

HD Renewable Energy Capital Markets Update

December 2025

HDRE delivers growth in 2025 despite market challenges



Taiwan

- Revenue performance affected by local permitting schedules. Consolidated revenue reached **NT\$7.14 bn in November**
- Established the new asset platform with strategic partners, with a planned investment of approximately 100MW in energy storage projects
- Solar portfolio: 143MW pending operation, 39MW commenced construction
- Storage portfolio: 201MW pending operation, 100MW commenced construction
- Mitsubishi Electric joined as a strategic investor, becoming one of HD Renewable Energy's top shareholders



Japan

- HDRE successfully won the second-round tender of Japan's Long-Term Decarbonization Auction (LTDA), adding 300 MW of new battery storage
- In Japan, HDRE is leading the development of a 20 MW extra-high-voltage storage project in partnership with Tokyu Land Corporation, backed by a 40% subsidy from the Tokyo Metropolitan Government
- HDRE has secured projects from investment grade institutions with signed MOUs, with capacity revenue mechanisms in place
- Helios is arranging JPY 6+ bn project finance with a leading international bank, expected to close in Q1 2026, underpinned by a 100% merchant BESS project, first of its kind in Japan. The project finance will be securitized as green bond and distributed to Japanese investors
- A total of 10 small-scale distributed projects amounting to 20 MW are planned for sale



Australia

- The Templers BESS project in South Australia, with total capacity of 111 MW/330MWh has commissioned on December 5th, supplying electricity to the South Australian Government under a long-term power purchase arrangement (AGERA), providing stable and highly predictable long-term revenue
- Solar River, the integrated solar-storage project in South Australia comprising of 256MW BESS/ 232MW PV, has obtained development & grid connection approvals and has recently received EPBC approval from the Commonwealth
- Across the ZEBRE platform, development permits are substantially submitted with a total capacity of 785 MW. All projects are expected to participate in the eighth round of the Commonwealth's Capacity Investment Scheme (CIS), strategically targeting federal policy support and tender-based revenue opportunities



Star Trade

- HDRE's subsidiary Star Trade is completed with the strategic merger of Star Power and Star Energy Storage Solutions, adopting the new "Power Bank" business model
- Launched an integrated power-trading platform combining price forecasting, AI-driven automated bidding, and resource aggregation, now expanding into Japan and Australia
- Signed green PPAs with Lightsource bp and Motech Industries, bringing corporate partnerships to 650 MW+ and contracted renewable supply to 20+ bn kWh
- Japan - Project Helios with 50MW storage capacity has reached COD and commenced trading in Nov 2025
- Expanding post-ETF5050 power-sharing solutions, leveraging virtual power plants (VPPs) and power trading to help enterprises convert electricity expenses into energy assets



Taiwan

- Solar EPC
 - **210MW to commence construction**
 - **300MW to be acquired**
- BESS EPC
 - ~401 MW of projects to be pending for commercial operation (Taichung/Tainan/Pingtung, expecting to reach commercial operation in 2026)
 - **~100 MW of projects to commence construction**
- Asset platforms including Star Power Energy, Aquastar Energy, Star Energy Storage, Fubon Energy, and others are expected to expand acquisition capacity, with asset value under management increasing to NT\$75bn



Japan

- EPC
 - 119MW to reach commercial operation
 - **231MW to commence construction**
- Targeting the cumulative sale of 20 projects, representing an aggregate capacity of 40 MW
- Planning to participate in the third round of the Long-Term Decarbonization Agreement (LTDA) auction
- Enter long-term tolling agreements with investment-grade counterparties, providing participating projects with stable, contracted revenue streams
- Executing pipeline cooperation agreements with strategic partners and implementing peak-period power exchange and price-spread optimization mechanisms
- Expected partnership with a leading Japanese firm to establish a fund focused on low-risk energy storage projects in Japan, target fund size of ~JPY 20 bn



Australia

- EPC
 - 121MW to reach commercial operation
 - **256MW to commence construction**
- Templers to provide long-term, stable cash flows under a 20-year tolling agreement
- Solar River to secure dual revenue protection, including the CIS and a long-term tolling agreement; construction expecting to commence by 2026H2
- Expansion of ZEBRE platform complemented with IG tolling arrangements across Australia in NSW \ VIC \ QLD, expected to commence construction from 2027
- Coleambally 2 (10 MW) hybrid project expected to achieve COD in March; Hay 2 (10 MW) hybrid project expected to reach COD in 2027Q1
- Targeting opportunities under the Long Duration Energy Storage (LDES) subsidy programs



Star Trade

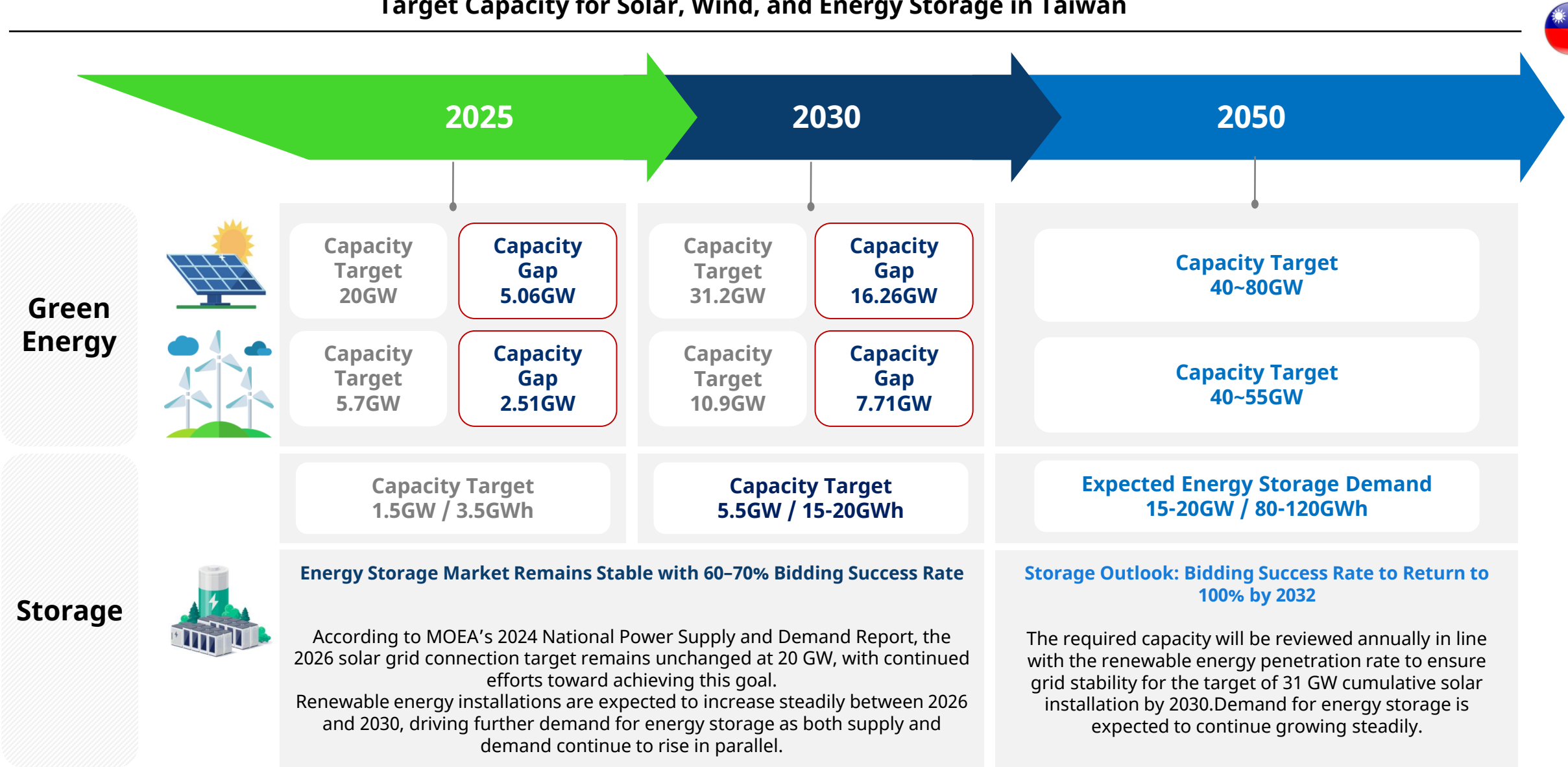
- Targeting listing on the Emerging Stock Market (TPEX) in 2026
- Power trading operations:
 - TW: Trading capacity expected to reach 260 MW
 - JP: Trading capacity expected to approach 100 MW
 - AU: Expected execution of a 10 MW solar-plus-storage project participating in market trading
- Total reserve capacity is expected to exceed 150 MW
- Cumulative green power wheeling volume expected to exceed 6 bn kWh

Taiwan Strategy

Smarter Energy, Accessible Green.

