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interfax Natural Gas Daily

Features and insight on emerging gas markets
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European utilities burn more gas and coal in H1



A cooling tower at a coal-fired power station. (EDF)

Andreas Walstad /
Brussels



EUROPEAN UTILITIES BURNED more gas and coal for power generation in the first half of the year compared with the same period last year to compensate for lower hydropower and nuclear output.

Spanish utility Endesa said in its H1 results in late July that mainland output from its gas-fired power plants increased by 65% year on year for the period, to 4.7 TWh. Meanwhile, coal-fired generation increased by 77%, to 11.7 TWh, while hydro production fell by 38%, to 3 TWh.

Analysts said Iberian companies had ramped up production from combined-cycle gas turbine (CCGT) plants to compensate for lower hydro output levels.

“The reason is that Spanish hydro output has been very poor due to lack of rainfall. Hence the CCGTs’ step into the fray,” Lawson Steele, a senior utilities analyst with Berenberg, told *Interfax Natural Gas Daily*.

Output from Portuguese utility EDP’s fleet of domestic CCGTs increased by 277% year on year in the first half of 2017, to 2.3 TWh, while output from its fleet in Spain almost doubled, to 793 GWh. The company’s coal-fired output also increased, by 42% in Portugal and 72% in Spain.

French company Engie said its H1 earnings had been affected by lower production from hydro and wind installations in France, but

cited a “good performance” from its CCGT fleet in Europe.

Similarly, Paris-listed EDF reported higher output from its gas-fired installations in France and Italy. In France alone, the company’s gas-fired fleet produced 7.8 TWh of electricity in the first half of 2017, an increase of 3.6 TWh on the previous year.

Italy’s Edison also cited lower hydro levels as the main reason why its gas- and coal-fired plants had increased their output by 11.1% in total. Italian gas demand increased by almost 10% year on year in the period, to 39.2 billion cubic metres, it said.

“Hydroelectric production during the first half of 2017 [was 3 TWh, 14%] down on last year as a result of the lesser rainfall throughout the year [but] was offset by a greater production by thermoelectric power plants [...] of about 9.4 TWh [...] with greater use of gas plants rather than coal,” the company said.

Austrian utility Verbund recorded a 10% year-on-year drop in hydro production and a 632 GWh increase in output from its Mellach CCGT plant. The company has previously tried to sell the plant, but announced in March this year that bids from potential buyers were too low.

Short-lived trend?

Analysts say they expect the recent surge in gas-fired power generation to be short-lived.

“Both coal- and gas-fired power generation has increased in Southern Europe to offset the drop in hydropower production on account of drought. However, this is a temporary factor – it is not a structural change,” Tancredè Fulop, a utilities analyst at research firm Morningstar, told *Interfax Natural Gas Daily*.

The International Energy Agency has also said it expects the trend to be short-lived as a result of competitive coal prices and renewables growth.

However, stricter EU regulations on sulphur dioxide emissions and the nuclear phase-out in



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CONTINUED ON PAGE 2



A gas-fired power plant in Germany. (E.On)

CONTINUED FROM PAGE 1

Germany could boost gas-fired generation in the medium term.

“In the short term, I expect a reduction in gas-fired power generation and coal-fired generation. By the end of the decade, gas will increase its share in the power mix due to closures of coal plants under the EU’s air quality regulations and the nuclear phase-out in Germany,” said Fulop.

Prices pushed up

Greater use of coal and gas in power generation has also helped push up European wholesale power prices.

The average Spanish pool day-ahead price for power was €51.3/MWh (\$60.1/MWh) in the first half of 2017, a 70% increase year on year,

Further reading

EUROPE GAS TO POWER

Marginal role for gas if Hinkley Point C is cancelled

The UK’s Hinkley Point C nuclear plant is facing further delays, but potential gains for gas could be limited by climate policies.

EUROPE GAS TO POWER

French energy policy offers chance for gas

Plans to phase out coal and nuclear in France’s power supply could offer gas a chance to gain market share.

according to Endesa. However, it noted that Iberian prices had been exceptionally low in the first half of 2016. Day-ahead spot prices for baseload power in France increased by 62.2% in H1 2017 to average €44.4/MWh, according to EDF. “This price rise is mainly explained by the increase in coal and gas prices, tensions concerning the nuclear power plant fleet early in the year, and a wave of cold weather in January 2017,” the company said.

