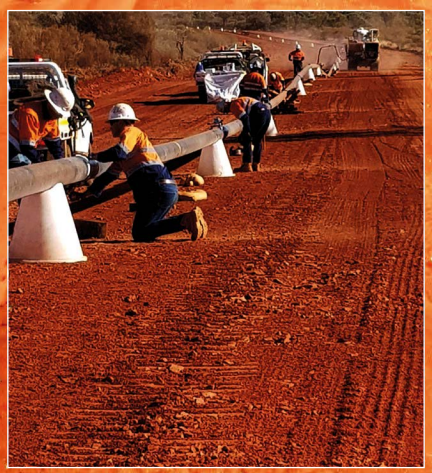
WORLD PIPELINES®

Volume 19 Number 7 - July 2019







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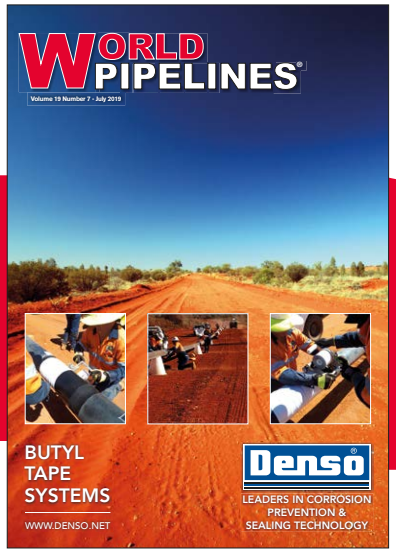
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Denso Australia, a subsidiary of Winn & Coales International Ltd, recently supplied and trained contractors in the correct application of the company's Butyl Tape Wrap System for corrosion prevention on the new 440 km Tanami Gas Pipeline in Australia's Northern Territory. The ease and speed of the system's application contributed to the protection of almost 600 field joints per day and the successful completion of the project five weeks ahead of schedule.



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Guest Comment

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GlobalData, UK

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WORLD PIPELINES

In December 2018, Dharmendra Pradhan, India's Minister of Petroleum and Natural Gas, announced that the federal government is initially planning to spend around US$10.2 billion (INR 70 000 crores; 1 crore = 10 million) on expansion of the natural gas pipeline network across the country, to promote a gas based economy. However, this needs to be met with scepticism, considering a few key issues that have been affecting the development of the country's natural gas pipeline sector.

An important issue is the non-inclusion of natural gas under the Goods and Services Tax (GST) regime. The introduction of GST in India on 1 July 2017, heralded a significant tax reform for the country, as it brought the entire country under one indirect tax umbrella. However, natural gas and four other commodities – crude oil, gasoline, diesel and aviation turbine fuel (ATF) – were not included. Both federal and state governments in India typically levy high excise duties and value added tax (VAT) on these commodities, especially on gasoline and diesel, to generate enormous revenues to primarily fund their welfare programmes. Non-inclusion under the GST regime has led to varying tax rates on natural gas production and related value chains such as pipelines and retailing in different states. A lower and uniform tax rate on natural gas production, allied infrastructure for transportation and distribution would unlock the growth potential of the natural gas pipelines sector.

Low private sector participation in the Indian natural gas pipelines sector is another key issue that needs to be addressed. Indian state-owned companies such as GAIL (India) Ltd, Indian Oil Corp. Ltd (IOCL), and Oil and Natural Gas Corp. Ltd (ONGC) dominate the country's natural gas pipeline landscape. Reliance Industries Ltd and Hiranandani Group are among the very few notable private players in the country. To ensure growth in this sector, private participation needs to be encouraged through measures such as including the natural gas and pipelines sector under the GST ambit, complete unbundling of transportation and marketing of natural gas, and providing greater access to the government-owned pipeline network.

Though India has ample potential for natural gas consumption, it is not being translated into reality due to lack of development of major industrial consumers such as power and fertilizer plants along the proposed or operational gas pipeline routes. This, along with a lack of city gas distribution (CGD) infrastructure, is impeding the overall gas demand in the country. Low gas demand in turn results in inadequate pipeline capacity utilisation, affecting operational efficiencies of natural gas pipelines and causing financial duress to pipeline operators. Lack of adequate domestic natural gas production and low capacity utilisation of LNG import terminals (due to low demand) also impact the capacity utilisation of connected pipelines. India's federal government is planning to expand both the natural gas pipelines network and LNG regasification capacity in the near future, for which capacity utilisation issues need to be addressed at the earliest opportunity.

> "LOW GAS DEMAND IN TURN RESULTS IN INADEQUATE PIPELINE CAPACITY UTILISATION"

Without addressing the key issues plaguing the Indian natural gas pipelines sector, it remains to be seen to what extent the Indian federal government succeeds in achieving its plan to shift to a gas based economy by 2030.

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World News

Trans Mountain pipeline project receives approval

The Government of Canada's recent approval of the Trans Mountain Expansion Project (TMEP) is an endorsement that the Project is in the best interest of Canadians and triggers the regulatory and commercial steps that can now be completed to get shovels in the ground.

"[The] announcement confirms the value of this Project to Canada's economic future. It is also a vote of confidence in the ability of a project of this magnitude to succeed. This is a major milestone, not only for us, but more importantly for the shippers, communities, workers, local businesses and Indigenous peoples who have been involved in the development of the Project and are waiting to share in its success," says Ian Anderson, President and CEO of Trans Mountain Corporation. "[This] is the culmination of a lengthy and thorough review that considered the thousands of hours of environmental and technical studies, scientific evidence and meaningful engagement that were part of the comprehensive assessment."

