EVALUESERVE
POWERED BY MIND+MACHINE

LNG Supply Chain Decarbonisation

WHITE PAPER - CLEAN ENERGY

September 23

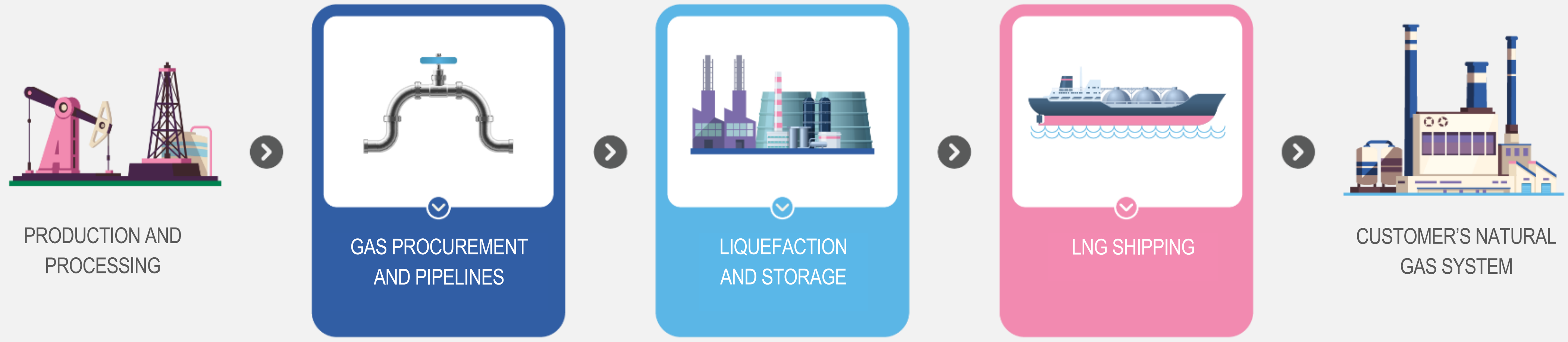
Background

Global temperatures are rising and the imperative to reduce the adverse effects of climate change becomes more important for every industry with each passing day. Today, global temperatures are hovering around 1°C, and it is increasing at a rate of 0.2°C every decade. It is expected that, if emissions continue to rise at their present rate, the temperature will cross 4°C. The current projected path for global emissions is expected to result in global warming of about 3°C by 2100, even after considering the emission reductions program volunteered by countries under the Paris Agreement. According to Intergovernmental Panel on Climate Change (IPCC), the CO2 level would have to be reduced by at least 50% by 2030 and reach the 'net-zero' level by 2050, to achieve an aspirational target of 1.5°C.

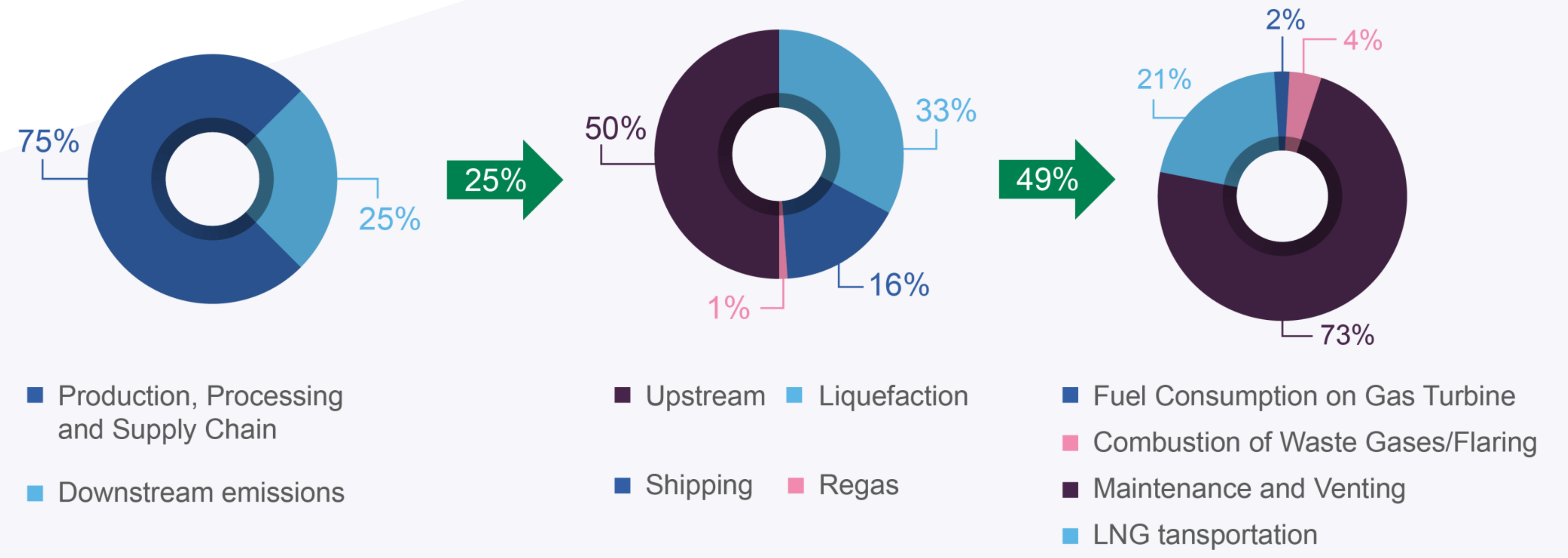
Consequently, an increasing number of LNG companies are pledging to become carbon neutral or to reduce GHG emissions in the next few decades. For example, Novatek, Russia's second-largest natural gas producer, plans to cut methane emissions by 4% in the production, processing, and LNG segments and overall GHG emissions by 5% by 2030.