Italian baseload day-ahead prices increased by 38% in H1 to average €51.2/MWh, mainly because of higher gas prices, said EDF. Gas accounts for close to 35% of Italian electricity generation. ■

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Energy front-month futures, 9 August

	Close	% change
Brent Crude, \$/bbl	52.70	1.07
WTI Crude, \$/bbl	49.56	0.79
Henry Hub, \$/MMBtu	2.88	2.16
NBP, p/th	41.77	2.23
TTF, €/MWh	15.61	2.53
Gaspool, €/MWh	15.67	2.61
NCG, €/MWh	15.86	2.57
CSX Coal, \$/t	55.95	-0.36
Newcastle Coal, \$/t	95.20	1.22
South China Coal, \$/t	84.35	-0.82

Prices provided by GlobalView. GlobalView provides benchmark pricing, news and analytics for the commodities and energy sector. For more information, please contact sales.london@marketview.com.

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Sweet taste of success eludes Argentina

Argentina is championing Vaca Muerta as the country’s future while conventional production wanes in the background.

EWE to convert salt caverns into huge battery

Silvia Favasuli / London



The two German salt caverns were previously used to store gas but will now be made into a 700 MWh redox flow battery.

GERMAN ENERGY COMPANY EWE plans to convert two salt caverns, currently used to store gas, into a battery. The battery will be the largest electrochemical storage device of its kind and the first to use a salt cavern.

The caverns to be converted are part of an eight-cavern cluster at Jemgum in northwestern Germany. If successful, the project – known as brine4power – will be able to store 700 MWh of electricity, equivalent to one hour of Berlin’s energy consumption.

It will use ‘redox flow’ battery technology, which has been around since 1940 but has never been applied in salt caverns. The large spaces, each of which has a volume of 100,000 cubic metres, will be used as containers for the catholyte and anolyte, which facilitate electrolysis. The project will use more sustainable components than those typically employed in batteries.

“Normally most of the redox flow cells work with vanadium and sulphuric acid as electrolyte. We use brine – salted water – and polymers, which are able to be charged or discharged with electrons,” Ralf Riekenberg, head of the brine4power project, told *Interfax Natural Gas Daily*.

The use of polymers instead of metallic components – which usually constitute 90% of the cost of a redox flow battery – is a further advantage for brine4power, Oliver Schmidt, a researcher at the Grantham Institute of Imperial College London, told *Interfax Natural Gas Daily*.

The battery is planned to have a lifetime of 20 years and will charge and discharge between 10,000 and 20,000 times.

EWE aims to have its battery operational in 2023. It is currently testing the idea through smaller pilot batteries installed in laboratories at the University of Jena. EWE will move the project to

Jemgum in 2018, where other small pilot batteries will be installed. The cost for putting in place the final 700 MWh redox flow battery – which will most likely also be hosted by Jemgum – is expected to be around €120 million (\$140 million).

The project’s proponents have yet to find out whether their plan will work because of its experimental nature and the complexity of the concept. “It’s easy to work in a laboratory, [but] not in a salt cavern. In caverns we have different temperatures, different pressure, and a not-clean situation. On the other hand, caverns offer the advantage of being free of oxygen and of having hot temperatures, which means the brine and polymers have a lower viscosity, making it easier for the pumps to work and resulting in increased efficiency,” said Riekenberg.

New business opportunities

If successful, the brine4power concept could be used in other underground storage facilities, should demand for gas fall. “At some point, we might use less gas, and this is an ideal opportunity for owners of gas storage sites to make a different use of their facility and to take part in markets that pay a lot of money for stabilising the power system,” said Schmidt.

