Renewables

Competitive Edge

Leading Asian renewables player with 13.8GW[1] of wind, solar, hydro and energy storage capacity globally

Strong execution track record in greenfield developments; enhancing returns of brownfield portfolio through optimisation of operations and maintenance and financing structure

Leveraging partnerships and capitalising on platforms to build scale

Sembcorp is Asia's leading renewables player equipped with expertise in greenfield development as well as operational management of renewables assets. Our renewables portfolio comprises wind, solar (including a concentrated solar plant), hydro and energy storage assets in China, India, Southeast Asia (Singapore, Vietnam and Indonesia) as well as Oman and the UK.

Refreshed Renewables Targets

In May 2021, we announced our strategy to transform from brown to green and to grow gross installed renewables capacity from 2.6GW to 10GW by 2025. Since then, we have achieved significant progress, more than tripling gross installed capacity to 9.8GW[1] with a further 4.0GW secured or under construction.

To drive the next phase of growth, we refreshed our renewables targets at Investor Day 2023. We target to achieve 25GW of gross installed renewables capacity by 2028. The prospects for renewables in Sembcorp's key markets of China, India and Southeast Asia remain robust and represent addressable opportunities of 1,300GW[2]. We will continue to strengthen our capabilities in wind, solar and energy storage systems, and further establish our presence in key markets through strong development and asset management capabilities, as well as quality partnerships.

[1] As of February 2024, the group had 13.8GW of gross renewables capacity, comprising 9.8GW of installed capacity and 4GW secured or under construction. This includes the acquisition of a 245MW renewables portfolio in Vietnam pending completion

[2] Source: GlobalData. Includes onshore wind, solar and energy storage

Key Developments

Achieved growth totalling 3GW in China, through acquisitions and organic expansion in existing partnerships

Grew portfolio in India to 4.2GW with 750MW of greenfield projects secured through competitive bids and completion of an acquisition comprising 228MW of wind assets

Launched Southeast Asia's largest energy storage system and awarded Singapore's largest solar project of 117MWp, cementing Sembcorp's position as Singapore's leading renewables player

Acquired a 245MW renewables portfolio in Vietnam, comprising onshore wind, solar and hydro assets

Operational Indicators[1] *(MW / MWh)*

	2023	2022
Gross renewables capacity	**12,861**	8,293
– Wind	**6,546**	5,553
– Solar	**5,306**	2,031
– Energy Storage[2]	**1,009**	709
Gross renewables capacity	**12,861**	8,293
– Installed	**9,353**	6,832
– Secured or under construction	**3,508**	1,461

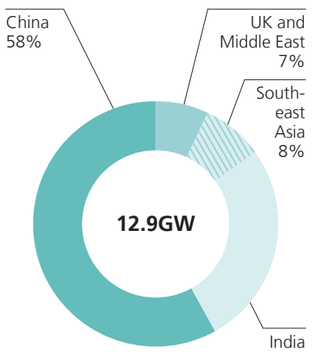
[1] Figures refer to total gross capacity as at December 31, 2023, and December 31, 2022

[2] Energy storage capacity is in MWh

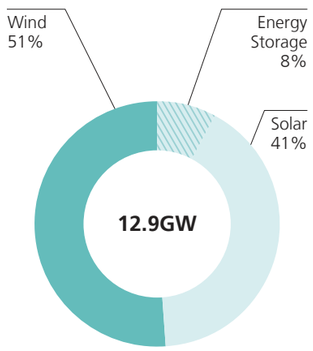
Sembcorp Tengeh Floating Solar Farm in Singapore

Renewables

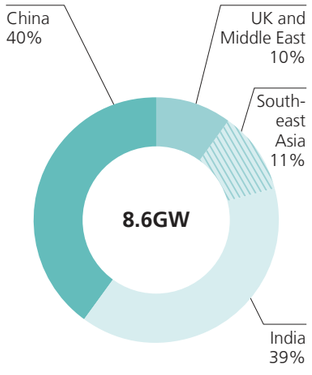
Gross Renewables Capacity by Country*



Gross Renewables Capacity by Technology Type*



Attributable Renewables Capacity by Country*



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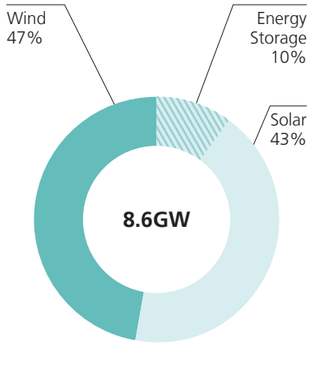
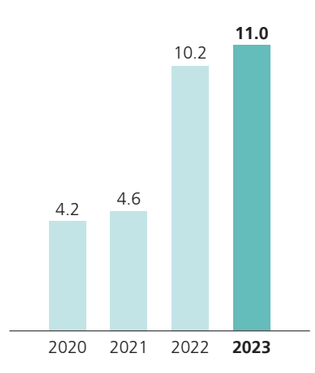


Renewables Segment – Return on Equity before Exceptional Items *(%)*



* As at December 31, 2023

Ability to Drive Returns through Capabilities and Partnerships

We adhere to a disciplined investment framework that places a strong emphasis on asset quality as well as returns. Leveraging our unique capabilities in respective markets, we have successfully driven growth and optimised returns in our portfolio.