Amongst Oil and Gas, LNG demonstrates more resilience in the years to come owing to its ability to offer reduced GHG emissions. While other industries are welcoming the use of LNG to decarbonise their value chain, LNG leaders across the globe have also started collaborating with think tanks and knowledge partners to go net-zero. Consumer demand and investors' preference towards a more green and sustainable organisation is also encouraging the LNG companies to continue focusing on decarbonisation initiatives.

‘Carbon-neutral’ LNG has become a buzz word and LNG suppliers are trying to provide a green tag for their cargo. Carbon-neutral LNG cargo refers to cargo in which GHG emissions have been reduced to zero or otherwise offset in full. Typically, the tag considers the entire lifecycle of GHG emissions (from well to wheel), although there are differences in markets’ approach to evaluating emissions levels, reflecting the lack of a robust measurement, reporting, and verification (MRV) system.



Emission contributors along the LNG value chain



Source: Herbert Smith Freehills, MDPI, Forbes, GIIGNL, LNG Carbon Offsetting, Reuters, EU Sustainable Investments, Evalueserve

According to the American Petroleum Institute, the key sources of emissions during the liquefaction and shipping stage are:

- **Combustion emissions include emissions** by fuel-fired equipment, such as engines or turbines that compress gases, pump liquids, and generate electricity, as well as heaters and boilers.
- **Maintenance and venting emissions** include planned release of methane and/or carbon dioxide including but not limited to process emissions, but also includes planned shutdown or maintenance of equipment, and combustion of gases in flares and incinerators.
- **Fugitive emissions** include all emissions that occur unintentionally and could not pass through a flare or exhaust stack. This would include leaks from piping components and other equipment.
- **Transportation-related emissions** are associated with operations of a wide variety of mobile sources operated by the company including ships, barges, and tank trucks, along with transfers into transmission or distribution pipelines.

What companies can do?

LNG players essentially have two options to mitigate the carbon footprint of LNG supply chain: reduce emissions and/or offset emissions. In either of the cases, transparency of data at each stage of the LNG supply chain from robust monitoring, reporting, and verification is a prerequisite.

Liquefaction Stage

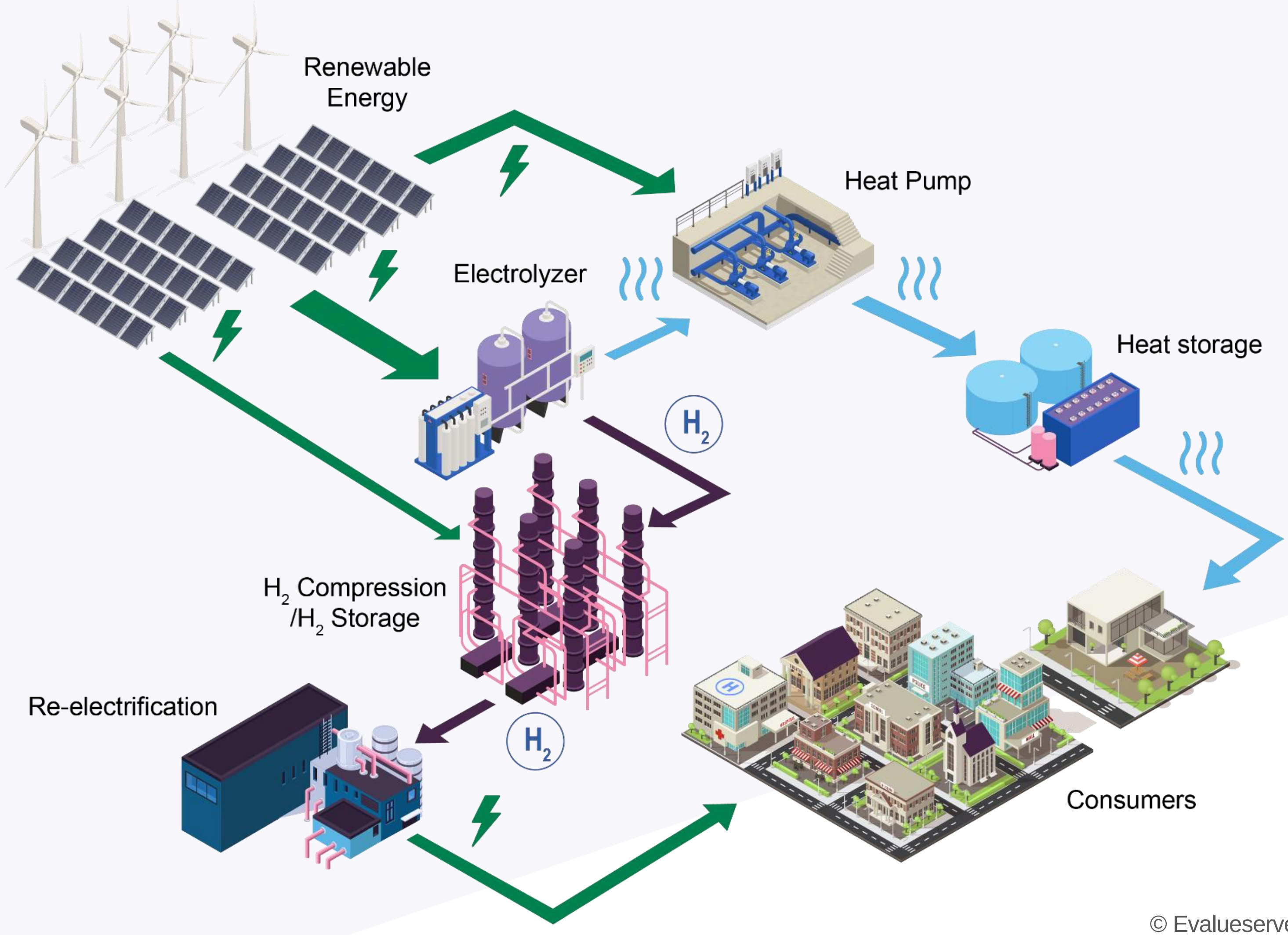
Emission sources for liquefaction and shipping processes are mostly either related to fuel burning in equipment and venting of gasses such as methane and carbon dioxide, as per the venting process. To **reduce emissions**, LNG producers have two key options **(1) power the LNG plant with renewable energy, (2) have carbon capture and storage (CCS) facilities**. These are not new technologies or solutions but **using renewable energy (particularly hydrogen)** and **CCS is seeing renewed industry interest.**

