

# **Oil and Gas News Briefs**

## **Compiled by Larry Persily**

### **June 1, 2021**

#### **OPEC+ meeting this week may provide clues of future decisions**

(Bloomberg; May 29) - For oil traders, the biggest question is how fast OPEC and its allies will revive production later this year. They may get some clues when the alliance meets June 1. Delegates said the alliance led by Saudi Arabia and Russia looks set to rubber-stamp output increases scheduled for the next two months. More importantly, Riyadh and Moscow may offer insights on the next stage: How to bring back the millions of barrels a day that remain offline after being shuttered when the coronavirus struck.

In theory, there's a yawning supply gap for the Organization of Petroleum Exporting Countries and its partners to fill in the second half of the year as economies open up and fuel demand soars. Yet the group will need to weigh that against the risk from renewed virus outbreaks in India and elsewhere, and the prospect of extra supply from fellow member Iran. The pace of revival they choose will be critical for crude markets.

With fuel consumption roaring back in the U.S. and China, and on the mend in Europe, OPEC+ delegates say they are confident they can add 840,000 barrels a day in July. That would complete the last of three monthly increments that amount to just over 2 million barrels a day of production. Beyond that, "it remains a delicate balancing act. OPEC's sense of caution is warranted," said Bill Farren-Price, of research firm Enverus.

Once the current ramp-up is completed in July, OPEC+ nations will still have lots of spare production capacity, taken offline when demand crashed last year. On paper, this amounts to almost 6 million barrels a day, or roughly 6% of global supplies. Under a road map drawn up a year ago, OPEC+ is formally committed to withholding that output until April 2022. The Saudis favor moving cautiously, supporting price over volume.

#### **OPEC+ faces 'delicate task' in next supply decisions**

(Bloomberg; May 31) - A year after shuttering unprecedented volumes of crude, the OPEC+ alliance is expecting world oil markets to get acutely tight. The coalition led by Saudi Arabia and Russia believes that the glut created during the pandemic has nearly gone, and that oil stockpiles will diminish rapidly in the second half of the year as lockdowns ease and travel gathers pace. That leaves the Organization of Petroleum Exporting Countries and its partners with a decision: Should they pour more oil into the market in the second half when the outlook is still so mired in uncertainty.

Holding output steady would support the market against the twin risks of renewed virus outbreaks and a potential export flood from fellow OPEC member Iran. But with Brent futures near \$70 a barrel, it could also jeopardize the global economy and feed into the inflationary pressures fixating Wall Street. "There are many moving parts when it comes to factors affecting the global oil market," OPEC Secretary-General Mohammad Barkindo said after preliminary consultations May 31.

At their meeting June 1, ministers are expected to go ahead with the increase already penciled in for July, completing the return of 2 million barrels since May. In theory, the group has committed to hold that level until early 2022. But a tight market could change that. Delegates said discussions would begin about the next moves, but no decision will be made. "Producers now have just as delicate of a task to bring back enough supply to match the swiftly rising demand," said Louise Dickson, with Rystad Energy. "If markets over-tighten, a flare-up in prices could jeopardize the global economic recovery."

### **IEA director warns of rising prices if OPEC+ does not boost output**

(S&P Global Platts; June 1) - Global oil prices will face further upward pressure unless OPEC and its producer allies agree to return more crude to the markets in the coming months to meet a strong demand rebound, according to the head of the International Energy Agency, Fatih Birol. OPEC+ ministers are meeting June 1 to weigh their current plans for raising production by a combined 2.1 million barrels per day May through July.

The move comes as oil prices trade near a three-month high of \$71 a barrel, fueled by signs of a surge in global oil demand this summer as most countries lift pandemic lockdowns. "Over the next six months, I see very clearly that there is a strong recovery of oil demand in the U.S., China, Europe, and elsewhere, and if OPEC+ sticks to their current policies we may see a wider gap between supply and demand," Birol said.

"In the absence of not changing the policies with the strong growth coming ... we'll see a widening gap which in turn would put further upward pressure on the prices," he said. In its oil market report last month, the IEA forecast a major oil demand rebound of some 6.5 million barrels per day between the first quarter and the end of 2021. It said likely supply growth by OPEC+ and others would be "nowhere close" to the demand increase.

