Vol. 17 Issue 6 *23 March 2018*

ASIA OIL AND GAS NEWSLETTER

BREAKING NEWS AND ANALYSIS FROM ACROSS ASIA

Asia: 130 new projects by 2025

Some 130 new oil and gas projects will come onstream in Asia between 2018 and 2025, says a new report.

By 2025, these projects will contribute around 518,000 b/d to global oil production and close to 325.8 MMcm/d (11.5 Bcf/d) to global gas production, according to a report by analysts GlobalData.

The majority of new developments (76 projects) are early-stage projects, while 54 of the new projects have progressed to well-defined development plans.

Offshore developments will be responsible for more than 90% of Asia's new gas production in 2025

"Differentiating for the primary resource type, conventional oil and gas projects account for 76 and 44 of new projects, respectively. The region will see five CBM, three heavy oil, and two unconventional gas projects among its upcoming developments," GlobalData said.

India will lead with a total of 62 projects, followed by China with 20 and Indonesia with 19. Malaysia will drive natural gas production, contributing 107.6 MMcm/d (3.8 Bcf/d) to the region's gas production by 2025. China will be responsible for the largest contribution to oil and condensate production with the country's upcoming projects adding 195m b/d between 2018 and 2025.

Some of the operators involved in these new projects in Asia include state-owned China National Offshore Oil Corporation, which will see the highest contribution to its oil and condensate production from upcoming fields with 149.6m b/d by 2025. Upcoming projects in Asia will contribute 96.6m b/d to India's state player Oil and Natural Gas Corporation (ONGC) and 33.1m b/d to US big hitter Chevron by 2025.

In terms of gas, ONGC will see 50.6 MMcm/d (1.786 Bcf/d) come onstream via new projects by 2025.

Offshore developments will be responsible for more than 90% of Asia's new gas production in 2025, shallow water fields will bring 169.3 MMcm/d (5.976 Bcf/d), deepwater and ultra-deepwater will contribute 77.1 MMcm/d (2.723 Bcf/d) and 48.7MMcm/d (1.720 Bcf/d) respectively. New onshore gas projects will add 30.3 MMcm/d (1.068 Bcf/d) to the region's gas production by 2025.

"Similarly to gas, close to 88% of new oil production in 2025 will come from offshore fields. Shallow water fields will contribute 321m b/d, deepwater and ultra-deepwater developments will bring on 94m b/d and 40m b/d respectively by 2025," said the report.

The remaining 12% of Asia's oil and condensate production in 2025, or 64m b/d, will come from onshore fields.

Malaysia's Pegaga field gets $1 Bn boost…

Abu Dhabi-based Mubadala Petroleum, Petronas and Shell will invest more than US $1 Bn to develop the **Pegaga** gas field offshore Sarawak, East Malaysia.

The development plan is to produce gas by Q3 2021, said Mubadala. The project in **Block SK320**, located in the Central Luconia province, will now move to the construction and installation stage, the company said.

Mubadala operates Block SK320 with a 55% stake, while Petronas Carigali holds 25% and Shell has 20%.

The Pegaga gas field would be the first development in Malaysia for Mubadala Petroleum, which is fully owned by Abu Dhabi-based state fund Mubadala Investment Company that holds assets worth more than $125 Bn.

The company plans to build an integrated central processing platform consisting of an eight-legged jacket designed for natural gas throughput of 15.6 MMcm/d (550 MMcf/d) plus condensate, to be located in water depths of around 108m (354ft), Mubadala said.

The output will be sent through a new 38-inch subsea pipeline tying in to an existing offshore network and subsequently to the onshore Malaysia LNG plant in Bintulu, the company said.

…as Sapura scoops platform work

Mubadala Petroleum has handed Sapura Energy an Engineering, Procurement, Construction, Installation and Commissioning (EPCIC) contract to deliver an integrated central processing platform for the **Pegaga** gas field development offshore Malaysia.

"This is our sixth contract win since the beginning of the year. It's a good start for us," said Shahril Shamsuddin, president and CEO of Sapura Energy.

Please note:
the next edition of
ASIA OIL AND GAS NEWSLETTER
will be published on
12 April 2018

INSIDE THIS WEEK

ENGINEERING & CONSTRUCTION

McDermott plans $5 Bn Asia bidding

US-based McDermott International is gearing up to bid for US $5 Bn worth of contracts in Asia Pacific in the next few months as the region's offshore oil and gas sector continues to recover, according to company officials.

The value of contracts coming up for bidding has risen from $4 Bn six months ago, the McDermott executives said.

"We have seen a 15% to 20% increase in the number of projects that we can bid in the region," Mahesh Swaminathan, senior commercial director of McDermott Asia Pacific, told reporters at the OTC Asia Conference.

"This is why we say that there are already some green shoots and we hope that they continue to grow," he said in reference to recovery in the offshore exploration and development sector.