1. **Hydrogen as a replacement fuel for power generation**

LNG companies can opt for hydrogen as a fuel, as hydrogen can be produced from a variety of resources such as natural gas, nuclear power, biomass, and renewable power sources. Out of all the methods, green hydrogen can offer valuable advantages as it can avoid CO2, and particles emission, and it can be deployed at a large scale. Green hydrogen refers to the production of hydrogen from water electrolysis where electricity is sourced from zero-carbon (renewable) energies. Hydrogen's higher energy density and zero emissions, as well as the operational flexibility offered by electrolysis process, positions it well as a reliable energy source.

Electrolysis can convert excess electricity into hydrogen during times of oversupply. The produced hydrogen can then be used to provide backup power during power deficits (for example during winters) or can be used in other sectors such as transport, industry, or residential. This way hydrogen improves the overall efficiency and provides flexibility to the energy system.

With the same concept, companies such as GE and Siemens have come up with hydrogen-based power solutions that have the potential to reduce almost all CO2 emissions. A hydrogen-based power plant can help leverage renewable energy from the grid to produce hydrogen for storing and generating power and heat supply, thus increasing the overall energy efficiency of hydrogen production by utilising waste heat, resulting in producing electricity with lower emissions per kWh. This method is expected to provide immediate emissions reduction, thus saving money on CO2 taxation and providing an energy storage capability. It is expected that almost 100% of CO2 emissions can be reduced by using 100% hydrogen as a fuel for gas turbines versus operations using natural gas or other hydrocarbon fuels.

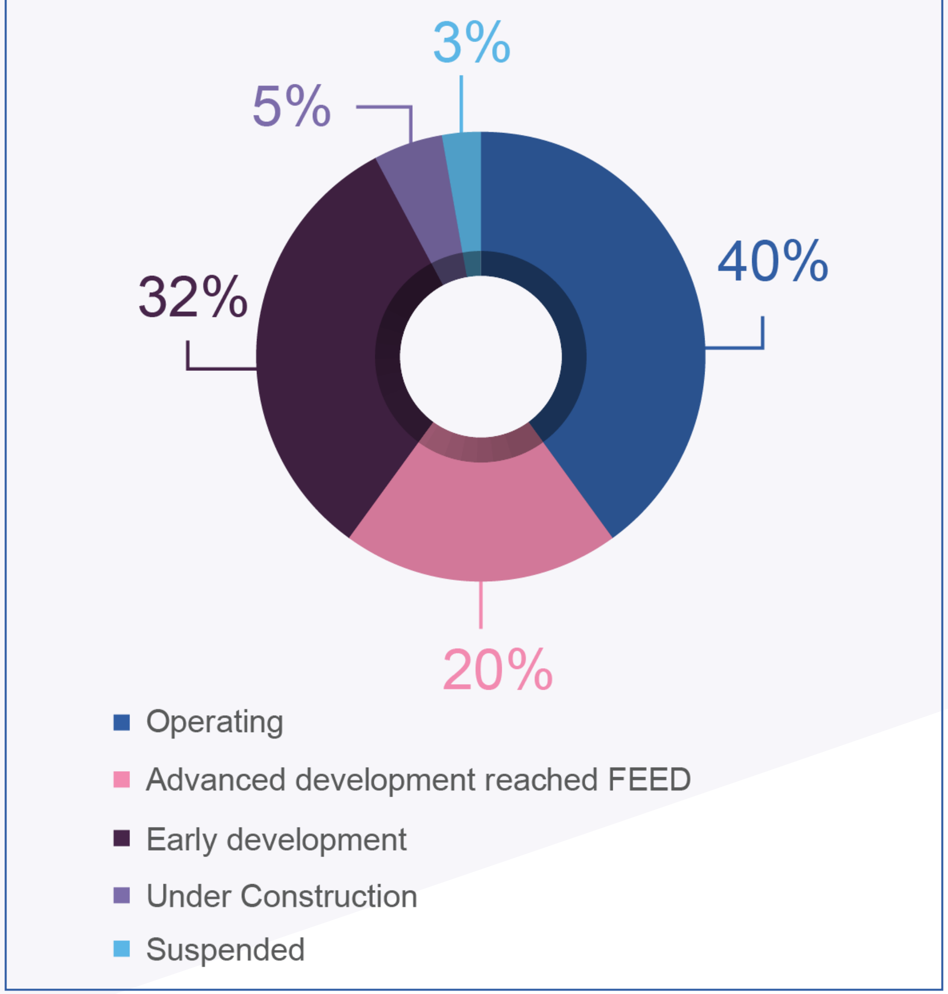


Carbon capture and storage (CCS) is the process of capturing carbon dioxide (CO_2) formed during power generation and industrial processes and storing it, to avoid releasing into the atmosphere. Theoretically, CCS technologies are expected to have significant potential to reduce CO_2 emissions in energy systems and CCS facilities can capture up to 90% of the CO_2 produced. Lately, this terminology has been transformed as Carbon Capture Utilisation and Storage (CCUS).

CCS technology can help address emissions from the upstream and production portion of the LNG value chain. CCUS involves the capture of CO_2 from large point sources, including power generation. If not being used on-site, the captured CO_2 is compressed and transported by pipeline, ship, rail or truck to be used in a range of applications or injected into deep geological formations (including depleted oil and gas reservoirs or saline formations) which trap the CO_2 for permanent storage.

