



MERCURY SECURITIES SDN. BHD.

# Evolution of Wealth: Ecosystem Players

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DOWNSTREAM COMPANIES

## Foreword

The electrification of the automotive industry is propelling the world into a new era of transportation. The global shift towards electric vehicles (EVs) has gained momentum as we strive for environmental sustainability and reduced emissions.

This report series aims to illuminate the multifaceted benefits and evolving landscape of the electric vehicle industry. We will delve into the drivers behind the surge in EV adoption and uncover the promising investment opportunities that this burgeoning sector presents to investors.






*Ecosystem Players* is the third in a series of reports assessing the EV market outlook in Malaysia. This comprehensive report is divided into two sections, offering insights into Malaysia's EV value chain, and detailing the roles and impacts of local companies within each segment.

The complete list of reports is as follows:

Title	Content
Investment Opportunities in Electric Mobility	This report delves into the evolving business prospects in the electric mobility sector, specifically exploring the impact of emerging low carbon regulations on Malaysia's trade environment. It also discusses the increasing market interest in EVs and navigates the entire value chain.
Policies Powering the Shift	This report discusses the environmental advantages of EVs and emphasises the role of government policies and incentives in stimulating the transition to electric vehicle adoption.
Ecosystem Players	This report outlines the initiatives, services, and products introduced by industry players which are expected to drive growth and advancement in Malaysia's EV sector.

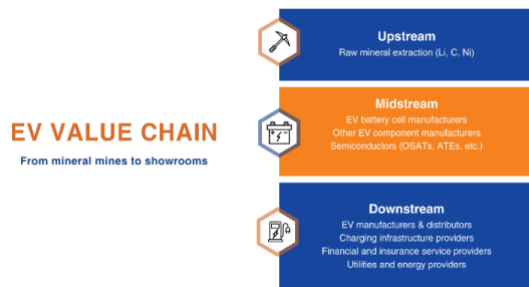
*Mercury Securities Research Team*  
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## Powering progress through the downstream segment of the EV value chain

Figure 1: Overview of the EV supply chain



This report explores the downstream segment of the EV sector, focusing on manufacturers and distributors of EVs, as well as companies involved in installing EV charging infrastructure.

Manufacturers and distributors play crucial roles in producing, assembling, and disseminating EVs, while charging infrastructure companies are pivotal in establishing charging solutions across Malaysia. Currently, Malaysia has over 1,000 public charging stations, with plans to exceed 10,000 by 2025 according to the Low Carbon Mobility Blueprint (LCMB) 2021-2030.

Against this backdrop, the subsequent sections of this report will spotlight the key players poised to reap the benefits of Malaysia's burgeoning EV infrastructure expansion, shedding light on their contributions and prospects within the dynamic landscape of the EV sector.



### Sime Darby (4197)

*Sime Darby Bhd is a Malaysian investment holding company with a diverse business portfolio spanning plantation, property, motors, industrial,*

*and logistics sectors. The motors segment, which represents a significant portion of its revenue, encompasses assembly, import, distribution, and retail businesses, featuring partnerships with leading automotive manufacturers.*

*Notably, Sime Darby Motors, the automotive arm, boasts over 50 years of experience in vehicle sales, servicing, distribution, assembly, and rentals. Operating in ten markets across the Asia Pacific, it serves as a trusted partner for renowned automotive brands like BMW, MINI, Rolls-Royce, Porsche, Volvo, Ford, Hyundai, and BYD, as well as premium truck brands such as Volvo Trucks, Hino, and Mack, along with industrial equipment brands like Hyster and Palfinger.*

In alignment with the global shift towards electric vehicles, Sime Darby Motors is actively involved in the EV sector, offering a range of electric and hybrid vehicles from its partner brands while also exploring opportunities to expand its presence and offerings in this emerging market segment.

### Driving innovation: Sime Darby's evolution in the EV Market

Sime Darby's strategic approach to the EV market has evolved significantly over the years, reflecting a commitment to capitalise on emerging opportunities and stay at the forefront of industry trends.

In 2021, the company embarked on a path of capacity building, expanding its presence in China, enhancing its used car offerings, and establishing partnerships to strengthen its position in the EV space.

The establishment of KINETA in 2022 marked a proactive step towards preparing for the EV revolution, while acknowledging the disruptions reshaping the automotive landscape. With a keen focus on digitalisation and after-sales

services, Sime Darby laid the groundwork for seamless customer experiences in the EV era.

