

8. IMR REPORT

PROTEGE ASSOCIATES SDN BHD (20040107256-AZ5787-00)
SUITE C-09-12, PLAZA MONT' KIARA
2 JALAN KIARA, MONT' KIARA
50480 KUALA LUMPUR, MALAYSIA
GEN +603 6201 9301 FAX +603 6201 7302
www.protege.com.my

Protégé
ASSOCIATES

BOARD | FINANCE | MARKET

The Board of Directors
Steel Hawk Berhad,
23-2 & 25-2, Block H
Dataran Prima, Jalan PJU 1/37
47301 Petaling Jaya
Selangor

11 March 2024

Dear Sirs/Madams,

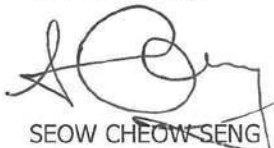
Independent Market Research Report on the Oil and Gas Services and Equipment Industry in Malaysia and the Overview and Outlook of the Renewable Energy Industry in Malaysia ("IMR Report")

Protégé Associates Sdn Bhd ("**Protégé Associates**") has prepared this IMR Report for inclusion in the Prospectus of Steel Hawk Berhad ("**Steel Hawk**" or the "**Company**") in connection with the initial public offering of 134,700,000 ordinary shares in the Company in conjunction with the transfer listing of Steel Hawk from the LEAP Market of Bursa Malaysia Securities Berhad ("**Bursa Securities**") to the ACE Market of Bursa Securities.

We have been engaged to provide an independent market research of the abovementioned industry in which Steel Hawk and its subsidiaries ("**Steel Hawk Group**", or the "**Group**") operate in. The market research process undertaken involved secondary research as well as detailed primary research when required, which involves interviews with the relevant stakeholders of the industry to discuss the state of the industry. Quantitative market information could be sourced from such interviews and therefore, the information is subject to fluctuations due to changes in business, industry and economic conditions.

We have prepared this IMR Report in an independent and objective manner and have taken adequate care to ensure the accuracy and completeness of the report. We believe that this IMR Report presents a balanced view of the industry within the boundaries and limitations of secondary statistics, primary research and continued industry movements. Our research has been conducted to present an overall view of the industry and may not necessarily reflect the performance of individual companies in this industry. Protégé Associates is not responsible for the decisions and/ or actions of the readers of this report. This 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 report.

Yours sincerely,



SEOW CHEOW SENG
Managing Director

About Protégé Associates Sdn Bhd

Protégé Associates is an independent market research and business consulting company. Our market research reports provide an in-depth industry and business assessment for companies raising capital and funding in the financial markets; covering their respective market dynamics such as market size, key competitive landscape, demand and supply conditions, government regulations, industry trends and the outlook of the industry.

Profile of signing partner, Seow Cheow Seng

Seow Cheow Seng is the Managing Director of Protégé Associates. He has 23 years of experience in market research, having started his career at Frost & Sullivan where he spent 7 years. He has a Master in Business Administration from Charles Sturt University, Australia and Bachelor of Business majoring in Marketing from RMIT University, Australia.

8. IMR REPORT (CONT'D)



COPYRIGHT NOTICE

No part of this IMR Report may be given, lent, resold, or disclosed to non-customers or any other parties, in any format, either for commercial or non-commercial reasons, without express consent from Protégé Associates. Furthermore, no part of this IMR Report may be extracted, reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, for purposes other than the proposed transfer listing of Steel Hawk from the LEAP Market of Bursa Securities to the ACE Market of Bursa Securities, without the express consent from Protégé Associates.

Any part of this IMR Report used in third party publications, where the publication is based on the content, in whole or in part, of this IMR Report, or where the content of this IMR Report is combined with any other material, must be cited and sourced to Protégé Associates.

The research for this IMR Report was completed on March 2024.

For further information, please contact:

Protégé Associates Sdn Bhd

Suite C-09-12, Plaza Mont' Kiara,
2 Jalan Kiara, Mont' Kiara,
50480 Kuala Lumpur, Malaysia.
Tel: 603 6201 9201

© 2024, All rights reserved. **Protégé Associates Sdn Bhd**

8. IMR REPORT (CONT'D)



BRAND | FINANCE | MARKET

1.0 Introduction to Oil and Gas Services and Equipment (“OGSE”)

The oil and gas industry revolves around the exploration, extraction and processing of crude oil and natural gas, and is segmented into upstream, midstream and downstream sectors. The upstream sector involves the exploration, development and extraction of crude oil or gas from onshore or offshore oil or gas fields. The midstream sector involves transporting of crude and refined petroleum products to refinery, processing and storage facilities. Lastly, the downstream sector involves refining of crude oil, processing of natural gas, manufacturing of petroleum and petrochemical products, and marketing and retailing of petroleum and petrochemical products to end-users.