In the 10 months since the Federal Court of Appeal decision halted Project progress in August 2018, TMEP and its partners have been continuing to advance necessary design and planning work. This work will help move the Project forward to support Canada's energy resource development, bringing thousands of jobs and significant financial opportunities to communities at a time when Canada's economy needs both.

Next steps following the approval include the granting of the Project's Certificate of Public Convenience and Necessity or 'CPCN' by the National Energy Board (NEB). The Company also expects a NEB process to reinstate the record from the previous regulatory proceeding and Trans Mountain will request that the Project be brought back to the same state of construction readiness that it was prior to the Federal Court of Appeal decision.

Trans Mountain has always been confident that the Project has and will meet every standard, every regulation, and every test of environmental protection and stewardship.

"Our Project will be the best built, safest, and most technically advanced pipeline possible. The extensive Crown-led Indigenous consultations and marine environment review recommendations have made TMEP an even stronger, and more responsive project.

TMEP has evolved substantially since it was first proposed, much of this in response to consultation and input from the public, Indigenous peoples, local governments and technical experts," says Anderson.

"We have worked hard to establish and build upon our existing relationships with Indigenous peoples along our pipeline and marine corridors. Together, we've explored and, in many cases, settled on agreements that provide new opportunities and prosperity, in addition to ensuring the Project design and planning incorporates appropriate measures to protect Indigenous interests in the lands and waters."

The Project is subject to 156 conditions that are enforced by the NEB and demonstrate the rigour and detail that will go into every stage of the expansion to mitigate risks, respect the rights of those directly affected and operate safely.

In addition, Trans Mountain has made hundreds of commitments to address concerns raised by the public, local and provincial governments and Indigenous communities that encompass a wide range of areas. Trans Mountain is required by the NEB to implement each and every one of these commitments.

"We are ready to restart the Project. We thank the many Canadians who have been unwavering in their support, and we're excited to deliver on our commitments and ensure as many people as possible will benefit from this important Canadian project," says Anderson.

Balticconnector onshore pipeline welding work completed

Balticconnector's onshore pipeline running from Pölans in Siuntio to Fjusö in Inkoo (Finland) has been welded together and lowered in the excavated trench. The work on the pipeline route started with tree removals in winter 2018 and continued with excavation work in June 2018. At the moment, the work is progressing with finishing work on the site and repair of subsurface drains in the fields. The pressure tests and drying of the pipeline will be carried out in June, and the pipeline will be completed for commissioning in July.

"We thank the landowners for their patience and amicable attitude towards our project. We will ensure the work site is left in the same or even better condition than before we came into the site," says Tom Främling, Project Director of Baltic Connector Oy.

The finishing work will last until late autumn 2019. The connecting work of the pipeline will be undertaken at the end of August in Pölans, after which the pipeline is filled with gas. The commissioning and trial running of the compressor station will take place in September - October, after which the pipeline is ready for use. The Balticconnector pipeline will be fully ready at the end of 2019. The Finnish gas market will be opened up on 1 January 2020 when the gas starts to flow in the Balticconnector gas pipeline.

Drone flight to monitor Snam's pipeline network

Snam has begun to experiment for the first time with remotely piloted long-distance civil drone flights to monitor the natural gas network.

The first drone flight took place on a section of the pipeline in Emilia-Romagna (Italy), between Alfonsine and San Bonifacio in the provinces of Ravenna and Ferrara. The drone flew a distance of approximately 50 km round trip, and it was the first long-distance civil drone flight to be conducted in Beyond Visual Line Of Sight (BVLOS) mode in Italy.

The exercise aimed to assess how drones can be used to help Snam technicians monitor gas infrastructure more efficiently, and help improve the accessibility of monitoring in remote areas such as rivers and mountainous regions. Using drones also allows data and images to be captured in real-time. Snam will continue to test new drone flights in the coming months.

Snam's CEO, Marco Alverà, said: "The use of drones and satellites to monitor networks and systems is a key part of Snam's digital transformation, which also relies on artificial intelligence and cloud technology to make Italian infrastructure more intelligent, sustainable and secure, to the benefit of local communities and our country. A focus on technology and new energy transition initiatives is at the core of the Snamtec project, which will invest €850 million by 2022, establishing Snam as an energy company of the future."



World News

IN BRIEF

USA

API's monthly report found US crude oil production reached an all-time high of 12.2 million bpd in May 2019, driven by new pipeline capacity that enabled previously drilled but uncompleted wells (DUCs) to begin supplying product to the market.

FINLAND

Monitoring results of Nord Stream 2 have been released, with the environmental consultant Sitowise confirming that all observed impacts were minor, limited and of short duration.

ARGENTINA

ExxonMobil is proceeding with a long-term oil development in Argentina's Bajo del Choique-La Invernada block, including export infrastructure connected to the Oldeval pipeline and refineries.

USA

Brazos Midstream is executing gathering and processing agreements with Shell Exploration & Production to construct a new natural gas gathering system located in the Delaware Basin.

UK

T.D. Williamson UK has received a Silver Award from the Royal Society for the Prevention of Accidents (RoSPA) for its effective protection of its stakeholders' health and safety.

ISRAEL

Research by GlobalData has found that Israel will emerge as a gas exporter in the Eastern Mediterranean region by the mid-2020s, following its decade-long energy production revolution.

POLAND

The last two location decisions have been issued for construction of the Goleniów-Lwówek gas pipeline (one of five projects to be implemented as part of the Baltic Pipe Project in Poland).

SOCAR Turkey completes acquisitions

The final approval has been reached in the SOCAR Turkey acquisition of German EWE's subsidiaries. Vagif Aliyev, Chairman of SOCAR Turkey said: "Bursagaz, Kayserigaz, Enervis, EWE Energy and Millenicom will continue their operations under the SOCAR Turkey's ownership, adding value to the Turkish and Azerbaijani economies."

