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Date: 30 JUN 2025

The Board of Directors
Wasco Greenergy Berhad
Suite 19.01 Level 19
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Mid Valley City Lingkaran Syed Putra
59200, Kuala Lumpur

Dear Sirs/Madams,

Independent Market Research on the Renewable Energy ("RE") from Biomass Industry in Malaysia and Indonesia for Wasco Greenergy Berhad ("Wasco Greenergy" or the "Company")

We, Frost & Sullivan GIC Malaysia Sdn Bhd ("**Frost & Sullivan**"), have prepared this Independent Market Report on the RE from Biomass Industry in Malaysia and Indonesia ("**IMR Report**") for inclusion in Wasco Greenergy's prospectus in relation to the listing of and quotation for the entire ordinary shares in Wasco Greenergy on the Main Market of Bursa Malaysia Securities Berhad ("**Prospectus**").

We are aware that this IMR Report will be included in the Prospectus, and we further confirm that we are aware of our responsibilities under Section 215 of the Capital Markets and Services Act, 2007.

We acknowledge that if we are aware of any significant changes affecting the content of this IMR Report between the date hereof and the issue date of the Prospectus, we have an ongoing obligation to either cause this IMR Report to be updated for the changes and, where applicable, cause Wasco Greenergy to issue a supplementary prospectus, or withdraw our consent to the inclusion of this IMR Report in the Prospectus.

Frost & Sullivan has prepared this IMR Report in an independent and objective manner and has taken adequate care to ensure the accuracy and completeness of this IMR Report. We believe that this IMR Report presents a true and fair view of the industry within the limitations of, among others, secondary statistics and primary research, and does not purport to be exhaustive. Our research has been conducted with an "overall industry" perspective and may not necessarily reflect the performance of individual companies in the industry. Frost & Sullivan shall not be held responsible for the decisions and/or actions of the readers of this IMR Report. This IMR Report should also not be considered as a recommendation to buy or not to buy the shares of any company or companies as mentioned in this IMR Report or otherwise.

For and on behalf of Frost & Sullivan GIC Malaysia Sdn Bhd:

Narciso Podda
Director
Business & Financial Services

FROST & SULLIVAN

Methodology

For the purpose of preparing this IMR Report, Frost & Sullivan has conducted primary research encompassing interviews with industry experts and industry players[1], and secondary research, which included reviews of company reports, official websites/social media pages, independent research reports, information from industry associations/authorities/international organisations, and information from Frost & Sullivan research database. Unless being made available in the publicly available sources, projected data was derived by Frost & Sullivan using historical data analysis with the consideration of the social, economic, and political environments for the forecasted period.

Comparable key industry players identified in this IMR Report have been selected from a long list of companies developed by screening directories as well as discussing with industry players. Subsequently, the list was presented and discussed with industry players and experts that agreed to be interviewed for the purpose of the analysis. Information were further validated via public information through secondary research (which covers reviews of company reports, official websites/social media channels, independent research reports, information from industry associations/authorities/internal organisations, as well as information from Frost & Sullivan research database) and fine-tuned by contacting identified companies (e.g., telephonic method, official social media platforms, among others).

Profile of Frost & Sullivan GIC Malaysia Sdn Bhd

*Frost & Sullivan is a global independent industry research and consulting organisation headquartered in the United States of America ("**USA**") with over 60 years of establishment. In Malaysia, Frost & Sullivan's subsidiary, Frost & Sullivan GIC Malaysia Sdn Bhd, operates two offices (Selangor and Iskandar Malaysia) with more than 200 employees offering market research, marketing and branding strategies and business advisory services across 12 industries. Frost & Sullivan is involved in the preparation of independent market research reports for capital market exercises, including initial public offerings, reverse takeovers, mergers and acquisitions, and other related fund-raising and corporate exercises.*

Profile of the IMR Report signee, Narciso Podda

Narciso Podda is the Director, Business & Financial Services division, for Frost & Sullivan GIC Malaysia Sdn Bhd. Narciso Podda possesses over 15 years of experience in market research and consulting, including over eight years in independent market research and due diligence exercise for capital markets across the Asia Pacific region. Narciso Podda holds a Bachelor in Business Administration from Bocconi University, Italy, and a Master in International Economics and Finance from Chulalongkorn University, Thailand.

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[1] Industry experts are individuals with in-depth knowledge on the industry (e.g., industry analysts). Industry players are individuals currently or previously working in the RE industry.

1 INTRODUCTION AND DEFINITION

Wasco Greenergy is principally an investment property holding company. Wasco Greenergy together with its subsidiaries, namely Wasco Agrotech Sdn Bhd ("**Wasco Agrotech**") and Wasco Thermal Sdn Bhd ("**Wasco Thermal**") (collectively "**The Group**") is primarily engaged in the engineering, procurement, construction, and commissioning ("**EPCC**") of steam energy systems (include biomass, gas-fired, and heat recovery steam generators (HRSG)) and auxiliary facilities, supply of steam turbine generator systems, as well as the provision of after-sales services for these systems. Its primary markets are Malaysia and Indonesia. This report describes the segments of the industry and the countries in which the Group operates.

A biomass-fired boiler ("**biomass boiler**") is a heating system that burns organic materials, like empty fruit bunches ("**EFB**") wood pellets, chips, or logs, to generate heat. It's a sustainable alternative to traditional fossil fuel boilers, providing a sustainable approach to heating by utilising renewable resources. A biomass-fired steam turbine ("**steam turbine**") is a type of heat engine that extracts thermal energy from steam, fuelled by biomass and transforms it into rotational movement. In this report, steam turbines specifically refer to those used in conjunction with a biomass boiler to generate electricity. After-sales services refer to the activities that ensure safe, efficient, and reliable boiler and steam turbine operation, including maintenance and inspection, repair and overhaul, system upgrades and retrofits, and the sale of spare parts.