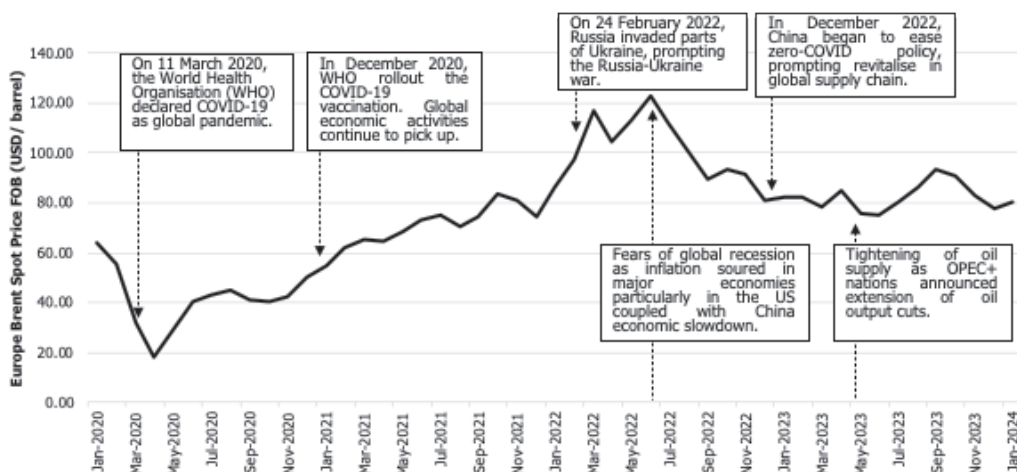
OGSE refers to broad categories of products and services that support the needs of the oil and gas value chain from upstream to downstream sectors. In Malaysia, the OGSE can be divided into 2 types, namely standardized work and equipment categories (“SWECS”) for services and SWECS for products as classified by Petroliaam Nasional Berhad (“PETRONAS”). Some examples of SWECS for services include provision of geophysical services, electrical engineering and maintenance, engineering design, production/drilling/workover associated services, marine transportation and support services, onshore and offshore facilities construction as well as pipeline and associated services. On the other hand, some examples of SWECS for products include chemicals, drilling equipment and materials, electrical, instrumentation, insulation, pipes, mechanical, rotating equipment, civil and structural, subsea and valves.

1.1 Overview of the Global Oil and Gas Industry

The world crude oil production increased by 4.98% from 69.35 million barrels per day in 2021 to 72.80 million barrels per day in 2022. The Middle East region remained as the largest crude oil producing region, contributing 25.09 million barrels per day while the Asia-Pacific region contributed 6.24 million barrels per day in 2022. On a closer look, the top 5 crude oil producing countries in the world in 2022 were the United States of America, Saudi Arabia, Russia, Iraq and China while in the Asia-Pacific region, major crude oil producing countries are China, India, Indonesia and Malaysia. Major crude oil producing countries in the Middle East region include Iran, Iraq, Kuwait, Oman, Saudi Arabia and United Arab Emirates.

As prices of crude oil have been cyclical, Protégé Associates has used the historical price movements of the Europe Brent Spot Price free on board (“FOB”) as a proxy for the overall price trend of crude oil in the world. The diagram below depicts the movement of monthly crude oil prices since 2020 up to January 2024. Prior to 2020, the crude oil price hovered between USD60.00 to USD75.00 per barrel notably influenced by trade dispute between the United States of America (“US”) and China as well as slowing global economic growth.

Figure 1: Historical Monthly Crude Oil Price, January 2020 to January 2024



Source: Protégé Associates

8. IMR REPORT (CONT'D)

In 2020, the crude oil prices have been under heavy downward pressures due to 2 major shocks to the world economy; the price war sparked by Saudi Arabia and the fuel demand destruction caused by the Coronavirus Disease 2019 ("COVID-19") pandemic. The crude oil prices had plummet from USD63.65 per barrel in January 2020 to USD18.38 per barrel in April 2020, caused by contraction in global oil demand and massive selloffs amid a significant global oversupply. Nonetheless, oil demand had picked up in the second half of the year and global oversupply of oil has gradually alleviated as movement and travel restrictions eased and economic activities resumed in many countries. Furthermore, news of the roll-out of COVID-19 vaccines raised optimism on oil demand recovery. By December 2020, the crude oil rose to USD49.99 per barrel.

In 2021, the crude oil prices continued to recover despite a resurgence in COVID-19 cases. The rise in demand for oil following a recovery in economic activities quickly eliminated the oil glut situation, and with oil producers unable to promptly resume production which led to demand outpaced supply. The Organization of Petroleum Exporting Countries ("OPEC") and its allies (collectively known as OPEC+) agreed to production cut in late 2020 as well as limit production increases throughout 2021 to support higher crude oil prices. The crude oil prices increased from USD54.77 per barrel in January 2021 to USD74.17 per barrel in December 2021 (the average price was USD70.86 per barrel for 2021).

In 2022, the crude oil prices continued to climb higher. The global supply chain experienced disruptions as a result to the war between Russia and Ukraine. Russia's involvement in the war has raised concerns about the country's oil supply given its position as one of the largest exporters of oil globally. Crude oil prices have hovered between USD100.45 and USD122.71 per barrel from March to August 2022. Subsequently, due to recession fears in some major economies as well as the economic slowdown in China, the crude oil prices dipped below USD100.00 per barrel in September 2022. With the OPEC+ production cuts in place, crude oil prices stabilise at USD80.92 by the end of December 2022. On top of that, China's decision to ease its' COVID-19 Zero Policy in December 2022 also served to further support the oil prices (the average price was USD100.78 per barrel in 2022).

