WORLD PIPELINES®

Volume 18 Number 4 - April 2018



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Contents

WORLD PIPELINES | VOLUME 18 | NUMBER 04 | APRIL 2018

03. Editor's comment
Undercutting pipelines with steel tariffs.

05. Pipeline news
Reactions to Trump's steel tariffs; FERC ruling on MLPs; Nord Stream 2 under fire, and more.



PAGE 12

REGIONAL REPORT

12. The Gulf is great again
The US Gulf of Mexico is once again back in the limelight with significant increases in production, explains Gordon Cope, but how long will it last?

OFFSHORE COATINGS

19. From the Arctic Circle to around the world
David Högnelid, LKAB Minerals, Sweden.

24. Peeling back coating layers one at a time
Dr. Jeffrey David Rogozinski, Sherwin-Williams Protective & Marine Coatings, USA.

OFFSHORE PIPELAYING

31. Offshore initiatives
Iain Grainger, Global Vice President – Commercial, McDermott, UK.

OFFSHORE OPERATIONS

35. A better habitat
Hot-Hed International.

OFFSHORE WELDING

39. Challenging conventions in welding management
Vesa Tiilikka, Kemppi, Finland.

CORROSION MANAGEMENT

44. Capturing contamination with magnetic technology
Kimberley Simonson, Black Powder Solutions, Canada.



PRECOMMISSIONING

68. Victorious vessels
Mario Figueira, Halliburton, Brazil.

72. Offline internal inspection in the Czech Republic
Aleš Brynych, CEPS a.s., Czech Republic.

79. Stock or pre-cleaned pipe, that is the question
Luca Reinhart, Reinhart Hydrocleaning SA, Switzerland.

PIGGING TOOL PERFORMANCE

85. Using a cruise missile to swat a fly?
Martin Stuvik, Dacon Inspection Services, Thailand.

89. Crack detectives
Rogelio Jesus Guajardo, NDT Global, Germany.

LANDFALLS & SHORE APPROACHES

92. Dreams beyond the Caribbean
Ria Slater, Slater Marine and Shipping Ltd., Trinidad and Tobago.

ROVS & UNDERWATER INSPECTION

99. ART can't be stopped by coatings
Rolf Spørkel and Simon Penlington, Halfwave, Norway.

105. Underwater welding in Myanmar
AJ Jain, Kreuz Subsea, Singapore.

109. More than models
Kelci Martinsen, 2G Robotics, Canada.

ON THIS MONTH'S COVER

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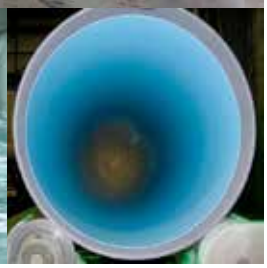
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Comment

UNDERCUTTING PIPELINES WITH STEEL TARIFFS

US President Donald Trump has imposed tariffs of 25% on imported steel in an effort to fulfil his election promise to rescue the US steel industry. For years the US has levelled accusations at China and other countries for dumping excess steel capacity onto the market and hampering US industry. President Trump is fixated on his nation's US$568 billion trade deficit and wants to balance the books. He is utilising a loophole in the General Agreement on Tariffs and Trade (GATT) that allows signatories to erect trade barriers and practise protectionism in times of war or national emergency. Trump's administration argues that the health of its domestic steel industry is a matter of national security and that drastic measures must be taken to squeeze out global overcapacity. At its peak in 1973, the US produced 136.8 million t of steel. Figures in 2016 stood at 78.5 million t. China brought online 552 million t of extra capacity between 2007 and 2015 and produces nearly half of the world's steel. The US is the world's biggest steel importing nation.

Previous US efforts to curtail steel dumping have often been successful and some 169 anti-dumping and countervailing duties are currently established, but President Trump's new approach paints much broader strokes. The new tariffs will not apply to imports from Canada or Mexico (following a particularly loud response from both nations who, combined, provided a quarter of US steel imports in 2017), but set to suffer are exporters such as Brazil, China, South Korea, Japan, Taiwan, Russia, Turkey and Germany.

International response has been swift and cutting, but the move has also been criticised domestically. 100 Republican members of Congress wrote to the President as he was preparing to sign the declaration, urging caution and advising that "tariffs are taxes that make US businesses less competitive and US consumers poorer."

Understandably, the tariff announcement brought fury from steel-consuming industries in general, as a higher cost of metal will make them less competitive. Much more US industry uses steel than manufactures it: the steel industry employs 140 000 people; steel users employ 6.5 million people. Yes, homegrown manufacturing can be ramped up to try to meet domestic demand, but it won't be achieved quickly and it is important not to understate the ramifications of a broader trend in global industry: automation. US steel output rose 9% between 2001 and 2017, but employment in steel mills in the same period fell by 31%. Steel companies are able to work to new efficiencies and employ fewer people because of new automated technologies.

So, what about the pipeline industry? Energy companies and pipeline manufacturers will likely take a huge hit from this legislation. When President Trump signed executive orders in January 2017 mandating that the Keystone XL and Dakota Access pipelines be built, he also signed an order calling for the Commerce Department to develop a plan for US steel to be used in "all new pipelines, as well as retrofitted, repaired or expanded pipelines" inside the US. But US capacity to produce steel for pipelines is lacking. US steelmakers currently cannot produce the kinds of speciality steel grades and/or pipe diameters needed for some pipeline projects. The tariffs may prove to be a boon to industries such as automotive, where margins are smaller and costs are lower, but for pipelines the thinking is short sighted. Pipeline developers are seeking exemptions from the new tariffs, arguing that the pipeline industry is a niche market that deserves special dispensation (pipeline-grade steel comprises less than 3% of the overall steel market).

