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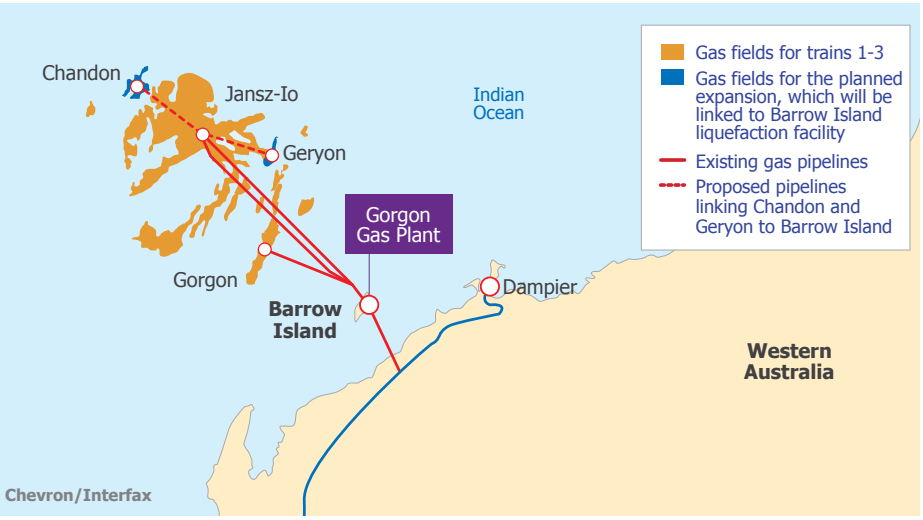
Chevron's Gorgon puts monster CCS plans to the test



The expansion of Chevron's Gorgon LNG project entails building the world's largest CCS project.

Sara Stefanini
Asia Pacific editor

WHICHEVER way you look at it, Chevron's Gorgon LNG development is massive. Its budget, its gas reserves, its liquefaction capacity, its logistical challenges and its expansion potential – they are all enormous.

And so is the carbon capture and storage (CCS) project attached to the plant, which is expected to store more carbon dioxide than any other facility in the world.

Alongside the three-train, 15.6 mtpa Gorgon plant under construction on Barrow Island, Western Australia (WA) is a CO2 injection facility which, according to Chevron, will cut the LNG project's greenhouse gas (GHG) emissions by around 40%.

The liquefaction plant itself is a significant feat. Although Chevron has been producing oil on Barrow Island for nearly 50 years, it is still a strictly protected Class A environmental reserve – meaning every worker, aircraft and piece of equipment that touches the ground must first go through quarantine (see *Under quarantine: Chevron's Gorgon LNG development*, 25 January 2013).

"Everything about the Gorgon project is 'big'. It is, after all, the largest single resource project ever constructed in Australia and one of the largest gas production projects in the world," a spokesperson for WA's Department of State Development told *Interfax*.

But the CCS component came about partly as a result of pressure from the state and federal governments, which made the carbon sequestration programme a condition for building Gorgon on Barrow Island and passed legislation giving them long-term liability for it.

By Chevron's account, it is the only CCS project in the world to have undergone an "exhaustive, publicly available environmental impact assessment".

Internationally significant

"The Gorgon CCS project is undoubtedly of international significance," Luke Warren, chief executive of the Carbon Capture and Storage Association in London, told *Interfax*.

"Once it is operating at full scale, it will be the world's largest CO2 storage project in a deep saline formation and so represents another important step forward in the global development of CCS technology."

Chevron operates the Gorgon project with a 47% share. ExxonMobil and Shell each hold 25% and Japanese offtakers Osaka Gas, Tokyo Gas and Chubu Electric share the remainder.

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➤ 01 The gas in the Carnarvon Basin's Gorgon field has a CO2 content of 14%, while the Gorgon and Jansz-Io fields have a combined average content of 7%.

The carbon sequestration project is expected to store between 3.4 and 4.1 mtpa of CO2 in saline formations 2.3 km below ground, with three CO2 compression trains and nine injection wells, according to the Global CCS Institute in Australia.

When Chevron and its Gorgon partners announced an FID in September 2009, they said the budget for the CCS plant was $2 billion, of which the Australian government is providing A$60 million ($54.1 million).

The total Gorgon cost has since climbed from $37 billion to $54 billion, but a Chevron spokesman would not comment on whether the CCS budget has gone up as well.

The CCS facility was two-thirds complete at the end of 2013 and is expected to begin operations in 2015, running for around 40 years, according to the Global CCS Institute.

Making progress

Construction of the facility is "progressing in line with… the overall Gorgon project," the spokesman said. The first LNG train is expected to begin operating in mid-2015 – later than the initial target of 2014 – followed by the second train six months later and the third six months after that (see *Long-term deals key to Gorgon's expansion*, 12 March 2014).

Combined with the high CO2 content in the gas fields, the Barrow Island location made Gorgon the perfect candidate for WA's first carbon sequestration project, the Department of State Development spokesperson said. Chevron's long history of oil production on the island also meant its geology and underground reservoirs were already well-known.

"The size of the Gorgon CO2 injection project takes into account the scale of planned LNG operations, the relatively high CO2 content feed gas, plus the availability of suitable geology for geosequestration in close proximity to the project," the spokesperson said.

By contrast, Chevron's other LNG project in WA, Wheatstone, will use newer gas fields – meaning there is little information about the area's geology – and will have a lower carbon content.

Chevron and its partners had talked about including a CCS facility in the Gorgon project from the early stages, but the WA and federal governments provided the legislation and support needed to propel it forward.

Canberra passed the Offshore Petroleum and Greenhouse Gas Storage Act in November 2008, which allowed it to take liability for any CCS projects in the Commonwealth's jurisdiction after they are closed down.

At the time, then-Prime Minister Kevin Rudd said the legislation would enable Australia to demonstrate CCS technology on an industrial scale, while Environment Minister Donna Faragher noted Gorgon's final approval had come with tough environmental conditions to protect the area's coral reefs and flatback marine turtles.