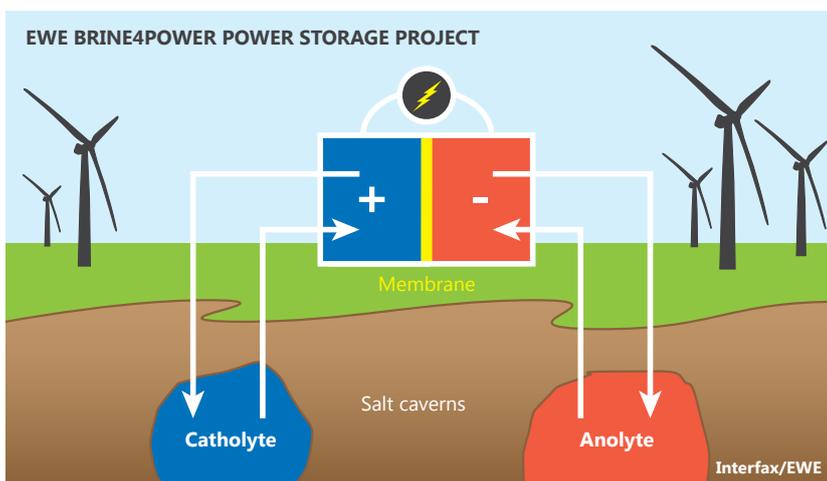
Schmidt is convinced EWE’s redox flow battery is particularly well-suited to store large amounts of energy for a long period of time compared with more established kinds of batteries, such as those based on lithium.

“With redox flow batteries, if you want to store more energy, you simply have to build a bigger tank,” he said. This is something that is easily achieved by using a salt cavern.

But Vladimir Yufit, another researcher at Imperial College, thinks adapting a salt cavern used for gas to store electricity might require a high capital investment. “It’s a customised system: each battery has to be adapted to a specific cavern. It’s not going to be standard,” he said. “Salt caverns may be placed in the middle of nowhere,” he added, pointing out the need for cables to convey the electricity to centres of demand.

However, high capex can be balanced out by a long lifespan. “Redox flow batteries are more expensive in terms of capex required to install them, but they are quite cheap to operate and are expected to deliver the same performance for 20-plus years,” Lorenzo Grande, a technology analyst for British tech consulting firm IDTechEx, told *Interfax Natural Gas Daily*. ■

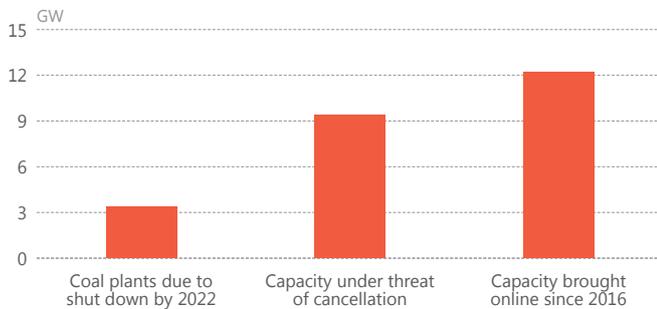
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South Korea coal power shutdown boosts LNG

Andrew Walker / London

SOUTH KOREA'S COAL-FIRED POWER CAPACITY



Source: Interfax/EndCoal/SourceWatch

COAL PLANTS DUE TO SHUT DOWN BY 2022

	Capacity	Built
Seochoon units 1 & 2	400 MW	1983
Samcheonpo units 1 & 2	1.12 GW	1983/1984
Boryeong units 1 & 2	1.00 GW	1983/1984
Yeongdong units 1 & 2	325 MW	1980s
Honam units 1 & 2	500 MW	1973
Total	3.35 GW	

Source: Interfax/EndCoal/SourceWatch

A total of 10 coal-fired plants in South Korea with a combined capacity of 3.35 GW were due to be shut down for the whole of June, but a reprieve was granted to two units in Honam that were needed to provide power to nearby industrial users. All the plants are more than 30 years old and are considered some of the country's oldest and most-polluting. President Moon Jae-in announced they would all be shut down by 2022 as he is promoting the expansion of gas and renewables in South Korea's energy mix.

CAPACITY UNDER THREAT OF CANCELLATION

Plant	Capacity	Status
Dangjin Eco 1 & 2	1.16 GW	Pre-permit
Pospower Samcheok 1 & 2	2.10 GW	Pre-permit
KOWEPO Hadong 1 & 2	2.00 GW	Shelved
Goseong Green 1 & 2	2.08 GW	Construction
Anin 1 & 2	2.08 GW	Pre-construction
Total	9.42 GW	

Source: Interfax/EndCoal/SourceWatch

Moon has said he will not approve any more coal plants and cancel those that are currently less than 10% complete. There is more than 9 GW of capacity that falls into this category and there will be very little in the way of additional coal-fired capacity coming online over the coming years, with just one unit at the Seochoon plant that is likely to be added.