> "PIPELINE MANUFACTURERS WILL LIKELY TAKE A HUGE HIT"

Jack Gerard, President and CEO of the American Petroleum Institute, said the tariff is inconsistent with President Trump's goal of US energy dominance. The US Association of Oil Pipe Line said that hundreds of millions of dollars could be added to pipeline projects. Imports account for a massive 77% of the steel used in US pipelines according to an ICT International report in 2017. Higher steel prices conceivably mean raised pipeline project costs, delays, job losses, an increase in (less safe) rail and road transport and raised prices for consumers.

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Annual subscription £60 UK including postage/£75 overseas (postage airmail). Special two year discounted rate: £96 UK including postage/£120 overseas (postage airmail). Claims for non receipt of issues must be made within three months of publication of the issue or they will not be honoured without charge.

Applicable only to USA & Canada:
World Pipelines (ISSN No: 1472-7390, USPS No: 020-988) is published monthly by Palladian Publications Ltd, GBR and distributed in the USA by Asendia USA, 17B S Middlesex Ave, Monroe NJ 08831. Periodicals postage paid New Brunswick, NJ and additional mailing offices. POSTMASTER: send address changes to World Pipelines, 701C Ashland Ave, Folcroft PA 19032

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World News

Pipeline industry reacts to Trump's steel tax

US President Donald Trump has levied steep tariffs on imported steel and aluminium: steel products face a 25% tariff, aluminium will be taxed at 10%.

The Association of Oil Pipe Lines (AOPL) urged caution by the administration as it considers the shape and scope of steel tariffs that could reduce or significantly delay new pipeline projects and hurt US jobs from pipeline projects. "We are urging the administration to avoid killing US jobs through a steel tariff that impacts pipelines," said Andy Black, AOPL President and CEO.

The AOPL statement went on to say: "US steelmakers do not make enough pipeline-grade steel. Pipeline-grade steel is a niche market (3% of total steel market). Pipeline-grade steel is also a specialty product, which must meet high quality specifications not required for other steel products (pipeline steel can't be brittle or it could crack and cause a pipeline incident). US domestic steel producers largely exited the pipeline business because of its small market, higher costs, and lower margins, choosing to focus instead on higher volume products (steel for automobiles, appliances, etc). Thus, domestic steel and pipe production capacity is insufficient to meet pipeline demand – especially for larger diameter or thicker steel."

The Interstate Natural Gas Association of America (INGAA) has called on the Trump administration to exempt the steel products used to build natural gas transmission pipelines because of a scarcity of domestic supply and national security considerations.

"The ability to expand pipeline infrastructure in an efficient and predictable manner is critical to the United States realising the full potential of its domestic energy abundance," INGAA President and Chief Executive Officer Don Santa said.

"Imports of both pipeline-quality steel and pipe products are necessary for timely construction of the new pipeline infrastructure needed to link natural gas producers with industrial, power generation and residential customers, and ensure our national security." WP

EU parliament backs regulation of Nord Stream 2

EU lawmakers have backed draft rules to extend the bloc's internal energy market laws to cover offshore gas pipelines such as Russia's planned Nord Stream 2 link to Germany.

On 21 March, lawmakers on the European Parliament's industry committee voted 41 votes to 13 in favour of the European Commission's proposal, with nine abstentions.

The European Commission's proposal is supported by east European and Baltic countries, many of which fear that the 1225 km pipeline will undermine EU efforts to reduce dependence on Moscow and EU support for Ukraine by depriving it of gas transit fees.

The pipeline's backers, including Germany, oppose the rule change as an attempt to block construction of what they see as a purely commercial project.

In its current form, the Nord Stream 2 project – fully owned by Russia's gas export monopoly Gazprom – does not comply with the EU's third energy package rules.

Last year the Commission proposed the changes to its gas directive to make all import pipelines subject to rules that require they not be owned directly by gas suppliers, apply non-discriminatory tariffs and make capacity available to third parties.

EU officials say negotiations with Moscow may be needed over the pipeline, which begins outside EU jurisdiction on Russia's shores.

Speaking at a news briefing the same week, US State Department Spokesperson Heather Nauert confirmed that the White House opposes the Nord Stream 2 energy project: "As many people know, we oppose the Nord Stream 2 project...we believe that the Nord Stream 2 project would undermine Europe's overall energy security and stability. It would provide Russia another tool to pressure European countries, especially countries such as Ukraine."

The US has previously threatened sanctions on companies involved in the construction of the gas pipeline. WP

Alberta row with British Columbia: Alberta threatens cut to oil exports

Alberta Premier Rachel Notley has threatened British Columbia (B.C.) with retaliation if B.C. continues to interfere with the US$7.4 billion Trans Mountain pipeline expansion.

Reports claim that the Alberta government is prepared to introduce legislation to reduce the flow of oil exports to B.C. and, if necessary, Canada.

The inter-provincial dispute became heated in January when the B.C. government proposed limits on shipments of diluted bitumen while it undertook more research on pipeline safety and spill response.

B.C. claims it is fully within its rights to protect the Pacific coast from the spill risks associated with the increased tanker traffic that would accompany the project.

The Kinder Morgan project was approved by the Trudeau government in 2016, however, the pipeline has faced constant permit challenges and opposition from the B.C. government ever since. Alberta considers the federally-approved project to be an absolute economic necessity.