SOCAR Turkey has completed the acquisition of Bursagaz, Kayserigaz, Enervis, EWE Energy and Millenicom. Chairman of SOCAR Turkey Vagif Aliyev, CEO Zaur Gahramanov, as well as the CEO of EWE AG Stefan Dohler and CFO of EWE AG Wolfgang Mücher, took part in the signing of the final agreement.

After the signing of the sale contracts in January 2019 and obtaining final approval on the issue recently, the five companies will now operate under the umbrella of SOCAR Turkey together with STAR Refinery, TANAP, Petkim, SOCAR Terminal and Petkim Wind Power Plant.

Vagif Aliyev, Chairman of SOCAR Turkey said Bursagaz and Kayserigaz joining the group complemented SOCAR's natural gas value chain in Turkey. "Since entering the Turkish market, we have taken the dynamics and productivity of the sector where we operate into consideration and have focused on integration in all of our investment projects. For 12 years, we have been supplying natural gas to Turkey. Since 2013, SOCAR Turkey has been involved in natural gas sales here. We are the biggest partner of TANAP, the largest Turkish-Azerbaijani project, which provides natural gas transportation. Now by bringing Bursagaz and Kayserigaz to SOCAR Turkey we are starting to distribute natural gas. I believe the synergy created by this large integration is very important for both the company and the economies of our friendly countries. I would like to say to our new staff: Welcome to the SOCAR family", he added.

The companies acquired together with Bursagaz and Kayserigaz will further strengthen SOCAR Turkey, Aliyev said and added: "We have been distributing natural gas in Azerbaijan and all over Georgia except Tbilisi for a long time. Maintaining customer satisfaction at the highest level, we will expand our natural gas distribution experience to Bursa and Kayseri. Natural gas operations have an important role in our growth today and the future. We want to grow these activities and will continue to seek new opportunities in the future."

Aliyev also mentioned that Millenicom, a telecommunication company, is among the companies purchased and it will help create an important synergy together with the 1850 km SOCAR Fibre, which is constructed along TANAP.

Williams completes formation of US$3.8 billion strategic JV partnership

Williams has announced the completion of the formation of a US$3.8 billion joint venture with Canada Pension Plan Investment Board (CPPIB) that includes Williams' owned and operated Ohio Valley Midstream system (OVM) in the western Marcellus and Williams' owned and operated Utica East Ohio Midstream system (UEO) in the Utica Shale play in eastern Ohio.

The finalisation of this JV agreement in the northeast includes the completion of CPPIB's investment of approximately US$1.33 billion (subject to certain agreed-to, post-closing adjustments) for a 35% ownership stake in this long-term partnership. Williams retains 65% ownership, operates the combined business, and will consolidate the financial results of the JV in Williams' financial statements.

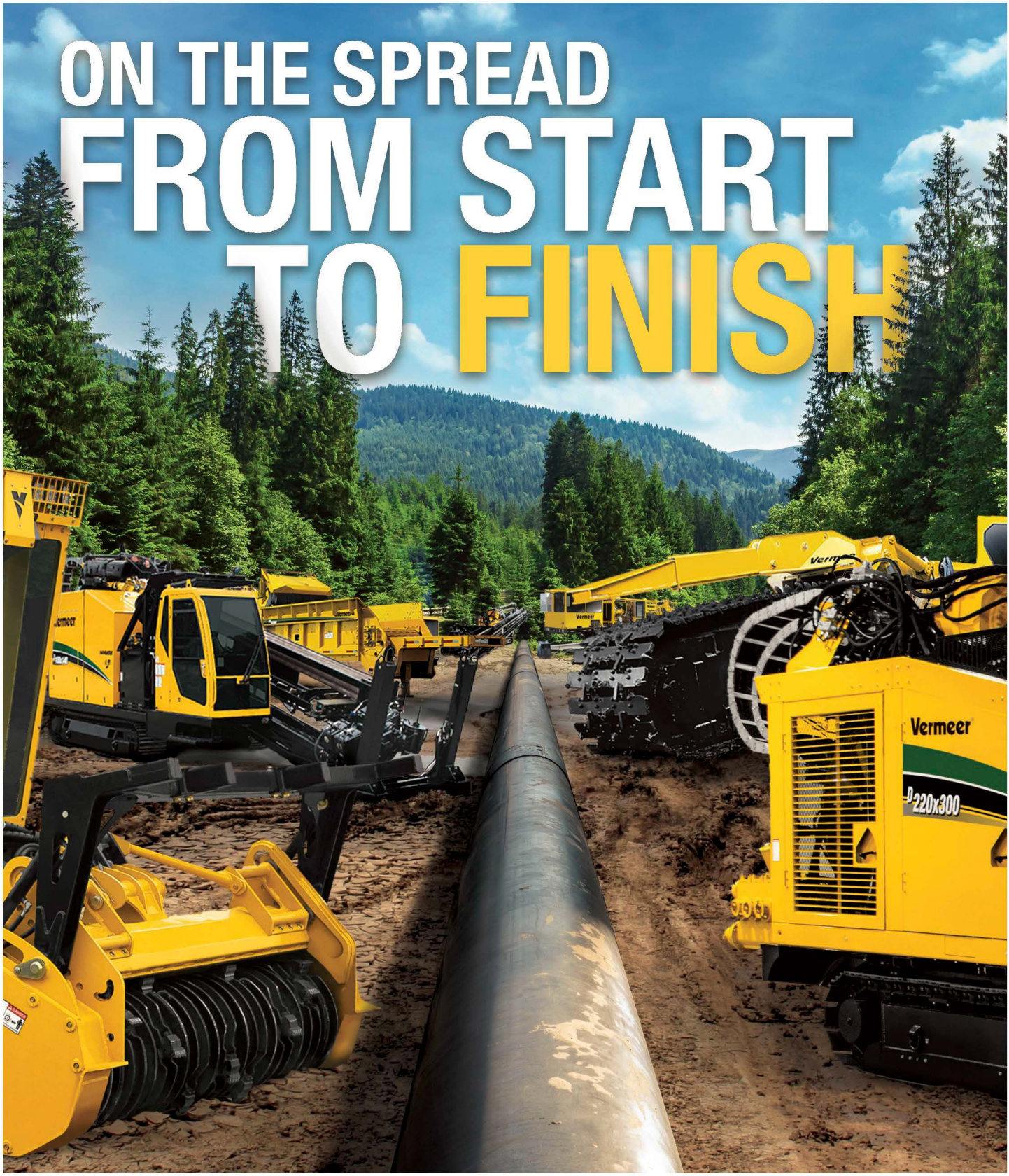
The cash proceeds to Williams from the purchase by CPPIB of its stake in the JV are being used to offset the purchase price of Williams' previously announced and completed acquisition of the remaining 38% ownership interest in UEO from Momentum Midstream, with the balance of proceeds used for debt reduction and to fund Williams' extensive portfolio of attractive growth capital.

