



US LNG 'in the money' as Henry Hub winter strip approaches \$5/mmBtu

Liquefaction demand at US terminals will stay strong through end-October, Energy Aspects forecast given that Henry Hub gas prices for the winter strip (November-March 2022) are approaching \$5 per million British thermal unit (mmBtu). Exports to Europe remain lucrative, analysts explained, as long as prices at the Dutch TTF trading hub remain above \$18/mmBtu.

Balances are tight as domestic gas demand from the US petrochemical industry returns after facilities were shut down in the aftermath of Hurricane Ida. Two of Dow Chemical's ethylene crackers in Plaquemines, with a combined 50 mmcf/d of demand, have been restarted the weekend just passed, and Exxon Mobil is also restarting its Baton Rouge ethylene cracker (33 mmcf/d) and its nearby refinery.

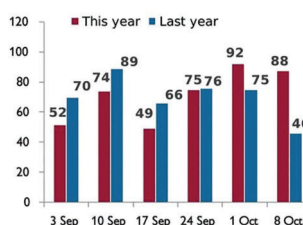
Lock stockpiles and rising demand provide a strong support for gas prices at the bellwether Henry Hub as well as for prices of related petrochemical products. Henry Hub prices for the frontmonth October 2021 were last seen at \$4.929/mmBtu – nearly \$1.00/mmBtu higher year-on-year.

Cove Point LNG maintenance

This week, the tight supply/demand balance is getting a small reprieve as some liquefaction plants is set to undergo maintenance.



EIA weekly storage activity, bcf



Louisiana ethylene plants shut by Ida, mmcf/d

Company	Plant Name	Gas demand	Restart date
ExxonMobil	Baton Rouge OLA-2X	33	11 Sep
Dow	Plaquemine LHC 2	17	11 Sep
Dow	Plaquemine LHC 3	33	11 Sep
Dow	St. Charles Tft 1	20	
Dow	St. Charles Tft 2	13	
NOVA Chem.	Geismar	30	
Shell	Norco OLS	28	
Shell	Norco GO1	19	
Shintech	Plaquemine	17	
Total		209	

Cove Point is set to undergo its annual three-week shutdown from 20 September, which will lower feedgas demand by 0.75 billion cubic feet per day until 10 October. "The decline to 10 bcf/d of total feedgas has been baked into our balances since the start of the year," Energy Aspects said, pointing out that "other US terminals

continued on page 2

Hydrogenious raises €50 million from JERA, Chevron and Temasek

Hydrogenious Technologies GmbH, a clean-tech company and spinoff of FAU University Erlangen, has raised €50 million to scale up and commercialise its LOHC (liquid organic hydrogen carrier) technology. Liquid hydrogen is an efficient way to store and transport the increasingly popular fuel. The oversubscribed funding round was led by JERA Americas, which invested €15 million, as well as Temasek, Chevron and Pavilion Capital.

Proceeds for the latest funding round will be used to deploy commercial-size LOHC system at landmark hydrogen production plants primarily in Europe and the Middle East, but also in Asia Pacific and the Americas.

Hydrogenious' LOHC technology bonds hydrogen to a non-toxic, non-flammable liquid which can be safely stored and distributed via the existing natural gas pipeline network. The technology allows hydrogen to be generated and transported at



Dr Daniel Teichmann, Hydrogenious CEO, after the latest funding round

continued on page 2

AGENDA

COMPANIES

Activist investor pushes RWE to divest of brown coal assets

2

LNG-TO-POWER

AGL buys pipeline gas from Cooper Energy after Crib Point LNG falls through

3

PRICING

Henry Hub spot gas prices may top \$4 per MMBtu this winter, EIA forecasts

4

TECHNOLOGY

Australian IPP orders Wärtsilä energy storage system to retrofit remote power unit

5

Rolls-Royce offers sustainable microgrid solution at MINExpo in Las Vegas

5

PROJECTS

Ground broken on Haru Oni, the world's first plant for CO2-neutral fuel

7

Continued from page 1, top story

will likely run above 95% utilisation for its duration."

Looking at the supply side, analysts believe that total US Lower 48 production has bottomed out in the near term. "With all else equal, September total US production

is set for a 0.6 bcf/d month-on-month decline, with 1.6 bcf/d of Gulf of Mexico declines offset by 0.4 bcf/d of gains from Appalachia and Haynesville and 0.2 bcf/d of gains from associated gas plays in September," they explained.