2 MACROECONOMIC OVERVIEW

Malaysia

The **Malaysian economy** grew from 2020 to 2024 at a compound annual growth rate ("**CAGR**") of 5.2%.[2] However, there was a setback in 2020 with a recorded decline of -5.5% due to the impact of the coronavirus disease 2019 ("**COVID-19**") outbreak. Malaysia's economy recovered, demonstrated resilience and achieved 5.1% growth in 2024. In the same year, the agriculture sector contributed 8.1% to the country's GDP, following the services and manufacturing sectors, which accounted for 56.2% and 22.5% respectively. [3] Despite its smaller contribution relative to other sectors, the Malaysian Government is repositioning the agriculture sector as a growth driver for the economy.[4] The Malaysian economy is forecasted to grow at a CAGR of 4.0% from 2024 to 2029F, reflecting a positive economic outlook.[5] This growth will be supported by government initiatives such as the National Energy Transition Roadmap, the New Industrial Master Plan 2030 and the Mid-Term Review of the Twelfth Malaysia Plan.[6]

The **Malaysian population** grew from 32.4 million in mid-2020 to 33.5 million in mid-2024, at a CAGR of 0.8%. It is forecasted that the population will further increase to 35.3 million by mid-2029, growing at a CAGR of 1.1% from mid-2024.[7]

Indonesia

The **Indonesian economy** grew at a CAGR of 4.8% from 2020 to 2024. The real GDP declined by -2.1% in 2020 due to the COVID-19 pandemic outbreak.[8] The economy recovered in 2021, growing by 3.7%, and continue to grow at a rate of 5.3% in 2022, and 5.0% in both 2023, and 2024, driven by private and public consumption, as well as export growth.[9] In 2024, the agriculture, forestry and fishing sector contributed to 12.6% of the GDP, indicating the significant role in the country's economy.[10] While the Indonesia Emas 2045 vision aims to reduce reliance on agricultural exports, it also seeks to leverage Indonesia's vast agricultural resources for food security and economic growth. Indonesia's economy is forecasted to continue to grow at a CAGR of 4.8% from 2024 to 2029F supported by the favourable growth of private spending and continuous expansion in both private and public investments.[11]

[2] International Monetary Fund ("**IMF**") World Economic Outlook ("**WEO**") April 2025
[3] Department of Statistics, Malaysia ("**DOSM**"), Gross Domestic Product, Fourth Quarter of 2024
[4] The Star, Rebooting the agriculture sector, October 2024
[5] IMF, WEO April 2025
[6] Ministry of Finance, Economic Outlook 2025
[7] IMF, WEO April 2025
[8] IMF, WEO April 2025
[9] Bank Indonesia, Economic Growth in Indonesia Accelerated in Q4/2023, February 2024
[10] BPS – Statistics Indonesia, Distribution of GDP at Current Market Prices by Industry (2010=100) (Percent), 2024
[11] Bank Indonesia, Monetary Policy Report - Quarter I 2025, March 2024

Indonesia is the most populous country in Southeast Asia with 281.6 million people in 2024. The population is forecasted to grow at a CAGR of 0.9% from 2024 to 2029F, reaching 295.0 million people in 2029.[12]

3 RE OVERVIEW IN SOUTHEAST ASIA

3.1 RE TRANSITION

Southeast Asia stands at a pivotal juncture in its energy transition. The International Energy Agency ("**IEA**") notes that in 2023, Southeast Asia accounted for only 2.0% of global clean energy spending, indicating room for improvement and opportunities for investment while highlighting the need for more robust policy frameworks to attract private investments and facilitate the transition to RE sources.[13] The IEA projects that Southeast Asia's energy demand will continue to rise significantly, necessitating substantial investments in RE infrastructure.

Most countries set Near-Term Targeted RE Installed Capacity Percentage in the range of 30% to 40% by 2030-2037, with varying degrees of success in terms of closing the gaps between RE Installed Capacity and Near-Term Targets. Malaysia has one of the highest RE Installed Capacity Percentage of 36.5% as at 2024 and is one of the few countries soon to achieve the Near-Term Target. The launch of the Energy Exchange Malaysia (ENEGEM) facilitates cross-border green electricity trade, aligning with the ASEAN Power Grid objectives.[14]

Indonesia, the region's largest economy, has set ambitious targets and still has more growth potential as the country needs to close the gap in pursuing its Near-Term Target. However, challenges such as regulatory hurdles and reliance on coal persist. The country's Just Energy Transition Partnership ("**JETP**") outlines a plan to mobilise USD21.6 billion to accelerate the transition from coal to RE sources.[15]

Table 3-1: RE Development and Targets in Selected Southeast Asia Countries, 2024

Country	RE Installed Capacity (Megawatt ("MW"))	Total Power Installed Capacity (MW)	RE Installed Capacity Percentage	Near-Term Targeted RE Installed Capacity Percentage (%)	Current National RE Plan
Indonesia	14,295	96,980	14.7%	23% by 2025	Government Regulation No. 79/2014
Malaysia	9,471	25,952	36.5%	40% by 2035	National Energy Transition Roadmap (NETR)
Philippines	9,300	28,626	32.5%	35% by 2030	Philippine Energy Plan (PEP) 2023-2050
Singapore	1,163	13,602	8.6%	30% by 2035	Singapore Green Plan 2030
Thailand	12,594	53,868	23.4%	30% by 2037	Alternative Energy Development Plan (AEDP) 2018-2037

Source: Industry Sources; Frost & Sullivan

Biomass energy remains a significant component of Southeast Asia's RE mix, primarily due to the region's abundant agricultural residues and organic waste. Biomass-derived energy is projected to represent about 22% of the total global primary energy supply by 2050, highlighting its growing importance in the energy transition.[16] It is also an opportunity for biomass energy with reliable and continuous feedstock to compete against intermittent RE sources such as wind and solar.

The biomass industry in Malaysia and Indonesia is supported by government incentives, strategic partnerships, and growing technological capabilities tailored to local tropical biomass types. Environmental concerns and the global push for decarbonisation have increased the attractiveness of biomass as a RE source, aligning with both countries' sustainable development goals.

