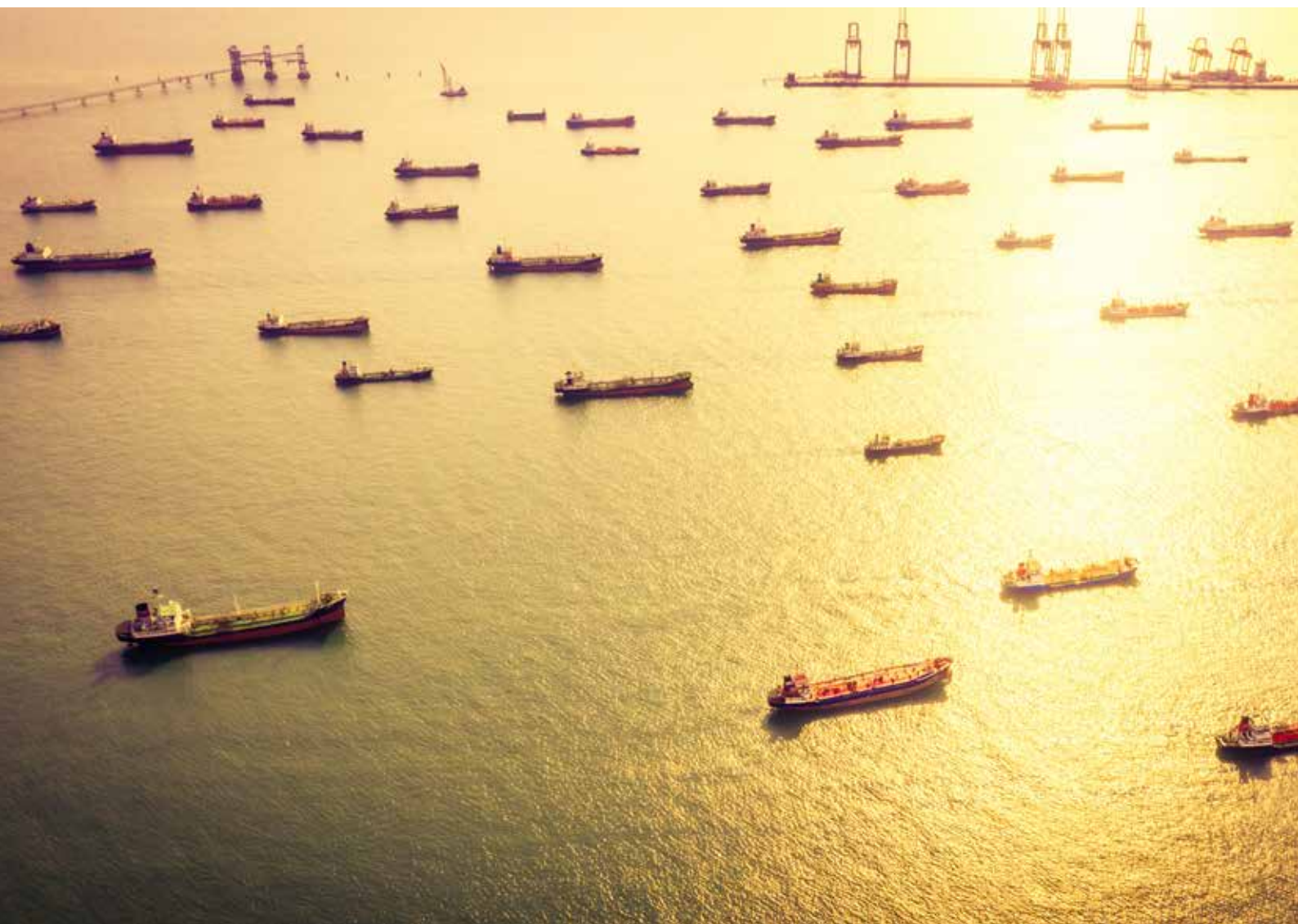




**Uniper Energy DMCC
Quarterly Newsletter
Q1 2021**



Hydrogen: Rhetoric rapidly turning into reality

By John Roper, CEO Middle East, Uniper Global Commodities SE

A staggeringly fast rise in energy stakeholders' appetite for hydrogen – potentially the world's 'new oil' – means blueprints in the Arab Gulf are transforming into real progress. In Saudi Arabia, Air Products, ACWA Power, and NEOM's deal for a \$5bn world-scale green hydrogen-based ammonia production facility powered by renewable energy is a momentous step in a greener direction for the world's biggest oil exporter. And hydrogen development is also high on the UAE's agenda as OPEC's third biggest member accelerates its decarbonisation plan. One of the several recent initiatives is Mubadala, ADNOC, and ADQ's deal to create the Abu Dhabi Hydrogen Alliance, which aims to establish the UAE's capital as a leader in low-carbon green and blue hydrogen in emerging and international markets.

Quick, quick...

Putting its stamp on this burgeoning market is a clever move for Arab Gulf leaders. Still, much more must be done for the region to emerge as one of the world's leading hydrogen markets by the 2030s. This is especially true when considering the lead time of research and development, pilots, project construction, and sourcing finance and talent resources. So far, there are more than 30 countries with hydrogen roadmaps worldwide, with 228 large-scale hydrogen projects announced across the value chain. Of those, 85% are located in Europe, Asia, and Australia, according to the Hydrogen Insights 2021 report. If all the projects come to fruition, total investments will exceed \$300bn in spending through 2030 – prosperity that the Arab Gulf can benefit from.

Europe calling?

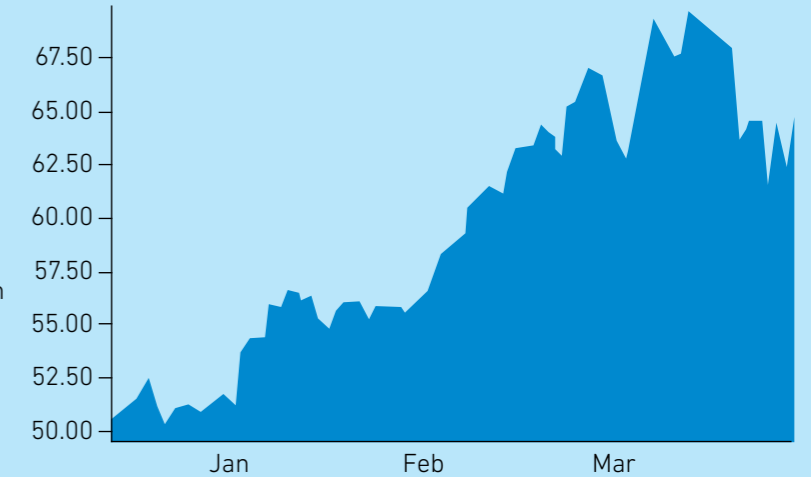