From this low September baseline Energy Aspects expect total US production to return to the pre-Ida level of 92.4 bcf/d by mid-October, if not earlier, depending on how quickly some gas production assets in the Gulf of Mexico will return to full production. ■

Activist investor pushes RWE to divest of brown coal assets

ENKRAFT, a fund with a track record of investing in renewables, has acquired more than 500,000 shares in RWE – worth €16.4 million (\$19 million) at current prices. In a letter to RWE management, seen by Reuters, ENKRAFT urges the German multinational energy company to divest of its brown coal assets.

The stake gives ENKRAFT to put its request on the agenda in RWE's next general meeting under German stock market rules. If enacted, all the utility's legacy brown coal generation business would be carved out and put into a separate business. This would boost RWE's sustainability rating and might in the long run even

improve the company's share value.

In its letter to CEO Markus Krebber, Enkraft said RWE was "no longer investible" for many due to stricter sustainability criteria. Divesting RWE's lignite operations and focusing on renewable energy would bring "with it an enormous potential to raise value", Enkraft managing director Benedikt Kormaier said.

RWE has offered to discuss its business strategy with the new activist investor.

Having undergone major structural change, RWE is now one of Europe's largest renewable power companies. It now has installed capacity of 9.4 GW of wind and solar power as a result of the break-up of its former business unit Innogy in a deal with E.ON.

However, RWE still operates

several legacy brown and hard coal-fired power plants and it hence remains one of Europe's largest emitters of CO₂. At the end of 2020, RWE owned 8.55 GW of lignite assets – more than a fifth of its total installed generation capacity.

The Essen-based company had reiterated plans to invest €5 billion in the expansion of renewable power sources by 2022 and shut down two-thirds of its lignite capacity by 2030. But critics say the change is not forthcoming quickly enough to achieve the targeted time-frame.

The German Coal Phase-Out Act, adopted by Parliament in July 2020, requires a gradual phase-out of all lignite and hard coal power plants by 2028. The RWE CEO Krebber has for the next German government to clear hurdles currently hampering the energy transition. ■



RWE's controversial open-cast mining in Garzweiler

Continued from page 1

scale, which greatly enhances the adoption of hydrogen as a fuel for industry, transport and power generation.

"There was tremendous demand for a stake in our company," said Dr Daniel Teichmann, CEO and founder of Hydrogenious Technologies. "We are at the forefront of hydrogen technology, providing solutions for a

rapid energy transition. There is a strong conviction in the competitive positioning of our LOHC compared with other hydrogen carriers such as liquid hydrogen, compressed hydrogen and ammonia."

The Erlangen based clean-tech company vowed to use the funding to scale up its StoragePlant and ReleasePlant systems to match the growing industrial demand for green hydrogen. In addition, it aims to expand the use of LOHC as a maritime fuel, through the Norwegian Joint Venture 'Hydrogenious LOHC Maritime AS.

JERA uses hydrogen blend for power gen

Commenting on JERA's Americas €15 million investment, CEO Steven Winn said the company believes in low carbon hydrogen as a key component of its strategy to reach Net Zero CO₂ emissions by 2050. JERA Americas has taken initial strides towards employing hydrogen fuel blending in its US power generation assets. In Japan, the commercial use of hydrogen at its thermal power plants

is also targeted for the 2030s.

"Hydrogenious' benzyltoluene-based carrier solutions can play out all their advantages – such as safe handling and storage properties, being highly flexible for short- and long-distance transportation as well as being able to utilize conventional oil-based infrastructure assets," Winn explained.

Barbara Burger, President of Technology Ventures at Chevron said the US oil major made the investment in Hydrogenious from its Future Energy Fund II, in the firm belief that low carbon technologies will "play a critical role in future energy systems."