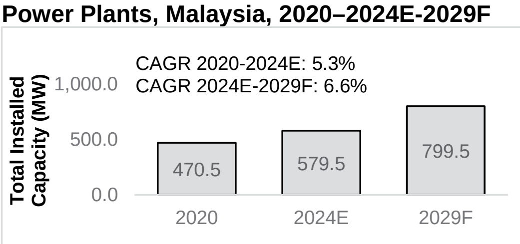
Malaysia aims to further develop its biomass industry as an ASEAN regional hub for biomass trading, technology, and engineering services. Biomass cogeneration and co-firing are expected to expand significantly, driven by Malaysia's commitment to decarbonisation and RE targets. The government's supportive policies and incentives will continue to encourage biomass power projects, including cogeneration in palm oil mills and co-firing in thermal power plants. The retirement of coal-fired power

[12] IMF, WEO April 2025
[13] International Energy Agency, Southeast Asia Energy Outlook 2024, October 2024
[14] Malaysia Ministry of Energy, Green Technology Master Plan Malaysia 2017-2030, July 2017
[15] JETP, JETP Investment Plan Launched; Indonesian Government Aims for Swift Implementation, November 2023
[16] International Renewable Energy Agency, Agricultural residue-based bioenergy: Regional potential and scale-up strategies, November 2023

plants is planned between 2029 and 2033 (with a total capacity of 7 GW). Coal plant retirement creates a gap in energy supply, which biomass can fill, because existing coal infrastructure could be retrofitted for biomass co-firing or complete conversion to a biomass power plant. [17]

To meet the growing biomass demand, Indonesia is exploring the development of large-scale energy plantations. These plantations are designed to provide a dedicated, sustainable supply of biomass feedstock for power plants, reducing reliance on agricultural waste. The Indonesian government has identified degraded lands for such projects to avoid deforestation conflicts, aligning with sustainability goals. Around 1.3 million hectares have been allocated for any energy-related plantations. [18]

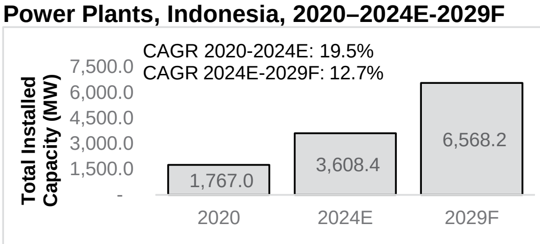
Chart 3-1: Total Installed Capacity of Biomass Power Plants, Malaysia, 2020–2024E-2029F



Note: The Ministry of Plantation and Commodities only released the biomass installed capacity data until 2019, the other numbers were estimated by Frost & Sullivan.

Source: Ministry of Plantation and Commodities; Frost & Sullivan

Chart 3-2: Total Installed Capacity of Biomass Power Plants, Indonesia, 2020–2024E-2029F



Note: The Ministry of Energy and Mineral Resources only released the biomass installed capacity data until 2023, the other numbers were estimated by Frost & Sullivan.

Source: Ministry of Energy and Mineral Resources; Frost & Sullivan

3.2 INDUSTRY CHALLENGES AND OPPORTUNITIES

In Malaysia, securing a stable and sufficient supply of feedstock can be a challenge for independent biomass power plant developers who do not own the feedstock. Strategies like procurement from multiple parties or joint ventures with feedstock owners are suggested. Once the manufacturing plant has managed to secure long-term feedstock supply agreements with suppliers, there will be large demands generated from the industrial sectors, as both the Multinational Corporations ("**MNCs**") and local manufacturers are striving to achieve their Environmental, Social, and Governance ("**ESG**") and sustainability goal.[19]

In Indonesia, biomass energy struggles to compete with heavily subsidised fossil fuels, particularly coal, which remains the dominant source of power generation in Indonesia. Furthermore, other RE sources such as solar, wind, and geothermal are often prioritised in national energy plans due to their lower operational complexities and environmental benefits. To remain competitive, biomass must diversify its applications, while advocating for policy measures like carbon pricing or RE quotas. In addition, the decentralised nature of biomass feedstock poses considerable logistical challenges for large-scale energy production in Indonesia. These gaps contribute to inconsistent supply chains, resulting in feedstock price volatility and unreliable energy output. Addressing these challenges requires strategic investment in localised biomass processing hubs and improved transportation networks. Without such infrastructure, high operational costs are likely to undermine the long-term economic viability of biomass energy projects.

4 MARKET ANALYSIS OF THE RE INDUSTRY FROM BIOMASS

4.1 MARKET SIZE

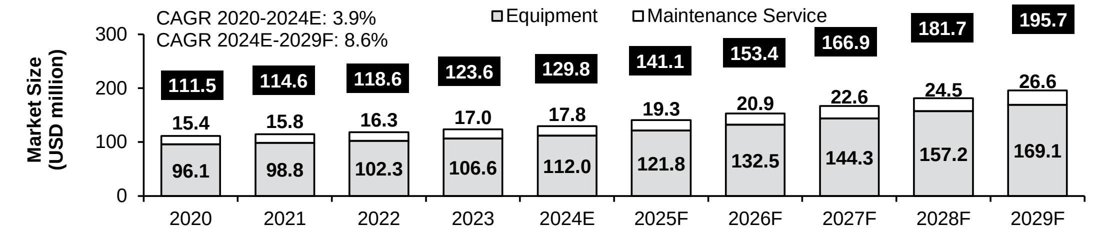
Malaysia

The biomass boiler and steam turbine markets covered in this report comprise two end-user segments, namely the utility end-users (utility-scale power plants) and the non-utility end-users. The utility end-users are limited to those with less than 10 MW of power generation capacity for grid connection, while the non-utility end-users include the palm oil milling industry and other industrial sectors that generate power and/or steam on-site for their own consumption. In Malaysia, the overall biomass boiler and steam turbine markets, which include the equipment and after-sales services, are forecasted to grow at a CAGR of 8.6%