### **OPEC+ poised to gain in post-pandemic oil market**

(Bloomberg; May 29) - "This time is different" may be the most dangerous words in business: Billions of dollars have been lost betting that history won't repeat itself. And yet now, in the oil world, it looks like this time really will be. For the first time in decades, oil companies aren't rushing to increase production to chase rising oil prices

as Brent crude approaches \$70. Even in the Permian, the prolific shale basin at the center of the U.S. boom, drillers are resisting their traditional boom-and-bust cycle of spending.

The oil industry is on the ropes, constrained by Wall Street investors demanding that companies spend less on drilling and instead return more money to shareholders, and climate change activists pushing against fossil fuels. ExxonMobil is paradigmatic of the trend, after its humiliating defeat at the hands of a tiny activist elbowing itself onto the board. The dramatic events in the industry last week only add to what is emerging as an opportunity for the producers of OPEC+, giving the coalition led by Saudi Arabia and Russia more room for maneuver to bring back their own production.

As non-OPEC+ production increases less than global oil demand, the cartel and its allies, including Russia, will be in control of the market, executives and traders said. It's a major break with the past, when western oil companies responded to higher prices by rushing to invest again, boosting non-OPEC output and leaving the ministers led by Saudi Arabia's Abdulaziz bin Salman with a much more difficult balancing act. Now as demand recovers post-pandemic, it will be largely up to OPEC to plug any supply gap.

### **Big Oil faces unstoppable pressure to change business model**

(Financial Times opinion; London; May 28) - For Big Oil, May 2021 is set to be the month the wind changed. On May 26, activist investors added at least two of their own nominees to ExxonMobil's board after warning the supermajor faced an "existential risk" from its fossil fuel focus. The same day, shareholders approved a measure for Chevron to set strict emissions targets from products that it sells, while a Dutch court ordered Shell to cut carbon emissions much faster than it planned.

And the week before all that, the International Energy Agency said oil companies must stop all exploration projects from this year if global warming is to be curbed. The petroleum-based economy is beginning to unravel. It shows that western oil and gas companies are under pressure from governments, from parts of the general public, from activist investors through shareholder votes, and from campaign groups in the courts.

The legal and investor victories are bound to inspire more, similar actions. Ironically, the oil groups still potentially have some good years ahead. Several years of under-investment in the industry will run up against the failure, so far, to reduce global oil and gas consumption, and economies are poised to bounce back post-pandemic. The result could be an oil-price squeeze and some impressive returns. Longer-term, however, majors seem set to face unstoppable pressure to shift their business models into new areas such as renewable energy, carbon capture and hydrogen production.

## **Real change in energy use has to come from demand side**

(Bloomberg opinion; May 29) – It was a bad day for Big Oil, or a good one, depending on your point of view. They're going to have to clean up their acts a lot faster than they were planning. Three of the world's biggest publicly traded oil and gas companies — ExxonMobil, Shell, and Chevron — were dealt stinging blows on May 26 by shareholders and a Dutch court demanding that they act more quickly to reduce their greenhouse gas emissions.

Oil companies have adopted climate consciences at different rates, with those in the U.S. generally lagging behind their European counterparts. But they tend to focus on the same thing: emissions from their own operations (drilling, pumping, shipping, and processing) and those of their suppliers. These are known as Scope 1 and Scope 2 emissions, respectively. Yet they face a much larger and more complex challenge of reducing Scope 3 emissions generated by burning the products they produce.

Reducing emissions is technically challenging, costly, or both. One of the quickest and cheapest options for companies is to dispose of the most polluting assets. But while that may make them look better, it often does little to cut global emissions. That's because the assets simply get transferred from one company to another — and likely to one less concerned about its environmental record and less susceptible to shareholder pressure. The real change will have to come on the demand side. Offering consumers affordable, reliable, and convenient alternatives to fossil fuels is what will drive a big transformation.

## **Africa oil prospect attracts growing international opposition**

(The Globe and Mail; Canada; May 29) - Standing still and silent, leaning forward and lifting a leg in the air, the savannah elephants of Namibia use their highly sensitive feet to detect seismic vibrations and low-frequency rumbles from miles away: distress calls, predator alarms, navigation signals. Soon they could be sensing a strange vibration. If permission is granted, a junior Canadian oil company will deploy its seismic tractors to survey these African plains for what might be one of the world's biggest new oil finds.