AP Ventures, a London-based venture capital fund invested in Hydrogenious Technologies earlier, and founding partner Kevin Eggers said the cleantech company is now even better positioned with such a strong and diverse set of investors. "We remain convinced that the hydrogen economy will develop on the back of cost competitive bulk storage and handling technologies," he said, "for which Hydrogenious has a revolutionary solution." ■

Gas to Power Journal

Publisher
Stuart Fryer

Editor
Anja Karl
Tel: +44 (0)7733 684 682
anja@gastopowerjournal.com

New Business & Databases
Stephan Venter
Tel: +44 (0) 207 017 3407
venter@gastopowerjournal.com

Subscriptions
Margarita Tokere
Tel: +33 (0)7 67 62 58 77
margarita@gastopowerjournal.com

Layout & Production
Vivian Chee
Tel: +44 (0) 208 995 5540
chee@btconnect.com

AGL buys pipeline gas from Cooper Energy after Crib Point LNG falls through

Australia's AGL Energy has signed a supply agreement for pipeline gas with Cooper Energy after plans to develop the Crib Point LNG project in Victoria State were rejected on environmental grounds. Cooper Energy agreed to sell AGL all developed and uncontracted gas volumes from the Casino, Henry and Netherby fields starting from January 2022.

Cooper Energy, an exploration and production company, is supplying customers in southeast Australia with associated gas from its low-cost oil operations in the Cooper Basin and aims to boost output from gas-focused acreage. The drill centre of the Sole field in the Gippsland Basin is situated at a water depth of 125 metres and the produced gas will flow through the Sole Gas Pipeline into the Eastern Gas Pipeline, one of Australia's main trunklines, Cooper outlined in a technical presentation.

The new gas sales agreement (GSA) with AGL Energy is for supply of all volumes from the Casino, Henry and Netherby wells, all in operation. Most of the contracted volume will come from existing wells, Cooper Energy said, or first production from the Otway Phase-3 development. If production at the Sole field surpasses the contracted volume of 22 Petrojoules (PJ) in 2022, or if the incremental volume is not bought by AGL, it can be sold to new customers.

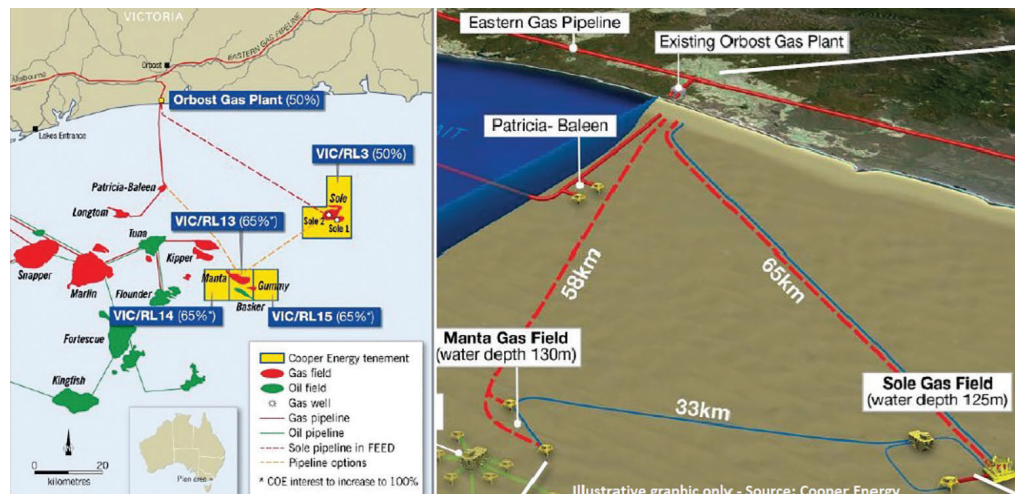
David Maxwell, Cooper Energy's managing director said the new GSA

gives both partners a maximum of flexibility.

Gas price in range of A\$6-8 Gigajoule

Prices for the GSA are in the range from A\$6 per gigajoule to A\$8 per gigajoule for contracted gas supply, AGL and Cooper Energy said, stressing this as advised by the Australian competition regulator ACCC in its July 2021 Gas Inquiry Interim Report.

The regulator repeatedly warned of "a real prospect a gas shortfall in the south" give that gas production is forecast to trail demand starting from 2022. "Forecast supply is dependent on the production of a material proportion of gas from undeveloped 2P reserves, especially in the southern states," the regulator explained, stressing the supply shortage might get even worse if undeveloped reserves will not be brought to market. ■



Map of the Sole field and the Eastern Gas Pipeline

Philippines speeds up LNG permitting process to avoid risk of power cuts

The Government of the Philippines is accelerating the approval process for LNG import terminals to avoid a spike in electricity prices and looming power shortages, once Malampaya reserves will be depleted in 2024. First Gen and Atlantic Gulf & Pacific Co (AG&P) projects were both given Notice to proceed (NTP) and urged to complete their regas terminals by the second half of 2022.