As per the latest Global Status of CCS report 2020, there are 65 commercial facilities, some of them are operating already and others are in the construction phase:

CCS Facilities Status



As per the report, there are 17 new commercial facilities that entered the project pipeline in 2020, and out of the total, 12 projects have been added in the US. This trend clearly reflects the focus of US-based companies on decarbonisation and supportive government policies. The three aspects that have led to the growth of CCS facilities in the US are enhanced tax credit in the US, hubs and clusters for storage (for instance, CarbonSAFE), and a growing focus on hydrogen.

Even though the feasibility of CCS technology has recently been under discussion due to Gorgon's CCS project failure because the operator Chevron notified in July 2021 that the project had failed to meet its target of capturing 80%, and reached ~30%, there are a lot of LNG companies that have proposed to add CCS at their facilities. This indicates that a failure from one project cannot make industry leaders turn their heads from CCS. The next step will be leveraging learnings from existing projects and enhance further.

The IPCC Special Report on Global Warming of 1.5°C, also highlighted the importance of reaching net-zero emissions by mid-century. To achieve the objective, it studied four scenarios for limiting global temperature rise to 1.5°C – all require CO_2 removal, and three scenarios out of the four, involve major use of CCS. Hence, the industry should focus on investing in this technology as it has the potential to be proven as one of the leading solutions to decarbonise the LNG supply chain.

CarbonSAFE

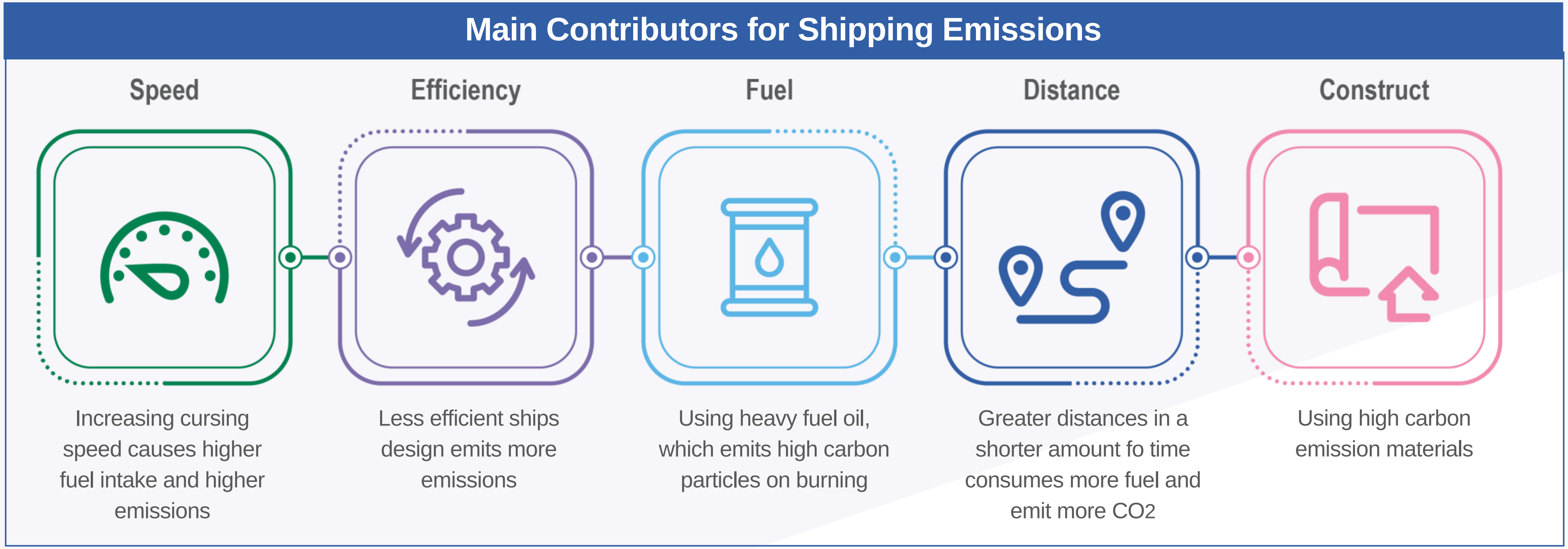
The Carbon Storage Assurance Facility Enterprise (CarbonSAFE) Initiative project, by National Energy Technology Laboratory (NETL), a US-based national laboratory under the Department of Energy Office of Fossil Energy, will focus on development of geologic storage sites for the storage of 50+ million metric tons (MMT) of CO_2 from industrial sources. The initiative aims to develop projects focused on ensuring carbon storage complexes will be ready for integrated Carbon Capture, Utilisation, and Storage (CCUS) system deployment in the 2025-2030 timeframe.

Source: National Energy Technology Laboratory

Shipping Stage

A distinctive feature that separates an LNG ship from other bulk cargo carriers are the heavy insulated, temperature-controlled tanks ensuring the gas is kept in a liquid state at a very low temperature less than -162°C. The tankage and BOG management systems are always designed to maintain the cargo tank pressure or to dispose of the natural LNG boil-off gas.