The project, still in its exploration drilling phase, has become a global cause celebre, with Namibia's endangered elephants at the heart of it. This sparsely populated corner of southern Africa is a battleground between a Calgary-based company and an informal coalition of environmentalists, Hollywood celebrities, Anglican bishops, indigenous activists, and wildlife conservationists. Critics warn the oil development could damage a sensitive environment, threaten indigenous culture and jeopardize the rivers that lead into the fabled Okavango Delta and its vast gatherings of wildlife.

The company, Reconnaissance Energy Africa (ReconAfrica), rejects these allegations. And it is far from powerless in this clash. An investigation by The Globe and Mail found

the company's leaders have forged relationships with the Namibian government and with a politically connected businessman in Namibia. Until late last year the company faced little public scrutiny, obtaining its exploration license with little notice. But the battle is heating up, with angry protests and petitions. The elephants, marching across Namibia to their havens in northern Botswana, are one of the fiercest points of dispute.

### **Protests ramping up over replacement oil line through Minnesota**

(The Associated Press; May 28) - June will be a critical month for Enbridge Energy's Line 3 oil line as the company resumes construction and as opponents mobilize for large-scale protests and civil disobedience. One prominent opponent, Winona LaDuke, founder of the indigenous-based group Honor the Earth, said she expects thousands of people from across the state and country to join the protests along the route in northern Minnesota.

Both sides are also waiting for a major ruling from the Minnesota Court of Appeals in June on a legal challenge by environmental and tribal groups that are seeking to overturn state regulators' approval of the project. Line 3 carries Canadian crude from Alberta. It clips a corner of North Dakota on its way across northern Minnesota to Enbridge's terminal in Superior, Wisconsin. Enbridge says the 1960s-era pipeline is deteriorating and can run at only about half its original capacity. It says the new line will better protect the environment while restoring its full capacity and ensuring reliable deliveries to U.S. refineries.

The Canadian and Wisconsin segments are already carrying oil. The Minnesota segment is about 60% finished as a construction pause for the spring thaw ends June 1. Enbridge plans to finish the work and put the line into service in the fourth quarter. That adds to the urgency for opponents, who are organizing a "Treaty People Gathering" for June 5-8 and preparing for mass arrests. They say the replacement line, which would carry Canadian oil, would aggravate climate change and risk spills in sensitive areas where Native Americans harvest wild rice, hunt, fish, gather medicinal plants, and claim treaty rights.

### **U.S. LNG developer plans to capture and sequester carbon**

(Reuters; May 27) - U.S. liquefied natural gas project developer Venture Global LNG said May 27 it plans to capture and sequester carbon at its Calcasieu Pass and Plaquemines export plants in Louisiana. This is part of a growing trend among energy firms to reduce greenhouse gas emissions to meet increased customer and government demand for cleaner energy to reduce damage caused by global warming.

Venture Global said it is launching a carbon capture and sequestration project that would compress carbon dioxide at its LNG plant and transport the gas for permanent storage in subsurface saline aquifers. Successful deployment of carbon capture at

Calcasieu would be the first of its kind for a U.S. LNG facility. The terminal is under construction with start-up expected next year and capacity planned for 10 million tonnes per year of LNG. Analysts have estimated the project cost at about \$4.5 billion.

The developer has not yet committed to Plaquemines, though it is looking at 2024 to start operations. NextDecade, another U.S. LNG developer, also said it wants to use carbon capture and sequestration at its proposed Rio Grande LNG export plant in Texas. NextDecade has said it plans to decide this year whether to build the plant.

### **Louisiana LNG project developer signs up second buyer**

(Natural Gas Intelligence; May 27) – LNG project developer Tellurian said May 27 it has signed a deal to supply a subsidiary of global commodities trader Gunvor Group with 3 million tonnes per year of liquefied natural gas from the proposed Driftwood export terminal in Louisiana. The announcement was a major step forward for the facility proposed near Lake Charles, which has battled through a slump in the export market to keep the project alive. Tellurian has not made a final investment decision.

Under the sales-and-purchase agreement with Gunvor Singapore, Tellurian would supply LNG for 10 years. The gas would be priced to benchmarks in Asia and Europe. Tellurian already has signed on Total to take 2.5 million tonnes per year from Driftwood. CEO Octavio Simoes said Tellurian is marketing up to 10 million tonnes for the first phase of the Driftwood project, which could reach 27.6 million tonnes at full build-out. Simoes said Gunvor was “the largest independent global trader of LNG volumes.”