Currently, the Malampaya gas and condensate field still provides enough fuel for three gas-fired power plant with combined capacity of 2,700 MW, enough to cover 30% of the electricity needs of the Luzon Island including the capital Manila.

At least one terminal onstream by June 2022

The Department of Energy (DOE) of the Philippines gave the green light to FirstGen's floating LNG projects near Manila as well as to AG&P's onshore regas facility on Batangas Bay. Eager to swiftly get LNG import capacity off the ground, Energy Undersecretary Donato Marcos told the Philippines House Committee on Appropriations "at least one LNG terminal and possibly two will be opened or be commissioned by the second half of 2022, or at least as early as the end of June next year."

First Gen said its LNG import terminal will be extended to serve the fuel requirements of existing and fu-

ture gas-fired power plants of third parties and First Gen affiliates in the region. The Filipino company has chosen BW LNG over Höegh LNG as the provider of an FSRU for its import terminal at Bangas. The FSRU is being chartered for five years, allowing FirstGen to speed up LNG imports to the Philippines before eventually building a more costly onshore terminal.

Rival suppliers also are planning LNG import ventures around Batangas: AG&P's project is called Philippines LNG and will store and dispatch regasified LNG to power plants and industrial and commercial customers. The PLNG project will have initial capacity to deliver up to 3.0 million tonnes per annum (mtpa) by 2022, with additional capacity for distribution in the liquid fuel market. ■



First Gen's Batangas LNG project

Henry Hub spot gas prices may top \$4 per MMBtu this winter, EIA forecasts

Fourth-quarter spot gas prices at the US gas trading benchmark Henry Hub will average \$4.00 per million British thermal units (MMBtu), or above, a 16% rise from levels forecast in August forecast, the US Energy Information Administration (EIA) said. The rise in prices reflects lost production from Hurricane Ida combined with a rise in domestic consumption for power generation.

“Hurricane Ida affected natural gas production at a time when the United States was already experiencing higher natural gas prices due to growth in exports, strong domestic natural gas consumption, and relatively flat natural gas production,” said EIA Acting Administrator Steve Nalley.

“Lost production from the storm combined with these current market conditions has limited our ability to build up natural gas inventories, and we expect that will keep prices higher in the short term than we had previously thought” he explained. In the days when Hurricane Ida approached, US upstream companies had to close more than 90% of natural gas and crude oil production capacity in the Gulf of Mexico.

Capacity still offline

Even today, a significant share of oil, condensate and natural gas production and refining capacity remains offline in the region and the US Government analysts think this lost capacity will not be fully back online before the end of September.

Reacting to supply constraints, US gas prices ended August at \$4.33 per MMBtu, bringing the monthly average to \$4.07/MMBtu, a 77 percent increase over August 2020. Henry Hub spot prices in August 2021 were \$1.77 per MMBtu higher year-on-year, according to EIA figures.

“Steadily rising natural gas prices over the past year primarily reflects the growth in LNG exports and rising domestic natural gas consumption for sectors other than electric power,” Nalley commented. “We forecast Henry Hub prices this winter will reach a monthly average peak of \$4.25 per MMBtu in January and generally decline through 2022, averaging \$3.47 per MMBtu for the year amid rising US natural gas production and slowing growth in LNG exports.”

Low inventories

Looking towards the upcoming winter, the low level of US gas storage is of great concern. “Injections into storage this summer have been below the previous five-year average, largely as a result of hot weather and high export amid relatively flat production. The EIA forecasts inventories will end the 2021 injection season (end of October) at almost 3.6 Tcf - nearly 5% below average.

On the supply side, dry gas production is seen average 92.7 billion cubic feet per day in the US during the second half of 2021, up from 91.7 Bcf per day in the first half of the year. Output levels will likely increase to 95.4 Bcf per day over the course of 2022, driven by natural gas and crude oil prices.

Oil prices ease

Brent prices are forecast to stay rangebound for the remainder of 2021, averaging \$71 per barrel during the fourth quarter. “In

2022, we expect that growth in production from OPEC+, US tight oil and other non-OPEC countries will outpace slowing growth in global oil consumption and contribute to Brent prices declining to an annual average of \$66 per barrel,” analysts said.