As a result, the federal government is now liable for 80% of the Gorgon CCS project and the WA government holds 20% – accounting for the fact Barrow Island falls under the state's jurisdiction, but the gas lies in Commonwealth waters.

"This indemnity, which is not expected to be activated for around 75 years, was requested by Chevron and its joint venture partners prior to their FID, and was considered an acceptable risk by the state government," the WA spokesperson said.

Public concern

Still, the federal and state governments' decision to take liability sparked public concern, with opponents at the time stressing the technology had never been used before and pointing to comments from some experts who said there was a realistic risk the carbon could leak.

For WA, however, the Gorgon project could be the first of more CCS developments, the spokesperson said. A bill was introduced into the state parliament last year to amend two existing laws from the 1960s to allow GHGs to be stored underground and carried by pipeline.

One is already underway on the southwest tip, and is aiming to start up in 2015. The South West CO2 Geosequestration Hub would capture CO2 from industrial facilities such as urea, aluminium and power plants, and then carry it by pipeline to a storage site.

It is expected to store 2.5 mtpa of CO2, but could grow as big as 7.5 mtpa, according to the Global CCS Institute. The project has undergone feasibility studies, and Canberra has agreed to provide A$52 million in funding. ■

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Today on interfaxenergy.com

Policy & Regulation

UK offshore industry laments anti-drilling rig tax

North Sea oil and gas industry insiders have criticised UK Chancellor George Osborne's adherence to a tax they say will boost day rates for drilling rigs

Wildcat Blog

Santos faces shareholder backlash from CBM water leak

The Aussie independent's troubles continued to build this week, with shareholders pushing it to abandon its project to drill for CBM in New South Wales.

Most read

1 Ukraine to raise domestic gas prices by 40%

2 Dutch Gate LNG marks four months of reloads

3 Delays put brakes on China-Myanmar gas flow

4 Mexico may open 'treasure trove' of data by April

5 Peru LNG reaches landmark of 200 cargoes

UK shale sector gears up for a long campaign

As the London Shale Forum retreated to a high-security venue this week, could Europe's unconventionals sector be developing a bunker mentality?

A LAST-MINUTE change of venue for this week's Shale Forum in London showed just how public and industry relations have deteriorated in recent months.

Police recommended the conference be moved to Armoury House – a high-security military venue – to avoid any potential disturbances. While conference attendees on the whole agreed the move was overly cautious, the message it sends does not seem overly positive: we are still around five years from commercial production and industry is already calling in the army to defend itself.

It has become clear that UK shale operators are likely to face strong public opposition from local residents, environmental organisations and protesters such as the Occupy movement. Cuadrilla and IGas have already had a glimpse of things to come, with protests at their respective drill sites in Sussex and Lancashire.

Meanwhile, it seems European politicians can't help getting ahead of themselves when it comes to shale. In a desperate scramble to emulate the United States shale boom, members of the Polish government have given their electorate the hard-sell on unconventionals, with expectations soaring to unrealistic levels as a result.

At the Shale Forum on Wednesday, a senior executive at Polish shale explorer Hutton Energy said a key reason Poland had so far disappointed in terms of commercial production was the government's unrealistic expectations of the sector.

UK politicians, therefore, should not get over-excited. But has the horse already bolted? UK Prime Minister David Cameron said in January the government was going "all out" for fracking, unveiling financial incentives for local councils that critics said amounted to bribes. Elsewhere in Westminster, there seems to be a lack of understanding of how long it takes to successfully develop shale resources. A sentiment of "we've given them tax breaks, why can't they get on with it?" prevails.

Admittedly, such enthusiasm is not without basis – the European Commission said recently that commercial production "in the most advanced member states" (i.e., Poland and the UK) could start in 2015-2017. Explorers have already drilled 50 wells in Poland – which puts the country ahead of the UK in terms of exploration – but Poland is sorely lacking in infrastructure, meaning significant volumes remain some way off.

UK industry predictions – although optimistic – put any meaningful levels of production nearer the end of the decade. Cuadrilla Resources, for example, has said it is unlikely to see significant levels of output before 2018.

Outside of the players who have already signed up to explore, scepticism abounds over the potential for unconventionals in Europe. BP said in its latest annual energy outlook the impact of European shale would have a "very limited" impact on the continent's overall supply picture, while fellow major Shell has shunned opportunities in the region.

Whatever the reality, shutting one's doors to critics and hiding behind armed guards seems a significant PR blunder, and one likely to foster hostility towards the industry. The attitude of 'us versus them' must be quickly addressed for UK shale to prosper. ■

Tom Hoskyns, Western Europe editor, London

For more incisive commentary on this and other issues in the natural gas industry, go to interfaxenergy.com/opinion

People Moves

Anial Bhandari has been appointed director of exploration at ONGC Videsh, the overseas arm of India's Oil and Natural Gas Co. A geologist by training he has more than 34 years of experience in geosciences, management, and research and development.

Azonto Petroleum announced the appointment of Gert-Jan Smulders as technical director this week. Smulders will be joining the company in early May, leaving Tullow Oil where he spent eight years in a number of positions with a focus on West Africa. He is trained as a mechanical engineer and spent 14 years working at Shell.

Francisco Diaz was appointed manager of exploration and production at ENAP this week. A civil engineer by training, he joined ENAP in 1981. He has held positions including offshore engineering manager and director of project development.

Lorraine Young was appointed company secretary of Mercom Oil Sands, the Canadian unconventional oil producer, this week.

Rockhopper Exploration, the North Falkland Basin oil and gas exploration company, has confirmed that John Crowle and Chris Walton will step down as non-executive directors at the end of the month. Crowle and Walton have both served terms approaching nine years. John Summers and Keith Lough have joined the board as non-executive directors, while Bob Peters will become senior independent director.