On 2 April 2023, OPEC+ announced a further production cut of 1.16 million barrels per day. Following this, Saudi Arabia pledged an additional voluntary reduction in output by 1 million barrels for July. In November, OPEC+ agreed to extend the production cuts into the first quarter of 2024. Further, China's economic recovery has continued to keep crude oil prices stable. By December 2023, the crude prices stood at USD77.63 (the average price was USD82.47 per barrel for 2023).

The world marketed production of natural gas was consistent for 2021 and 2022, with production amounting to 4.172 trillion standard cubic meters and 4.167 trillion standard cubic meters respectively. After the Americas (1.25 billion standard cubic metres) and Eurasia (838,674.00 million standard cubic metres), the Middle East region was the 3rd largest regional source of marketed production of natural gas, contributing 736,470.00 million standard cubic metres of the world marketed production of natural gas in 2022 while the Asia-Pacific region stood at 704,660.00 million standard cubic metres in 2022. On a closer look, the 5 countries with the highest marketed production of natural gas in the world in 2022 were the United States of America, Russia, Iran, China and Qatar while in the Asia-Pacific region, major countries for marketed production of natural gas include China, Australia, Indonesia and Malaysia.

In terms of the world refinery capacity, it has increased slightly from 101.26 million barrels per calendar day in 2021 to 101.77 million barrels per calendar in 2022. In 2022, the Asia-Pacific region had the highest refinery capacity at 36.49 million barrels per calendar day while the refinery capacity in the Middle East region stood at 10.04 million barrels per calendar day. Countries in the Asia-Pacific and the Middle East regions with refinery capacity of more than 2.00 million barrels per calendar day in 2022 were China, India, Japan, South Korea, Iran and Saudi Arabia. Similarly, the world output of petroleum products has also increased from 89.19 million barrels per day in 2021 to 91.12 million barrels per day in 2022. The Asia-Pacific region has remained as the largest petroleum products producing region with 32.90 million barrels per day produced in 2022 while the output of petroleum products in the Middle East region stood at 7.88 million barrels per day. Countries in the Asia-Pacific and the Middle East regions with output of petroleum products of more than 2.00 million barrels per day in 2022 were China, India, Japan, South Korea and Saudi Arabia.

8. IMR REPORT (CONT'D)**1.2 Overview of the Malaysian Oil and Gas Industry**

The Malaysian oil and gas industry is part of the broader mining and quarrying sector where the mining and quarrying sector accounted for RM96.20 billion or 6.37% of the Malaysian's real gross domestic product in 2022. Out of the mining and quarrying sector, the crude oil and condensate, and natural gas related activities contributed RM87.47 billion or 5.79% of the Malaysian's real gross domestic product in 2022. The crude oil and condensate, and natural gas related activities are projected to register a modest decline of 1.63% to RM86.04 billion in 2023, followed by a growth of 7.65% to reach RM92.62 billion in 2024, in terms of the Malaysia's real GDP.

In 2022, Malaysia is a net importer of crude petroleum (by value) with a trade deficit of RM21.39 billion. The export value of crude petroleum amounted to RM31.55 billion while the import value of crude petroleum amounted to RM52.94 billion. On another note, Malaysia is a net exporter of refined petroleum products (by value) in 2022. The export value of refined petroleum products amounted to RM151.66 billion while the import value of refined petroleum product amounted to RM139.83 billion during the year. Heavy investments made in recent years such as the Pengerang Integrated Complex and Integrated Aroma Ingredients Complex started to bear fruit and bolster the downstream capabilities of the country. PETRONAS has successfully ventured into specialty chemicals and has higher refining capacity to balance Malaysia's gasoline supply and demand. Furthermore, PETRONAS is now better positioned to undertake a lot more blending of oil to meet demand for low-sulphur oil from shippers following the new fuel regulations by the International Maritime Organization.

Malaysia is also a prominent exporter of natural gas in the Asia and Pacific region and has been exporting more than RM40.00 billion worth of liquefied natural gas ("LNG") per annum. Nonetheless, Malaysia's exports of LNG fell to RM38.19 billion in 2021 due to the impact of COVID-19. Exports of LNG rebounded strongly in 2022, with exports value reaching RM67.99 billion. Therefore, with key LNG assets such as PETRONAS Floating LNG Facilities (PFLNG-1 and PFLNG-2) and the PETRONAS LNG Complex in Bintulu, Sarawak, being one of the world's largest LNG production facilities at a single location, Malaysia is well positioned to gain further traction towards the monetisation of gas and strengthen its position as a reliable LNG supplier.