[17] Economic Research Institute for ASEAN and East Asia (ERIA), Role of Biomass in Energy Transition, September 2021
[18] ERIA, Forecast of Biomass Demand Potential in Indonesia: Seeking a Business Model for Wood Pellets, May 2022
[19] Frost & Sullivan analysis, insights gathered from industry interviews conducted in May 2025

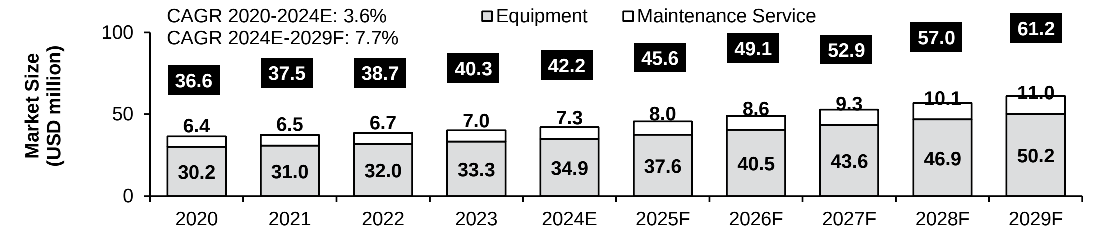
and 7.7% respectively from 2024E to 2029F. The growth of biomass boilers and steam turbines is driven by the growing adoption by palm oil plants and factories to achieve decarbonisation goals, as compared to other RE sources. In addition, considering the average lifespan of biomass boilers (15 to 20 years) and steam turbines (20 to 25 years), there are replacement demands from the old palm oil mills that have adopted these solutions since the 2010s. The significant growth would still be from the palm oil sectors, but there are also demands generated from other industrial sectors, such as rubber and latex, pulp and paper, wood processing and furniture, textile and apparel, and the food and beverage industry. In addition, the increase in feed-in tariffs in 2024 is also a driver for utility-scale biomass boilers and steam turbines.

Chart 4-1: Market Size of Biomass Boiler Equipment and After-Sales Services (USD million), Malaysia, 2020–2029F



Source: Frost & Sullivan

Chart 4-2: Market Size of Steam Turbine Equipment and After-Sales Services (USD million), Malaysia, 2020–2029F



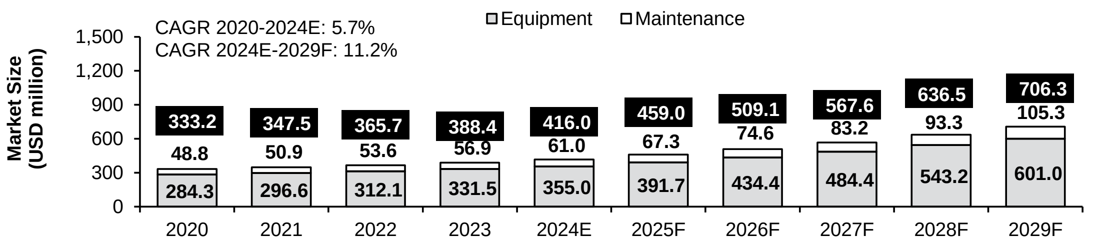
Source: Frost & Sullivan

In 2024E, the non-utility end-user segment of the biomass boiler market is estimated at USD88.9 million while the same segment for the steam turbine market is estimated at USD23.4 million.

Indonesia

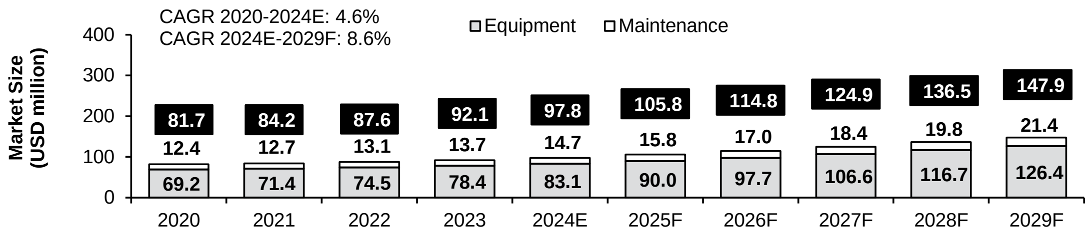
As for Indonesia, the biomass boiler and steam turbine markets are expanding rapidly, both in terms of equipment demand and after-sales services. The two markets are anticipated to expand at a CAGR of around 11.2% and 8.6% respectively from 2024E to 2029F. This growth is underpinned by increasing adoption across key industrial sectors such as paper, rubber, food & beverage, and palm oil processing, all of which continue to show consistent expansion. Notably, the biomass residues generated from these industrial processes can be fed into biomass boilers and steam turbines for power generation. Additionally, the Indonesian government's active push for RE is highlighted by its initiatives to raise the RE share in the national energy mix which further supports the rising demand for biomass boilers, particularly in power generation and the expansion of co-firing power plants.

Chart 4-3: Market Size of Biomass Boiler Equipment and After-Sales Services (USD million), Indonesia, 2020–2029F



Source: Frost & Sullivan

Chart 4-4: Market Size of Steam Turbine Equipment and After-Sales Services (USD million), Indonesia, 2020–2029F



Source: Frost & Sullivan

The non-utility end-user segment of the biomass boiler market is estimated at USD275.4 million, while the same segment for the steam turbine market is estimated at USD27.2 million in 2024E.

4.2 MARKET DRIVERS

A resilient economic outlook strengthens the government's capacity to invest into the agricultural sector through infrastructure development, subsidies, and research, among others. This boosts agriculture productivity and increases the volume of biomass feedstock, enabling the RE from biomass to grow. There are other drivers contributing to the growth of RE from biomass in Malaysia and Indonesia.