Alan Stark has resigned as a director of Andes Energia, the Latin American-focused upstream company, to concentrate on the development of his consultancy business.

Chris Fay has resigned as a director of Iofina, the chemical and gas company.

PIPELINES & STORAGE | GERMANY

Delay hits Germany's Jemgum storage facility

Alexey Novikov

A DEFECT in the pipeline that drains brine from the the Jemgum underground gas storage facility in Lower Saxonyis delaying construction, but the operator hopes to solve the problem this year.

A leak was discovered in a section of the pipeline in September, Gerhard Koenig, an executive director at Wintershall BASF, a shareholder of cavern operator astora, told *Interfax*. The section is a decommissioned gas pipeline that was repurposed to pump brine.

The operation of the pipeline was suspended and an inspection revealed damage. An industry source told *Interfax* that 25 defects were found on a 4 km section of the pipeline.

The project operator prepared a plan to deal with the problem that is now being discussed with the regulator. Koenig said a repair plan will hopefully be approved and the pipeline section will be replaced this year. He declined to estimate how much the problem would add to the cost of the project.

Meanwhile, two other caverns use the same pipeline for brine removal. The situation is complicated by the fact that the bed of rock salt where the caverns are being washed out contains veins of potassium salt, which dissolves much faster.

Koenig conceded the part of the cavern where the potassium veins are located might not remain within bounds of the planned specifications, but said the company has the situation under control and knows what to do in this case.

He said once the situation is resolved the company plans to continue developing the storage facility by washing out all 10 planned caverns.

Because of the construction delay, astora has begun negotiations with facility clients to defer execution of their contracts.

A representative of Wintershall told *Interfax* the working part of the pipeline allows for brine to be pumped to the Ems River as a temporary solution, where it is loaded onto ships and taken for disposal in the sea. This process is slower, but it has already made it possible to resume pumping brine out of the cavern.

Astora is a joint venture between Wintershall and Gazprom, but the Russian gas giant is due to acquire complete control over the company this year.

The first phase of the Jemgum project will hold a capacity of 1 billion cubic metres. The operator stated in 2012 that seven salt caverns had already been prepared at the site, with the first due to be brought into commercial operation in 2013. ■

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POLICY & REGULATION | ROMANIA

Romania planning energy stimulus to stop industry exodus

Joshua Posaner
Central & Eastern Europe correspondent, Berlin

THE energy regulators of Romania and Bulgaria have hinted at changes to the regulated retail prices for gas next month, with Bucharest also set to embark on a legislative package to ease the cost burden on large industries and avert a threatened exodus by big consumers angry at the cost of fuel.

Romanian energy regulator ANRE is expected to raise retail gas prices by 2% for household consumers and by 5% for industrial consumers beginning in April, its president Nicolae Havrilet was quoted as saying on Thursday by local media.

"We're not planning on increasing the price for electricity, but natural gas has a scheduled price hike in the calendar, agreed on with international partners, and it deals with a 2% price [rise] for household consumers," Havrilet said.

Romania's Prime Minister Victor Ponta is also expected to unveil a stimulus package next week for industrial energy consumers after a unit of the Romanian Industry, Agriculture, Constructions and Services Owners Association – which includes steel and mining group AncellorMittel – called for reforms or suggested its members would be forced to relocate.

The measures are anticipated to be presented to parliament on Monday and passed soon after, Ponta said this week. A cut in green certificates to reduce power prices are thought to be the base of the proposals, to avoid "a massive shutdown of units and cut-down in activity, over the next few months," a statement from the Romanian Industry, Agriculture, Constructions and Services Owners Association said.

"Unless Romania takes swift and significant measures to sort the issues in the energy and gas markets, the risk of relocation becomes a reality in a short period of time. The huge and artificial cost burdens that threaten the manufacturing industry also have potentially irreparable consequences on the national economy."

"The artificial increase of the gas price as a result of the so-called liberalisation of the market brings the costs of the industrial companies operating in Romania to levels beyond comparison with any of their competitors," the statement added.

It added that industrial consumers paid 21% more for each MWh of power in 2013, compared to 2010. Romanian companies also claim the average cost of electricity is $80/MWh, while their competitors pay about $50/MWh in Germany and below $40/MWh in the US.

Meanwhile, Romania's Black Sea neighbour Bulgaria will reduce its gas tariff by almost 4.6% as of 1 April, the head of national regulator said this week. In an interview with private radio group *Darik News*, Boyan Boev said prices from state utility Bulgargaz will be reduced to BGN 601.25 ($424) per thousand cubic metres. ■

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POLICY & REGULATION | EUROPE

EU seeks roadmap on reducing Russian imports

Joshua Posaner
Central & Eastern Europe correspondent, Berlin

LEADERS of the EU's 28 member states are to seek a strategy for how to reduce dependence on Russian energy. The continued crisis in Ukraine and fears over how over-dependence on Gazprom imports gives Russia increased political influence have made the topic a pressing concern.

The European Commission is set to begin work on a comprehensive document outlining the routes by which EU member states – especially those in Central and Eastern Europe, such as the Baltic states and Bulgaria, which are the most dependent on Russian gas – can reduce import rates and access new sources.

Estonia, Latvia and Lithuania rely on Gazprom imports for 100% of their gas supply, while Bulgaria imports the vast majority of its annual demand of 3 billion cubic metres via Ukraine. Poland also relies on Russia to satisfy two-thirds of its demand.

"Efforts to reduce Europe's high gas energy dependency rates should be intensified, especially for the most dependent member states. The European Council calls on the commission to conduct an in-depth study of EU energy security and to present by June 2014 a comprehensive plan for the reduction of EU energy dependence," a draft reads.

Concurrently, the commission is continuing its anti-competition practices investigation into Gazprom, with a statement of objection being prepared. There has been some suggestion the Russian gas giant will seek a settlement with Brussels.

