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Getting tough

After first threatening gas exporters with curbs, the Australian government is now taking a tougher approach in dealing with local authorities that have embraced fracking bans.

Investment push

While Algerian Prime Minister Ahmed Ouyahia wants to see greater investment in shale oil and gas, the country has several major domestic obstacles to overcome.

Extended ban

The Scottish government has prioritised environmental concerns over economic benefits in extending its ban on fracking.

Midstream dream

US natural gas exports to Mexico are on the rise, which is spurring the construction of more cross-border midstream capacity.

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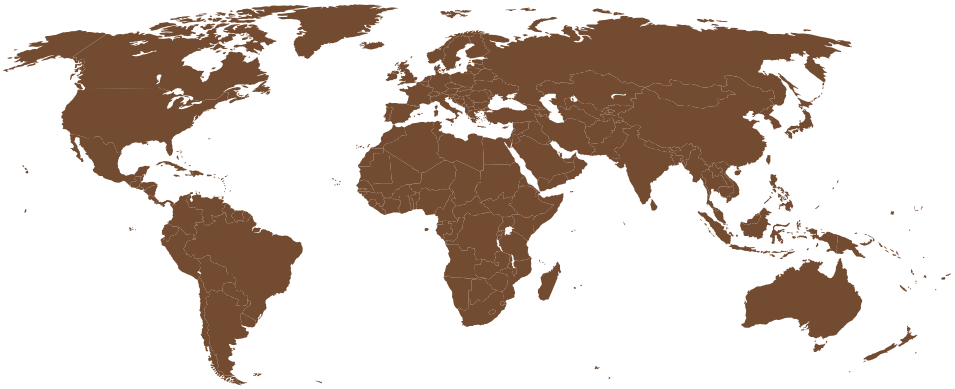
COMMENTARY

SHALE GAS



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Australia hardens position on gas supply

After first threatening gas exporters with curbs, the federal government is now taking a tougher approach in dealing with local authorities that have embraced fracking bans, writes Graham Lees

AUSTRALIA

WHAT:
Canberra has threatened states that have blanket bans on fracking with punitive financial action.

WHY:
The federal government believes greater CBM development can alleviate domestic gas supply pressure.

WHAT NEXT:
The anti-fracking drive is opening the door to alternatives such as CTG projects, which are still a long way off and cannot help ease gas price pressure before 2022.

AUSTRALIA'S burgeoning exports of liquefied coal-bed methane (CBM) appear to have been spared threatened restrictions by the federal government, but states refusing to lift bans on hydraulic fracturing for CBM and shale gas could still face punitive financial action.

The industry groups that have pushed Australia into global second place for LNG exports, fuelled by CBM pumped out of Queensland fields, averted formal export curbs by signing an agreement with the Canberra government last week guaranteeing to supply domestic markets to ensure that a forecast shortage in 2018 is avoided.

The Australian Energy Market Operator (AEMO) had warned in September of an up to 2.8 bcm shortfall in 2018. This was blamed in some quarters on rising LNG exports coupled with onshore drilling bans for unconventional gas resources in five states.

The fracking bans range from a permanent block in Victoria to 12-month halts in the Northern Territory and Western Australia pending government-commissioned studies into the technique – the latest of more than a dozen similar inquiries across the country in recent years.

The bans imposed by state governments follow vigorous anti-fracking campaigns by a combination of anti-fossil fuel activist groups and farming lobbies concerned about possible pollution risks to water tables.

But Australian Prime Minister Malcolm Turnbull said last week after signing supply agreements for 2018 with the LNG exporters that his government would continue to put pressure on the fracking ban states to permit the development of unconventional gas resources on a case-by-case basis rather than maintaining blanket bans.

Fracklash

Canberra is threatening to reduce consumer tax rebates to the states and autonomous territories with fracking bans. These are WA, Victoria, Tasmania, NT and New South Wales where selective curbs are in place.

The Turnbull government has yet to spell out how far it might penalise repayments to the states that come from a national goods and sales tax (GST). In the 2015-16 financial year, GST raised almost A$59 billion (US$45.8 billion), according to federal Treasury statistics.

The states have reacted angrily to the threat of financial penalties.

The Victorian government said it would not be intimidated into rescinding its total ban on all onshore drilling, while WA and NT – which have been seen changes of government following ▸▸

Santos' GLNG export project has been under pressure to provide more gas to domestic buyers.
Image: Santos

recent elections – said they could not interfere with ongoing fracking inquiries.

The moratorium on fracking in WA was only introduced in September. The Australian Petroleum Production and Exploration Association (APPEA) said a state inquiry there in 2015 had unanimously found that fracking posed "negligible risks" and warned that the new ban had halted investment of about US$300 million in several projects by a number of firms, including Mitsubishi of Japan, AWE and Buru Energy.

The APPEA told The Australian newspaper there had been more than a dozen other inquiries in Australia and countless independent reviews and studies that had all found that fracking was safe.

Supply ambitions

Turnbull reportedly signed domestic gas supply guarantee agreements with Royal Dutch Shell and Australian companies Santos and Origin Energy.