US crude output in the Gulf of Mexico - put to a near standstill in late August by Hurricane Ida - is forecast to return to an average of 1.7 million barrels per day in the fourth quarter, adding length to an already well-supplied market. ■

NEWS NUDGES

Linde to help build liquefaction plant in Russia

Gazprom has handed an EPC contract to Linde, Renaissance Heavy Industries and RusKhimAlyans, to build a gas liquefaction plant within the Gas Processing Complex (GPC) at the port of Ust-Luga, west of St Petersburg. The GPC will process ethane-containing gas into various fuels, and the two-Train liquefaction plant will have a design capacity for 13 million tons of LNG per year.

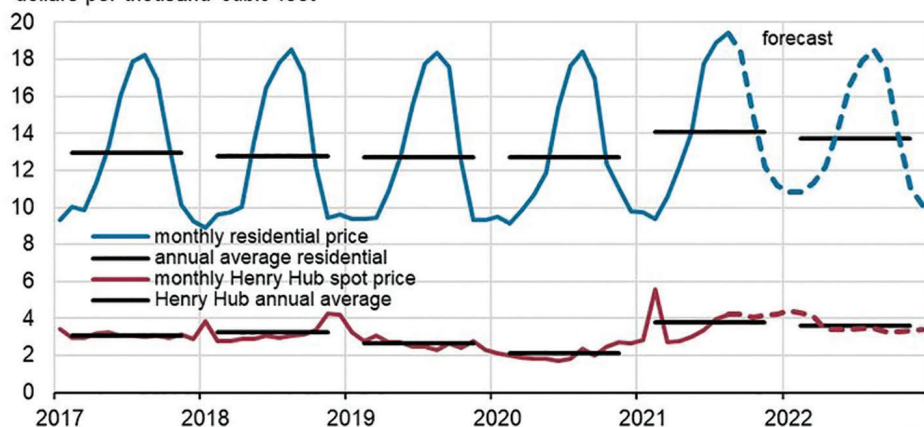
Santos completes Oil Search takeover

Australian LNG exporter Santos has completed the takeover of Oil Search in a deal worth A\$8.40 billion (US\$6.25 billion). The all-share transaction brings together upstream oil and gas and LNG export assets in the Timor Sea, the Australian state of Queensland and in Papua New Guinea. Under the deal, Santos holds a 61.5% share of the merged company and Oil Search the remaining 38.5%.

EU-funds project for energy efficiency

The European Union (EU) funded HEATLEAP project has been launched to demonstrate the benefits of waste heat recovery systems such as large heat pumps for industries and gas expanders for electric utilities. Turboden will coordinate the project whereby heat pumps and gas expanders are tested at real scale.

U.S. natural gas prices
dollars per thousand cubic feet



Sources: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2021, and Refinitiv an LSEG Business





Australian IPP orders Wärtsilä energy storage system to retrofit remote power unit

Wärtsilä has been contracted to supply an energy storage system Zenith Energy, an Independent Power Producer (IPP) in Australia. Zenith sells most of its electricity to large mining companies, so the 9.2 MW / 8.7MWh energy storage be used to address cyclical load demand in an underground mine and operate in parallel with an engine-driven power plant.

The energy storage system will be delivered on an engineered equipment delivery (EEQ) basis and is scheduled to begin operations in the first quarter of 2022. The storage unit combines Wärtsilä's GridSolv Quantum modules and the GEMS digital energy platform, allowing it to cart to a more frequent cyclical load.



Decentral power unit, built by Zenith in Australia

Zenith Energy is a repeat customer for Wärtsilä, having previously bought three 34DF dual-fuel engines that are used for constant load feed. Two 34SG pure gas engines will be added to the current fleet in 2022."

Adding storage will save the engines from frequent ramping by managing the power fluctuations of the mining site, therefore improving the operational efficiency, resulting in fuel savings and a lower carbon footprint for the mine's power plant," explained Simon Jelly, Technology and Infrastructure Manager at Zenith Energy.

Spinning reserve for emergency power

Energy storage ensure reliability of power supply which is especially imported for islanded grids, e.g. for min-

ing operations in remote locations. "The addition of an energy storage system to also work as spinning reserve to provide emergency back-up and short duration power, will mitigate any power interruptions. Should such situations occur, the system will supply load until a stand-by engine is started," Mr Jelly explained.