By 2023, the company's outlook remained optimistic, buoyed by successful EV rollouts and ventures into profitable segments of the EV value chain, including charging infrastructure and assembly.

Strategic acquisitions further diversified Sime Darby's portfolio and expanded its footprint, positioning the company as a key player in the global transition towards cleaner energy sources.

Notably, EV sales surged, increasing by 13.3% from the previous fiscal year, and the KINETA business achieved significant growth, installing a total of 1,869 chargers in FY2023 alone. With a comprehensive strategy encompassing product offerings, infrastructure development, market expansion, and digital innovation, Sime Darby is well-positioned to navigate the evolving EV landscape and drive sustainable growth into the future.

Sime Darby also collaborates with various OEMs boasting robust EV portfolios. With a dealership network spanning over 30 marques across the Asia Pacific region, the company offers a diverse range of EV options from its OEM partners. Notably, in Malaysia, Sime Darby has joined forces with BYD to distribute its EV models in the local market.

Moreover, in China, the company has forged partnerships with emerging EV manufacturers like Li Auto, NIO, and Smart, expanding its EV offerings to cater to evolving consumer preferences.

Additionally, Sime Darby Motors has been appointed as the exclusive distributor of BYD vehicles in both Malaysia and Singapore, further solidifying its commitment to advancing the adoption of EVs in the region.

## **Electrifying growth: Sime Darby's financial performance in the EV segment**

Sime Darby's financial performance in the EV segment reflects a notable uptrend, propelled by robust car sales in Malaysia. The continuation of strong car sales was bolstered by favorable factors such as sales tax exemptions and EV incentives.

A significant highlight is the remarkable increase in EV sales, with figures climbing from 4.5% in the previous fiscal year to an impressive 17.8% in the current reporting period. This substantial surge underscores the growing traction and demand for EVs within Sime Darby's market portfolio.

Notably, the proportion of EVs among new and used vehicles sold by the Group saw a significant rise, reaching 12% compared to a mere 3% in 2021.

## **Charting new territories: Sime Darby's expansion in EV Markets**

### ***Acquisition of UMW Holdings***

Sime Darby's strategic move to acquire 61.2% of UMW Holdings Bhd in August 2023 marks a significant milestone in its expansion within the EV segment. UMW, a renowned name in Malaysia's automotive sector, specialises in assembling and distributing Toyota vehicles and holds a strategic 38.8% stake in Perodua, Malaysia's top-selling car brand.

With Toyota and Perodua collectively commanding around 52% of the Malaysian market, this acquisition presents a compelling opportunity for Sime Darby to strengthen its Motors business in Malaysia and broaden its footprint in the local automotive industry.



By enhancing its participation in the mass market segment alongside its existing stronghold in the luxury segment, Sime Darby aims to bolster its distribution and manufacturing capabilities, complementing its retail businesses effectively.

Additionally, the Malaysia-centric nature of UMW aligns strategically with Sime Darby's goal of achieving a more balanced revenue distribution across key markets, particularly in Malaysia, Australasia, and China.

This acquisition not only signifies a partnership with one of the world's most respected automakers, Toyota, but also heralds promising growth opportunities for Sime Darby, its partners, suppliers, and employees.

The company plans to undertake a Mandatory General Offer to acquire the remaining 38.8% of UMW, followed by its delisting, underscoring its commitment to maximising synergies and driving sustained growth in the evolving automotive landscape.

### **Expansion into Australasia**

Sime Darby's expansion into Australasia is linked to its growth strategy in the EV segment, particularly through its focus on the mining industry and the supply of battery metals essential for EV production. With a strong emphasis on transitioning towards cleaner energy sources, Sime Darby recognises the pivotal role of the mining sector in facilitating this shift.

Australia, renowned for its abundant high-quality ores and minerals, emerges as a key strategic location for Sime Darby to leverage the global decarbonisation agenda.

Through strategic acquisitions like Onsite, a prominent provider of equipment rental solutions in Australia's mining, energy, and

industrial sectors, Sime Darby aims to diversify its industry segments and expand its exposure to battery metals. The acquisition not only broadens Sime Darby's industrial rental equipment offerings but also provides geographic expansion into high-growth areas of the Australian market.

With a workforce of over 500 people and a vast fleet of assets, Onsite's expertise in the mining and construction equipment rental market aligns seamlessly with Sime Darby's strategic vision.