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Target Capacity for Solar, Wind, and Energy Storage in Taiwan



Source: Energy Administration, Ministry of Economic Affairs (MOEA), 2024 National Power Supply and Demand Report.



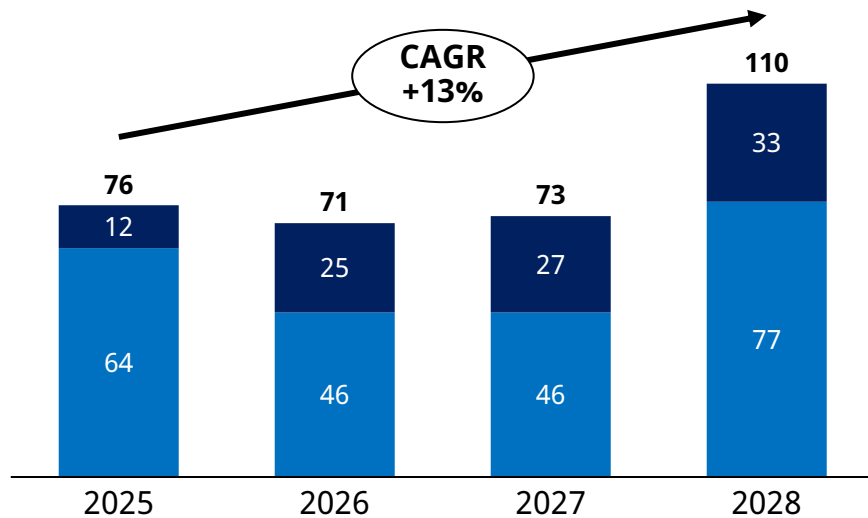
Rising Nighttime Peak Load

- Evening used to be the peak load period (lighting, office cooling);
- With AI data centres and fabs operating around the clock, new technology demand keeps loads high through the night

AI & Semiconductor Electricity Growth (2025–2028)⁽¹⁾

Key: ■ AI ■ Semiconductors

- AI (including Internet Data CentERs): Based on industry electricity consumption plans, adjusted with projected domestic sales of AI servers
- Semiconductors: Estimated according to industry electricity consumption plans, referencing historical performance (approximately 86% of approved capacity)



Note: (1) Forecast by the Ministry of Economic Affairs (MOEA).



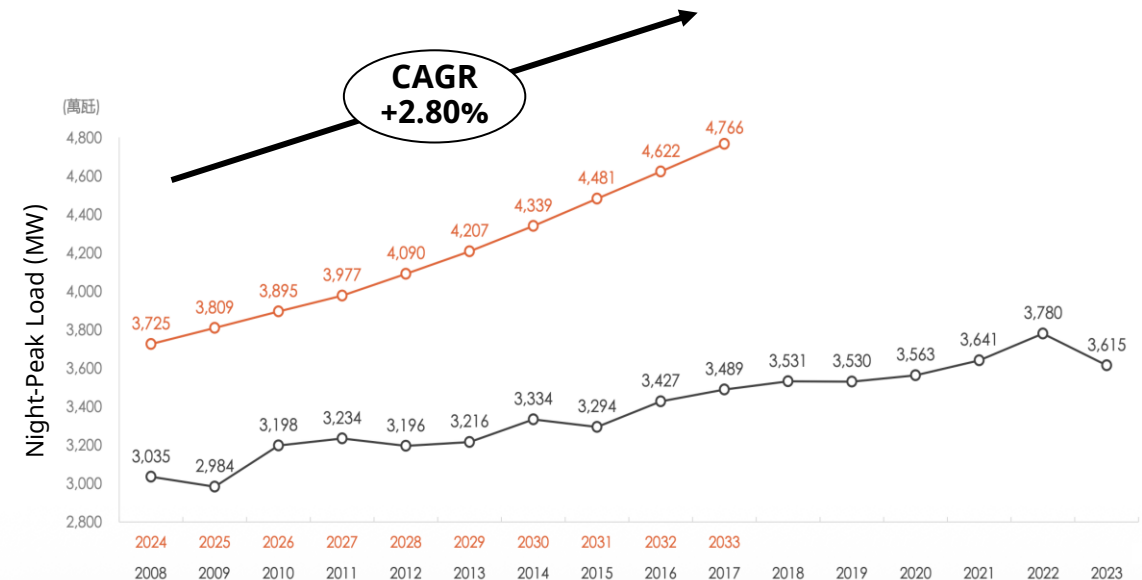
Electricity Demand Growth Doubles



- Night-Peak Load: Average annual growth of 2.80% (1.15 GW) projected for 2024–2033
- Total Power Consumption: Average annual growth of 2.79% (8.8 bn kWh) projected for 2024–2033

2008–2033 Night-Peak Load in Taiwan for 2008–2023

Key: — Projected Night-Peak Load for 2024–2033 — Actual Night-Peak Load for 2008–2023



Solar and wind deployment momentum to slow in 2025 with energy storage growth moderating accordingly

Renewable Deployment Targets Extended

- Taiwan’s annual solar and wind deployment target has been set at 2 GW, reaching its deployment peak in 2023.
- Solar capacity increased by just 738 MW and wind by 210MW during Jan–Aug 2025, pointing to the slowest year of renewable expansion.
- MOEA set a 20% renewables target for 2025 but revised it in May, extending the timeline to November 2026.

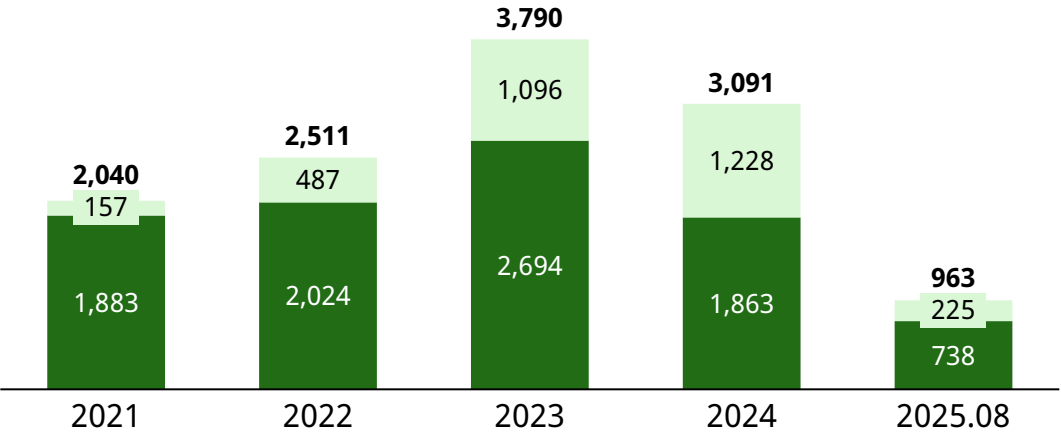
Steady Long-Term Energy Storage Demand



- In the short term (through 2025), energy storage demand is deferred due to slower solar and wind deployment.
- Over the long term, storage demand will continue to expand as renewable penetration increases.
- Driven by AI and data centre growth, energy storage is becoming the backbone for grid reliability and renewable integration.

Grid-Connected Solar and Wind Capacity (2021–Aug 2025)

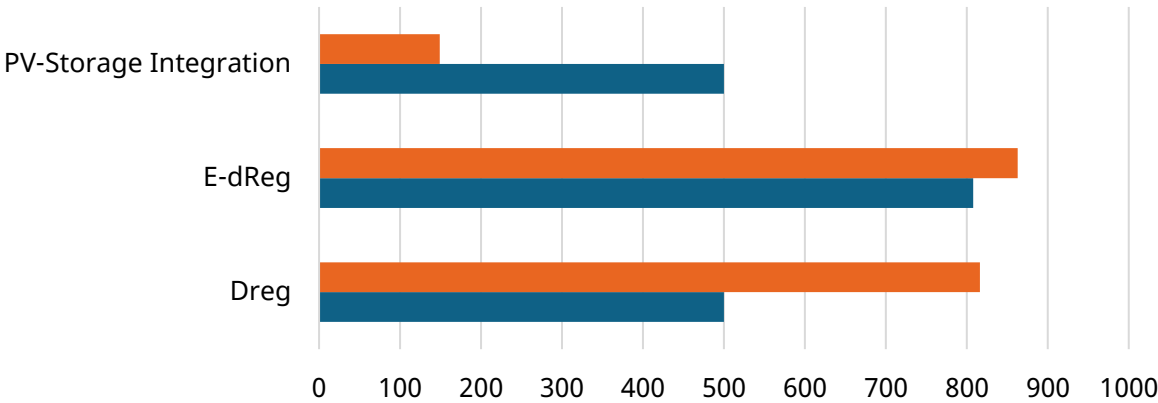
Key: Solar Capacity (MW) Wind Capacity (MW)



Source: Ministry of Economic Affairs (MOEA) forecast.