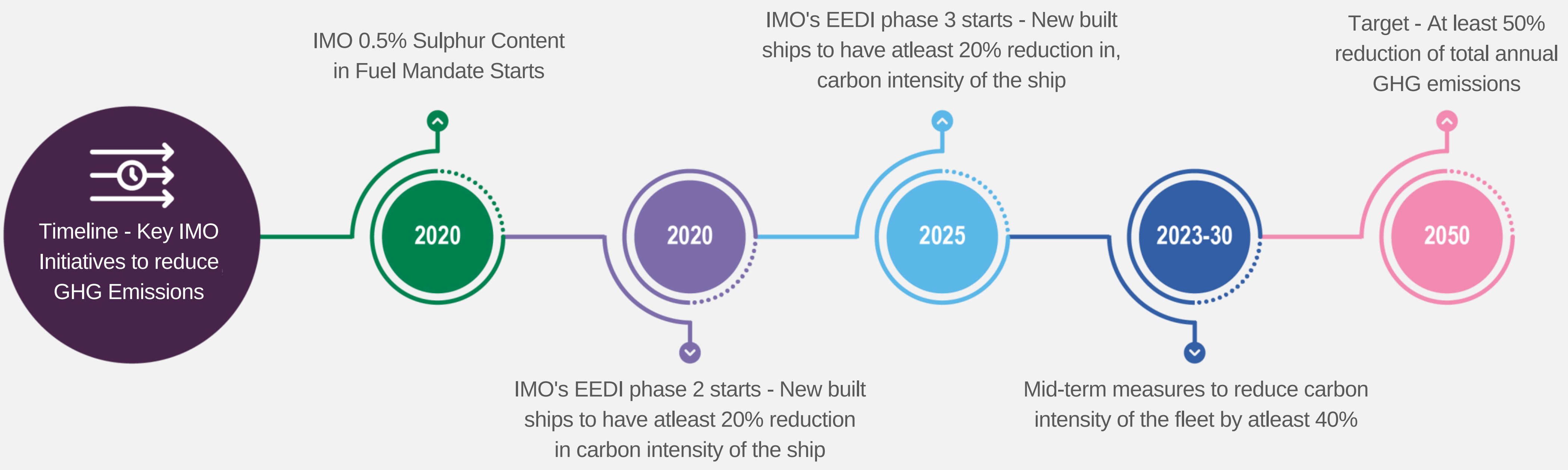
Prevalent propulsion systems on LNG carriers include steam, dual-fuel, slow-speed diesel with reliquefication, and gas turbines. Dual-fuel electric propulsion systems have become the preferred design for new-built LNG carriers in the range from 150,000 m3 to 200,000 m3, while slow-speed diesel propulsion with reliquefication becoming more popular for vessels over 200,000 m3 capacity. All these different propulsion systems require high-voltage power plants, either to supply only the cargo handling (tank unloading) pumps and/or reliquefication plant or combined with electric propulsion. The choice of the specific propulsion type, its design, capacity, and rate of utilisation will impact GHG emissions associated with LNG ship voyages.



Source: International Maritime Organisation (IMO), Evalueserve point of view

The mega marine engines of ships burn tonnes of fuel every day to propel massively loaded ships. These engines are known to use low-grade fuel oil to lower ship operating costs, as the cost of fuel represents as much as 30-50% of the total operating costs of a ship. Since the 1960s, HFO has been the king of marine fuels due to its lower cost, and because of its high sulfur content, maritime shipping accounted for ~8% of global emissions of sulfur dioxide (SO_2).

The IMO, the regulatory authority for international shipping, made key changes in the regulations and decided to implement a global sulfur cap of 0.5% m/m (mass/mass) on fuel oil starting 1 January 2020 as compared to the previous cap of 3.5% m/m global limit. Ships can meet the requirements only by using low-sulfur compliant fuel oil. This means increasing the use of alternative fuels.



Source: IMO

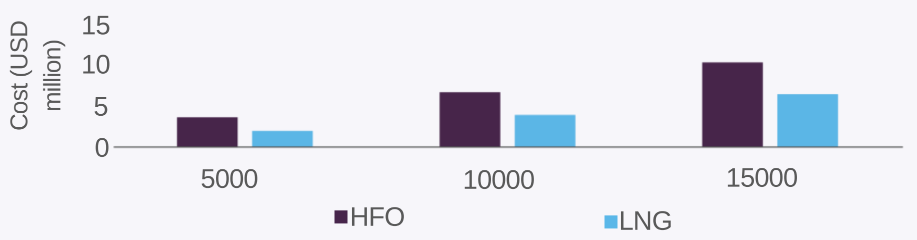
Using alternate fuels

The industry has already accepted LNG as a viable option for future marine fuel and started developing LNG compatible ships, as it can offer significant reductions in CO2 emissions while still being supplied by the existing infrastructure and burned in current engine setups.

As per Reuters, the number of LNG-fuelled ships is expected to more than double by 2030, driven by the shipping industry's desire to cut emissions. Since 2010, the growth in the number of these vessels has been in the range of 30-40% per annum. The order trend indicates the industry confidence that LNG will play a critical role in the shipping sector's transition to a cleaner future as a mid-term solution. The uptake of the fuel is predominantly visible in the ordering of larger vessels, including very large crude carriers Suezmax and Aframax tankers, ultra-large containerships, and Newcastlemax bulkers. The most recent contracts have seen Shell-supported orders for 10 LNG-powered VLCCs from Daewoo Shipbuilding and Marine Engineering (DSME).

A study, conducted by Wartsila Company on ~40 companies that aimed to evaluate the benefits of changing from an HFO-fueled engine (fitted with scrubber system) to an LNG-fueled engine revealed that the cost of LNG would be much cheaper than HFO, considering the lower heating value of fuels (LFV). In addition, the increase in sailing time in Emission Control Area (ECA) zones, LNG would provide more economic benefits than HFO, where more high-quality fuel is needed due to strict emissions regulations.

Running Cost Comparison Between HFO and LNG based on 8000hr/year



Key Findings:

- The machinery investment first cost was estimated to be about 14 USD/kW for both HFO-fueled engines and LNG-fueled engines.
- Annual machinery costs of HFO engines were USD 2600/kW and LNG-fueled engines USD 2100/kW.
- As a result, shift from HFO to LNG resulted additional saving from annual machinery costs of USD 500/kW.

Assumption of the study: Based on typical load for all diesel engines at 85% maximum continuous rating and 8000 working hours per year, the fuel saving cost is estimated for three different engine rating, namely, 5000, 10,000 and 15,000 kW, and the estimations revealed average fuel saving costs of 1.32, 2.63 and 3.95 USD million/year.