1.3 Historical Market Performance and Growth Forecast

The potential size of the OGSE industry in Malaysia is heavily dependent on the capital expenditure ("CAPEX") committed by PETRONAS. As the custodian of Malaysia's petroleum resources, PETRONAS allocates budgets and determines upstream and downstream oil and gas projects that will be undertaken in Malaysia which have a positive impact on the participation rate and revenue stream of OGSE industry players. Protégé Associates has used the annual domestic CAPEX programme of PETRONAS as a proxy to gauge the historical performance and growth of the OGSE industry in Malaysia.

Figure 2: Historical and Growth Forecast of the Domestic CAPEX of PETRONAS, 2021-2028

| Year | Domestic CAPEX (RM billion) | Growth Rate (%) |
|-------------------|-----------------------------|-----------------|
| 2021 | 15.00 | - |
| 2022 | 18.60 | 24.00 |
| 2023 ^e | 22.00 | 18.28 |
| 2024 ^f | 23.00 | 4.55 |
| 2025 ^f | 24.00 | 4.35 |
| 2026 ^f | 24.50 | 2.08 |
| 2027 ^f | 25.00 | 2.04 |
| 2028 ^f | 25.00 | - |

Notes:

- 1) *e* denotes estimate; *f* denotes forecast
- 2) compound annual growth rate ("CAGR")(2024-2028)(base year of 2023): 2.59%

Sources: PETRONAS and Protégé Associates

8. IMR REPORT (CONT'D)

The domestic CAPEX of PETRONAS increased by 24.0% from RM15.00 billion in 2021 to RM18.60 billion in 2022 driven by the growth of the Malaysian oil and gas industry. Amidst the continued disruption in global oil supply chain due to the Russia-Ukraine war as well as the economic recovery in a post-pandemic environment, PETRONAS has continued to strengthen our business and pursue CAPEX on exploration, development and production activities to sustain and grow production in Malaysia.

In 2023, the domestic CAPEX of PETRONAS increased by 18.28% from RM18.69 billion in 2022 to RM22.00 billion. The increase is mainly attributed to PETRONAS's investments in key projects including its Nearshore Floating LNG project in Sabah, the Kasawari Gas Field development, and the carbon sequestration (process of capturing and storing atmospheric carbon dioxide) facilities in Sarawak. Furthermore, the high average crude oil prices environment throughout the year facilitated PETRONAS robust spending endeavours. The increase in PETRONAS' capital expenditure would benefit the OGSE players due to increased demand for their services.

PETRONAS's commitment to sustaining and growing Malaysia's oil and gas productions as demonstrated by its 2024-2026 Activity Outlook and recent discovery of potential hydrocarbon reserves in the Langkasuka Basin, aligns with its ongoing efforts to ensure the industry's long-term viability. To enhance production efficiency and sustainability in the oil and gas industry, approximately 300 Facilities Improvement Plans (FIPs) are planned annually for the next three years. These include rejuvenation projects, gas turbine and generator replacements, and other major maintenance works. Moreover, decommissioning activities will be carried out for about 150 matured assets while disused assets will be assessed for potential reuse or repurposing. The downstream business is increasingly expanding into cleaner energy initiatives such as the ongoing development of a greenfield biorefinery and co-processing plant that is set to begin in 2026, alongside the expansion of LNG bunkering and PETRONAS automotive fluid solutions for electric vehicles (EVs) and other thermal management applications. These aforesaid developments are anticipated to provide opportunities for the OGSE players across exploration, development, production and decommissioning activities.

According to PETRONAS, its capital investment allocation over the next five years between 2023 to 2027 is expected to be 43.0% higher than the last five years i.e. between 2018 to 2022, mainly as a result of scaling up investments in the core business, lowering its emissions as well as investing in new business to future-proof PETRONAS' portfolio. As such, the annual domestic CAPEX of PETRONAS is projected to increase by 4.55% to reach RM23.00 billion in 2024. The annual domestic CAPEX of PETRONAS is projected to grow from RM23.00 billion in 2024 to RM25.00 billion in 2028, registering a CAGR of 2.59% during the forecast period. PETRONAS will continue to invest in core business activities and growth projects in continuing their effort to support and contribute towards the resiliency of the OGSE industry.

1.4 Competitive Analysis

The OGSE industry in Malaysia can be described as competitive and fragmented due to the presence of established players, high barriers to entry, PETRONAS licensing requirements, the availability of SWECS, participation of foreign players and the existence of a considerable number of industry players offering a wide range of services across the oil and gas value chain.

According to the Malaysian Petroleum Resources Corporation (an agency under the Ministry of Economy that provides recommendations and implements initiatives to advance Malaysia's OGSE industry and drive the sector's development towards cleaner and sustainable energy), 665 companies were recognised as OGSE companies in 2022, whom are companies registered with the Companies Commission of Malaysia and have revenue generated from the oil and gas activities.

In fact, there are several OGSE industry players that have already tapped into the equity market in Malaysia. For example, Ocean Vantage Holdings Berhad which is listed on the ACE Market of Bursa Securities, and Petra Energy Berhad, Carimin Petroleum Berhad, Propel Global Berhad, T7 Global Berhad, Handal Energy Berhad and Deleum Berhad which are listed on the Main Market of Bursa Securities. In addition, some of these OGSE industry players including the abovementioned industry players already have track record in executing or securing project(s) overseas.