2025 Grid-Connected Energy Storage Market Supply and Demand

Key: Supply Capacity (MW) Demand Capacity (MW)



Taiwan Market Overview



Renewable targets steady; aquaculture-solar and rooftop PV drive growth

By 2030, Taiwan faces a 16.26 GW gap to its renewable targets. Large-scale land rezoning and Agri-PV development remain restricted, leaving growth driven mainly by aquaculture-solar and rooftop PV. Over the long term, utility-scale storage is expected to gain momentum



Regulatory Adjustments and External Factors Causing Project Delays

- Shifts in permitting processes have left legacy projects in limbo
- Retroactive changes to solar PV rules have eroded market certainty
- Updated storage-equipment standards have increased project capex
- Environmental-review disputes have sidelined established approval pathways
- Projects in designated zones need a clearer allocation of authority and coordination between central and local government
- Review criteria remain misaligned between central and local authorities
- Taipower’s feeder capacity and overall grid resilience require continued upgrades



Limited Market Participation and Flexibility for Energy Storage Assets

Taiwan’s power market shows limited flexibility and transparency for storage participation, and trading mechanisms remain less developed than in Japan and Australia



Market Dynamics Drive a Wave of Collaboration and Consolidation in Taiwan

2024 and 2025, over 1 GW of projects are pursuing strategic partnerships or restructuring to adapt to evolving market conditions

Our Core Strengths



1

Continue maintaining a greenfield project reserve to secure growth momentum in Taiwan, targeting over 300 MW of aquaculture-solar projects for grid connection and more than 400 MW to enter construction within three years

2

Clearer and more practical regulations in the long term will benefit capable developers with vertical integration and aquaculture management expertise, supporting sustainable operations

3

Taking the lead in establishing ICT and cross-border power service teams to learn from innovative business models abroad and prepare for the next stage of power-market liberalisation

4

Industry consolidation will benefit highly localised Taiwanese companies with integrated capabilities in design, engineering, O&M, asset management, and aquaculture management, enabling them to expand their operational scale

光電環評及禁建修法重點

《環評法》

1. 提升法律位階，《環評法》第五條直接訂出何種光電應環評
2. 建於環境敏感區應環評光電，
新增國家風景區、地質遺跡、山崩地滑地質敏感區
3. 山坡地光電應環評條件，由 20MW 以上或 15 公頃以上，
加嚴至 10MW 以上或 5 公頃以上
4. 新增 10MW 以上或 5 公頃以上水面型光電應環評
5. 新增 40MW 以上或 40 公頃以上各項光電應環評
6. 排除屋頂型、其他開發附屬的光電、100 平方公尺以內光電

《發展觀光條例》 及《地質法》

1. 國家風景區禁設光電
2. 地質遺跡、山崩地滑地質敏感區禁設光電
3. 例外開放條件：
A 面積未達 1 公頃且通過環評
B 屋頂型或自用且面積未達 100 平方公尺

《國家公園法》

1. 民眾黨提案將國家公園也納入禁止範圍
2. 《國家公園法》現行規定不允許國家公園開發光電
3. 11 月 14 日院長協商時，各黨決定暫不修《國家公園法》

- ✓ Areas such as national parks, geologically sensitive zones prone to landslides, and hillside areas have long been designated as restricted from development, and are therefore not newly affected;
- ✓ Aquavoltaic projects (e.g. farm ponds and flood detention basins) have seen significant development over recent years; as a result, available project supply in the market has already become limited;
- ✓ The projects most likely to be materially impacted are those involving installed capacity exceeding 40 MW or land area exceeding 40 hectares;
- ✓ HDRE has accumulated extensive experience in large-scale land rezoning projects (Tainan / Hualien / Yunlin), self-initiated designated zone planning (Tainan), and major environmental and social impact review cases (Chiayi / Changhua). Over the long term, strengthened policy-driven EIAs are expected to reduce development disputes, alleviate friction between central and local governments, and enable earlier resolution of industry-environment trade-offs;
- ✓ Regulatory and policy changes are expected to accelerate industry consolidation. With its vertically integrated platform and strong local execution capabilities, HDRE is well positioned to acquire projects from the market and advance them through to commercial operation

HDRE Taiwan's Four Green Energy Asset Platforms

HDRE, along with life insurance partner companies and strategic partners, has established joint venture platforms with total managed assets projected to **exceed NT\$72 bn**. HDRE provides stable project sources and offers one-stop services from project development to operations management, controlling investment risks at each stage to ensure stable returns for shareholders.



Star Power Energy

- **Investment Project:** Ground-Mounted Photovoltaic Site
- **Established:** 2020
- **Installed Capacity:** 99.1 MW solar (operational) + 100 MW storage (under construction)
- **Total Investment:** approx. NT\$ 7.3 bn



Aquastar Energy

- **Investment Project:** Aquavoltaic Site
- **Established:** 2021
- **Installed Capacity:** 42 MW solar (grid-connected) + 174 MW (under construction)
- **Total Investment:** approx. NT\$ 14.5 bn



Star Energy Storage

- **Investment Project:** Front-of-the-Meter Energy Storage
- **Established:** 2023
- **Installed Capacity:** 101.5 MW storage (under construction)
- **Total Investment:** approx. NT\$ 6.2 bn



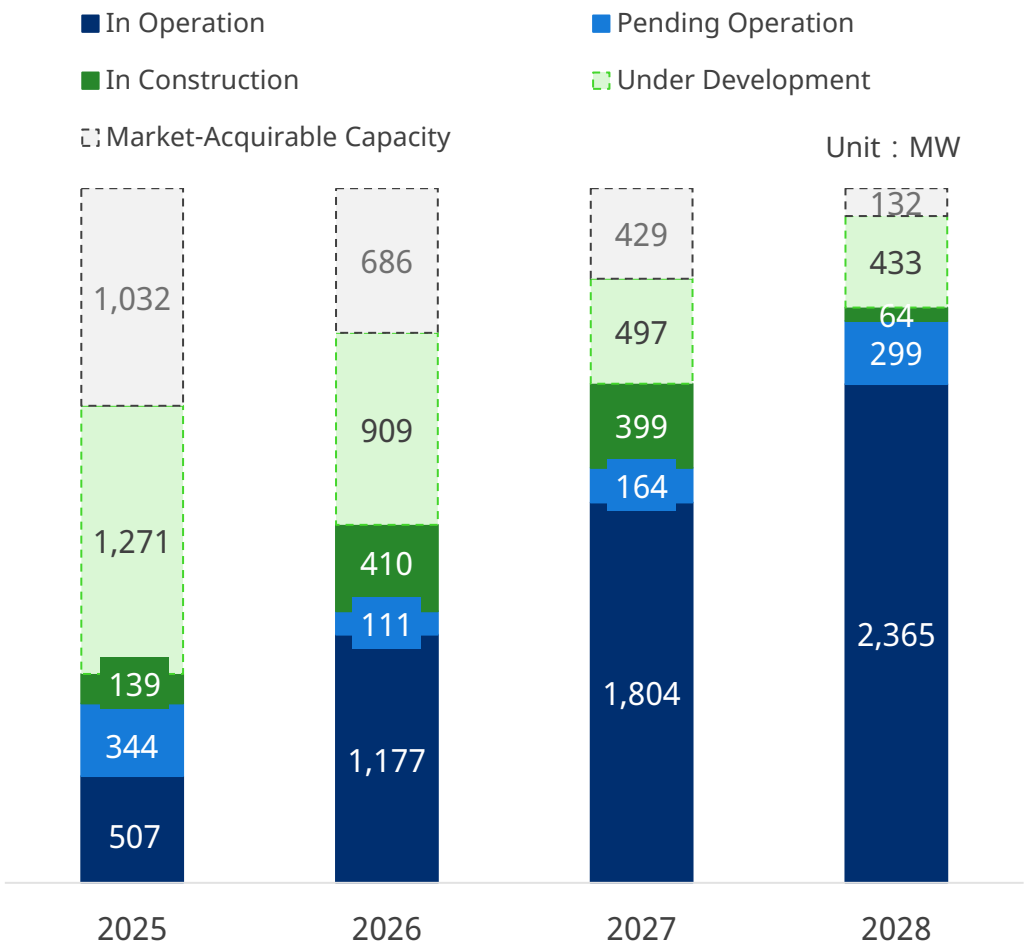
Fubon Energy

- **Investment Project:** Photovoltaic + Front-of-the-Meter Energy Storage
- **Established:** 2023
- **Installed Capacity:** 342 MW solar (under development) + 254 MW storage (60 MW operational; 194 MW under construction)
- **Total Investment:** approx. NT\$ 44 bn



Asset Pipeline in Taiwan

HDRE continues to advance storage and solar projects at an annual commissioning pace of 619 MW



Note: (1) Refers to annual compound growth rate of energy storage and solar construction capacity from 2025 to 2028.(2) Refers to average annual investment pace of projects under development, construction, or operation from 2025 to 2028.