A tentative deal with India’s Petronet LNG fell through last year as so-called second wave U.S. export projects faced difficulties signing up buyers during the pandemic. Sempra Energy was the only company to make a final investment decision on an LNG export project in 2020 for its facility on Mexico’s West Coast. This year has been a different story as prices hit records during the winter and have held consistently high this spring amid supply outages, low global gas inventories and resurgent demand.

### **Oil sands producer plans to cut greenhouse gas emissions by a third**

(Bloomberg; May 27) – Canada’s largest oil sand producer, Suncor Energy, plans to cut net greenhouse-gas emissions from its operations by about a third until the end of the decade as investors increasingly push oil companies to help fight climate change. Half of the target will be achieved at its oil sands plants, refineries, and other facilities by using carbon-capture technology, switching fuels for operations, and increasing energy efficiency, CEO Mark Little said in an investor-day presentation May 26.

The other half will involve projects including the new 40 Mile Alberta wind farm that’s scheduled to be completed by 2022. The goal is part of Suncor’s efforts to reach net-

zero emissions from operations by 2050. Neither target involves so-called Scope 3 emissions, the ones produced when the fossil fuels sold by oil companies are burned by vehicles, ships, and aircraft and represent the bulk of greenhouse-gas pollution.

Suncor is just the latest major fossil fuel producer to roll out carbon-reduction targets amid increasing shareholder pressure. Major investors including Norway's sovereign wealth fund have divested of oil sands companies, including Suncor, in recent years. Earlier in 2021, Suncor was the only oil sands producer that was spared divestment by the New York state pension fund. In addition to the southern Alberta wind farm, Suncor is converting a coke-fired boiler at its Northern Alberta oil sands Base Plant into a less polluting, gas-fired cogeneration unit that will feed power to Alberta's electric grid.

### **Alberta gas producer plans carbon-capture project**

(Reuters; May 27) - Canadian energy company Pieridae Energy said May 27 it plans to capture and sequester carbon at its natural gas processing facility in Caroline, Alberta. The planned Caroline complex — expected to store up to 3 million tonnes of carbon dioxide per year in a depleted underground reservoir — is part of a growing effort by energy firms to reduce greenhouse gas emissions to meet increasing customer and government demand for cleaner energy.

Pieridae's work in Alberta could help it attract investors for its planned Goldboro LNG export facility in Nova Scotia, which is expecting a final investment decision by June 30. Caroline's total capacity would be able to offset Goldboro's emissions. "Without a concrete, measurable ESG (environmental, social and corporate governance) plan, nothing is financeable these days," Pieridae's CEO Alfred Sorensen said.

Pieridae has delayed its final investment decision on Goldboro several times. Sorensen said the biggest concern now for whether to go ahead with the \$10 billion project is its construction costs. If confirmed, Goldboro would come online in the first quarter of 2026, he said. The Caroline complex will combine large-scale carbon capture and sequestration and power production, which Pieridae said would make it the largest project of its type in Canada.

### **Cost, commitment are issues for LNG industry use of carbon capture**

(S&P Global Platts; May 28) – U.S. gas liquefaction plant operators and developers are increasingly embracing as a viable option to reduce their emissions a technology that other energy sectors have tried with mixed success: carbon capture. The proposals are green-friendly. They are a nod to the global energy transition toward greater use of clean-burning fuels. And there are federal tax credits for which companies can apply.

Broad buy-in among producers and policy changes in Washington may be needed for the projects to move from aspiration to fruition, industry experts say.

Projects must be completed first for the tax credits to kick in, and under current law the credits only last for 12 years. Even if some projects do get built, only a portion of emissions would get captured, and that may not be enough to satisfy some shale-conscious end-users, which for exporters means buyers in Europe and Asia.

"Commitment would mean real capital. Not just shovel-ready, but shovels in the ground," said Ed Hirs, an energy economist at the University of Houston.

Speaking at an Air Liquide hydrogen plant outside of Houston on May 28, Energy Secretary Jennifer Granholm gave a nod to the budding carbon-capture movement by the LNG sector. While the world is working to move away from fossil fuels, LNG can remain viable by "decarbonizing," she said. Last fall, developers of an underground reservoir to permanently store carbon dioxide in southwest Louisiana said the project was inching closer to reality. Whether any of the U.S. LNG carbon-capture projects happen may ultimately come down to money, Hirs said. "Is anybody ready to pay for it?"

