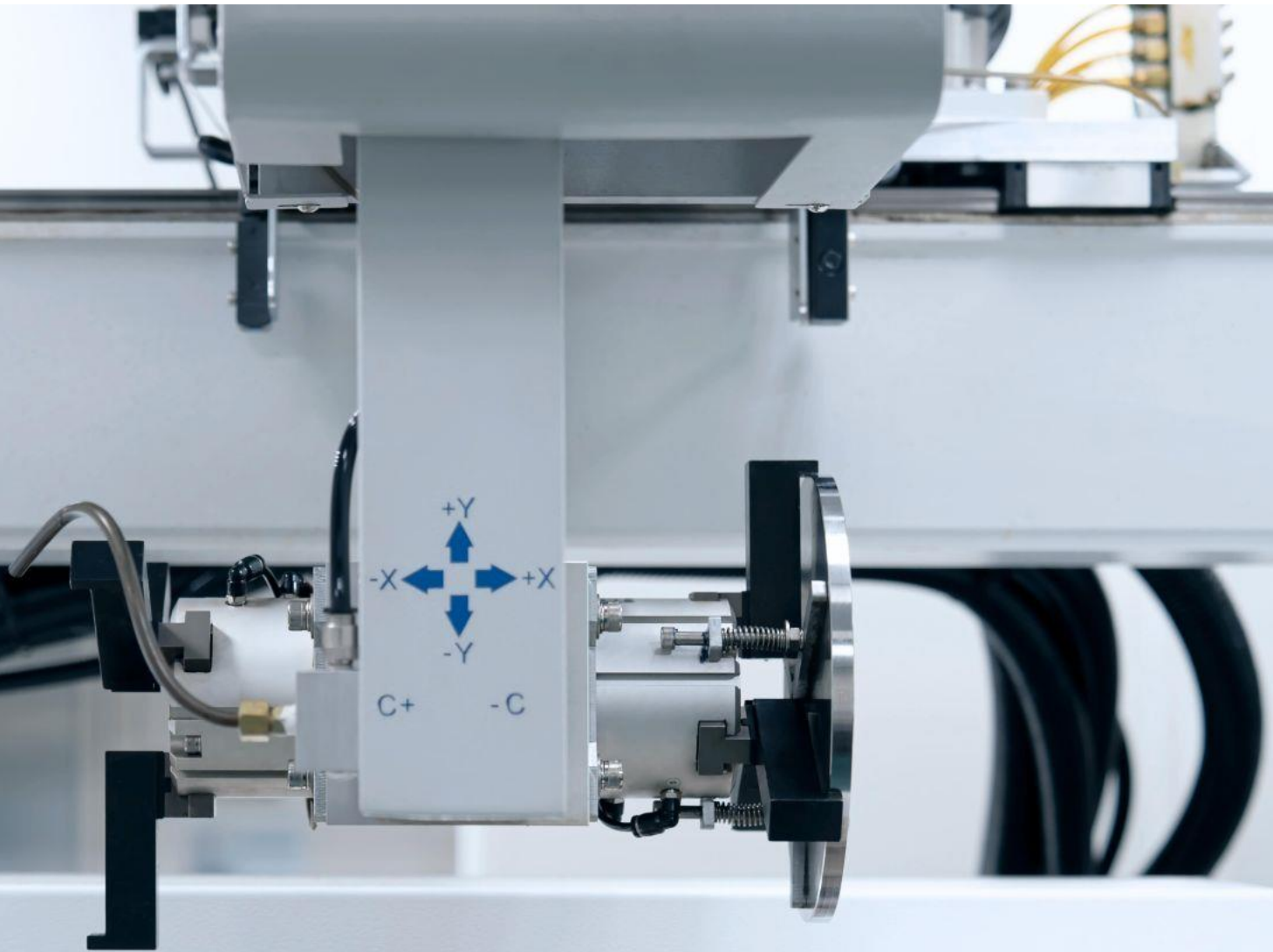
Optimize our Portfolio : Invest in ongoing R&D to achieve 'technology leadership'.