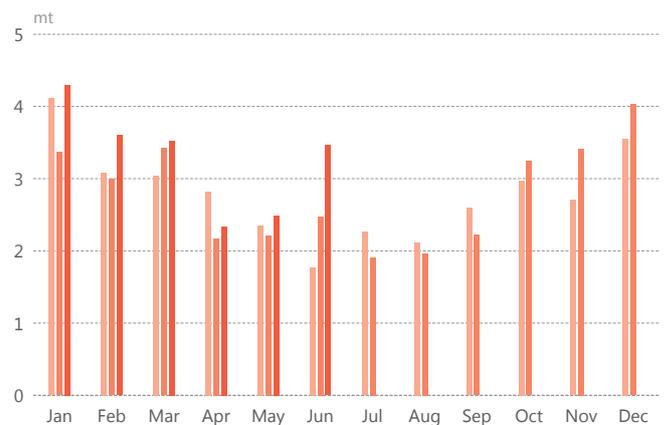
CAPACITY BROUGHT ONLINE SINCE 2016

Plant	Capacity	Start date
Taeon unit 9	1.00 GW	2016
Yeosu unit 1	350 MW	Feb 2016
Saemangeum	300 MW	Apr 2016
Seagull	250 MW	May 2016
Dangjin unit 9	1.00 GW	Jul 2016
Taeon IGCC	300 MW	Aug 2016
Dangjin unit 10	1.00 GW	Sep 2016
Samcheok Green unit 1	1.00 GW	Dec 2016
Bukpyung unit 1	1.00 GW	Mar 2017
Samcheok Green unit 2	1.00 GW	Jun 2017
Shin Boryeong unit 1	1.00 GW	Jun 2017
Taeon unit 10	1.00 GW	2017
Shin Boryeong	1.00 GW	Sep 2017
Bukpyung unit 2	1.00 GW	Oct 2017
Seochoon unit 1 (rep)	1.00 GW	Sep 2019
Total	12.20 GW	

Source: Interfax/EndCoal/SourceWatch

There has been rapid growth in the amount of coal-fired capacity being brought online over the past 18 months, with eight 1 GW units having started up. A further two units will be brought online before the end of the year. This could limit the potential for gas demand to grow over the short term.

SOUTH KOREA'S LNG IMPORTS, BY MONTH



Legend: 2015 (light orange), 2016 (orange), 2017 (dark orange)

Source: Interfax/EndCoal/SourceWatch

The shutdown of the eight coal plants in June led to an increase in demand for LNG, with imports up by 40% year on year for the month. South Korea's LNG demand is expected to rise in 2017 even with the new coal-fired capacity coming online. This is a result of overall growth in electricity demand.

Exxon's new Aussie play unlikely to ease local market

Sally Bogle / Perth



Exxon has locked down a deal for new resources in Victoria, but they may not be enough to sate the struggling domestic market.

EXXONMOBIL HAS ACQUIRED what could be a massive gas resource in Victoria's Gippsland Basin from US explorer Liberty Petroleum, but the deal may not ease prices or supply on the domestic market.

In title transfer documents lodged with the National Offshore Petroleum Titles Administrator, Esso Australia, Exxon's Australian subsidiary, said it will spend A\$130 million (US\$102 million) on three exploration wells across 31 blocks in the Bass Strait's Dory permit up to 2020, plus A\$90 million on studies. This implies any gas from the play is unlikely to come to market until early next decade.

Liberty has previously estimated that Dory could hold contingent resources of around 194 billion cubic metres of gas, with a potential 57 bcm of 2C reserves, making it a sizeable find for the region. In its results last month, Exxon confirmed it had found a potentially significant field in Australia but refrained from naming where it was located.

Gippsland Basin

Exxon is already a major player in the Gippsland Basin. Esso has operated the Gippsland Basin Joint Venture with BHP Billiton since May 2014, supplying nearly 40% of eastern Australia's domestic gas needs.

The 50-50 JV has faced criticism over its dominant role, with some saying it has been manipulating supply and prioritising LNG exports through Queensland, pushing up prices for local consumers.

The Australian Competition and Consumer Commission, which has been

investigating the issue, declined to comment on the latest deal.

Bruce Robertson, a gas and LNG analyst at the Institute for Energy Economics and Financial Analysis, warned the deal would be unlikely to solve the gas crisis.