Although, LNG is a better option than HFO/ LSFO, it is not the only solution for the future. According to Fourth IMO Greenhouse Gas Study conducted in 2020, the industry achieved a CO2 intensity reduction of 32% to 44% as of 2018 compared to 2008, attributed to a significant change in the fuel-mix. During the period, the proportion of HFO reduced by 3% on an absolute term, while LNG consumption grew by 26% on an absolute term.

However, methane emissions increased by more than 150% during the same time, a common phenomenon, known as Methane slip. Methane slip occurs on LNG-powered ships as a result of gas leaking during bunker transfers, and from fuel that fails to burn in the combustion process. Ships typically burn LNG in engines with low-pressure and high-pressure injection. Hence, shipping companies, along with think tanks and industry leaders are exploring other fuel options.

The industry is actively exploring other alternatives such as biofuel, ammonia, methanol, and hydrogen, due to their lower environmental impact and environmentally friendly production. For example, Equinor is increasing the share of biofuel by developing ammonia and hydrogen as alternate fuels.

The leading alternatives have varied viability:

Fuel alternatives and viability

	LSFO/HFO	LNG and Bio LNG	Biofuels	Methanol	Ammonia	Hydrogen
Potential Availability	Utilized currently by most of the companies	Currently viable; explored by Companies	Currently available	Partial available	Multiple testing is underway; To be available around 2022-25	To be viable around 2030-35
Renewability Expected	Not renewable	Fairly Good	Good	Good	Excellent (Zero Carbon)	Excellent (need more empirical evidence)
Associated Challenges	Highly toxic and polluting for the environment	Investment in Infra Exact CO_2 reduction unknown	Scalability and long-term viability as competing with other industries	Scalability and long-term viability is a concern	Long-term considered a better solution but cost-viability is a concern	Highest Potential for decarbonization but viability is a concern; storage concern; development of new bunkering infrastructure

Source: Euronav, Maersk, Targray, Teekay, Ardmore Shipping, Evalueserve point of view

What are companies doing?

LNG players essentially have two options to mitigate the carbon footprint of LNG: reduce emissions and/or offset emissions with their operations (Scope 1 emissions) or to collaborate with their suppliers to reduce emissions (Scope 2 and Scope 3 emissions). In either of the cases, transparency of data at each stage of the LNG supply chain from robust monitoring, reporting, and verification system is a prerequisite to both.

Companies such as Shell, Total Energies, Vitol, Gazprom, and Cheniere have been already taking measures in terms of managing the emissions through offsetting, while companies such as Qatar Gas and Petronas have adopted measures for BOG recovery. Now, companies have also started focusing on renewables for power generation, CCS, and using alternate fuel. Shell and ExxonMobil on the one hand have been very active in CCS projects, while the leading LNG companies in the US such as Cheniere and Sempra Energy have also recently announced their plans to add CCS to their respective plants in Texas and Louisiana. Recently, Cheniere Energy announced that it would be including carbon emission tags with its cargoes, allowing customers to audit the environmental footprint of a shipment.

Direct carbon emissions from sources that a company owns or controls. This includes manufacturing and process emissions, onsite fuel combustion, and emissions from company vehicles.

Indirect emissions from the use of energy that you're an organization buys such as electricity, heating and cooling, and steam.

Also known as value chain emissions, are all the indirect greenhouse gas emissions, from suppliers as well as consumers that are not captured by Scope 1 and 2 reporting.

On the renewables front, supermajors and other oil companies such as Total Energies, ExxonMobil, Eni, and Equinor have been pledging to increase their installed renewable capacity by 2030 or 2050. For example, Total Energies and Equinor have pledged for 100 GW and ~16 GW capacity, respectively by 2030 while Eni plans to add 60GW by 2050.

Companies such as Total Energies, Eni, and Equinor are collaborating with suppliers to decarbonise the LNG value chain using renewable sources of power and producing clean hydrogen and ammonia. For example, Total Energies have partnered with Novatek and Siemens, while Eni signed an agreement with the Egyptian Electricity Holding Company (EEHC) and the Egyptian Natural Gas Holding Company (EGAS) to produce green hydrogen using electricity generated from renewables, and blue hydrogen, through the storage of CO2 in depleted natural gas fields.

Of late, companies have increased their attention towards decarbonising the shipping industry and key initiatives are majorly focused on exploring alternative fuels. Shell has recently collaborated with a shipping company Mediterranean Shipping Company (MSC) to work in the area to install net-zero solutions, and zero-carbon flexi-fuel concept ship. MSC plans to use LNG in its fleet and is exploring the benefits of moving from LNG to bio-LNG. BP has signed a partnership agreement with the research center (Mærsk Mc-Kinney Møller Center), committing to long-term collaboration on the development of new alternative fuels and low-carbon solutions for the shipping industry.

Equinor has been actively replacing or renewing the tankers and supply vessels, developing new types of vessels, and using alternative fuels such as LNG and Viking Energy will be the first one to have LNG based fuel. i. Also, Equinor has started testing ammonia-based power for long distances in their Viking Energy vessel and expected to retrofit for ammonia fuel in 2024. According to the project plans, ammonia will meet 60% to 70% of the power requirement on board for a test period of one year and the supply vessel will be able to use LNG as fuel, and the remaining power requirement will be met by battery.

Shell has been adding new charter vessels fueled by LNG and expects half of its long-term chartered crude tankers to operate on LNG by 2023. According to Shell, the main engines and vessel design of the VLCCs will enable them to have the lowest possible methane slip and highest fuel efficiency. These include 20% less fuel consumption on average, in comparison to eco VLCC vessels on the water.

ExxonMobil has completed a successful sea trial of the company's first marine biofuel oil with shipping company Stena Bulk, offering a 40% reduction in CO2 emission reduction. It is expected to be available at the end of the year, in the port of Rotterdam (The Netherlands), before it gets a wider launch. Maersk has been exploring other alternative fuels, such as methanol and ammonia. Ardmore has signed a letter of intent with Element 1 Corp (E1) and Maritime Partners to create a joint venture to deliver methanol-to-hydrogen technology to the marine sector.