Malaysia

Abundant Biomass Resources: Malaysia has significant biomass resources from various sectors, with the palm oil industry being the primary source, producing over 90 million tonnes of dried palm biomass annually from by-products. The total estimated biomass potential is approximately 182.6 million tonnes per annum.[20] This ensures a consistent supply of residues (e.g., EFB, palm kernel shells), reduces raw material costs, and stabilises supply chains for biomass feedstock.

Increasing Adoption of ESG Initiatives by MNCs and Local Manufacturers: Driven by the commitment to sustainability and decarbonisation, MNCs and local manufacturers in Malaysia increasingly prioritise adopting RE sources in their manufacturing practices, enhancing energy efficiency, and reducing carbon emissions. This will be the key driver for the adoption of biomass boilers in various industrial applications, such as rubber and latex, pulp and paper, wood processing and furniture, textile and apparel, and the food and beverage industry.

The Launch of The Malaysian Sustainable Palm Oil ("MSPO") Certification: The MSPO certification is a national sustainability scheme that mandates environmentally and socially responsible practices in Malaysia's palm oil industry. Introduced in 2015 and made mandatory for all palm oil producers by 2020, the MSPO directly impacts biomass power generation by enforcing strict waste management and RE adoption. The implementation of this certification further drives the growth of biomass power generation.

Government Support and Strategic Plans: The biomass sector is recognised as one of the eight strategic and high-impact industries to regenerate economic growth under the 12th Malaysia Plan (12MP), highlighting the critical role it plays in advancing Malaysia's sustainability agenda. The National Biomass Action Plan (NBAP) 2023-2030 is a key driver aims to enhance biomass utilisation, promote a circular economy, increase exports of biomass products, and mitigate greenhouse gas (GHG) emissions. The Green Investment Tax Allowance ("**GITA**") Asset updated in April 2024 mentioned that RE for own consumption purposes (including biomass) is eligible to get a 60% of GITA and 70% of Statutory Income to be set off.[21] This incentive encourages the adoption of biomass boilers and steam turbines used in palm oil plants and other manufacturing industries.

Feed-in Tariff ("FiT") Mechanism: Renewable Energy Act 2011 empowered the FiT mechanism for grid-connected biomass power plants. In 2025, 40 new additional quotas have been allocated for the biomass power plants.[22] In September 2024, the government increased the tariff of biomass power generation from

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[20] Ministry of Plantation and Commodities, National Biomass Action Plan 2023-2030, December 2023
[21] Malaysian Green Technology and Climate Change Corporation, Guidelines for Green Technology Tax Incentive, April 2024
[22] SEDA Malaysia, Feed-in Tariff ("FiT") 2.0 quota applications for biogas, biomass and small hydro resources for the year 2025, October 2024

the range of RM0.27 to RM0.30 per kWh to RM0.38 per kWh.[23] The increase in tariffs will likely drive more RE companies, palm oil plant owners, and other manufacturing companies to build utility-scale biomass plants that can be connected to the grid.

Indonesia

Government Policy & Energy Targets: The Indonesian government has implemented strong policy support to promote RE, including biomass. National Energy Policy ("**KEN**") and the Electricity Supply Business Plan (RUPTL) by PLN, prioritise biomass development, offering incentives like feed-in tariffs and simplified licensing. These policies create a favourable investment climate, encouraging private sector participation in biomass power projects while aligning with Indonesia's long-term sustainability goals.

Biomass Energy Potential: Indonesia possesses vast biomass resources, with an estimated 146.7 million tons of biomass produced annually from agricultural residues.[24] The widespread availability of biomass, particularly from the palm oil industry, ensures a low-cost and reliable supply for power generation, reducing dependence on fossil fuels.

Coal Co-Firing Initiative: The Indonesian government through PLN aims for co-firing implementation in 52 coal-fired power plants, targeting a 10% biomass mix by 2025.[25] This initiative not only drives demand for biomass pellets but also provides an immediate, cost-effective solution for decarbonising Indonesia's coal-dominated power sector without requiring major infrastructure changes.

4.3 INDUSTRY DYNAMICS

Biomass boilers and steam turbines are always coupled for electricity generation in palm oil plants and other factories, where biomass boilers generate the steam, and the steam then drives the steam turbines to generate electricity. In addition to the electricity purpose, biomass boilers are also widely used in other industrial applications (and in this case not coupled with steam turbines), such as sterilising fresh fruit bunches ("**FFB**") and providing steam for palm oil mills, generate steam for cooking, sterilisation and pasteurisation in canning, dairy, and beverage production.

Apart from equipment sales, biomass boilers and steam turbine manufacturers also generate revenue from the after-sales services for the equipment. Due to the long-established biomass industry in Malaysia and Indonesia, many old biomass boilers and steam turbines have been installed for more than 10 years. Each year, aging machines need extra after-sales services, leading to higher maintenance revenue. For some leading machinery Original Equipment Manufacturers ("**OEMs**"), after-sales services can contribute to 20% to 30% of their total revenue. The contribution of after-sales services revenue may increase proportionally as the machinery OEMs have a larger installed base in the market.

4.4 BARRIERS TO ENTRY AND KEY SUCCESS FACTORS

New entrants face several significant barriers to entry in the boiler and steam turbine markets, which the leading players have already navigated to secure their leadership positions.

Technical complexity: Many biomass projects require advanced technical knowledge and specifications tailored to end-users' needs. Notably, the design and manufacture of steam turbines are more technically complex than biomass boilers. Leading players are known for their ability to deliver customised biomass solutions[26] that are reliable and specifically designed for end-users, e.g., smaller in capacity (0.5 MW to 10 MW), to suit the needs of biomass or other industrial sectors.

Local presence for service advantage: Both biomass boilers and steam turbines require periodic after-sales services to achieve maximum efficiency and equipment lifespan. Steam turbines, in particular, are highly sensitive and require more professional technical expertise for maintenance services than biomass boilers. Establishing local service capability is necessary to support ongoing maintenance needs. Leading players who operate local manufacturing and assembly lines, testing facilities, and repair workshops have an advantage in delivering quick project turnaround and offering prompt after-sales services to clients' requests, typically through either in-house service teams or local partners.

