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NEW CARBON NEUTRAL

LNG DAILY

Volume 18 / Issue 214 / November 1, 2021

JKM falls on weaker sentiment

KEY DRIVERS / MARKET HIGHLIGHTS

- Asia derivatives MOC: 3 entities post 4 bids, 4 offers
- Asia physical MOC: BP, Trafigura and Vitol post 3 bids
- ExxonMobil heard sold mid-Dec Gorgon cargo
- Last time GCM was below \$20/MMBtu was Sept. 16
- In Atlantic MOC, BP bids for DES Rotterdam delivery

SHIPPING MARKET HIGHLIGHTS

- Day rates increased to \$230,000/day in Pacific basin
- Flex Volunteer heard on subs by Royal Dutch Shell

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SHIPPING RATES, NOV 1

		\$/day	E	Ballast rate	
Asia Pacific day rate	AARXT00	230,000	AAXTN00	100%	
Atlantic day rate	AASYC00	181,000	AAXTM00	100%	
TCR Australia-Japan	ATCRA00	230,000.00			
TCR USG-NWE	ATCRB00	181,000.00			
TCR USG-Japan	ATCRC00	181,000.00			

DAILY CUMULATIVE AVERAGES AND MONTHLY AVERAGES

Nov 1 (\$/MMBtu)	m	Cumulativ onthly aver			Previous month avera	ge
JKM	AAOVS00	33.264	Dec	AAOVS03	33.254	Nov
DES West India	AALIC00	31.260	Dec	AAWIC03	31.934	Nov
DES Mediterranean	AADCU00	28.917	Dec	AASWC03	29.207	Nov
DES Northwest Europe	AASDF00	28.994	Dec	AASDE03	29.202	Nov
FOB GCM Loading Month	LGCSM00	25.795	Dec	LGCSM31	27.329	Nov
JKM Yen	AAOVT00	3791.440	Dec	AAOVT03	3707.118	Nov
JKM Yuan	LJCWM00	212.995	Dec	LJCWM03	189.189	Nov

JKM [™]	AAOVQ00	28.500	-1.304	▼
Cumulative monthly average (Dec)	AAOVS00	33.264		
Previous month average (Nov)	AAOVS03	33.254		
CNL WTW JKTC	ACNLF00	0.657		

Nov 1			Change	
DES Japan/Korea Marker (JKM)				
JKM (Dec)	AAOVQ00	28.500	-1.304	
H1 Dec	AAPSU00	28.300	-1.302	•
H2 Dec	AAPSV00	28.700	-1.306	
H1 Jan	AAPSW00	29.150	-1.300	•
H2 Jan	AAPXA00	29.150	NA	N.
JKM (Dec) Japanese Yen	AAOVR00	3260.685	-127.136	
JKM (Dec) Chinese Yuan (CNY/mt)	LJCMS00	9513.254	-391.104	
DES Japan/Korea (JKM) derivatives Si	ngapore close			
Balmo-ND	LJKMB00	28.344	-1.679	•
Dec	LJKM000	31.050	-1.050	•
Jan	LJKM001	29.500	-2.400	
Feb	LJKM002	27.525	-2.175	
DES Japan/Korea (JKM) derivatives Lo	ndon close*			
Dec	JKLM000	28.450	1.288	_
Jan	JKLM001	26.900	-0.062	•
Feb	JKLM002	24.575	-0.287	
DES Mediterranean Marker (MED)				
MED (Dec)	AASXY00	22.410	0.300	
H1 Dec	AASXZ00	22.310	0.250	-
H2 Dec	AASYA00	22.510	0.350	-
H1 Jan	AASYB00	22.563	NA	N.
DES Northwest Europe Marker (NWE)				
NWE (Dec)	AASXU00	22.535	0.362	
H1 Dec	AASXV00	22.435	0.300	
H2 Dec	AASXW00	22.635	0.425	4
H1 Jan	AASXX00	22.663	NA	N.
Middle East Marker (MEM)				
MEM (Dec)	LMEMA00	26.300	-1.300	
H1 Dec	LMEMB00	26.100	-1.300	_
H2 Dec	LMEMC00	26.500	-1.300	
H1 Jan	LMEMD00	26.950	-1.300	
H2 Jan	LMEME00	26.950	NA	N.
DES West India Marker (WIM)				
WIM (Dec)	AARXS00	26.300	-1.300	
H2 Nov	LMEAA00	26.050	-0.925	_
H1 Dec	LMEAB00	26.100	-1.300	_
H2 Dec	LMEAC00	26.500	-1.300	1
H1 Jan	LMEAD00	26.950	-1.300	_
H2 Jan	LMEAE00	26.950	NA	N.
DES West India Marker (WIM) derivativ	es Singapore	close*		
Dec	AWIMB00	29.500	-0.750	
Jan	AWIMM01	27.950	-2.150	_
Feb	AWIMM02	26.025	-1.875	1
FOB Gulf Coast Marker (GCM)				
GCM	LGCSM01	19.750	-1.250	_
	1303.101	10.100	1.200	

^{*}For full forward curve, see page 4

LNG NETBACK PRICES (\$/MMBtu)

	- /			
Nov 1			Change	
FOB Australia	AARXR00	26.320	-1.380	•
FOB Middle East	AARXQ00	25.300	-1.250	_
DES Brazil Netforward	LEBMH01	22.090	-1.410	_
FOB Singapore	AARXU00	26.850	-1.304	_
FOB Murmansk	AARXV00	21.645	0.332	_



PLATTS LNG ASIA JKM RATIONALE & EXCLUSIONS

The S&P Global Platts JKM for December was assessed at \$28.50/MMBtu on Nov. 1

Platts assessed the first half of December at \$28.300/MMBtu and the second half of December at \$28.700/MMBtu, with a narrower intra-month contango structure of 40 cents/MMBtu on Nov. 1, compared to a contango of 40.4 cents/MMBtu on Oct. 29.

BP reported a bid for a Dec. 3-7 DES JKTC cargo at TTF Dec plus \$3.50/MMBtu, with a GHV of 1,030-1,110 Btu/cu ft, which was normalized 6 cents lower on lower maximum GHV limit compared to the Platts standard of 1,030-1,130 Btu/cu ft, and equated to a fixed price of \$27.774/MMBtu.

Vitol reported a bid for a Dec. 27-31 DES JKTC cargo at TTF Dec plus \$3.60/MMBtu, with GHV of 1,000-1,110 Btu/cu ft, which was normalized 6 cents lower on lower maximum GHV limit compared to the Platts standard of 1,030-1,130 Btu/cu ft, and equated to a fixed price of \$27.874/MMBtu.

Trafigura reported a bid for a Jan. 5-7 DES JKTC cargo at \$28.30/MMBtu, with volume of 3.3 TBtu and GHV of 1,037-1,125 Btu/cu ft, which was normalized 30 cents lower on narrower quality range and smaller quantity, and equated to a

fixed price of \$28.000/MMBtu.

During the derivatives MOC process, Trafigura placed the most competitive bid for 25 lots at \$30.45/MMBtu while PetroChina placed the most competitive offer for 25 lots at \$32.20/MMBtu. Platts assessed December JKM Singapore close at \$31.050/MMBtu on Nov. 1, above the bid and below the offer.

For January JKM derivatives, Trafigura placed the most competitive bid for 25 lots at \$28.70/MMBtu while PetroChina placed the most competitive offer for 25 lots at \$30.70/MMBtu. Platts assessed January JKM Singapore close at \$29.500/MMBtu on Nov. 1, above the bid and below the offer.

Platts valued ICE TTF December at $4:30~\rm pm$ Singapore time at $$24.334/\rm MMBtu$, based on a 10 euro cent/MWh differential between December and January TTF spread.

Platts valued ICE TTF January at 4:30 pm Singapore time at \$24.300/MMBtu, based on a \$5.2/MMBtu differential between JKM Jan and TTF Jan. This rationale applies to symbol(s) <AAOVQ00>

Exclusions: Platts APAC LNG Derivatives Spr JKM/WIM Dec 21, PCHK SELLS TO TRAFI \$30.70 for 25 lots was excluded from the assessment.

PLATTS LNG ASIA WIM RATIONALE & EXCLUSIONS

The S&P Global Platts WIM for December was assessed at \$26.300/MMBtu on Nov. 1.

Platts assessed first-half and second-half December at \$26.100/MMBtu and \$26.500/MMBtu, respectively, with an intra-month contango structure of 40 cents/MMBtu, unchanged from Oct. 29.

Platts assessed the December JKM/WIM spread at \$2.200/MMBtu on Nov. 1. This rationale applies to symbol(s) <AARXS00>.

Exclusions: Platts APAC LNG Derivatives Spr JKM/WIM Dec 21, PCHK SELLS TO TRAFI \$30.70 for 25 lots was excluded from the assessment.

PLATTS LNG US FOB GULF COAST DAILY RATIONALE & EXCLUSIONS

The FOB Gulf Coast Marker (GCM) was assessed at \$19.75/MMBtu Nov. 1. The assessment was based on tradable values reported by market participants at 17.99/MMBtu and \$19.75/MMBtu by the middle of the day for FOB USGC cargoes loading 30 to 60 days forward, in conjunction with sharply higher

freight rates for shipments through the Atlantic and Pacific and longer maximum wait times at the Panama Canal.

This rationale applies to symbol(s) <LGCSM01>.

Exclusions: None.

PLATTS LNG EUROPEAN ASSESSMENT RATIONALE & EXCLUSIONS

The Northwest Europe Marker (NWE) for December for LNG was assessed Nov. 1 at \$22.535/MMBtu

H1 NWE for December was assessed at \$22.435/MMBtu H2 NWE for December was assessed at \$22.635/MMBtu

The NWE prices were assessed higher day on day reflecting higher flat prices for December TTF. The December TTF contract rose to Eur65.400/MWh on Nov. 1, a Eur90 cent/MWh increase from Oct. 29. NBP/TTF premiums rose to an intraday high of \$0.900/MMBtu. Toward market close, gains in the December TTF contract led to NBP/TTF premiums ending at \$0.7712/MMBtu at 4:30 pm

The Mediterranean Marker (MED) for December was assessed at \$22.410/MMBtu H1 MED for December was assessed at \$22.310/MMBtu

H2 MED for December was assessed at \$22.510/MMBtu

The MED price was assessed flat day on day. MED prices were assessed at a

discount to NWE as weaker PVB prices made the UK market more attractive for cargoes. Additionally, Iberian gas stocks looked strong. Spanish inventories have been seeing strong builds, now sitting at over 80% capacity, 4% higher than the European average.

In the Atlantic MOC, BP bid for a Dec. 15-17, 3.3 + /-5% TBtu cargo into Rotterdam at ICE TTF December front-month average minus 10 cents/MMBtu. This was converted to a fixed price of \$22.110/MMBtu. This was normalized down 3 cents due to the prompter alternate discharge port nomination than the Platts standard and a lower cargo size for cargoes delivered into NWE, compared to Platts' standard 3.5 TBtu +/- 5% to a final price \$22.080/MMBtu. The assessments were based on pricing information from market sources for cargoes delivering within the region for December delivery. This rationale applies to symbol(s) <AASXU00, AASXY00>

Exclusions: None

MARKET COMMENTARIES

JKM falls on weaker sentiment

Asian LNG prices fell amid weaker buying interest from China and independent South Korean importers, while some buyers were heard trying to time their purchases.

The S&P Global Platts JKM for December was assessed at \$28.50/MMBtu on Nov. 1.

Platts assessed the first half of December at \$28.300/MMBtu and the second half of December at \$28.700/MMBtu, with a narrower intramonth contango structure of 40 cents/MMBtu on Nov. 1, compared to a contango of 40.4 cents/MMBtu on Oct. 28.