While companies are focusing on scope 1 and scope 2 emissions, scope 3 emissions are the ones that have got less attention from industry leaders. In general, for many companies, most of their GHG emissions and reduction opportunities lie outside their operations. By measuring Scope 3 emissions, companies can:

- Assess the emission areas in the supply chain; identify risk
- Identify the leaders and laggards in terms of sustainability performance
- Identify efficiency and cost reduction opportunities in the supply chain
- Collaborate with suppliers and encourage them to focus on sustainability initiatives
- Identify ways to reduce emissions due to employee commuting and related activities within the premises

How can companies manage/improve their scope 3

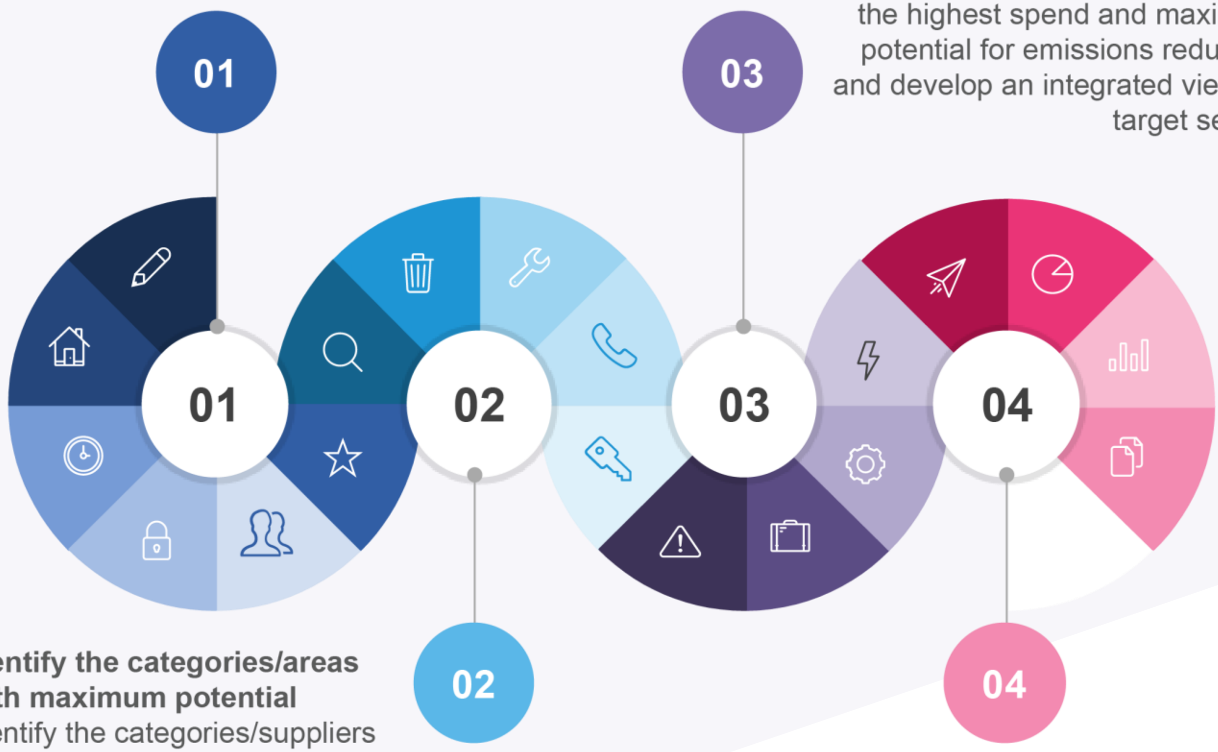
Suppliers Emissions reduction approach – part of ‘Scope 3 Emissions’

Target the suppliers/categories with the highest potential/impact

Carbon reductions

- Suppliers are also innovating in the emissions reductions space.
- Leverage a framework that brings maximum impact with optimum costs

Structured method enabled by quantitative and qualitative assessment



01 Know the current performance
Develop and adopt a standard framework to measure Suppliers’ emissions

02 Identify the categories/areas with maximum potential
Identify the categories/suppliers with the highest potential for emissions reduction: Suppliers or raw materials, technology, products: viability to help improve operations/services

03 Impact Analysis basis Spend and Potential impact
Identify the categories/suppliers with the highest spend and maximum potential for emissions reduction and develop an integrated view for target setting

04 Portfolio optimization basis the targeted impact and associated costs involved
Identify partners / licensors / suppliers for collaboration and develop TCO models for alternate product/services; evaluate supplier switching costs

The Bottom Line

Global energy markets are undergoing a structural shift toward less polluting, low-carbon energy sources. The world energy demand has been rising and the energy markets need to learn to succeed in an increasingly carbon-constrained economy.

The growth of the LNG industry over the last few years has been a great success story and played a pivotal role in managing the rising energy demands – but the success of the LNG markets will be determined basis how effectively the industry tackles the issue of decarbonisation.

Meanwhile, the energy and shipping industry have been actively testing other alternatives such as biofuel, hydrogen, methanol, and ammonia (electricity-based fuels) to power LNG-fueled vessels to understand the full potential of these alternatives to be able to fully substitute LNG, as few perceive LNG as a transitional fuel; however, the journey of moving from LNG to carbon-neutral fuels will not be easy and quick, as it would require a paradigm shift in the policy framework and investment strategy, as storage, transportation, and functioning of these fuel options would require the entire ecosystem to change. Hence, it is even more important to create a robust decarbonisation roadmap for the LNG industry to position it as a future fuel.

To fully implement that strategy, the industry requires more empirical testing and pilot projects on hydrogen power pants and alternate fuels, increased access to government support for technologies that currently are not financially viable such as hydrogen storage & transportation, support the development of ESG metrics that are transparent, objective, and well-planned strategy to reduce emissions (scope 1, 2 & 3), basis the assessment of the emissions in the dimensions.