Earlier this month, Origin announced it was selling its mostly conventional oil and gas assets in Queensland to smaller player Beach Energy for US$1.24 billion in order to concentrate on its CBM resources in Queensland. It is also keeping hold of shale gas assets in NT's Beetaloo Basin.

Wood Mackenzie told *NewsBase Intelligence (NBI)* that retention of the shale assets indicated Origin believed the NT ban would be lifted in the longer term.

"It is not costing the company much to hold the acreage, so it could be seen as an option-type investment," Wood Mackenzie's Chris Meredith said. "For the Cooper Basin [assets], which Origin has just sold to Beach, it is a different story. Here, wells are often fractured. However, this will be Beach's issue to deal with any potential ban, as it has committed to contracts to supply gas to Origin. So, Beach is taking the upstream risk."

The Cooper Basin straddles Queensland and South Australia but there are no restrictions in place there at present.

Santos, meanwhile, is still awaiting a decision from the NSW government on its proposal to develop a large CBM field at Narrabri. Although there are some fracking bans in place in the state, the Sydney government does still assess plans on a case-by-case basis. Santos submitted a US$2.75 billion, 20-year CBM production plan for Narrabri in February, saying it would provide 1,300 jobs and supply 50% of NSW's gas needs after 2019. The Santos plan, which involves drilling 850 wells, is strongly opposed by anti-fracking groups in the state.

Santos as well as Origin has seen project plans in NT frozen since the temporary fracking moratorium was introduced there last year.

Meanwhile, former Santos chairman Stephen Gerlach has put forward a plan for a coal-to-gas (CTG) project he hopes will circumvent any long-term bans on unconventional drilling in NT.

Exploring alternatives

Gerlach is now chairman of Ebony Energy, a small private business with plans to mine coal from an isolated field it owns at Andado in the Perderka Basin southeast of Alice Springs. Gas from the CTG project would be piped to the Moomba distribution hub in South Australia, a distance of more than 650 km. Gerlach told local media last week the plan would deliver 1.34 bcm per year for 25 years.

"This project is designed by us to make sure we do not get caught up by various drilling moratoriums," the Australian Financial Review quoted him as saying. "We are not fracking, we are not drilling coal seams, we are not going to dig a large open pit and our underground footprint will be traditional and small."

But CTG projects do not come cheap. ABC Radio quoted Ebony as saying the Andado scheme would cost A$3 billion (US$2.33 billion).

Andado does not offer a short-term solution to Australia's gas shortages, which have helped push up prices and raised electricity costs. Ebony estimated it would be 2022 before gas could begin flowing to eastern and southern domestic markets.

Santos' Narrabri project offers a firmer solution to growing East Coast gas demands, but the vociferous and well-organised anti-fracking lobby looks more likely than not to derail the project and further exacerbate Australia's fractured gas market. ❖

Algerian shale sector under spot light

While Algerian Prime Minister Ahmed Ouyahia wants to see greater investment in shale oil and gas, the country has several major domestic obstacles to overcome, writes Kevin Godier

ALGERIA

WHAT:
New Algerian Prime Minister Ahmed Ouyahia has urged Sonatrach to invest in shale plays.

WHY:
Algeria requires new revenue flows and wider energy production.

WHAT NEXT:
Joint venture terms may be changed, but public opposition must be overcome.

ALGERIA'S shale gas options are once more under the spotlight after new Prime Minister Ahmed Ouyahia indicated that unconventional oil and gas extraction could mitigate the drop in national income caused by the slump in global energy prices.

On October 1, Ouyahia "encouraged" the management of state-owned oil giant Sonatrach "to invest in the shale gas sector" during a visit to a refinery. "It is time for Sonatrach to use all its energy in the service of business and the country," Ouyahia said, arguing that this would be "an option aimed at guaranteeing the future in terms of energy".

Having been in his new post since August, Ouyahia has inherited a pressing situation where the national budget – which depends on Sonatrach's exports for the lion's share of foreign earnings and revenue – has been crippled by the oil price downturn. Revenues from Algeria's energy sales have fallen by over half since 2014, – including a 23% dip in oil and gas earnings last year – which has exerted huge financial and political pressures on the government at a time when demand from an increasingly energy-hungry domestic market is on the rise.

In a plan of action to stimulate the economy, presented in mid-September to Parliament, raising Algeria's hydrocarbons output was emphasised as an essential element. Energy "will remain for a long time the leading source of the country's external revenues", Ouyahia said.

He has already said it will be necessary to amend Algeria's energy law to help attract more foreign investment in the country's hydrocarbons. Sonatrach officials recently said this would take place by the end of the year, Reuters reported on October 3. This has inevitably triggered speculation that there could be an accompanying opening for foreign majors to begin exploration work upon what are the believed to be the fourth biggest shale gas reserves in the world.

Medium-term resource

The North African country holds an estimated 707 tcf (20.02 tcm) of shale gas and 5.7 billion barrels of shale oil, mostly in the Ghadames area, according to US Energy Information Administration (EIA) data. As such, Algerian authorities have long insisted that shale exploitation, for both oil and gas, will be an essential medium to long-term step if the country is to maintain its energy independence as conventional reserves run down.

