

LNG North America

A MONTHLY LNG JOURNAL PUBLICATION

February 2019

Rush to reach FID before market turns

2019 could be a 'year of incongruity', as developers are rushing to reach financial close on an array of LNG export projects despite a backdrop of a market tipping into oversupply. North America leads the next wave of global LNG project sanctions in 2019, with three US Gulf Coast developments – Sabine Pass Train 6, Golden Pass and Calcasieu Pass – expected to reach FID before the summer.

At least two other Gulf Coast projects - Freeport Train 4 and possibly Driftwood LNG - are also "not far behind," Wood Mackenzie expects.

Less than one-third of the current wave of U.S. LNG export projects has stated up, leaving the lion's share of new supply to flood the market over the next two years. But the current oversupply could turn around quite rapidly in 2022, when LNG demand growth is likely to outpace sanctioned supply.

For now, the build-out of three U.S. Gulf Coast LNG facilities with up to 30 mtpa of capacity combined boosts capital spending in the region. Up to US\$20 billion could be invested in the three projects over the next four years.

"While the Gulf Coast remains the key growth region for North America LNG, projects in Canada and Mexico are also progressing and attracting interest," said Alex Munton, Wood Mac's principal analyst. "Additional west Canadian capacity could help further open Canadian supply to global mar-

kets, and we are now seeing momentum around Mexico as an alternative export route for US production."

Canada's Woodfibre LNG could reach FID in 2019, contingent on the execution of an engineering, procurement and construction (EPC) contract. Mexico's Costa Azul Phase 1 LNG export terminal still needs to finalise an EPC contract, binding offtake agreements, permitting and financing arrangements. But, progress is being made, so analysts say it too could reach FID in 2019.

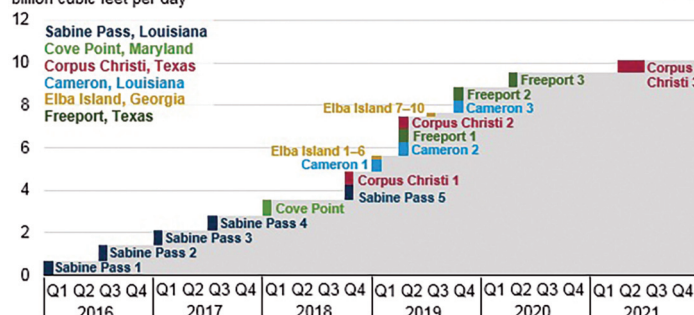
JKM-TTF spread narrows

Analysts at Energy Aspects, meanwhile, expect four new LNG Trains to start up or ramp up in Q1-2019 and - considering the current mild Asian winter - this leaves some 5.7 Bcm y/y of incremental supply available for the European market that quarter.

Mild weather in north-east Asia gives little incentive for buying and some big importers, notably China, have already purchased cargoes over the summer for



U.S. liquefied natural gas export capacity, 2016-2021
billion cubic feet per day



winter 2018/19. With JKM (Japan Korea Marker) prices falling, the JKM-TTF spread for Mar-19 has narrowed from \$1.35/mmBtu down to less than \$0.9/mmBtu in late January.

An overarching bearish feeling in global gas markets is exacerbated by the weakness in oil prices. Fearnleys lowered tanker rates last week to \$100,000 per day, down from \$135,000 per day in mid-December.

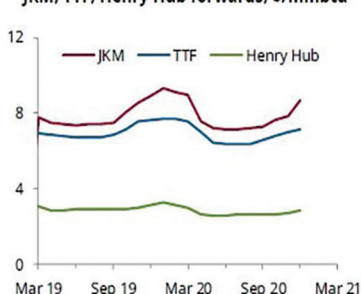
"Still, many developers are in a rush to sanction their LNG projects to secure attractive offtake contracts before global gas markets shift into oversupply," analysts led by Trevor Sikorski said, suggesting that "given that influx of new supplies on the horizon, northwest Europe could become the market of last resort for excess LNG once again."