- R&D volume: ~200 units/year



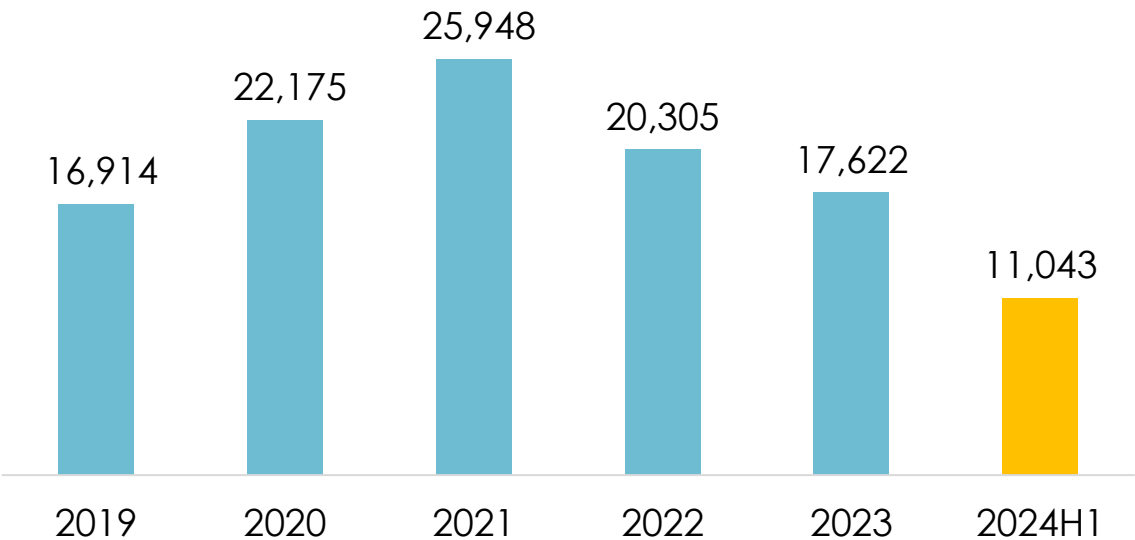
PART 3

Measurement



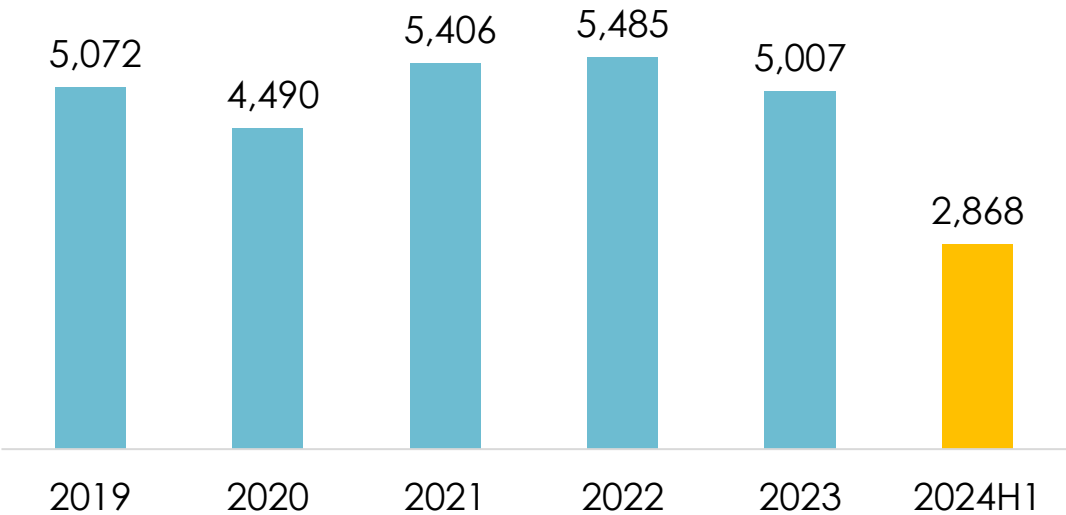
Our revenue model and trends

Precious Metals Sales (NT\$m)



Precious metals are sold mainly as part of raw materials in products. In addition to the growth of business volume, revenue is also subject to changes in precious metal price trends (depending on if the materials are on consigned basis or not).