Williams expects synergies through common ownership by combining UEO and OVM to create a more efficient platform for capital spending in the region, resulting in reduced operating and maintenance expenses and creating enhanced capabilities and benefits for producers in the area.

"Closing this transaction is another significant milestone in enhancing our position in the northeast and accelerating ongoing strengthening of our balance sheet," said Alan Armstrong, President and Chief Executive Officer of Williams. "We now turn our focus to hitting the ground running with our new partner CPPIB, and look forward to growing our partnership and together, realising the shared benefits of the combining of assets in the basin."

The JV excludes Williams' ownership interests in Flint Gathering, Cardinal Gathering, Marcellus South Gathering, Laurel Mountain Midstream and Blue Racer Midstream.

Morgan Stanley and CIBC Capital Markets acted as financial advisers to Williams for the transaction. Gibson Dunn served as legal counsel to Williams.



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New Orleans, USA
https://events.marcusevans-events.com/energypipelinepipeline-19/

3 - 6 September 2019
Offshore Europe
Aberdeen, UK
https://www.offshore-europe.co.uk/

17 - 19 September 2019
GASTECH 2019
Houston, USA
https://www.gastechevent.com/

30 September - 4 October 2019
IPLOCA Convention
Bangkok, Thailand
http://www.iploca.com

29 October 2019
Catalysts 2019
An online conference from *Hydrocarbon Engineering*
https://hydrocarbonengineering.com/catalysts

5 November 2019
Pipeline Construction Equipment 2019
An online conference from *World Pipelines*
https://www.worldpipelines.com/pce19/

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ADIPEC
Abu Dhabi, UAE
https://www.adipec.com/

11 - 14 November 2019
FABTECH 2019
Chicago, USA
https://www.fabtechexpo.com/

Penspen in partnership to expand asset integrity services in Asia

Penspen, a provider of engineering and project management services to the energy industry, has partnered with asset risk and integrity management and digital solutions services company Ankaa Consulting to help bolster its asset integrity offering in the Asia region.

Currently providing its asset integrity services to a number of clients in the region, the agreement will strengthen Penspen's presence in the area by growing its pool of local resources and gaining valuable knowledge and expertise.

Noel Denton, Regional Director of Penspen, said: "Penspen has operated in Asia for 38 years and grown our team and client base over this time. The agreement will allow us to be even more accessible to our clients in Malaysia and we look forward to developing alongside Ankaa Consulting to create a superior service to all in the Asian market."

Raza Amin, Managing Director of Ankaa Consulting, said: "Ankaa Consulting complements Penspen service offerings and, together, we are able to meet all aspects of our clients' risk and integrity management needs, including delivering a customised AIM digital system, fully integrated with our clients' enterprise system. Our partnership provides Ankaa Consulting with a wider market footprint to serve our customers across Asia and strengthens our joint technical capabilities in Malaysia."

Acteon completes acquisition of TerraSond

TerraSond is a multidisciplinary geospatial and geophysical business with global experience. Working for clients in oil and gas, renewables, engineering and mining, telecoms, marine construction and public sectors, the company plans and executes remote and challenging surveys. These range from inland works to deep ocean seabed exploration and mapping projects.

Tom Newman, President of TerraSond, commented, "We are excited to be joining Acteon; leveraging their resources and global coverage will enable us to deliver even more high-quality work to our clients while providing long-term growth and opportunity for our talented and dedicated employees. TerraSond's focus on both innovative and proven geospatial and geophysical offerings complements Acteon's survey capabilities."

"The addition to the group of TerraSond, with its early-cycle capability, alongside the recently announced acquisition of Benthic, enhances Acteon's existing very strong survey business and the development of a truly comprehensive global offering," said Richard Higham, Acteon's Chief Executive. TerraSond will continue to be led by Tom Newman and his management team.

Report into the global pipe coatings market: (2019 - 2024)

'The Global Pipe Coatings Market: Growth, Trends, and Forecasts (2019 - 2024)' report has been added to ResearchAndMarkets.com's offering.

The pipe coatings market is expected to grow at a CAGR of around 5.35% during the forecast period of 2019 - 2024. The major factors driving the growth of the market studied are the upsurge in shale oil and gas production in North America, growing infrastructure and industrialisation in Asia-Pacific, rise in irrigation and agricultural activities in South East Asia, and rising energy demand in Europe.

On the flipside, plunging oil prices due to oversupply, operational challenges in newly discovered energy reserves, and competition from renewable energy substitutes are the restraints hampering the growth of the studied market.