ExxonMobil's Rovuma LNG project in Mozambique is set to be one of the first projects sanctioned this year, and the BP-led 2.5 mtpa Torque LNG project already took FID in mid-December. Additional supply in Q1-2019 will

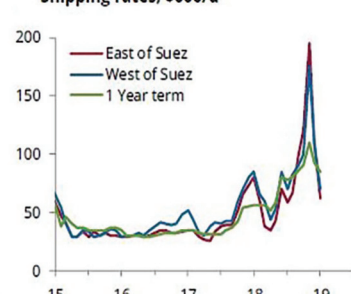
also come from Cheniere's 4.5 mtpa Sabine Pass Train 5 and Shell's 3.5 mtpa Prelude project in Western Australia. The maiden cargo from Prelude is likely to set sail in the next four to eight weeks.

continued on page 2

JKM, TTF, Henry Hub forwards, \$/mmBtu



Shipping rates, \$000/d



AGENDA

PRICING

Economic downturn in 2020/21 could wipe out gas price recovery

3

DEMAND

UK proves to be strong market for LNG sellers

5

Sempra sells South American utilities to focus on LNG

5

PROJECTS

NextDecade eyes FID on Rio Grande LNG in Q3-19

7

Tellurian to start works on Driftwood LNG in H1-2019

7

LNG-TO-POWER GEN

Brazil, Germany co-finance 1.3 GW project at Açú Port

9

continued from page 1, top story

Mind the 'timing risk'

Demand-side risk is accumulating as the 2019 U.S. gas injection season begins, notably over the timing of new LNG projects and pipeline exports to Mexico.

Cameron LNG Train-1, in particular, faces some "timing risk," Sikorski cautioned. Sempra Energy has said the 4 mtpa train will have a Q1-19 in-service date, but analysts cautioned "the fact that Cameron LNG only received approval to commission its flare on 3 January and has not yet even filed for feed-gas introduction points to delays into Q2 19."

Kinder Morgan's 10 mini-trains at Elba Island in Georgia likewise face headwinds regarding start-up. "The first train was scheduled to take feedgas in Q1-19," but analysts warn it "will likely face delays after returning its compressor to the manufacturer for corrosion repairs in late December."

Corpus Christi Train-2, which was approved to introduce fuel gas on 3 January, has been given a better verdict. Energy Aspects says it "should be on track to take feedgas

in late Q1-19 or early Q2-19."

For summer 2019, a plethora of projects are expected to add LNG volumes in an already long global market such as the 4.2 mtpa Ichthys Train-1 in Australia, the 4.5 mtpa Corpus Christi Train-2, the 1.3 mtpa Elba Island Train-1-5, and the 4.4 mtpa Freeport Train-1.

With more and more U.S. LNG export ventures are starting up, or ramping up capacity, much of the rise in gas production in North America is destined for export. The U.S. Energy Information Administration (EIA) expects American LNG exports will increase from an estimated 3.0 Bcf/d in 2018, rising to 5.1 Bcf/d in 2019 and further up to 6.8 Bcf/d in 2020 – more than double 2018 levels.

U.S. shale gas continues

On the supply side, production is still going strong as the U.S. shale gas output keeps increasing. The EIA expects record-high dry U.S. natural gas production will keep growing through to 2020, from an estimated 83.3 billion cubic feet per day (Bcf/d) in 2018 to



Lower 48 States shale gas plays

90.2 Bcf/d in 2019 and 92.2 Bcf/d in 2020.

Most of gas production will come from the Appalachian Basin in the U.S. Northeast, followed by the Permian Basin in western Texas and eastern New Mexico and the Haynesville shale formation in eastern Texas. The supply growth is underpinned by improved drilling efficiency, falling costs, faster well completions, and increased takeaway capacity from the highly productive Appalachia

and Permian production regions.

But not all is rosy when it comes to U.S. upstream companies: Fracking-focussed companies in the U.S. are struggling to generate consistent free cash flows, even with soaring production and higher oil prices. Rising output does not necessarily go hand in hand with financial success, which raises questions over the long-term sustainability of the North American shale gas revolution.

U.S. shale companies have a cash flow problem

Despite rising oil prices and production levels U.S. gas fracking companies are continuing to lose money, according to a review of the Institute for Energy Economics and Financial Analysis (IEEFA). In the third and fourth quarter of 2018, the 32 mid-size U.S. exploration companies reported nearly \$1 billion in negative cash flows.

These results may come as a surprise to investors who equate rising output with financial success. U.S. oil and gas production hit an all-time high during the quarter, even as oil prices rose to \$70 per barrel, their highest level since late 2014. Even with those advantages, the IEEA's sample of mid-

size oil and gas producers continued to lose money due to the high cost of drilling and the industry's seemingly insatiable thirst for capital.

"The inability of fracking-focused companies to generate consistent free cash flows, even with soaring production and higher oil prices, raises a critical question," said IEEFA energy finance analyst Kathy Hipple. "Will these companies ever produce enough cash from oil and gas sales to cover their capital outlays? Only when they do that will the industry have any

hope of paying back its sizable debts – or of producing robust rewards for equity investors."