Global oil prices that have held steadily higher than $60/bbl and sharp cost cuts in the upstream sector are encouraging companies to pump money into exploration and production, although many producers remain wary that the US shale oil and gas boom could keep prices lower for longer, Reuters reported.

McDermott plans to place 20 bids for projects in Malaysia, India, Australia, Vietnam, Indonesia and Myanmar, the executives said, without specifying which projects.

● McDermott also hopes to close a deal to merge with Chicago Bridge & Iron Co (CB&I) in May, said Ian Prescott, vice president of Asia McDermott.

The merger will add to the two companies' capabilities and resources in the region, he added.

These include CB&I's engineering office in New Delhi that employs 600-800 people, its business in Australia, fabrication of storage tanks for liquefied natural gas, oil and natural gas, and its refining and petrochemical technology, Prescott said.

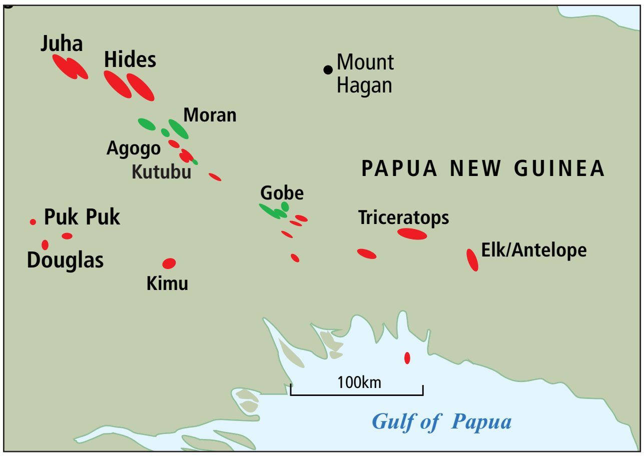
OPERATIONS

PNG Gobe plant progress

Australia's Oil Search said that it expects its **Gobe** processing plant and oil export pipeline in Papua New Guinea (PNG) to be operational this week after an earthquake hit the country in February.

Oil Search said the Gobe facility and its export pipeline were largely undamaged in the magnitude 7.5 quake that struck on 26 February, Reuters reported.

The company said its condensate handling facilities, part of the giant **PNG LNG** project, were also ready to receive PNG LNG condensate once production at the **Hides** gas conditioning plant comes back onstream.



The Hides plant was shut down after the earthquake by operator ExxonMobil, which said earlier this month the PNG LNG project would be shut for around eight weeks for inspections and repairs.

Oil Search said it expects its central processing facility at the **Kutubu** oil and gas field to be "progressively restored from late March", while its **Moran** oil and gas field would take longer.

"The Agogo processing facility and the **Moran 4**, **6**, **9** well pad, which are in the area most impacted by the earthquake, will require some repairs before production from the Moran field can recommence," Oil Search said, without giving a repair timeline.

At least 100 people were killed when the earthquake hit the PNG highlands three weeks ago, triggering landslides that buried villages and destroyed infrastructure.

This week, ExxonMobil bought an LNG cargo to keep its PNG plant cold after the earthquake caused production to halt last month.

The 'cool-down cargo' could be a first step toward restarting LNG production at the facility ahead of schedule or it may simply be needed to maintain operational readiness, traders told Reuters.

WORLD NEWS

CNPC lands Abu Dhabi block

State-owned China National Petroleum Corporation (CNPC) has been handed equity in two concessions offshore Abu Dhabi by state-owned Abu Dhabi National Oil Company (ADNOC).

CNPC, via its listed subsidiary PetroChina, has been given a 10% stake in the Umm Shaif and Nasr concession and a 10% interest in the Lower Zakum concession.

PetroChina paid US $571.85m to enter the Umm Shaif and Nasr concession and $599m to enter the Lower Zakum concession. Both concessions will be operated by ADNOC Offshore.

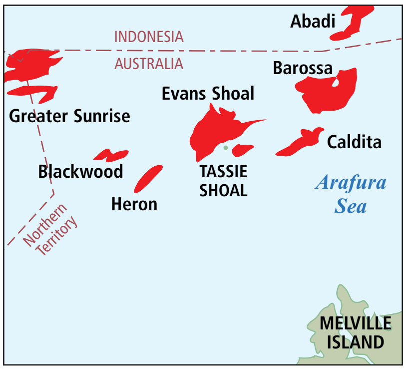
His Excellency Dr Sultan Ahmed Al Jaber said the expanded collaboration with CNPC further strengthens and deepens the strategic and economic relationship between the United Arab Emirates and China.

"Energy cooperation is an increasingly important aspect of the UAE's relations with China, the number one oil importer globally and a major growth market for our products and petrochemicals. These agreements are new milestones in ADNOC's thriving partnership with CNPC and also represent an important platform upon which we can explore opportunities further downstream," said ADNOC.