The oil and gas segment dominated the market in 2018 and is likely to grow during the forecast period, with increasing pipeline infrastructure along with growing oil and gas exploration and production activities. Highlights include:

- The growth in deepwater exploration and production activities and industrial growth in Middle East and Africa are likely to provide opportunities for the studied market during the forecast period.
- Asia-Pacific dominated the market across the globe, where the demand is driven by the growing demand for application in the irrigation sector, construction, oil and gas, and other industries.

Web Highlights



- EIA: monthly US crude oil imports from OPEC fall to 30-year low
- Tundra Energy Marketing Limited announces name change to Kingston Midstream
- Open season launched for Thunder Creek NGL pipeline
- ClockSpring|NRI acquires Milliken Infrastructure Solutions

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Contract News

Snam awards gas pipelines to Corinth Pipeworks

Snam S.p.A., a European gas utility with main operations in Italy, awarded 150 km of gas pipeline to Cenergy Holdings' subsidiary, Corinth Pipeworks, through their frame agreement.

The 26 in. (660 mm) outside diameter gas line pipe will be used for the replacement of the old gas line pipe network in Central Italy. Extremely high manufacture performance criteria, including pipe quality assurance measures, are in place to ensure that the gas pipeline meets the highest safety standards and good engineering practices.

The 27 000 t of pipes will be manufactured in Corinth Pipeworks' factory in Thisvi, Greece. Scope of supply also includes external 3LPE anti-corrosion coating and internal liquid epoxy lining applied at the same location as pipe manufacturing.

Corinth Pipeworks has been a trusted supplier of Snam for over a decade, with more than 800 km of completed and under-execution pipeline projects.

Fugro's ROV support vessel completes first IRM contract

After initial vessel mobilisation and launch in March 2019, Fugro has confirmed that its *Edda Sun* ROV support vessel has successfully completed its first IRM contract for a major energy company in the Danish North Sea ahead of schedule, and has commenced its second structure and pipeline inspection contract for an independent oil and gas E&P operator on its UK North Sea assets. In addition, Fugro has secured a further three IRM contracts in the UK and Ireland.

The *Edda Sun's* first project involved inspections very close to platforms and under challenging environmental conditions. Fugro is pleased with the performance of the vessel and combined with the experience and expertise of the offshore team, delivered the project several days ahead of schedule.

Under charter to Fugro for 2 years, the *Edda Sun* was built in 2009 to the highest Norwegian standards, can accommodate up to 72 personnel and is equipped with a Sikorsky S 92 compatible helideck, a 70 t/11 m heave compensated knuckle boom deck crane and a large 7.2 m^2 moonpool. Featuring 625 m^2 of free deck space for project use, among the largest in its class, the *Edda Sun* has two crane-deployed inspection class ROV systems and one hangar-deployed FCV 3000 work class ROV system permanently installed. The vessel also has integrated ROV control, online inspection, survey and offline processing/review offices and client offices.

Karl Daly, Fugro's European IRM Service Line Director, commented, "We're very encouraged by the operational performance of the *Edda Sun*, underpinned by the strong IRM and vessel crew, efficient onboard equipment, facilities, layout and inspection workflow. This, coupled with our latest FAST ROV, AUV, remote operations and automated processing technologies, will enable us to continuously deliver increased operational efficiencies and customer service, through optimised schedules and faster client reporting, reducing overall project time, cost and risk."

Subsea 7 awarded contract offshore Norway

Subsea 7 S.A. has announced the award of a substantial contract by Equinor for the Johan Sverdrup Phase 2 project, located in the North Sea, 160 km west from Stavanger in Norway.

The EPIC contract comprises project management, engineering, procurement, construction and installation of approximately 100 km of rigid pipelines, including 40 km of pipe-in-pipe flowlines, 27 km of water injection and 37 km of gas injection pipelines. The marine operations scope includes the installation of 23 km of umbilicals, tie-in spools and pre-commissioning.

Project management and engineering will commence immediately at Subsea 7's offices in Stavanger, Norway. Fabrication will take place at Subsea 7's spoolbase at Vigra, Norway and offshore operations will be carried out in 2021 using a number of vessels, including one of Subsea 7's state-of-the-art diving vessels and a reel-lay vessel, specially designed to deliver innovative flowline technologies that address long-distance and more complex tie-back developments.

Monica Bjørkmann, Subsea 7's Vice President Norway, said, "This award continues our long-standing collaborative relationship with Equinor and draws upon Subsea 7's substantial experience in delivering SURF solutions reliably, safely and sustainably. Subsea 7 looks forward to working closely with Equinor to successfully deliver our workscope on Johan Sverdrup, with safety and quality at the forefront throughout."

Petrofac secures contract with Petroleum Development Oman

Petrofac has secured its third project under a 10 year framework agreement with Petroleum Development Oman (PDO), with the award of a procurement services project for the Mabrouk North East Line Pipe Procurement Project in Oman.

The contract, valued at approximately US$75 million, is the latest to be awarded under the agreement signed in 2017 to provide engineering, procurement and construction management (EPCM) support services for PDO's major oil and gas projects.

The 19 month project scope includes management of line pipe material from sourcing, technical and commercial evaluation, planning and control services with management and co-ordination of interfaces with all parties involved.

Elie Lahoud, Group Managing Director, Engineering & Construction - Oman, Iraq and Saudi Arabia said: "We have a strong track record with PDO in Oman and are delighted to have been awarded this latest project under the long-term framework agreement.

"The procurement and management activities for this project will be undertaken from Petrofac's Muscat office, from where we provide first-class expertise in high-value order management. We continue to maximise the provision of local goods and services which evidences our ongoing commitment to delivering in-country value through each of the projects we undertake in the Sultanate."