BESS

Pipeline by 2028: **761MW**



PV

Pipeline by 2028: **2.53GW**

Construction Capacity
CAGR ⁽¹⁾

40.2%

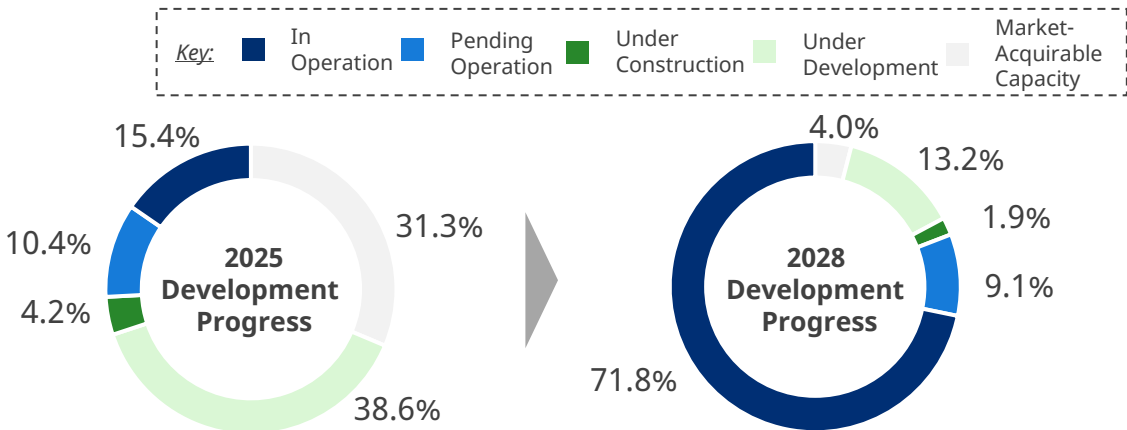
Avg. Annual Pace
of Investment ⁽²⁾

579MW/yr

Avg. Annual
Commissioning Rate

619MW/yr

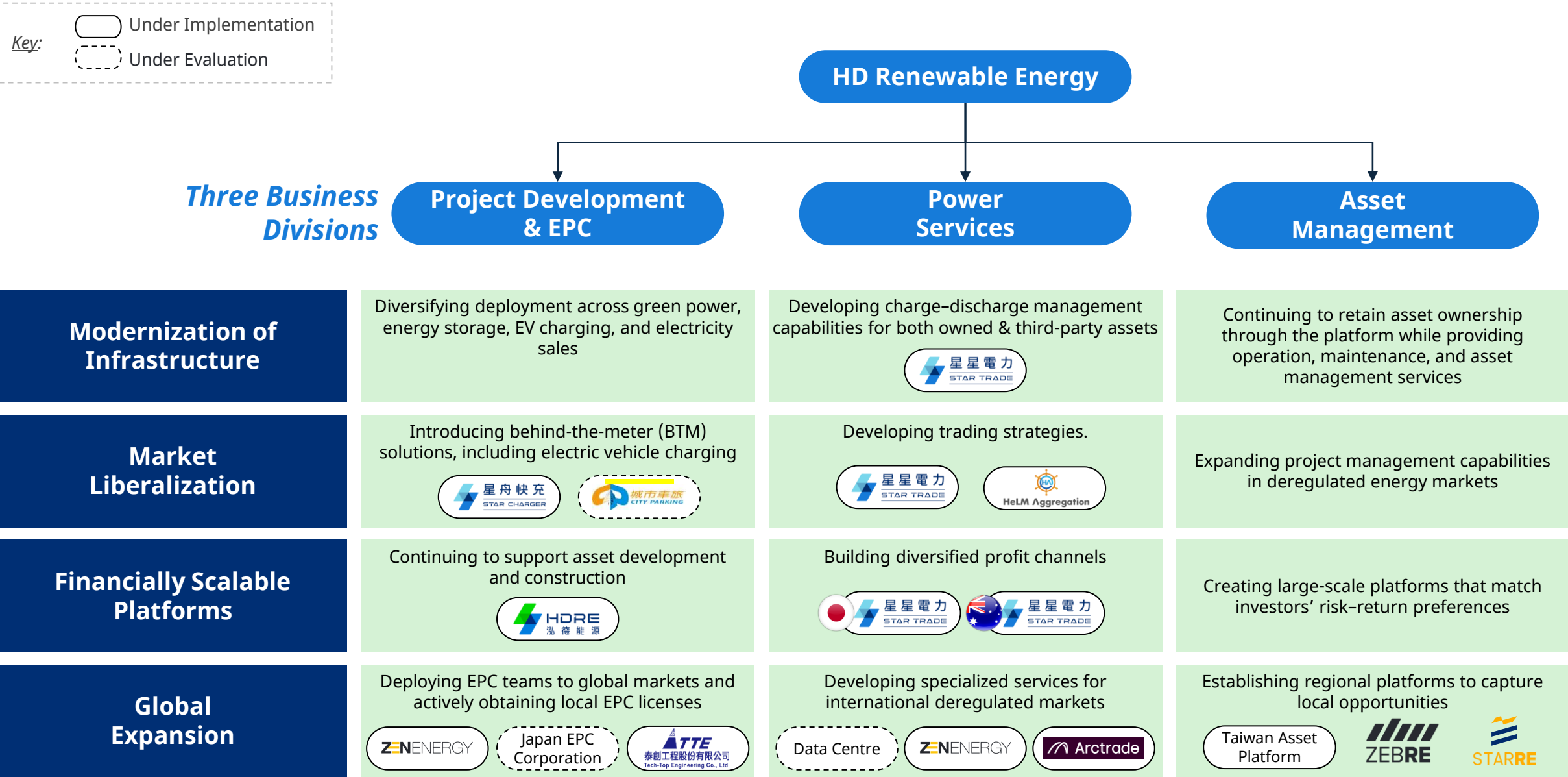
Taiwan Development Progress by Capacity est.



Global Strategy

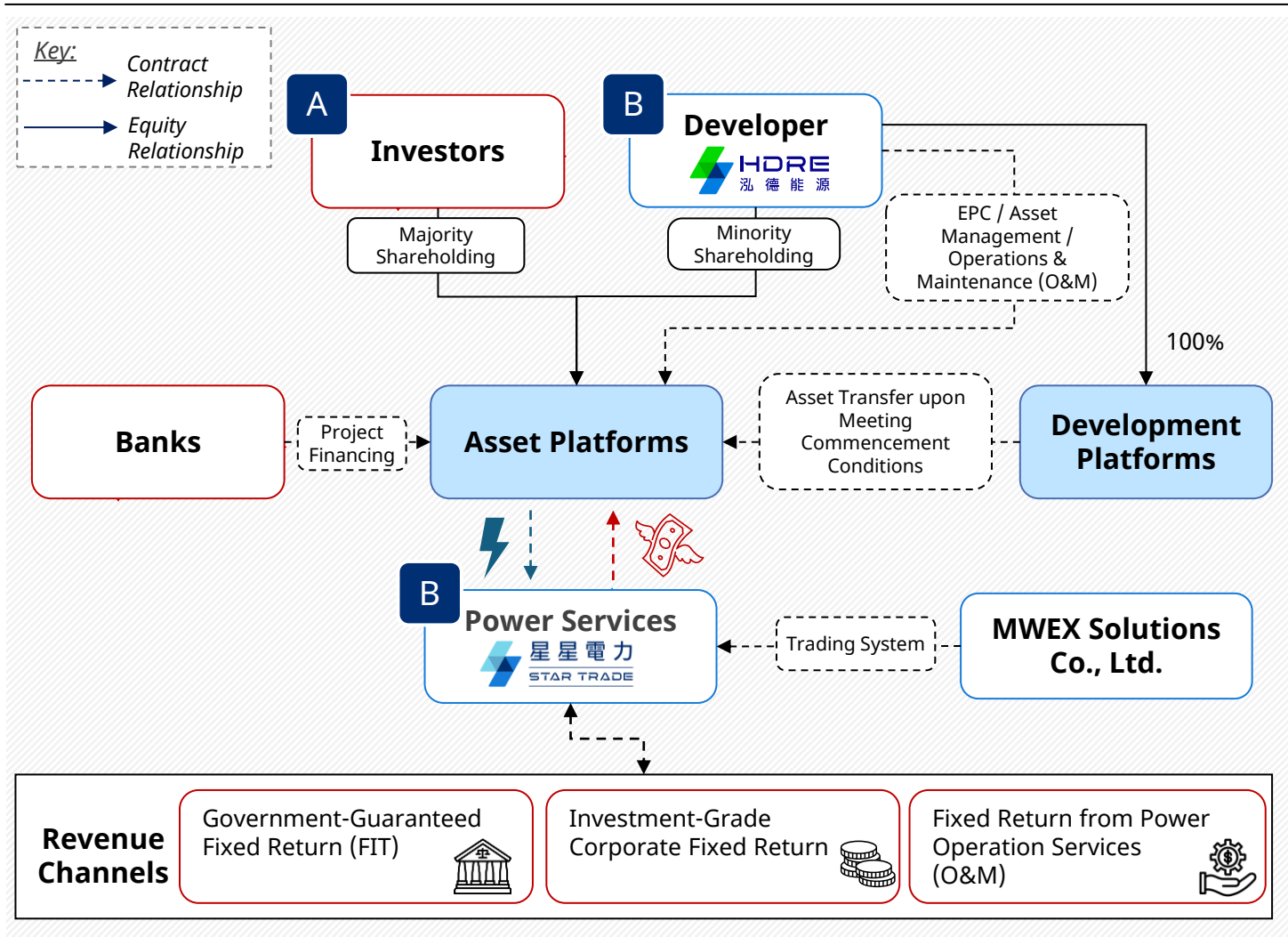
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Financially scalable platforms achieved through investor partnerships to boost capital efficiency