8. IMR REPORT (CONT'D)



1.5 Comparison between Steel Hawk and Selected Industry Players

Steel Hawk Group is principally involved in the energy sector where the Group is primarily involved in engineering, procurement, construction and commissioning ("EPCC") services and facilities improvement/maintenance, installation and maintenance of oilfield equipment, as well as supply of oilfield equipment. For the financial year ended ("FYE") ended 31 December 2023, Steel Hawk Group Registered revenue of RM72.54 million.

Protégé Associates has identified several key industry players that are comparable based on the following criteria:

- Listed on Bursa Malaysia Securities Berhad;
- Primarily involved in the provision of EPCC services;
- Involved in provision of other related OGSE services such as supply of oilfield equipment; and

After taking into consideration about the above criteria, Protégé Associates has selected the following industry players as comparable companies with Steel Hawk Group.

Please note that the list of industry provided is not exhaustive. The comparable industry players may also be involved in other sectors and/or in provision of other products and services.

[The remainder of this page has been intentionally left blank]

8. IMR REPORT (CONT'D)**Figure 3: Financial Information of Steel Hawk Group and Selected Industry Players**

| Company | Product Offering | | Financial Year Ended | Revenue (RM'000) | Gross Profit/ (Loss) ("GP/(LP)") (RM'000) | Profit/ (Loss) Before Tax ("PBT/ (LBT)") (RM'000) | Profit/ (Loss) After Tax ("PAT/ (LAT)") (RM'000) | GP/(LP) Margin (%) | PBT/ (LBT) Margin (%) | PAT/ (LAT) Margin (%) |
|-----------------------------------|------------------|--|----------------------|------------------|---|---|--|--------------------|-----------------------|-----------------------|
| | EPCC | Other related OGSE activities ¹ | | | | | | | | |
| Steel Hawk Group | ✓ | ✓ | 31 December 2023 | 72,537 | 20,833 | 10,344 | 7,220 | 28.72 | 14.26 | 9.95 |
| Dialog Group Berhad | ✓ | ✓ | 30 June 2023 | 3,001,534 | 257,478 | 553,888 ² | 520,623 | 8.58 | 18.45 | 17.35 |
| Muhibbah Engineering (M) Berhad | ✓ | ✓ | 31 December 2022 | 896,809 | 184,210 | 24,310 | 5,720 | 20.54 | 2.71 | 0.64 |
| Dayang Enterprise Holdings Berhad | | ✓ | 31 December 2022 | 984,183 | 330,759 | 196,324 | 125,337 | 33.61 | 19.95 | 12.74 |
| Deleum Berhad | ✓ | ✓ | 31 December 2022 | 698,049 | 143,717 | 67,891 | 50,958 | 20.59 | 9.73 | 7.30 |
| Petra Energy Berhad | ✓ | ✓ | 31 December 2022 | 370,724 | 34,824 | 10,019 | 13,076 | 9.39 | 2.70 | 3.53 |
| Carimin Petroleum Berhad | | ✓ | 30 June 2023 | 254,736 | 47,646 | 27,228 | 22,869 | 18.70 | 10.69 | 8.98 |
| Propel Global Berhad | ✓ | ✓ | 30 June 2023 | 112,257 | 28,407 | 10,054 | 8,010 | 25.31 | 8.96 | 7.14 |
| T7 Global Berhad | ✓ | ✓ | 31 December 2022 | 362,970 | 90,755 | 33,698 | 20,239 | 25.00 | 9.28 | 5.58 |
| Handal Energy Berhad | | ✓ | 31 December 2022 | 52,837 | 9,173 | (40,416) | (39,163) | 17.36 | (76.49) | (74.12) |
| Ocean Vantage Holdings Berhad | ✓ | ✓ | 31 December 2022 | 155,104 | 33,548 | 4,251 | (1,110) | 21.63 | 2.74 | (0.72) |

Notes:

- 1) Other related OGSE activities include providing services such as hook-up and commissioning, well engineering and design, well intervention and decommissioning, installation, repair and maintenance, offshore marines support services, structural/piping fabrication, drilling and well abandonment, production enhancement, geophysical services, crane services and materials, tools, equipment and manpower supply.
- 2) The companies registered higher PBT compared to its GP, due to higher other income recorded during the financial year.

Sources: Steel Hawk and annual reports of listed comparable industry players

1.5.1 Steel Hawk Group's Market Share

For the FYE 31 December 2023, Steel Hawk generated revenue of RM72.54 million, representing 0.33% share of the OGSE industry in Malaysia.