A natural two-way hydrogen relationship is potentially developing between Europe and the Arab Gulf. On one side is Europe's Hydrogen Strategy, the world's most developed such roadmap. One of the latest projects supporting the continent's ambitions is between Uniper and the Port of Rotterdam Authority. Both are exploring the potential of the large-scale production of green hydrogen at the Maasvlakte area in Rotterdam – home to the world's second largest bunkering hub – with plans to realise a hydrogen plant on Uniper's site by 2025 with 100MW of capacity. In time, capacity will be upped to 500MW. On the other side of the relationship is the Arab Gulf's vast production potential and deep-rooted government support for hydrogen growth – and critically, its export ambitions. Germany's needs may see a natural marrying of this international supply-demand dynamic. For example, Europe's biggest economy expects up to 110TWh of hydrogen will be needed by 2030. In order to cover part of this demand, Germany plans to establish up to 5GW of generation capacity, including offshore and onshore energy generation facilities, detailed the country's National Hydrogen Strategy. This corresponds to 14TWh of green hydrogen production and will require 20TWh of renewables-based electricity. Still, even with further additions up to 2040, Germany's domestic generation of green hydrogen will not be sufficient to cover all new demand, which is why most of the hydrogen needed will have to be imported. As such, the Middle East could become the long-term partner of choice for Germany and Europe if it responds in a timely manner to these international needs. Still, many questions must be answered for all regions to have success, not just the Arab Gulf. How to cut the cost of green hydrogen and make it financially comparative to other renewable energy types? How to bolster the scale of blue and green hydrogen? How to build the necessary infrastructure affordably and quickly, for both national use and export plans? The sooner the Arab Gulf can answer these questions, the greater its competitive stake in hydrogen – potentially the 21st century's biggest energy market.

