

# BUSINESS REVIEW

## LNG ASSET SOLUTIONS

MISC's LNG Asset Solutions segment possesses more than three decades of proven experience and distinguished reputation as a global industry leader in the safe and efficient transportation of liquified natural gas (LNG). We have a sterling track record of operational excellence, reliability, safety and on-time cargo deliveries.

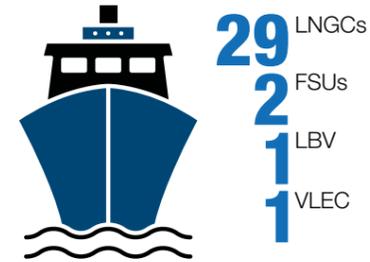
As one of the world's largest single owner and operators of LNG carriers (LNGCs), we are well-positioned to capitalise on emerging opportunities including non-conventional LNG solutions by leveraging on our in-house technical and ship management capabilities as well as expertise in project management for newbuilds, refurbishment projects and technological solutions for floating storage units (FSUs). More recently, we have ventured into the emerging sectors of LNG bunkering vessels (LBV), and very large ethane carriers (VLECs).

Further details on LNG Asset Solutions  
<https://www.misc.com.my/solutions/lng-shipping>



## KEY HIGHLIGHTS

Owns and/or operates:



Entered into Memorandum of Agreements with Zhejiang Satellite Petrochemical Co. Ltd. (STL) for the purchase of **6** VLECs



Entered into Time Charter Parties (TCPs) with STL for a period of

**15 years**

for the transportation of ethane from the United States to China

Became commercial operator and ship manager of Southeast Asia's dual-purpose LBV

**1<sup>ST</sup>**



Commencement of a **3-year**

charter by PETRONAS LNG Sdn. Bhd. for one LBV



Seri Amanah awarded the **Best Quality Ship Award 2019** by the Japan Federation of Pilots' Associations



**100%**

utilisation for LNG trading vessels in 2020



Awarded **Approval in Principle (AIP)**

by Bureau Veritas for one of our LNG-to-power (L2P) solutions

## FINANCIAL PERFORMANCE



Revenue **RM2,653** million



Operating Profit **RM1,191** million





**ZAHID OSMAN**  
Vice President, LNG Business

## LNG ASSET SOLUTIONS VICE PRESIDENT'S REMARKS

2020 has been an exceptional year for the LNG Business, especially considering the impacts of the COVID-19 pandemic and the new ways of working we had to adopt. Notwithstanding the difficult market environment and challenges posed by the pandemic, we were able to build on our success from the previous year, to grow and diversify our business by adding new asset classes and revenue streams. LNG Business remained the largest contributor to the Group in terms of profitability and cash generation, with our LNGC segment as the main revenue generator.

The key impacts of the pandemic were predominantly focused on operational and new business growth perspectives. Operationally, we adapted new paradigms such as work from home (WFH) for our office-based employees. Seafarers spent longer periods on board vessels and had to comply with strict SOPs and quarantine requirements throughout the world. From a growth perspective, we had to adapt the way we secure new business deals by conducting discussions and

contract negotiations online. We were able to successfully build trust with prospective clients and navigated this new landscape to secure contracts during the year despite challenges of having to conduct business development in a virtual setting.

Significant milestones for the LNG Business in 2020 were the diversification of our portfolio through the addition of the very large ethane carrier (VLEC) and LNG bunkering vessel (LBV). In the current tough and competitive market landscape affecting LNGC segment, these new asset classes will strengthen the resilience of our business and ensuring a steady growth of secured revenue stream for the Group.

We signed Memorandum of Agreements to purchase six new VLECs in July 2020, of which we have taken delivery of the first vessel, *Seri Everest*, in October 2020, and the second vessel, *Seri Erlang*, in January 2021. Concurrently, we entered Time Charter Party (TCP) agreements with Zhejiang Satellite Petrochemical Co. Ltd. (STL) for the six VLECs to operate in international waters. The entry into ethane transportation business is historic and strategic for MISC. Besides building our footprint in China, one of the fastest growing economies in the world, this move gives us an early mover advantage in this niche segment, considering that the manufacturing of ethane-based products has increased substantially over the last

few years and expected to grow rapidly in the future. As there are only eight other VLECs currently operating globally, our move into this area promises us attractive returns on investment and secured revenue stream from the long-term contracts. You can read more on how our foray into the global ethane market will create significant value for MISC in the side bar accompanying this Business Review.