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A CHANGING



LANDSCAPE



Ng Weng Hoong investigates India's position in the global energy sector and the roles played by politics and international investment.

The oil markets again traded in Narendra Modi's favour as he won a second term as India's Prime Minister in the country's general election in May. Brent crude hovered just above US$71/bbl at the start of the six week campaign period on 11 April 2019. Although crude prices had surged by one-third between the end of 2018 and early April, the rally soon faltered. A run-up to the US$100/bbl level would have triggered panic in India's energy-deficit economy. More importantly, Modi's ruling Bharatiya Janata Party (BJP) government has been able to hold down retail fuel prices by forcing the country's oil companies to absorb most of the increase in rising costs.

Modi came to power five years ago, partly by riding on voters' anger over an energy crisis that had threatened to derail the Indian economy. Crude oil prices stayed above US$100/bbl from 2011 to mid-2014, while a crippling coal supply shortage caused nationwide power blackouts that were blamed on the ruling Congress Party.

Within weeks of the BJP forming the government for the first time, Modi was handed an unexpected political windfall in the form of plunging oil prices. Brent crude fell by more than half from US$110/bbl in May 2014 to US$55/bbl at the end of the same year.

Although Mr Modi had nothing to do with the oil market's collapse, he took credit for the quick and substantial turn of fortune for India's economy – which had spent a record US$155 billion on oil imports in 2013. The following year, it fell to US$125 billion to account for 28% of the country's total import bill. In his first full year in charge in 2015, Mr Modi was able to boast that India spent less than US$74 billion on oil imports, or less than 19% of the country's total expenditure on merchandise imports.

High energy prices had contributed to the economy's dramatic slowdown in the last years of the Congress Party-led government. The previous Prime Minister, Manmohan Singh, watched as US$100/bbl oil pulled India's economic growth down from more than 10.2% in 2010 to an average 6% per year between 2012 and 2014.

As oil prices began falling under the Modi regime, India's economy made a dramatic turnaround to grow by 7.4% in 2014 and 8.1% in 2015, according to the World Bank. Growth has since slowed back to an annual rate of around 7% over the past three years, due to a combination of the creeping recovery in oil prices and global trade tensions among the world's major economies.

Going into this year's election, Modi's fortunes have been helped by Brent crude's inability to sustain a rally back to the US$100/bbl level. Last October, his government watched as crude prices surged to a four-year high of US$86/bbl, with global oil supply once again threatened by US-Russia tensions and geopolitical conflicts in the Middle East, Libya and Venezuela.

Reports that US shale-based oil production had hit record high levels and could rise further, helped to calm the markets. President Donald Trump was also seen to intervene when he pressured Saudi Arabia and OPEC to step up production.

While India's energy problems are far from solved, with electricity brownouts still occurring in many parts of the country, Modi has won some recognition for initiating reforms to allow for more foreign and private participation in the country's oil sector.

Modi's government is inviting Middle Eastern oil producers to jointly invest in India's refining and petrochemical projects, and to store oil in its newly launched underground caverns. Private firms like Shell, BP and Rosneft are interested in expanding into the retail fuels business.

Saudi oil investment within sight, but doubts linger

Perhaps the biggest test of whether India is truly open for business is whether its downstream oil sector will finally secure an investment from Saudi Arabia.

Since the early 1990s, successive governments in New Delhi have been courting the world's largest crude exporting country to take a stake in India's booming oil market that has more than quadrupled in size over the past three decades.

Like persistent salesmen, India's six prime ministers since P.V. Narasimha Rao (1991 - 96) have all regularly badgered the Saudi government to invest in oil refineries, petrochemical plants, storage terminals and pipelines, in what has become Asia's second largest oil market today. They have been making more or less the same argument: Saudi Arabia must own a direct stake in India's fast-growing oil market or risk losing out to competitors like Iran, Iraq, Russia and more recently, the US – which became the world's largest oil producer last year. Like China, hydrocarbon-deficit India is desperate for energy security to underpin the long-term growth of its economy.

However, it seems that the more India tries, the more the astutely-managed Saudi Aramco, the kingdom's state energy firm, has decided to put its money in Asia's other markets. China – Asia's largest oil consumer – remains the overriding focus of Aramco's international expansion efforts. China has also emerged as an important foundation piece in Saudi Arabia's foreign policy under Crown Prince Mohamed bin Salman, who is expected to become the kingdom's next ruler. South Korea, despite being 60% of the size of India's oil market, has secured both Saudi crude supply and investment in recognition of its vital marketing and distribution role in northeast Asia. Aramco's recent decision to jointly invest in Malaysia's US$27 billion RAPID oil and petrochemical complex, due to officially start up later this year, is a sharp reminder of how poorly the company ranks India as a business destination.

Will Modi score?

With his re-election to a second term as Prime Minister, Modi is hoping he will be the leader to make the breakthrough deal with the kingdom. His five predecessors since P.V. Narasimha Rao have racked up a poor track record in courting oil investments from Middle Eastern countries. Despite supplying more than 65% of India's oil requirements, the region's oil producers have not made any significant investment in the country's energy infrastructure.

Saudi Arabia, in particular, has been displeased on several occasions by India's high-profile leaks to the local media to push through 'impending' deals that were, at best, ideas for private bilateral discussions.

In 2005, the Press Trust of India reported that Aramco and a handful of international oil companies were eyeing a stake in Hindustan Petroleum Corp. Ltd's (HPCL) proposed refinery in Bhatinda in Punjab state. This turned out to be false information as Aramco had already ruled the proposal unviable when it walked away from discussion in 1998. HPCL eventually built the 9 million t plant in a joint venture with Mittal Energy, a subsidiary of the Mittal group, in 2012.