Oil Markets Quarterly Review

Oil Markets Rally on Vaccine Roll Outs and a Disciplined OPEC

World Oil Demand

In the first quarter of 2021, global oil demand was positive on the whole, as the market remained extremely tight. Oil prices hit \$70/bl in March, with many investors being bullish as a result of the global rollout of Covid-19 vaccines and Biden injecting \$1trn US stimulus into the American economy, pushing markets through the roof. As a result, global oil demand was outweighing oil supplies. According to data from the International Energy Agency (IEA), February data for the US, Europe and Japan showed that industry stocks fell by 1.88mn b/d in total, paved by middle distillates and lower gasoline stocks. However, in the final end of the quarter, prices dipped to \$60/bl, as a result of fears that



European lockdowns would continue into the second half of the year, prompting many investors to change their positions. However, Chinese and Indian oil demand is expected to grow 1.7mn b/d in 2021 according to S&P Global Platts.

World Oil Supply

With steady demand for most of the quarter, many smaller US shale producers have been prompted to re-start production. Higher oil prices have facilitated optimal conditions, as breakeven prices need to be around \$51/bl according to the Federal Reserve Bank of Dallas. Moreover, despite US economic sanctions, Iran has also been increasing exports, mainly to China and India in the last few months. According to Goldman Sachs, EU demand and Iranian supply would slow the oil market by rebalancing 0.75mn b/d in the second quarter, although it is likely OPEC will offset this. On March 4, OPEC made the decision to roll over production cuts, and Saudi Arabia surprised the market by cutting an extra 1mn b/d in the market. According to OPEC's monthly report, crude demand in 2021 is forecast to stand at 27.3mn b/d, around 4.9mn b/d higher than in 2020.

Brent Crude Oil Prices: January – March 2021

5.5mn b/d increase in global oil demand for 2021	24.85mn b/d average OPEC crude oil production in February	11.36mn bpd will be the average US crude oil production in December 2021	180,000b/d decline in US Oil Supply in 2021	91.6mn b/d Global oil supply in February ↓ by 2mn b/d
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Sources: OPEC, International Energy Agency (IEA), EIA, JP Morgan

2021 - Average Brent Crude Oil Price Forecasts

EIA \$61/bl	Goldman Sachs \$80/bl	Moody's \$50/bl	Bank of America \$60/bl	Barclay's \$62/bl
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Sources: EIA, Goldman Sachs, Moody's, Bank of America, Barclay's



Uniper Strategic Sustainability Plan (SSP)

Targets for climate action and security of supply

- Achieve carbon neutrality for our power generation portfolio in Europe by 2035.
- Maintain a Group-wide carbon intensity threshold of 500g of CO₂ per kilowatt hour (on average) through 2020.
- Conduct, by 2022, at least 20 projects whose aims include decarbonisation.

Source: Uniper, Carbon neutrality in reference to Direct Scope emissions and Carbon intensity calculated on average from 2018 to 2020

Quarterly Lens on Marine Biofuel: B10M & B20M

An Exciting New Fuel To meet the need for clean, green renewable marine fuel, a partnership has been formed between two leaders in their fields: Uniper, the largest fuel oil producer of the Middle East, and the GCC's leading net zero biofuel producer, Neutral Fuels. Together, the two companies have created an entirely new fuel – Marine Biofuel – which replaces conventional marine bunker fuels. Marine Biofuel enables the maritime industry to meet the IMO standard under their ISO8217:2010 RMG380 specification, cutting harmful carbon emissions and becoming part of the solution to climate change.

Marine Biofuels: B10M & B20M

The new Marine Biofuel is available in two blends: B10M and B20M. In simple terms, they are made by adding Neutral Fuels EN14214 FAME (Fatty Acid Methyl Ester) to Uniper's very low sulphur fuel oil (VLSFO).