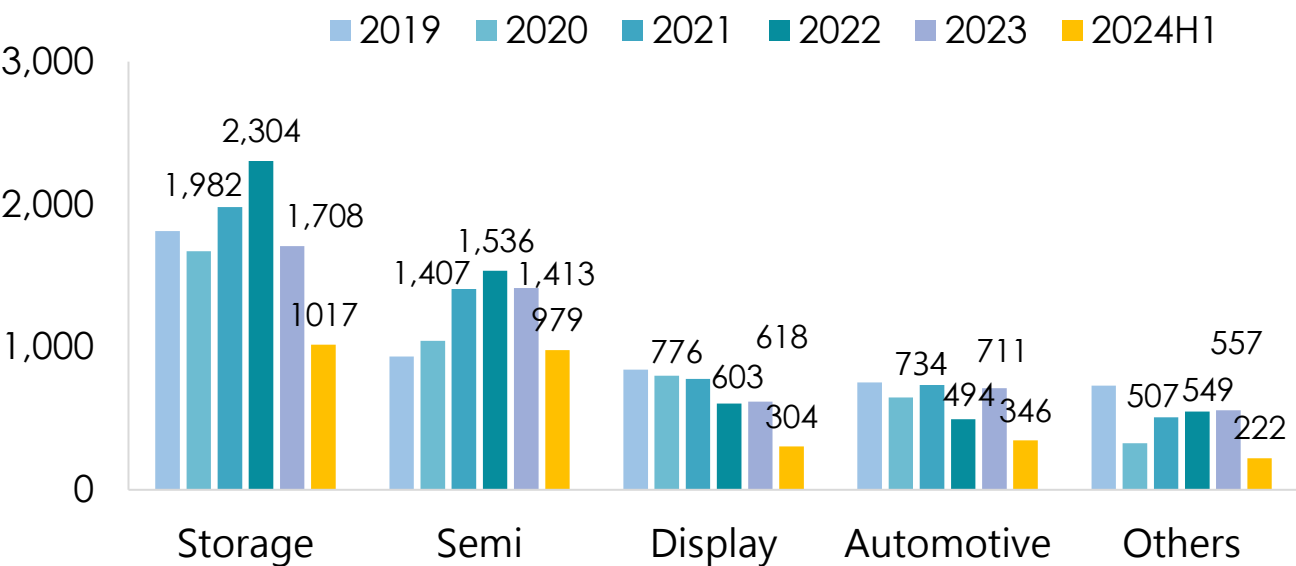
Value Added Sales (NT\$m)



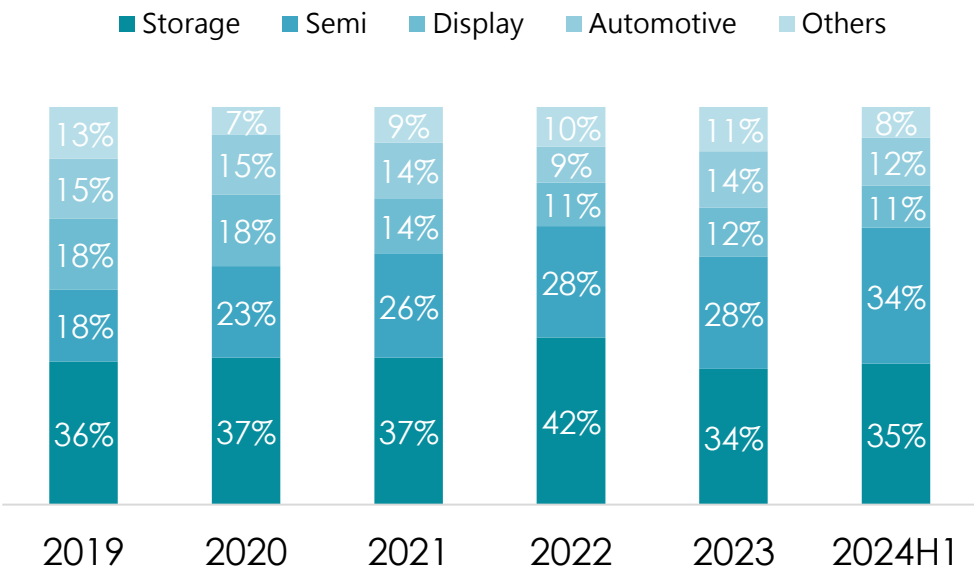
Value-added sales (VAS) reflect the true value of the products that we deliver to our customers, regardless of the precious metal prices.