We also partnered with Avenir LNG to form a joint venture company, Future Horizon (L) Pte. Ltd., to become the region's first dual-purpose LBV commercial operator. The LBV, *Avenir Advantage*, can provide bunkering services to LNG-fuelled vessels across Malaysia, as well as transport smaller scale LNG cargo regionally. *Avenir Advantage* has been chartered by PETRONAS for a period of three years. Considering the imposition of new sulphur emission limitations by the IMO effective 1 January 2020, our move into the LBV space has strengthened the business' value propositions in the marketplace. There has been a global shift towards cleaner fuel sources, of which LNG is viewed as a viable transitional fuel towards industry decarbonisation. We are therefore well placed to capture burgeoning new opportunities in the horizon. Our spot and trading vessels have also enjoyed 100% utilisation in a depressing market with stiff competition. The decision that we took to secure multi-months charters with market-linked rates have enabled us to capture the upside value from movements in the market.

On the technology front, we progressed with obtaining Approval In Principle (AIP) for technical solutions we have developed for our floating storage regasification unit (FSRU) design based on converted *Puteri* and *Puteri Satu* class vessels. As a new area of growth, this presents us with potentially new future revenue streams. This recognition is consistent with one of our key priorities for the year where we sought to maximise cash generation by sweating or creating new usage for our existing assets. The FSRU solution will open up new potential for MISC and create additional value proposition to our customers.

The past year has proven beyond a shadow of a doubt that our employees are our key strength. They have the



right mindset to overcome challenging circumstances to continue delivering on all fronts. Our workforce has demonstrated their operational excellence capabilities in managing assets and superior stakeholder management, that further strengthened MISC's reputation in the market as a safe and prudent owner operator of vessels. This was proven with the recognition by the Japan Federation of Pilots' Association in June 2020 whereby *Seri Amanah* was awarded the Best Quality Ship Award 2019.

Having built on a strong growth momentum, we are in a sweet spot to drive our future growth. Our five-year strategic plan centres on building a more resilient business by generating diverse revenue streams to maintain the LNG Business as a key cash generator for MISC. This will require us to have a diverse client portfolio and asset class. Besides obtaining STL as a client in 2020, we had already made inroads into obtaining new clients in 2019 by securing a 15-year charter contract with SeaRiver Maritime LLC (SRM) a wholly owned affiliate of ExxonMobil Corporation for two LNGCs and an 18-year charter contract with Diamond Gas International (DGI), a wholly owned subsidiary of Mitsubishi Corporation (MC), via a joint venture with Nippon Yusen Kabushiki Kaisha (NYK) and MC for two LNGCs.

The MISC Sustainability Strategy 2021-2025 is a key focus area for the year ahead, and the LNG Business is charting out sustainability plans that will align and contribute towards the greater MISC Group sustainability agenda. MISC being a member of the 'Getting to Zero Coalition' with the aim of developing zero-emission vessels by 2030, we believe we can play a key role by promulgating progressive views and actions, and leverage on sustainability to offer value-added propositions to our customers.

Our immediate priorities for 2021 are to focus on excellent delivery and execution of the major contracts we have secured. These include delivering the remainder of the four newbuild VLEC vessels to STL to commence the TCP, as well as the execution of the LBV charter with PETRONAS. We will also be focusing on our ongoing newbuild projects, namely the two LNGCs for SRM and two LNGCs for DGI which are currently under construction at the Korean shipyards.

Our venture into the LBV and VLEC space represents new diversified revenue streams for the LNG Business which we intend to deliver on. As for the conventional LNGC potentials, we plan to be selective in pursuing opportunities that support our strategic objectives, bearing in mind the continuity of challenges and competition in the market. We are confident that our stellar track record, coupled with prudent and focused strategic approach and customer centric mindset, will enable us to deliver our aspiration and meet our clients' expectations.

**ZAHID OSMAN**  
Vice President, LNG Business

## MARKET REVIEW

In 2020, market activities were muted due to the low LNG prices prior to the winter months and the COVID-19 pandemic. International and local lockdowns led to a reduction in global energy demand, as industries either shutdown or curtailed their activities. The drastic drop in Brent crude oil prices significantly impacted the energy sector especially oil and gas players who mitigated against this by either cancelling or deferring LNG projects. However, demand for gas remained relatively steady despite the oversupply of LNG in the market since 2018.

The low price and abundant supply of LNG accelerated the evolution of LNG industry trends especially the growth of spot market and addition of new LNG players/markets. The continued growth of intermediaries as buyers in the LNG value chain led to further industry fragmentation. LNG spot prices remained volatile as global supply chains were disrupted by the pandemic. In 2020, the average spot charter rates were USD69,300 per day for two-stroke gas injection (GI) vessels, USD58,800 per day for tri-fuel diesel electric (TFDE) vessels and USD43,800 per day for modern steam vessels.