"If there is a lot of gas there, will it solve the east coast problem? Definitely not, because the problem's not one of productive capacity or indeed of having enough gas. The problem is one of market structure and this actually consolidates the cartel-like market structure of the industry," Robertson said, adding it would not alleviate pressure to use high-cost onshore CBM to supply the market.

Wade Noonan, Victoria's minister for resources, refrained from commenting on the deal but told *Interfax Natural Gas Daily* the priority "is securing more Victorian gas for Victorian customers, while protecting the interests of our regional communities".

The Australian Energy Market Operator has long warned about a tightening gas market, with industrial gas users and some generators also finding it hard to sign long-term contracts with suppliers such as the Gippsland JV. In June, the federal government implemented the Australian Domestic Gas Security Mechanism as an emergency measure to ensure there will be enough gas to meet forecast needs.

Immediate concerns

The Australian Energy Market Operator told *Interfax Natural Gas Daily* that "our immediate focus is on domestic gas supply adequacy for the next 1-2 years. We will factor this [Exxon] development into our long-term planning analysis, namely the 2018 Gas Statement of Opportunities".

Meanwhile, after suffering losses from soaring gas prices, generator AGL is taking matters into its own hands. This week, the generator announced Crib Point in Victoria as the preferred site for a A\$250 million LNG import jetty that AGL Chief Executive Andy Vesey has called "a potential game changer".

The Gippsland Basin is one of Australia's most prolific hydrocarbon provinces. Approximately two-thirds of it is located offshore in the Bass Strait, with the rest stretching onshore in Victoria. ■

We welcome your comments. Email us at comments@interfax.co.uk.

Exxon's Altona Refinery in Victoria. (ExxonMobil Australia)



Chinese LNG output set to rise 6.25% in August

Tang Tian / Shanghai

CHINA'S LNG OUTPUT is projected to rise by 6.25% in August compared with July, to 1.28 billion cubic metres. Average weekly sales of LNG at China's Dalian, Rudong, Putian, Dapeng and Qingdao terminals fell by 12% in July from June, while sales at Ningbo, Dongguan, Zhuhai, Tangshan, Tianjin, Beihai and Qidong surged by an average of 31%.

AVERAGE LNG PRICES AND SALES, JULY

Terminal	Price (RMB/t)	Daily sales, trucks per day
Dalian	3,050	30
Rudong	3,050	78
Putian	3,000	135
Ningbo	3,160	165
Dapeng	2,800	17
Dongguan	3,250	120
Zhuhai	2,700	120
Tangshan	3,050	65
Tianjin	3,145	202
Qingdao	3,250	132
Beihai	–	170
Yuedong	–	40
Qidong	3,000	145

OUTPUT AND PRICE FORECASTS FOR AUGUST

	Output, MMcm	Ex-works price, RMB/ton	Price change, month on month
Shaanxi			
Gansu			
Ningxia	490.00	2,900-3,000	-1.67%
Xinjiang			
Qinghai			
Inner Mongolia	310.20	2,800-2,900	-1.72%
Beijing			
Tianjin	282.00	3,100-3,200	-3.07%
Shanxi			
Heilongjiang			
Liaoning	37.80	3,000-3,350	0.00%
Jilin			
Jiangsu	11.20	3,350-3,450	-1.45%
Anhui			
Shandong	12.24	3,300-3,410	-1.45%
Henan			
Hubei	55.70	3,050-3,300	0.75%
Hunan			
Guizhou			
Sichuan	83.67	2,850-3,300	0.49%
Yunnan			