### **Bermaz Auto (5248)**

*Bermaz Auto Berhad (BAuto) is a Malaysian company established in 2010. Renowned for its commitment to environmental, social, and governance (ESG) practices, BAuto is actively engaged in various activities within the automotive industry.*

*Primarily, it specialises in the distribution and retailing of completely built-up (CBU) and completely knocked-down (CKD) vehicles, representing esteemed brands such as Mazda, PEUGEOT, and Kia in Malaysia.*

*Additionally, the company provides comprehensive after-sales services and spare parts for Mazda, PEUGEOT, Citroen, DS, and Kia vehicles, enhancing customer satisfaction and loyalty. BAuto extends its operations beyond Malaysia, distributing Mazda vehicles and spare parts in the Philippines through appointed dealers.*

Notably, BAuto's efforts in the EV sector are gaining momentum, with its associated companies involved in the production and assembly of CKD Mazda and Kia vehicles, incorporating both local and imported parts.

## **BAuto's growing portfolio of EV offerings**

BAuto has been proactive in expanding its EV lineup to meet the evolving demands of consumers while actively contributing to sustainability efforts.

Throughout FY2023, the company introduced a range of new EV models to the market. Among these models were the Mazda MX-30, an imported electric vehicle, and the locally assembled all-new Mazda CX-8, both launched in June 2022.

Subsequent additions included the Kia Carnival (7 and 8-seater) in July 2022, and the Mazda CX-30 and Kia Sorento (6 and 7-seater) in March 2023. These new releases garnered positive reception from the public, highlighting BAuto's commitment to offering innovative and sustainable mobility solutions.

Furthermore, recognising the growing importance of EVs in the automotive landscape, BAuto launched the Kia Niro electric vehicle in July 2023, with plans to introduce the Peugeot E-2008 electric vehicle by the end of 2023 or early 2024.

By expanding its EV lineup, BAuto aims to cater to diverse customer needs and preferences while driving forward the adoption of electric vehicles in Malaysia's automotive market.

## **BAuto's collaborative initiatives in EV transformation**

BAuto's strategic partnerships underscore its commitment to driving EV transformation and fostering sustainability within the automotive industry.

One notable collaboration involves the Malaysian government's Memorandum of Cooperation (MoC) with industry players, including BAuto, aimed at transforming Technical and Vocational Education and

Training (TVET) programs. As one of the selected private sector participants, BAuto is actively involved in enhancing TVET initiatives to cultivate a skilled local workforce and reduce reliance on foreign labor.

Additionally, BAuto's engagement with the Zero Emission Vehicle Association (ZEVA) further solidifies its commitment to environmental advocacy and clean transportation solutions. Through ZEVA, BAuto collaborates with like-minded stakeholders to advocate for the adoption of battery electric vehicles (BEVs) and drive positive change in Malaysia's transportation ecosystem. By participating in ZEVA initiatives, BAuto contributes to the development of policies, standards, and public awareness campaigns related to BEVs, paving the way for a greener and more sustainable future.

## **Empowering tomorrow's technicians: BAuto's EV-focused training school**

BAuto's Training School plays a pivotal role in preparing the workforce for the transition to electric vehicles and advancing technological advancements in the automotive sector. Formerly known as the Mazda Training Centre, the rebranded BAuto Training School offers comprehensive TVET programs focused on EV technology.

These programs aim to equip technicians and mechanics with the necessary skills and knowledge to effectively handle electric vehicles' intricate components and ensure safe operations.

The revamped training curriculum includes initiatives such as the BAuto Mechatronic Programme (BMP) and BAuto Mechanic Programme (BAMP), which emphasise EV readiness and compliance with industry certifications and standards. Graduates of

these programs are offered employment opportunities within the BAUTO Group, contributing to the development of a skilled workforce in the automotive industry.



## EP Manufacturing (7773)

*EP Manufacturing Berhad (EPMB) and its group of companies are prominent players in the downstream section of Malaysia's EV value chain, primarily focusing on the manufacture of automotive parts and components. With a diverse portfolio, EPMB produces various automotive modular assemblies, suspension parts, chassis components, body parts, cross members, and engine parts.*

*EPMB's clientele includes renowned car manufacturers such as Honda, Toyota, Perodua, Mazda, and Proton. As part of its strategic initiatives, EPMB is actively diversifying its business operations, with a particular emphasis on venturing into the EV sector. This positions EPMB as a key player in Malaysia's evolving automotive landscape, particularly in the burgeoning EV market segment.*

### EPMB's sustainable entry into the EV market

EPMB embarked on a strategic expansion into the EV business in 2022, aiming to diversify its revenue sources and contribute to environmental sustainability. This move was catalysed by agreements with Sharkgulf Technologies and Lingbox, focusing on the manufacture, marketing, and distribution of electric 2-wheel EVs and Micro EV passenger cars, respectively.