Debt-driven industry

Four of the 32 companies that were cash-flow negative in the second quarter – Anadarko Petroleum, Devon Energy, QEP Resources, and Range Resources –

moved into the black in third quarter, according to the IEEA report. However, new challenges loom large: The debt-driven U.S. fracking industry is currently struggling with the prospect of rising interest rates and the recent sharp drop in oil prices.

Investors, in Hipple's view, would be well advised to view the fracking sector as a "risky and highly speculative."

Some stock market investors have become aware of these financial risks: The VanEck Vectors Unconventional Oil and Gas Fund (an ETF) trails the S&P 500 by more than 20% for the year. Much of the fund's underperformance started at the end of September as the market absorbed disappointing Q3 results, even as oil prices fell by nearly a third.

LNG North America

Publisher
Stuart Fryer

Editor
Anja Karl
Tel: +44 (0) 20 7733 684682
anja@lngjournal.com

Layout
Vivian Chee
Tel: +44 (0) 20 8995 5540
chee@btconnect.com

Subscription included with
LNG Journal

Composite Snapshot of Selected E&P Companies

	2017 Q1	2017 Q2	2017 Q3	2017 Q4	2018 Q1	2018 Q2
Basic Information						
Total Revenues	26,500	23,417	25,198	30,132	32,880	32,069
Total Costs excluding tax provision	22,217	24,155	30,368	32,438	28,357	30,460
Net Income	(2,355)	109	(2,595)	6,170	3,046	721
Long Term Debt	128,844	130,474	130,263	131,627	131,535	125,764
Share Distributions						
Dividends	620	545	553	572	683	721
Net Stock Buybacks (Issuance)	(984)	78	(904)	(2,596)	2,848	1,380
Net Distributions	(364)	623	(351)	(2,024)	3,531	2,101
Cash at End of Period	25,662	24,588	22,185	22,056	18,952	17,070
Free Cash Flow						
Operating Cash Flow	9,711	9,089	10,114	12,393	13,635	16,565
Capital Expenditure	(13,327)	(12,714)	(15,226)	(15,274)	(14,596)	(19,484)
Free Cash Flow (FCF)	(3,615)	(3,624)	(5,111)	(2,885)	(957)	(2,920)

Source: IEEFA, Dec 2018

Economic downturn in 2020/21 could wipe out gas price recovery

Following eight years of global economic growth, economists agree a downturn is simply a matter of when and how deep. The worst case scenario, according to Wood Mackenzie, would be a recession occurring in 2020 or 2021 – just after 60-100 mtpa of LNG has taken FID.

Any recession brings down gas demand and prices and delays financial close for major infrastructure projects. But a downturn just after a series up 100 mtpa of new liquefaction capacity has come to market would be the worst timing possible, leaving new-built infrastructure underutilized and investors unable to reap a return.

“That would wipe out our forecast price recovery post-2020 and make our forecast that prices soften a little around 2025 look a lot worse,” commented Wood Mackenzie research director Giles Farrer.

Record year for LNG project sanctions

At the onset of 2019, the mood in the global gas market is mixed. “The big LNG buyers are back, and we are set for a record year for

supply in terms of both production growth and new project FIDs,” he said, anticipating a record year for project sanctions.

Although Asian LNG demand growth is not keeping pace with supply, market observers expect 2019 to be a record year for LNG project sanction. Over 60 mtpa of capacity are likely to take FID, well above the previous 45 mtpa sanctioned in 2005 and a tripling of the 21 mtpa sanctioned in 2018.

Frontrunners in the race to hit FID include the \$27 billion Arctic LNG-2 in Russia, at least one project in Mozambique and three in the United States. “Our picks in the U.S. are Golden Pass, Calcasieu Pass and Sabine Pass Train 6. The small Woodfibre project in Canada may also get the green light in 2019 as well,” Farrer forecast.

Other projects in the US, Qatar, Papua New Guinea, Australia and Nigeria are targeting FID in 2019 too, providing upside to our already bullish view.

However, Asia will not absorb all the new LNG supply which leaves Europe to absorb the surplus, especially during the summer. Northwest Europe in particular needs additional imports and flexibility, given its increased reliance on maxed-out Russian and Norwegian imports.

Oversupply weighs down on prices

Though 2019 will see more LNG imports than required, providing competition to pipe imports and

putting pressure on prices, Wood Mackenzie thinks “this will unlikely bring the level of oversupply that some fear.”