8. IMR REPORT (CONT'D)

1.6 Demand and Supply Conditions

Figure 4: Demand Conditions Affecting the OGSE Industry in Malaysia, 2024-2028

| Impact | Demand Conditions | Short-Term | Medium-Term | Long-Term |
|--------|--|------------|-------------|-----------|
| | | 2024-2025 | 2026-2027 | 2028 |
| + | The Presence of Strategic Petroleum Reserves | High | High | High |
| + | Petrochemical Industry as a Long-Term Source of Incremental Demand | Medium | Medium | Medium |
| + | Continuing Investments Driving Upstream and Downstream Oil and Gas Activities | Low | Low | Medium |
| - | Fluctuation in Crude Oil Prices May Lead to Uncertain Earnings | High | Medium | Medium |
| - | The Implementation of Further Efficiency Improvements in Road Transportation | Medium | Medium | Medium |
| - | Increasing Threat of Substitutability from Greener and Renewable Sources of Energy | Low | Low | Medium |

Source: Protégé Associates

In order to maintain national fuel security and protect the economy during an energy crisis, crude oil is often stockpiled into what is known as strategic petroleum reserves. The drawdown and replenishment or addition of strategic petroleum reserves can also act as a stabilising force against any sharp movements in the prices of crude oil. As of January 2020, Malaysia held proved oil reserve of 3.6 billion barrels. Additionally, PETRONAS' recent study of the Langkasuka Basin located in the northern Straits of Melaka has indicated the presence of hydrocarbon potential in the previously untested deeper rock layers. Therefore, the presence of strategic petroleum reserves brings a positive impact to the overall development of the oil and gas industry including the OGSE industry.

The global oil demand from the petrochemical industry is expected to increase from 20.5 million barrels per day in 2021 to 23.7 million barrels per day in 2023 and 25.5 million barrels per day in 2050, respectively. The increase in demand is largely supported by the continued need for a wide range of products that includes plastics, synthetic fibres, detergents, paints, adhesives, aerosols, insecticides, and pharmaceuticals. Around 70.0% (10.0 million barrels per day) of oil demand is used as petrochemical feedstock to produce plastics. Despite the implementation of policies by various countries to ban or reduce single-use plastics, improve recycling rates, and promote alternative feedstocks, these measures alone may not be sufficient to adequately offset the increasing demand for plastics. The demand for petrochemical feedstock used in plastics production is expected to rise by an estimated 3.0 million barrels per day between 2021 and 2050. Sustained dependence on petrochemicals to produce these products is sparked by the rising population and the continuing industrialisation taking place globally. This development is expected to provide the impetus for further growth in the oil and gas industry, which in turn further drive growth in the local OGSE industry as well.

Due to the normal maturation of the traditional shelf basins with mostly economically attractive fields, we can expect more future offshore exploration activities to be conducted in deep and ultra-deep water. Meanwhile, the development of the downstream sector of the local oil and gas industry is expected to gain further traction with the continuing investments in the petroleum products (including petrochemicals) industry. In 2022, there are 18 approved oil and gas projects with investments worth RM23.90 billion compared to 16 approved oil and gas projects with investments worth RM17.09 billion in 2021. These projects can help to spur further activities in the local OGSE industry. It is also worth noting that the commercial viability of OGSE projects is heavily influenced by the crude oil prices. During the COVID-19 pandemic, global oil demand contracted due to lockdown measures causing a decline in crude oil prices. The rollout of vaccines subsequently led to the recovery of oil demand and higher crude oil prices in 2021. However, in 2022, the crude oil prices become volatile due to Russia-Ukraine war which disrupted oil supply and caused a spike in crude oil prices. Furthermore, recession fears in some major economies as well as the economic slowdown in China further dampened crude oil prices. The fluctuation in the crude oil prices has

8. IMR REPORT (CONT'D)

BRAND | FINANCE | MARKET

made it increasingly challenging for OGSE companies to forecast their earnings and plan ahead due to rapid market changes and increasing uncertainty.

Given that a sizeable demand for oil comes from road transportation sector, technological developments, tightening of energy policies as well as the faster adoption of electric and alternative-fuelled vehicles have inevitably led to further efficiency improvements. According to the International Energy Agency ("IEA"), electric car sales exceeded 10 million in 2022, a 55.0% increase from 6.6 million sales in 2021, despite supply chain disruptions, macro-economic and geopolitical uncertainty and high commodity and energy prices. The global electric car sales are expected to continue strongly with 14.0 million sales projected by the end of 2023, aligning with the growing concern about climate change and the reduction of greenhouse gas emissions as countries establish their green energy transition goals. The adoption of electric cars is expected to dampen the demand for oil which does not augur well for the growth in the oil and gas industry including the OGSE industry.

As environmental and cost concerns become more prominent around the world, greener and RE resources such as solar, wind, hydro and biomass are increasingly being explored as replacements for fossil fuels. In its pursuit of achieving net zero carbon emissions by 2050, PETRONAS has made efforts to diversify its operations beyond its core business of oil and gas into the green and renewable energy through the establishment of Gentari Sdn. Bhd. The subsidiary aims to provide integrated sustainable energy solutions such as RE, hydrogen, and green mobility. However, green and renewable sources of energy are not expected to make a marked dent in the demand for fossil fuels during the forecast period because fossil fuels remain the familiar and more cost-efficient choice for the majority of major energy users. Despite efforts to diversify and promote cleaner energy alternatives, the infrastructure and scale for renewable energy sources has yet to reach a level to significantly replace the demand for fossil fuels in the near term.