EPMB's wholly-owned subsidiaries, EP Blueshark Sdn. Bhd. and EP 4Wheeler Sdn. Bhd., spearheaded these initiatives,

marking the company's foray into the EV segment.

The venture into the EV sector yielded promising results, with the launch of the Blueshark R1 electric bike garnering positive responses from Malaysian customers. Sales figures reflected the sale of 150 units by year-end, contributing RM2.3 million to the Group's revenue.

EPMB remains cautiously optimistic about the EV segment's performance, considering the nascent stage of EV demand in Malaysia. However, the company is confident that global trends favoring electrification, coupled with growing concerns over environmental sustainability, will drive future demand for EVs, positioning the EV business segment as pivotal for EPMB's future growth and sustainability.

Furthermore, EPMB outlined a sustainability strategy for its EV business, emphasising sustainable product design, energy efficiency, renewable energy adoption, sustainable supply chain management, and employee engagement and training. These initiatives underscore EPMB's commitment to environmentally responsible practices and operational efficiency within the EV sector. As Malaysia sets its sights on achieving Net Zero status by 2050, EPMB is poised to play a significant role in driving EV adoption and contributing to the nation's sustainable development goals.

### Charging ahead: EPMB's strategic partnerships in the EV sector

**Partnership with Sharkgulf Technologies**

EPMB embarked on its journey into the EV sector through strategic partnerships, commencing as early as March 2022 and extending into subsequent years.



In March 2022, EPMB entered into a Memorandum of Agreement (MoA) with CIS Pride Silver Rock Fund and Sharkgulf Technologies Group Limited, laying the foundation for a production and localisation plan for assembling, manufacturing, and distributing 2-wheel EVs in Malaysia and Southeast Asia.

EPMB's subsidiary, EP Blueshark Sdn. Bhd., played a crucial role in this endeavor, receiving conditional approval from the Ministry of International Trade and Industry (MITI) for electric bike assembly.

Subsequent approvals for vehicle type approval and homologation enabled EP Blueshark Sdn. Bhd. to commence operations and secure manufacturing licenses, facilitating the assembly, manufacture, and localisation of EV components in Malaysia in August and September 2022.

In September 2022, EPMB expanded its partnership with Sharkgulf through a Memorandum of Understanding (MoU) aimed at developing 2-wheel EVs and related products in the Middle East market, demonstrating the company's commitment to global market diversification.

Furthermore, EPMB solidified its presence in the EV ecosystem through collaboration agreements in September 2022 with Grabcar Sdn Bhd and Blueshark Ecosystem Sdn Bhd. These partnerships aimed to champion green mobility and ESG initiatives, emphasising the conversion of internal combustion engine (ICE) motorcycles to EV motorcycles. The R1 Pilot Programme, initiated by Blueshark, provided selected Grab Delivery-Partners with free trials of EV bikes, gathering valuable user data, and promoting cost savings through green mobility.

Looking ahead to January 2023, EPMB continues to seize e-MotorBike business opportunities in Indonesia and Vietnam

through a master agreement with Averte Global Pte Ltd and Blueshark Group Limited. These collaborations underscore EPMB's commitment to innovation, sustainability, and market expansion in the dynamic EV landscape, offering investors a glimpse into the company's proactive approach towards capturing emerging opportunities and driving long-term value creation in the EV sector.

### ***Partnership with SAEN Group***

In October 2022, EPMB forged a significant collaboration with SAEAN Group Inc. (SGI) through a MoA, marking a pivotal step towards mass-producing EVs for the Malaysian and Southeast Asian markets. This strategic alliance aimed to address the growing demand for eco-friendly transportation solutions and capitalise on the burgeoning EV segment.

The MoA outlined a comprehensive plan for EPMB and SGI to jointly develop and mass-produce EVs, focusing initially on an A-segment class, including small SUVs and construction equipment. With an initial targeted volume of 20,000 units per annum and plans for expansion into export opportunities, EPMB and SGI demonstrated their commitment to scaling production to meet market demand effectively.