Barossa-Caldita progress boost

Australia's offshore petroleum regulator has accepted development planning for the **Barossa-Caldita** Offshore Project Proposal (OPP), "marking a major step in the development approval process," said operator Santos.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has assessed the environmental impacts and risks of petroleum activities over the 25-year life of the Barossa project and accepted the joint venture's project proposal.



"This approval paves the way for the submission of activity-specific Environment Plans. This is the first time NOPSEMA has accepted an OPP, a process which began with submission of the proposal in 2016 and included an eight week public consultation period," Santos added.

"This approvals milestone confirms Barossa as the leading candidate to supply backfill gas to Darwin LNG and the only gas supply source on track to deliver gas when **Bayu Undan** production ends in the early 2020s."

Santos managing director and CEO, Kevin Gallagher, said: "Acceptance of the OPP gives us a level of regulatory comfort and the certainty we need to enter the Front End Engineering and Design phase in the very near future."

"This is one of the major regulatory steps leading to offshore project development and petroleum production, and it reinforces Barossa's position as the only gas supply source capable of meeting Darwin LNG's timetable," added Gallagher.

The Barossa gas field lies 300km north of Darwin and is located in Santos' Northern Australia portfolio, which is one of the company's core gas assets.

"Santos remains committed to working with its joint venture partners in Northern Australia to commercialise the company's significant discovered resource base in the region through a range of ullage opportunities and/or expansion of existing projects," Santos noted.

Santos holds a 25% stake in the Barossa-Caldita joint venture, while operator ConocoPhillips has 37.5% and SK E&S has 37.5%.

Inpex gets $566m Kashagan funds

Japan Oil, Gas and Metals National Corporation (Jogmec) will offer financing to compatriot Inpex for the **Kashagan** oil field development in the Kazakhstan sector of the Caspian Sea.

Jogmec said that the equity financing is around US $566.7m (60 Bn yen). The financing will go through Inpex's subsidiary, Inpex North Caspian Sea (INCS). Inpex has a 51% stake in INCS and Jogmec holds the remaining 49%.

The Kashagan field holds 9-13 Bn bbl of recoverable oil and has seen stable production since October 2016.

The Kashagan project is operated by North Caspian Operating Company (NCOC) on behalf of a consortium including Inpex, KazMunayGas, Eni, ExxonMobil, Shell, Total and PetroChina.

The **Phase I** development is still ongoing to raise oil production to a capacity of 370,000 b/d at soon as possible. Beyond this stage, NCOC plans future phases to gradually and significantly increase output.

FSU: $123 Bn capex planned

Around US $123 Bn in capital expenditure (capex) is forecast to be spent on Former Soviet Union (FSU) oil projects over the next four years, according to analysts GlobalData.

This capex will ensure that production grows to around 14.2m b/d in 2021. The FSU region will have 1,883 fields producing liquid hydrocarbons by 2021, of which 1,639 and 65 are conventional and heavy oil fields, while 179 are gas fields producing condensate.

"FSU is expected to spend $114.3 Bn as capex on conventional oil and $8.7 Bn on heavy oil projects during 2018 to 2021, with spending topping in 2018 at $31.9 Bn," Global Data said.

Average full cycle capex per barrel of oil equivalent for FSU's oil projects is $6.8/boe. Onshore projects have an average full cycle capex of $6.1/boe, while shallow water projects have an average of $12.5/boe in full cycle capex.

Average development break-even price for oil projects in FSU is about $30.93/bbl. Shallow water projects require an oil price of $50/bbl to break even, while the onshore projects have a development break-even price of $26.4/bbl.

Sarawak B15 onstream

Sapura Exploration and Production has kicked off gas production from the **B15** field in the **SK310** Production Sharing Contract (PSC) offshore Sarawak, East Malaysia.

The B15 gas field was discovered in December 2015 and first gas was achieved within two years of the field development plan being approved. Output figures for the field were not revealed.

The B15 development comprises a processing platform with a 21-mile pipeline tied into existing infrastructure for onward transmission into the Malaysia Liquefied Natural Gas (MLNG) complex at Bintulu, Sarawak.

"This milestone achievement at B15 was achieved on schedule and within budget," Tan Sri Dato' Seri Shahril Shamsuddin, president and group CEO of Sapura Energy Berhad, which owns Sapura E&P, said.

"Sapura E&P has made significant gas discoveries over the past two years. The development plans for these discoveries are progressing well and should come onstream over the next two to five years. Once fully developed we expect Sapura E&P to be a significant supplier of natural gas into the Bintulu MLNG complex," he added.

Sapura E&P is the operator of the SK310 PSC with a 30% stake, while Petronas Carigali holds 40% and Diamond Energy Sarawak, a subsidiary of Mitsubishi, has 30%.

FIELD DEVELOPMENT

China Weizhou 6-13 flows

State-owned CNOOC Limited has started oil production from the **Weizhou 6-13** oil field offshore China ahead of schedule.