[23] SEDA Malaysia, FiT Rates for Solar PV
[24] ASEAN, ASEAN Strategy on Sustainable Biomass Energy for Agriculture Communities and Rural Development in 2020-2030, June 2021
[25] Forest Watch Indonesia, Tinkering with the National Energy Mix Target: A Portrait of the Tumultuous Biomass Project, July 2024
[26] Refers to an integrated biomass power and/or steam generation solutions which include biomass boiler, steam turbine, generator and ancillary systems like biomass fuel storage and handling, pumps, fans, and emissions controls.

Capital intensity: Biomass power plant project owners tend to select players who have strong project financing capabilities, as biomass solutions including boilers, steam turbines and other machinery parts are usually capital-intensive. Newcomers without solid capital backing or proven financial capabilities struggle to gain traction in the market as project owners are generally unwilling to take risks on high-value investments with unproven suppliers.

Ongoing research activities on product improvement: Continuous research and development ("**R&D**") is a crucial effort for leading players to stay competitive in the market. It helps to drive innovation in increasing efficiency (i.e. advanced combustion techniques, heat recovery system), reducing emissions (i.e. advanced emission control technologies) and integrating new materials for durability and performance. R&D also enables EPCC providers to develop customised boiler designs and turbine configurations optimised for specific biomass feedstock and local conditions, which helps to ensure maximum energy output and reliability.

Established market structure and competition: The leading players have established local relationships and partnerships with major palm oil mill owners and government entities. Many also have an existing installed base in the country that can generate ongoing service revenue. Hence, it will be challenging for newcomers to compete in the market.

4.5 COMPETITIVE LANDSCAPE

In **Malaysia**, local players dominate the biomass boiler market with strong local manufacturing and after-sales service capabilities. Most steam turbines sold in Malaysia for the biomass industry adopt imported technology that are either manufactured locally or imported from overseas.

In **Indonesia**, the biomass boiler market constitutes a combination of local and overseas players. The steam turbine market mainly relies on foreign technology, with overseas players having strong brand reputations, proven reliability as well as established service networks in strategic locations across the country.

Steam turbines may require less frequent servicing; however, due to their higher structural complexity and sophistication as compared to biomass boilers, they demand more professional and specialised servicing techniques. Hence, customers typically engage key players including the Group who have these technical know-how for major maintenance services of steam turbines, including overhauls.

4.5.1 Profiles of key players

Wasco Thermal and Wasco Agrotech are the key players in Malaysia's biomass boiler and steam turbine markets, respectively. In both markets, the Group has established its reputation in the palm oil industry, as a biomass specialist that can provide an integrated biomass solution, including biomass boilers and steam turbines, customised to the needs of its customers. The Group also provides strong after-sales service through its team of local service engineers. Additionally, the Group's biomass boilers demonstrate strong product performance, with combustion efficiency of more than 80% and the capability to operate continuously for up to 90 days. Wasco Agrotech operates a steam turbine assembly plant domestically. This allows the company to offer competitively priced steam turbines compared to the other two major players, who mainly supply imported steam turbines to the Malaysian market.

Table 4-1: Profiles of Key Players [1] in the Biomass Boiler and Steam Turbine Markets in Malaysia, May 2025

Player	Global Headquarters	Local Operation [2]	Expertise	End-User Focus [3]
Biomass Boiler Market				
Wasco Thermal	Malaysia	1 main office; 1 manufacturing plant; 1 service centre	Boiler customisation; boiler retubing and revamping; EPCC of power plant	Palm oil milling industry; other industrial sectors
Boilermech Sdn Bhd	Malaysia	1 main office (including sales and marketing, manufacturing)	EPCC of power plant; boiler repair and upgrades; spare parts supply	Palm oil milling industry; utility-scale power plant
Mechmar Boilers Sdn Bhd	Malaysia	1 main office; 1 manufacturing plant	Boiler repair, overhaul and retubing; Boiler rental	Palm oil milling industry; other industrial sectors
Steam Turbine Market				
Wasco Agrotech	Malaysia	1 main office and assembly plant; 2 service centres	Steam turbine engineering and manufacturing	Palm oil milling industry

Player	Global Headquarters	Local Operation (2)	Expertise	End-User Focus (3)
Siemens Energy Sdn Bhd	Germany	1 main office; 1 service centre	EPCC of power plant; Steam turbine modernisation and upgrades	Utility-scale power plant; other industrial sectors
Shin Nippon Machinery (M) Sdn Bhd	Japan	1 main office and service centre	Steam turbine manufacturing, upgrade and modification	Utility-scale power plant

Notes: Data for each company is provided on a best-effort basis based on publicly available information; (1) The top three key players of each market are selected based on insights obtained from interviews with industry experts, as well as their business performance as of May 2025. Frost & Sullivan estimated their segmental revenue for equipment sales and after-sales services, using 2024 financial data. If the financial data is not available, it is based on the estimated revenue from the company's historical data, third-party sources, primary interviews, or analysis by Frost & Sullivan; (2) "Local Operation" provides the functionality of local entity(ies) and the number of entity(ies) present in the country; (3) "Palm oil milling industry" refers to palm oil mills, where the equipment are installed for power and/or steam generation; "Other industrial sectors" refers to industries other than palm oil milling industry, such as pulp and paper, rubber, food and beverages, wood, textiles, sugar refinery, where the equipment are installed for power and/or steam generation; "Utility-scale power plant" refers to grid-connected facilities where the equipment are installed for power generation.

Source: Company websites; Frost & Sullivan

The Group's biomass boilers and steam turbines are exported to Indonesia. Despite encountering stiff competition from both local and overseas players, the Group has successfully delivered most of its biomass solutions to several large palm oil mill companies in Indonesia, through its proven technology, industry expertise and quick service turnaround. The presence of a sizeable local maintenance team becomes the Group's key market advantage to provide prompt after-sales services to the customers in Indonesia.