### **EPA advises FERC to broaden its climate review of gas pipelines**

(S&P Global Platts; May 27) - The Environmental Protection Agency staked out a new position on interstate gas pipeline reviews, advising the Federal Energy Regulatory Commission to weigh the potential for "carbon lock-in" and the "costly irreversibility" of building gas infrastructure. A broad expansion of FERC's climate considerations backed by the EPA would mark a sharp departure from the commission's approach.

The EPA's comment was included among a flood of filings from energy companies, environmental nonprofits and others responding to FERC's updated notice of inquiry on how it might alter its 1999 gas pipeline certificate policy. The EPA comments have the potential to shake up debate on the key policy for reviewing midstream infrastructure, as multiple entities have urged FERC to defer to EPA and the White House Council on Environmental Quality on climate considerations.

Many natural gas companies, in their comments, argued that FERC's existing pipeline policy framework is sufficient. But a letter from EPA Associate Administrator Victoria Arroyo echoed a sentiment long expressed by environmental groups that FERC should be careful about locking in long-lived infrastructure that creates greenhouse gas emissions or could lead to stranded assets. The agency backed the idea that FERC could seek mitigation of a project's climate and environmental justice impacts, and offered possible options, such as considering compressor stations with electric turbines.

## **China's southern province asks industries to cut back on power use**

(Reuters; May 27) - Several cities in China's southern province Guangdong, a major manufacturing hub, have asked industries to curb power use by suspending operations for hours or even days as high factory use combined with hot weather strain the region's power system. The power restrictions are a double hit for manufacturers that already have been forced to lower production due to a recent surge in raw material prices including steel, aluminum, glass, and paper.

Guangdong, an economic and export powerhouse with a gross domestic product equivalent to South Korea, has seen its electricity use surge 22.6% in April from COVID-2020 levels, and 7.6% from the same period in 2019. "Due to the acceleration of economic activity resumption and persistent high temperatures, electricity consumption has been increasing," the Guangdong provincial energy bureau said last week.

Some local power grid firms in cities such as Guangzhou, Foshan, Dongguan, and Shantou have issued notices urging factories in the region to halt production at peak hours, between 7 a.m. and 11 p.m., or even shut down for two to three days each week depending on the power situation, according to power users and local media reports. The Guangdong energy bureau has said it was coordinating with neighboring regions to bring more electricity into the province, while ensuring steady coal and gas supplies for its own power plants, which account for more than 70% of total electricity generation.

## **China's power shortage leads factories to use portable generators**

(Bloomberg; May 28) - There's a new fixture along the alleyways of Guangzhou — the portable generator. Videos on China's popular social media app WeChat show the units spinning and hissing smoke outside of crowded clothing factories in the city at the center of the nation's industrial heartland. The reason for their popularity? A suddenly unreliable power grid. "The power supply in Guangdong has had some problems recently, and in some cities industrial plants have had to move their working time to off-peak hours," said Yu Zhai, an analyst with Wood Mackenzie.

"This electricity shortage could be a problem from now through the summer." Outages aren't just a problem for mainland China. Just months after severe winter weather crippled power supplies across Northeast Asia, the specter of shortages is also rising again in Japan and Taiwan. Hot weather is layering air-conditioning demand on already-high industrial use as economies recover from the pandemic, while supply is constrained from nuclear, hydropower and coal plants.

In China, the export- and heavy industry-led rebound has caused a surge in electricity use, with consumption climbing 20% through April compared with last year, and up 15% from 2019 levels, when COVID-19 wasn't a factor. Temperatures in Guangdong, in the

southern region, have also been higher than normal. At the same time, there's been a late start to the wet season, leaving hydropower reservoirs low. In some parts of Guangdong, some factories are only being allowed to operate three days a week.

### **Germany will need gas power plants to cover for loss of nuclear, coal**

(Bloomberg; May 27) - Germany's plans to phase out coal and nuclear power will leave a large gap in supplies of electricity that's likely to be filled by natural gas. Germany will need to add about 18 gigawatts, 60% more gas-fired capacity, to plug the hole left from shutting its six remaining nuclear reactors by the end of next year and its plans to phase out about half its coal and lignite fleet by 2030, said a consultant's report.

New gas plants will be vital as backup to growing amounts of solar and wind generation that will be needed to fill an ambitious climate target set earlier in May. The new stations won't be running all the time and will have to vary output to match renewable generation, which will cut profitability. "The state might struggle to find the necessary investment for the expansion of the gas capacity," the consulting firm Enappsys wrote.