Crude output is around 1.1 million bpd, and could drop if substantial amounts of gas are redirected for domestic and export sale rather than for reinjection into declining oilfields.

The prospects were flagged up as early as 2012, when the government confirmed it had been engaged in talks with US super-major ExxonMobil regarding a shale exploration deal reported to require US$5 billion of investment. But despite a long-standing history as a major gas supplier to Europe – via both pipeline and LNG shipments – the OPEC producer has subsequently struggled to kick-start an unconventional hydrocarbons industry.

Although Sonatrach has previously proposed investing at least US$70 billion over two decades to produce 20 bcm per year of shale gas, plans for unconventional exploration were put on hold after an anti-fracking movement erupted in Algeria's Sahara region. This made its opposition clear via angry demonstrations that rocked Algeria's central desert town of In Salah in 2014-15, after Sonatrach said it had successfully completed a pilot shale gas drilling.

The demonstrations expressed a range of popular concerns, including the potential impact on water resources used for agriculture and worries that the extensive southern region's unemployed population would be exploited by Algiers. Activists particularly fear that meddling ▸▸

> "It is time for Sonatrach to use all its energy in the service of business and the country
>
> ***Ahmed Ouyahia***
> *Prime Minister*
> *Algeria*

with the environment could disrupt the region's fragile eco-environment, where farming has existed for centuries in extremely high temperatures with scarce water resources.

Ouhayia has recently shown his awareness that shale could be a massive political tripwire by underlining that any unconventional hydrocarbons campaign would be promoted only "in strict respect for the environment and the population's health". He has also indicated that renewable energy resources – in particular solar power – should be exploited, in the light of the huge green energy push under way in neighbouring Morocco. Morocco's Noor solar power complex, in the desert of Ouarzazate, will be the largest facility of its kind in the world once completed in 2018.

Solar power can be brought online far more swiftly – and with less controversy – than shale production, a critical consideration as Algiers looks to weather the storm of low oil prices.

What next

Oil companies have typically stressed that Algeria's traditional bureaucratic barriers and the need for external technology and finance comprise obstacles to shale exploration, as are the unknown quality of the acreage and the lack of any specific legislation for the unconventional sector.

Even in the conventional sector, international companies have argued that the legal framework is too tough and that contractual terms compress profit margins excessively, even in times of high oil prices. This has been mirrored by low bidding for new acreage. During the four licensing rounds offered in the last decade, only 12 exploration permits have been snapped up from 70 areas available.

But the country's very hefty levels of shale reserves mean that majors will not have taken their eyes off the country. One area that will come under scrutiny when the new energy law is gazetted will be joint venture agreements relating to shale gas exploitation.

While *NewsBase Intelligence (NBI)* cannot foresee any changes to Algeria's "51/49 rule", under which Sonatrach is required to hold the majority of any exploration joint venture, Algeria did offer more generous terms to exploration ventures in 2013 for cases involving shale gas projects. The length of exploration licences was raised to 11 years, and to 30-40 years for production periods.

Algeria also has serious domestic challenges to surmount. One of these would be to structure a clearer energy policy, where the manner by which gas and renewable power complement each other is more sharply defined. This would help provide the certainty that can solicit greater foreign interest and investment. Perhaps more pressingly, the government has still to show that it can reassure southern communities about its capability to protect agriculture and water resources in the region, while concurrently developing infrastructure and creating employment.

NBI thus anticipates that any shale sector push will require a softly-softly approach to build public confidence over unconventional oil and gas campaigns. One way to go about this process – if the budget permitted – would be to inject financial resources that visibly improve petroleum products refining, storage and distribution capacity in the extensive southern region, improving local employment prospects and trust in the government.❖

Scotland extends ban on fracking indefinitely

The government has prioritised environmental concerns over economic benefits, though it looks to have left room for a U-turn should public opinion shift on the issue, writes Ryan Stevenson

SCOTLAND

WHAT:
A moratorium on fracking has been extended indefinitely.

WHY:
A public consultation on the issue highlighted overwhelming opposition to fracking.

WHAT NEXT:
The extension is not a full legal ban, which could leave room for a future government to lift the moratorium.

SCOTLAND'S government has announced it will extend a moratorium on hydraulic fracturing indefinitely.

The extension is an "effective ban" on fracking, Scottish Energy Minister Paul Wheelhouse said in a statement to the Scottish Parliament on October 3. He said the government's decision was made in light of a consultation process that showed public opinion was overwhelmingly opposed to fracking because of environmental concerns.

The issue has become highly politicised, and with the Scottish Nationalist Party (SNP) minority government relying on support from the Green Party to get its legislative agenda through Parliament, the moratorium was always likely to be extended. Only the opposition Conservative Party supports fracking in Scotland, with Labour and the Liberal Democrats also backing a ban.

Major industrial companies that had hoped to benefit from cheap and plentiful domestic shale gas feedstock should the moratorium have been lifted expressed their disappointment at the decision.