EPMB's strengths in supplying major functional automotive modules to various OEMs complemented SGI's expertise in EV technology development, including the creation of A-segment 4-seater 5-door electric cars. This synergy allowed for the optimal utilisation of resources and capabilities, ensuring a streamlined production process from planning and development to testing and eventual manufacturing.

Through this collaboration, EPMB positioned itself as a key player in the regional EV market, leveraging its local

manufacturing support to facilitate the production of high-quality, eco-friendly vehicles. SGI's track record in EV technology innovation further bolstered the alliance's credibility and potential for success.

### **Partnership with Hubei and Tsingyan**

In December 2022, EP 4Wheeler Sdn. Bhd. (EP4W), a subsidiary of EPMB, solidified a significant partnership with Hubei Dongfeng Power Auto Trade Co., Ltd (Hubei) and Xiamen Tsingyan Hylong Motor Technology Co., Ltd (Tsingyan) through an Exclusive Distributor Agreement. This agreement granted EP4W the exclusive rights to assemble and sell LINGBOX Auto Products under various brand names, including LINGBOX Auto, Qingyan Hailong, or EP4W's own auto mark, in Malaysia and Indonesia.

The Exclusive Distributor Agreement, effective from January 1, 2023, for a period of five years, with an automatic renewal option for an additional five years, highlighted EPMB's strategic focus on expanding its presence in the automotive market. By securing exclusive rights to distribute and sell LINGBOX Auto Products, EPMB aimed to capitalise on emerging opportunities in the automotive sector, particularly in the EV segment.

Leveraging Tsingyan's expertise in auto technology and product development, EPMB positioned itself as a key player in the assembly and distribution of LINGBOX Auto Products, catering to the growing demand for high-quality, innovative automotive solutions in Malaysia and Indonesia.

### **EPMB's acquisition of manufacturing license for EVs**

EPMB achieved a significant milestone in its EV venture with the acquisition of a Manufacturing License for EEV (Energy Efficient Vehicles), Electric Passenger Vehicles, and Electric Commercial Vehicles. The Ministry of Investment, Trade and Industry (MITI) Malaysia granted Peps-JV (Melaka) Sdn Bhd ("PJVM"), a wholly owned subsidiary of EPMB, the Manufacturing License on July 10, 2023, in accordance with the Industrial Co-ordination Act 1975.

PJVM is strategically positioning itself by establishing a Manufacturing Plant dedicated to manufacturing and assembling EVs and related products in Malaysia. This expansion not only unlocks new revenue streams but also aligns EPMB's business with sustainability initiatives.

Importantly, the acquisition of the Manufacturing License signifies EPMB's readiness to capitalise on the growing demand for EVs and underscores its long-term vision to be a key player in the electric mobility landscape. This development reflects positively on EPMB's growth trajectory and reinforces its position as a leader in the EV segment.

### **Expanding horizons: EPMB's ASEAN initiative in battery swapping infrastructure**

EPMB has also strategically ventured into the battery swapping segment, aiming to revolutionise EV infrastructure across ASEAN markets.

On January 17, 2023, EPMB inked a MoU with Tenaga Switchgear Sdn Bhd (TSG), a subsidiary of Tenaga Nasional Berhad, signaling a collaborative effort to roll out Battery Swapping Stations and related infrastructure across ASEAN, including Malaysia.

Battery swapping stations are crucial for the seamless roll-out of two-wheel EVs due to their ability to reduce range anxiety, provide increased convenience, ensure scalability and accessibility, offer potential cost-effectiveness, and drive technological advancements. These stations allow EV users to quickly swap depleted batteries for fully charged ones, eliminating long charging times and ensuring uninterrupted journeys.

The MoU outlines several key objectives, including the exploration of localising batteries and battery swapping stations for the ASEAN market, unifying battery swapping station and infrastructure networks in Malaysia and ASEAN countries, and deploying Battery Swapping Stations via TSG's extensive network in the region. This initiative aligns with EPMB's EV venture and carbon credit ambitions, reflecting its commitment to sustainable transportation solutions and environmental stewardship.

EPMB's wholly-owned subsidiary, EP Blueshark Sdn Bhd, spearheads this collaboration, leveraging its expertise in the EV sector. The partnership with TSG aims to facilitate the commercial rollout of EPMB's two-wheeler EV business in Malaysia and extend its footprint across ASEAN countries. EPMB recognises the critical role of a robust Battery Swapping Station infrastructure in enabling seamless EV operations and market penetration.