The field is expected to reach peak production of around 9,400 b/d of crude oil in 2019, according to CNOOC.

Weizhou 6-13 is located in the Beibu Gulf in the South China Sea and has an average water depth of 35m (115ft). In addition to using the existing facilities of the **Weizhou 12-1** oil field, the project includes a purpose-built wellhead platform.

"The Weizhou 6-13 oil field not only commenced production ahead of schedule, but also exceeded its Overall Development Programme's estimates in both reserves and production. This is attributable to the company's efforts in strengthening of its innovation and technology-driven philosophy," said CNOOC's CEO Yuan Guangyu.

CNOOC holds a 100% operating stake in Weizhou 6-13.

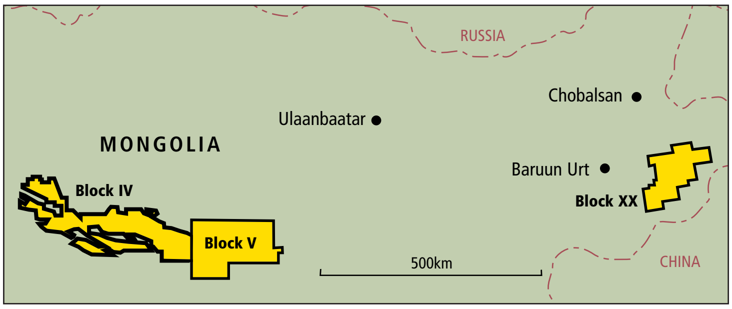
EXPLORATION

Four wells planned in Mongolia

Petro Matad plans to drill four exploration wells in Mongolia this year, with the company describing the area as one of the last onshore frontiers for oil exploration.

Mongolia, which lies between Russia and China, also hopes to cut its dependency on Russian imports of refined products.

The country is challenging because of its extreme weather and a legal system and young democracy that have caused problems for international investors, including tax wrangles and contractual disputes, Reuters reported.



Petro Matad's CEO Mike Buck said Mongolia was offering favourable terms for oil exploration and had untapped potential because, during the era of Soviet control over Mongolia, Russia had plenty of oil of its own, while China explored its reserves just over the border.

"There is no difference between the geology (compared with neighbouring prolific oil basins in China), but the exploration history is different," Buck said. "Everybody knows the geology is the same but no-one has been able to prove it by producing at a commercial rate."

Although oil demand growth is expected to slow as the world shifts towards electric transport, Buck said Mongolia would need crude for a refinery it plans to build, with help from India.

A senior official from state-owned Engineers India Ltd said a draft feasibility study is ready but declined to give more details.

The refinery is expected to have a capacity of 30,000 b/d, while Mongolia's oil output is around 21,000 b/d and dropping, Buck said, citing official Mongolian figures.

Petro Matad has three exploration blocks covering a total area of 60,000sq km – one in the east near Mongolia's producing fields and two in central western Mongolia.

The drilling of four wells over the three blocks will start by the end of Q2 and be completed before the drilling season ends in November.

The block in the east could come onstream within 18 months of any discovery because it is near existing facilities operated by PetroChina, Buck noted.

By the end of 2018, Petro Matad's exploration spending will have reached $100m since it started operating in Mongolia in 2006, including cash spent on seismic surveys and previous drilling. It has been raised through its stock market listing and $16m late last year came from UK-based institutional investors and US funding.

Mongolia depends on Russia for nearly all its oil products, which account for nearly 20% of its import bill, central bank statistics show.

News in Brief

EGS wins GoT contract

EGS Group has won a three-year deal to undertake geophysical survey services to support Chevron's projects in the Gulf of Thailand (GoT).

In the GoT, the US major operates several blocks in the Pattani Basin, with ownership stakes ranging from 35% to 80%. During 2016, Chevron drilled two exploration and two delineation wells – all four were successful – in operated areas in the basin.

In the Malay Basin, Chevron has a 16% non-operated interest in the Arthit field, as well as a 35% operated stake in the Ubon project. The Ubon development concept includes facilities and wells in Block 12/27.

All the natural gas and condensate that Chevron produces for Thailand is sold to state-owned PTT Public Company Limited.

Legal

Songa 'wins' rig dispute with DSME

Songa Offshore has won what it says is the "final win" in its rig construction dispute with South Korea's Daewoo Shipbuilding & Marine Engineering (DSME).

In 2015 DSME, which built four Cat D semi-submersible drilling rigs for Songa Offshore, launched arbitration proceedings in respect of the construction contracts for the two first Cat D rigs, *Songa Equinox* and *Songa Endurance*.

The claims were related to alleged cost overruns and additional work on the rigs due to what DSME alleged were inherent errors and omissions in the design documents.

DSME sought damages of US $373m, including repayment on liquidated damages of $44m.