Its 2019 forecast is for the Dutch title transfer facility (TTF) to average \$6.90/mmbtu, down from \$8/mmbtu in 2018. Meanwhile Asian LNG spot prices are seen average at \$8.50/mmbtu, down from \$10.30/mmbtu in the year just past, assuming normal weather patterns.

But weather is something needs to be closely watched in Q1-2019, analysts said, as “a mild end to winter could send more LNG into Europe and drive prices down further.” ■



U.S. shale gas build-out narrows Henry Hub differential

The spread in natural gas spot prices between the Henry Hub in Louisiana and the Appalachian region continued to narrow over the year just past. Prices fell at Henry Hub throughout December, and in early January 2019, they were at around \$2.79/mmBtu while Appalachian prices kept trading at a discount due to pipeline constraints.

Record shale gas production in Appalachia, combined with limited pipeline capacity to transport gas produced at Marcellus Shale onwards to centres of consumption have kept regional spot prices trading at a discount to the bellwether Henry Hub since 2014. Build-out of pipeline capacity in the Appalachian continued during 2018 to bring natural gas to demand centers outside the region, decreasing the price difference between the two.

When final data becomes available in the coming months, the Energy Information Administration (EIA) expects that US natural gas production will have reached record levels in 2018.

“Through the first 10 months of

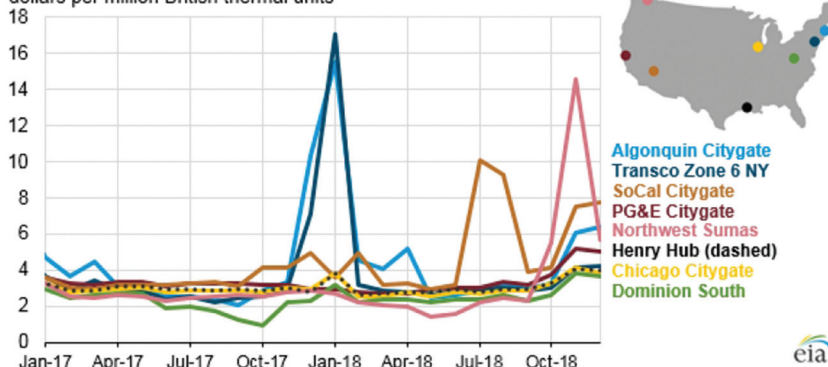
2018, dry natural gas production in the U.S. was 11% higher in 2018 compared with the same period in 2017,” it stated. “Growth has been driven by production increases in the Appalachian Basin in the Northeast, the Permian Basin in western Texas and New Mexico and the Haynesville Shale in Texas and Louisiana.”

Spikes in gas prices were also experienced in other regions in the Lower 48 states: “Daily average natural gas spot prices at the SoCal Citygate in

Southern California experienced volatility throughout 2018 as ongoing pipeline capacity constraints limited natural gas supply in the region,” the EIA said. In addition, a pipeline rupture on Enbridge’s

2.9 Bcf/d British Columbia Pipeline on October 9 limited U.S. imports from Canada, resulting in reduced supply to the Pacific Northwest and contributing to increased prices. ■

Monthly average natural gas spot prices at key trading hubs, 2017-2018
dollars per million British thermal units





Gastech

Exhibition & Conference
17-19 September 2019
Houston, Texas

The Premier Event for the
Worlds Gas, LNG and
Energy Industry

gastechevent.com

The Gastech Plenary Conference: Delivering Real Solutions To Industry Challenges

Book Your Delegate Place At The Conference Today!

The Gastech Plenary Conference addresses and answers the most critical issues affecting the global energy business. CEO's, Ministers and industry legends will seek to answer these vital questions and more.

3	4	8	2	3,500	400
Ministerial Panels	Global Business Leaders Panels	C-Suite Panels & Sessions	Special Sessions & Keynotes	Strategic & Technical Delegates	Expert Speakers

Vital Questions to be Answered at Gastech Include:

What are the regulatory changes needed to support the rapid evolution of the industry and facilitate the new capital inflow critical for the industry to match growth projections?

Positioning in the Energy System: How can the gas industry make clear the role of gas as a vital destination energy source?

What are the innovative financing models needed across all parts of the gas value chain that will secure supply and demand opportunities and allow for changing industry dynamics?

How can players create the necessary operational, commercial and market flexibility to navigate the geopolitical storms both of today and on the horizon?