B.C. is heavily reliant on Alberta for its fuels. Alberta already ships processed/diluted bitumen and refined products down the existing Trans Mountain pipeline. Approximately 70% of the refined products used in B.C. are supplied by Alberta refineries, meanwhile Ontario refineries in the east receive nearly 75% of their raw feedstock oil from western Canada.

The CAN$7.4 billion Trans Mountain pipeline expansion would triple the pipeline's capacity to 890 000 bpd.

This month, the Federal Court of Appeal made a decision to dismiss the B.C. government's attempt to overturn an NEB ruling against the City of Burnaby. This was in response to an earlier ruling from the NEB that it would bypass the City of Burnaby's laws when granting Trans Mountain work orders on the Kinder Morgan pipeline.

Anti-pipeline protests continue at Kinder Morgan terminals in B.C.

Saskatchewan Premier Scott Moe says he will stand by Alberta if the province decides to restrict oil exports to pressure B.C. to abandon its opposition to the Trans Mountain pipeline expansion project. WP



World News

IN BRIEF

USA

Tellurian's subsidiary Permian Global Access Pipeline LLC (PGAP) is offering a non-binding open season to secure prospective shippers for a proposed 42 in. diameter interstate natural gas pipeline connecting the Permian basin in Texas to southwest Louisiana.

Israel

Energean Oil & Gas PLC has approved the final investment decision to proceed with the US$1.6 billion Karish and Tanin Development Project, offshore Israel.

USA

The Maryland Department of the Environment (MDE) has issued a wetlands and waterways permit for a short pipeline extension – the Columbia Gas Transmission LLC's Eastern Panhandle Expansion Project.

Russia

A 1629.3 km (75%) section of the Power of Siberia gas pipeline that runs from the Chayandinskoye field to Blagoveshchensk, is built.

USA

Lincoln Electric Holdings, Inc., has opened its new Welding Technology & Training Centre in Cleveland, Ohio.

Pakistan

Inter State Gas Systems Limited (ISGSL) is likely to award a contract for construction of the 427 km Machike-Tarujabba oil pipeline during last week of March. The pipeline will be built in three segments.

Nigeria

Multiple NGOs have called for the proposed Nigeria-Morocco gas pipeline project (a continuation of the West African Gas Pipeline) to be scrapped.

Pipeline MLPs respond to FERC tax ruling

The Federal Energy Regulatory Commission (FERC) issued a revised policy statement on 15 March that reversed its 2005 income tax policy that permitted master limited partnership (MLP) interstate oil and natural gas pipelines to recover an income tax allowance in cost of service rates.

MLPs are partnerships that bypass the federal corporate tax, but the partnership owners pay taxes on their individual portions of the income, gains, losses and deductions. The corporate tax avoidance is substantial, but the drawback for MLPs is that they must keep growing to keep paying quarterly dividends to investors.

Several pipeline companies have responded to the ruling.

Alan Armstrong, Williams' President and Chief Executive Officer, made the following statement: "Given the relatively small percentage of our revenues that are affected by this ruling, we don't expect this ruling to impact our previous guidance for WMB and WPZ cash dividends and distributions and related growth rates. Additionally, as we've often discussed, we are well-positioned to execute on corporate structure changes, which would restore the income tax allowance to the pipeline's cost of service rates."

"We are reviewing the ruling, but note that it appears to apply only to pass-through entities, not regular corporations such as MIC," said Liam Stewart, Chief Financial Officer of Macquarie Infrastructure Corporation (MIC). "Moreover, MIC currently has only one pipeline that is subject to FERC rate regulation, and the contribution to our results from that pipeline is such that the overall impact of the ruling, if any, would be immaterial."

EQT Midstream Partners, LP (EQM) announced that it expects an insignificant impact, if any, from the revised policy statement. As of 31 December 2017, approximately 89% of EQM's contracted transmission capacity was subscribed under negotiated rate agreements. In addition, all of the 2 billion ft^3/d of capacity on the Mountain Valley Pipeline is subscribed under negotiated rate agreements. In 2017, approximately 54% of operating revenues were generated by gathering operations and 46% of operating revenues were from the transmission and storage segment.

"While we were disappointed by the FERC's announcement that it no longer will allow interstate pipelines owned by master limited partnerships to recover an income tax allowance in the cost of service, it is important to note that the FERC's decision is not expected to have a material impact on NuStar because the vast majority of our rates are contract-based or market-based," said Brad Barron, President and CEO of NuStar Energy. "We believe that FERC's action is inconsistent with the intended tax treatment of master limited partnerships, essentially negating the intent of Congress," Barron added. "We intend to work closely with our industry colleagues on legislative clarification of income-tax recovery. MLPs continue to serve as an important mechanism to build energy infrastructure."

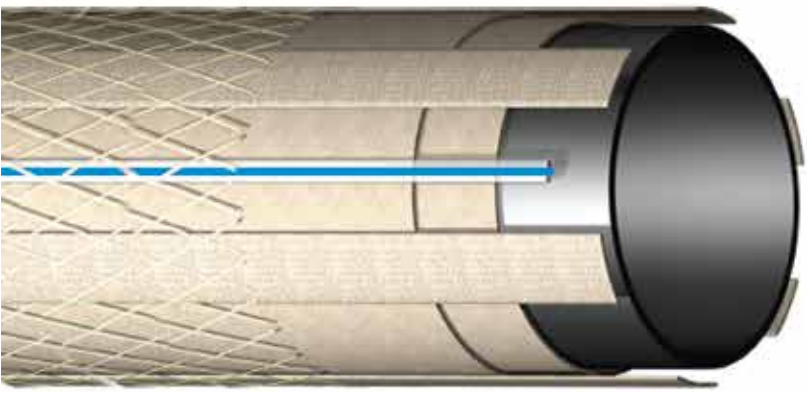
NGL Energy Partners LP announced that it does not expect a material impact from the revised policy statement. NGL owns Grand Mesa Pipeline, LLC, a FERC regulated interstate crude oil pipeline that operates from the DJ Basin in Weld County, Colorado with deliveries to Cushing, Oklahoma. FERC's revised policy impacts cost-of-service rates on oil pipelines. Currently, the volumes of crude oil that are transported on Grand Mesa are subject to contractual agreements. Therefore, FERC's revised policy will not impact Grand Mesa at the present time.