## **Tenaga Nasional (5347)**

*Tenaga Nasional Berhad (TNB) stands as Malaysia's leading electric utility company, boasting a comprehensive portfolio that spans electricity generation, transmission, distribution, and sales. TNB operates through distinct divisions dedicated to generation, transmission, and distribution, with a focus on thermal and hydroelectric power plants situated across Malaysia.*

Notably, TNB is also strategically positioning itself to leverage the burgeoning EV market in an effort to align with Malaysia's evolving energy landscape. While its core operations remain centered on electricity generation and distribution, TNB is diversifying its portfolio to include initiatives aimed at supporting and promoting the adoption of electric vehicles. These efforts underscore TNB's commitment to sustainability and its proactive stance in driving Malaysia's transition towards greener transportation solutions.

### **Charting the course: TNB's vision for Malaysia's EV ecosystem**

Malaysia's EV landscape witnessed remarkable growth in 2022, with approximately 2,093 BEVs hitting the roads—an eight-fold increase from the previous year, underscoring robust demand. Concurrently, the proliferation of public Direct Current (DC) fast EV chargers surged from a mere two charging points in 2021 to an impressive 105 points in 2022. Recognising the pivotal role of infrastructure in catalysing EV adoption and alleviating range anxiety among BEV owners, TNB is strategically positioned to spearhead initiatives aimed at enhancing the EV ecosystem.

In 2022, TNB embarked on its EV infrastructure blueprint, marked by the introduction of the Electron brand—a symbol of TNB's foray into the EV domain.

Notably, TNB identified 11 strategic locations nationwide for the deployment of 22 Electron EV fast-charging points, with 10 of these stations strategically positioned along key transportation arteries, including the north-south and east coast highways. Already, three chargers have been commissioned in early 2023, marking tangible progress in TNB's EV infrastructure rollout.

TNBX Sdn. Bhd., a wholly-owned subsidiary of TNB, has emerged as a vital player in advancing TNB's EV agenda by offering a suite of solutions tailored to meet customers' ESG objectives. Among these solutions, TNBX facilitates EV charging platforms, empowering users to reload, reserve, and recharge their vehicles through the GO TO-U mobile app. This platform also offers additional services such as battery health checks, maintenance, and customer support, augmenting the EV ownership experience.

Looking ahead, TNB is poised to lead Malaysia's transition toward low-carbon mobility by envisaging an expansive charging infrastructure network. With provisions for 3,300 charging points by 2025 and 18,000 points by 2030, TNB is committed to investing RM22 million in 2023 and RM90 million over the span of three years (2022-2024) to bolster the development of the EV ecosystem.

TNBX assumes a pivotal role as the Charge Point Operator (CPO), while Tenaga Switchgear Sdn. Bhd. (TSG) spearheads equipment manufacturing for TNB Electron stations.

In 2023, TNB plans to deploy EV charging stations along Peninsular Malaysia's highways and trunk roads, facilitating seamless journeys for BEV owners. Moreover, TNB actively fosters collaboration across the EV value chain, leveraging strategic discussions to unite industry players and propel common objectives.

Initiatives encompass infrastructure development, coalition-building, sponsorship of EV-related studies, electrification of TNB's fleet, and workforce reskilling for the burgeoning EV industry.

### **TNB's partnerships within the EV sphere**

#### ***Partnership with Ipoh City Council (MBI)***

In February 2022, TNB embarked on a strategic partnership with the Ipoh City Council (MBI) to contribute to Ipoh's vision of becoming a low carbon smart city and achieving "Bestari Sejahtera" status by 2030.

Through this MoU, TNB committed to supplying energy efficiency products and services, including renewable energy solutions provided by its subsidiary, GSPARX Sdn. Bhd. This collaboration aims to drive the installation of photovoltaic solar systems, smart LED street lighting, energy performance monitoring systems, electric vehicle charging infrastructure, and smart meters, pivotal initiatives in establishing Ipoh as a Smart City.

#### ***Partnership with Gamuda Land***

In October 2022, TNB forged a strategic partnership with Gamuda Land to pioneer Malaysia's first solar-powered Electron stations for electric vehicle charging.

This collaboration aims to build two TNB Electron Stations at Gamuda Land's property development projects in Selangor. Situated in Gamuda Cove and Gamuda Gardens, these stations will feature multiple chargers in one site, catering to local communities and visitors to theme parks and recreational areas within Gamuda Land developments.