During the physical MOC process, BP placed a bid for Dec. 3-7 delivery at December TTF plus \$3.5/MMBtu DES, with a volume of 3.4 TBtu and GHV of 1.030-1.110 Btu/cu ft.

Vitol placed a bid for Dec. 27-Dec. 31 delivery at December TTF plus \$3.6/MMBtu DES, with a volume of 3.4 TBtu and GHV of 1,000-1,110 Btu/cu ft.

Further down the curve, Trafigura placed a bid for Jan. 6-7 delivery at \$28.30/MMBtu for a cargo with a volume of 3.3 TBtu, and GHV of 1,037-1,125 Btu/cu ft.

"The market was in a downtrend, so some buyers were waiting on their procurement. But if TTF bounces back up, I think the buyers will be taken by surprise," a Japanese trader commented.

A northern Japanese importer was heard seeking a cargo for winter delivery, three sources said.

REPORTED ATLANTIC BIDS, OFFERS AND TRADES (\$/MMBtu)

Date	Seller	Loading		Buyer	Basis	Loading window	Offer/Bid	Notes
Best bids/offe	ers							
Nov 01		Rotterdam deli	very	BP	DES	Dec 15 -17	TTF ICE-0.10 bid	MOC
REPORTED	APAC BIDS, OF	FERS AND TRADES	S (\$/MMBtu))				
Date	Buyer	Destination	Seller	Source	Basis	Delivery period	Bid/Offer	Notes
Best bids/offe	ers							
Nov 01	BP	JKTC			DES	Dec 3-7	Dec TTF+3.50 bid	MOC
Nov 01	Trafigura	JKTC			DES	Jan 5-7	28.3	MOC
Nov 01	Vitol	JKTC			DES	Dec 27-31	Dec TTF+3.60 bid	MOC
Nov 01	Trader	JKTC			DES	Dec	Dec TTF+4.00 bid	
Nov 01	Trader	JKTC			DES	Jan	Dec TTF+4.00 bid	
Last 5 trades		APAC						
Oct 26	PTT	Thailand		Qətər	DES	Nov 27-29, Dec 3-5	low-33	Tender
Oct 26	Shell, Total		EGAS	Egypt	FOB	Nov 14-15, Nov 24-25	28.25, 28.70	Tender
Oct 22	Vitol	JKTC	PetroChina		DES	Dec 6-8	Dec TTF plus 3.05 traded offe	er MOC
Oct 21	Vitol	JKTC	PetroChina		DES	Dec 7-11	Dec TTF plus 3.45 traded bid	MOC
Oct 21	PetroChina	JKC	Shell		DES	Dec 10-12	Dec TTF plus 3.00 traded offe	er MOC

Market participants' view of demand stemming from other Japanese utilities was mixed. "A lot of Japanese [importers] are not buying because of the updated forecast," a producer said. On the other hand, traders stated Japanese power utilities were seeking cargoes for power generation.

"The electricity price is higher so it is reaching marginal cost. If electricity remains high, the consumption level will go up," a Japanese trader commented.

The JEPX recorded the day-ahead 24-hour average price for Nov. 2 at Yen 19.5/kWh on Nov. 1.

In the bilateral market, ExxonMobil sold a mid-December Gorgon cargo on either Oct. 28 or Oct. 29 on a discount to JKM December, three sources said. However, the buyer, the amount of discount, or whether the transaction was done on December Balance-of-the-Month or whole month average could not be widely corroborated in the market.

On the supply side, market participants were keen to find out more about production issues.

Bontang was heard still facing issues upstream, which could last approximately 6 months as some sand has entered the well in Merakes. A few cargoes were heard impacted for this Q4 delivery.

During the derivatives MOC, Trafigura placed the most competitive bid for 25 lots of December JKM at \$30.45/MMBtu, while PetroChina offered at \$32.20/MMBtu. Platts assessed December JKM derivatives at Singapore close at \$31.05/MMBtu.

For January JKM derivatives MOC, Trafigura placed the most competitive January JKM bid (25 lots) at \$28.70/MMBtu, while PetroChina placed the most competitive offer at \$30.70/MMBtu. Platts assessed JKM January derivatives at Singapore close at \$29.50/MMBtu. — *Masanori Odaka*

US Gulf Coast FOB LNG cargo value drops to \$19.75/MMBtu on canal congestion

The daily export value for LNG cargoes loading on the US Gulf Coast 30-60 days forward fell below \$20/MMBtu for the first time in a month and a half Nov. 1, amid higher shipping costs due to Panama Canal congestion.

European LNG prices, meanwhile, began the week and the month at slightly higher levels compared with where they finished October, as trading volatility resurfaced.

S&P Global Platts assessed the Gulf Coast Marker at \$19.75/MMBtu, the first time the USGC FOB price was below \$20 since Sept. 16, and the lowest price since Sept. 10.

Platts assessed DES Northwest Europe for December at \$22.535/MMBtu on Nov. 1. The first half of December was assessed at \$22.435/MMBtu and the second half of December was assessed at \$22.635/MMBtu. That translated to an intramonth contango of 20 cents/MMBtu on the day, versus 7.5 cents/MMBtu on Oct. 29.

Eurogas received additional support from outages at Norwegian offshore fields Oseberg and Sleipner, according to market sources. Dutch TTF December futures moved in an intraday range of Eur61.775/MWh to Eur74.25/MWh. Platts assessed the TTF December contract at \$22.210/MMBtu on Nov. 1.

In the Atlantic Platts Market on Close assessment process, BP bid for a DES Rotterdam Dec. 15-17 delivery cargo at TTF minus 10 cents/MMBtu.

Day rates increased by \$20,000 to \$230,000/day for the Pacific basin and by \$8,500 to \$181,000/day in the Atlantic.

Two FLEX LNG tankers, the Flex Courageous and the Flex Resolute, were reported fixed starting the first quarter of 2022 for a period of three years with an energy major, with options for another two years

ASIA/MIDDLE EAST (\$/MMBtu), NOV 1*

DES Japan/Korea Marker (JKM)			
JKM (Dec)	AAOVQ00	28.500	
JKM (H1 Dec)	AAPSU00	28.300	
JKM (H2 Dec)	AAPSV00	28.700	
JKM (H1 Jan)	AAPSW00	29.150	
JKM (H2 Jan)	AAPXA00	29.150	
Asian Dated Brent (16:30 Singapore)	ADBAA00	14.33	
JKM vs Henry Hub futures	AAPRZ00	23.070	
JKM vs NBP futures	AAPSA00	3.342	
JKM vs TTF	LNTFJ00	6.290	
JKM vs Asian Dated Brent (16:30 Singapore)	AAPSB00	14.167	
JKM vs MED (16:30 London)	ALNGB00	6.090	
JKM vs NWE (16:30 London)	ALNGA00	5.965	
DES Japan/Korea (JKM) derivatives Singapor	e close		
Balmo-ND	LJKMB00	28.344	
Dec	LJKM000	31.050	
Jan	LJKM001	29.500	
Feb	LJKM002	27.525	
Mar	LJKM003	23.350	
01 2022	LJKQR01	26.792	
02 2022	LJKQR02	15.600	
Summer 2022	LJKSN01	15.000	
Winter 2022	LJKSN02	15.750	
2022	LJKYR01	19.500	
2023	LJKYR02	11.900	
2024	LJKYR03	9.275	
DES Japan/Korea (JKM) derivatives London o	lose		
Dec	JKLM000	28.450	
Jan	JKLM001	26.900	
Feb	JKLM002	24.575	
Mar	JKLM003	21.300	
01 2022	JKLQR01	24.258	
02 2022	JKLQR02	15.150	
Summer 2022	JKLSN01	14.625	
Winter 2022	JKLSN02	15.225	
2022	JKLYR01	17.100	
2023	JKLYR02	11.725	
2024	JKLYR03	9.150	
DES West India Marker (WIM)			
WIM (Dec)	AARXS00	26.300	
DES West India Marker (WIM) derivatives Sing	gapore clos	e	
Dec	AWIMB00	29.500	
Jan	AWIMM01	27.950	
Feb	AWIMM02	26.025	
Mar	AWIMM03	21.925	
01 2022	AWIMQ01	25.300	
02 2022	AWIMQ02	14.250	
Summer 2022	AWISN01	13.650	
Winter 2022	AWISN02	14.400	
2022	AWIMY01	18.150	
2023	AWIMY02	10.650	
2024	AWIMY03	8.075	
Carbon Neutral LNG			
CNL WTW JKTC Differential (ex-Australia)	ACNLF00	0.657	
CNL WTT JKTC Differential (ex-Australia)	ACNLB00	0.145	
CNL DES JKTC Differential (ex-Australia)	ACNLG00	0.140	
CNL Combustion JKTC	ACNLJ00	0.512	
FOB Middle East			
FOB Middle East	AARXQ00	25.300	
FOB Australia (netback)			
JKM (Dec)	AAOVQ00	28.500	
(-) Freight	AAUSA00	2.18	
FOB Australia	AARXR00	26.32	
Key gas price benchmarks			
Japan Customs Cleared LNG (Aug)	LAKPN00	10.15	Final
Japan Customs Cleared LNG (Sep)	LAKPM00	10.78	Estimated
copon ductorno dicorco Livo (ocp)	EARTHOO	10.10	

Platts Dutch TTF			
Dec	GTFWM10	22.210	
Jan	GTFWM20	22.167	
Competing fuel prices			
Japan Customs Cleared crude oil (Aug) (\$/b)	ААКОР00	73.78	Final
Japan Customs Cleared crude oil (Sep) (\$/b)	AAKOM00	73.81	Estimated
HSFO 3.5% sulfur 180 CST FOB Singapore	LUAXZ00	11.76	
NEAT Coal Index	ЈКТСВ00	8.179	
Minas crude oil	LCAB000	13.678	
Naphtha CFR Japan	LNPHJ00	16.822	