In such scenarios, knowledge partners can play a pivotal role in sharing the best practices adopted by peers and assessments from subject matter experts. Knowledge partners can help create milestone-based strategies for the near and long term, and correspondingly support the decarbonisation initiative by addressing some of the key challenges related to measuring, reporting and controlling the emissions, and thus helping build a structured decarbonisation strategy roadmap.

Source Credits and References:

- Global Energy Transformation – IRENA
- Global Status Report 2020 – United Nations
- Decarbonisation Of The Lng Supply Chain Challenges And The Way Forward – Herbert Smith Freehills
- Decarbonising Maritime Transport: The Importance of Engine Technology and Regulations for LNG to Serve as a Transition Fuel – MDPI
- LNG carbon offsetting: fleeting trend or sustainable practice? – GIIGNL
- How green is your LNG? – Supply chain emissions come under scrutiny – Gas Strategies
- Decarbonising Energy: From A to Zero – Accenture
- 'Sustainable' funds a safer harbour in coronavirus market meltdown – Reuters
- Operating across the entire natural gas value chain – Total Energies
- Carbon neutral LNG: Suppliers focus on optionality, transparency and CCS – Bloomberg
- TotalEnergies and Novatek sign MoU on sustainable LNG – Total Energies
- Carbon Capture and Storage 101 – Resources of the Future
- What is carbon capture and storage and what role can it play in tackling climate change? – The London School of Economics and Political Science
- Greening our shipping: Replacing the workhorses of the ocean – Equinor
- Carbon capture and storage – ExxonMobil
- Total delivers its first carbon neutral LNG cargo – Total Energies
- Decarbonising Shipping: Setting Shell's Course – Shell
- Towards a zero-carbon future – Maersk
- Cheniere Doubling Down to Cut LNG Environmental Footprint as Stakeholder Pressure Grows – NGI
- Bio-LNG provides 'competitive advantage' in shipping industry – Bioenergy insight
- Equinor Sustainability Report – 2020
- Zero Routine Flaring by 2030 – The World Bank
- ExxonMobil announces emission reduction plans; expects to meet 2020 goals – ExxonMobil
- Hydrogen will be a key contributor to the energy transition. Here's what Equinor is doing
- Equinor launching maritime climate ambitions
- Euronav Sustainability Report 2020
- Ardmore Shipping, Maritime Partners in JV with hydrogen fuel cell developer
- Independent Study Confirms Lng Reduces Shipping Ghg Emissions By Up To 23% – SEA-LNG
- LNG as a Sustainable Fuel of the Future – Singapore Maritime Technology Conference, 2015
- Forced boil-off gas: The future of LNG as a fuel for LNG carriers – McKinsey & Company

- Optimising The Natural Gas Value Chain To Advance Decarbonisation – Bureau Veritas
- ExxonMobil's first Marine Bio Fuel Oil – ExxonMobil
- Overview of alternative fuels with emphasis on the potential of LNG as future marine fuel – ResearchGate
- Shell hydrogen study energy of the future?
- Hydrogen Power Plants – Siemens
- Hydrogen Fueled Gas Turbines – GE
- LNG: An Energy Of The Future – Elengy
- LNG Consistent Methodology for Estimating Greenhouse Gas Emissions – API Energy
- IMO emissions report raises new concerns about methane slip – Professional Mariner
- Guidelines and goals: Reducing shipping's emissions – Ship Technology
- The role of oil and Gas companies in the Energy transition – Atlantic Council
- LNG Supply Chains: A Supplier-Specific Life-Cycle Assessment for Improved Emission Accounting – ACS publications
- The world's first carbon-free ammonia-fuelled supply vessel on the drawing board - Equinor
- Lng In Transition: From Uncertainty To Uncertainty – The Oxford Institute of Energy Studies
- How hydrogen empowers the energy transition – Hydrogen Council
- Msc And Shell Sign Collaboration Agreement On Decarbonising Shipping - MSC
- bp joins the Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping as a strategic partner – BP
- Shell Hits Milestone In Fleet Decarbonisation With Half Of Long-Term Chartered Crude Tankers To Run On Lng In 2023
- Egypt signs green and blue hydrogen agreement with Eni
- U.S. LNG Players Tout Carbon Capture in Bid to Boost Green Image – Bloomberg
- The impact of decarbonisation on the gas and LNG industry - McKinsey & Company
- World Environment Day: The role of LNG for decarbonisation – Gas World
- SEA/LNG defends LNG's role in shipping decarbonisation – Argus
- U.S. energy secretary sets expectations for greener LNG production – World Oil
- Managing the decarbonisation of the energy supply chain - LinkedIN
- Going Green with Carbon-Neutral LNG – CME Group

Author

Anuj Jain

Senior Specialist, LNG Supply Chain and Procurement

Ramit Huria

Specialist, LNG Supply Chain and Procurement

ABOUT EVALUESERVE

Evalueserve is a leading analytics partner to Fortune500 companies. Powered by mind+machine™, Evalueserve combines insights emerging from data and research with the efficiency of digital tools and platforms to design impactful solutions. A global team of 4,000+ experts collaborates with clients across 15+ industries.

CONNECT WITH US

Connect with us on in

If you are interested in speaking with Evalueserve about how your organisation can adapt for tomorrow, please contact us at decarbonization@evalueserve.com or for more information, visit http://www.evalueserve.com/.

Evalueserve Disclaimer

The information contained in this report has been obtained from reliable sources. The output is in accordance with the information available on such sources and has been carried out to the best of our knowledge with utmost care and precision. While Evalueserve has no reason to believe that there is any inaccuracy or defect in such information, Evalueserve disclaims all warranties, expressed or implied, including warranties of accuracy, completeness, correctness, adequacy, merchantability and / or fitness of the information.