Project and operational innovation: How can new collaboration models and digitalisation support greater agility and lower costs across the industry?

Securing market position: What are the opportunities for linking supply through midstream infrastructure with new demand sources to circumvent bottlenecks in the value chain?

Exhibitors and Sponsors



Hosted by



Official Partner



Organised by



Sempra divests South American utilities to focus on LNG ventures

California-based Sempra Energy has decided to sell its equity interests two utilities in Chile and Peru to focus on its LNG export ventures in North America. Sempra CEO Jeffrey W. Martin said “this planned sale allows us more focused capital investment in the U.S. and Mexico.”

Sempra announced it already initiated sale processes for its 100% stake in Chilquinta Energía and 83.6% stake in Luz del Sur, as well as Sempra Energy's interests in two energy-services companies, Tecnores and Tecsur. The divest-

ment is intended to be completed by the end of 2019.

Luz del Sur serves more than 4.9 million consumers in the southern region of Lima, and is Peru's largest electricity provider. Chilquinta Energía, meanwhile, is

the third-largest distributor of electricity in Chile.

Focus on Cameron and Costa Azul LNG

Shifting focus on its North America business, the Sempra CEO said: “We have set a clear strategic goal of becoming North America's premier energy infrastructure company.” He indicated proceeds from the sale of the two South American utilities will be used for transforming the U.S. Cameron LNG terminal and the Mexican Costa Azul facility into liquefaction and export plants.

Forging ahead with Cameron LNG, Sempra needs to spend nearly \$10 billion on the first project phase of Cameron LNG to arrive at an export capability of

nearly 15 mtpa. Works focus on transforming of the former import terminal into an export facility by adding liquefaction trains.

Commissioning of Train-1 at Cameron LNG in Hackberry, Louisiana, was initiated in November. At least two of the three Trains are scheduled to start producing LNG by the end of 2019.

Anticipating its returns, Sempra said its share of full run-rate earnings from the first three trains at Cameron LNG are projected to be between \$365 million and \$425 million annually.

San Diego-based Sempra Energy achieved 2017 revenues of more than \$11 billion and is the utility holding company with the largest U.S. customer base. ■



Construction of Cameron LNG Train1-3

UK proves to be strong market for LNG sellers

Britain is strong market for sellers looking to home excess gas supply this winter, National Grid said when announcing a record send-out of its Grain LNG import terminal. A robust NBP price and anticipated lower variable costs for gas processing are likely to keep attracting spot cargoes to the UK.

The record performance and send-out capacity at Grain LNG in December 2018 is in stark contrast to December 2017, when the terminal only delivered gas above minimum send out on two occasions.

The length in global gas market is building up amid as a flurry of new liquefaction and export projects are coming to market. Apart from record deliveries to Grain LNG, other UK import terminals have also seen rising activity, with South Hook accepting their first ever cargo from the United States.

Europe becomes sink for excess US LNG

During 2018 a total of 26 million tons of additional LNG production hit the market and shipping char-

ter rates reached a record high. “These two factors,” according to National Grid analysts, “resulted in traders delivering more LNG than expected to Europe as the differential available between northwest European and Asian prices did not justify the additional shipping costs.”

With NBP prices remaining “steadfast” while utilization at the Grain import terminal increase, variable cost on a unit basis seem to have decreased sig-

nificantly. National Grid underlined the terminal typically operates more efficiently at higher send out as per the design basis.

Processing costs in the UK, where nitrogen is often added to

the regasified LNG to meet UK gas specification requirement, are to some extent fixed. Higher utilisation therefore translates into lower per unit costs and potentially higher profits. ■



Grain LNG terminal in Kent

PRODUCED BY



FROM THE PRODUCERS OF:



INCORPORATING:



CWC
WORLD GAS & POWER SERIES
BRAZIL & THE AMERICAS
SUMMIT

20 - 22 MAY 2019, RIO DE JANEIRO, BRAZIL

SILVER SPONSOR

KING & SPALDING

BRONZE SPONSORS



SUPPORTING ASSOCIATIONS



NextDecade eyes FID on Rio Grande LNG in Q3-19

NextDecade Corp. envisages reaching financial close on the 27 mtpa Rio Grande liquefaction and export project in Texas in the third quarter of this year. The project remains subject to final review by the Federal Energy Regulatory Commission (FERC).

A final Environmental Impact Statement (FEIS) will be issued on April 26 for the Rio Grande developments and the FERC has established a 90-day decision deadline of July 25, 2019.