The asset platform connects institutional investors, developers, and banks to achieve efficient capital deployment. It enables long-term investors to participate in renewable projects while allowing HDRE to recycle capital and continue developing new assets



A From the Investor's Perspective

- The platform continuously offers qualified, de-risked renewable projects with stable and predictable cash flows;
- Investors gain access to long-term yield opportunities without having to manage assets directly;
- Standardised deal structures reduce project-sourcing costs, streamline due diligence, and simplify portfolio management

B From HDRE's Perspective




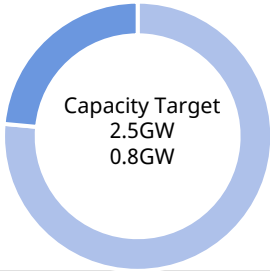
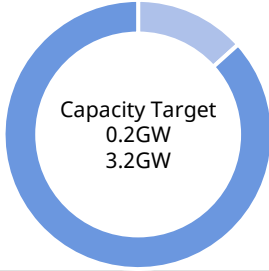
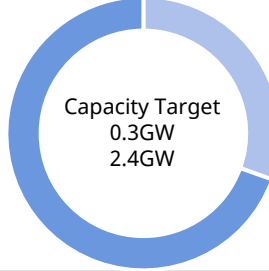



Developer

- The platform provides access to institutional capital that supports ongoing development and expansion;
- Standardised frameworks accelerate project execution and improve capital recycling efficiency;
- HD Renewable Energy focuses on sourcing, constructing, and transferring high-quality renewable assets, maximising asset turnover and long-term value creation

Energy Services

- Gains operational access to storage assets to serve corporate clients and grid operators;
- Leverages owned and managed assets for market trading and price optimization;
- Builds diversified revenue streams combining long-term contracts with market-based returns

Global expansion anchored in local expertise to drive operational synergies

Market	 Taiwan	 Japan	 Australia
Capacity Target	3.3GW	3.4GW	2.7GW
<div>Capacity Distribution</div> <div> <div></div> Solar Energy <div></div> Energy Storage </div>	 <p>Capacity Target 2.5GW 0.8GW</p>	 <p>Capacity Target 0.2GW 3.2GW</p>	 <p>Capacity Target 0.3GW 2.4GW</p>
Total Asset value under management by 2030 ⁽¹⁾	NTD 72 bn / USD 2.4 bn	NTD 130 bn / USD 4.4 bn	NTD 80 bn / USD 2.7 bn
Local Partners			
Net-Zero Targets	<ul style="list-style-type: none"> 30% renewable energy share in power generation by 2030 60–70% by 2050 	<ul style="list-style-type: none"> 38% renewables in generation mix by 2030 40–50% by 2040 	<ul style="list-style-type: none"> 82% renewables in the generation mix by 2030 Coal phase-out by 2038 15 Mt of green hydrogen per year by 2050
Government Incentives	<ul style="list-style-type: none"> FIT 	<ul style="list-style-type: none"> FIP/ FIT LTDA 	<ul style="list-style-type: none"> Renewable Energy Zone Capacity Investment Scheme FERM (Firm Energy Reliability Mechanism)
Regional Development Strategy	<ul style="list-style-type: none"> EPC development, O&M services, electricity sales, ancillary services, fishery-solar hybrid projects, and EV charging solutions. 	<ul style="list-style-type: none"> Project development and EPC, power retail (CPPA), and wholesale electricity trading. 	<ul style="list-style-type: none"> EPC and wholesale electricity trading (tolling/merchant model)

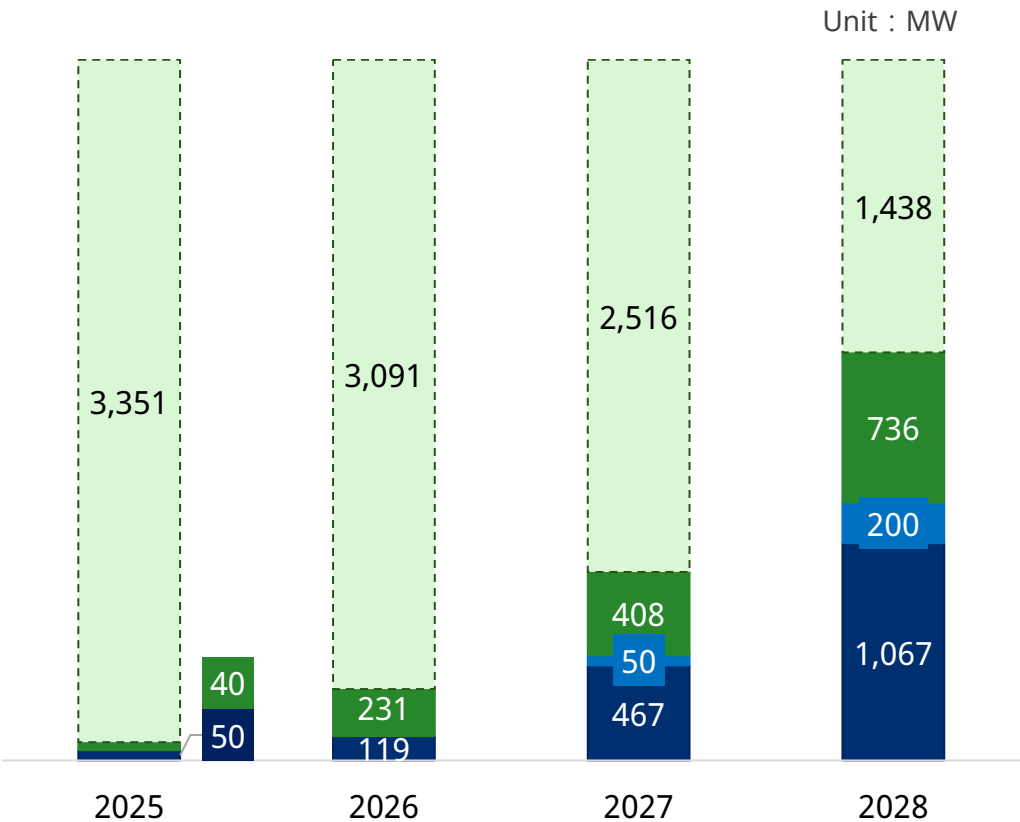
Note: (1) Exchange rate calculated at USD 1 = TWD 29.87; data as of 8 May 2025.



Asset Pipeline in Japan

Strong growth momentum expected in solar and storage projects, with 97.4% of pipeline capacity remaining under development as of 2025

■ In Operation ■ Pending Operation ■ In Construction ■ Under Development



Note: (1) Refers to annual compound growth rate of energy storage and solar construction capacity from 2025 to 2028.(2) Refers to average annual investment pace of projects under development, construction, or operation from 2025 to 2028.