A discussion paper from the UK government circulated in Brussels this week and seen by *Reuters* cites potentially sourcing gas from the United States to help solve the problem, and envisages possible pipeline supplies to the EU from Iraq – an idea suspended since Nabucco opted to downscale its ambitions and focus on Azerbaijan as a potential supplier.

Analysts suggest another gas crisis such as in 2006 and 2009 is unlikely. Warm spring temperatures have arrived early to much of Europe, putting a dampener on demand, while storage stocks remain strong across the continent.

However, a shutdown of Ukrainian transit is a still a risk, putting Bulgaria and consumers in the Baltics in jeopardy. A new LSE study estimates Bulgaria and FYR Macedonia would be hardest hit, with little impact felt elsewhere in Europe if the dispute lasted less than two months. ■

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EMEA in brief

Egypt is in talks with multiple LNG suppliers, including Algeria's Sonatrach, to secure gas to feed its power plants this summer, Oil Minister Sherif Ismail was quoted as saying in Thursday's edition of the *Al-Bursa* newspaper, according to *Reuters*. However, analysts have told *Interfax* it is unlikely Egypt will be able to bring an FSRU online before October this year.

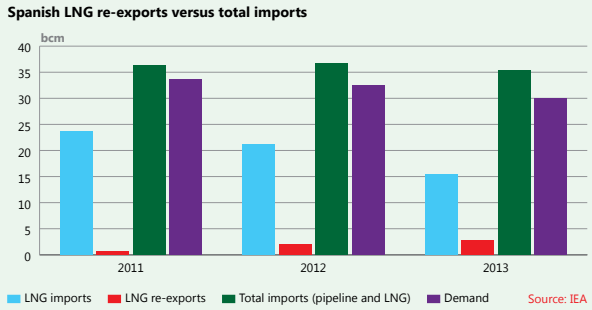
Chart Insight

Gas analysis and forecasts from Global Gas Analytics

Interfax Global Gas Analytics

Spanish LNG re-exports on an upward trajectory

Fatima Sadouki senior energy analyst



Reduced gas demand in Spain since the start of the year has increased the opportunity for LNG re-exports, which have been rising over recent years. Whether this will continue depends on domestic demand trends and pipeline supplies from Algeria.

Spanish gas demand has been falling on an annual basis since the start of the year, according to data from Enagas. Overall gas demand in January fell by 10.8% on an annual basis to 32.4 TWh, and in February it fell by 11.6%, to 28.55 TWh. The unusually mild winter, coupled with a greater share of renewables in the energy mix, were the main reasons behind the decrease. Enagas's forecast for April demand has been revised to 24.1 TWh, down by 7.5% from actual demand in the same month last year.

Gas demand in 2013 was down by 8% year on year to the equivalent of 29.9 billion cubic metres, according to International Energy Agency (IEA) data. While overall imports into Spain were down by around 4%, to 35.4 bcm, LNG imports fell by 27% to 15.5 bcm. Meanwhile, the amount of LNG re-exported to higher-priced destinations rose year on year by 41% to the equivalent of 2.82 bcm (2 mt). Spain accounted for just under half of all cargoes reloaded worldwide last year – 4.4 mt in total.

Pipeline imports from Algeria rose by 28% year on year to 16 bcm in 2013, a cheaper option than LNG imports from the North African country.

LNG exports from Algeria to Spain were down by almost 20% on an annual basis – to 3.2 bcm – in 2013. Pipeline exports to Spain are sourced from the Hassi R'mel field in Algeria via the Maghreb-Europe and Medgaz pipelines. The field also supplies gas to Italy using the Trans-Mediterranean link. However, Italian imports of Algerian gas fell by 43% year on year – to 12.5 bcm – in 2013, favouring increased pipeline supplies to Spain.

GGA expects pipeline exports from Algeria to Spain to increase by 3.8% annually – to 8.6 bcm – in H1 2014. However, LNG exports from Algeria to Spain will fall by 4.3% – to 1.7 bcm – during the period, which could limit Spanish re-exports.

Fatima Sadouki is a senior energy analyst with *Global Gas Analytics*, a monthly analytical publication by *Interfax* providing fundamental analysis and forecasts of international gas markets. For more information about *Global Gas Analytics* please email: fatima.sadouki@interfax.co.uk.

COMPANIES & FINANCE | RUSSIA

Novatek shares down as US announces sanctions

Rodion Romov and **Roman Karakov,** Russia correspondents, Moscow

SHARES in Novatek saw significant drops in value during trading on Friday, falling by as much as 12.1% during the session.

The Moscow Exchange quoted Novatek at RUB 328.02 per share (-8.50%) at 2.10pm (GMT: 10.10am) on Friday, after dropping as low as RUB 315.74 (-12.1%), but still above the annual low of RUB 303.60 recorded on 17 March.

The rest of the blue chips had posted losses of as much as 4.5%. The MICEX index was down by 2.04%, while the RTS was down by 2.53% at 2.10pm local time.

The United States Treasury Department announced sanctions against a number of Russian businessmen on Thursday, including Novatek shareholder Gennady Timchenko.

Timchenko also owned a stake in trading house Gunvor, which he sold to Chief Executive Torbjorn Tornqvist, the company said on Thursday. The shares were sold "anticipating potential economic sanctions… to ensure with certainty the continued and uninterrupted operations of Gunvor".

Gunvor's only asset in the US is a 33% stake in coal company Signal Peak, which it owns through US subsidiary Pinesdale. The commodities trader intended to sell 8% from this stake, which it bought for $400 million.

The trader bought products from US company Chevron in 2012 accounting for 2.7% of its total purchases by value, according to a Gunvor eurobond prospectus obtained by *Interfax,* although it is unclear in what jurisdiction.

US oil refiner Valero Marketing and Supply accounted for the second-largest share of Gunvor's $93 billion in sales in 2012 – making up 4%, or $3.7 billion. US major ExxonMobil accounted for a similar share in 2010-2011– 3-4% – but its share in 2012 dropped to 1.6%, although Gunvor's sales grew by 7% compared with 2011. ExxonMobil therefore accounted for nearly $1.5 billion of Gunvor's sales in 2012.