EUROPE (\$/MMBtu), NOV 1

	\$/MMBtu	Eur/MWh	Eur/MMBtu
DES Mediterranean Marker (MED)			
MED (Dec)	AASXY00 22.410	LNMTA00 65.942	LNMXA0019.341
MED (H1 Dec)	AASXZ00 22.310		
MED (H2 Dec)	AASYA00 22.510		
MED (H1 Jan)	AASYB00 22.563		
Dated Brent (16:30 London)	ADBAB00 14.60		
MED vs Henry Hub futures	AASYF00 17.154		
MED vs TTF	LNTFS00 0.200		
MED vs NBP futures	AASYH00 -0.836		
MED vs Dated Brent (16:30 London)	7.807 AASYJ00		
MED vs NWE	ALNSA00 -0.125		
MED vs JKM	AASYM00 -6.090		
DES Northwest Europe Marker (NW	E)		
NWE (Dec)	AASXU00 22.535	LNNTA00 66.310	LNNXA0019.449
NWE (Dec)	AA3XUUU 22.333	LINITAGE CO.STO	LININAAGO 13.443
NWE (H1 Dec)	AASXV00 22.435	ENNTAGE 00.310	LNNXA00 19.449
NWE (H1 Dec) NWE (H2 Dec)		ENNTAGO 00.310	LNNXA00 15.445
NWE (H1 Dec) NWE (H2 Dec) NWE (H1 Jan)	AASXV00 22.435	LINITAGO UU.STU	LNNA400 1 3.443
NWE (H1 Dec) NWE (H2 Dec) NWE (H1 Jan) Dated Brent (16:30 London)	AASXW00 22.435 AASXW00 22.635 AASXX00 22.663 ADBAB00 14.60	LINITAGE CO.STO	LNNXA00 13.445
NWE (H1 Dec) NWE (H2 Dec) NWE (H1 Jan) Dated Brent (16:30 London) NWE vs Henry Hub futures	AASXV00 22.435 AASXW00 22.635 AASXX00 22.663 ADBAB00 14.60 AASYE00 17.279	LINITAGO GO.STO	LNNXA66 15.445
NWE (H1 Dec) NWE (H2 Dec) NWE (H1 Jan) Dated Brent (16:30 London) NWE vs Henry Hub futures NWE vs TTF	AASXV00 22.435 AASXW00 22.635 AASXX00 22.663 ADBAB00 14.60 AASYE00 17.279 LNTFN00 0.325	LINITAGO GG.STO	LNNAAGO 13.445
NWE (H1 Dec) NWE (H2 Dec) NWE (H1 Jan) Dated Brent (16:30 London) NWE vs Henry Hub futures NWE vs TTF NWE vs NBP futures	AASXV00 22.435 AASXW00 22.635 AASXX00 22.663 ADBAB00 14.60 AASYE00 17.279 LNTFN00 0.325 AASYG00 -0.711	ENVIAGE OU.STU	LINIAAGO 13.445
NWE (H1 Dec) NWE (H2 Dec) NWE (H1 Jan) Dated Brent (16:30 London) NWE vs Henry Hub futures NWE vs TTF NWE vs NBP futures NWE vs Dated Brent (16:30 London)	AASXV00 22.435 AASXW00 22.635 AASXX00 22.663 ADBAB00 14.60 AASYE00 17.279 LNTFN00 0.325 AASYG00 -0.711 AASY100 7.932	ENVIAGE CO.STO	LNNAAGO 13.445
NWE (H1 Dec) NWE (H2 Dec) NWE (H1 Jan) Dated Brent (16:30 London) NWE vs Henry Hub futures NWE vs TTF NWE vs NBP futures NWE vs Dated Brent (16:30 London) NWE vs MED	AASXV00 22.435 AASXW00 22.635 AASXX00 22.663 ADBAB00 14.60 AASYE00 17.279 LNTFN00 0.325 AASYG00 -0.711 AASYIGO 7.932 AASYK00 0.125	ENVIAGE OU.STO	LINIXAGO 13.443
NWE (H1 Dec) NWE (H2 Dec) NWE (H1 Jan) Dated Brent (16:30 London) NWE vs Henry Hub futures NWE vs TTF NWE vs NBP futures NWE vs Dated Brent (16:30 London) NWE vs MED NWE vs JKM	AASXV00 22.435 AASXW00 22.635 AASXX00 22.663 ADBAB00 14.60 AASYE00 17.279 LNTFN00 0.325 AASYG00 -0.711 AASYI00 7.932 AASYK00 0.125 AASYL00 -5.965	ENVIAGE CO.STO	LINVARIO 15.445
NWE (H1 Dec) NWE (H2 Dec) NWE (H1 Jan) Dated Brent (16:30 London) NWE vs Henry Hub futures NWE vs TTF NWE vs NBP futures NWE vs Dated Brent (16:30 London) NWE vs MED	AASXV00 22.435 AASXW00 22.635 AASXX00 22.663 ADBAB00 14.60 AASYE00 17.279 LNTFN00 0.325 AASYG00 -0.711 AASYIGO 7.932 AASYK00 0.125	ENNIAGO GU.STU	LINIVARIO 13.443
NWE (H1 Dec) NWE (H2 Dec) NWE (H1 Jan) Dated Brent (16:30 London) NWE vs Henry Hub futures NWE vs TTF NWE vs NBP futures NWE vs Dated Brent (16:30 London) NWE vs MED NWE vs JKM	AASXV00 22.435 AASXW00 22.635 AASXX00 22.663 ADBAB00 14.60 AASYE00 17.279 LNTFN00 0.325 AASYG00 -0.711 AASYI00 7.932 AASYK00 0.125 AASYL00 -5.965	LINITAGE CO.STO	LINVARIO 13.443
NWE (H1 Dec) NWE (H2 Dec) NWE (H1 Jan) Dated Brent (16:30 London) NWE vs Henry Hub futures NWE vs TTF NWE vs NBP futures NWE vs Dated Brent (16:30 London) NWE vs MED NWE vs JKM NWE as a % of NBP	AASXV00 22.435 AASXW00 22.635 AASXX00 22.663 ADBAB00 14.60 AASYE00 17.279 LNTFN00 0.325 AASYG00 -0.711 AASYI00 7.932 AASYK00 0.125 AASYL00 -5.965	LINITAGE CO.STO	LINVARIO

NORTH AMERICA (\$/MMBtu), NOV 1

FOB Gulf Coast Marker (GCI	ทา

FUD Guil COast Marker (GCM)	
GCM	LGCSM01 19.750
Dated Brent (16:30 London)	ADBAB00 14.60
GCM vs JKM	LGMJM01 -8.750
GCM vs Henry Hub futures	LGMHM01 14.564
GCM vs TTF	LNTFG00 -2.460
GCM vs NWE	LGEUR00 -2.785
GCM vs MED	LGMET00 -2.660
GCM vs NBP futures	LGMNM01 -3.496
GCM vs Dated Brent (16:30 London)	LGMDB00 5.147
GCM vs USGC HSF0	LGMF000 8.490
Competing fuel prices	
US Gulf Coast high sulfur fuel oil	LUAXJ00 11.27
New York Harbor 1%S fuel oil	LUAXD00 13.21

*Japan Customs Cleared value shows latest available CIF price published by the Ministry of Finance, converted to US dollars per MMBtu. All other values reflect Platts most recent one-month forward assessments for each product in each region, converted to US dollars per MMBtu. JKM Marker, SWE LNG and NWE LNG average the assessments of the two half-months comprising the first full month of forward delivery. Asian LNG assessments assessed at Singapore market close 0830 GMT, European LNG assessment assessed at London market close 1630 UK time. NYMEX Henry Hub futures and ICE NBP futures values taken at Singapore market close and London market close. ICE NBP futures converted from Pence/Therm to \$/MMBtu. Asian Dated Brent crude oil assessed at Asian market close 0830 GMT and converted from \$/barrel to \$/MMBtu. Detailed assessment methodology is found on www.platts.com.

RECENT TENDERS AND STRIPS

Tender/ strip	Issuer/location	Tender type	(Loading) or delivery period	Slots/ cargoes	Opening	Closing date	Validity	Notes	Results
Novembe	er 01								
Tender	Oman LNG - Oman LNG	Sell	(01-Dec-21 - 03-Dec-21)	1 DES or FOB		21-0ct-21		Closing 1pm Oman time	heard awarded to Gunvor around \$30/MMBtu FOB
Tender	Ichthys LNG - Ichthys LNG	Sell	(13-Nov-21 - 17-Nov-21)	1 DES or FOB	25-0ct-21	27-0ct-21	27-0ct-21	FOB or DES cargo, 13-17 November loading. The tender closes on Oct. 27, noon Tokyo time. Validity until 7 PM Tokyo time (7 hour validity).	heard awarded at approximately \$31/MMBtu FOB
Tender	Darwin LNG - Darwin	Sell	(01-Dec-21 - 03-Dec-21)	1 DES or FOB		28-0ct-21		Dec 1-3 load or Dec 14-17 DES JKTC	heard awarded at approximately \$31/MMBtu FOB
Tender	Petronet - Dahej	Buy	16-Nov-21 - 30-Nov-21	1 DES	21-0ct-21	27-0ct-21	28-0ct-21	Seller to nominate delivery window for H2 Nov, fixed price only, DES Dahej or Kochi, 3.2 Tbtu	heard not awarded
Tender	Egas - Egypt	Sell	(13-Nov-21 - 25-Nov-21)	2 DES or FOB		26-0ct-21	26-0ct-21		Heard awarded approximately \$28s/MMBtu
Tender	PTT - Map Ta Phut	Buy	27-Nov-21 - 05-Dec-21	2 DES	25-0ct-21	26-0ct-21	26-0ct-21	Seeking two cargoes for Nov. 27-29 delivery and Dec. 3-5 delivery. Closes on 4 PM Thailand time on Oct. 26, and has a 3 hour validity until 7 PM Thailand time.	Heard awarded around \$33- \$34/MMBtu
Tender	IEASA - Escobar	Buy	19-Nov-21 - 19-Dec-21			26-0ct-21		Two cargo buy tender for Nov. 19 & Dec. 19 delivery	
Tender	Novatek - Yamal	Sell	05-Dec-21 - 31-Mar-22	3 DES		21-0ct-21		Dec. 5-23, Jan. 3-21, and March 25-31 delivery	Heard partially awarded
Tender	Sakhalin Energy - Sakhalin	Sell	(01-Dec-21 - 01-Dec-21)	1 DES or FOB		21-0ct-21	22-0ct-21		heard awarded at approximately \$34/MMBtu
Tender	Angola LNG - Angola LNG	Sell	05-Nov-21 - 19-Nov-21	1 DES		25-0ct-21	26-0ct-21	Furthest to India, onboard Seri Balqis	
Tender	BOTAS - Turkey	Buy	01-Nov-21 - 31-Mar-22	19 DES		18-0ct-21		DW: Nov.1-7, Nov.8-14, Nov.15-21, Nov.22-28, Nov.29-Dec.5, Dec.6-12, Dec.13-19, Dec.20-26, Dec.27-Jan.2, Jan.3-9, Jan.10-16, Jan.17-23, Jan.24-30, Jan.31-Feb.6, Feb.7-13, Feb.14-20, Feb.21-27, Feb.28-Mar.6, Mar.7-13	Heard partially awarded at TTF+\$0.40/MMBtu to +\$0.70/ MMBtu
Tender	Darwin LNG - Darwin	Sell	20-Nov-21 - 27-Nov-21	1 DES	12-0ct-21	14-0ct-21	14-0ct-21	Nov 14-16 loading or Nov 20-27 DES	heard awarded to a trader at high \$36 or approximately \$37/ MMBtu FOB to BP
Tender	APLNG - Australia Pacific LNG	Sell	(25-Nov-21 - 27-Nov-21)	1 DES	11-0ct-21	12-0ct-21			Heard awarded to Gunvor
EOI	Kogas - Prelude	Sell	(06-Dec-21 - 22-Dec-21)	1 DES or FOB				Dec 6-10 loading or Des 19-22 DES JKTC	heard not awarded
Tender	Tohoku Electric - Japan	Buy	08-Jan-22 - 28-Dec-23	6 Unknown	14-0ct-21	14-0ct-21	15-0ct-21	Jan. 2022-end 2023 delivery on a Brent-linked basis	heard awarded to a portfolio player
Tender	PTT - Map Ta Phut	Buy	18-0ct-21 - 29-0ct-21	2 DES		12-0ct-21		Closes at 10 AM (Thailand time) on October 12	Heard awarded at approximately \$35/MMBtu to Shell and PTT International
Tender	EGAT - Map Ta Phut	Buy	10-Nov-21 - 16-Dec-21	2 DES		20-0ct-21		2 cargoes Nov 10-12 or 15-17, and Dec 10-12 or 14-16	
Tender	Adnoc - ADNOC Das Island	Sell	(01-Apr-22 - 23-Sep-22)	1 FOB		22-0ct-21		Cargo quantity of 146,000m3. Deadline for comments by Oct 22.	
Tender	KPC - Kuwait	Buy	07-Feb-22 - 30-Jun-22	5 Unknown	18-0ct-21	19-0ct-21	19-0ct-21	8-hour validity. Only offers on fixed price basis are allowed.	
Tender	Sakhalin Energy - Sakhalin	Sell	(25-Nov-21 - 25-Nov-21)	1 DES or FOB	12-0ct-21	14-0ct-21	14-0ct-21	Closes 1pm SGT	heard awarded to Gazprom at approximately \$38/MMBtu DES

with the rate not reported. The Flex Volunteer, 174,000 cu m, was reported on subs by Royal Dutch Shell with the rate and period not reported. The tonnage requirement for China's CNOOC for Dec. 8-10 loading, ex Australia, for a period of 17 days was heard still not covered.