However in July 2017, an arbitration tribunal ruled in favour of Songa Offshore and against the South Korean company.

DSME then sought to appeal the tribunal's ruling at the English High Court.

In a statement this week, Songa said the English High Court gave judgment striking out DSME's application for permission to appeal the arbitration awards. DSME was also refused permission to appeal the Court's Judgment and Songa Offshore was awarded its costs in relation to the appeal.

On the basis of the English Court's Judgment, the arbitration awards previously made in Songa Offshore's favour in relation to DSME's claims are now final and unappealable, and Songa Offshore is not to pay anything to DSME.

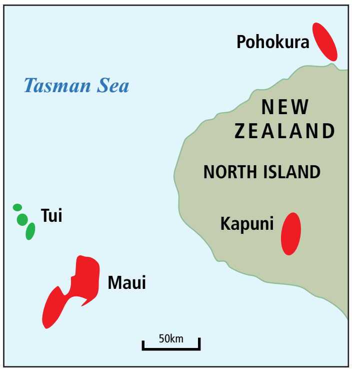
"Songa Offshore is evaluating the pursuit of its counterclaims," the driller said.

LICENSING

Shell's $578m New Zealand sale

Shell has sealed a Sales and Purchase Agreement (SPA) to sell its shares in Shell entities in New Zealand to Austria's OMV for US $578m.

"The agreement includes the **Maui**, **Pohokura** and **Tank Farms** assets. Shell has also entered into an agreement with OMV to sell its interest in (and operatorship of) the Great South Basin venture, which includes a drilling commitment currently estimated to be $50m," Shell said.



The SPA is subject to certain conditions, which include normal regulatory approvals and is likely to be complete by Q4 2018.

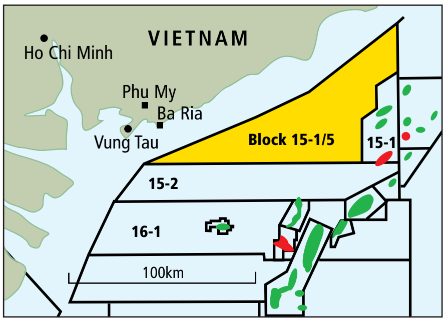
"This follows a two-year strategic review of Shell's interests in New Zealand and the sale of Shell's interest in **Kapuni** in 2017. It is consistent with the Shell's strategy of divesting $30 Bn of assets by end 2018, and is in line with Shell's drive to simplify the upstream portfolio and re-shape the company into a world class investment, Shell said in a statement.

As part of the deal, the employees of Shell Taranaki Limited and Shell New Zealand will become part of OMV New Zealand, upon completion of the deal.

"This is another step towards reshaping and simplifying our company, deepening Shell's financial resilience and competitiveness, in order to become a world-class investment," said Maarten Wetselaar, Integrated Gas & New Energies director at Shell. "We are proud of having worked in New Zealand for more than 100 years."

"I want to emphasise that the business will continue to be run as it is now, until the deal is complete" says Rob Jager, country chair of Shell in New Zealand. "We have two high priorities over this transition period: to continue to run our assets in a safe and reliable manner and care for our people."

Murphy to buy Vietnam block equity



Vietnam's state player PetroVietnam Exploration Production (PVEP) has signed an agreement to sell a 5% stake in **Block 15-1/05** offshore Vietnam to US operator Murphy Oil.

Under the agreement, PVEP will jointly develop the 15-1/05 Production Sharing Contract in the Cuu Long Basin offshore southern Vietnam with Murphy Oil and South Korea's SK Innovation, PVEP said, although the company declined to reveal the value of the deal.

PVEP said it was confident that this agreement would lead to cooperation with Murphy Oil that could help it "develop small-sized oil fields in a more efficient manner amid low oil prices."

PRODUCTION

PTTEP eyes Asia for output boost

Thailand's state-owned PTT Exploration and Production (PTTEP) is looking closer to home for upstream oil and gas assets in as a push to increase its reserves and production, says a senior company executive.

Global oil prices have lately held above US $60/bbl and sharp cost-cutting in the upstream sector is encouraging national oil companies and international operators to invest in exploration and production, although many producers remain wary that surging US oil output could hold crude prices back, Reuters reported.

Since the oil price collapse in 2014, which saw prices dip below $30/bbl in early 2016, PTTEP has cut costs and increased efficiency, bringing its average cost of oil and gas output to $29/bbl last year, down from $43/bbl.

"Now we're coming back more to the region. We're good friends with [Malaysia's] Petronas, but we didn't really do things together. Now we have more collaboration and we have a project to work together," Phongsthorn Thavisin, PTTEP's president of E&P, said on the sidelines of the OTC Asia conference.

PTTEP, which has $4.5 Bn cash in hand, also plans to invest in a gas-to-power project in Myanmar by 2022-2023, tapping into gas from **Blocks M3** and **M9** to meet its neighbour's energy demand, Phongsthorn said.