Figure 5: Supply Conditions Affecting the OGSE Industry in Malaysia, 2024-2028

| Impact | Supply Conditions | Short-Term | Medium-Term | Long-Term |
|--------|--|------------|-------------|-----------|
| | | 2024-2025 | 2026-2027 | 2028 |
| + | Strong Leadership by PETRONAS | High | High | High |
| + | Continuing Close Attention and Support from the Malaysian Government | High | High | High |
| - | Relatively High Regulatory Barriers to Entry | High | High | High |
| - | Underinvestment in Oil and Gas amid a Shift to Cleaner Fuels | Low | Low | Medium |

Source: Protégé Associates

PETRONAS acts as a custodian of Malaysia's petroleum resources and has been actively involved in spearheading efforts to stimulate the growth in the local oil and gas industry including its stakeholders such as the local OGSE industry. In Malaysia, PETRONAS fosters collaborations and partnerships in the oil and gas industry by working with operators in petroleum activities across the value chain and throughout the entire asset life. Oil and gas industry players in Malaysia, including the local OGSE industry players can also look forward to a transformed PETRONAS Technical Standards with the expected full adoption of the International Standards which can create mutually beneficial outcome in terms of cost, quality, reliability, safety and schedule. Further traction in standardisation can help to reduce cost and open up opportunities to create greater value for manufacturers, suppliers and principals. In addition, digitalisation, permanent reservoir modelling and enhanced oil recovery methods are expected to continue improving oil recovery rate from mature oil fields and drive the advent of tight oil and shale gas. The local oil and gas industry including the local OGSE industry can also look forward to the continuing close attention and support from the Government in the form of national strategic policies or masterplans, due to its strategic importance as key source of revenue and economy driver. In particular, the Malaysian Investment Development Authority MIDA remains focused on the continued strategic integration in the country's downstream operations to meet demands and capture value across the oil and gas value chain. MIDA also encourages more joint ventures or collaborations between local and foreign players with expertise to enhance local capabilities via knowledge transfer.

8. IMR REPORT (CONT'D)

On the flipside, the OGSE industry has relatively high barriers to entry as potential entrants are required to obtain licenses, registrations and/or approvals to provide OGSE, thus restraining the number of entrants into the industry. In addition, the local OGSE industry is also witnessing a lack of investment in new oil and gas supplies amid a shift in focus towards cleaner energy sources. According to the IEA, the global energy investment experienced a decline of approximately 20% in 2020, primarily driven by the effects of the COVID-19 pandemic which dampened oil demand. On top of that, the IEA is also calling for investors to stop funding new fossil fuel projects to achieve net zero emission by 2050, which is likely to cause further decrease in oil and gas supplies as major oil and gas players increasingly diversify towards green and renewable energy. Nevertheless, it is important to note that oil and gas continue to play a pivotal role in the energy sector, in terms of fuel consumption and power generation. Therefore, the underinvestment in the global oil and gas sector could lead to tighter supplies at a time when oil demand normalised post pandemic, particularly due to growing needs of sectors such as road transportation, aviation and shipping. While the transition to green and renewable energy is slowly picking up, it is nonetheless expected to fall short of meeting the rising demand for energy in a sustainable manner.

1.7 Outlook and Prospects of the OGSE Industry in Malaysia

The outlook for the local OGSE industry is dependent to a large extent on the annual domestic CAPEX of PETRONAS. The domestic CAPEX of PETRONAS stood at RM18.60 billion in 2022, which is an increase from the RM15.00 billion recorded in the previous year, driven by the growth of the Malaysian oil and gas industry. In recent years, the crude oil prices have been volatile due to the impact of COVID-19 pandemic. Moreover, the Russia-Ukraine war has further disrupted the global oil supply chain, causing the crude oil prices to rise above USD100 per barrel during period of March to August 2022. Furthermore, concerns over potential recession in major economies and the economic slowdown in China has contributed to the pressure on the crude oil prices. Despite these challenges, PETRONAS has continued to strengthen its business and pursue CAPEX on exploration, development and production activities to sustain and grow production in Malaysia.

Moving forward, growth is expected to be supported by PETRONAS's commitment to its long-term target to sustaining and growing Malaysia's oil and gas production, coupled with expected high average crude oil prices environment that will facilitate PETRONAS' spending endeavours. As such, the annual domestic CAPEX of PETRONAS is projected to increase by 4.55% to reach RM23.00 billion in 2024. The annual domestic CAPEX of PETRONAS is projected to grow from RM23.00 billion in 2024 to RM25.00 billion in 2028, registering a CAGR of 2.59% during the forecast period. PETRONAS will continue to invest in core business activities and growth projects in continuing their effort to support and contribute towards the resiliency of the OGSE industry. Additionally, the recent discovery of potential hydrocarbon reserves in the Langkasuka Basin presents further opportunities for future exploration and development, potentially contributing to the long-term sustainability of the industry.

Factors boosting growth within the local OGSE industry is likely to come from the presence of strategic petroleum reserves as well as continuing influx of investments that can stimulate more upstream and downstream oil and gas activities. In addition, the local OGSE industry can rely on the petrochemical industry as a long-term source of incremental demand for oil. However, fluctuations in crude oil prices can lead to fluctuations in the earnings of OGSE companies, which may affect the expansion of the industry. While the implementation of further efficiency improvements in the road transportation and increasing threat of substitutability from greener and renewable sources of energy may pose a threat to the growth of the local OGSE industry, they are not expected to markedly impact the demand for oil and gas during the forecast period.