Texan regulators have already granted the Rio Grande project

and its Rio Bravo Pipeline a state permit in December 2018, though federal regulators were not expected to make a decision about the projects until July 2019.

Promoting 2nd Texan LNG venture

In late January, NextDecade Corp., staged two public events to raise support for its proposed 5.5 mtpa Galveston Bay LNG. Stakeholders gathered at Rosen-

berg and Texas City.

"The Galveston Bay project open houses represent the first of several opportunities throughout the regulatory and permitting process, led by FERC, for area residents to learn more about the proposed project and to ask questions," said NextDecade.

The Galveston Bay LNG venture will include a 97-mile affiliated pipeline to move 3 billion cubic feet of natural gas per day from the Katy Hub in Waller County, while the liquefaction plant is proposed for a 550-acre site along the Texas City Ship Channel. ■



Render of Rio Grande LNG in South Texas

Steelhead LNG evaluates pipeline route for BC feed-gas

Steelhead LNG, developer of the near-shore export plant on Vancouver Island, is investigating the pipeline route to bring feed-gas from the Chetwynd area of north-east British Columbia to Sarita Bay. Plans are to build a LNG export facility with initial capacity of 12 mtpa, requiring 1.9 Bcf/d of feed-gas.

Construction of the entire venture would take approximately four years, and both the liquefaction plant and feed-gas pipeline could be on stream by 2024 if the permitting stage runs smoothly.

The pipeline is expected to run for about 1,000 kilometres from Chetwynd to the Williams Lake area, southwest to Powell River, across the Strait of Georgia and would terminate at the proposed Kwispa LNG plant. It is planned to run parallel to existing rights-of-way for around 50% of its route.

A specific route has not yet been selected and is subject to ongoing community and First Nation consultations.

Steelhead LNG has said it plans to select a preferred pipeline corridor and enter British Columbia's environmental assessment process in the first quarter of 2019. The company would then submit environmental assessment applications



Proposed site for Steelhead LNG on Vancouver Island

for the liquefaction and pipeline projects with combined estimated costs of C\$18 billion (US\$13.5Bln).

A final investment decision is scheduled for 2020. ■

Kinder Morgan on track with Elba Island LNG

Houston-based Kinder Morgan has touted it will supply up to 40% of the gas volumes for future U.S. LNG and pipeline exports, and stays on schedule to start up its own small-scale LNG export venture at Elba Island, Georgia, in Q1-2019.

Elba Island, an import terminal being converted into a 2.5 mtpa export project, was initially envisaged to commence commercial operation in the fourth quarter of 2018.

The Elba Liquefaction Project is being built at a cost of \$2 billion and will have feed-gas needs equivalent to around 350 million cubic feet per day.

"The project is supported by a 20-year

contract with Shell," said Kinder told investors following its fourth-quarter results. "The first of 10 units is expected to be placed in service at the end of the first quarter of 2019, with the remaining nine units to come online throughout 2019."

The project vehicle, Elba Liquefaction, is 51% held by Kinder and 49% owned by the US equity fund EIG Global Energy Partners. ■



Conversion of Elba Island LNG

Tellurian to start works on Driftwood LNG in H1-2019

Tellurian Inc., developer of the Driftwood LNG export project in Louisiana, seeks to start construction near the Lake Charles site in the first half of 2019 after regulators issued a final environmental impact statement (EIS).

The final EIS was issued by the Federal Energy Regulatory Commission (FERC) to develop the 27.6 mtpa liquefaction plant and its associated 96-mile pipeline.

Meg Gentle, Tellurian President and CEO, thanked the FERC for remaining on schedule with the approval and now awaits the agency's order granting authorization to site, construct and operate the Driftwood project.

"Tellurian will then stand ready to make a final investment decision and begin construction in the first half of 2019," Gentle stated, suggesting "the first LNG [is] expected in 2023."

Striving to bring LNG to market, Tellurian signed a preliminary accord with the Swiss trading house Vitol to supply 1.5 mtpa of LNG cargoes for 15 years. The deal is based on the Japan Korea Marker (JKM) price and cargoes on a free-on-board (FOB) basis whereby Vitol provides its own shipping. ■

Solutions for ALL your Natural Gas needs.

Factory built, fast delivered
1,000 m³ LNG Tanks.



On-site/Factory Built Storage Tanks for LNG, Ethane, etc., Intermodal ISO Tank-Containers, & more.

Corban Energy Group (CEG) has been creating highly engineered products required by the natural gas supply chain, from upstream to downstream. CEG has established natural gas terminals throughout the world, provided quality LNG/CNG equipment for the American market, and built storage tanks as large as 200,000 CM in capacity, with its worldwide network of engineering & manufacturing partners.