The US Treasury Department said in a statement issued on Thursday that "Timchenko's activities in the energy sector have been directly linked to [Russian President Vladimir] Putin", and that "Putin has investments in Gunvor and may have access to Gunvor funds".

US President Barack Obama announced new sanctions on Thursday. (PA)

Gunvor and Volga Group, the management company for Timchenko's assets, denied the US allegations.

"Putin did not and does not have any relation to Gunvor. He has also never been and is not a beneficiary of the company's activities. Both the company itself and Gennady Timchenko have repeatedly stressed all this in response to many speculations," Volga Group said in a statement.

Rumours about the Russian president's links to Gunvor's business have been repeatedly reported by western media outlets. Putin denied them personally in 2011, saying: "Everything that is related with [Timchenko's] business interests is his personal business. I've never meddled in it and don't intend to meddle in it. I hope that he also will never stick his nose into my business."

Gunvor's difficult relations with Russian state oil major Rosneft also do not seem to support the allegations of Gunvor's close ties to the Russian leadership. Gunvor declined to bid in Rosneft oil tenders some time ago, citing the state company's aggressive pricing. ■

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SUPPLY & DEMAND | RUSSIA

Italy can live without Russian gas – Eni

Alexey Novikov
Russia correspondent, Moscow

ITALY is capable of living without Russian gas if deliveries are stopped as a result of sanctions against Moscow, Eni Chief Executive Paolo Scaroni said in the Italian parliament on Thursday, according to the Italian press.

Russian gas accounts for around 30% of Italian consumption, Scaroni said. According to company data, Gazprom exported 25.3 billion cubic metres of gas to Italy in 2013, supplying more than 35% of the country's gas demand last year, which amounted to 68.7 bcm.

Scaroni said supplies could be secured despite the Ukraine crisis. He added Italy has a greater degree of flexibility than other countries more dependent on Russia, as the Trans-Adriatic Pipeline pipeline will provide Italy with gas from Azerbaijan.

However, Scaroni admitted a disruption in supplies would result in higher gas prices next winter.

The chief executive said he sees a fairly "gloomy future" for the South Stream pipeline project, which aims to deliver Russian gas to Europe bypassing Ukraine, as the European authorities could question the permits for building the pipeline. Eni is a partner in the South Stream consortium – which includes Gazprom, EDF and BASF. A €2 billion ($2.75 billion) contract was recently awarded by the consortium to build the first segment of the pipeline in Bulgaria.

Scaroni's contract as chief executive of Eni expires in a month. His last term was marred by a corruption scandal between construction subsidiary Eni Saipem and Algeria. ■

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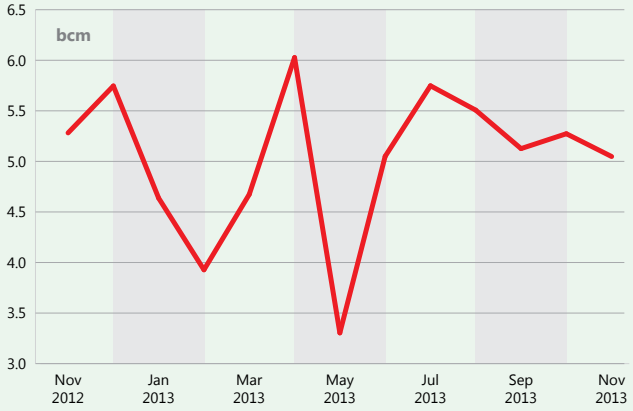
NIGERIA NUMBER CRUNCH

Nigerian gas production stable

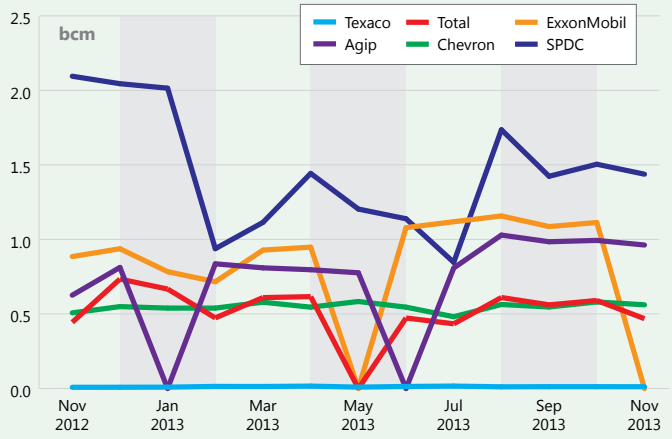
Nigerian gas output held steady in October and November and the amount of gas used as LNG dipped only marginally from August and September levels. The country's one operating LNG plant, NLNG, had declared force majeure three times already in 2013 by October, and managed to keep operations running as normal despite a number of feedstock interruptions. All producers maintained production levels, apart from Total, which saw output drop by more than 20%. Producers continue to battle with frequent sabotage on the onshore pipeline network.

Speaking earlier this year, NNPC Chief Executive Andrew Yakubu said 30% of the installed gas supply capacity in Nigeria is out of action because of vandalism. He gave the figure as 13.6 MMcm/d – enough to generate 1.6 GW of electricity. Infrastructure affected includes the Escravos-Warri stretch of the Escravos Lagos pipeline system and the Trans-Forcados crude oil pipeline. There is also ongoing maintenance at the Utorogu gas plant. Shell's planned disposal programme includes a number of onshore gas producing blocks that the company considers non-material and liable to frequent shutdowns.