Ineos wanted to develop shale around its Grangemouth petrochemicals plant near Edinburgh to reduce the need to import shale gas from US. The company began importing ethane from Pennsylvania in September 2016 to feed a new cracker at the Grangemouth site. Ineos holds licences for unconventional development that cover 700 square miles (1,800 square km) across Scotland's Central Belt.

Ineos and other shale backers had argued that the emergence of a successful unconventional oil and gas industry would have had widespread economic benefits. They said it had the potential to create thousands of jobs and to help re-establish the Central Belt of Scotland as an industrial powerhouse and manufacturing base.

But the Scottish government's consultation on the issue highlighted that the public was uneasy about the environmental issues that have been levelled against fracking in the US. Wheelhouse noted that 99% of the 60,000 respondents to the survey on the issue had supported a ban, which he said meant "there is no social licence for unconventional oil and gas to be taken forward at this time".

The government will seek Parliament's endorsement for the extension of the moratorium, which is enforced through planning regulations, in a vote later this month.

Wriggle room

Aside from the economic and environmental debate on the issue, there is also a fundamental question about whether a shale industry could actually flourish in Scotland. A recent study by Heriot Watt University claimed that structural complexities in the West Lothian Oil Shale made it unsuitable for commercial oil and gas development.

With this in mind, a more sensible approach for the Scottish government might have been to allow further testing to see if there was potential for unconventional oil and gas production. If commercially extractable amounts of hydrocarbons were proven and the economic benefits made clear, perhaps there would be a shift in public opinion. This would be especially true if Scottish oil workers began to migrate en masse to northern England, where a nascent fracking industry is emerging.

Some legislators had urged the government to impose a full legal ban on fracking, but Wheelhouse said this was not necessary under his proposals. This could leave some wriggle room for the moratorium to be lifted by a future administration with less of a green hue should the public's view of fracking become more positive.

It seems the government wants to leave at least some space for a U-turn on the issue should the economic case for an unconventional energy industry to plug the economic hole caused by the North Sea's contraction become overwhelmingly compelling.

As it stands, however, the SNP administration is hamstrung by its reliance on Green votes to support its legislative programme. As long as that remains the case, Scotland's shale oil and gas reserves will remain in the ground. ❖

> "A more sensible approach for the Scottish government might have been to allow further testing to see if there was potential for unconventional oil and gas production

Gas links: Mexican demand, US supply

US natural gas exports to Mexico are on the rise, which is spurring the construction of more cross-border midstream capacity, writes David Flanagan

NORTH AMERICA

WHAT:
US-Mexico gas trade is growing, primarily in the form of pipeline shipments.

WHY:
Both US gas production and Mexican demand are expanding.

WHAT NEXT:
Mexico's own output will start to grow, but not enough to keep pace with demand.

WHILE political relations between the US and Mexico remain tense, the natural gas trading relationship between the countries is fluid and looks poised to intensify.

The US Energy Information Administration (EIA) has reported that US gas exports to Mexico amounted to 3.8 bcf (108 mcm) per day in 2016, up from 2.9 bcf (82 mcm) per day in 2015, and that the figure is still increasing. Rising demand from Mexican power and retail sectors are the chief drivers, with the construction of new pipeline infrastructure to meet extra gas needs continuing apace.

"Currently, the majority of US gas exports to Mexico are sent via pipeline," Mara Roberts, a senior analyst at BMI Research, told *NewsBase Intelligence (NBI)*. "This is a trend which we believe will remain intact given the continued development of midstream build-outs and the cost-competitiveness of pipeline exports versus LNG," she added.

The overland gas trade has a competitive advantage over LNG, which supports the case for the construction of more gas infrastructure between the countries. This will link up with the expanded gas transport network on the US side of the border that has been built to keep pace with the shale gas boom. New US producing hotspots in Texas are emerging as a major source of gas to meet Mexico's growing demand. Supplies to Mexico are running at around 4.1 bcf (116 mcm) per day, according to Barclays. Total LNG exports are around 2.7 bcf (76.5 mcm) per day.

Additional midstream projects "will connect Mexico to the Eagle Ford shale play in South Texas," she said.

On the Mexican side, new gas-fired power generation that is due to be built between now and 2029 will underpin demand, justifying the expansion of the cross-border pipeline network. Fifteen new or upgraded pipelines are in progress, which will provide an additional 75 bcm of capacity in 2017 and, including the large South Texas-Tuxpan project, a further 78 bcm capacity in 2018.

Roberts sounded one note of caution, however, saying that the construction of new pipeline capacity must keep pace with expanding gas output, as any slowdown would have an effect on the commercialisation of the resource. "We caution that project delays will reduce utilisation and overall shipments into Mexico," she said.

LNG vs pipelines

Mexico also has the capacity to import LNG via its three terminals at Manzanillo, Costa Azul and Altamira, which brings the economics of LNG supply versus piped gas into sharp focus.

New U.S.–Mexico natural gas pipelines

According to data from International Group of LNG Importers (GIIGNL), Mexico imported 4.1 million tonnes of LNG in 2016, down 17% from 2015. Its source was predominantly under a supply contract with Peru, although it also received some re-exported cargoes from Asia. For 2017, a further decline in imports by volume is forecast, although BCM calculated that imports to July had reached 2.88 bcm (2.16 million tonnes), with some spot cargoes bought from Asia. It is anticipated that the country will rely more heavily on the steady supply and prices offered by piped gas from the US, rather than the fluctuating availability and price offered by the LNG spot market.