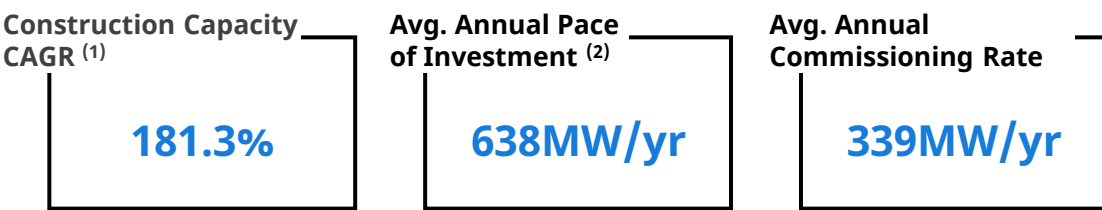
BESS

Pipeline by 2028: 3.26GW

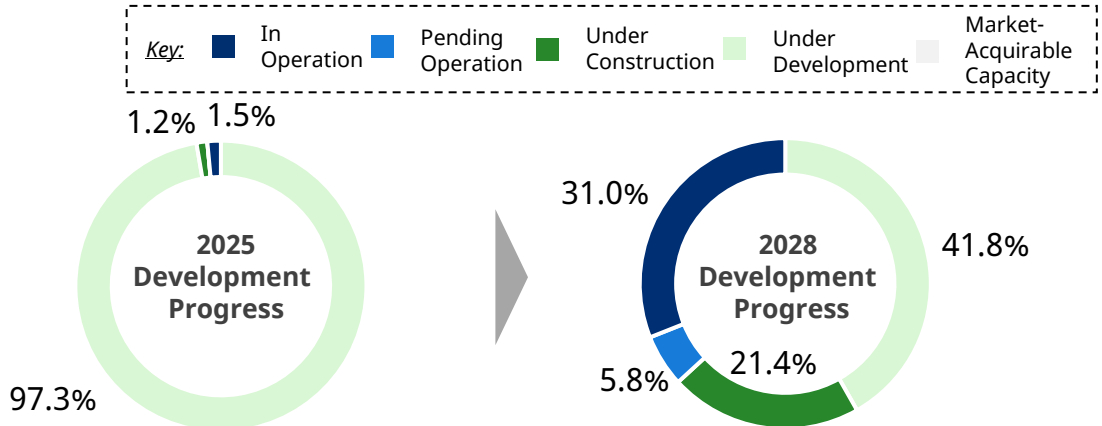


PV

Pipeline by 2028: 180MW



Japan Development Progress by Capacity est.

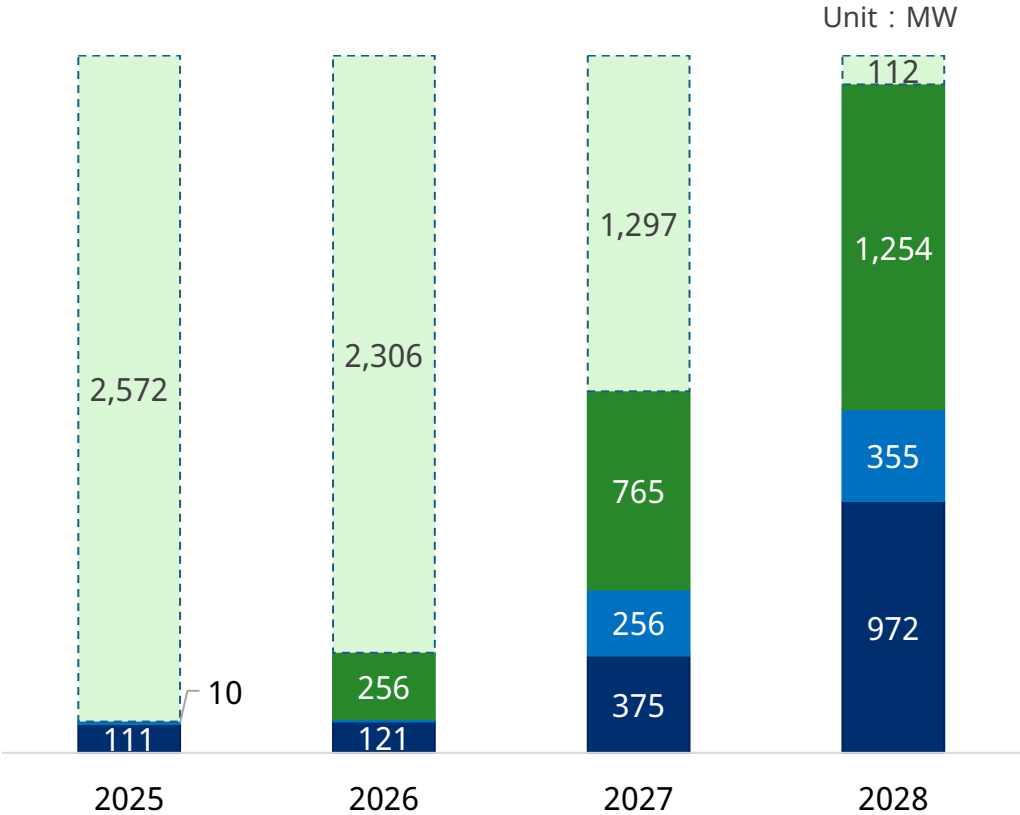




Asset Pipeline in Australia

Solar and energy storage projects are advancing steadily, with more assets moving into construction and operation. More than 2 GW is expected to be commissioned by 2028.

■ In Operation ■ Pending Operation ■ In Construction ■ Under Development



Note: (1) Refers to annual compound growth rate of energy storage and solar construction capacity from 2025 to 2028.(2) Refers to average annual investment pace of projects under development, construction, or operation from 2025 to 2028.