Based in Belmont, Western Australia, Zenith Energy is specialising in delivering reliable, cost-effective power generation solutions primarily in remote areas in Australia and South East Asia. Under a Build-Own-Operate (BOO) contact, the company provides its clients with the capital to build a decentralized power station, and then owns and operates the facility. Fuel sources for these power plants include natural gas, liquid petroleum gas, diesel, and renewables energy sources. ■

Rolls-Royce offers sustainable microgrid solution at MINExpo in Las Vegas

Rolls-Royce Power Systems and its affiliate MTU showcase microgrids for mining companies that supply decentralized power while reducing emissions by up to 30% at the MINExpo, held in Las Vegas this week. The system connects diesel and/or gas-fuelled generator sets, MTU's EnergyPack battery system as well fuel cells into one microgrid with a view to electrifying remote mines.

Mining companies around the globe have set ambitious targets to reduce emissions, so they need to make their mining operations, transport of the mined resources and their onsite power generation systems more sustainable.

Hybrid haul truck concept

Sustainable fuels, hybrid propulsion systems for dump trucks, fuel cells, internal combustion engines powered by hydrogen and microgrid solutions have been combined by MTU in a new concept that could help cut CO2 emissions from mining by nearly a third. MTU's latest idea is the hybrid haul truck concept:

"We envision equipping haul trucks with a combination of MTU diesel engines and batteries; our MTU EnergyPacks. The batteries are recharged by recuperating braking energy when going downhill. This stored energy is used to provide power to the loaded truck when going uphill. This allows us to replace the existing engine with a downsized one, leading to huge fuel savings

and a meaningful reduction in CO2 emissions," explained Alexander Richter, mining application engineer at Rolls-Royce and the mastermind behind the concept.

Rolls Royce MTU simulated operations with a haul truck whose MTU 16V 4000 engine (1865 kW output) has been replaced by a 16V 2000 engine (at 1163 kW output). This reduced CO2 emissions by up to 30% compared for new-built trucks, and 22% for retrofits.

PS2030 strategy

Under its PS2030 strategy, Rolls-Royce Power Systems has committed to cut greenhouse gas emissions of its new products by 35% by 2030 compared to 2019. Green fuels and development of CO2-free technologies are key to reaching this goal.

"Our environment is a critical topic for the mining industry. Mining companies are holding themselves accountable with ambitious, responsible targets to reduce emissions. We will use MINExpo to discuss with the industry how we can help them reach these targets" said Scott Woodruff, head of Rolls-Royce's global mining business.



At trade show, Rolls-Royce is presenting its microgrid solutions that can be operated in remote regions, independent of public power grids. The solutions combine renewable energy sources with an MTU battery storage and diesel and/or gas generator system, in addition to a central plant controller.

MTU series 2000 & 4000 hydrogen-ready

In addition, Rolls-Royce is working adapting MTU engines to run on sustainable fuels, e.g. hydrogen made from renewables.

By 2023, the newest generations of MTU's Series 2000 and 4000 engines are meant to be compatible with these fuels as Rolls-Royce wants to include these engines, along with fuel cells, into its net zero emissions product portfolio, first for power gen and potentially for mining at a later stage. ■



Atlas Copco

"Our Atlas Copco fuel gas boosters provide us with the reliability and peace of mind we need to keep our power plant running."

Ciector Whitelock
Maintenance Manager
Astoria Energy, New York City

For more than 25 years, Atlas Copco Gas and Process has helped plant operators around the world handle the pressures that come with running their power generation facilities. Our standard and customized compressor solutions cover the entire range of Fuel Gas Boosting applications and readily adapt to the changing conditions in your plant.

Our experts will partner with you from day one to develop a solution to help you save OPEX while reducing your environmental impact, and our worldwide Aftermarket services team is here 24/7 to continue to help reduce your downtime.

Learn more about how our range of Fuel Gas Boosting solutions can help your plant at www.atlascopco.com/powergen

Ground broken on Haru Oni, the world's first plant for CO₂-neutral fuel

Construction works have started for the Haru Oni project in Puente Arenas in the Patagonia region of Chile, where Siemens Energy and Porsche are building the world's first plant for producing CO₂-neutral fuel, so-called eFuel. The pilot plant, based on power-to-X technologies, is expected to produce around 130,000 litres of eFuels in 2022.