The green energy transition process is expected to progress gradually, with fossil fuels projected to account for 78.0% of the global energy mix by 2032, compared with 81.0% recorded in 2022. Therefore, fossil fuels are expected to remain relevant as the familiar and cost-efficient choice for majority of the major energy users. On the supply side, a strong leadership by PETRONAS along with the close attention and support from the Government means that local oil and gas industry including the OGSE industry is being guided by steady hands in navigating its future direction. On the flip side, the level of participation in the local OGSE industry is hindered by the relatively high regulatory barriers to entry. Furthermore, the lack of investment into the oil and gas sector will also likely impact the development of the domestic oil and gas industry, including the OGSE industry.

8. IMR REPORT (CONT'D)**2.0 Overview and Outlook of the Renewable Energy ("RE") Industry in Malaysia**

Driven by the need to address climate change, enhance energy security, and build a sustainable energy infrastructure, countries worldwide are transitioning from traditional energy generation methods to embrace the deployment of RE into their energy portfolio. In line with this global trend, the Malaysian Government has also identified RE as a vital fifth energy source to supplement the four main existing ones – natural gas, oil, coal and hydroelectricity. RE refers to any form of primary energy from recurring and non-depleting natural resources, which includes biomass, hydroelectric ("hydro"), geothermal, solar, wind, ocean thermal, wave action and tidal action. According to the National Energy Transition Roadmap ("NETR"), Malaysia's energy system is primarily dominated by non-renewable sources of energy namely, natural gas, oil and coal. Together they contributed around 96% of Malaysia's total primary energy supply ("TPES") in 2023. Under the NETR's responsible transition scenario, Malaysia is expected to shift from traditional, fossil fuel-based energy systems to a greener, low carbon energy framework. Recognising the significance of energy in sustaining economic growth and socioeconomic development, the NETR aims to ensure progressive scaling up of RE in the power mix by 2050. Under this transition, coal will be phased-out, while RE will increase from 4% of Malaysia's TPES in 2023 to 23% by 2050. Meanwhile, natural gas is expected to play a major role, constituting 56% of TPES by 2050. The transition will be driven by an increased in use of RE in the power generation mix, the phasing out of coal from the power generation mix, implementation of broad-based energy efficient initiatives and the shift to electrification and biofuels being expedited in the transport sector.

Malaysia possesses abundant RE resources, with an estimated technical potential of nearly 290 gigawatts ("GW") nationwide. Notably, the technical potential for solar photovoltaic ("PV") alone is projected to reach 269 GW. Currently, only a small fraction of this RE potential has been tapped, with just over 9 GW of installed capacity realised, indicating vast amount of untapped potential within the RE industry. According to the NETR, the total RE installed capacity in Malaysia is projected to expand to approximately 12.4 GW by 2025, with hydro, solar PV and bioenergy expanding to approximately 6.4 GW, 5.5 GW and 0.5 GW respectively. By 2050, RE is projected to make up the majority share of installed capacity with solar PV taking lead at around 56 GW, followed by hydro (~10.7 GW) and bioenergy (~1 GW). Given Malaysia's geographical location near the equator, the abundance of sunlight makes it an optimal location for harnessing solar energy. Going forward, solar PV installation is expected to be the main contributor to the growth of RE share of installed capacity.

Malaysia stands at the forefront of a transformative energy landscape, where the focus on RE has sparked a positive and promising outlook for the industry. Looking ahead, the RE industry in Malaysia will continue to be driven by factors such as population growth and increased urbanisation. Malaysia's population is projected to increase from 33.4 million in 2023 to an estimated 40 million by 2050 and, the urbanisation rate is expected to increase from 75% in 2020 to reach 85% by 2040. Economic and population growth, along with rapid urbanisation, will drive a 2% annual increase in energy demand until 2050. As the demand for electricity increases, there is a growing focus on RE as a viable solution for power generation. The RE industry is well-positioned to address Malaysia's escalating electricity demands, supporting economic growth and population expansion while ensuring energy security and diversifying the nation's energy mix. Furthermore, with the adoption of electric vehicles gaining momentum in Malaysia, an opportunity emerges for the RE industry as the increased penetration of electric vehicles will lead to a rise in electricity demand, as these vehicles require charging from the grid.

On the supply side, the growth in the RE industry is mainly shaped by the Government's commitment towards low-carbon development and sustainable economic restructuring. The NETR aim to accelerate energy transition and improve climate resilience by establishing pathways for the national energy mix, greenhouse gas emission reduction and energy transition initiatives. The NETR goal of increasing RE's contribution of TPES from 4% in 2023 to 23% of TPES by 2050 is expected to drive expansion in the RE industry. Going forward, Malaysia's focus on transitioning from a traditional fossil fuel-based economy to a high-value green economy is anticipated to significantly benefit the RE industry.