"LNG shipments will be used to offset pipeline shortfalls, and will remain a small share of total gas imports," Roberts said. "This fact, combined with growing supplies of US exports, will limit Henry Hub price upside and maintain the competitiveness of US pipeline gas relative to Asian and European LNG shipments."

Domestic potential

Domestic gas output could also supplement the expansion in piped imports from the US. There are signs that Mexican gas production could start to climb, driven by the government's energy reforms. These have injected an element of competition and efficiency into the sector following the ending of state-run Pemex's monopoly.

A recent offshore gas discovery by a consortium consisting of Talos Energy, Premier Oil and Sierra Energy is a sign of the revitalised E&P industry having an impact. "Mexican gas production will return to modest growth in 2018 aided by privately led investment," Roberts said.

Despite the improving outlook, though, production is unlikely to keep pace with the anticipated growth in demand. "We expect that Mexican gas demand will exceed output, turning Mexico into a net importer of natural gas by next year, with the deficit forecast to grow to an estimated 2 bcm per annum by 2021," she added. This is based on a projected demand level of 42.2 bcm that year, but supply of only 40.2 bcm.

New output from the Eagle Ford shale on the US side of the border is likely to be the primary source of new supply for Mexican gas consumers over the coming few years and will provide the impetus for the construction of more pipeline infrastructure between the countries.

Though the Eagle Ford stretches into Mexico, where it is known as the Burgos Basin, there is unlikely to be a similar boom in domestic shale production south of the border. A lack of drilling infrastructure, water resource and security concerns have impeded unconventional hydrocarbon development in Mexico to date.

This means piped gas from the US will remain the core component of Mexico's gas supply portfolio for the foreseeable future. The most striking aspect of the gas trade between the countries is the efficiency of the relationship. There are clear signals and transparency on both sides that help to determine how resources are best used to meet rising Mexican gas demand. It should serve as a model for other aspects of the US-Mexico relationship, where barriers should be taken down rather than walls put up.❖

SHALE GAS

Kalnin adds to Marcellus acreage

MARCELLUS

COLORADO-BASED Kalnin Ventures has opted to expand its footprint in the Marcellus Shale with affiliate BKV Oil and Gas Capital Partners fund signing a US$210 million deal for assets in the play – its fifth acquisition there in five years.

The newest assets coming from purchase and sale agreements with Carrizo Marcellus and Reliance Marcellus II are in the northern Marcellus region, specifically in Wyoming and Susquehanna counties in Pennsylvania.

Once the transaction closes, the fund will have an interest in 355 active wells, including 112 from the newest deal: 98 producing, 11 drilled and uncompleted (DUC) and three that are temporarily abandoned. Net natural gas production from the deals will amount to 160 mmcf (4.53 mcm) per day.

"This deal is unique from our previous four in that it provides us the opportunity to naturally expand into an operator position while also acquiring additional midstream assets," Kalnin co-founder and managing director Christopher Kalnin said. "However, it is similar to prior deals in that we are acquiring profitable assets and enhancing them with technology and big data. Our experience as a non-operator, and now operator, coupled with our high-quality asset base and proprietary technology, has put us in a compelling position to expand further in the Super Core of the Marcellus."

The previous deals were sealed with Zena Energy, Radler 2000 LP – Tug Hill Marcellus, Chief Exploration and Development, and Range Resources – Appalachia.

Kalnin said the newest deal had made it one of the state's top 20 natural gas producers. The fund is backed by a single investor, Thailand-based miner and power generator Banpu PCL.❖

Sinopec to commission Shuijiang shale gas prospect

CHINA

CHINA'S leading shale gas developer, Sinopec, is ready to start shale gas production at a new prospect in the southern part of Sichuan Province that is an outlying part of its Fuling complex.

Industry sources have said the company is ready to start initial production at the Shuijiang prospect in Chongqing municipality near Fuling in mid-October, though the initial follow-up will be insignificant. But they noted that when all 17 drilling pads with 70 wells were up and running, the prospect would have a shale gas production capacity of 1.6 bcm per year.

At present, Sinopec units Sinopec Fuling and Sinopec Huadong Branch are spearheading exploration efforts. Sinopec Fuling has built nine drilling pads, while Sinopec Huadong has built eight. Of the 17 drilling pads, seven are due to start production this month.

Sinopec intends to transport Shuijiang's production via its Sichuan-East gas pipeline network to China's eastern markets including Shanghai, though some of the gas will be sold locally for household consumption.

Sinopec is on its way to ramping up its shale gas production to 10 bcm this year at the Fuling field and it is in the middle of completing up to 114 production wells there in order to reach the target. But in the first half, it only sold close to 3 bcm of Fuling shale gas. The National Energy Administration (NEA) has set a target for the country to produce 30 bcm per year of shale gas by 2020, and 80-100 bcm per year by 2030. China is looking to the Sichuan Basin to lead the country's shale gas production push.