Call or e-mail us to find out how your company can benefit from our comprehensive natural gas products and services today.

www.CorbanEnergyGroup.com

CORBAN ENERGY GROUP

Your Solution for LNG/LPG



T. 201.509.8555 info@corbanenergygroup.com
418 Falmouth Avenue, Elmwood Park, NJ 07407, USA

Brazil and Germany co-finance 1.3 GW LNG-to-Power project at Açú Port

Development banks of Brazil and Germany, BNDES and KfW Ipex-Bank, have agreed a corporate financing deal worth R\$1.76 billion (\$471m) for an LNG-fuelled power project at the port of Açú, Brazil. The financing covers 39% of the total project costs of R\$4.5 billion, with the 1.3 GW plant to be built by Prumo Logística and Siemens.

The financing deal was structured in a way that BNDES will provide the credit while KfW will be responsible for guaranteeing the operation, supported by the German export credit agency Hermes.

The deal structure could serve as a blueprint for future infrastructure financing. "More than an operation, what we are building here is a business model that can be used in other operations," said Dyogo Oliveira, president of BNDES. For the Brazilian development bank, the Açú Port venture is the first LNG thermoelectric plant it is financing, in an unprecedented partnership with KfW.

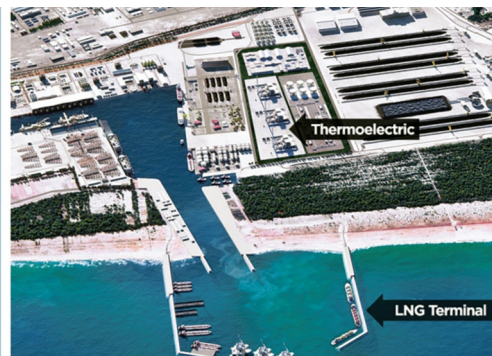
EPC to start in Q1-2019

Prumo Logística's subsidiary, Gás Natural Açú (GNA), in January 2018 hired a consortium of

Siemens and Andrade Gutierrez to handle engineering solutions, supplies, and construction of the power plant. Design and site preparation works are intended to start in Q1-2019.

Once commissioned, the project will be the largest integrated LNG import and power generation project in Latin America. The project includes two gas-fired combined-cycle power units, as well as an LNG regasification terminal with an output of 21 million cubic metres per day. With 1,238 MW installed capacity, the plant will supply enough electricity to supply approximately 3 million households in the region of São João da Barra.

Initially, the LNG-to-power project was not meant to be developed in the Port of Açú in the Rio



de Janeiro state but in Brazil's northeastern Pernambuco state. However, Prumo transferred the project location after it took over the-called Novo Tempo gas power project from the Bolognesi Group, seeking to set up an LNG hub in the Port of Açú.

The Açú Gas Hub seeks to receive, process and offer to the Brazilian market a large volume

of gas either imported as LNG for produced offshore at the Santos, Campos and Espírito Santo basin. It has 6.4 GW in environmental licenses for gas-fired power plants, as well as permits for an LNG regas and import terminal with a capacity of 10 million cbm per day. A licensing process is underway for a 40 MMm³/d regas terminal. ■

Dom Rep opts for cheap energy from floating power plant

SeaFloat, a barge-mounted power plant based on SGT-800 gas turbine, will be provided by Siemens and the maritime arm of ST Engineering for Bermuda-based Seaboard Corp. The 145 MW power barge, dubbed Estrella del Mar III, will supply the Dominican Republic with electricity at a lower cost than a land-based plant starting from spring 2021.

Seaboard Estrella del Mar III will be installed offshore Santo Domingo on behalf of Seaboard Corp, part of Transcontinental Capital who acts as an independent power producer (IPP) in the

Dominican Republic.

Due to site constraints with limited free land, the customer selected a SCC-800 2x1 SeaFloat concept with two Siemens SGT-800 gas turbines and one SST-600

steam turbine. The turbine gensets are of single lift package design for floating applications, utilizing a frame-based design with a three-point mount. "This allows increasing the plant size in comparison to a land-based power plant," Siemens underlined.

Cheaper than land-based plant

Once operational in spring 2021, the floating power plant will provide the Dominican Republic with "a quality proven power plant at a lower cost in comparison to a similar land-based power plant," the project partners stressed.