Nigerian gas output, Nov 2012-Nov 2013



Production by company, Nov 2012-Nov 2013

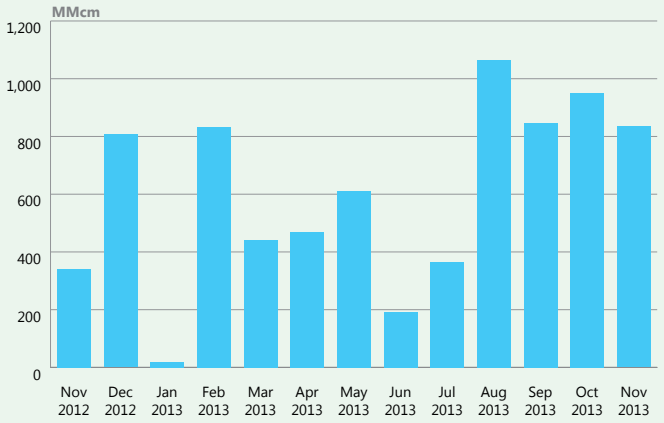


Uses of Gas in July, August and September 2013, (MMcm)

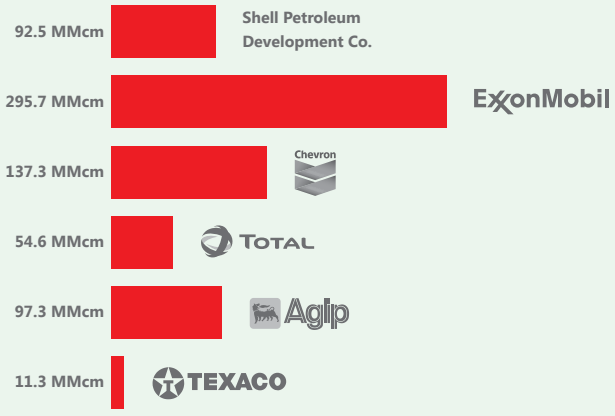
	September	October	November
Gas used as fuel	320.0	319.3	268.1
Gas sold to third parties	1,350.3	1,436.9	1,682.2
Gas for LNG	847.4	951.2	834.6
Gas lift	145.8	170.4	87.1
Gas flared	753.7	827.8	1,057.9
Gas reinjected	1,302.1	1,153.6	751.4

Source: NNPC

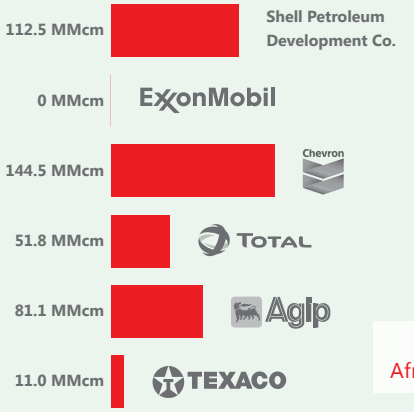
Gas used for LNG



Gas flared in October 2013



Gas flared in November 2013



Source: NNPC

James Batty
Africa correspondent

China unveils tiered gas pricing for households

China's state economic planner has released details of tiered pricing for residential consumers after year-long trials at a number of cities. China news editor **Colin Shek** and **Tang Tian** in Shanghai report

CHINA will implement tiered gas pricing for residents in all cities with access to the fuel by the end of 2015, less than a year after the world's third-largest gas market hiked prices for industrial and commercial users to spur greater supply through domestic production and imports.

Details of the long-awaited tiered pricing system for households were unveiled by China's economic planning agency on Friday, and mark a move by Beijing to optimise supply by encouraging energy saving.

The new system could put a dampener on double-digit demand growth, but will place the market on a more stable footing and provide a better incentive for LNG imports at market-based rates.

"I think this could be a step in the right direction, although I would hope to see that the level of the gas rate is high enough to move the needle," Gordon Kwan, regional head of oil and gas at Nomura, told *Interfax*.

"If what you pay [when] using [a small amount of] gas is not much lower than using a lot of gas, it's ineffective. But if there's real distinction between low-volume usage and high-volume usage, then people would get the message. If the pricing slope is not steep enough, then they may as well not do it."

The price of residential gas will be divided into three tiers of usage, with the volume for the base tier covering 80% of what Chinese households consume on average every month, the National Development and Reform Commission (NDRC) said in a statement. Prices will be unchanged for this category.

The next 15% of consumption past this benchmark volume will cost 20% more than the first band, while the final 5% of consumption will be 50% more expensive.

"[It] sounds very similar to what Hong Kong has implemented for water bills. The more you use, the higher rate you pay. This will promote conservation. If you recklessly waste gas, then you should be punished for it," said Kwan.

Piped gas distributors such as China Gas Holdings and ENN Energy Holdings will benefit from being able to charge higher residential prices, but they could also come under pressure from upstream suppliers.

"It will certainly open up room for the producers such as PetroChina and Sinopec to negotiate for higher city-gate prices to the distributors as well," said Kwan. Shares of PetroChina and Sinopec closed up by 3.67% and 2.47%, respectively, in Hong Kong on Friday.

Less than 5% of households use nearly a fifth of China's residential gas consumption, said NDRC director Xu Shaoshi at a media briefing on Friday.

Implementing a tiered gas pricing system should "demonstrate market differentiation and ensure social fairness", as the present pricing regime encourages waste by increasing subsidies for large-scale consumers, Yang Jianhong, a deputy director at the PetroChina Planning and Engineering Institute, told *Interfax* on Friday.

Tiered pricing should be implemented after public hearings, while local governments should provide subsidies for low-income households, said the NDRC.

"We should ensure affordability for low-income families by increasing subsistence allowances and giving subsidies or discounts when they buy gas, so that their basic living standards won't be degraded by the price adjustment," said the NDRC.

Wholesale prices raised

In July last year, the NDRC raised wholesale prices paid by non-residential users and city gas distributors to upstream suppliers such as PetroChina.

The commission also created two pricing tiers, with the first covering existing supply entering each province based on 2012 consumption, and the other based on additional supply added last year and linked to a basket of fuel oil and LPG.