At the Panama Canal – the shortest route for USGC cargoes headed to East Asia – the maximum wait time for unreserved LNG tankers was 10 days southbound and 13 days northbound on Nov. 1, according to Panama Canal Authority data compiled by Adimar Shipping. That was an increase from seven days southbound and 11 days northbound on Oct. 29. — Harry Weber, Michael Hoffmann



NEWS

China's gas firms attempt to pass on high spot LNG prices to end-users

- PetroChina looking to pass on high LNG spot prices to minimize losses
- Shandong allows gas sales at spot prices to non-residential users
- But impact limited due to small share of spot LNG in demand

Chinese gas companies are finding ways to pass on high gas import costs to end-users amid soaring global energy prices and the country's tight regulated price environment, which is largely designed to keeping a lid on inflation and keeping gas affordable for critical sectors like winter heating and residential use.

At its third quarter results briefing Oct. 29, state-owned PetroChina's chief financial officer Chai Shouping said it plans to pass through the higher cost of spot LNG to buyers to help minimize losses.

"For natural gas cargoes which have been sold [we] will stick to the contract prices, while the spot cargoes will be sold based on market prices," Chai said, but also noted that most of the national oil company's gas supply was under term contracts both with domestic buyers and global suppliers.

China's Shandong province has recently allowed city gas distributors to sell their spot LNG cargoes at market prices to non-residential users, according to a notice by Shandong Development and Reform Commission Oct. 22.

The state regulator's move is expected to provide more purchasing options for non-residential users as well as encourage city gas companies to meet additional gas demand from this segment, especially during peak demand, market participants said.

City gas companies can already sell spot LNG to non-residential users at cost plus a gas distribution fee, but only if volumes exceed the annual or seasonal gas supply contracts, the SDRC said. Other restrictions also apply to prevent profit making and ensure stable supply.

The sales prices of pipeline gas for city gas distributors are regulated by the government, and can only be raised 20% on the basis of the provincial benchmark city-gate price.

City gas companies sign purchase contracts with upstream suppliers based on downstream demand, but when residential demand increases in peak season, they have to divert supply from non-residential users. Gas companies are unlikely to purchase spot cargoes to meet the shortfall, causing some supply uncertainty for non-residential users.

The ability to pass on the higher purchasing cost of spot LNG will encourage gas companies to sell more spot LNG cargoes to non-residential users and ease margin pressures for gas companies. "At least they can earn the delivery fee, though they are not allowed to make any profit from trading," a source in Shandong said.

Limited impact

Moves by various energy companies to pass on high import costs to end-users have emerged in the backdrop of the ongoing global energy crisis, and will help China's gas and power sectors move toward more market-oriented balancing mechanisms.

SOUTH AMERICA (\$/MMBtu), NOV 1

DES Brazil Netforward			
DES Brazil (Dec)	LEBMH01	22.090	
DES Brazil vs NWE Fuel Oil Derivative	LAARM01	8.940	
DES Brazil vs DES MED LNG	LASWM01	-0.320	
DES Brazil vs Dated Brent	LADBM01	7.487	
DES Brazil vs Henry Hub (16:30 London)	LAHHM01	16.834	
DES Brazil vs JKM (16:30 London)	LAJKM01	-6.410	
DES Brazil vs NBP (16:30 London)	LABPM01	-1.156	

NORTH AMERICAN FEEDGAS (\$/MMBtu), OCT 29

Daily average US LNG feedgas cost	ALNFG00	5.163
30-day moving average US LNG feedgas cost	ALNUS00	5.274
Daily average USGC LNG feedgas cost	ALNFH00	5.199
30-day moving average USGC LNG feedgas cost	ALNUG00	5.324

Export facility	Estimated feedgas cost			
Sabine Pass	ALNFA00 5.198			
Corpus Christi	ALNFB00 5.245			
Cove Point	ALNFC00 4.845			
Cameron	ALNFD00 5.180			
Freeport	ALNFE00 5.131			
Elba Island	ALNFF00 5.400			

Facility feedgas costs represent a calculation derived from S&P Global Platts' North American gas spot price indices at the hub(s) from which feedgas would be procured most economically for the export facility. The average summary costs are an average of the relevant export facilities' feedgas costs weighted by Platts Analytics' daily estimated volume delivered to each facility.

US CARGO CANCELLATIONS, NOV 1

Dec-21	0	
Nov-21	0	
Oct-21	0	
Sep-21	0	
Sep-21 Aug-21	0	
Jul-21	0	
Jun-21	0	
May-21	0	
Apr-21	0	
Mar-21	0	
Feb-21	5	
Jan-21	2	

The figures are collected from market sources.

NATURAL GAS FUTURES (\$/MMBtu), NOV 1

NYMEX HH Singapore close	(Dec)	AAPSD00	5.430	
NYMEX HH Singapore close	(Jan)	AAPSE00	5.531	
ICE NBP Singapore close	(Dec)	AAPSF00	25.157	
ICE NBP Singapore close	(Jan)	AAPSG00	25.289	
NYMEX HH London close	(Dec 21)	AASYN00	5.256	
NYMEX HH London close	(Jan 22)	AASY000	5.374	
ICE NBP London close	(Dec 21)	AASYR00	23.246	
ICE NBP London close	(Jan 22)	AASYS00	23.424	
NYMEX HH US close	(Dec 21)	NMNG001	5.186	
NYMEX HH US close	(Jan 22)	NMNG002	5.305	

MARINE FUEL LNG BUNKER, NOV 1

	\$/M	\$/MMBtu		(UII)	\$/Mt (LNG)	
Singapore	LNBSG00	28.000	LNBSM00	1082.004	LNBSF00 1456.000	
	Eur/	MWh	\$/mt (0il)		\$/mt (LNG)	
Rotterdam	LNBRT00	64.400	LNBRM00	844.851	LNBRF00 1138.072	
MMPtu to \$/mt (oil) factor: 29 6/2: MWh to \$/mt (oil) factor: 11 222: MMPtu to \$/mt (LNC) factor: 52 000						

However, the impact on the current natural gas sales structure may be limited as spot LNG accounts for less than 5% of total sales by city gas distributors, domestic energy information provider SCI said.

This is despite growing gas consumption.

China consumed 29.47 billion cubic meters of natural gas in August, up 15% year on year, latest data released by the National Development and Reform Commission showed Oct. 29. This was a 3.9% increase from July, the first month-on-month growth after consumption fell for two consecutive months in June and July, S&P Global Platts calculations showed.

Although China's August natural gas production edged up only 0.6% month on month, the country's imports rose 11.8% month on month in August, which supported its higher gas consumption. China imported 10.44 million mt or 14.4 Bcm of natural gas in August, which accounted for 49% of total gas consumption in the month.

Over January-August, China consumed 240.62 Bcm of natural gas, up 16.8% year on year, the NDRC data showed. The growth shrank from the 17.1% seen for the first seven months this year.

PetroChina also started operations at two ethylene plants that use natural gas as feedstock instead of oil-based products in the third quarter. The plants in northwest China were built by PetroChina using indigenously developed technology and are aiming for an annual investment return of around 9%-11%, Chai said.

The 800,000 mt/year Lanzhou Petrochemical Changqing ethane to ethylene project in Gansu province produced on-spec product Aug. 3, while the 600,000 mt/year Dushanzi Petrochemical Tarim ethane to ethylene project in the Xinjiang Uygur autonomous region produced on-spec product Aug. 30, according to PetroChina.

— <u>Eric Yep, staff</u>

PLATTS WIM RLNG DAILY PRICES, NOV 1

	\$/MM	Btu	Rupee/MMBtu	
Ex-Terminal				
Dahej	RLEDA00	27.98	RLEIA002096.21	
Həzirə	RLEDB00	28.14	RLEIB002108.29	
Dabhol	RLEDC00	28.06	RLEIC002102.41	
Mundra	RLEDE00	28.10	RLEE1002105.14	
Kochi	RLEDD00	28.60	RLEDI002142.32	
Average	RLEDF00	28.18	RLEIF002110.87	
Location				
Ahmedabad	RLDDJ00	28.48	RLDIJ002133.34	
Morbi	RLDDK00	28.59	RLDIK002142.27	
Panvel	RLDDL00	28.74	RLDIL002152.92	
Dabhol	RLDDC00	28.74	RLDIC002152.92	
Vijaipur	RLDDM00	28.66	RLDIM002147.03	
Kota	RLDDN00	28.66	RLDIN002147.03	
Chhainsa	RLDD000	28.72	RLDI0002151.81	
Jagdishpur	RLDDP00	28.72	RLDIP002151.81	
New Delhi	RLDDQ00	28.72	RLDIQ002151.81	
Koottanad	RLDDR00	29.24	RLDIR002190.23	
Kakinada	RLDDS00	29.34	RLDIS002198.05	
Average	RLDDT00	28.78	RLDIT002156.29	

Prices are net-forward calculations derived from the Platts WIM and exclude VAT and CST sales taxes. Delivered prices represent the cost of delivery from the nearest connected LNG terminal via pipeline.

Algerian gas supply via Morocco to Spain to end on contract non-renewal

- President Tebboune orders break in relations with ONEE
- Enagas says 'no signs' of Spain gas shortage this winter
- November stocks ample to cover 40 days' demand

Supply of Algerian gas via Morocco to Spain in the GME pipeline was set to end Nov. 1 after the long-term transit deal between the two countries was not renewed ahead of its expiry on Oct. 31.

(continued on page 9)

S&P Global Platts

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SHIPPING PRICES

SHIPPING RATES, NOV 1

		\$/day	
Asia Pacific day rate	AARXT00	230,000	
Atlantic day rate	AASYC00	181,000	
TCR Australia-Japan	ATCRA00	230,000.00	
TCR USG-NWE	ATCRB00	181,000.00	
TCR USG-Japan	ATCRC00	181,000.00	
		\$/MMBtu	
PLF1 Middle East-Japan/Korea	AAUUA00	3.46	
PLF2 Middle East-NWE	AAUTE00	3.64	
PLF3 Trinidad-NWE	AAUUC00	1.70	

SHIPPING RATES



Source: S&P Global Platts

SHIPPING CALCULATOR, NOV 1

	Australia- Japan/Korea	Middle East- India
Ship size (mt)	72980.77	72980.77
Trip length (days)	9	3
Carrier day rate (\$/day)	230000	230000
Day rate cost (\$/MMBtu)	1.33	0.56
Boil-off cost	0.58	0.19
Supplementary boil-off cost (\$/MMBtu)	0.18	0.06
Cost of voyage* (\$/MMBtu)	2.18	0.85
*lastudes sout sout		

^{*}Includes port cost.