The capacity is then meant to be expanded in two stages, Siemens Energy said, targeting to reach around 55 million litres by 2024 and to around 550 million litres by 2026.

"With Haru Oni, we're bringing our power-to-X technologies to the global market," Armin Schnettler, EVP for New Energy Business at Siemens Energy said at the ground-breaking ceremony on Friday last week. Works can now progressing swiftly after the Chilean project company HIF (Highly Innovative Fuels)

obtained all necessary environmental permits.

Synthetic methanol from wind energy

eFuels at the Haru Oni project are produced based on low-cost wind energy in the Magallanes province in southern Chile. In the process, electrolyzers split water into oxygen and green hydrogen. CO₂ is then filtered from the air and combined with the green hydrogen to produce synthetic methanol - the basis of the eFuel.

Haru Oni will be the world's first commercial-scale plant for producing synthetic, climate-neutral fuels, and Mr Schnettler stressed the substantial output obtainable from the plant will make an effective contribution to reducing CO₂ emissions in the transport sector.

Porsche 911 to run on eFuel

The German carmaker Porsche initiated the project and will use the eFuels in its own combustion engine vehicles. Michael Steiner, board member for R&D at Porsche AG, said: "We also see ourselves as pioneers when it comes to renewable fuels." The company's sustainability strategy requires that Porsche as a whole will have a CO₂ neutral balance sheet as early as 2030.

"Fuels produced with renewable energy can make a contribution to this. Our icon, the 911, is particularly suitable for the use of eFuels," he explained.

The government of Chile has aspires in its latest National Green Hydrogen Strategy to reach an installed an electrolyser capacity of 5 gigawatts (GW) by 2025, rising to 25 GW by 2030. The aim is to produce the world's cheapest hydrogen and turn the country into a leading exporter of green hydrogen and its derivatives. ■



Render of the Haru Oni site in Patagonia

MAN wins 120 MW order to supply engines to McIntosh Power Plant

MAN Energy Solutions has received an order to supply six 18V51/60G engines, along with balance-of-plant equipment, to Lakeland Electric's new 120 MW engine-driven power plant, to be built on a brownfield site in the city. MAN committed to deliver all equipment by July 2022.

The McIntosh Power Plant will be designed, developed and constructed by MAN on behalf of Lakeland Electric. The 120 MW plant is designed to run based on reciprocating internal combustion engines, running on natural gas and replacing a recently retired, coal-fired plant.

According to the operator, this will significantly contribute to Lakeland Electric's commitment to the community to improve the carbon footprint of their power generation fleet. The local utility wants to put the plant in service as quickly as possible, hence MAN has been contracted to deliver and install the engines and all related

equipment before the end of July next year.

MAN's flagship 51/60 engine

The MAN 51/60G gas engine suits itself to power plants as it achieves approximately 50% efficiency in single-cycle and up to 95% in cogeneration (CHP) application. The efficient and dynamic engine is de-

signed for fast starting-times, and MAN 51/60G's two-stage turbocharging makes it even more powerful.

In terms of life-cycle costs, the engine's benefits include lack of de-rating in high temperatures owing to two-stage turbocharging, high fuel-flexibility, and high efficiency even in part load. ■



LNG Journal Subscription Package

LNG Journal is a ten-in-one subscription product with end-to-end insight into liquefied natural gas. The LNG Journal platform includes:

LNG JOURNAL

Monthly Online + optional print magazine

LNG UNLIMITED

Online every Tuesday

GAS TO POWER JOURNAL

Online every Friday

LNG MARKET TRACKER

Online every Wednesday

LNG SHIPPING NEWS

Online every second Thursday

LNG MONTHLY MARKETS

Online Monthly

LNG CHINA

Online every second month

LNG NORTH AMERICA

Online every second month

LNG FUELLING

Online every quarter

DAILY UPDATES and Newsletters

Sign up now for an Online Subscription at only US\$1095; €835 or £755

Discount options are available for multi-users

Contact us for more information or to arrange a free trial



Subscription Contacts

For new subscriptions or general subscription queries please contact:
Stephan Venter
+44 207 017 3407
venter@lngjournal.com

To renew an existing subscription or to upgrade your package, please contact:
Gabi Weck
gabi@lngjournal.com