The market-orientated pricing reform has helped PetroChina stem losses incurred by importing gas and selling it at domestic customers at below cost.

The company lost RMB 48.96 billion ($7.9 billion) last year from sales of imported gas. Stripping out a RMB 7.08 billion VAT refund reduced losses to RMB 41.87 billion, a slight improvement from RMB 41.9 billion in 2012.

PetroChina lost RMB 28.25 billion on the 27.45 billion cubic metres of pipeline gas imported from Central Asia, which works out to RMB 1.03/cm. Losses on LNG imports were higher, at RMB 20.28 billion on 7.33 bcm, equivalent to RMB 2.76/cm.

The company also made a loss of RMB 1.03/cm on the 409 million cubic metres of Myanmar gas, which it began importing via pipeline in September last year. ■

PetroChina's LNG terminal in Dalian, Liaoning province. The company made losses on gas imports last year. (Interfax)

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Argentina prepares to slash subsidies – media

Some households could see a 300% increase in their gas tariffs as Argentina's economy and planning ministries seek to phase out generous subsidies, say local media. **Chris Noon**, Latin America editor in Buenos Aires, reports

DEEP cuts to energy subsidies appear imminent in Argentina, which could see up to half of the country's households paying more for their gas, local media has claimed.

The news will be welcomed by experts who have called for the government to relax price controls as Argentina grapples with a falling trade surplus and soaring fiscal expenditure.

Around 3.2 million households, representing around 42% of Argentina's residential gas users, would face tariff increases according to plans drawn up by President Cristina Fernández de Kirchner's administration, the *Clarín* newspaper claimed on Thursday, without naming sources. Around 750,000 households in Buenos Aires, which constitutes 15% of the capital's energy users, could be affected.

Some households could see a 300% rise in their tariffs under new pricing structures drawn up by Argentina's economy and planning ministries, according to the paper. The size of the gas subsidy cut would depend on household consumption, while power subsidy cuts would depend on household income.

Residents of the city and province of Buenos Aires and the provinces of Santa Fe and Córdoba that consume 1-2.4 thousand cubic metres per year (Mcm/y) could see their subsidies cut by 50%. Households that consume more than 2.4 Mcm/y could see their subsidies removed altogether.

Kirchner will act in April, the newspaper said, claiming original proposals to review financial support for energy consumers were shelved after a rail disaster at Once station in Buenos Aires in February 2012.

Clarín is part of Grupo Clarín, Argentina's largest media conglomerate, which has frequently clashed with Kirchner's administration. At the time of publication, Argentina's economy and planning ministries had not returned emails seeking comment.

Subsidy cuts in the retail electricity sector would be gentler, with only 15% of customers likely to be affected. Only households which receive supply from the Edenor and Edesur power distributors would be subject to bill increases. However, high income households are likely to lose 100% of their electricity subsidy.

The government will start scrutinising records from the AFIP tax agency, analyse credit card spending and ask utilities for records on customer consumption from 1 April.

Harmful subsidies

Buenos Aires originally imposed price controls on gas and electricity bills in 2001 to fight inflation and assist consumers during an economic crisis. Analysts argue frozen prices deter investment and hamper production while encouraging consumption, which contributes to a widening supply-demand deficit.

Reducing energy subsidies to "socially acceptable" levels, while simultaneously encouraging private investment, is one of the greatest challenges for the Argentine energy sector, Jorge Lapeña, president of the IAE General Mosconi thinktank in Buenos Aires, wrote in his organisation's blog late last year.

Argentina's powerful Cabinet Chief Jorge Capitanich said in February that Buenos Aires would consider a reduction in energy subsidies that could spur upstream investment and cut expensive imports in the sector. He added that cutting subsidies would lead to "self-sufficiency" for the country's energy industry, without repercussions for consumers. "As we get more oil and gas exploration, we will replace imported energy," he said.

Buenos Aires will not be able to cut subsidies without some political and economic cost. It relies on energy imports, notably LNG, to plug the shortfall between supply and demand, while around 30% of the population are below the poverty line, according to data published by the Central Intelligence Agency.

A freeze on power and gas retail bills and an increase in global gas prices meant Buenos Aires spent around $28.1 million per day in the first nine months of 2013 to subsidise the energy sector, according to *Interfax* calculations. Lapeña has noted subsidies to the energy sector were approximately 3% of Argentina's GDP.

The country's energy sector swallowed around ARS 60 billion ($7.7 billion) of subsidies in the first nine months of 2013, which was 72% more than the same period in 2012, according to latest statistics from the Asociación Argentina de Presupuesto y Administración Financiera Pública, an independent organisation that tracks public finances.

The energy sector accounted for around 64% of total subsidies to the Argentine economy in 2013, which soared by 55% to $12.1 billion during the same period.

The country's gas industry continues to drain the public purse. State-controlled Enarsa – the agency responsible for the country's gas imports – received around $2.84 billion from Kirchner's administration during the nine month period, which was an increase of 87% compared with the previous year. ■

Argentine President Cristina Fernández de Kirchner will cut subsidies next month, according to *Clarín*. (PA)

Contact the editor at: chris.noon@interfax.co.uk

Circle Oil signs for $100 million syndicated agency debt

UPSTREAM player Circle Oil has signed off on a $100 million reserve-based lending facility with the International Finance Corp. (IFC), the World Bank's infrastructure lending arm.

The debt will be secured against Circle's production assets in Egypt and Morocco, and will mature in summer 2018, the UK-listed borrower said.

The IFC will hold $50 million of the debt directly and will syndicate the remaining $50 million to international banks.

The debt itself will be used for investment in new projects and to repay a capital working facility previously agreed with Ahli United Bank Egypt in December 2012.

In addition to projects in Egypt and Morocco, Circle is also active in Tunisia and Oman, where it is awaiting the results of a 2013 bidding round.

Ukrainian nuclear operator raises $39 million loan

UKRAINIAN state-owned enterprise Energoatom has raised a multi-currency credit line equivalent to UAH 400 million ($39 million) from Oschadbank, according to a report on the *Public Procurement* portal.