Enable Midstream Partners, LP announced that it is continuing to review the potential impact of the ruling. Enable is also monitoring the notice of proposed rulemaking issued concurrently with the announcement that will address the effects of the revised policy on the rates of MLP interstate natural gas pipelines. A significant portion of Enable's revenue and gross margin is derived from its gathering and processing segment, where the only potential impact could be on crude oil gathering lines in the Bakken Shale, which the company believes would not be material. For the year ended 31 December 2017, 77% of the company's revenue and 62% of its gross margin was derived from the gathering and processing segment.

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World News

Events DIARY

15 - 19 April 2018
NACE Corrosion Conference and Expo
Phoenix, USA
http://nacecorrosion.org/

16 - 20 April 2018
TUBE Düsseldorf
Düsseldorf, Germany
https://www.tube-tradefair.com/

17 - 19 April 2018
MOC 2018
Alexandria, Egypt
http://www.moc-egypt.com/

22 - 26 April 2018
PLCAC 2018 Convention
Nashville, USA
https://pipeline.ca/

30 April - 3 May 2018
OTC 2018
Houston, USA
http://2018.otcnet.org/

12 - 14 June 2018
Global Petroleum Show 2018
Calgary, Canada
https://globalpetroleumshow.com/

25 - 29 June 2018
World Gas Conference 2018
Washington D.C., USA
https://wgc2018.com

27 - 30 August 2018
ONS
Stavanger, Norway
http://www.ons.no/

17 - 20 September 2018
Gastech Exhibition & Conference
Barcelona, Spain
http://www.gastechevent.com/

India's coast to coast pipeline halted

The Petroleum and Natural Gas Regulatory Board (PNGRB) has terminated GAIL India Ltd's licence to build the 'Surat-Paradip' natural gas pipeline from the east coast to the west coast of India.

The regulator's order, dated 13 March, said that GAIL had made "nil" ground progress in the project even after six years.

The natural gas pipeline was proposed to run 1724 km to connect the western and eastern coasts, see an investment of Rs. 10 000 crores (approximately US$1.5 billion), and have a capacity of 74.81 million m^3/d.

PNGRB had authorised GAIL to lay the Surat-Paradip pipeline in April 2012 following GAIL's successful licence bid in November 2011 of an astonishingly low pipeline tariff of Rs. 0.01 per million Btu. The terms state that a company is supposed to submit its financial plan and feasibility report within 120 days of authorisation, which GAIL failed to achieve.

Low domestic gas production and gas consumption has kept gas pipelines substantially underutilised for many years, hence gas companies are lacking enthusiasm to build new pipelines for which they had obtained licences years ago.

Trans Mountain prep work complete

Kinder Morgan says it has completed the necessary preparatory work on time at the Burnaby and Westridge Marine terminals, despite protests that blocked access to the Burnaby terminal.

Work involved removing brush and trees to clear space for permanent fencing along the property line at the Burnaby terminal, and preparatory work for the construction of the portal to the Burnaby Mountain Tunnel that will take place at a later date.

The CAN$7.4 billion pipeline expansion project includes a 2.6 km tunnel between the two terminals.

Kinder Morgan had previously indicated that this work needed to be completed before migratory bird restrictions come into effect on 26 March. Not meeting the target date would have delayed this phase of construction until August.

Some 200 people were arrested in mid March after protesting outside the terminal in Burnaby.

The expansion will add approximately 980 km of new pipelines, 12 pump stations, 19 tanks to storage terminals, and three berths at the Westridge Marine Terminal.

Line 3 replacement is "adequate"

The Minnesota Public Utilities Commission ruled that the final environmental impact statement (EIS) that was developed for Enbridge's Line 3 replacement project is adequate.

This has been the most extensive EIS related to a pipeline project in the history of Minnesota. State agency staff spent 16 months drafting 5000 pages of analysis.

The EIS confirms that the replacement of Line 3 as proposed by Enbridge is a superior outcome to the continued operation of the existing Line 3 and to any alternative means of transporting crude oil by truck or rail.

The EIS further supports that Enbridge's preferred route is the optimal solution when considering tribal, environmental and other resources of concern.

The preferred route scores much better than the two options considered to replace Line 3 within the existing ROW.

The preferred route scores very similarly to the most southern route alternative, however that route has the potential to significantly impact drinking water areas.

News Highlights



- TransCanada announces 2018 - 2019 revenue requirement settlement
- Global gas sensor market report
- Maryland issues permit for Columbia Gas pipeline extension
- Gazprom and Italian Ambassador discuss ongoing efforts for gas supplies to Europe

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Contract News

Nova field contracts awarded

Wintershall Norge has awarded two major subsea contracts for its operated Nova field (formerly Skarfjell) in the Norwegian North Sea.

The subsea production system (SPS) contract has been awarded to Aker Solutions AS, while the pipeline and subsea construction (PSC) contract has been awarded to Subsea 7 Norway AS. The contracts have a combined value of approximately US$230 million.