Source: JLC

LNG DELIVERY SCHEDULE

Arrival	Origin	Terminal (Buyer)	Volume, t
1 Jul	Australia	Dapeng	65,000
3 Jul	Australia	Tianjin	65,000
4 Jul	Australia	Dalian	70,000
4 Jul	Malaysia	Shanghai Yangshan Port	65,000
4 Jul	Philippines	Dongguan	42,000
4 Jul	Australia	Rudong	65,000
5 Jul	Indonesia	Putian	65,000
6 Jul	Australia	Ningbo	70,000
7 Jul	Australia	Qingdao	70,000
9 Jul	Qatar	Dapeng	110,000
10 Jul	PNG	Qingdao	80,000
10 Jul	Australia	Dalian	65,000
10 Jul	Qatar	Tangshan	115,000
10 Jul	Australia	Rudong	80,000
10 Jul	Malaysia	Dongguan	30,000
10 Jul	Australia	Yangpu	65,000
10 Jul	Australia	Beihai	75,000
12 Jul	PNG	Qingdao	80,000
12 Jul	Australia	Tianjin	70,000
12 Jul	Australia	Yuedong	65,000
12 Jul	Australia	Shenzhen	65,000
13 Jul	Australia	Rudong	65,000
17 Jul	Indonesia	Putian	65,000
18 Jul	Qatar	Tangshan	90,000
18 Jul	Indonesia	Shanghai Yangshan Port	65,000
18 Jul	Australia	Ningbo	75,000
19 Jul	Australia	Wuhaogou	75,000
19 Jul	Singapore	Rudong	75,000
19 Jul	Australia	Dapeng	65,000
20 Jul	Indonesia	Putian	65,000
20 Jul	Australia	Qingdao	75,000
22 Jul	Australia	Ningbo	68,000
23 Jul	Malaysia	Dongguan	29,000
23 Jul	Australia	Qingdao	75,000
24 Jul	Australia	Dapeng	65,000
24 Jul	Australia	Tianjin	63,000
24 Jul	Indonesia	Dalian	75,000
25 Jul	PNG	Qingdao	78,000
26 Jul	Australia	Ningbo	70,000
26 Jul	France	Qidong	62,000
26 Jul	Indonesia	Dongguan	60,000
28 Jul	Australia	Tangshan	70,000
30 Jul	Australia	Qingdao	75,000

Weak demand hits Peruvian production

Chris Noon /
Barcelona



Production from Peru's two key gas blocks has slumped by around 15% in 2017 amid tepid demand from the local market and Peru LNG.

GAS OUTPUT FROM Peru's two key producing blocks has been declining because of limp demand in the country, the Argentine operator of the concessions has told *Interfax Natural Gas Daily*.

Average monthly production from the Pluspetrol-operated Blocks 56 and 88 – which accounted for nearly 86% of Peru's gas output last year – fell by 9.9% and 18.2% respectively between January and May 2017 compared with the full-year figure for 2016. This amounts to a combined fall of around 15% for both blocks.

"Production is a function of the [local] market's gas demand, which could explain these changes [...] not because of field or operational issues," said a Lima-based spokeswoman for Pluspetrol.

Blocks 56 and 88 are part of the Camisea Gas Project, a giant field near the Urubamba River in central Peru. Block 56 and the nearby Repsol-operated Block 57 are the only two concessions that supply gas to Peru LNG, the Hunt Oil-operated liquefaction plant in Pampa Melchorita. Block 88 supplies gas to Peru's local market.

"For Block 88, there was low demand in the first months [of 2017] because of high hydroelectric generation, which displaced thermal generation," said the Pluspetrol spokeswoman.

The main customers for gas from Block 88 are Lima gas distributor Cálidda, the local gas-to-power units of Enel and Engie, and Kallpa Generación, which is controlled by Peruvian company Inkia Energy. All four companies buy gas from Camisea pipeline operator Transportadora de Gas del Peru (TGP). The four companies can demand a maximum combined volume of nearly 19.1 million cubic metres per day (MMcm/d), according to data from state agency PeruPetro. Block 88 production has averaged 16.35 MMcm/d in 2017.

The combined generation capacity of gas-to-power plants fed by Camisea is around 3.78 GW,

according to TGP, accounting for approximately 32% of Peru's power mix. This includes four Kallpa-operated gas-to-power plants that have a combined output of around 771 MW. Meanwhile, Enel buys gas from TGP to feed its 498-MW Ventanilla and 420-MW Santa Rosa power plants, while Engie purchases the fuel for its 348 MW Chilca Uno facility.

"For Block 56, demand also depends on customers," said the spokeswoman. "If the customer does not take [gas] for various reasons – including sea-related dispatch issues and operational problems – then demand falls."

Peruvian LNG exports resumed in late July after a three-week hiatus caused by unplanned maintenance, sources told *Interfax Natural Gas Daily* earlier this month. The downtime forced Shell – Pampa Melchorita's sole offtaker – to make up for the lost output by buying cargoes on the spot market. Despite the interruption to exports, Peru LNG exported 32 LNG cargoes in H1 2017, which was one more than during the same period in 2016.

Hunt for new markets

Peru LNG is being forced to find new markets for its fuel as well as having to grapple with operational issues.