FREIGHT ROUTE COSTS, NOV 1 (\$/MMBtu)

Asian discharge ports

	J	apan/Korea	South	h China/Tai	wan	West India
Middle East	AAUUA00	3.46	AAUSH00	3.02	AAUSP00	0.85
Australia (Dampier)	AAUSA00	2.18	AAUSI00	1.75	AAUSQ00	2.10
Australia (Gladstone)	ACABA00	2.19	ACABB00	2.40	ACABC00	3.37
Bontang	АОЈКАОО	1.51	AOCTA00	1.09	AOWIA00	2.07
Bintulu	АВЈКА00	1.54	ABCTA00	0.91	ABWIA00	1.89
Singapore	ASJKA00	1.72	ASCTA00	1.09	ASWIA00	1.45
Tangguh	ATJKA00	1.49	ATCTA00	1.29	ATWIA00	2.47
Trinidad via Suez	AAUSB00	6.89	AAUSJ00	6.47	AAUSR00	4.44
Trinidad via Panama	AAUXB00	4.78	AAUZB00	5.81		
Trinidad*	AAUZC00	4.78	AAUZD00	5.81		
Nigeria	AAUSC00	5.42	AAUSK00	4.81	AAUSS00	3.48
Algeria	AAUSD00	5.04	AAUSL00	4.64	AAUST00	2.77
Belgium	AAUSE00	5.86	AAUSM00	5.24	AAUSU00	3.32
Peru	AAUSF00	4.84	AAUSN00	5.53	AAUSV00	6.03
Russia	AAUSG00	0.88	AAUS000	1.30	AAUSW00	3.33
Spain	ACAAA00	5.27	ACAAB00	4.66	ACAAC00	2.98
Norway	АСААН00	6.72	ACAAI00	5.88	ACAAJ00	4.10
USGC*	LAUVA00	5.02	LAUVB00	6.06	LAUVC00	4.87
USGC via Panama	LAUVI00	5.02	LAUVL00	6.06		
USGC via Suez	LAUVJ00	7.58	LAUVM00	6.72	LAUV000	4.87
USGC via Cape	LAUVK00	7.78	LAUVN00	7.12	LAUVP00	6.03

EMEA discharge ports

	South	West Euro	ope North	West Eur	оре Ки	wait/UAE
Middle East	AAUSX00	3.06	AAUTE00	3.64	LMEMM00	0.47
Australia (Dampier)	AAUSY00	4.73	AAUTF00	5.34	LMEMN00	2.53
Australia (Gladstone)	ACABD00	6.02	ACABE00	6.66	ACABI00	3.82
Trinidad	AAUSZ00	1.73	AAUUC00	1.70	LMEMP00	4.07
Nigeria	AAUTA00	1.96	AAUTG00	2.10	LMEMQ00	3.74
Algeria	AAUTB00	0.44	AAUTH00	0.90	LMEMR00	2.42
Belgium	AAUTC00	0.75			LMEMS00	3.15
Peru	AAUTD00	4.91	AAUTI00	5.10	LMEMT00	6.51
Russia	AAUUB00	5.97	AAUTJ00	6.39	LMEMU00	4.65
Spain			ACAAD00	0.75	LMEMV00	2.62
Norway	ACAAK00	1.26	ACAAL00	0.74	LMEMW00	3.73
Murmansk			AARXW00	0.89		
USGC*	LAUVD00	2.27	LAUVE00	2.25	LMEMX00	4.69
USGC via Suez					LMEMY00	4.69
USGC via Cape					LMEMZ00	5.84

Americas discharge ports

	US	Atlantic Coa	st	Argentina		Brazil
Middle East	AAUTK00	4.35	AAUTS00	4.39	ACAAP00	5.07
Australia (Dampier)	AAUTL00	5.44	AAUTT00	4.42	ACAAQ00	5.31
Australia (Gladstone)	ACABF00	5.28	ACABH00	3.80	ACABG00	4.68
Trinidad	AAUTM00	0.94	AAUTU00	2.00	ACAAR00	1.36
Nigeria	AAUTN00	2.32	AAUTV00	2.23	ACAAS00	1.93
Algeria	AAUT000	1.53	AAUTW00	2.54	ACAAT00	2.24
Belgium	AAUTP00	1.38	AAUTX00	2.88	ACAAU00	2.57
Peru	AAUTQ00	4.50	AAUTY00	1.98	ACAAV00	3.01
Russia	AAUTR00	6.82	AAUTZ00	5.66	ACAAW00	7.95
Spain	ACAAE00	1.27	ACAAF00	2.56	ACAAG00	2.09
Norway	ACAAM00	1.55	ACAAN00	3.43	ACAA000	3.29
USGC*			LAUVG00	3.07	LAUVH00	2.42

^{*}Most economic.

All values calculated based on prevailing spot market values during the day for LNG, bunker fuel and ship chartering. No route cost is calculated for Zeebrugge to NW Europe, or Spain to SW Europe. Other routes appear blank on days when a public holiday in one or another location means underlying values are not published. Detailed assessment methodology, including assumed route times and underlying values, is found on www.platts.com.

Relations between Algiers and Rabat have worsened significantly in recent months, with Algerian President Abdelmadjid Tebboune on Oct. 31 ordering state-owned Sonatrach to break all commercial relations with Morocco's state utility ONEE.

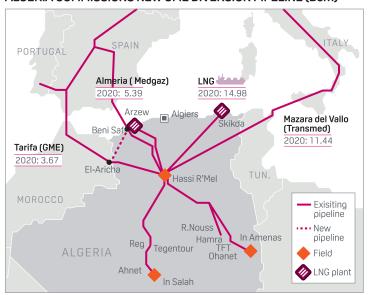
Algeria has previously said a number of times that it can meet Spanish gas demand using only its direct subsea Medgaz line and LNG deliveries, but the non-renewal of the GME transit contract could still cause some concern in Europe given the current tight gas market and high prices.

Tebboune's office, cited by the Algerian state news agency, said the transit contract would not be renewed given Morocco's "hostile" actions toward Algeria. "The president has given instructions to Sonatrach to cease all commercial relations with the Moroccan company and not to renew the said contract," the office said.

Spanish gas importers had already flagged that a non-renewal was likely, with data from Spanish grid operator Enagas in mid-October showing zero nominations for Algerian gas imports via the GME pipeline for November.

Algeria has moved to reassure Spain that it could guarantee gas deliveries, with energy minister Mohamed Arkab in August saying that preparations had been made to divert all gas from the GME pipeline into Medgaz.

ALGERIA COMMISSIONS NEW GME DIVERSION PIPELINE (Bcm)



Source: S&P Global Platts Analytics

In May, Arkab formally inaugurated a new 197 km pipeline from El-Aricha on the border with Morocco to Beni Saf, the starting point of the Medgaz pipeline, to allow for supplies into GME to be moved instead into Medgaz.

In addition, the capacity of Medgaz is being increased to the equivalent of 10.5 Bcm/year, up from 8 Bcm/year currently, with the expanded capacity expected to be available from December.

Sufficient capacity?

The GME pipeline transited 5.93 Bcm of Algerian gas via Morocco to Spain in the first 10 months of 2021 — an average of 20 million cu m/d

— according to S&P Global Platts Analytics data. That is around 25% of Spain's annual gas demand.

By comparison, the Medgaz pipeline supplied some 6.51 Bcm of gas to Spain, or 21 million cu m/d, in the January-October period.

ALGERIA'S GAS FLOWS VIA MEDGAZ, GME IN 2021



Source: S&P Global Platts Analytics

Total supplies in the first 10 months of 2021 in the two pipelines (12.44 Bcm) are already more than the expanded capacity of Medgaz, suggesting that pipeline would not be able to meet all Spanish gas demand in the future.

"Medgaz is not enough to cover our forecast of Algerian supply to Spain for the balance of this winter, with 14 million cu m/d at risk," Platts Analytics said. "This is even after considering the current expansion that will increase Medgaz capacity to 10.5 Bcm/year by the end of November," it said.

However, Platts Analytics expects the impact on the Spanish balance this winter to be "subdued."

"Platts Analytics currently estimates that Algeria has sufficient LNG export capacity to cover the GME shortfall after factoring in Sonatrach's contractual obligations," it said.

Current LNG exports from Algeria sit at 44 million cu m/d on a 30-day moving average, below the year-to-date peak of 68 million cu m/d reached in late March and far below the liquefaction nameplate capacity of 98 million cu m/d.

"There should be room for volumes currently being exported via the GME pipeline to be diverted to the LNG facilities," it said.

Algeria's contractual LNG commitments are estimated at 31 million cu m/d this winter, implying uncontracted volumes could be reoriented to meet Spanish pipeline commitments even if total LNG exports cannot ramp up from current levels, it said.

However, bullish risks remain as more Spanish supply will rely on Algeria's two LNG liquefaction terminals, one of which — Skikda — has seen extended outages in recent years.

"Another outage could see Algerian LNG exports fail to pick up from the current loading levels, or even fall below," Platts Analytics said.

Spanish stocks

Spanish gas grid operator Enagas, meanwhile, said Oct. 31 it had sufficient stocks in November for 40 days' worth of demand after it ensured additional volumes were injected into storage prior to the halt of deliveries through the GME pipeline.

"Thanks to a concerted effort with the ecological transition ministry, the Spanish gas system has greater contracted gas capacity than at the same point in previous winters and is in a better position than other local markets," it said.

The current situation means that there "are no signs that there will be a shortage of gas supply in the coming months," it said.

Underground storage sites are at 80% of capacity with 28.3 TWh held, it said, while the stored volume has been boosted by 18.8 TWh of LNG stored in tanks, or 65% more volume than at the end of October 2020.

When added together, the stored volume of 47.1 TWh is greater than the 43.5 TWh stored a year ago.

Enagas has also assigned 45 extra LNG import slots over September and October to meet the shortfall triggered by the loss of GME volumes.

This has resulted in a pick up in delivered volume in October of 3.9 million cu m of LNG, double the volume in October 2020, and a scheduled volume of 3.8 million cu m for November.

In terms of contracting, Enagas said 100% of LNG terminal capacity was booked, excluding the 5% buffer for daily contracting, while LNG tank capacity booking is at 95% for the month — also the maximum possible.

For December, with one auction still to be held, contracted LNG capacity is already at 77.4%, Enagas said.

Overall, the total number of slots booked for the winter season, November through March, is 136, up from 86 in the year-ago period, it said. — *Stuart Elliott, Gianluca Baratti*

PetroChina's Jan-Sep natural gas imports incur \$500 million loss as costs rise

- January-September natural gas sales rise 14.4% on year
- Import losses started accumulating from second quarter
- Gas margins to shrink further in coming months

State-run PetroChina incurred a net loss of Yuan 3.2 billion (around \$500 million) in its imported natural gas business over the first three quarters of 2021 due to higher import costs and rising crude oil prices, and losses are likely to mount further in coming quarters, the national oil company said in its third quarter results briefing Oct. 29.

PetroChina said losses due to gas imports started to accumulate from the second quarter and amounted to Yuan 6.4 billion in Ω 3, offsetting positive margins in the business in Ω 1.

China's downstream natural gas prices are partly regulated, and national oil companies incur losses on gas sales with a lag of roughly nine months. PetroChina said its second and third quarter import costs of pipeline gas mainly reflected crude prices that had been steadily rising since mid-2020.

It expects the import cost of natural gas to grow further in Q4 due to the steady increase in oil and gas prices in recent months and sees growing pressure on margins in the coming months.

The losses underscore how the bulk of China's oil-linked natural gas imports are affected by crude oil prices that have almost doubled

to more than \$80/b in the past year, which for many Asian gas importers is a bigger problem than spot LNG prices due to much higher exposure to contracted supply.

PetroChina said it will continue to enhance the management of gas supply and demand, optimize procurement, control costs and make full use of national policies to bring down the losses.

Higher gas output

PetroChina said it will also further increase domestic natural gas oroduction.

"Vigorously developing domestic natural gas business is a strategy for PetroChina, which is also an important way to promote the company's green and low carbon transition," chief financial officer Chai Shouping said, adding that capital expenditure for gas production had been raised.

PetroChina's domestic natural gas production rose 10.7% year on year to 977.1 Bcf in Q3, while output of 3,136.6 Bcf over January-September was up 7.9% year on year, though overseas gas production dropped by around 6% and 16.5% year on year in Q3 and the first nine months, respectively.

The growth rates of PetroChina's domestic gas production in Ω 3 and January-September were both higher than its annual target of 5% set at the start of 2021, according to Chai.