Hydrocarbons from the Nova reservoir will be developed via two subsea templates tied back to the Gjøa platform for processing and export.

"These contracts allow us to push towards the execution phase of the project, and build on our strategy of cost effectively developing fields that utilise local infrastructure," said Andre Hesse, Wintershall Norge, Head of the Nova Project.

Aker Solutions AS will deliver a standardised SPS for the Nova development. This includes engineering, procurement and construction (EPC). The Nova SPS consists of two template manifolds with their respective trees and well systems. It also includes the integrated service umbilical and the subsea control system.

Subsea 7 Norway AS will design, procure and install four pipelines linking Nova to Gjøa.

These comprise two pipes in pipe production flowlines, riser base structures, a water injection pipeline and the pipeline that will supply lift gas to the field. Furthermore, the contractor will install the SPS structures supplied by Aker Solutions AS, including the subsea templates, subsea manifolds, control umbilicals and auxiliary equipment.

Dovre Group signs agreement with Baltic Connector

Dovre Group Plc has signed a framework agreement with the Baltic Connector project, co-owned by the Estonian company Elering AS and the Finnish company Baltic Connector Oy. The €250 million project implements a natural gas pipeline across the Gulf of Finland, connecting the gas networks of Finland and Estonia. In 2016, the European Commission (CEF) granted funding of €187.5 million to the project.

According to the terms of the contract, Dovre Group provides project management resources to the Baltic Connector project.

"We are proud to partner for this historical project", says Patrick von Essen, CEO of Dovre Group. "This award further improves our position as a leading provider of project management competence, and strengthens our footprint in Finland."

Vallourec commissions groundbreaking UT test facility

Over the past three years, Vallourec, together with General Electric, has been developing a 2D phased-array facility with ShapeUTTM technology, which it has now commissioned at its Düsseldorf-Rath location. This most recent development in ultrasonic testing is the first of its kind anywhere in the world, and has significantly improved the possibilities of comprehensively testing seamless steel tubes at full production speed.

After a development period of just under three years, the installation of the ultrasonic test facility, following its successful release, took less than two months.

The plug-rolling mill at the Düsseldorf-Rath location currently operates the world's most advanced automatic ultrasonic test facility for seamless steel tubes.

TechnipFMC wins EPCI contracts offshore Israel, in GoM and in Malaysia

TechnipFMC has been awarded an iEPCI™ (integrated engineering, procurement, construction and installation) contract by Energean Oil & Gas for the Karish full field development, located offshore Israel at a water depth of 1750 m.

The execution of this contract covers the design, procurement, construction and installation of the complete subsea system, a floating production storage and offloading unit (FPSO) designed to allow the subsequent tie-back of the Tanin field, the pipeline system, and the onshore pipeline and valve station at the receiving station.

Hallvard Hasselknippe, President of TechnipFMC's Subsea business, stated: "This award...highlights our unique ability to combine a fully integrated field development encompassing both the entire subsea and FPSO scope. Our strong value proposition builds on early involvement and integrated solutions. By simplifying subsea field architecture, we help our clients significantly improve their project economics. We are honoured that Energean Oil & Gas has embraced this new way of doing business, engaging with us early through an integrated FEED study and directly awarding the full project scope through an integrated EPCI model."

TechnipFMC has also been awarded an iEPC contract by LLOG Exploration. This award for the Who Dat field in the Gulf of Mexico includes the delivery and installation of a multiphase pumping system, including a manifold, umbilical termination assembly, power umbilical, jumper and topside control equipment.

The new contract builds on the existing 10 plus year Alliance relationship between LLOG Exploration and TechnipFMC.

A third contract has been awarded to TechnipFMC by Sabah Shell Petroleum Company Ltd, for an EPCI project.

This award covers the delivery and installation of subsea equipment including umbilicals, flowlines and the subsea production system for the Gumusut-Kakap Phase 2 Project in Malaysia.

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THE GULF IS GREAT AGAIN

The US Gulf of Mexico is once again back in the limelight with significant increases in production, explains **Gordon Cope**, but how long will it last?

The offshore Gulf of Mexico, as well as related onshore fields, has made the region one of the premier producers of oil and gas in the US. Offshore production averaged 1.7 million bpd in 2017, and is expected to climb to 1.9 million bpd – almost one-fifth of all US production – in 2018. In addition, onshore shale plays near the Gulf are expected to push overall US production to an all-time high of 10 million bpd this year. As a result, thousands of miles of new pipeline (and related infrastructure) are being built in the area.

New fields

The Permian basin, which starts 250 km north of the Gulf Coast, has been a producer of conventional crude for almost a century. Recently, explorers have targeted the multi-stacked shale plays using the latest horizontal drilling and hydraulic fracturing technologies.

As a result, production in the Permian has skyrocketed. As recently as 2010, output stood at 900 000 bpd and 5 billion ft^3/d of gas. At the end of 2017, it had risen to almost 2.8 million bpd, and 9 billion ft^3/d. Production from the Permian flows to the immense refinery corridor that runs along the US Gulf Coast (USGC) from Texas to Louisiana.

New offshore fields are also entering production. In January 2017, BP started operations at its Thunder Horse South expansion project. The project sits approximately

3 km south of the existing Thunder Horse platform. It is estimated to add 50 000 boe/d; in all, the Thunder Horse platform is equipped to handle 250 000 bpd and 200 million ft³/d. Other 2017 start-ups included Anadarko's Horn Mountain deep field and expansions at Chevron's Tahiti field.

Another seven projects are anticipated to come online by the end of 2018, including Chevron's Big Foot, BP's Atlantis North and Hess's Stampede (Pony) project.