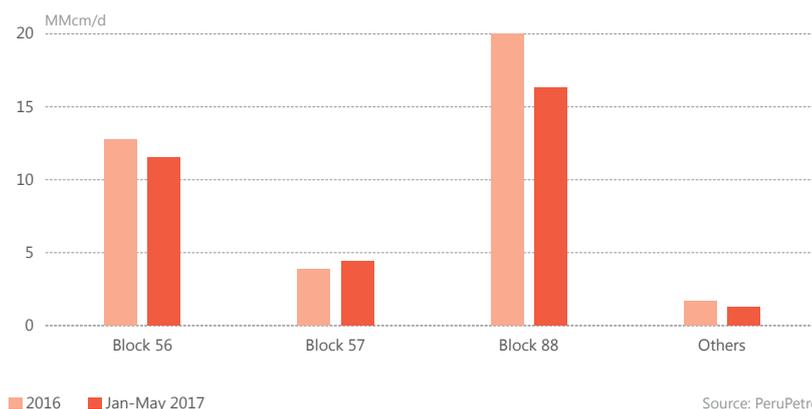
"Demand for the fuel in Latin America is declining, competition from regional suppliers such as the United States is ratcheting up, and the companies involved in marketing Peruvian LNG are seeking regions offering higher prices," said Abhishek Kumar, a senior energy and modelling analyst at *Interfax Global Gas Analytics*, on 24 July.

"All of this means more of Peru's volumes will be traded on the spot market, which will be a challenge for incremental revenue generation as the global LNG market remains oversupplied," Kumar added.

Shell and Hunt Oil have both refused to comment on operations at Peru LNG or the demand for volumes, citing company policy on worldwide operations.

Blocks 56 and 88 accounted for nearly 86% of Peruvian production in 2016, but their share fell to 83% in the first five months of 2017, according to PeruPetro. Block 57 has increased its share of Peruvian production from 10% in 2016 to 13% so far in 2017. Block 57 – which contains the Kinteroni Gas Project, one of the five biggest discoveries made worldwide in 2008 – began production in March 2014. Repsol has forecast the block's output will reach 5.95 MMcm/d by 2018. ■

PERUVIAN GAS PRODUCTION, BY BLOCK



We welcome your comments. Email us at comments@interfax.co.uk.

Europe | Markets

Prime ministers of Baltic states to meet in Incukalns

The prime ministers of Latvia, Estonia and Lithuania are set to meet at Incukalns in central Latvia on Friday to discuss cooperation on energy, Andrejs Vaivars, a spokesman for Latvian Prime Minister Māris Kučinskis, told the *Leta* news agency on Thursday. The leaders will visit the Incukalns gas storage facility before discussing strategic energy projects in the three countries. The trio recently met in Paldiski in Estonia and Klaipeda in Lithuania for similar purposes. Kučinskis reportedly stressed the importance of working to develop a regional gas market while strengthening security of energy supplies and reducing dependence on a single supplier.

Europe | Companies and Finance

Parkmead completes acquisition of North Sea licence from Verus Petroleum

Independent E&P company Parkmead has completed the acquisition of a 50% interest in Licence P.2209 in the UK North Sea from Verus Petroleum, giving it full ownership of the concession, the company said in a note on Wednesday. The licence contains the Farne Extension prospect and a further four prospective leads, as well as two adjacent blocks, Block 42/19 and Block 42/20b. It is expected to hold almost 5 billion cubic metres of gas. “Our technical and

commercial teams at Parkmead are working hard to evaluate and execute further value-adding opportunities in our core areas of the UK and Netherlands,” Tom Cross, Parkmead’s executive chairman, said in a statement.

Europe | Pipelines

OPAL utilisation falls back to 83% a day after hitting capacity

Flows on the OPAL gas pipeline, which delivers Russian gas from the eastern branch of the Nord Stream pipeline into Germany, had fallen from 100% of capacity to 83% in the early hours of Thursday, according to European transmission system operators. Meanwhile, flows on the NEL pipeline – Nord Stream’s western offshoot – have returned to 57 million cubic metres per day (MMcm/d) after having fallen to 41 MMcm/d on Tuesday. Russia’s Gazprom received access to its full capacity on OPAL at the end of July, causing the pipeline’s capacity utilisation to rise from 63% on 1 August to 80% on 2 August. Gazprom Chief Executive Alexei Miller said on Wednesday that up to 140 MMcm of gas was pumped to Nord Stream’s landfall point in Greifswald on Tuesday. “In other words, Nord Stream capacity utilisation rose above 90%, and that’s in the summer,” Miller said. Full utilisation of the Russian company’s allotted capacity on OPAL “is an objective market necessity on the part of our European clients”, he added.