Strategic Positioning to Drive Growth

China: Growing organically with partners, enhancing capabilities through platforms

We have successfully developed partnerships with renewables players in China to scale our portfolio.

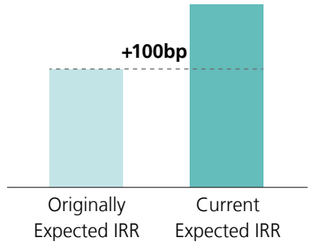
Total renewables capacity in China grew by 3GW in 2023 to 7.4GW as of end 2023, largely driven by organic growth in our joint ventures, SDIC New Energy and Hunan Xingling New Energy. Since the establishment of these partnerships, our SDIC New Energy portfolio has grown by 1.9GW to 3.8GW and Hunan Xingling New Energy grew by 210MW to 1.1GW.

In March 2023, we completed the acquisition of a 49% stake in a 795MW portfolio in Beijing Energy Sembcorp. We also expanded our majority-owned platforms with the completion of acquisitions of two portfolios in Guangxi comprising 200MW of operational wind assets and 92MW of operational solar assets.

During the year, we furthered our renewables offerings in China through our strategic partnerships. We entered the battery energy storage system segment with the construction of a 100MW / 200MWh battery energy storage system under Hunan Xingling New Energy. This is our first organic growth project in the partnership. Under our SDIC New Energy platform, we successfully constructed and completed our first four-hour battery totalling 25MW / 100MWh in the fourth quarter of 2023. A 110MW concentrated solar plant in Gansu is also under construction, with expected completion in end 2024.

Under our majority-owned platforms, we continue to build capabilities in asset management and operations to enhance performance. This includes adopting best practices from other markets to improve portfolio reliability and bringing operations and maintenance (O&M) in-house to achieve cost savings.

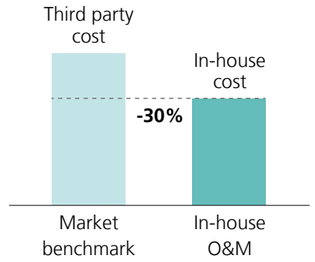
Enhanced Returns of SDIC New Energy Platform



Achieved 100-basis point improvement on the internal rate of return over initial expectations, attributed to

- Organic growth of 1.9GW
- Optimisation of financing terms through partnerships

Installed Capacity for Hebei Wind Assets (150MW)



Estimated annualised O&M cost savings of about 30% by in-house O&M team through

- Deployment of preventive maintenance
- Adoption of best practices from other markets to improve reliability

IRR: Internal Rate of Return O&M: operations and maintenance

Critical Success Factors

- Deep understanding of local market
- Focus on asset quality and project returns
- Proven operational capabilities with WindOS and SolarOS digital capabilities with asset integration ability
- Knowledge sharing and harnessing of capabilities in renewables segment across key markets

China	India	Southeast Asia
• Strong track record in establishing and nurturing relationships • Leverage partners' networks • Demonstrate speed and flexibility	• Strong development capabilities with ability to participate across renewables segments • Established track record in commissioning of greenfield projects	• Proven development capabilities with proficiency in renewables solutions • Leading renewables player in Singapore • Established presence in countries of interest and strong partnerships with local players

Sembcorp wind assets in Yunnan, China

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Conducting maintenance on a wind turbine in India

India: Uplifting returns with strong asset management capabilities, leveraging development expertise to drive growth

During the year, we completed the acquisition of the 583MW Vector Green portfolio, successfully integrating the assets in our operations. We also completed the acquisition of a 228MW operational wind portfolio from Leap Green Energy, an independent power producer in Tamil Nadu, India, in February 2024.

Our experienced on-site team possesses a robust understanding of the local market, thereby bolstering our competitive advantages. We continue to enhance our development capabilities by engaging in disciplined project bidding.

In December 2023, we received the Letter of Award for a 300MW Inter State Transmission System connected solar power project from NHPC. The following month, we were awarded our first wind-solar hybrid power project, comprising the development of 300MW solar and 150MW wind assets, from the Solar Energy Corporation of India. These greenfield projects are underpinned by long-term power purchase agreements of 25 years, providing certainty in earnings. In addition, the projects will be constructed in the same regions as some of the other Sembcorp's projects currently under construction, enabling potential significant synergies in project development, economies of scale in procurement as well as operational efficiency in management.