In 2006, Aramco pulled out of supposedly secret talks with Indian Oil Corp. to build a 15 million t refinery in Paradip in Odisha state. Without a partner, the Indian firm undertook and commissioned the project on its own in 2016.

In 2007, India tried again, with Petroleum Minister Murli Deora announcing at a New Delhi conference that the government had offered Aramco the opportunity to purchase a stake in three refineries that were being developed, including the ones at Bhatinda and Paradip. He added to the list Bharat Petroleum Corp.'s proposed Bina refinery in the central state of Madhya Pradesh. Deora said he made the offer during a closed-door meeting with his Saudi counterpart, Ali Al-Naimi, in New Delhi. He also announced that Aramco had reciprocated by inviting Indian companies to invest in a refinery in the kingdom. Significantly, Al-Naimi said nothing.

While international oil companies have generally refrained from speaking publicly about their lack of enthusiasm for India, analysts are less constrained. Apart from the usual complaints about bureaucratic inertia and inefficiency, analysts have criticised India's governments of recent decades for their lack of political will to push through reforms to improve the energy sector's performance. Despite the official policy declarations to boost energy security, India has allowed its oil self-sufficiency to plunge considerably over the last three decades. Its domestic crude reserves have stagnated at approximately 4.5 billion bbls due to the country's poor investment climate, while consumption has surged from 974 000 bpd in 1987 to 4.7 million bpd in 2017, according to BP. The country's widening oil trade deficit remains a clear and present threat to the economy.

In 2017, the Center for Strategic and International Studies (CSIS) said the Modi government's plan to boost upstream opportunities for foreign and private capital would only "have a small impact on India's oil and gas supply and demand balance."

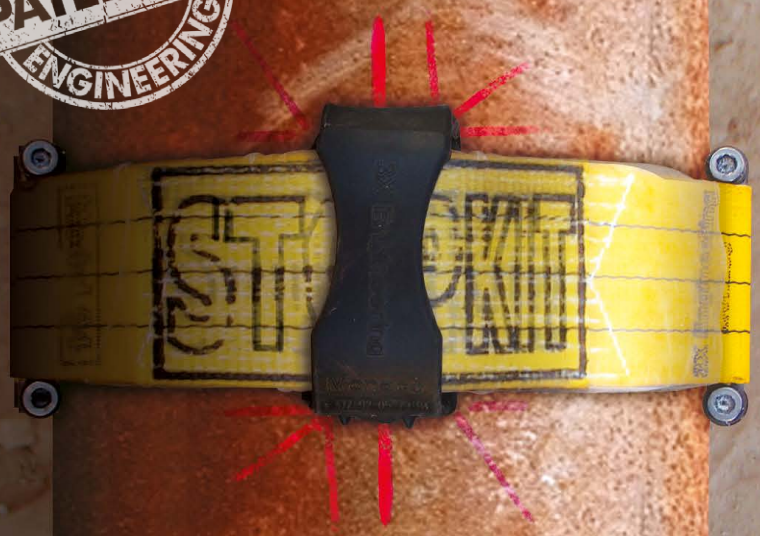
The Washington-based think tank declared the plan to be insufficiently attractive for investors amid the "fierce" global competition for capital and budget cuts by companies in the face of the recent tenuous oil price recovery.

"India's upstream oil and gas E&P policy has been subject to criticism, with protectionism and government red tape being blamed for lacklustre development of oil and gas upstream," CSIS said.

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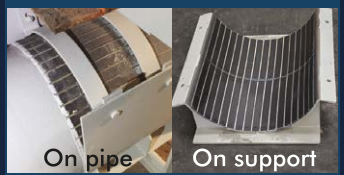
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Saudi Arabia changes tune

These problems notwithstanding, India has recently found favour as an oil investment destination on account of some dramatic shifts in the world's energy markets and geopolitical scene.

In 2016, an international consortium led by Russian oil giant Rosneft made an unexpected offer to acquire the downstream assets of Mumbai-based Essar Energy Holdings. Equally unexpected, New Delhi speedily approved the bid that resulted in the August 2017 completion of a foreign takeover of what India considers to be strategic assets.

The deal price of US$12.9 billion represented India's single largest foreign direct investment and a major step forward in the country's hope for achieving energy security. It also signalled the Modi government's intent to open up the domestic energy market to greater competition at the expense of the country's heavily protected state firms.

For Russia's President, Vladimir Putin, the acquisition was both an economic and strategic success in his country's escalating confrontation with the West. For the bargain price of US$12.9 billion, Rosneft secured a 20 million t oil refinery and port facilities in Vadinar, an oil depot terminal, and a nationwide chain of 2700 retail stations. Vadinar is located in India's northwest Gujarat state, home to the country's oil and petrochemical industry.

Russia's breakthrough deal, motivated largely by Moscow and New Delhi seeking closer bilateral ties, combined with the start of US crude exports to India in September 2017, stunned the oil markets and Saudi Arabia.

Overnight, Riyadh (Saudi Arabia) began parroting New Delhi's sales pitch that Aramco should be invested in India's oil markets. The Saudis realised that they had more to worry about securing market outlets for their oil than the Indians had about locking down energy supply.

Saudi oil minister Khalid al-Falih has revived ideas from the last decade about buying into Indian refineries, oil storage terminals and retail stations, while Aramco's CEO Amin Nasser now wants a stake in a proposed US$44 billion refinery-petrochemical complex in Ratnagiri district in Maharashtra state. Aramco is also eager to conclude the purchase of a 25% stake in privately-held Reliance Industries Limited's oil refining and petrochemicals businesses.