Shell and its partners have made a final investment decision (FID) to develop the Kaikias discovery. The field, located near the Ursa production hub approximately 210 km south of the Louisiana coast, will be developed in two phases. Phase one is expected to start production in 2019, at 40 000 bpd. The field is estimated to hold 100 million boe/d of reserves.

In early 2018, LLOG began development drilling on its Buckskin deepwater project. The field is located in the Keathley Canyon region near the Lucius platform. The field, which contains an estimated 5 billion bbls in place, is expected to come onstream in mid 2019 when the wells are connected to the Lucius platform with a 9 km tie-in.

Major new fields are also being discovered. In early 2018, Chevron announced a large oil discovery at their Ballymore prospect in the deepwater GoM. Ballymore is located 5 km from the company's Blind Faith platform. The discovery well encountered more than 220 m of net oil pay with excellent reservoir and fluid characteristics. A side track wellbore is being drilled to further evaluate the discovery.

Also in early 2018, Shell Offshore made one of its largest US GoM discoveries in the past decade. The Whale deepwater well encountered more than 427 m of oil-bearing pay. The discovery is adjacent to Shell's Silvertip field and 16 km from its Perdido platform. Further evaluation is necessary to quantify the size of the field.

Mexico's Gulf

Since 2013, reforms under the administration of Mexican President Enrique Peña Nieto have opened up the country's oil and gas sector to private investment. Mexico's hydrocarbon commission has offered several offshore lease sales, and Pemex has entered into joint ventures with international firms.

In late 2016, BHP won the rights to develop the Trion discovery with Pemex. The deepwater field has estimated reserves of 485 million boe. The cost of developing the field is projected at US$10.7 billion. Pemex was also looking for a partner to develop an ultra-deepwater discovery, Nobilis Maximino, which is estimated to hold over 500 million boe (the company recently delayed the search, citing low oil prices as the main concern for the delay in spending over US$10 billion to develop the field).

Houston-based Talos Energy and partners Sierra O&G, of Mexico, and Premier Oil, of London, discovered the Zama field in the Bay of Campeche, approximately 60 km off the coast in the Gulf of Mexico. The field holds between 1.4 - 2 billion bbls of light, sweet crude and associated gas. The field, which extends into a block owned by Pemex, means that the company may have a claim to the discovery. The partners are awaiting resolution by the Energy Ministry prior to construction of production facilities.

ENI made an offshore discovery in the Bay of Campeche at its Mizton prospect. The Italian company, which drilled a delineation well in 2017, estimates that the field holds around 350 million boe. Their total holdings in the Bay of Campeche's Contractual Area 1 now amount to 1.4 billion boe, primarily light crude. ENI is currently developing its Amoca field, located near to the Mizton prospect.

New pipelines

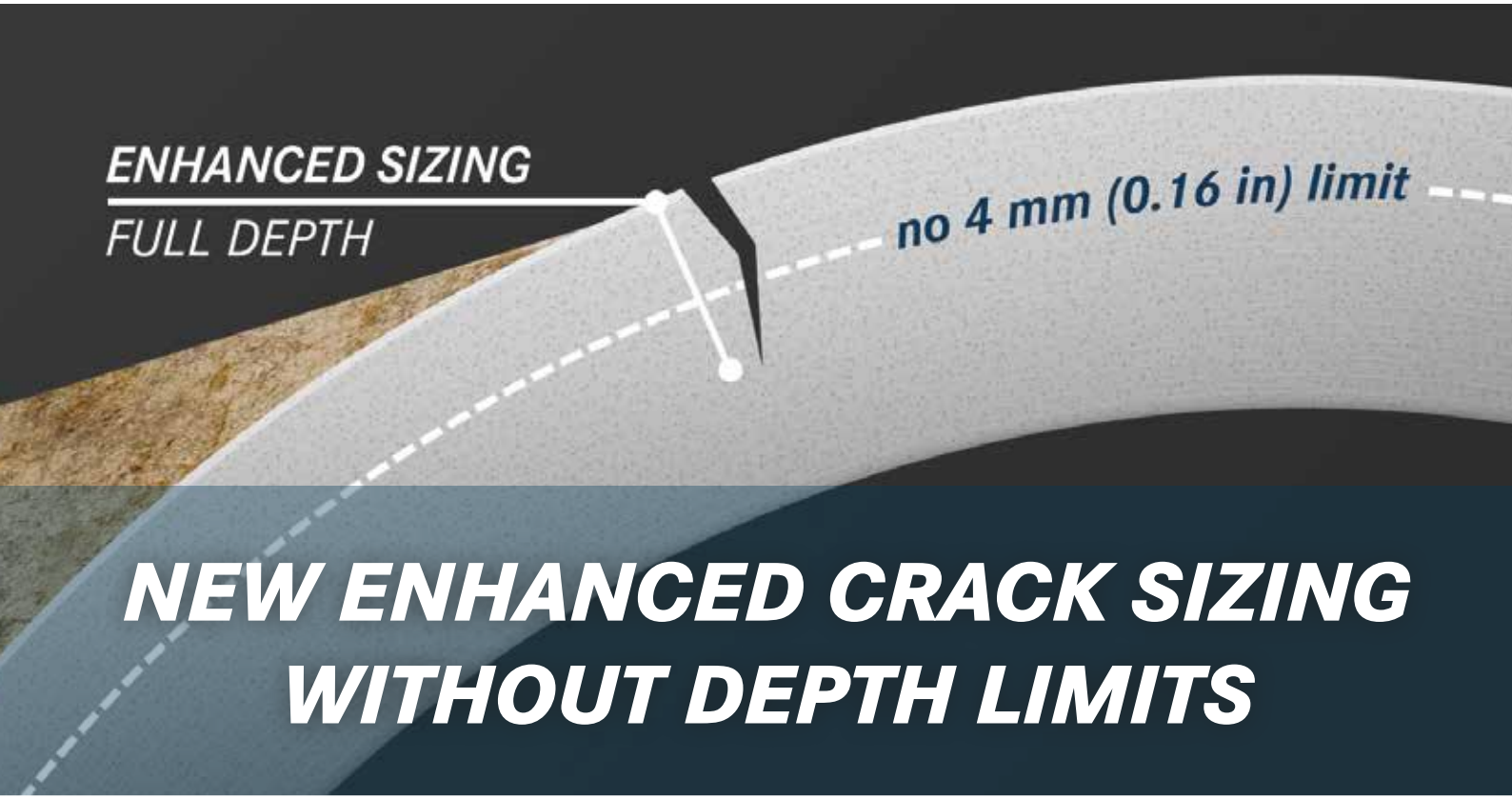
In order to handle increased production, midstream infrastructure is expanding. In early 2018, American Midstream completed its Cayenne pipeline, which runs from Targa Resource's offshore Venice gas processing plant in the Mississippi Canyon region to southern Louisiana. The NGL-dedicated line will initially have a capacity of 40 000 bpd, which can be boosted to more than 50 000 bpd if required.