We continue to build up our renewables capacity through organic growth and acquisitions of brownfield assets. With a portfolio of 4.2GW comprising 2.4GW of wind capacity and 1.8GW of solar capacity, our balanced portfolio enables us to develop deep operating capabilities. This diversification across energy resources enhances the stability of our generation profile, mitigating dependence on any single resource.

Our proficiency in digital capabilities has facilitated the seamless integration of asset data into our in-house OS (operating system) platform. This has translated into improved efficiency, optimised cost and hence, superior asset productivity compared to peers.

Increasing proportion of O&M conducted in-house

	2023			2022		
	In-house	OEM	Total	In-house	OEM	Total
Operational Capacity *(MW)*						
Wind	980	779	1,759	980	715	1,695
Solar	638	18	656	43	10	53
Total	**1,618**	**797**	**2,415**	**1,023**	**725**	**1,748**
%	**67%**	**33%**	**100%**	**59%**	**41%**	**100%**

We continue to deepen our asset management capability within the team. During the year, we successfully brought majority of the O&M in-house for the Vector Green portfolio. The capacity of operational wind assets under O&M conducted by original equipment manufacturer (OEM) increased mainly due to new commissioned capacity which remains under warranty. In 2023, the proportion of assets under in-house O&M increased to 67%, from 59% in 2022. More notably, we have been able to achieve cost savings of up to 30% on our generation assets through in-house O&M.

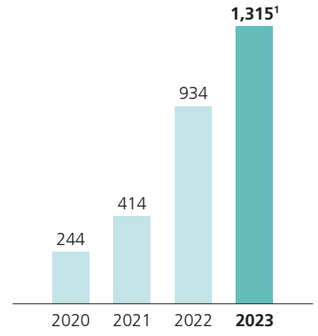
Southeast Asia: Expanding footprint

Our gross renewables portfolio in Southeast Asia crossed the 1GW milestone during the year. In Singapore, our gross renewables portfolio comprises 723MWp of solar projects and 289MWh of energy storage systems. Sembcorp was awarded a 117MWp project by JTC in December 2023 to solarise interim vacant land and rooftops of five buildings on Jurong Island, Singapore. In addition, Sembcorp will be collaborating with JTC for the development of a Virtual Power Plant (VPP) solution for Jurong Island. The VPP aims to integrate data from distributed energy resources, such as solar as well as energy storage systems, and allows for energy management through real-time data monitoring, analytics, as well as the optimisation of energy asset.

In February 2023, we officially opened the Sembcorp Energy Storage System (ESS) in Singapore. The Sembcorp ESS has a maximum storage capacity of 285MWh, making it Southeast Asia's largest ESS, and is the fastest in the world of its size to be deployed. As the largest solar and battery developer and operator in Singapore, Sembcorp is well-placed to offer a full suite of solar solutions to help customers in their sustainability journey, as well as to support Singapore's decarbonisation goals.

In Vietnam, solar capacity grew year-on-year from 251MWp to 328MWp, largely due to the proposed acquisition of majority interests in various subsidiaries of Gelex Group Joint Stock Company. The acquisition is a strategic fit for Sembcorp as it enables us to scale up in one of our countries of focus, diversify our resources and develop new technological capabilities. With the acquisition, renewables capacity in Vietnam will reach 453MW, comprising wind, solar as well as hydro.

Gross Renewables Capacity in Southeast Asia *(MW)*



[1] As of February 2024, including an acquisition of 245MW of renewables capacity pending completion

Sembcorp Banyan Energy Storage System on Jurong Island, Singapore

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Battery energy storage system under construction at the Wilton International site on Teesside, UK

Strategic growth in selected markets

In March 2023, we expanded into the Middle East with the successful award of our first greenfield renewables project in Oman. The 500MW build-own-operate solar plant augments Sembcorp's well-established presence in Oman's power and water desalination sector. The project leverages our strong network and presence for over 10 years in the country through our Salalah Independent Water and Power Plant and demonstrates our capabilities in supporting the energy transition globally.

In the UK, the 150MW / 300MWh of battery energy storage system on Teesside at Wilton International is under construction. Together with our operational battery energy storage portfolio of 120MWh, we seek to enhance our presence in the energy storage segment in the UK through active management of the charge and discharge cycles of our energy storage assets to capture higher rates for frequency services.

Outlook

According to the International Energy Agency, renewables capacity grew by almost 50% to nearly 510GW in 2023, the fastest growth rate in the past two decades. In 2025, renewables are anticipated to surpass coal as the primary global electricity source. Sembcorp is well-positioned in some of the world's largest and fastest growing renewables markets and will continue to build on its leading positions with more diversification across countries and technologies.

The Renewables segment is expected to perform well as more greenfield projects are commissioned and brownfield acquisitions are completed progressively, in the course of the year. We will continue to leverage our key success factors to grow our renewables capacity and enhance returns within the portfolio.