Beijing wants to raise the proportion of natural gas in its energy consumption mix to more than 10% by 2020, and to 15% by 2030, up from around 6.5% at present.❖

Moody's sets price on shale drillers' profitability

NORTH AMERICA

A new study by Moody's Investors Service has said that prices of more than US$50 per barrel of US oil and at least US$3 per mmBtu (US$82.98) for gas are needed to ensure the long-term profitability of North American shale operators.

According to the report, which examined 37 oil and gas companies in Canada and the US, while the financial environment is improving for many drillers owing to better efficiency and cost reduction programmes, a plateau is close to being reached. With little room for manoeuvre, commodity prices will need to rise instead.

"Companies will be able to demonstrate meaningful capital efficiency," said Moody's senior analyst Sreedhar Kona, adding: "measured by the leveraged full cycle ratio, only if the West Texas Intermediate [WTI] oil price is above US$50 per barrel and the Henry Hub natural gas price is at least US$3 per mmBtu."

In part, it continued, any cost savings from drilling efficiencies could be offset by higher service costs, as well as rising wages, rig rates and land purchase prices brought about by increased competition. Last week, data from Wood Mackenzie found that shale firms had spent US$5 billion on land deals in West Texas, home to the Permian Basin, in the last six months. During the previous six-month period, this figure stood at US$35 billion.

Speaking to the Houston Chronicle, Mizuho Securities analyst Timothy Rezvan warned that this was another sign that "the investor base has become fatigued" as a result of drillers' inability to cover their costs through cash flow.

Meanwhile, Moody's also said drillers would need to "earn a meaningful return on their investments, reinvest in further development of their acreage, repay debt and reward shareholders for the risk and cyclicality associated with the industry."

At less than US$50 per barrel or US$3.00 per mmBtu, it continued, this will not be possible.❖

Cuadrilla continues engagement drive with shale gas tours

UK

CUADRILLA has launched a series of monthly webcast tours and live Q&A sessions at its Preston New Road (PNR) development in Lancashire in a bid to reduce tensions at the country's largest shale exploration site.

The first public online tour took place on October 6. In a statement, the company said it intended to run these tours once a month to allow people to keep updated with various phases of the shale gas exploration.

"We are delighted to launch another innovative initiative which will make it possible for people in Lancashire to see what is happening on site and follow [our] progress," added Cuadrilla's director of public affairs, Matt Lambert. "PNR Live will give everyone the chance to see and learn about our operations at Preston New Road from their mobile, laptop or desktop computer and put questions direct to our experts."

PNR is Cuadrilla's flagship UK project and as such, it has become a focal point for demonstrators campaigning against shale drilling. While Cuadrilla did not reference these protestors directly in its statement, the company has invested significantly in public engagement and outreach in an attempt to overcome negative public perceptions.

The announcement of the live tours came shortly before a two-day trial of eight campaigners arrested following a protest at PNR began. During the hearing, District Judge Michael Snow called for an end to legal aid support for protestors arrested at shale demonstrations, stating that he did not "think these cases merit legal aid in the future".

In response, Cuadrilla CEO Francis Egan said: "People have a right to lawful protest, which we respect."

That said, he continued, "professional activists, the majority from outside Lancashire, have a track record of illegally causing road closures, preventing Lancashire businesses carrying out their lawful work and seriously disrupting Lancashire commuters going about their daily business."

He added: "These activists are quite rightly being brought before court to answer the charges against them. We have consistently said that these illegal and intimidating protest tactics are a waste of taxpayers' money both in terms of policing and the judiciary's time."❖

Encana's early Sunrise

CANADA

ENCANA'S Sunrise shale gas processing plant in Canada – the Alberta company's second facility – is now in operation after construction was completed under budget and a month ahead of schedule.

The plant, which commenced work on September 27, is the second of a trio of processing plants the company has outlined to support its work and growth in the Montney play. The first was Tower, which is now ramping up alongside Sunrise. The third, Saturn, is also ahead of schedule and is expected to be ready for start-up before the end of the year.

Towerbirch, the lateral pipeline that Encana said has been designed to connect the facilities to the NOVA Gas Transmission Ltd (NGTL) system, began work on October 1. NGTL consists of more than 25,000 km of gas pipeline and associated facilities in Alberta and northeastern British Columbia. The system's operator, TransCanada, announced in June that it would proceed with a new US$2 billion network expansion programme.

Encana's president and CEO, Doug Suttles, said the company's ability to remain ahead of schedule and under budget for the northeastern BC plants highlighted the strength of its

execution capabilities. "The new processing and midstream infrastructure now in place firmly supports our growth plan in the Montney, which is a key driver to expanding our corporate margin and delivering quality returns," he said.

Encana has an existing agreement with Veresen Midstream that enables the company to construct and operate Tower, Sunrise and Saturn via the Cutbank Ridge Partnership and on behalf of Veresen on a contract basis. This includes any future building opportunities.