"Such facilities will mostly generate income during the demand spikes where renewables fall short and in the balancing markets when opportunity arises." One solution is for Germany to introduce a capacity market where power producers are paid to keep their plants available. The tightening of supplies will push up power prices, according to Sabrina Kernbichler, European power analyst at S&P Global Platts. "The continental market is becoming increasingly tight with capacity shutting," she said. "Germany will become one of the premium-priced markets by 2026."

### **New LNG supply next year will outpace Asian demand**

(Reuters; May 27) - Liquefied natural gas demand growth in Asia will slow down next year as the economic recovery stagnates and the capacity of competing fuels (nuclear and coal) expand in Japan and South Korea, research consultancy Wood Mackenzie said May 27. LNG demand in Asia is expected to rise by 12 million tonnes per year in 2022, down from the growth of 19 million tonnes in 2021, Robert Sims, head of Wood Mackenzie's LNG short-term, gas and LNG research, said in a note.

"LNG demand growth in Asia will slow down as the economic recovery decelerates, coal and nuclear capacity will increase in Japan and South Korea, and more offshore domestic (gas) supply will be available in India," he added. At the same time, annual global LNG supply will grow by 18 million tonnes because of projects in the U.S. and Indonesia's Tangguh plant, he said. This will mean that there will be about 6 million to 7 million tonnes of surplus LNG available for Europe, about 9% more than in 2021.

Still, the key to shaping market dynamics in Europe next year will be the ramp-up of the Nord Stream 2 natural gas pipeline from Russia to Germany, Sims said, adding that it is expected to be commissioned this winter.

### **LNG terminal on Mexico's Baja coast could help Rockies producers**

(Natural Gas Intelligence; May 28) – Rockies energy producers and advocates are looking south of the border for an outlet to the Pacific market as the chances for a Western U.S. liquefied natural gas export facility appears increasingly unlikely. With development of the Jordan Cove LNG project in Oregon on pause following regulatory setbacks, the Sempra Energy-led Energia Costa Azul LNG site in Baja California, Mexico, is looking more and more like a viable market option for stranded Rockies gas.

Industry officials agreed with that assessment May 26 during a webinar hosted by Rice University's Baker Institute Center for Energy Studies. "The Energia Costa Azul plant is a prime opportunity for Rockies gas," said Western States and Tribal Nations Natural Gas Initiative President Andrew Browning. The Baja project, one of multiple liquefaction terminals envisaged for Mexico's West Coast, would allow U.S. gas exports to bypass the Panama Canal and reach Pacific markets faster and at less cost.

The initial phase of the Costa Azul project would comprise a single liquefaction train, capable of producing 3.5 million tonnes per year of LNG, though a proposed expansion could see it grow to 10 million tonnes. Gas is already sourced for the initial phase, said Sempra LNG regional vice president Brian Lloyd, but the second phase would require a new pipeline from the Permian Basin or elsewhere in the West to supply gas. Lloyd said gas from Rockies' basins would add diversity to its offerings to Asian LNG buyers.

### **Japanese shipyard builds liquefied hydrogen tanker**

(Hellenic Shipping News; May 26) - Kawasaki Heavy Industries, a pioneer in transporting liquefied natural gas, has developed the world's first tanker for liquefied hydrogen. The new technology, along with tanks the company developed to store liquefied hydrogen, is expected to be useful for the government's goal of having hydrogen and ammonia serve as the fuel for 10% of power generation by 2050. It is part of Japan's overall target of achieving net-zero emissions of greenhouse gases by then.

The first liquefied hydrogen tanker, Suiso (hydrogen) Frontier, constructed in Kobe, was shown to media representatives May 24. The tanker is 380 feet long and can transport 75 tons of liquified hydrogen. Kawasaki already has installed equipment at Kobe Port to unload liquefied hydrogen from the tanker, as well as storage tanks on land. It plans to transport the first load of the fuel from Australia by spring 2022.

Tests are being conducted in conjunction with J-Power and Iwatani Corp., and a total of about 40 billion yen (\$368 million), including contributions from the Japanese and Australian governments, is being set aside for the project. A major barrier toward importing liquefied hydrogen will be bringing down costs. One estimate is that by 2030, power generated by liquefied hydrogen will cost 1.5 times that generated using LNG.