Amid higher production and imports, PetroChina's natural gas sales rose 14.4% year on year to 198.7 billion cubic meters over January-September, of which 138.1 Bcm was sold in domestic market, up 16.2% year on year, its data showed.

PETROCHINA'S OPERATIONAL RESULTS

	2021	Jan-Sep	Jan-Sep	Y/Y VOI
	target	2021	2020	Change (%)
Crude oil output* (million barrel)	924	662.3	701.2	-5.6
Natural gas output* (Bcf)	4,354	3,280.5	3,079.8	6.5
Oil & gas equivalent output* (million boe)	1,649	1,209.2	1,214.6	-0.4
Crude throughput (million barrels)	1,247	911.9	877.3	3.9
Loss/Profit from operation (billion Yuan)	NA	124.8	60.3	107.0
Capital expenditure (billion Yuan)	239.0	169.4	160.8	5.3

 $^{^{\}ast}$ Oil, gas outputs from both domestic and overseas

Source: company report

PETROCHINA'S DOMESTIC PRODUCTION

(million mt)	Jan-Sep	China Jan-Sep	^share in	Jan-Sep	Y/Y vol
	2021	2021	China (%)	2020	Change (%)
Natural gas (Bcm)	88.82	151.83	58.5	82.33	7.9
Crude oil	76.00	149.84	50.7	75.79	0.3
Refinery throughput	123.41	526.87	23.4	118.73	3.9
Gasoline	37.40	114.39	32.7	34.01	10.0
Gasoil	34.73	115.53	30.1	39.00	-11.0
Jet/Kerosene	9.20	32.20	28.6	7.19	28.0
Gasoil:Gasoline	0.93	1.01		1.15	

Source: company report

PETROCHINA'S DOMESTIC OIL PRODUCT TOTAL SALES VOLUME

(million mt)	Jan-Sep 2021	Jan-Sep 2020	Change (%)
Gasoline	40.14	36.35	10.4
Gasoil	36.62	36.09	1.5
Jet fuel	7.35	5.40	36.0
Total	84.11	77.84	8.1

Source: company report

Crude, oil products

In the oil sector, PetroChina aims to meet its production target of 924 million barrels or 2.53 million b/d set for 2021, said Brian Xing, the company's Deputy Director of Investor Relations.

This suggested the company has to boost crude oil output and throughput in Q4, which only hit 71.7% and 73.1%, respectively, of the annual target.

PetroChina produced 662.3 million barrels or 2.43 million b/d of crude over January-September, down 5.6% year on year due to a slump of 28.7% in its overseas output, the result showed.

The reduction in overseas oil and gas output was mainly due to the production curbs set by OPEC+, said Wei Fang, assistant secretary to the board.

PetroChina marginally lifted its domestic crude production by 0.3% year on year to 2.05 million b/d over January-September, which accounts for 85% of the company's total crude output and 50.7% of China's total crude production.

The company aims to lift throughput by 9.7% from $\Omega 3$ to 3.65 million b/d in $\Omega 4$ in order to hit its production target while meeting domestic oil product demand.

S&P Global Platts data showed that it lifted utilization to 76% in October from 72% in a year earlier and 75% in September.

In oil products output, both PetroChina and Sinopec significantly cut their gasoil yield, leading to a supply shortage of the fuel when imports of gasoil blending material light cycle oil were impacted by a hefty consumption tax.

PetroChina's gasoil yield fell to 28.1% over January-September from 32.8% in a year earlier, resulting in output falling 11% year on year to 34.73 million mt despite crude throughput rising 3.9% in the period.

— Staff

Bulgaria suspends gas flows on Serbia-Hungary route after pipeline incident

- Gas flow to Romania only partly restored: Bulgartransgaz
- Russian gas flows via Bulgaria to Serbia, Hungary, Romania
- Damaged section to be replaced 'as soon as possible'

Bulgaria has suspended gas flows into the Serbia-Hungary route—the onshore infrastructure bringing Russian gas via the TurkStream pipeline into central Europe— after an incident early Nov. 1 on the part of the Bulgarian gas transmission grid, state-owned grid operator Bulgartransgaz said.

In a statement, Bulgartransgaz said supplies to Romania had also been halted after the incident, though they have now been partially restored.

"On Nov. 1, at 0300 (0100 GMT), an emergency situation occurred on the gas transmission network of Bulgartransgaz in the area of the village of Vetrino," it said, adding that a section of the pipeline had been damaged.

"The transmission of gas to Romania was automatically stopped at 0315 and supplies at the Serbia-Hungary route were suspended at 0700," it said, adding that the transmission to Romania had now been partially restored.

SOUTHEAST EUROPE UNDERGOING GAS TRANSFORMATION



Source: S&P Global Platts

"The emergency groups of the company are on site, and the damaged section of the gas pipeline will be replaced as soon as possible," it said.

Russia's Gazprom now supplies all of its gas to Bulgaria, Romania and Serbia via TurkStream and the dedicated onshore pipeline network.

In addition, the bulk of Hungary's Russian gas imports now come in via Serbia after the supply via Ukraine was halted on Oct. 1.

Since the start of October, Hungary has been taking 6 million cu m/d of gas via Serbia, according to data from S&P Global Platts Analytics.

Flows from Bulgaria into Serbia at the Kireevo interconnection point had been running at around 13 million cu m/d, according to the data, meaning some 7 million cu m/d of gas supply was for Serbia itself as well as small onward deliveries to Bosnia and Herzegovina.

According to a transparency note from Bulgartransgaz, flows into Kireevo were 100% halted, while flows into Romania at the Ruse interconnection point were also 100% suspended.

Some 7 million cu m/d of capacity was still available for flows out of Bulgaria into Romania at the Negru Voda point, however.

Supplies at Negru Voda had been as high as 12 million cu m/d this summer, but had been running at some 6-8 million cu m/d in recent days.

TurkStream shift

The start in January 2020 of the two-string 31.5 Bcm/year TurkStream pipeline triggered an unprecedented reshuffle in the way Russian gas reaches Southeast Europe.

One of the 15.75 Bcm/year strings feeds directly into the Turkish market — replacing volumes previously delivered via Ukraine in the Trans-Balkan pipeline — while the other 15.75 Bcm/year string enters Bulgaria at Strandzha.

Initially, gas mostly either stayed in Bulgaria or was transited onto Greece and North Macedonia, with small volumes also moving into Romania.

But since the start of 2021, Russian gas sent via TurkStream can also now be transited onto Serbia and Bosnia and Herzegovina, with Hungary also supplied via the new route since October.

Gas deliveries into Southeast Europe via TurkStream in the first 10 months of 2021 totaled 9.33 Bcm — an average of 31 million cu m/d.

According to Platts estimates, around 1.54 Bcm of the supply remained in Bulgaria for domestic consumption in the first half of 2021.

— Stuart Elliott

Finland's Gasum expands Northern European LNG bunker operations

Finnish state-owned energy company Gasum has expanded its North-West European LNG bunkers supply with a new vessel located in the region, according to a company statement on Nov. 1.

The vessel, named Kairos, will now operate in the Amsterdam, Antwerp and Rotterdam (AAR) region, providing LNG bunkering services to freight vessels.

Kairos previously operated within the Northern and Baltic sea providing LNG bunkers to marine vessels travelling in Emission Controlled Areas (EMA). The vessel has an transfer rate of 1,250 cu m per hour and is one of three LNG bunkering vessels operated by Gasum.

LNG bunkers are often seen as the transitional marine fuel, as vessels move away from fuel oil and diesel towards ammonia and hydrogen fuels. LNG as a marine fuel has the potential to reduce greenhouse gas emissions by over 20%.

Platts assessed the Rotterdam LNG bunker price at Eur 63.300/MWh on Oct. 29. High LNG prices are incentivising dual-powered vessels to use alternative fuels.

Platts assesed the North-West Europe LSFO price at \$519.00/mt on Oct. 29. This is a \$309/mt discount to the LNG bunker oil-equivalent price. — Zack Smith



Russia's Gazprom sees non-CIS gas sales slide to new 2021 low in October

- October deliveries averaged just 433 million cu m/d
- Total supply to non-CIS at 158.8 Bcm in Jan-Oct
- Russia pledged to refill EU stocks from Nov. 8

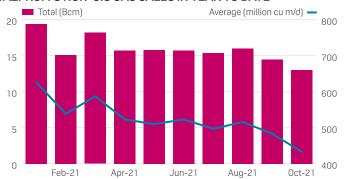
Gazprom's gas sales in non-CIS countries in October averaged 433 million cu m/d, easily the lowest average monthly volume so far in 2021, according to an S&P Global Platts analysis of the latest sales data published by the Russian gas group Nov. 1.

In its regular sales update, Gazprom said total deliveries to export markets — excluding countries of the former Soviet Union — in the first 10 months of 2021 were 158.8 Bcm.

That, it said, was close to the historical record level.

However, the October average sales were well down on previous monthly supply levels in 2021, with the previous low seen in September at 483 million cu m/d, according to Platts calculations.

GAZPROM'S NON-CIS GAS SALES IN YEAR TO DATE



Source: Gazprom, S&P Global Platts

Gazprom's sales in the Far Abroad — traditionally Europe plus Turkey minus the countries of the former Soviet Union — reached an all-time high of 201 Bcm in 2018.

However, the sales data are now said to include China, with a comparison of the data for the first six months tallying with Gazprom's interim report on first-half sales in non-CIS countries plus China.

Gazprom has repeatedly said it expected its gas sales in Europe and Turkey for 2021 as a whole to total 183 Bcm, a level excluding Chinese deliveries.

Without China, the non-CIS deliveries in the period January-October would be closer to 151 Bcm, according to Platts estimates.

That would leave around 32 Bcm to be sold in Europe and Turkey in the remaining two months of 2021.

October lows

Gazprom has come in for criticism for not booking additional capacity via Ukraine and Belarus to supply more gas to Europe amid sky-high gas prices, but the company has said its focus remained on meeting its European customer obligations.

European gas prices surged in recent months, with the TTF day-ahead price hitting a record high of Eur116.10/MWh (\$39.51/MMBtu) on Oct. 5, according to S&P Global Platts price assessments.

Prices remained volatile through October, with strong falls toward the end of the month. The TTF day-ahead price was assessed Oct. 29 at Eur61.50/MWh.

Russian President Vladimir Putin last week ordered Gazprom to begin refilling its storage sites in Germany and Austria as soon as it had completed its domestic storage injection program on Nov. 8.

Gazprom has been producing significantly more gas in 2021 than it did a year ago. It said Nov. 1 that production was 422.6 Bcm in the first 10 months of 2021, an increase of 15.8% year on year.

In August, Gazprom said it expected to produce 510 Bcm of gas in 2021, which would be a 10-year high.

Supplies to the domestic Russian market increased by 17.2%, or by 28.8 Bcm, in the period January-October, it said.

Biggest markets

Some of Gazprom's biggest export markets increased purchases in the January-October period.

In Germany — comfortably the gas group's biggest export market — sales rose by 23.4% year on year, Gazprom said, without providing actual volumes

Sales in Turkey rose strongly in the year to date, increasing by 110.4%, Gazprom said. Romania (up 272.2%) and Serbia (up 101.7%) also saw significant year-on-year increases, it said.

Other countries saw smaller growth in sales, including Poland (9.5%), Greece (16.3%), Italy (15.4%), Bulgaria (51.9%), and Finland (13.6%).

"To date, Gazprom's exports to a number of countries have already exceeded the volumes for all of 2020, in particular to Turkey, Bulgaria, Romania, and Serbia," it said.

Gas sales data from Gazprom includes gas supplied by pipeline and from owned capacity in European gas storage sites.