#### ***Partnership with Sime Darby Motors***

Another significant partnership emerged between TNB and Sime Darby Motors Malaysia, signifying a joint commitment to support Malaysia's low-carbon mobility aspirations. This collaboration, established

through a MoU, endeavors to explore various initiatives to accelerate electric vehicle adoption. TNB and Sime Darby Motors Malaysia aim to develop a network of highly efficient EV charging infrastructure and digital platforms while identifying energy-efficient and renewable energy initiatives to optimise the cost of EV charging infrastructure and reduce carbon emissions.

#### **Partnership with Majlis Amanah Rakyat (MARA)**

TNB ventured into a strategic collaboration with Majlis Amanah Rakyat (MARA) to drive the development of EV charging infrastructure and learning. Through this partnership, TNB and MARA install photovoltaic solar panels at MARA educational institutions to generate clean electricity and develop EV charging infrastructure for MARA Liner buses.

This collaboration aligns with the National Renewable Energy Policy 2025, contributing to Langkawi's Low Carbon Island vision and empowering over 30,000 students and trainees in Technical and Vocational Education and Training (TVET).

#### **Partnership with PLUS Malaysia**

Collaborating with PLUS Malaysia, TNB embarked on initiatives to reduce carbon emissions along PLUS highways by developing an EV charging station network and integrating energy efficiency monitoring and solar photovoltaic systems at selected Rest and Service Areas (RSAs). This collaboration saw the launch of three TNB Electron EV charging stations equipped with Direct Current Fast Chargers (DCFC) at strategic locations, facilitating pilot testing and enhancing electric vehicle infrastructure.

#### **Partnership with Malaysia Automotive, Robotics and IoT Institute (MARii)**

Additionally, TNB partnered with the Malaysia Automotive, Robotics and IoT Institute (MARii) in a Research and Development collaboration to develop EV Telematics and Internet of Things (IoT) solutions. This partnership aims to set up co-joined research initiatives to monitor and manage identified EV parameters for enhanced EV and EV charger utilisation, further contributing to the development of the EV ecosystem.



#### **Yinson Holdings (7293)**

*Yinson Holdings, a Malaysian transportation and logistics company, operates primarily in the marine sector, leasing, trading, and operating vessels, offering chartering services for marine assets, and providing ship management consulting. The company also engages in other operations, including investments and consultancy services.*

#### **Electrifying land and sea: YGT's sustainable transport solutions**

In 2020, Yinson established Yinson GreenTech (YGT) as its sustainable solutions arm. YGT specialises in providing green technology solutions aimed at creating a clean, integrated, and technology-driven transport ecosystem across both land and sea. The core focus of YGT is to electrify transportation systems. YGT's vision aligns with the global movement towards achieving net-zero carbon emissions and sustainability goals.



By 2021, the company had identified and begun nurturing key opportunity areas, focusing on the electrification of marine and land transportation.

In 2022, YGT intensified its efforts by concentrating on developing businesses where it had operational control, namely *chargEV*, *drivEV*, *rydeEV* and *marinEV*. These ventures targeted EV infrastructure, EV leasing, micromobility and marine electrification, respectively. Additionally, YGT bolstered its digital capabilities to architect and develop software necessary for integrating various technologies, laying the foundation for a robust ecosystem of smart assets.

Key activities of YGT revolve around accelerating EV and vessel adoption, aiding commercial and industrial customers in achieving net zero goals, and providing a digital platform for prototyping and commercialising integrated technologies. The revenue model encompasses leasing and operating electric vehicle and vessel fleets, subscription-based charging infrastructure, and licensing white-labeled software solutions.

### *drivEV*

*drivEV*, Yinson's EV leasing business, debuted in Singapore and Malaysia in mid-2022, marking a significant step in the company's transport electrification efforts. The fleet, equipped with advanced features like Telematics and GPS tracking accessible through a proprietary mobile app, offers enhanced urban mobility solutions.

Collaborations with partners such as Dinamikjaya Motors and leasing agreements with corporates like Wasco Energy and Starbucks demonstrate the growing demand for EV leasing services. In Malaysia, notable partnerships have facilitated the deployment of EVs for

corporate fleets, while in Singapore, the lease of autonomous EVs underscores Yinson's commitment to innovative mobility solutions.

### *marinEV*

Yinson's marine electrification arm, *marinEV*, focuses on leasing electric vessels and advancing technology-enhanced marine transport solutions.