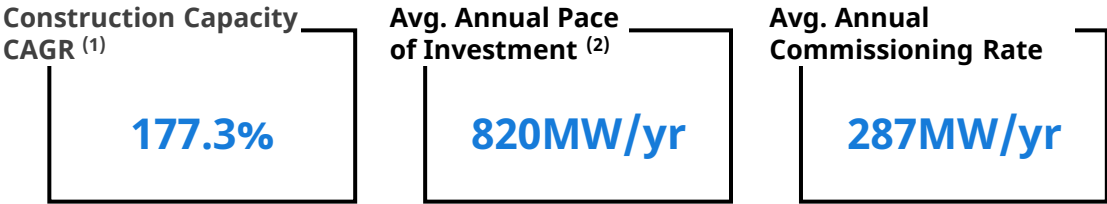
BESS

Pipeline by 2028: 2.38GW

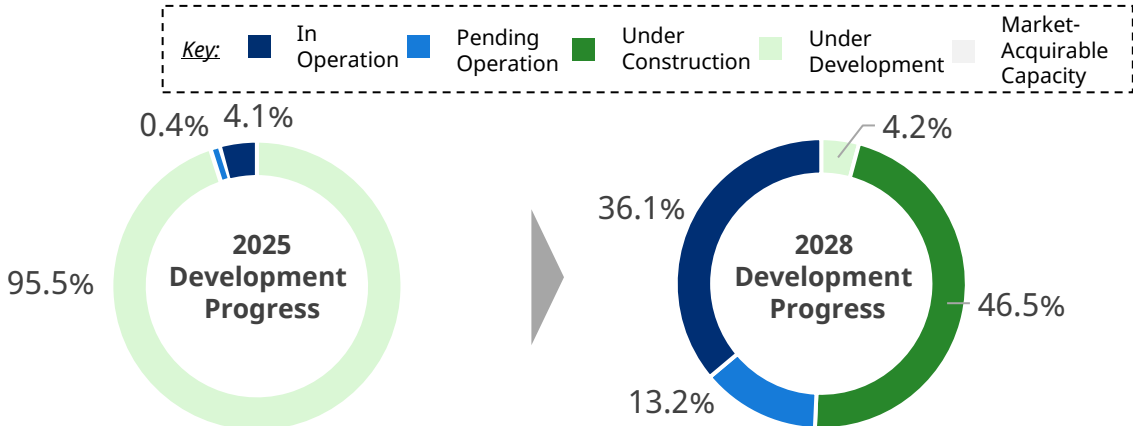


PV

Pipeline by 2028: 310MW



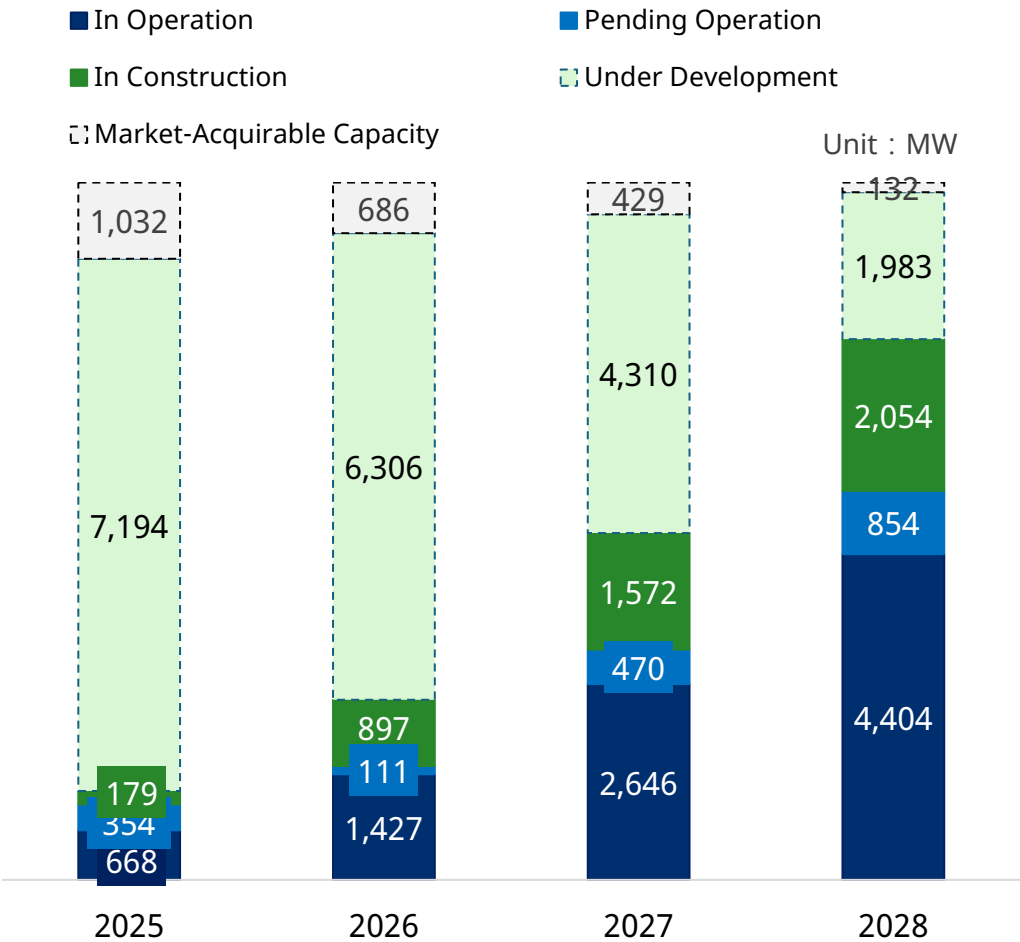
Australia Development Progress by Capacity est.





Global Asset Pipeline

HDRE will continue to expand its global energy storage and solar portfolio across key markets including TW/JP/AU, with average annual investment of 2GW per year.



Note: (1) Refers to annual compound growth rate of energy storage and solar construction capacity from 2025 to 2028.(2) Refers to average annual investment pace of projects under development, construction, or operation from 2025 to 2028.



BESS

Pipeline by 2028: **6.41GW**



PV

Pipeline by 2028: **3.02GW**

Construction Capacity CAGR ⁽¹⁾

82.6%

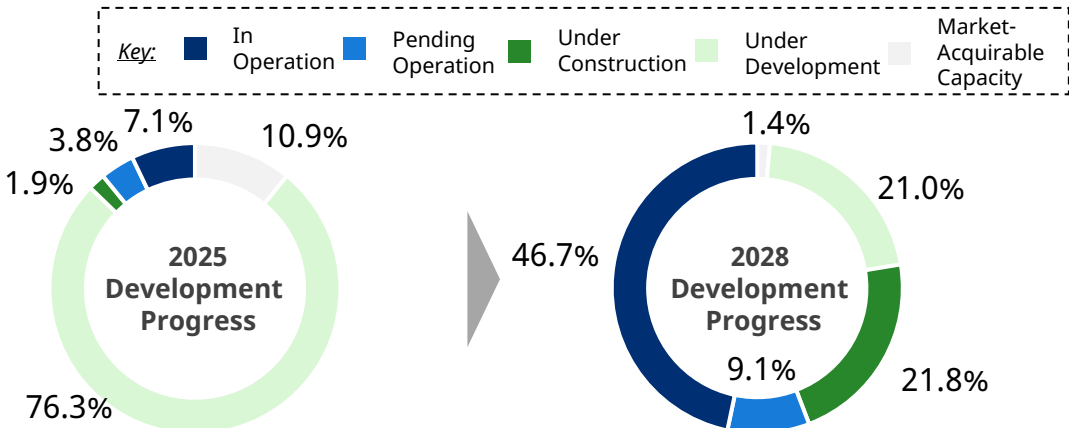
Avg. Annual Pace of Investment ⁽²⁾

2,073 MW/yr

Avg. Annual Commissioning Rate

1,245 MW/yr

Global Development Progress by Capacity est.





Tolling Agreement with Investment Grade Counterparty

- Signed a tolling agreement with an off-taker rated A+ by S&P, demonstrating strong credit and operational capability;
- The off-taker will participate in market trading and strategy formulation, securing a fixed 70% tolling return; for HDRE while sharing the remaining 30% revenue from market trading

Collaboration with Top Japanese Electric Utility Provider

- Partnering with one of Japan's top three electric utilities, expanding supply coverage to central regions and serving over 10 mn customers;
- The utilities act as main purchasers, supported by institutional clearing mechanisms and structured trading, securing a 30% guaranteed return;
- Super Peak products can be applied across multiple market strategies, enhancing asset flexibility and overall yield efficiency

LTDA



- The LTDA scheme ensures 20 years of government-backed fixed income, mitigating market and carbon price risks;
- Features stable indexed pricing and a 10% market premium, ensuring predictable cash flow and high credit quality;
- Supports Japan's transition to low-carbon generation, aligning with the government's accelerated decarbonization roadmap



Zen Energy PPA & Leasing Agreement



- ZEN signed a 20-year BESS leasing agreement for the Templers project, with an annual lease payment of AUD 27 mn (approx. NTD 540 mn);
- In FY2024, ZEN's total revenue reached AUD 326 mn (approx. NTD 7 bn), with a power supply portfolio of around 2 TWh;
- ZEN is South Australia's exclusive government electricity supplier and serves key state institutions

AGERA



- Under AGERA, South Australia's state government and related agencies (including hospitals, schools, and police) have committed to sourcing 100% renewable electricity by 2035;
- ZEN Energy holds the exclusive government supply contract and is currently negotiating an extension to secure long-term revenue visibility

Capacity Investment Scheme (CIS)



- The Australian Federal Government launched CIS to support large-scale renewable and storage investments.
- The scheme offers 10–15 years of guaranteed floor pricing for BESS projects, effectively reducing merchant exposure;
- If revenue falls below the floor price, the government covers 50% of the shortfall; if above the ceiling, 90% of the excess is repaid to the government — ensuring stable long-term returns

Financial Performance

Smarter Energy, Accessible Green.

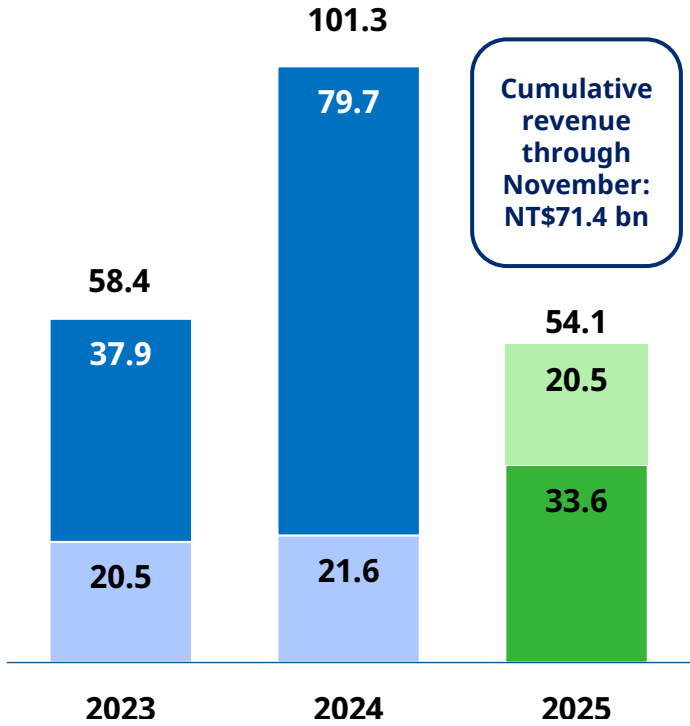
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2023-2025 HD Renewable Energy Financial Overview

Key: ■ First half-year (H1) ■ Second half-year (H2) ■ 2025 (H1) ■ 2025(Q3)