Gazprom also said its supplies to China via the Power of Siberia gas pipeline continued to increase. "On Oct. 31, supplies at the request of the Chinese side reached a new record level and exceeded Gazprom's daily contractual obligations by more than 19%," Gazprom said. — Stuart Elliott

Santos signs off on developing Australian Moomba CCS project

Australian LNG exporter Santos has made its final investment decision on the Moomba carbon capture and storage project with first injections targeted for 2024, the company said Nov. 1.

"This carbon reduction project in the South Australian outback will be one of the biggest and lowest cost in the world and will safely and permanently store 1.7 million mt of carbon dioxide per year in the same reservoirs that held oil and gas in place for tens of millions of years," Santos managing director and CEO Kevin Gallagher said.

The project, which is a joint venture with Beach Energy, has a price tag of \$165 million.

"We forecast a full lifecycle cost of less than \$24/mt of CO2 including cash costs in operation of \$6-8 per tonne of CO2," Gallagher said.

The project is part of Santos' plan to cut scope 1 and 2 emissions to

net-zero by 2040.

"If we do not decarbonize the hydrocarbon fuels that still make up just over 80% of global primary energy and provide 60% of the world's clothing fibres along with other essential everyday products, then the world will simply not reach net-zero by 2050," Gallagher said.

Santos is also working with the Timor-Leste government on the possibility of using the soon-to-be-depleted Bayu-Undan Darwin LNG backfill project for CCS.

Santos said Sept. 14 that it has the potential to store around 10 million mt/year of CO2.

The company is planning to merge with fellow Australian Securities Exchange-listed company Oil Search, which would create a top 20 oil and gas entity. — <u>Nathan Richardson</u>

Turkey's Botas hikes gas prices for power producers, heavy industry

- Keeps rate for residential, low-level users unchanged
- Price rise for power sector up 183% since start-2021

Turkey's state gas importer Botas said late Oct. 31 it would raise its wholesale gas price for power producers by 46.8% and for industrial consumers by 48.4%, effective Nov. 1.

The price for all consumers buying gas for power generation has risen to Lira 4/cu m (\$0.42/cu m), while the price charged for industrial consumers using over 300,000 cu m/year of gas rose to Lira 3.50/cu m.

Botas' wholesale price for gas distributed to residential and commercial consumers, and for industrial consumers using less than 300,000 cu m/year of gas, remained unchanged at Lira 1.49/cu m, it said.

The latest price hikes mean that since the start of this year, the price Botas charges power generators has risen by 183%, with that charged to major industrial consumers rising by 147.5% against a price rise for distribution to residential, commercial and low-use industrial consumers of only 18%.

Botas gave no reason for restricting the price increases to power producers and higher-use industrial users only, but in its announcement pointed out that over the past year European hub prices had risen by 362% and Brent crude prices — against which most of Turkey's gas imports are indexed — were up by 85%.

The company also pointed out that at Lira 2.26/cu m, the prices paid for gas by Turkish residential consumers was as low as 21% of the prices currently being charged in some parts of Europe.

President Recep Tayyip Erdogan and his AK party government are at historic lows in opinion polls on the back of inflation running at above 19% and a weak Lira which has fallen around 29.3% against the dollar since the start of the year.

Retail energy prices are widely expected to be a key issue in presidential and parliamentary elections scheduled for 2023, and the low rate of increase in the prices charged for gas for distribution over the course of this year suggests that the government is prepared to continue subsidizing gas prices to ordinary consumers at least until the end of the current election cycle. — <u>David O'Byrne</u>

HYDROGEN

Switzerland's Axpo takes 25% stake in renewable hydrogen venture

- Company targets green methane, hydrogen
- Sees potential in European hydrogen goals

Swiss energy group Axpo has taken a 25% stake in Swiss Green Gas International to develop renewable hydrogen and synthetic methane, the company said Nov. 1.

SGGI develops power-to-X facilities in Northern Europe, using renewable electricity to power hydrogen electrolysis and synthetic methane production.

"The phasing out of fossil energy sources cannot succeed by simply switching to renewable technologies for power production," Axpo said. "The other prerequisite is the availability of hydrogen and green gas, which are considered key elements of the energy transition."

Axpo said the acquisition would support the targets of countries and companies in Europe that aim to rapidly increase the use of low-carbon and renewable hydrogen as part of decarbonization efforts.

The EU is targeting a renewable hydrogen production capacity of 40 GW by 2030.

S&P Global Platts assessed the cost of producing renewable hydrogen via alkaline electrolysis in Europe at Eur10.22/kg (\$11.83/kg) Oct. 29 (Netherlands, including capex), based on month-ahead power prices. PEM electrolysis production was assessed at Eur12.26/kg, while blue hydrogen production by steam methane reforming (including carbon, CCS and capex) was Eur4.52/kg.

The other shareholders in SGGI are Swiss gas supplier Holdigaz and development and investment company Nordur Group. — <u>James Burgess</u>

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JCB and Ryze partner with Fortescue on UK green hydrogen supply deal

- MOU to take 10% of FFI's global green hydrogen
- FFI to make 15 mil mt/yr green hydrogen by 2030
- JCB, Ryze to manage UK distribution, build demand

Construction company JCB has partnered with Ryze Hydrogen on a multibillion-pound deal with Australia's Fortescue Future Industries to supply the UK market with renewable hydrogen.

Ryze and JCB will purchase 10% of FFI's global renewable hydrogen production, under a memorandum of understanding signed Oct. 31.

FFI's expects its renewable hydrogen production to reach 15 million mt/year by 2030, rising to 50 million mt/year by 2040, it said in a statement.

Under the agreement, Ryze and JCB will manage hydrogen distribution and customer demand development in the UK, the companies said in the statement.

Ryze founder and JCB heir Jo Bamford said: "We are walking the walk on green hydrogen and now we want the government to show its commitment to the sector by investing in buses, trains, trucks, ships, aircraft and the entire green hydrogen supply chain."

Ryze is building a network of renewable hydrogen production plants, and Wrightbus, also owned by Bamford, built the world's first hydrogen double decker bus.

"This agreement demonstrates that green hydrogen does not need to be 'transitioned' via fossil fuel hydrogen," Bamford said in the statement. "Production of it can commence at once, to meet the needs of all mobility."

The companies are also exploring offtake agreements for the wider European market, they said.

Calculated hydrogen production costs have risen sharply in recent weeks on the back of record-high gas and power prices in Europe. However, production costs are expected to fall dramatically by 2030, especially in locations with plentiful cheap renewable power generation.

S&P Global Platts assessed the cost of producing hydrogen via alkaline electrolysis in the UK (including capex) at GBP10.43/kg (\$14.25/kg) Oct. 29. PEM electrolysis production was assessed at GBP12.43/kg, while blue hydrogen production by autothermal reforming was GBP3.73/kg (including capex, CCS and carbon). — James Burgess

SUBSCRIBER NOTES

Platts proposes new daily carbon neutral hydrogen assessments

S&P Global Platts is proposing to launch its first suite of carbon-neutral hydrogen assessments, effective Dec. 9, 2021.

Building on its industry-leading price valuations for hydrogen, Platts would launch new carbon-neutral hydrogen price assessments that incorporate the cost of carbon capture, renewable energy certificates and where appropriate the cost of offsetting carbon emissions generated during production. Carbon offset costs would be accounted for using Platts CNC nature-based carbon credits, as measured in \$/mtCO2e in certain markets. Platts would complement these backstop calculated prices with available source data including bids, offers and reported trades as these become available. Other factors that will be considered include market information on power-purchase

agreements and hydrogen offtake agreements. In the absence of spot market activity, Platts would consider carbon neutral hydrogen production costs as a baseline against which market prices would be assessed.

Platts would start publishing daily assessments in six locations, which have the potential to become hydrogen hubs as global markets emerge: California and US Gulf Coast in the Americas, the Netherlands and Saudi Arabia in Europe and the Middle East, and Japan and Australia in Asia-Pacific.

Assessments would be measured in \$/kg, \$/MMBtu, Eur/kg, Eur/MMBtu, Yen/kg, Yen/MMBtu, A\$/kg, A\$/MMBtu.

The prices would be published on Platts Dimensions Pro and under the Market Data Category: HY.

The following symbols would be created:

- -Australia Carbon Neutral Hydrogen A\$/kg
- -Australia Carbon Neutral Hydrogen A\$/kg MAvg
- -Australia Carbon Neutral Hydrogen A\$/MMBtu
- -Australia Carbon Neutral Hydrogen A\$/kg MAvg
- -Australia Carbon Neutral Hydrogen \$/kg
- -Australia Carbon Neutral Hydrogen \$/kg MAvg
- -Australia Carbon Neutral Hydrogen \$/MMBtu
- -Australia Carbon Neutral Hydrogen \$/MMBtu MAvg
- -California Carbon Neutral Hydrogen \$/kg
- -California Carbon Neutral Hydrogen \$/kg MAvg
- -California Carbon Neutral Hydrogen \$/MMBtu
- -California Carbon Neutral Hydrogen \$/MMBtu MAvg
- -Far East Asia Carbon Neutral Hydrogen Yen/kg
- -Far East Asia Carbon Neutral Hydrogen Yen/kg MAvg
- -Far East Asia Carbon Neutral Hydrogen Yen/MMBtu
- -Far East Asia Carbon Neutral Hydrogen Yen/MMBtu MAvg
- -Far East Asia Carbon Neutral Hydrogen \$/kg
- -Far East Asia Carbon Neutral Hydrogen \$/kg MAvg
- -Far East Asia Carbon Neutral Hydrogen \$/MMBtu
- -Far East Asia Carbon Neutral Hydrogen \$/MMBtu MAvg
- -Middle East Carbon Neutral Hydrogen \$/kg
- -Middle East Carbon Neutral Hydrogen \$/kg MAvg
- -Middle East Carbon Neutral Hydrogen \$/MMBtu
- -Middle East Carbon Neutral Hydrogen \$/MMBtu MAvg
- -NW Europe Carbon Neutral Hydrogen Eur/kg
- -NW Europe Carbon Neutral Hydrogen Eur/kg MAvg
- -NW Europe Carbon Neutral Hydrogen Eur/MMBtu
- -NW Europe Carbon Neutral Hydrogen Eur/MMBtu MAvg
- -NW Europe Carbon Neutral Hydrogen \$/kg
- -NW Europe Carbon Neutral Hydrogen \$/kg MAvg
- -NW Europe Carbon Neutral Hydrogen \$/MMBtu
- -NW Europe Carbon Neutral Hydrogen \$/MMBtu MAvg
- -USGC Carbon Neutral Hydrogen \$/kg
- -USGC Carbon Neutral Hydrogen \$/kg MAvg
- -USGC Carbon Neutral Hydrogen \$/MMBtu
- -USGC Carbon Neutral Hydrogen \$/MMBtu MAvg Please send all questions and comments to

hydrogenassessments@spglobal.com and pricegroup@spglobal.com by Nov. 11, 2021. For written comments, please provide a clear indication if comments are not intended for publication by Platts for public viewing. Platts will consider all comments received and will make comments not marked as confidential available upon request.

Vercer Capital Markets Trading Limited changes entity name to Dare Global Limited

Vercer Capital Markets Trading Limited has advised Platts that it would like to change its participating entity name in the Platts Market on Close assessment processes for:

Americas Fuel Oil - Paper

Asia Naphtha-Paper

Asia Mogas-Paper

Asia Jet Fuel-Paper

Asia Gasoil-Paper

Asia Fuel Oil-Paper

Asia APAC LNG - Paper

EMEA Naphtha-Paper EMEA Mogas-Paper

EMEA Jet Fuel-Paper

EMEA Gasoil/Diesel- Paper

EMEA Fuel Oil - Paper

EMEA Crude BFOE CFDs- Paper

This follows the Vercer Capital Markets Trading Limited name change to Dare Global Limited.