- **B10M is 90% Uniper's very low sulphur fuel oil (VLSFO) blended with 10% Neutral Fuels EN14214 FAME.**
- **B20M is 80% Uniper's VLSFO blended with 20% Neutral Fuels EN14214 FAME.**

The benefits of marine biofuels are:

- No capital outlay
- No change to existing engines
- No need for aftermarket scrubbers
- No adjustments needed to engine lube oils

Emission Reductions Carbon: Neutral Fuels EN14214 FAME reduces carbon (and other) emissions to net zero. All Neutral Fuels blends, such as B10M and B20M, reduce emissions proportionately. Net zero fuel balances the carbon emissions created in the production of the product with the reduction of carbon emissions achieved to equal zero. Other Gasses: Compared to fossil diesel, biofuel combustion significantly lowers the production of air pollutants. Biofuel is also almost free of sulphur with a content lower than 10 ppm, substantially reducing sulphur dioxide emissions.

Uniper Strategic Sustainability Plan (SSP) Commitments to climate action and security of supply

- Monitor and optimise the carbon intensity of Uniper's generation portfolio.
- Include decarbonisation activities as a focus area for innovation.
- Promote lower-carbon fuels for energy generation.

Source: Uniper



€2.7bn

in total is being invested between now and the end of 2022, of which €1.2 billion is planned for new growth projects, some of which have already started.

Source: Uniper

IMO 2020 Progress Report

One Year On: Has the Shipping Industry Adapted to the 0.5% Sulphur Cap?

With an estimated 80% of goods moved around the world by sea, maritime transport has an important role in international trade. However, shipping emits high levels of carbon dioxide. A study by the International Maritime Organization (IMO) puts this at around 940mn tonnes of carbon annually. An equally serious cause for concern is the pollution caused by the high levels of sulphur in maritime fuels. IMO's regulation to limit bunker fuel sulphur content to 0.5% from January 2020, has been dubbed by some as the most dramatic change in the shipping industry since its shift from coal. High Sulphur Fuel Oil (HSFO) was used for approximately 70% of the world's bunker fuel in as recent as 2016 so the adjustment to 0.5% sulphur, required a modification in the balance of fuels, and fast. In the run up to the new rules, vessels last year were testing the new fuel to be ready for the switch.

A year on, the combined data reveal that, compliance with the IMO 2020 regulations was adequate throughout 2020. Only 55 cases of 0.50% compliant fuel being unavailable had been reported in IMO's Global Integrated Shipping Information System (GISIS) throughout 2020. According to data from The Maritime Port Authority of Singapore, 96% of all ships calling at Singapore in the first quarter of 2020 used compliant fuel, with just 12 non-compliant ships. Singapore derived figures further reveal 70% of bunker fuel sold over the first 6 months of 2020 was VLSFO. Furthermore, VLSFO was hailed as the fuel of choice and the definite winner against scrubbers. This could be attributed to the narrow VLSFO/HSFO price which refutes the previous argument of economic viability of scrubbers with high price differentials between HSFO and VLSFO.

Average Bunker Prices: Fujairah

January - March 2021	High	Low	Average	Spread
LSFO (<0.5%)	\$416.50/mt	\$323.50/mt	\$366.50/mt	\$93.00/mt
HSFO (IFO380)	\$320.00/mt	\$253.50/mt	\$289.50/mt	\$66.50/mt

Source: Ship & Bunker

Reduction in Uniper's direct carbon emissions

2017 63.3 Million metric tons

2019 47.0 Million metric tons

≈30% Percentage Decrease

Source: Uniper

Spotlight: Outlook for Alternative Marine Fuels



How can the shipping industry align its strategy with that of the global climate efforts? Shipping, as the primary driver of world trade, has an important task in hand. Improvements in technology and operations can increase fuel efficiency. As the world recovers from an unprecedented year, lack of urgent action means returning to high emissions and powering catastrophic events as a result of climate change. What should the industry prioritize in its quest to decarbonization? The appetite for liquefied natural gas (LNG) bunkering is undoubtedly rising, helped by the robust supply. But rising demand shouldn't divert ship-owners attention to an array of green fuel options.