Under the terms of that deal, Veresen Midstream funds and owns the plants and Encana has a fee-for-service agreement for their use.❖

POLICY

OPEC calls on US shale oil producers to accept 'shared responsibility' of slashing global supply

OPEC General Secretary Mohammed Barkindo has called on US shale oil producers to help support plans to curb global oil supply, warning that unprecedented measures may be necessary next year in order to rebalance the oil market. "We urge our friends, in the shale basins of North America to take this shared responsibility with all seriousness it deserves, as one of the key lessons learnt from the current unique supply-driven cycle," Barkindo said.

North American shale drillers have helped production soar by nearly 10% in the US this year, according to Reuters, despite OPEC and some other producers, including Russia, cutting supplies in a bid to prop up prices.

Speaking at the India Energy Forum in New Delhi, Barkindo added that the US and OPEC had agreed they must find a joint solution in order to ensure stability in the oil market. The price of oil collapsed from near US$120 per barrel in June 2014 due to weak demand, a strong dollar and booming US shale production. OPEC's reluctance to cut output was also seen as a key reason behind the fall. But, the oil cartel soon moved to curb production, along with other oil producing nations, in late 2016.

Meantime, the world's largest oil producing nation and OPEC kingpin, Saudi Arabia, said it had cut crude oil allocations for November by 560,000 bpd. The announcement appeared consistent with the kingdom's commitment to abide by an OPEC-led supply reduction agreement. Barkindo had suggested that OPEC, as well as other oil producers, may be forced to adopt "some extraordinary measures" in 2018 in order to rebalance the market.

CNBC (US), October 10, 2017

SHALE GAS

Petrus announces farm-in agreement

Petrus Resources continues to focus on expanding its core Ferrier operating area, improving the company's balance sheet, lowering its cost structure and growing the company's production and resulting funds from operations. Petrus is pleased to announce the following recent developments, which demonstrate the company's commitment to achieving these objectives.

Petrus has entered into a farm-in agreement to drill two extended reach horizontal Cardium wells in Ferrier, the company's core operating area. Upon drilling these wells, Petrus will also earn a working interest in three additional sections of land in Ferrier. Petrus expects the ERH wells will be drilled with a lateral length of approximately two sections. The company estimates that the farm-in agreement will contribute 16 gross (5.2 net) Cardium locations to its drilling inventory.

In order to accommodate for the farm-in agreement, Petrus' board of directors has approved a US$10-million increase to the company's capital budget for 2017 to US$60-70 million, increased from the US$50-60 million previously approved for 2017. The budget increase is expected to be funded through availability under the company's existing credit facilities. The company's capital expenditure programme anticipates drilling 16 gross (11.8 net) Cardium wells in Ferrier. The capital expenditure programme also provides for investment in facilities; the processing and compression capability of the Ferrier gas plant is expected to double, reaching a capacity of approximately 60 mcf per day in early October 2017.

PETRUS RESOURCES (CANADA), October 4, 2017

RIL offloads US shale gas assets as falling crude oil prices dent profits

Reliance Industries Ltd. (RIL) has agreed to sell the first of its shale gas ventures, upstream Marcellus shale gas assets in northeastern and central Pennsylvania in the US for US$126 million. The assets held by Reliance Marcellus II, a unit of Reliance Holding USA Inc. and RIL, were sold to BKV Chelsea, an affiliate of Kalnin Ventures. It is currently operated by Carrizo Oil & Gas, Inc. In 2010, RIL had bought a 60% stake in the assets for US$392 million.

"Additionally, Reliance could receive contingent payments of up to US$11.25 million in aggregate based on natural gas prices exceeding certain thresholds over the next three years," the company said. RIL had between 2010 and 2013, bought stakes in three upstream oil exploration joint ventures with Chevron, Pioneer Natural Resource, and Carrizo Oil and Gas; and a midstream joint venture with Pioneer. (Midstream refers to the processing, storing, transporting and marketing of hydrocarbons) Aggregate investments since the inception of these ventures were US$8.2 billion till last year.

In June 2015, the company sold its Eagle Ford (EFS) midstream joint venture with Pioneer Natural Resources in the US, realising US$1 billion from the sale. RIL had spent US$46 million in acquiring the 49.9% stake in EFS and invested another US$208 million over the years.

Till 2014, RIL had been bullish on the shale gas segment, however, the drop in crude oil prices since late 2014 hit the valuations of oil and gas assets. Shale gas blocks have suffered far more than conventional oil and gas blocks as they are economically viable only when prices are above a certain threshold.

LIVE MINT (INDIA), October 9, 2017

Banpu acquires fifth US shale gas asset for US$210 million

Thailand's biggest coal miner and exporter Banpu Pcl is acquiring a US shale gas portfolio worth US$210 million, its fifth such overseas investment play. Banpu signed a purchase and sale agreement to acquire an operatorship position and gas portfolio in the Northeast Marcellus shale gas play of Pennsylvania.

This agreement represents Banpu's fifth investment in the US shale gas business in line with its expansion strategy to acquire interests in cash-generating assets, according to its filing to the Stock Exchange of Thailand. Banpu chief executive Somruedee Chaimongkol said this acquisition provides Banpu nearly 80% of working interest in 112 wells with the net production interest of 100 mcf per day.