Value Added Sales Break Down By Industry

Value Added Sales – By Industry (NT\$m)



Value Added Sales Breakdown – By Industry



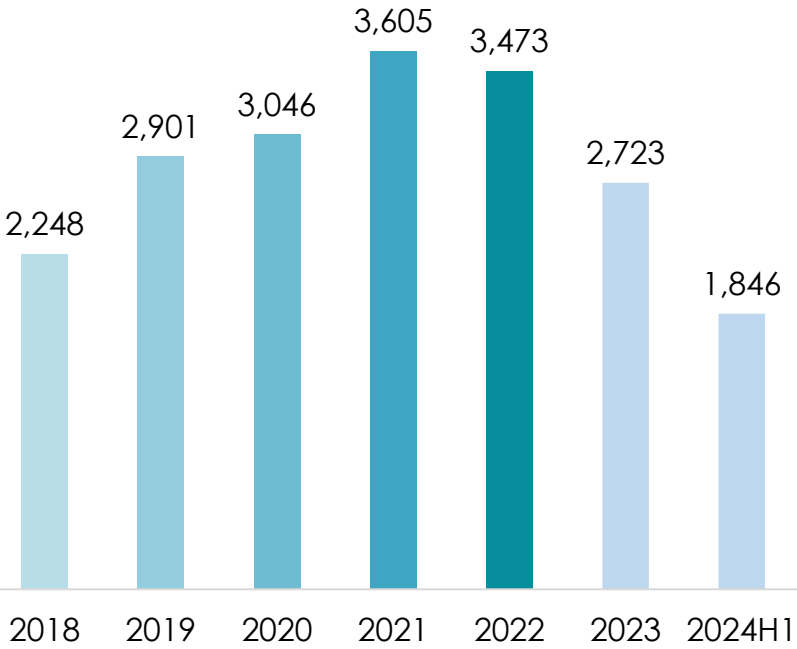
Value added sales : Our business model includes a significant amount of pass-through precious metal revenue that mask the true profitability. Value added sales shows the revenue without pass-through precious metal revenue can better present the company's actual business status to avoid being masked by precious metal transaction.

By Industry : In 2024 H1, due to conservative demand from Semi clients, the VAS% increase to 34%.

Strong profitability

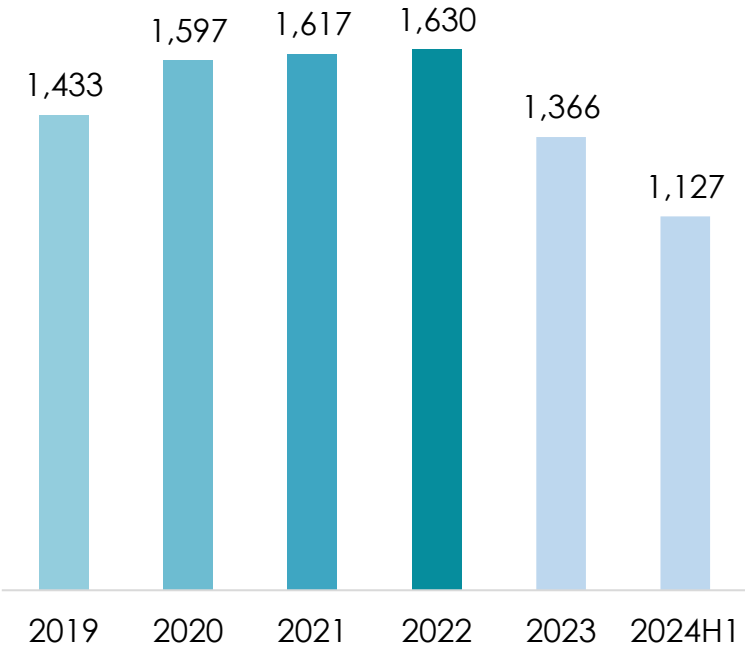
Gross Profit (NT\$mn)