There was higher demand for cleaner sources of energy such as LNG, driven by government policies centred on combating the effects of climate change. A new wave of LNG suppliers has been entering the market, predominantly from the US, Russia, the Middle East and East Africa. In the medium term, the increased supply of LNG coupled with green energy policies adopted by governments and more competitive LNG prices compared to fuel oil, have and will continue to spur the development of LNG bunkering and LNG-to-Power(L2P) initiatives and further strengthen the position of LNG as a transition fuel for this decade.

## KEY DEVELOPMENTS

Notwithstanding the difficult market environment in 2020, the LNG Business has successfully grown its business and made strategic entry into new market and asset classes. The expansion of our footprint into China through the acquisition of six VLECs was historic and strategic. We also continued to explore opportunities to broaden our market presence by participating in pre-qualifications and tenders for LNG shipping requirements globally. Please refer to the side-bar for more details on this.

Another significant milestone in 2020 is our successful venture into the LNG bunkering segment, becoming the region's first commercial operator and ship manager for an LBV. The LBV, *Avenir Advantage*, is currently chartered by PETRONAS LNG Sdn. Bhd. for a three-year period.

During the year, MISC was awarded AIP by Bureau Veritas on one of our L2P solutions. The AIP was obtained based on conversion of our *Puteri* and *Puteri Satu* class vessels into floating storage regasification unit (FSRU).

In recognition of our operational excellence, the *Seri Amanah* was awarded the Best Quality Ship Award 2019 by the Japan Federation of Pilots' Associations. The international recognition is a validation of the MISC's consistent ship management track record of smooth operations. It is also testament of the vessel's solid and reliable safety management systems that includes excellent ship to shore coordination, bridge resource management, crew competency and precision in safety and operational practices.

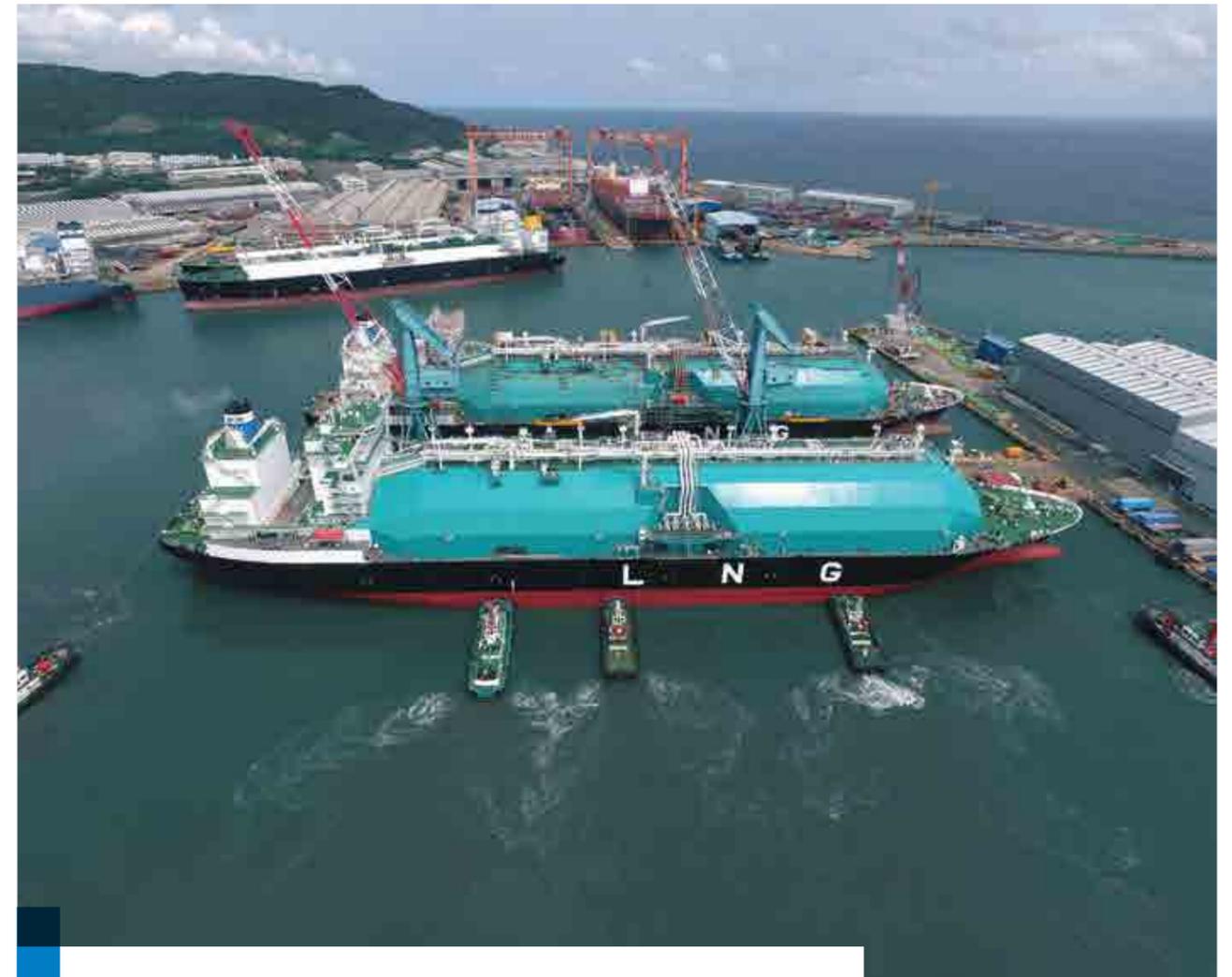
In brief, the LNG Business has successfully created new revenue streams through our ventures into the VLEC and LBV segments, whilst selectively pursuing opportunities in the more competitive conventional LNGC market. The LNG Business is confident