Table 4-2: Profiles of Key Players (1) in the Biomass Boiler and Steam Turbine Markets in Indonesia, May 2025

Player	Global headquarters	Local Operation (2)	Expertise	End-User Focus (3)
Biomass Boiler Market				
Wasco Thermal	Malaysia	Nil	Boiler customisation; boiler retubing and revamping; EPCC of power plant	Palm oil milling industry; other industrial sectors
PT Boilermech	Malaysia	1 main office (including manufacturing, sales and service)	EPCC of power plant; boiler repair and upgrades; spare parts supply	Palm oil milling industry; utility-scale power plant
PT Thermax International Indonesia	India	1 main office (including manufacturing, sales and service)	Boiler manufacturing and customisation, EPCC of power plant, boiler safety and lifecycle assessment	Palm oil milling industry; utility-scale power plant; other industrial sectors
PT ATMINDO Tbk	Indonesia	1 main office and workshop; 4 service centres	Boiler manufacturing and customisation; boiler repair, upgrades and modification	Palm oil milling industry; utility-scale power plant; other industrial sectors
Steam Turbine Market				
Wasco Agrotech	Malaysia	2 service centres	Steam turbine engineering and manufacturing	Palm oil milling industry
PT GE Nusantara Turbine Services	USA	1 repair and service centre	EPCC of power plant; Steam turbine repair and maintenance, diaphragm exchange; upgrades	Utility-scale power plant
PT Mitsubishi Power Indonesia	Japan	1 main office; 1 service centre	EPCC of power plant; steam turbine retrofit; spare parts supply	Utility-scale power plant
PT Siemens Energy Indonesia	Germany	1 main office; 4 sales and service centres	EPCC of power plant; steam turbine modernisation and upgrades	Utility-scale power plant; other industrial sectors

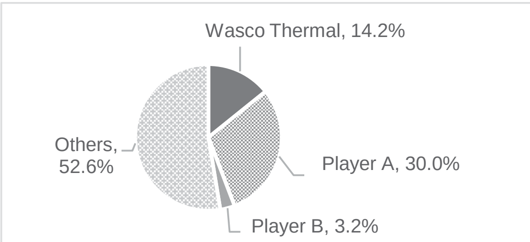
Notes: Data for each company is provided on a best-effort basis based on publicly available information; (1) The top three key players of each market and the Group are selected based on insights obtained from interviews with industry experts, as well as their business performance as of May 2025. Frost & Sullivan estimated their segmental revenue for equipment sales and after-sales services, using 2024 financial data. If the financial data is not available, it is based on the estimated revenue from the company's historical data, third-party sources, primary interviews, or analysis by Frost & Sullivan; (2) "Local Operation" provides the functionality of local entity(ies) and the number of entity(ies) present in the country; (3) "Palm oil milling industry" refers to palm oil mills, where the equipment are installed for power and/or steam generation; "Other industrial sectors" refers to industries other than palm oil milling industry, such as pulp and paper, rubber, food and beverages, wood, textiles, sugar refinery, where the equipment are installed for power and/or steam generation; "Utility-scale power plant" refers to grid-connected facilities where the equipment are installed for power generation.

Source: Company websites; Frost & Sullivan

4.5.2 Market Share

In Malaysia, a number of local players are seen competing in the biomass boiler market, whereas the steam turbine market constitutes of a mixture of international and local players. The biomass boiler market is more fragmented than the steam turbine market, with many small local service companies capable of providing routine maintenance services. Hence, numerous smaller players (suppliers, traders, engineering service companies) also participate and collectively hold a sizable share of the market. Wasco Thermal is the second largest player in the biomass boiler market in Malaysia, with a 14.2% market share by revenue in 2024E.[27] In the steam turbine market, Wasco Agrotech is the largest player in Malaysia, with a 16.8% market share by revenue in 2024E.[28]

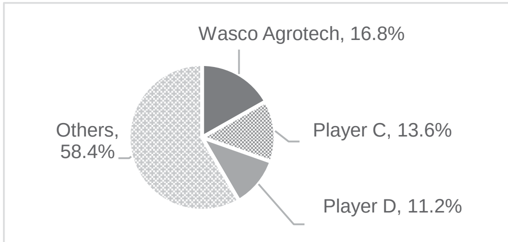
Chart 4-5: Market Share of Key Biomass Boiler Players by Revenue (%), Malaysia, 2024E



Notes: (1) Market share is estimated based on the latest available financial data of selected players profiled in Table 4-2, as of 31 May 2025; (2) The category labelled as "Others" include players with a market share that is estimated to be less than 3.0% in 2024E, and other players for which financial information is not available or cannot be estimated.

Source: Frost & Sullivan

Chart 4-6: Market Share of Key Steam Turbine Players by Revenue (%), Malaysia, 2024E



Notes: (1) Market share is estimated based on the latest available financial data of selected players profiled in Table 4-2, as of 31 May 2025; (2) The category labelled as "Others" include players with a market share that is estimated to be less than 10.0% in 2024E, and other players for which financial information is not available or cannot be estimated.

Source: Frost & Sullivan

Within the non-utility end-user segment of the steam turbine market in Malaysia, Wasco Agrotech leads with a 30.2% market share by revenue in 2024E.[29]

Similarly to Malaysia, **Indonesia** has a fragmented biomass boiler market, with an even greater number of players compared to Malaysia. Due to Indonesia's archipelagic business environment, larger international and local players can serve the market on a nationwide scale, while many other small to medium-sized local players have strong reputations in certain regions or specific areas within the country. It is also observed that many China-owned plants or palm oil mills in Indonesia tend to install imported boilers and steam turbines from China via local distributors, equipment suppliers or trading companies. Some biomass boiler or steam turbine OEMs also sub-contract after-sales services to third-party local engineering service providers. These factors contribute to the highly dispersed market share in Indonesia. In 2024E, Wasco Thermal has a market share by revenue of less than 5.0% in the biomass boiler market in Indonesia.[30] In the steam turbine market, Wasco Agrotech's market share by revenue is about 22.0%, making it among the top players in the Indonesian market.[31] Within the non-utility end-user segment of Indonesia's steam

[27] The market share is calculated based on Wasco Thermal's revenue generated in Malaysia for its biomass boiler equipment and after-sales services of USD18.4 million for the financial year ended 2024 over the estimated total market size of the biomass boiler equipment and after-sales services in Malaysia of USD129.8 million in 2024E.