2018-2023 CAGR: 11%

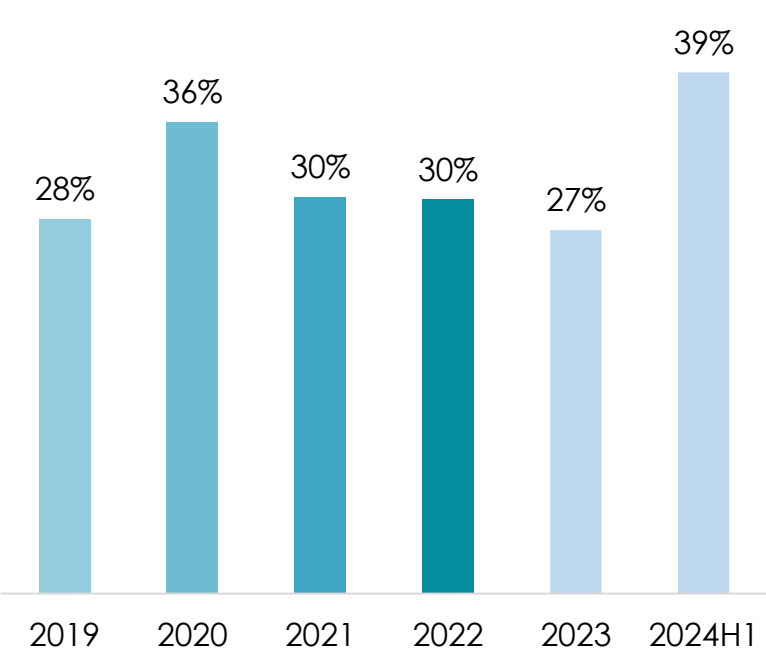


Operating Profit (NT\$mn)

2018-2023 CAGR: 22%



SolarTech's operating profit
as % of value added sales
(%)



2024 H1 Income Statement

NT\$m	1H2024	1H2023	YoY (%)
Revenue	13,912	10,596	31.3
<i>VAS Sales</i>	2,868	2,596	10.5
Gross Profit	1,847	1,221	51.3
Operating expense	720	747	-3.6
Operating Profit	1,127	474	137.8
Non Operating Income/(Loss)	-125	231	-45.9
Pretax Income	1,002	705	42.1
Tax Expenses	204	107	90.7
Net Income to Parent	798	616	29.5
Basic EPS (NT\$)	1.34	1.04	28.8

Key Financial Ratios			
Gross Margin	13.3	11.5	1.8ppts
<i>VAS implied gross margin</i>	64.4	47.0	17.4ppts
Operating Expense Ratio	5.2	7.1	-1.9 ppts
Operating Margin	8.1	4.5	3.6ppts
<i>VAS implied operating margin</i>	39.3	18.3	21.0ppts
Effect Tax Rate	20.4	15.2	5.2ppts
Net Margin	5.7	5.6	0.1 ppts

1H24 Balance Sheet

NT\$m	1H24		4Q23	
	金額	%	金額	%
Total Assets	29,260	100%	26,460	100%
Cash	1,832	6%	2,362	9%
AR & NR	2,375	8%	1,852	7%
Inventories	13,257	45%	11,567	43%
Fixed Assets	7,763	27%	7,733	29%
Total Liabilities	16,101	55%	13,501	51%
AP & NP	1,836	6%	1,084	4%
Total Equity	13,159	45%	12,959	49%

Key Financial Ratios		
A/R Days	28	29
Inventory Days	190	214
A/P Days	21	19
Cash Conversion Days	197	224
Debt ratio (%)	55	51