The funding will mature over a one-year tenor and will carry a 19.5% interest rate for the local currency portion and 12% on the United States dollar-denominated tranches.

The reason for the funding has not been specified but Energoatom operates all four of Ukraine's nuclear power plants, which have 15 VVER reactors with an overall generating capacity of 13.8 GW.

Oschadbank was founded in 1991 and is solely owned by the Ukrainian state. According to the National Bank of Ukraine, on 1 October 2013 the bank ranked second in terms of total assets (with UAH 92.319 billion) among the 178 banks operating in the country.

Adviser mandated for Philippine BatMan pipeline

THE Philippine National Oil Co. (PNOC) has mandated Dutch-based Rebel Group to provide transaction advisory services for the $2.1 billion Batangas-Manila 1 (BatMan 1) gas pipeline project.

Under the terms of the deal, Rebel will begin a feasibility study for the scheme and provide PNOC with transaction advisory support. PNOC has ramped up its plan to develop the national gas industry and reduce the country's dependence on oil by building a series of network pipelines on Luzon, the

Philippines' largest island.

The 105 km BatMan 1 pipeline, which will also supply gas to Laguna and Cavite, is part of this plan.

The Philippine government also signed a financing deal this week worth $1 billion with US-Exim to support the development of renewable energy projects and LNG infrastructure.

"The Department of Energy and Ex-Im will work together in promoting business development opportunities on renewable energy and LNG facilities including ports, receiving terminals, regasification facilities, pipelines and other transportation infrastructures," a government statement said.

Best of Blogs

Selling Libyan oil
The disappearance of a North Korean-flagged oil tanker last week prompted a swift response from the US military, but those allegedly seeking to buy the oil were safe in international waters.
http://tinyurl.com/o8redbr

Energy as a weapon
Ukraine and Europe's reliance on Russian energy is a key issue in the diplomacy over the Crimea crisis; as Europe moves to impose sanctions, Ukraine's energy security is considered to be under threat.
http://tinyurl.com/qd82l7f

Another look at nuclear power
A nuclear electrical engineer on *Tree Hugger* outlines his views on the role of nuclear energy in America.
http://tinyurl.com/petj5wx

Week in Numbers

Exceed expectations

9.26 bcm
Norwegian gas production in February

4.5%
Increase in production year on year for February

9%
Amount by which Norwegian production exceeded forecasts in February

Source: Norwegian Petroleum Directorate

Export growth

200
Landmark number of cargoes Peru LNG achieved on Saturday

14.83 mt
LNG exported since the plant started up in June 2010

11
Countries Peru has delivered LNG to since 2010

Source: PeruPetro

Price gap

10 bcm/y
Gas deal secured between Iran and Oman

$12-14
Price per MMBtu Iran is expecting to sell its gas for

$6-8
Price per MMBtu that Oman is able to afford to pay for Iranian gas

Source: FACTS Global Energy

Winners & Losers

The UN Commission on the Limits of the Continental Shelf has unanimously affirmed Moscow's application to recognise more than 5 million hectares of the Sea of Okhotsk as part of Russia's territorial waters. Estimates released by the United States Geological Survey in 2008 concluded the Arctic holds about 90 billion barrels of oil and 47 trillion cubic metres of gas.

Chile's plans for a virtual LNG pipeline are taking shape as Chilean fuel giant Copec has signed a deal with state-owned Enap to distribute LNG from the Quintero terminal via truck, 150 km south of the capital Santiago. *Interfax* understands a similar truck-loading scheme will soon be launched from Mejillones, Chile's other regasification terminal.

Ghana's energy minister has visited Nigeria this week to boost gas flows through the West African Gas Pipeline and ease chronic power shortages. Pipeline volumes have consistently failed to reach the contracted 2.83 million cubic metres per day (MMcm/d) and flows have now fallen as low as 850,000 cubic metres per day. Ghana's Volta River Authority needs 5.7 MMcm/d to feed its Takoradi and Tema power plants, but it has had to rely on liquid fuels to keep the facilities running.

The China-Myanmar pipeline is running significantly under capacity seven months after going onstream. Industry sources attribute the delays to a hold-up offshore. Daewoo International, which operates the offshore Shwe gas fields feeding the pipeline, was behind schedule in its drilling programme. The pipeline is handling a fraction of its designed capacity of 12 billion cubic metres per year.

A lack of exploration success saw UK explorer Cairn Energy deliver a post-tax loss of $556 million in 2013. The company has plugged and abandoned two wells offshore Morocco. Additionally, an investigation into the proposed sale of its 10% stake in Cairn India has forced the company to halt its $300 million share buyback programme.

Bangladeshi industries have started using LPG as a fuel to ensure industrial output in the absence of adequate gas supplies – and are spending at least four times more for it than they would on LNG, industry insiders have said. Bangladesh is suffering from a gas supply-demand gap, which is being exacerbated by insufficient hydrocarbon exploration from state-run and foreign upstream companies. ■

Quotables

Rosneft is prepared to offer the most extensive opportunities for cooperating in meeting potential demand

Igor Sechin, chief executive of Rosneft, said Russia was prepared to cooperate with Japan on a number of projects, including a Sakhalin-Japan power bridge, but it is unlikely any deals will be agreed while the Crimea crisis continues.

This can only increase costs on the UK continental shelf, where operating costs have increased sharply in recent years and last saw a rise of 15.5% to an all-time record of £8.9 billion

Malcolm Webb, head of offshore trade body Oil & Gas UK, said regarding the inclusion of measures to restrict tax relief on 'bareboat charters' in the UK budget.

Poland suffered from very high expectations. People thought production would be happening two or three years [after exploration began]

David Messina, managing director of European oil and gas explorer Hutton Energy, advised that it may still be five or 10 years before commercial production of shale gas will happen in the UK.

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