on delivering the business aspirations and meeting clients' expectations by leveraging on commendable track records, a prudent and focused strategic approach, as well as customer-centric mindset.

## SUSTAINABILITY

We continued the course with our sustainability agenda, through a spectrum of initiatives targeted at our stakeholders and areas of interest as follows.

Sustainability Pillar	Initiatives and outcomes
<b>Shareholders</b> 	<p>In order to create sustainable and long-term financial value for our shareholders, we have focused our sights on continuing to grow the secured-revenue stream in both conventional LNG shipping and unconventional gas carriers like VLECs; and expand our third-party business portfolio including new market entry. In 2020, we developed several non-conventional LNG solutions to broaden our sources of revenue.</p>
<b>Customers</b> 	<p>In line with our aim to exceed customer expectations, we have increased the quality of our service to improve customer perception and interactions.</p> <p>In 2020, the LNG Business through MISC Group, conducted a customer survey for our key customers. The aim was to gauge our customer's perception of the Group and to identify areas of improvement to better serve them. In the 'Meeting Expectation' category, the LNG Business scored well, with more than 85% of respondents indicating that they were satisfied with services provided. Based on the findings, an action plan to address the identified gaps has been developed.</p> <p>For more details of the customer survey, please refer to Anchoring Sustainability @ MISC section on page 104 of this Integrate Annual Report.</p>
<b>Governance and Business Ethics</b> 	<p>The LNG Business has embedded a strong culture of business ethics and ethical conduct as part of our DNA. We continue to inculcate a robust compliance culture through monthly sharing sessions and messages shared by the Vice President. During the year, we conducted due diligence exercises on new and existing clients.</p>
<b>Employees</b> 	<p>We conducted many employee engagements to ensure they understand the business' strategic priorities and targets for the year. These engagements also allowed us to share key development in the business as well as its performance. To gain further insight into our employees and identify areas for improvements, we conducted a survey to gauge their opinions on the work culture, compliance, human rights and the LNG Business as a whole.</p>



Sustainability Pillar	Initiatives and outcomes
<b>Environment</b> 	<p>Towards mitigating the impacts of climate change, and in line with our commitment to practice green shipping, we continued to explore the viability of low carbon emission solutions such as LBV that support the establishment of green infrastructure for the energy transition. We proactively managed our environmental footprint and inculcated a strong sense of environmental consciousness amongst our employees. In 2020, LNG vessels achieved an 18% reduction in emission, double the target set in 2016.</p> <p>Please refer to the Operating Safely and Sustainably section on page 206 of this Integrated Annual Report.</p>
<b>Community</b> 	<p>The LNG Business segment is supporting the Group's initiative in investing for the next generation of talent through well-established and fully functioning programmes that promote education and awareness amongst youths. Our efforts are contributing to the younger generation's development and their journey towards becoming future industry leaders.</p>

## MOVING FORWARD

With expectations that the dissemination of vaccines will slowly lead to the normalisation of international trade, global LNG supply and demand is forecasted to recover in 2021. In the longer term, global LNG demand is expected to grow by approximately 50% from 370 million metric tonnes per annum (mtpa) in 2020 to 550 mtpa by 2030. Global LNG supply in 2021 is expected to be increased by 17 mtpa in comparison to 2020 of 366 mtpa. In Northeast Asia, China remains the key driver of growth.