As current onshore lines fill to capacity, several midstream companies are announcing new systems to move product to the USGC:

- Buckeye Partners is seeking shipping commitments for a 600 000 bpd line that would run from the Permian basin to the USGC.
- Enterprise Products Partners is looking to convert an existing NGL line to a 600 000 bpd crude system that would run from the Permian basin to the Houston area.
- Epic Midstream is building a 730 mile crude pipeline in Texas that will run from the Permian basin to Corpus Christi. The 590 000 bpd line will follow the ROW of its NGL pipeline system, currently under construction. Epic expects the crude line to enter service in 2019.
- Kinder Morgan and DCP Midstream are proceeding with the Gulf Coast Express Pipeline project (GCX). The US$1.7 billion line will transport up to 1.92 billion ft³/d of gas from the Permian basin to Agua Dulce, Texas. The 447 mile line will be a mix of 36 in. and 43 in. pipe, and enter service in late 2019.
- Phillips 66 and Enbridge are seeking shippers for its Gray Oak Pipeline, which it proposes to run from west Texas to the Houston area. The initial capacity is 385 000 bpd, with an expected commission date in the second half of 2019.
- Plains All American Pipeline and its partners are looking to reverse the flow of their 40 in., 1.2 million bpd Capline system that runs from St. James, Louisiana, to Patoka, Illinois. If they receive sufficient shipper interest, producers would have access to refineries, terminals, ships, barges and rail in the St. James region. Plains expects the reversal to be completed by the second half of 2022.

WaterBridge Resources, a company based in Texas, is launching a new type of pipeline network, one solely dedicated to water. Operators of onshore shale plays typically recover seven barrels of water for every barrel of oil, which is then separated, trucked to a disposal site, and reinjected. While the cost per barrel is only US$2, disposing of liquid waste in the Permian basin alone exceeds an estimated US$500 million/y. WaterBridge intends to build a dedicated water collection pipeline network that would cut the cost per barrel in half.

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Hurricane Harvey

The Gulf of Mexico is the world's largest destination for hurricanes; one of the most brutal seasons occurred in 2017. On 26 August, Hurricane Harvey made landfall near Corpus Christi, Texas. The Category 4 hurricane had formed just days before in the warm waters of the GoM. In addition to sustained winds of 215 km/h, Hurricane Harvey also brought rainfall exceeding 50 in.

The results were devastating. Large regions of southern Texas, including much of urban Houston, were rendered uninhabitable by flooding. Hundreds of thousands of citizens were evacuated, and billions of dollars in damages to property ensued.

Hurricane Harvey also assaulted the heart of the USGC's oil and gas sector. The region has approximately 9.8 million bpd refining capacity. Although some refineries outside of the hurricane's direct path remained operating at full capacity throughout the event, most went to reduced capacity, or shut down. Offshore Gulf fields produce 1.76 million bpd; around 440 000 bpd was shut in. Tank farm operators topped up the majority of the 3500 storage tanks along the vulnerable Houston shipping channel in order to prevent them from lifting from their foundations and becoming damaged.

Thanks to the lessons learned from Hurricane Katrina (which left in its wake widespread destruction after it made landfall near New Orleans in 2005), the oil and gas sector was in much better shape to both minimise damage and hasten recovery afterwards. Offshore platforms had been redesigned to clear higher storm surge and resist anchor pull; underwater pipelines had been trenched; and critical nearshore facilities like pumps and compressors had been moved inland.

As a result, there was no significant damage to offshore platforms or pipelines. By 1 September 2018, the majority of offshore crude production was back online, and efforts were underway at most refineries to return to normal operations. Major ports and terminals were again operating under limited circumstances.

Unfortunately, no one foresaw the sheer scope of flooding, with rainfall topping 50 in. in some regions. Although most facilities were able to weather the storm, 34 storage tanks failed and spilled an estimated 2.2 million litres of petroleum crude, fuel and petrochemical products. Magellan Midstream Partners' storage tank farm in the Houston suburb of Galena Park was one of the facilities most severely affected. Two massive tanks floated off their foundations and broke apart; approximately 1.7 million l. of gasoline were released. Magellan operators were able to recover about 350 000 l., but the rest either evaporated or leaked into surrounding soil onsite. Once waters receded, Magellan initiated soil remediation. WP

In addition, the company plans to remediate a portion of the water so that it can be used in hydraulic fracturing, reducing the demand for fresh water in an arid region.