2024 H1 Cash Flow

NT\$mn	2024H1	2023H1
Beginning Balance	2,362	2,207
Operating Cash Flow	(450)	378
Capital Expenditures	(196)	(401)
Investments and Others	(967)	(126)
Financing Cash Flow	1,006	396
Ending Balance	1,832	2,378

Income Statement Summary (2019 ~ 2024 H1)

NT\$m	2019	2020	2021	2022	2023	2024H1
Revenue	21,987	26,665	31,355	25,791	22,629	13,912
<i>VAS Sales</i>	5,072	4,490	5,406	5,485	5,007	2,868
Gross Profit	2,901	3,046	3,605	3,473	2,723	1,847
Operating expense	1,468	1,449	1,988	1,843	1,357	720
Operating Profit	1,433	1,597	1,617	1,630	1,366	1,127
Non Operating Income/(Loss)	-185	-452	-40	39	-77	-125
Pretax Income	1,248	1,145	1,577	1,670	1,289	1,002
Tax Expenses	186	261	268	241	222	204
Net Income to Parent	1,039	843	1,256	1,389	1,085	798
Basic EPS (NT\$)	\$2.35	\$1.69	\$2.15	\$2.35	\$1.83	\$1.34

Key Financial Ratios (%)						
Gross Margin	13.2	11.4	11.5	13.5	12.0	13.3
<i>VAS implied gross margin</i>	57.2	67.8	66.7	63.3	54.4	64.4
Operating Expense Ratio	6.7	5.4	6.3	7.1	6.0	5.2
Operating Margin	6.5	6.0	5.2	6.3	6.0	8.1
<i>VAS implied operating margin</i>	28.2	35.6	29.9	29.7	27.3	39.3
Effect Tax Rate	14.9	22.8	17.0	14.4	17.2	20.4
Net Margin	4.7	3.2	4.0	5.4	4.8	5.7

YoY Growth (%)						
Revenue	5.3	21.3	17.6	-17.7	-12.3	31.3
Gross Profit	29.0	5.0	18.4	-3.7	-21.6	51.2
Operating Profit	92.4	11.5	1.3	0.8	-16.2	137.8
Net Income to Parent	167.1	-18.8	48.9	10.6	-21.9	29.5
Basic EPS	139.8	-28.1	27.2	9.3	-22.1	28.8