The shale gas resource has proven reserves of 414 bcf over 32,350 acres, which will bolster Banpu's position as a major player in the Marcellus shale area. Previously, Banpu acquired a 29.4% stake in the Chaffee Corners Joint Exploration Agreement (JEA) in April last year. Its net interest in the Chaffee Corners JEA is equivalent to proven reserves of 156 bcf of dry natural gas.

The CEO told local media that its gas sale volumes was around 21 mcf per day last year and most of them served the US domestic demand. Banpu is aggressively diversifying its business into upstream and clean energy businesses.

DEAL STREET ASIA, October 10, 2017

TIGHT OIL

Hi-Crush Partners commences Pecos terminal operations

Hi-Crush Partners has commenced operations at its new Pecos, Texas terminal, the first unit-train capable terminal with silo storage in the Southern Delaware Basin. Hi-Crush is actively delivering produced sand via rail to the Pecos terminal, which includes 20,000 tonnes of vertical silo storage on-site, from two of its Union Pacific connected Northern White facilities in Wisconsin. On October 3, 2017, Hi-Crush began loading customer trucks for delivery to support local completions activity.

"We are excited to complete construction on schedule and start operations at our third Permian Basin terminal," said CEO of Hi-Crush Robert E. Rasmus. "The completion of the Pecos facility augments our existing capabilities, which include our Odessa and Big Spring terminals in the Midland Basin, and extends our advantage in the region."

HI-CRUSH PARTNERS (US), October 4, 2017

Targa, Blackstone form Grand Prix pipeline JV

Targa Resources announced today that it has executed agreements to sell a 25% joint venture interest in its previously announced Grand Prix natural gas liquids (NGL) pipeline to funds managed by Blackstone Energy Partners. Once completed, Grand Prix will be a new 300,000 bpd common carrier NGL pipeline from the Permian Basin to Mont Belvieu, Texas, and with expansion capability to 550,000 bpd.

Concurrent with the sale of the interest in Grand Prix to Blackstone, Targa and EagleClaw Midstream Ventures, a Blackstone portfolio company, executed a long-term Raw Product Purchase Agreement for transportation and fractionation (T&F) services whereby EagleClaw has dedicated and committed significant NGLs associated with EagleClaw's natural gas volumes produced or processed in the Delaware Basin. EagleClaw is the largest private natural gas gathering and processing company in the Delaware Basin based on almost 275,000 dedicated acres primarily in Reeves County.

Targa is expected to realize substantial net capital savings, plus other strategic and financial benefits, through the sale of the 25% interest in Grand Prix to Blackstone.

TARGA RESOURCES (US), October 4, 2017

CBM

Green Dragon Gas signs additional agreements with CUCBM over PSCs in China

Coal-bed methane (CBM) gas developer Green Dragon Gas' subsidiary Greka Energy (International) has signed three supplementary agreements with China United Coal-bed Methane (CUCBM) related to three production sharing contracts (PSCs) in the Shanxi, Anhui and Jiangxi regions of China. Pursuant to the agreements, Greka can begin exploration across Fengcheng (GFC), Qinyuan (GQY) and Panxie East (GPX) blocks.

The latest development complements the memorandum of understanding on five PSCs, as well as two supplementary agreements on Shizhuang South (GSS) and Shizhuang North (GSN) PSCs signed by Green Dragon last month. The primary objective of Greka and CUCBM is to maximise the value within the exploration PSCs and the agreements are a step in that direction.

Green Dragon Gas founder and chairman Randeep Grewal said: "These agreements conclude our five PSCs that have been in question over the past eight years, ensuring a committed close co-operation between CUCBM and Greka to unlock and monetise all our lucrative prolific gas blocks. The detail within these supplementary agreements eliminates the ambiguity within the PSCs and provides a transparent and clear roadmap to conclude the exploration programme and progress to commerciality.

"We are committed to working closely with our partner CUCBM and concluding material reserve progressions in all our prolific blocks."

Through the agreements, the PSC exploration period has been extended to the second quarter of 2019 and minimum work commitment has been confirmed for each PSC.

HYDROCARBONS TECHNOLOGY, October 5, 2017

COAL-TO-GAS

Curtis Island LNG exporters say they're not villains

With the mission of tearing down the "villain" status surrounding Curtis Island gas exporters, three gas industry leaders have spoken out about the solutions to Australia's gas crisis. Santos strategy chief Angus Jaffray joined a small choir of pro-gas industry folk who used an energy summit to prove they were not the villains some made them out to be.

Jaffray said without the A$60-billion industry built on Curtis Island, much of the nation's gas reserves would remain untapped, and the market would be even tighter. The trio of Curtis Island sites and their owners have come under fire amid the tight domestic gas supply and rising prices.

While Santos, Shell and Origin Energy have agreed to supply more gas to the domestic market from their Curtis Island plants, GLNG, QGC and APLNG, Jaffray said the deal was not a long-term solution. "As a country we cannot expect the Queensland LNG projects to continually bail out the southern states."

GLADSTONE OBSERVER, October 10, 2017

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