Under a turnkey 'plug and play' concept, Siemens as team leader

will provide a combined-cycle power plant with a capacity of 145 MW. ST Engineering, meanwhile, will be responsible for the engineering design, procurement and construction (EPC) of the floating power barge, the balance of plant and the installation works. The SeaFloat concept will be completed a shipyard, selected by Singapore-based ST Engineering.

In terms of energy storage, Fluence Energy - a JV company of Siemens and AES, will provide a 5MW/10 MWh battery. This system will be integrated in the power plant for frequency regulation control, allowing it to operate at full capacity with highest fuel efficiency. ■



SCC-800 SeaFloat power plant with adjacent LNG tanker

Powering the Energy Future through LNG



Where no natural gas pipeline exists Chart offers complete solutions for LNG as a primary fuel for power generation, or as a secondary fuel where natural gas pipeline capacity is constrained.

- Diesel, propane, LPG and oil displacement
- Remote locations and islands
- Peak shaving
- Emergency back-up and curtailment
- Temporary power generation

Email: LNG@ChartIndustries.com

www.ChartLNG.com



Innovation. Experience. Performance.®

DOE eases reporting requirements for LNG exporters

The US Department of Energy (DOE) has eased reporting mandates for liquefied natural gas exporters that would keep track of the ultimate end-user of the natural gas shipped overseas. It had become apparent, the DOE said, that it was “impracticable, if not impossible” for exporters to comply with the end-use reporting requirement.

“A cargo of LNG could be offloaded and regasified in one country and a portion of the US natural gas could be re-exported by pipeline to another country or countries,” without direct knowledge of the parties involved in the initial export deal, it explained. In another example, it noted that US gas could be comingled with non-US gas and some portion sent to another country.

While the policy would affect future exports, DOE said it simultaneously struck the end-use requirement from existing export authorizations.

“With the United States now being the world’s top producer of oil and natural gas, it is imperative that US LNG companies have all the tools they need to get their American product into the international market,” said US Secretary of Energy Rick Perry. “By streamlining the destination reporting requirements, the Depart-

ment of Energy is taking an important deregulatory step forward in order to better provide reliable US LNG to our friends and allies abroad.”

Assistant Secretary for Fossil Energy Steven Winberg said that increasing US LNG exports to the world market brings great benefits to Americans and allies abroad from cleaner air to increased growth in jobs as well as energy security. “Right now, the US is growing its position as a global leader in LNG exports and is projected to be the third largest in the world behind Australia and Qatar by the end of 2019,” he said, adding: “The action is another way the Trump Administration is working to advance American energy dominance.”

The DoE said that the impetus for the requirement, preventing companies from circumventing a longer public interest review by routing gas through Free Trade



Agreement countries such as Canada, is no longer a sufficient concern for a variety of reasons, particularly given the compliance difficulties.

The action was welcomed by the Washington DC-based Center for Liquefied Natural Gas, a representative body for the industry.

“Certainty is essential for the growing and global LNG market and this policy statement provides greater assurance to LNG buyers and potential customers that the United States is dedicated to providing clean and affordable energy to the world,” said CLNG Executive Director Charles Riedl. ■

The whole LNG Market at your fingertips

- Increased market visibility through a quick “lowdown of the market” on Monday morning and detailed “bird’s eye” view of the past month
- Break-down and illustration of complex LNG trade relations backed by real data to increase feel for the market
- Access to pre-digested primary market data
- Consistent & systematic market perspectives
- Market and fleet overview in one convenient package

LNG Unlimited



www.lngunlimited.com

LNG Journal & Gas to Power Journal Subscription Package

The journals' comprehensive coverage is dedicated to the entire gas-value-chain. In addition to our LNG Journal and Gas to Power Journal Daily newsletters, each platform provides exclusive, accurate and up-to-date news and analysis divided in the following sector-focused publications:

- ➔ LNG Journal - Monthly issues
- ➔ Gas to Power Journal - Daily e-newsletter + PDF
- ➔ Gas Power Tech Quarterly - Quarterly PDF
- ➔ LNG Unlimited - Weekly magazine + PDF
- ➔ LNG Shipping News - Fortnightly e-newspaper + PDF
- ➔ LNG North America - Monthly e-newspaper + PDF
- ➔ LNG Fuelling - Quarterly e-newspaper + PDF



United Kingdom
Europe and Africa
Asia and Americas

GBP 750
EUR 925
USD 1150

**Multiuser options under request* **new subscribers only*

For further information on subscribing please contact us at gabi@lngjournal.com or + 44 20 7253 2700