FSU | LNG

Second Arctic LNG plant will be cheaper than first – Novatek CEO

Arctic LNG 2, Novatek’s second LNG project in the Arctic Circle, will cost roughly 30% less than Yamal LNG, Chief Executive Leonid Mikhelson said during a meeting with Russian Prime Minister Dmitry Medvedev. Capital investment in Yamal – Novatek’s first Arctic liquefaction plant, which is due online in late 2017 – amounts to \$27 billion. “But taking into account new solutions, we plan a cost reduction of 30% at a minimum,” Mikhelson said. Novatek is currently studying the possibility of building Arctic LNG 2 with gas supplied from fields on the Gydan Peninsula, adjacent to the Yamal Peninsula. Startup of the first liquefaction train may take place in 2022-2023 if the project proceeds as planned. Design work is expected to be finished by the end of 2018 and is being carried out by NovaEngineering, a joint venture between Russia’s Nipigas (with a 51% share), French company TechnipFMC and Germany’s Linde Group.



The Sedco Express rig offshore Israel. (Transocean)

Middle East | Pipelines

Leviathan partners seeking to change pipeline route

The companies developing the Leviathan gas field offshore Israel have entered negotiations to change the route of a pipeline to Egypt so that it passes through Jordan, according to *Bloomberg*. Delek Group and Noble Energy are discussing sending around 3 billion cubic metres of gas a year to Egypt. They hope the new route will help them circumvent issues arising from a gas price dispute between Egypt and Israel. The Leviathan partners signed a gas supply deal with Jordan in September.

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LNG storage tanks in India. (Petronet)

Asia Pacific | LNG

IOC to acquire 50% stake in India's Mundra LNG terminal

Indian Oil Corp. (IOC) will acquire a 50% equity stake in the Mundra LNG terminal in the state of Gujarat, according to *Platts*. The terminal is expected to be brought online in the first quarter of 2018 at a cost of \$790 million. IOC is seeking to expand its investment in the gas sector in line with India's desire to expand the use of the fuel in its energy mix.

CONTINUED FROM PAGE 8

Asia Pacific | E&P

ONGC Videsh to spend \$150 mln on exploring Colombia and elsewhere

ONGC Videsh, the foreign arm of India's Oil and Natural Gas Corp., plans to invest \$150 million in exploration during the current fiscal year to drill wells in Bangladesh, Colombia and Kazakhstan, according to *The Financial Express*. The company operates the CPO 5 block in Colombia and has made a discovery with the Mariposa 1 exploration well. Bangladesh and India discussed the prospect of exploring in the Bay of Bengal last March.

Australia | LNG

Australia's AGL considers building LNG terminal in Victoria

Australia's AGL, an integrated energy company, is looking to build an LNG terminal at Crib Point near Melbourne in Victoria, according to *Platts*. The idea of building a terminal in the world's second-biggest exporter of gas has been gaining momentum over recent months as the state has faced severe gas supply shortages. Feasibility studies are under way, and AGL plans to invest A\$250 million (US\$ 197 million) in the project and start construction in 2019, with the aim of beginning operations in 2020-2021.

Latin America | Gas to Power

Brazil's EPE to hold two power capacity auctions in December

EPE, Brazil's state-run energy planning company, has announced two power capacity auctions to be held in December 2017. One of the tenders, the so-called 'A-6' auction, calls for gas-to-power projects to be commissioned by 1 January 2023. The minimum size for individual projects is set at 5 MW, but there is no overall maximum capacity or ceiling price, according to local press.

North America | E&P

US to be net gas exporter 'beyond 2018' – EIA

The United States is set to continue being a net exporter of gas for the rest of 2017, and the trend is expected to last beyond 2018, the US Energy Information Administration (EIA) said on Wednesday. "The United States has been a net exporter for three of the past four months and is expected to continue to export more natural gas than it imports for the rest of 2017 and throughout 2018," the EIA said in a statement. ■

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