The deferral of new LNG project start-ups in 2020 is expected to lead to a stagnant in demand for LNG shipping in the near future. Coupled with the high tonnage supply of uncommitted vessels to be delivered from 2020 onwards, this could cause the LNG shipping trade unable to grow significantly in the short to medium term.

Climate change concerns that are being addressed through IMO regulations are leading to the scaling up of investments in greener vessels and bunkering barges. LNG as marine fuel for international shipping is expected to reach nearly 30 billion cubic metres (bcm) by 2030, accounting for around 4% of the global fleet and 10% of international bunker sales.

While challenges are expected to persist, the LNG Business is well placed to take advantage from opportunities in the horizon in conventional LNG shipping, LBV, as well as the growing VLEC segment. We are well placed to capture significant growth in the LNG bunkering segment leveraging on our operational experience and capability building in operating one LBV in the region. We continue to explore business opportunities in L2P solutions utilising our FSRU conversion designs and leveraging on our experience in managing FSUs.

The focus for 2021 is on execution and delivery excellence. These include delivery of the remainder of the four newbuild VLECs to STL before commencement of the TCP, as well as the execution of the LBV charter with PETRONAS. We will also be focusing

on the ongoing construction of four LNGC newbuild projects, namely two LNGCs for Diamond Gas International Pte. Ltd. and the two LNGCs for SeaRiver Maritime LLC, a wholly owned subsidiary of ExxonMobil Corporation, (delivery in 2023) which are currently under construction at the Korean shipyards.

We will continue to be selective in pursuing new growth opportunities in the conventional and non-conventional asset classes. We are confident that our stellar track record, coupled with prudent and focused strategic approach and customer centricity mindset, will enable us to successfully grow the business sustainably.

## Very Large Ethane Carrier: A Step Forward in the New Frontier

In July 2020, MISC recorded a major milestone in the development of our business with the purchase of six VLECs at a cost of RM3.09 billion, marking our foray into the global ethane market. This milestone helped us to diversify our portfolio ensuring our long-term business viability and is testament of our business resilience during this challenging period.

In more recent times, ethane has become an increasingly important global-trade commodity due to its use in ethylene production which is the main feedstock for a wide range of plastics such as polyethylene, polyesters and other ethylene-based derivatives that are vital for the manufacturing industry. Competitive ethane cost, healthy production yields and lower plant operation margins have made ethane an attractive proposition for manufacturers, and thus fuelled the growth in investment in ethane-based projects worldwide. It is projected that ethylene demand growth in China alone, in comparison to world demand, will increase from 18% in 2020 to 23% in 2030.

The burgeoning ethane trade has opened new areas of growth for MISC in terms of VLEC opportunities. China is a key market for VLEC as Chinese petrochemical producers have announced their plans to import ethane from the US. The LNG Business has successfully gained the early mover advantage in this segment with the 15-year time charter agreement with STL to operate six VLECs.

These six newbuild VLECs each has a carrying capacity of approximately 98,000 cubic meters (cbm), and are the largest vessels of its kind in the world. They are constructed at the South Korean shipyards of Samsung Heavy Industries Co. Ltd. and Hyundai Heavy Industries Co. Ltd. MISC took delivery of the first VLEC, the *Seri Everest*, on 30 October 2020. The *Seri Everest* has achieved international recognition and has been named by the Maritime Reporter and Engineering News as 'one of the Great Ships of 2020'. Subsequently, on 17 January 2021, the *Seri Everest* successfully completed her inaugural full cargo loading which marked the largest ethane loading in the history of ethane shipping to date. The cargo was loaded from the newly constructed Orbit Ethane Export Terminal in Nederland, US. The *Seri Everest* is the first second-generation VLEC to export ethane from the new terminal.

In January 2021, MISC took delivery of the second VLEC, *Seri Erlang*. These two vessels will be joined by their four sisters, to be delivered throughout the first half of 2021. Upon delivery of all the VLECs, MISC will become the largest transporter of ethane in the world.

The VLECs are capable of transporting large scale ethane over long distances whilst ensuring the highest level of safety and reliability. With only eight other VLECs currently operating globally, the addition of these six VLECs to our assets has enabled the Group to gain a strong foothold in this niche segment to cater to increasing future demand.

