



Richard Hepworth

Career: A chartered mechanical engineer with more than 30 years of experience working in the offshore and marine construction industry, undertaking a wide range of roles from design engineering and project management to sales and general management.

Job: President of Trelleborg's Marine & Infrastructure operation.

Lives: After some time spent globetrotting he lives in Dubai.

Backstory: Born and bred in Manchester, England, he still retains his season ticket for Manchester City, despite the Etihad Stadium being 3,500 miles away from home.

Free time: He keeps fit by running half marathons or, if really motivated, full marathons!

Left:
Richard Hepworth, Trelleborg's president for marine & infrastructure, describes the boom in LNG. One driver is the increased demand from developing countries in Asia.

A SMOOTH TRANSITION

What is LNG and why is it the new big thing in the energy market? Trelleborg's Richard Hepworth explains why this option is critical in the transition from fossil fuels to renewables.

TEXT DONNA GUINIVAN
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When natural gas is cooled to cryogenic temperatures of -162°C it becomes Liquefied Natural Gas (LNG), which makes it 615 times smaller in volume than when it is in its gaseous state. This means it can be stored efficiently in large tanks, and shipping over long distances is possible using specialized ships, known as LNG carriers, which have highly insulated tanks to store the LNG and keep it at the required cold temperature.

"This method of transportation eliminates the need to build expensive land-based or undersea pipeline infrastructure to move LNG from the places it is produced, such as Australia, Qatar or the US, to the places where it is consumed, such as China, Japan or Korea," says Richard Hepworth, Trelleborg's president for marine & infrastructure. "It also allows delivery of energy to places pipelines cannot reach or feasibly

go, such as small or isolated islands that need to have a source of power."

The value of the LNG market was USD 44.35 billion in 2021, and with a compound annual growth rate of 6.4 percent over the forecast period, it will reach USD 72.85 billion by 2028.

"And that's just a baseline estimate," says Hepworth. "We're seeing a boom just now and growth is accelerating. Driving this is the increased demand from fast-developing countries in Asia as well as new uses for LNG such as powering ships and trucks. The biggest growth, though, comes from countries looking to become more sustainable by switching to gas instead of coal or oil as a fuel to generate electricity."

Trelleborg offers a wide range of solutions for LNG applications, from intelligent docking and mooring and marine fenders to cryogenic hoses, seals and transfer systems.

“LNG is an extremely demanding fuel to work with and is subject to strict industry standards to ensure the absolute safety of all activities connected with the handling of LNG,” says Hepworth. “The extreme low temperatures require specially developed polymer materials for seals and hoses. When it comes to docking and mooring, the safety and security of LNG carriers at berth in the LNG terminal is vital.”

“All Trelleborg’s engineering and product development efforts for LNG focus on safety,” he continues. “Products and solutions undergo extensive qualification testing, both in our manufacturing facilities and when installed on site.”

Some may think that the rapid growth and promotion of LNG as a fuel is going in the wrong direction

in a world focused on increased sustainability and a shift away from fossil fuels.

“Yes, LNG is a fossil fuel,” Hepworth says, “but it is seen as a vital part of the energy transition as the world moves from the use of oil and coal toward renewable forms of energy. It’s the cleanest of traditional fuels, and until the infrastructures are there to supply all renewable energy needed from wind, sun or water, it represents a compromise between fulfilling fuel demands and the goal of sustainable energy production.”

LNG emits much less carbon dioxide (CO₂), sulfur dioxide (SO₂) and nitrogen dioxide (NO₂) than oil or coal.

“The combustion of natural gas does not emit soot, dust or fumes,”

“If just 20 percent of coal-fired power stations switched to gas there would be a potential saving of 680 million tons of CO₂ emissions annually.”



Right:

Shipping LNG over long distances is possible thanks to highly insulated tanks, which can keep it at the required temperature.



PHOTO: GETTY IMAGES

Left:

Richard Hepworth says that LNG is seen as a vital part of the energy transition as the world moves toward renewable forms of energy.



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Hepworth says. “It generates 30 percent less CO₂ emissions than fuel oil and 45 percent less than coal. The emission of NO₂ is a massive 90 percent less than burning coal, and the fuel gives off virtually no SO₂. To put that in context, according to Shell, if just 20 percent of coal-fired power stations switched to gas there would be a potential saving of 680 million tonnes of CO₂ emissions annually.”

Reducing CO₂ as an international goal is much talked about. Cutting these emissions will help curtail global warming, a phenomenon that, if not curbed, could have a devastating effect on the planet. Perhaps a less well-known pollutant is NO₂, which is usually more associated with exhaust fumes. This can

be catastrophic to human health if it builds up in the atmosphere, while SO₂ contributes to acid rain, haze and smog, causing and exacerbating respiratory conditions.

Another factor that makes LNG important in the global energy market is that it provides flexibility in supply. “LNG plays a significant role in the geopolitical landscape,” says Hepworth. “Energy is such an important commodity that fixed pipeline supply can become a bargaining platform, with restrictions on provision used to influence political decisions. Being able to ship LNG from several different sources ensures that countries can have better control of their own energy supplies.” ■

Sources:
“LNG industry rebounds in 2021 amid supply constraints and volatile prices”, Shell Global
“Global LNG tanker fleet 2020”, Statista

LNG Facts

- In 2021, trade in LNG hit 380 million tonnes, an increase of 6 percent (or 21 million tons) from 2020.
- China is the world’s largest LNG importer.
- The global LNG carrier fleet at the end of 2020 numbered 642.
- The largest LNG carrier can carry 266,000 cubic meters of LNG.

Protecting the essential

OPERATIONS

COMPLIANCE



SOCIAL
ENGAGEMENT



PROTECTING THE ESSENTIAL

Protecting the essential is about minimizing our negative impacts and maximizing our positive impacts, making sustainable changes vital for the planet and for society. Our focus areas stretch from the environment to health and safety; from compliance to ethical relations with all our stakeholders and society as a whole. While considering the big picture, we also need to focus on areas where we can make a genuine difference.