Exports to Mexico

Mexico is modernising its utility infrastructure, converting bunker-fuel fired electricity plants to natural gas. As a result, US gas pipeline export capacity to Mexico is expanding at a rapid clip. In early 2017, capacity was over 7 billion ft^3/d, an almost 100% increase in the last five years. In addition, there is over 3 billion ft^3/d under construction in Texas, and over 3 billion ft^3/d in the planning stage. Total capacity is expected to be near 14 billion ft^3/d by the end of the decade.

Refined products pipeline networks are also growing. Dos Aguilas Pipeline, a Mexican subsidiary of Howard Midstream, is building an open access network to transport refined products from the Laredo region in Texas to northern Mexico. The network includes the Border Express Pipeline (141 miles), the Borrego Pipeline (10 miles), the Poliducto Frontiers Pipeline (12 miles), and the Poliducto del Norte Pipeline (124 miles). The company expects the network to be in service by mid 2018.

Nustar Logistics has been given approval to build the Burgos pipeline, a 10 in. fuel line that will transport 108 000 bpd from Edinburg, Texas to Pemex's facilities near Reynosa, Tamaulipas.

Mergers and acquisitions

American Midstream Partners, based in Houston, is moving aggressively to build an integrated natural gas gathering, processing and transmission firm in the USGC. In early 2017, it merged with JP Energy Partners to form a US$2 billion master limited partnership in the Permian, Eagle Ford and offshore Gulf. It then purchased the 107 mile Viosca Knoll gathering system in the offshore Mississippi Canyon region. In late 2017, it closed a US$815 million deal to purchase assets from Southcross Energy, including natural gas and NGL pipelines, fractionators and storage.

Global Infrastructure Partners (GIP) is acquiring assets owned by Medallion Gathering and Processing LLC in the Midland basin of west Texas. The US$1.85 billion deal includes 800 miles of crude lines and related infrastructure.

The future

Over the next several years, the regulatory burden brought upon the offshore industry after the BP Macondo tragedy is expected to ease. For instance, thanks to an executive order issued by President Trump to review and repeal federal regulations that create unnecessary financial and compliance burdens, the US Bureau of Safety and Environmental Enforcement (BSEE) is proposing changes to Production Safety System Rule provisions.

The proposed changes (which would affect offshore producers, drilling contractors and service and supply companies), look to clarify reporting requirements for safety and pollution prevention equipment. "There was an assumption made previously that only more rules would increase safety, but ultimately it is not an either-or proposition," said BSEE Director Scott Angelle. "We can actually increase domestic energy production and increase safety and environmental protection."

Improvements in exploration technology are expected to open up new resources. BP, using advanced seismic imaging at its

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Center for High Performance Computing, was able to delineate an extra 200 million bbls of reserves beneath its Atlantis field in the deepwater Gulf. The technology uses proprietary algorithms to enhance full waveform inversion, which matches simulations with existing seismic data to produce high quality images. The technique is especially valuable in basins where salt layers obscure or distort underlying features, and BP intends to apply it to other assets in the Gulf.

The Gulf of Mexico has approximately 90 billion boe of resources, about half of which have been developed in the last 50 years. In early 2018, the Trump Administration proposed to make most offshore areas in the US available for exploration drilling, adding the potential for another 90 billion boe. The eastern Gulf holds approximately one-third of that amount, but has been under a moratorium put in place by Congress and is unlikely to see any exploration activity until the end of the moratorium in 2022. The Governor of Florida, as well as the US Department of Defense, are against opening up federal waters adjacent to Florida.

In August 2017, the US Bureau of Ocean Energy Management (BOEM) kicked off the latest five year cycle (2017 - 2022) with Lease Sale 249, featuring blocks in the Gulf's outer continental shelf. Over two dozen companies placed bids on 90 blocks, with the overall sum of high bids standing at US$121 million. The amount, which was roughly half bid on an earlier lease sale in March 2017, partially reflects the low commodity price environment, as well as capital competition from shale plays. In addition, the leases that were purchased were near existing plays and infrastructure, not in deepwater wildcat country.

In contrast, Mexico held a major offshore auction on 31 January 2018. Prior to the auction, Mexico's government had deemed that the event would be a success if at least a quarter of the 29 deepwater blocks were assigned. Many of the blocks are situated in the prolific Perdido Fold Belt, a structural play that extends from US waters, and the government noted that if seven contracts were signed, the eventual benefit to Mexico would exceed US$30 billion.

The optimism was tempered by the business risks associated with the acrimonious discussions over the North American Free Trade Agreement (NAFTA), President's Trump's desire to build a wall along the Mexico/US border, the threat of the election in 2018 of a Mexican president who opposes the privatisation of the oil and gas sector, and competing exploration opportunities in Brazil.

In the end, Mexico's auction was a success, with more than US$500 million spent on 19 blocks, or two-thirds of the total. Royal Dutch Shell was the biggest bidder, winning a total of nine blocks, with five blocks located in the Perdido Fold Belt adjacent to its finds in US waters. Ten blocks went unsold.

In conclusion, while the Gulf of Mexico remains one of the premier regions in North America for exploration and production, the primary focus in the US offshore portion for the next few years will be on shallower, less risky targets, and for shale plays onshore. In Mexico, however, offshore activity, both deepwater and shallow, will experience tremendous growth.



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