Despite Saudi Arabia's new found urgency to invest in India, the two sides will continue to face the same set of barriers to entry as before. India might even be tempted to raise new barriers if it overestimates its bargaining position and the durability of the current favourable market and geopolitical conditions. It would be ironic that with a Saudi investment finally within grasp, India may yet struggle to close a deal.

International oil companies eye fuels market

Having overtaken China as the world's fastest growing major economy since 2015, India has also become a huge fuel consumer. International oil companies worried about the lack of growth in the West and slowing demand in China, are waking to India's long-term potential. Despite its well-documented problems associated with a bloated government bureaucracy and poor infrastructure, India's economy has grown by more than 7% per year over the past decade.

India's growing middle class has developed an affinity for private vehicle ownership, air travel and general consumption, that have all led to increased energy use. Over the past decade, the country's growing fleet of private vehicles has driven gasoline use to grow by an annual average rate of nearly 9.6% to over 28 million t (645 000 bpd) last year, according to the Ministry of Petroleum and Natural Gas. This figure alone equalled the combined oil products markets of both Vietnam and New Zealand.

The size of India's diesel market of 83.6 million t (more than 1.7 million bpd) for 2018 is even more impressive as it exceeded the UK's 1.6 million bpd use of all oil products. India's use of diesel for industries and transportation grew by an annual average rate of over 4.9% between 2008 and 2018. The country's middle class is utilising air travel more, driving jet fuel demand to increase by an average 6.5% per year over the past decade.

The use of liquefied petroleum gas (LPG), mostly for cooking, has more than doubled, from nearly 12.2 million t in 2008 to nearly 24.8 million t in 2018.

International oil companies expand into retail fuels market

International oil companies have begun cautiously dipping into India's protected retail fuels market. Russia's Rosneft, Anglo-Dutch Shell and UK's BP are the pioneers in trying to establish a foothold in India's 230 million tpy oil market, now the world's third largest after the US and China.

As part of its plan to boost domestic energy security, the Indian government has begun opening up the refining and retail sector to foreign investment. Rosneft made the first move when it led an international consortium comprising Switzerland's Trafigura and Russia's UCP Investment Group to acquire a string of downstream assets from Essar Energy Holdings for US$12.9 billion in 2017.

The partners established Nayara Energy to own and operate the assets, including a 20 million t oil refinery and an oil depot terminal. In February, Rosneft said its subsidiary, Nayara Energy Limited, had grown its retail network by nearly 20% to 5000 fuel filling stations over the past year, with plans for further expansion over the next few years.

"The company's short-term plan includes possible expansion of the fuel filling stations network in India up to 7000 units," said Rosneft, which owns a 49.13% stake in Nayara Energy. Citing the International Energy Agency, the Russian energy giant said India's growing fleet of motor vehicles will consume 132 million tpy of refined products by 2040.

Despite opposition from India's three leading state-owned companies, the Modi government is looking to allow greater foreign participation in the retail fuels business. Indian Oil Corp., Hindustan Petroleum Corp. and Bharat Petroleum Corp. control more than 90% of the market.

According to Indian media reports, Shell, BP and France's Total are planning to establish retail operation in India once the government confirms its plan to further liberalise the downstream oil sector. Last year, Shell's India Chairman Nitin Prasad said the company was looking to open 1200 retail stations across the country over the next ten years. Meanwhile, BP is in talks with India's Reliance Industries Ltd to jointly establish up to 2000 retail stations over the next few years.

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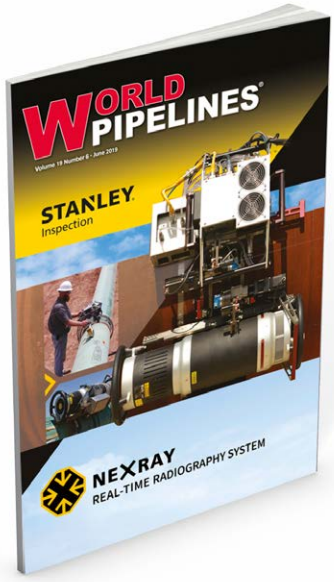

- Internal and external metal loss features as small as 5 mm in diameter
- Straight and sloping laminations
- Legacy repairs and features beneath sleeves and patches
- Metal loss features in girth welds

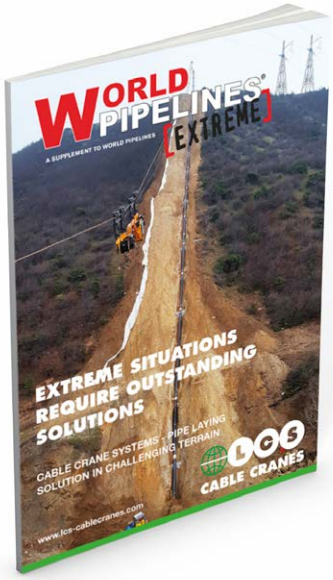
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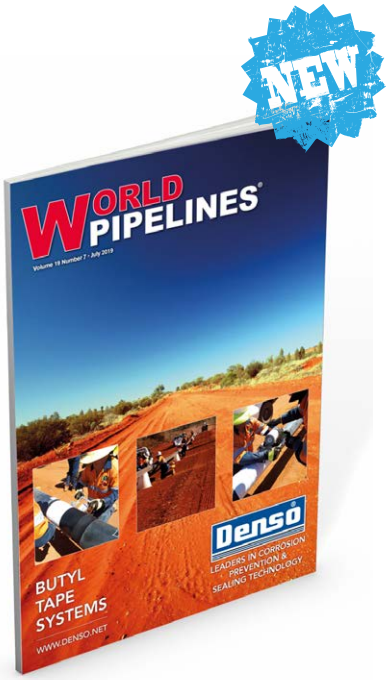
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