Prototypes of electric passenger vessel, Hydroglyder, and electric cargo vessel, Hydromover, are nearing completion.

Hydroglyder, featuring advanced hydrofoil technology, aims for significant energy savings, while Hydromover targets operational expense reduction compared to conventional vessels. These initiatives represent Yinson's pioneering efforts towards sustainable marine transport solutions, positioning the company as a key player in the maritime electrification space.

### *rydeEV*

As part of Yinson's micromobility initiatives, *rydeEV* introduces e-bikes with swappable batteries, providing convenient and eco-friendly urban commuting solutions. With plans to introduce 150 e-bikes and 400 swappable batteries across the Klang Valley by the end of 2023, *rydeEV* aims to revolutionise urban transportation in Malaysia. The subscription and lease-to-own plans, coupled with battery-swapping services, cater to diverse user needs, making the transition to electric mobility accessible and affordable. *rydeEV*'s inclusive approach aligns with Yinson's vision of facilitating an equitable energy transition for all.

## chargEV

Yinson's venture into EV charging infrastructure through chargEV has witnessed significant strides in 2022 and 2023. Forming a joint venture with GreenTech Malaysia Alliances Sdn Bhd, Yinson established chargEV as Malaysia's largest EV charging network, aiming to enhance accessibility and convenience for EV users nationwide.

Partnerships with retailers like AEON and Starbucks, coupled with collaborations with Gentari and EV Connection, have expanded chargEV's reach and streamlined user experience. Entry into the Singapore market further signifies chargEV's regional expansion and commitment to accelerating EV adoption rates. With a focus on improving customer support, upgrading infrastructure, and introducing fast chargers, chargEV is poised for substantial growth, reaffirming Yinson's position as a key player in the EV charging landscape.

## Venturing into the autonomous driving sphere

Yinson's foray into autonomous driving technology marks a strategic expansion into cutting-edge transportation solutions, complementing its existing ventures in the EV and marine electrification sectors. The company initiated its investments in autonomous vehicle technologies through a co-investment with SMRT Ventures in MooVita, a Singapore-based autonomous vehicle startup, in June 2021.

This collaboration aims to accelerate the development and commercialisation of driverless solutions for public transportation, leveraging Yinson's expertise in logistics and energy alongside SMRT Ventures' experience in Singapore's transport ecosystem. Building on this investment, Yinson acquired a

controlling stake in eMoovit, MooVita's Malaysian operating arm, in December 2021, further solidifying its presence in the autonomous driving space.

In 2021, Yinson embarked on a tri-party research collaboration agreement with the National University of Singapore and MooVita to develop a Level 4 autonomous bus shuttle for operation within the university campus. This initiative underscores Yinson's commitment to advancing autonomous vehicle technologies and demonstrates its collaborative approach towards innovation in the green technologies space.

By partnering for co-investments and co-developments with technology startups and research institutions, such as Shift Clean Energy and the National University of Singapore, Yinson aims to leverage emerging technologies that enhance its green assets and facilitate integration across land and sea transport ecosystems. These investments and collaborative efforts signify Yinson's proactive stance in driving forward the development of autonomous systems for EVs, positioning the company at the forefront of the autonomous driving technology landscape while contributing to the realisation of a sustainable and interconnected transport ecosystem.

## Conclusion

The rise of electric vehicles (EVs) in Malaysia's automotive landscape presents a promising trajectory, with local companies making significant strides in the midstream and downstream segments of the EV value chain.

Their ventures into EV battery pack manufacturing, innovative LED technology solutions, EV manufacturing and distribution, as well as charging

infrastructure installations for EVs underscore Malaysia's growing capabilities and contributions to the global EV market.

Despite the absence of active engagement in mineral extraction for EV battery production, Malaysia's focus on midstream and downstream operations showcases its potential to become a key player in the EV sector. However, challenges such as the need for sustainable mineral sourcing, infrastructure development for EV adoption, and global market competition remain pertinent.

Moving forward, strategic collaborations, technological advancements, and government support will be crucial in overcoming these challenges and fostering the sustainable growth of the EV sector in Malaysia.

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Registration No. 198401000672 (113193-W)

L-7-2, No 2, Jalan Solaris, Solaris Mont' Kiara, 50480 Kuala Lumpur

Telephone: (603) - 6203 7227

Website: [www.mercurysecurities.com.my](http://www.mercurysecurities.com.my)

Email: [mercurykl@mersec.com.my](mailto:mercurykl@mersec.com.my)