[28] The market share is calculated based on Wasco Agrotech's revenue generated in Malaysia for its steam turbine equipment and after-sales services of USD7.1 million for the financial year ended 2024 over the estimated total market size of the steam turbine equipment and after-sales services in Malaysia of USD42.2 million in 2024E.

[29] The market share is calculated based on Wasco Agrotech's revenue generated in Malaysia for its steam turbine equipment and after-sales services of USD7.1 million for the financial year ended 2024 over the estimated market size of USD23.4 million in 2024E for the steam turbine equipment and after-sales services in Malaysia, considering only the non-utility end-user segment.

[30] The market share is calculated based on Wasco Thermal's revenue generated in Indonesia for its biomass boiler equipment and after-sales services of USD6.2 million for the financial year ended 2024 over the estimated total market size of the biomass boiler equipment and after-sales services in Indonesia of USD416.0 million in 2024E.

[31] The market share is calculated based on Wasco Agrotech's revenue generated in Indonesia for its steam turbine equipment and after-sales services of USD21.5 million for the financial year ended 2024 over the estimated total market size of the steam turbine equipment and after-sales services in Indonesia of USD97.8 million in 2024E.

turbine market, Wasco Agrotech is the leading player, with a 67.3% market share by revenue in 2024E.[32]

5 OVERVIEW AND OUTLOOK OF THE ASSET OWNERSHIP BUSINESS MODEL

Most players in the biomass boiler and steam turbine markets in Malaysia and Indonesia adopt an EPCC business model, where revenue is derived from purchase orders and lump-sum contracts. The revenue generated from these contracts is typically non-recurring, and concludes after the handover of projects. Some players, such as the Group, are exploring alternative business models, like the asset-ownership model, aiming to generate recurring revenue beyond the commissioning of the asset. Under this model, companies can generate recurring revenue by owning biomass boilers and steam turbines to provide steam and energy to customers in exchange of a periodic fee for the use of these facilities.

This shift mirrors a broader industry trend, as subscription-based models gain traction across various sectors, including in the machinery industry, such as with the supply of heating, ventilation, and air conditioning (HVAC) equipment. Although not yet widely adopted in the biomass boiler and steam turbine markets, the asset-ownership model offers clear advantages: it enables long-term customer relationships and stable revenue streams. From the customer's perspective, this model helps reduce upfront costs and alleviates concerns regarding the after-sales services of the equipment. As industry players seek resilience and look beyond one-off project margins, the asset-ownership model is well-positioned to meet evolving market demands. More biomass boiler and steam turbine equipment manufacturers in Malaysia and Indonesia may consider this approach to capture long-term value and improve operational efficiency.

6 SUMMARY PROSPECTS AND OUTLOOK FOR THE GROUP

Wasco Thermal is the second-largest player in the biomass boiler market in Malaysia, with a 14.2% market share by revenue in 2024E, while Wasco Agrotech is the largest player in the steam turbine market in Malaysia, with a 16.8% market share by revenue in the same year. Within the non-utility end-user segment of the steam turbine market in Malaysia, Wasco Agrotech leads with a 30.2% market share by revenue in the same year. The Group's leadership position in Malaysia is contributed by its strong local presence in Malaysia, technical and industry know-how in designing and customising biomass boilers to its customers, its capability to offer end-to-end turnkey solution that include biomass boilers and steam turbines, as well as substantial expertise in providing after-sales services for this equipment. With similar capabilities in Indonesia, Wasco Agrotech is among the top players in the country's steam turbine market. Within the non-utility end-user segment of Indonesia's steam turbine market, Wasco Agrotech is the leading player, with a 67.3% market share by revenue in 2024E. The Group is well-positioned to expand beyond biomass industry in Malaysia and Indonesia into other industrial sectors where biomass is becoming a preferred renewable source to help public and private organisations to achieve their ESG goals.

In Malaysia, the Group benefits from its leading position in the biomass boiler equipment market within the palm oil industry. By leveraging its expertise in biomass boilers for the palm oil industry, the Group is able to further expand into other industrial sectors to reach a broader customer base. This also paves the way for the Group to expand its presence in the steam turbine segment, as industrial customers tend to engage with companies that can provide a turnkey solution for their biomass power plant. The capability to supply both biomass boilers and steam turbines has become a competitive advantage for the Group, as most of its competitors are only able to supply either biomass boilers or steam turbines.

In Indonesia, the Group can leverage its technical strength and expertise in biomass boiler technology. By focusing on high-end boilers, the Group competes on technological performance rather than price, positioning itself as a premium brand in the Indonesian market. In the steam turbine market, the Group operates two service centres across Indonesia.

Looking ahead, the Group is strategically positioning itself for long term growth by expanding into its renewable energy business through an asset-owner business model, enabling it to generate sustainable, stable and recurring revenue streams. The Group also plans to develop its digital infrastructure with AI analytics to streamline processes and expand and enhance existing facilities. These initiatives will not only strengthen the Group's competitiveness in the wider RE for biomass industry, but also reinforce its commitment in delivering integrated solutions in Southeast Asia.

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[32] The market share is calculated based on Wasco Agrotech's revenue generated in Indonesia for its steam turbine equipment and after-sales services of USD21.5 million for the financial year ended 2024 over the estimated total market size of USD27.2 million in 2024E for the steam turbine equipment and after-sales services in Indonesia, considering only the non-utility end-user segment.