"We're looking to extend ourselves a little," he commented.

Still, ratings agency Fitch expects PTTEP's reserve profile to remain weak for the next two years as the majority of its assets are located in Thailand, where oil and gas reservoirs are scattered and relatively small.

PTTEP has already invested in 10% of Train 9 of Malaysia LNG and is exploring **Block SK410B** offshore Sarawak with Petronas, Phongsthorn said. The company is also in the second round of bidding for a stake in another concession offshore Sarawak, **Block SK316**, seeking a 10% to 20% share, he said.

Last year, state-owned Petronas started a process to sell a stake of up to 49%, worth an estimated $1 Bn, in Block SK316 offshore Sarawak. Total and some Japanese firms are among others keen to bid for the asset, sources have said.

PTTEP also plans to bid for Thailand's **Erawan** and **Bongkot** gas concession licences in an auction scheduled for April, another chance to raise its output and reserves.

The government will announce the licence winners in December, which will give the companies time to invest to sustain a combined gas output of 42.5 MMcm/d (1.5 Bcf/d) from the fields before the concessions expire in 2022, Phongsthorn added.

SERVICES

Subsea 7 seals Azeri work

Subsea 7 has been awarded a "substantial contract" by BP Exploration to provide subsea inspection, repair and maintenance services on both the **Azeri-Chirag-Gunashli** and **Shah Deniz** fields in the Azerbaijan sector of the Caspian Sea.

The work scope for the five-year deal includes the provision of a Life of Field support vessel complete with work class and observation class ROVs, capable of performing inspection, survey, intervention, light subsea construction, surface diving and emergency response services. The Life of field support vessel will be supported by a Baku-based onshore project management and engineering team.

Services will start this month with a project team located in Baku and additional specialist support being provided from i-Tech Services' operations centre in Aberdeen.

Subsea 7 defines a substantial contract as being between US $150m and $300m.

Calendar 2018

APRIL

18
StocExpo Middle East Africa
Dubai, UAE
Contact: info@stocexpo.com
www.stocexpo.com

20 3rd Annual Capital Link International Shipping Forum – China
Shanghai, China
Contact: forum@capitallink.com
Tel: 212-661-7566
http://forums.capitallink.com/shipping/2018china/overview.html

24 Capital Link Singapore Maritime Forum Singapore
Contact: forum@capitallink.com
Tel: 212-661-7566
http://forums.capitallink.com/shipping/2018singapore/

JUNE

25-29
27th World Gas Conference (WGC 2018)
Washington DC, USA
Contact: info@wgc2018.com
Tel: +44 20 7978 0019
https://wgc2018.com

SEPTEMBER

26-27
Tank Storage Asia 2018
Singapore
Contact: info@stocexpo.com
www.stocexpo.com

NOVEMBER

27-29 OSEA 2018
held alongside:
OGmTech & SUBSEA Asia
Singapore
www.osea-asia.com

DECEMBER

5-6
Tank Storage Germany 2018
Hamburg, Germany
Contact: info@stocexpo.com
www.stocexpo.com

2019

APRIL

1-5 19th International Conference & Exhibition on Liquefied Natural Gas
Shanghai, China
Contact: info@lng2019
Tel: +44 20 7978 0775
http://www.lng2019.com

TRENDS

$16.3 Bn China gas spend

More than US $16.3 Bn in capital expenditure (capex) will be invested by China-focused operators on gas projects over the next four years, to make sure that the country's production will be sustained around 473.1 MMcm/d (16.7 Bcf/d) in 2021, according to a report by analysts GlobalData.

"State-owned China National Petroleum Corporation will drive China's gas production with a 63.5% share of all production in 2021. China Petrochemical Corp and China National Offshore Oil Corporation (CNOOC) follow with 24.8% and 5.5%, respectively," said the report.

China has some key upcoming gas projects that all will be producing by 2021. CNOOC will lead in green field gas projects, with participation in three upcoming projects in the near future. The rest of the participants have one upcoming project each.

"China is expected to spend $16.3 Bn as capex on conventional gas projects during 2018 to 2021, with spending topping $7.0 Bn in 2018. Average full cycle capex per barrel of oil equivalent (boe) for China gas projects is $10.8/boe. Conventional gas projects have full-cycle capex of $10.4/boe, while unconventional gas projects and CBM projects need $13.6/boe and $9.1/boe in full cycle capex respectively," noted the report.

Shallow water projects have an average full cycle capex of $11.8/boe, followed by onshore and deepwater projects with an average full cycle capex of $10.9/boe and $8.5/boe, respectively. New gas projects average $9.1/boe in capex.

Average development break-even price for gas projects in China is around $7/Mcf. Shallow water projects require a gas price of $8/Mcf to break even, while onshore and deepwater projects have a development break-even price of $7/Mcf and $6/Mcf, respectively.