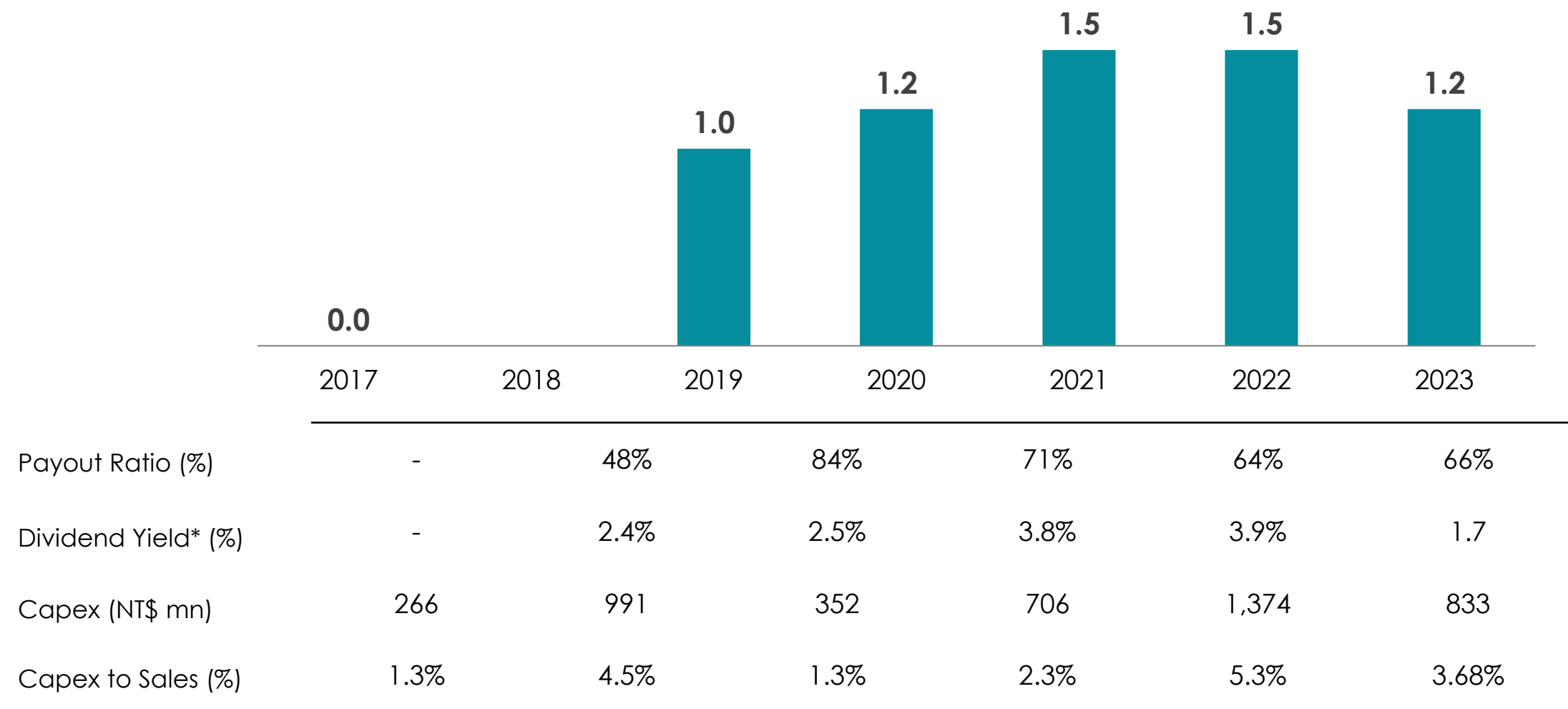
Balance Sheet Summary (2019~2024H1)

NT\$m	2019	2020	2021	2022	2023	2024H1
Total Assets	21,274	21,259	25,422	26,570	26,460	29,260
Cash	590	2,161	3,149	2,207	2,362	1,832
AR & NR	1,594	1,820	2,099	1,729	1,852	2,375
Inventories	7,407	7,893	9,474	11,434	11,567	13,257
Fixed Assets	7,031	6,877	7,321	8,308	7,840	7,763
Total Liabilities	13,275	12,752	12,984	13,366	13,501	16,101
AP & NP	352	230	623	1,084	943	1,836
Total Equity	7,999	8,506	12,438	13,203	12,959	13,159

YoY Growth (%)						
Total Assets	7.3	-0.1	19.6	4.5	-0.4	12.7
Cash	-25.8	266.6	45.7	-29.9	7.1	-23.0
AR & NR	8.8	14.1	15.4	-17.6	7.1	28.2
Inventories	6.9	6.6	20.0	20.7	1.2	23.0
Fixed Assets	10.1	-2.2	6.4	13.5	-5.6	1.1
Total Liabilities	-9.5	-3.9	1.8	2.9	1.0	19.2
AP & NP	23.5	-34.6	171.1	73.9	-13.0	129.8
Total Equity	54.7	6.3	46.2	6.2	-1.9	5.6

Key Financial Ratios						
A/R Days	25.4	23.4	22.8	27.1	28.9	28.0
Inventory Days	137.1	118.2	114.2	171.0	210.9	190.0
A/P Days	6.1	4.5	5.6	14.0	18.6	21.0
Cash Conversion Days	156.4	137.1	131.4	184.1	221.2	197.0
ROE (%)	16.2	10.5	12.4	11.2	8.4	12.2
ROA (%)	6.4	4.9	6.2	6.2	5.2	6.6
Debt ratio (%)	62.4	60.0	51.1	50.3	51.0	55.0

Dividend Payout and Capex (2018 ~ 2023)



*註: 現金股利殖利率以光洋科除息前一天的市值計算



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