Methanol is viewed by the shipping industry as a logical near-term option to begin decarbonization of shipping while development efforts continue on other options including hydrogen and ammonia. As a hydrogen carrier, green methanol is easier to transport and store than green hydrogen. It burns clean, is liquid at ambient temperatures and pressures, and is also biodegradable. Green methanol is carbon-neutral overall, as it is produced using hydrogen from renewable sources and CO₂ from the atmosphere via a biological feedstock or direct air capture.

Hydrogen's current revival seems to have greater credibility than ever in the political and business circles embracing sustainability. Globally, the hydrogen industry is expected to grow to \$183bn by 2023, from \$129bn in 2017, as forecasted by Fitch Solutions. While hydrogen's green credentials make it attractive to industrial users, including ship owners and oil majors, it is far less dense than other fuels, meaning more onboard fuel storage capacity is needed. That makes it more feasible, for now, for use in vessels on short voyages. Roadmaps detailing policy and technological developments, an array of pilot projects to pinpoint risk-reward ratios, reliable supply-demand dynamics, and scalability, are all still needed. And even this array – LSFO, LNG, and hydrogen – are just a part of the greener marine fuels bucket in the 21st century.

6
Was the total number of LNG Bunkering Vessels operating around the world in early 2019

Source: SEA-LNG

12
Is the number of LNG Bunkering Vessels in operation as of January 2020, with a further 27 on order or undergoing commissioning

Source: SEA-LNG

175
Is the number LNG-powered vessels in operation in the world, as of December 2020, with 20 bunkering vessels supplying LNG

Source: DNV GL

96
Is the number of ports that LNG can be delivered to with a further 55 ports in the process

Source: SEA-LNG

\$280bn
Is the amount of investment that is required by 2030 to build a hydrogen economy

Source: Hydrogen Council

4-8x
Is how the price of hydrogen is higher compared to the price of VLSFO fuel oil

Source: DNV GL

Energy News Highlights Top 10 Headlines in Q1, 2021

January 2021

13 January OPEC to Follow "Step by Step" Approach to Increasing New Oil Supply

Barkindo emphasized that the year 2020 offered many lessons and it was vital to take stock for the year ahead. He noted, however, that "the worst is over" and he was "hopeful and cautiously optimistic going forward."

Source: OPEC

17 January US Shale Is Gaining Influence over Oil Markets

Forecasts for the global economy are less dire, as more developed nations and China have rebounded quicker than expected from Covid-19 lockdowns. However, things are looking worse for emerging markets.

Source: BBC

25 January Big Oil Hits Brakes on Search for New Fossil Fuels

Data shows that top oil and gas companies sharply slowed their search for new fossil fuel resources last year as lower energy prices due to the coronavirus crisis triggered spending cuts.

Source: Reuters

February 2021

5 February A Huge Number of Oil Supertankers Are Pointing at China's Ports

The number of the vessels sailing toward the shores of world's largest importer jumped to a six-month high of 127 on Friday.

Source: Bloomberg

17 February Commodity Prices - Supercycle or Regular Upturn?

Commodity markets may be about to embark on another supercycle – a multi-year, broad-based, and usually large increase in prices.

Source: Reuters

17 February US Oil Production Slumps by Record 40% as Permian Freezes

Crude output has now fallen by more than 4 million barrels a day nationwide.

Source: Bloomberg

March 2021

8 March Iran Slips Record Volume of Oil into China

Iran has quietly moved record amounts of crude oil to top client China in recent months, while India's state refiners have added Iranian oil to their annual import plans on the assumption that US sanctions on the OPEC supplier will soon ease.

Source: Reuters

9 March Oil Slips below \$68/bl as Rally Fizzles Before US Supply Report

Crude hit its highest level since the start of the pandemic, a day after Yemen's Houthi forces fired drones and missiles at Saudi oil sites.

Source: Reuters

24 March Suez Canal Blocked by Huge Container Ship

Dozens of vessels are stuck, waiting for rescue boats to free the 400m-long (1,312ft) ship, which was knocked off course by strong winds.

Source: BBC News

24 March Oil Product Stocks Fall to 2019 Level

Inventories of refined oil products at the UAE's Port of Fujairah dropped to the lowest since 2019 as heavy distillates tumbled after port bunker premiums over Singapore climbed to a 13-month high.

Source: S&P Platts



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