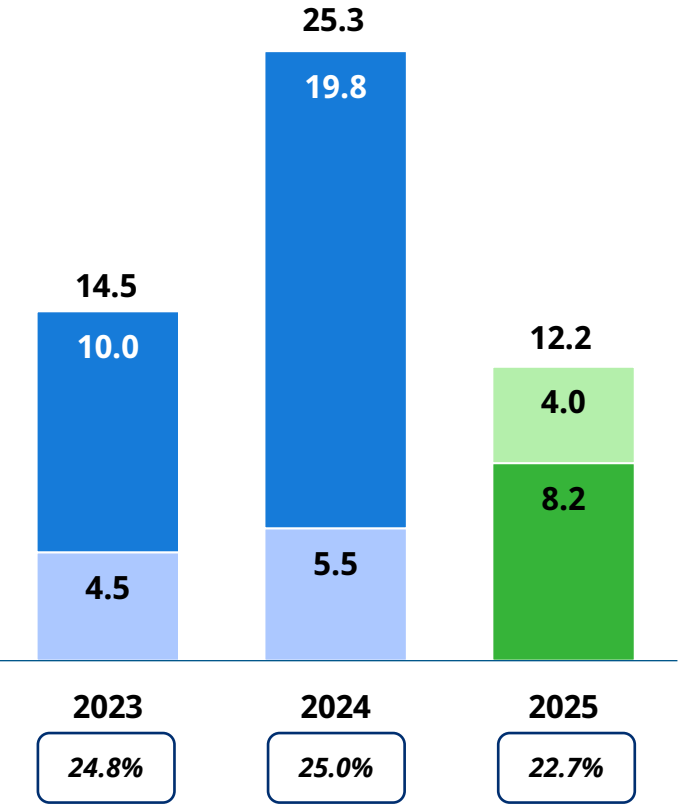
Operating Revenue

(NT\$ 100 mn)



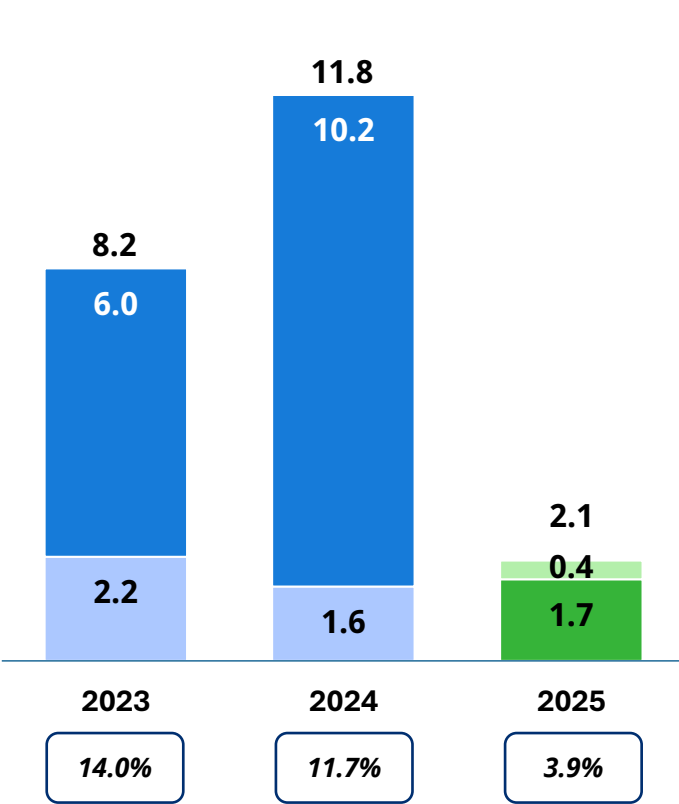
Gross Profit

(NT\$ 100 mn)



Net Income

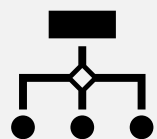
(NT\$ 100 mn)



2025

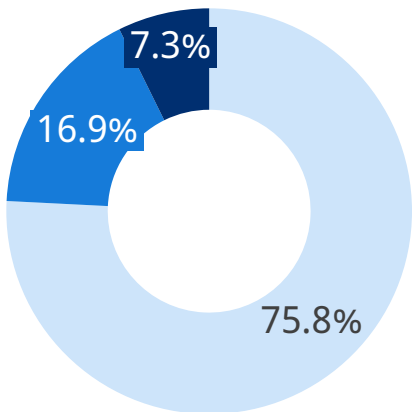
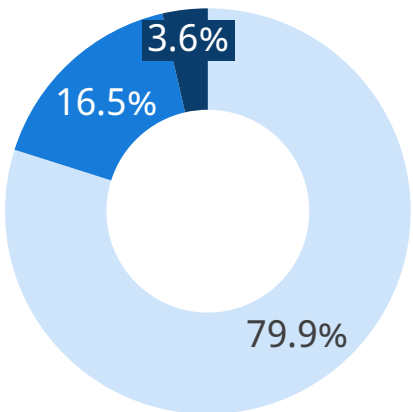
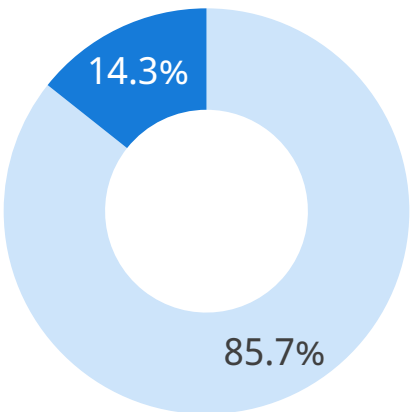
2026

2027



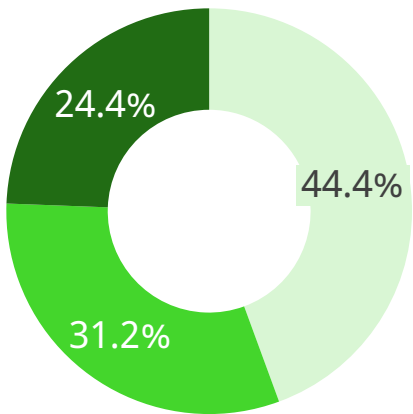
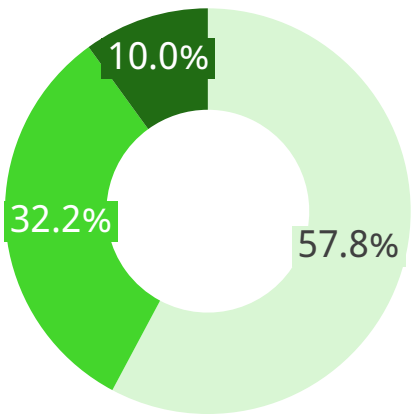
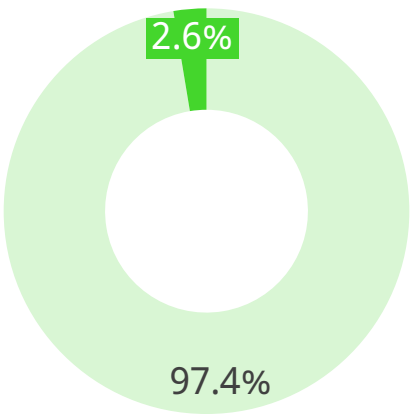
Business
Group

Key:



Country

Key:



2024-2025Q3 Financial Performance

(NTD '000)	Quarterly							Q1-Q3	
	2024Q1	2024Q2	2024Q3	2024Q4	2025Q1	2025Q2	2025Q3	2024 Q1-Q3	2025 Q1-Q3
Operating revenue	883,581	1,272,111	3,845,256	4,124,517	1,466,866	1,888,831	2,049,984	6,000,948	5,405,681
Operating costs	(650,841)	(944,549)	(2,979,404)	(2,865,396)	(1,024,957)	(1,452,777)	(1,561,041)	(4,574,794)	(4,038,775)
Unrealized profit from sales	(2,760)	(10,923)	(31,952)	(111,773)	(21,642)	(34,078)	(85,445)	(45,635)	(141,165)
Realized gross operating profit	229,980	316,639	833,900	1,147,348	420,267	401,976	403,498	1,380,519	1,225,741
Operating expenses	(138,972)	(156,221)	(276,551)	(331,473)	(259,803)	(291,026)	(228,187)	(571,744)	(779,016)
Net operating income	91,008	160,418	557,349	815,875	160,464	110,950	175,311	808,775	446,725
Non-operating income and expenses	(33,624)	(18,196)	(11,269)	(41,932)	(38,243)	(12,951)	(95,957)	(63,089)	(147,151)
Profit before tax	57,384	142,222	546,080	773,943	122,221	97,999	79,354	745,686	299,574
Income tax expense	(15,253)	(29,614)	(115,139)	(180,490)	(39,739)	(10,306)	(39,786)	(160,006)	(89,831)
Profit for the year	42,131	112,608	430,941	593,453	82,482	87,693	39,568	585,680	209,743
Profit attributable to owners of parent	46,837	114,753	436,490	600,780	81,479	100,137	37,000	598,080	218,616
Basic earnings per share	0.46	0.97	3.59	5.44	0.68	0.71	0.26	5.00	1.57
Financial Ratio									
Gross Margin	26.0%	24.9%	21.7%	27.8%	28.7%	21.3%	19.7%	23.0%	22.7%
Operating Profit Margin	10.3%	12.6%	14.5%	19.8%	10.9%	5.9%	8.6%	13.5%	8.3%
Net Profit Margin	4.8%	8.9%	11.2%	14.4%	5.6%	4.6%	1.9%	9.8%	3.9%



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