Vietnam stops drilling after Beijing pressure

Vietnam has stopped a drilling project on the **Ca Rong Do** field off its southeastern coast, which is licensed to Spain's Repsol, following pressure from China, according to reports.

It would be the second time in less than a year that Vietnam has had to suspend a major oil development in the South China Sea under pressure from China.

A source with direct knowledge of the situation said government ministries in Vietnam had paused the project, while the decision-making politburo debates whether to suspend or indefinitely terminate the contract, Reuters reported.

The decision, which hangs on whether the fees incurred by contract cancellation will exceed the cost of resisting Chinese pressure, is on hold until the politburo meets, the source said.

That meeting has been delayed by overseas trips by Vietnam's Prime Minister Nguyen Xuan Phuc, a series of visits by foreign dignitaries to Hanoi, and the death of former Prime Minister Phan Van Khai on last weekend.

"The ministries are determined to terminate the contract," said the source, who asked not to be identified because of the sensitivity of the situation.

A source with direct knowledge of the situation confirmed that the project, which is a joint venture with state oil company PetroVietnam, had been stopped following pressure from China.

A source at Repsol told Reuters high-level executives had been discussing how to respond to the pressure, which had been applied both directly by China, and indirectly via Vietnam.

A spokesman for Repsol in Madrid declined to comment. PetroVietnam executives also declined to comment and the Vietnamese foreign ministry did not immediately respond for comment.

TRENDS

Asian players look to revive projects

Asian producers are starting to revive development projects in a bid to combat years of rising energy imports after investment dried up following the 2014 industry crisis.

Spending has so far been driven mainly by state oil companies such as India's ONGC, Thailand's PTTEP and PetroVietnam, which need to produce more oil and gas to ensure their countries' energy security, executives said at the OTC Asia conference in Kuala Lumpur this week, Reuters reported.

Asia is by far the largest, fastest-growing consumer of oil, yet its output is falling faster than in any other region. That mismatch more than doubled Asia's oil import bill to around US $500 Bn in 2017, compared with 2000 levels.

With oil prices now higher than $60/bbl and at times flirting with $70/bbl (Brent $69.58/bbl and WTI $64.96/bbl this morning), oilfield service providers say there is renewed appetite for producers to spend and importers to cut import bills by investing in production.

"Asia is a net importer of energy. I think there's a strong desire from South East Asian organisations to change that trend. We'll see a lot more potential developments here to try to balance that equation," said Ian Prescott, vice president of Asia at US engineering company McDermott.

A total of 50 oil and gas fields in South East Asia, with a collective 4 Bn boe in resources, will likely be approved for development between 2018 and 2020, according to consultants Rystad Energy. This will require $28 Bn of capital expenditure from Final Investment Decision (FID) to first production.

In one sign of revival, Abu Dhabi-owned Mubadala Petroleum, Malaysia's state-owned Petronas and Anglo-Dutch Shell agreed to spend $1 Bn on the shallow water Pegaga gas project offshore Malaysia this week (*see story, pg 1*).

In India, changes to gas pricing policies revived activities in its eastern deepwater fields, led by ONGC and a joint venture between Reliance Industries and BP.

"India has waited too long to enter deepwater. Deepwater development makes more sense for the country [India] than importing LNG at $8 per million British thermal units," Ashish Bhandari, a vice president at GE-owned oil service company Baker Hughes, said at OTC Asia.

PetroVietnam is developing a large gas field called **Block B**, while PTTEP is looking for more gas supplies in the region to meet demand in Thailand and Myanmar.

Despite the upsurge in activity, exploration for new reserves remains lower in Asia than elsewhere, especially onshore North America and in the Atlantic Basin.

Kevin Robinson, vice president of Malaysia's Sapura Energy, said the main factors deterring investment in Asia were tough fiscal regimes, cumbersome bureaucracies, and maturing fields with limited future reserves.

"It's a reality check for governments in Asia to look at how much investment they are getting, and how they need to improve their fiscal terms to attract more investment," Robinson said.

ONGC's director of offshore, Rajesh Kakkar, said: "The easy oil is gone ...what is left is deepwater, high pressure, and high temperature," making extraction more costly.

But given competition from cheap producers in the Middle East and rising output from shale drillers in the USA, Petronas' CEO Wan Zulkiflee Wan Ariffin said there was pressure to keep costs low.

"While oil prices are showing signs of recovery, the sustainability of these prices remains to be seen... If we don't keep these escalating costs in check, the industry runs the risk of negating the value we have gained from intensive cost efficiency efforts over the last three years."

LNG

CHC transfers 15,000 Prelude passengers

CHC Helicopter has transferred around 15,000 passengers to and from the Shell Prelude Floating LNG (FLNG) since it arrived offshore Australia.

CHC said that the transfers were made with the four S-92s helicopters racking up 2,782 flight hours and 171,080 nautical miles with no injuries or incidents.

Prelude is located 475km north-northeast of Broome and is in the process of being commissioned

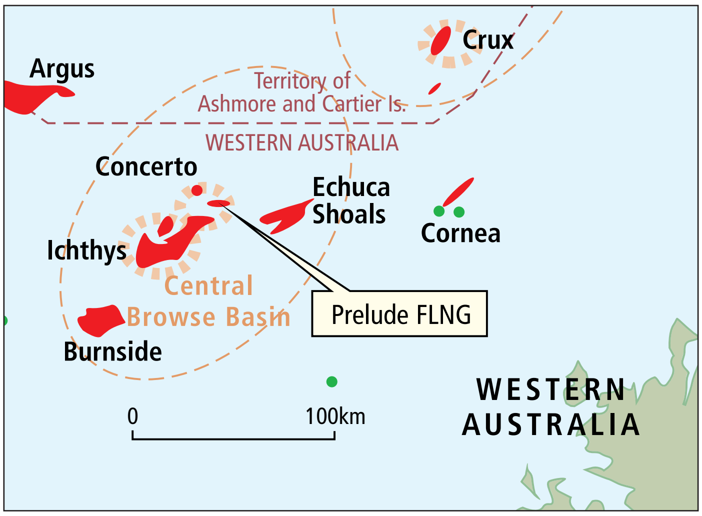
Approximately 800 people are working and living on Prelude and the adjacent accommodation support vessel during this commissioning phase of the project.

"In the midst of all of this activity, the team in Broome have had to contend with two cyclones and tropical lows which have dumped 1.5m (5ft) of rain on the coastal town and airport, where CHC has its base, in the last three months alone. That equates to more than two years' worth of rainfall," CHC said.

The 488 metre long and 74 metre wide FLNG facility is located in the Browse Basin, approximately 475km north-northeast of Broome in Western Australia. The unit has been secured with 16 mooring chains since August 2017. The Prelude FLNG facility will be on site for 20 to 25 years.

The largest floating facility ever built will unlock new energy resources offshore and produce approximately 3.6 million tonnes of liquefied natural gas per year. It will remain onsite during all weather events, having been designed to withstand a category 5 cyclone. Production from the Prelude field is expected to start later this year.

The Prelude FLNG project is operated by Shell in joint venture with Inpex (17.5%), KOGAS (10%) and OPIC (5%).



MInteg opens Australia base

Aberdeen-headquartered maintenance, inspection and integrity player MInteg has opened its first international base as it targets growth in new markets.

The facility in Perth, Western Australia, will be the launch pad for entry in to LNG, upstream oil, gas and industrial sectors in the Australasia region, said MInteg.

MInteg will initially offer integrity management, Non-Destructive Testing (NDT) and mechanical rope access services and, capitalising on parent company EnerMech's extensive presence in Australia, will look to add facilities in Gladstone, Darwin and Melbourne.

Patrick Gallagher, MInteg director, said years of experience and immersion in North Sea projects would be attractive to Australian clients and he is confident the company's integrated approach of providing working at height expertise with traditional technical skills will prove successful.

"We believe there are opportunities for MInteg services in LNG and upstream gas on the east coast, in Victoria. Queensland, the Northern Territory and South Australia and in oil and gas across Western Australia," Gallagher said.

"Australia has gone through a massive construction phase over the last 10 years and has now transited in to the operating phase which will require additional integrity management and inspection expertise. We identified that the market is ready for a new entrant and we will leverage the relationships established by EnerMech to showcase our capabilities.

"A combined service offering which pulls in EnerMech's core services and complements our strengths in NDT and rope access will offer something new to the oil, gas, LNG and industrial sectors, and we are looking forward to extending our footprint in Australia, which will be a precursor to further international growth," Munro added.

To lead the expansion MInteg has appointed oil and gas integrity and inspection veteran Michael Munro as operations director in Australia, with Pete Speight joining as operations manager.

PGNiG's Pakistan upstream pact

Poland's PGNiG has sealed a deal with Pakistan's Mari Petroleum Company to cooperate on upstream projects, according to PGNiG.

"This is another step in the development of PGNiG's operations in Pakistan, where we want to extract more and more natural gas," PGNiG's chief executive Piotr Wozniak said.

State-owned PGNiG imports most of the gas it sells from Russia's Gazprom. It has taken steps to reduce that reliance, which include more imports of LNG from Qatar, Norway and the USA.

It also wants to produce more of its own gas. PGNiG's production was 4.5 Bcm (158.9 Bcf) last year.

PGNiG has been present in Pakistan for 20 years. Apart from providing drilling services it also produces gas from two domestic fields.

"We already cooperate with Pakistan Petroleum Limited. Establishing a partnership with another Pakistani company strengthens our presence in this country," Wozniak added.

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Subscriptions:
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Annual subscription price:
£625

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