Platts has reviewed Dare Global Limited and will consider information from Dare Global Limited in the Americas, Asia and EMEA assessment processes for the abovementioned markets, subject at all times to adherence with Platts editorial standards.

Platts will publish all relevant information from Dare Global Limited accordingly. Platts welcomes all relevant feedback regarding MOC participation. Platts considers bids, offers and transactions by all credible and creditworthy parties in its assessment processes. For comments and feedback, please contact: Platts editors at oilgroup@spglobal.com and PriceGroup@spglobal.com.

Platts launches Atlantic LNG physical eWindow

S&P Global Platts has launched the Platts Editorial Window, or eWindow, communication tool for its Atlantic LNG physical Market on Close (MOC) assessment process for its DES Northwest Europe (NWE), DES Mediterranean (MED) and FOB Gulf Coast Marker (GCM) price assessments on Sept. 24, 2021. Participants in the Platts MOC process are now able to submit bids, offers and expressions of interest to trade for publication directly through the eWindow communication tool or through an editor, who would then publish the information using the software.

The instruments that are launched for the Platts Atlantic LNG are from the third to the fifth half-month forward (H+3 to H+5) in dollars per MMBtu for the DES NWE and DES MED assessments, and 30-60 days forward for FOB GCM. Market participants can state their specific bid or offer delivery windows — for example, 3-day or 5-day delivery or loading windows — within these instruments.

The instruments will allow for a variety of different delivery or loading locations to be used in bids and offers, such as: DES UK, DES Spain, etc.

For delivery locations that are not listed individually, market participants can select "DES in TQC" and input the details directly the DES basis of the bid or offer in the Terms, Quality & Comments (TQC) box.

The instruments will allow for a volume range to be expressed for bids and offers, up to 0.3 TBtu.

If the bid or offer is in a volume range, then the instrument called Platts Atlantic LNG (Oty Range) would be selected. The instruments will also allow for a variety of pricing basis.

Market participants can also input directly other terms related to their bids or offers in the TQC box.

The eWindow instruments will generate a different format for headlines of bids, offers and trades published on Platts LNG Alert and via other Platts services. For example, a headline that currently appears as:

Atlantic LNG MOC: COMPANY Offers Oct TTF ICE Front Month Average +0.15 \$/ MMBTU DES Pricing 24-30 September. 2 Day Delivery Window: 11-12 October. Base Discharge Port: Buyer to advise during CN process. No later than 20 days prior to the 2 Day Arrival Period, Buyer can nominate substitute Discharge Port in Mugardos, Rotterdam, Dragon, Isle of Grain, South Hook, Montoir, Dunkirk, Zeebrugge, Bilbao, Huelva, Barcelona, Sagunto, FOS. GHV: 1000 to 1120 Btu/SCF. Contract Quantity 3.65 Tbtu +/-5%. Base ship: will be nominated upon completion of deal. No later than 15 days prior to the 1 Day Arrival Period, Seller may nominate an Alternate LNG Ship subject to SSCS and terminal acceptance. Base Load Port: Freeport. Seller's option to nominate an Alternative Load Port no later than 15 days prior to the 2 day Arrival Period. Laytime 36 hours., will be published as:

Platts Atlantic LNG DES NWE+MED H3-H5, COMPANY offers Oct11-Oct12 100% TTF Full Month Oct \$0.15 for 3.65 Pricing 24-30 September. Base Discharge Port: buyer to provide at trade confirmation. No later than 20 days prior to the 2 Day Arrival Period, Buyer can nominate substitute Discharge Port in Mugardos, Rotterdam, Dragon, Isle of Grain, South Hook, Montoir, Dunkirk, Zeebrugge, Bilbao, Huelva, Barcelona, Sagunto, FOS. GHV: 1000 to 1120 Btu/SCF. Base ship: will be nominated upon completion of deal. No later than 15 days prior to the 1 Day Arrival Period, Seller may nominate an Alternate LNG Ship subject to SSCS and terminal acceptance. Base Load Port: Freeport. Seller's option to nominate an Alternative Load Port no later than 15 days prior to the 2 day Arrival Period. Laytime 36 hours.

TIMING: All bids and offers will still have to be submitted by 16.00.00.000 London time. Following any trade, market participants will have 60 seconds to rebid or re-offer. No price changes are allowed from 16:28:00:000 to the close of the MOC process at 16.30.00.999. A rebid or re-offer, following a trade, in last 120 seconds prior to the close of the MOC will trigger a 120-second extension from 16.30.01.000 to 16.32.00.999, in order to adequately test that rebid or re-offer.

INCREMENTABILITY: Bids and offers can be improved by a maximum of \$0.05/MMBtu and a minimum of \$0.01/MMBtu every 120 seconds. As per Platts editorial guidelines, buyers or sellers can withdraw bids/offers at any time when communicating through eWindow, provided no prior interest to transact has been expressed by any potential counterparty. All bids and offers are firm from the moment they are submitted into eWindow to the moment they are traded, the MOC process closes or the bid/offer is withdrawn from the system by the trader or a Platts editor. Market participants can still send bids and offers directly to an LNG editor for publication via eWindow. In markets where Platts eWindow is in operation, the eWindow clock will be used to determine the correct sequence of events when a bid or offer is amended, withdrawn, or traded by an interested counterparty. Bids or offers submitted by phone, or any other medium, such as instant messaging software, shall be measured at the time the bid, offer or trade indication is actually transmitted through the eWindow system via the editor.

Guidelines for the publication of bids and offers in the MOC process are published in the LNG Timing and Increment Guidelines available here: https://www.spglobal.com/platts/en/our-methodology/methodology-specifications/lng/lng-timing-and-increment-guidelines.

Full information relevant to these assessments can be found in the Global LNG specifications guide available here: https://www.spglobal.com/platts/en/our-methodology/methodology-specifications/lng/liquefied-natural-gas-lng-assessments-and-netbacks-methodology.

Platts expects credit relationships that prevail inside its assessment environment to fully reflect relationships in the markets as a whole. eWindow provides direct entry and management of credit filters which should mirror those normally applied in the marketplaces.

Where Platts editors publish bids and offers on behalf of a company that submits data to an editor, counterparty credit settings are set to "open" for regular participants in the assessment process unless companies have notified Platts in advance of any restrictions.

If a counterparty submitting information through an editor has not already

notified Platts of any counterparty credit restrictions, they should notify Platts at least one hour prior to the start of the MOC process if any counterparty credit filters need to be modified.

Please send all feedback, comments and questions to

<u>Ingeditorialteam@spglobal.com</u> and <u>pricegroup@spglobal.com</u>.

For written comments, please provide a clear indication if comments are not intended for publication by Platts for public viewing.

Platts will consider all comments received and will make comments not marked as confidential available upon request.

Equinor ASA to join Atlantic LNG Physical MOC

Equinor ASA has advised S&P Global Platts that it would like to participate in the Platts Market on Close assessment process for EMEA - Atlantic LNG - Physical. Platts has reviewed Equinor ASA and will consider information from the entity in the assessment process for EMEA - Atlantic LNG - Physical, subject at all times to adherence with Platts editorial standards.

Platts will publish all relevant information from Equinor ASA accordingly. Platts welcomes all relevant feedback regarding MOC participation. Platts considers bids, offers and transactions by all credible and credit-worthy parties in its assessment processes. For comments and feedback, please contact Platts editors at LNGeditorialteam@spglobal.com and pricegroup@spglobal.com.

Deepavali publishing schedule for S&P Global Platts Asia LNG

The S&P Global Platts Singapore office will be closed on Thursday, Nov. 4 for the Deepavali holiday, and there will be no daily LNG assessments published from Singapore on that day.

Additionally, Platts in Asia will close its Market on Close assessment process early on Wednesday, Nov. 3, and all assessments will be on basis 12:30 pm Singapore time (0430 GMT).

Normal Singapore publishing schedule will resume on Friday, Nov. 5. For full details of Platts' publishing schedule and services affected, refer to http://www.platts.com/HolidayHome. For queries, please contact support.espglobal.com.

HYDROGEN & CARBON

NORTH AMERICA HYDROGEN ASSESSMENTS, OCTOBER 29*

	.		11	
Due doubling Dathweek		ding Capex		ding Capex
Production Pathway	\$/kg	Change	\$/kg	Change
Alberta (C\$/kg)				
SMR w/o CCS	0.9575	-0.0262	1.6753	-0.0242
Alkaline Electrolysis	6.1950	+1.7706	7.3804	+1.7740
PEM Electrolysis	7.1562	+2.0454	9.2802	+2.0515
Appalachia				
SMR w/o CCS	0.6867	-0.0492	1.2821	-0.0492
Alkaline Electrolysis	2.9483	-0.3419	3.8277	-0.3419
PEM Electrolysis	3.4057	-0.3950	4.9813	-0.3950
Gulf Coast				
SMR w/o CCS	0.8151	-0.0401	1.3191	-0.0402
Alkaline Electrolysis	2.3318	+0.0232	3.1642	+0.0232
PEM Electrolysis	2.6936	+0.0269	4.1850	+0.0269
Midcontinent				
SMR w/o CCS	0.7618	-0.0600	1.2931	-0.0599
Alkaline Electrolysis	2.3796	+0.5445	3.2334	+0.5444
PEM Electrolysis	2.7487	+0.6289	4.2786	+0.6289
Northeast				
SMR w/o CCS	0.7365	-0.0029	1.3712	-0.0029
Alkaline Electrolysis	2.9137	+0.0712	3.8183	+0.0712
PEM Electrolysis	3.3658	+0.0823	4.9866	+0.0823
Northern California				
SMR w/o CCS	1.0372	-0.0369	1.7675	-0.0369
Alkaline Electrolysis	3.5617	-0.0892	4.5479	-0.0892
PEM Electrolysis	4.1143	-0.1030	5.8814	-0.1030
Northwest				
SMR w/o CCS	0.8249	-0.0517	1.4075	-0.0517
Alkaline Electrolysis	3.4148	+0.6161	4.3109	+0.6161
PEM Electrolysis	3.9446	+0.7117	5.5502	+0.7117
Rockies				
SMR w/o CCS	0.8129	-0.0525	1.3710	-0.0525
Alkaline Electrolysis	3.7023	+0.9016	4.5689	+0.9016
PEM Electrolysis	4.2768	+1.0416	5.8294	+1.0415
Southeast				
SMR w/o CCS	0.8341	-0.0153	1.3537	-0.0154
Alkaline Electrolysis	2.4213	-0.0347	3.2760	-0.0346
PEM Electrolysis	2.7970	-0.0400	4.3283	-0.0400
Southern California				
SMR w/o CCS	0.9581	-0.0273	1.6589	-0.0273
Alkaline Electrolysis	3.4478	-0.1019	4.4137	-0.1019
PEM Electrolysis	3.9827	-0.1178	5.7133	-0.1178
Upper Midwest				
SMR w/o CCS	0.8099	-0.0386	1.3783	-0.0386
Alkaline Electrolysis	3.0506	-0.0428	3.9570	-0.0428
PEM Electrolysis	3.5240	-0.0494	5.1479	-0.0494
*Assessed previous day				

JAPAN HYDROGEN ASSESSMENTS, NOVEMBER 1

	Exclu	ıding Cəpex	Including Capex	
Production Pathway	Yen/kg	Change	Yen/kg Change	
SMR w/o CCS	510.9909	-16.4727	597.4930 -1 <mark>5.913</mark> 2	
Alkaline Electrolysis	888.9994	+215.4014	1031.8491 +216.3253	
PEM Electrolysis	1026.9424	+248.8257	1282.8866 +250.4812	

ASSESSMENT RATIONALE

The S&P Global Platts hydrogen prices are daily valuations that incorporate the cost of variable natural gas, electricity, and carbon inputs, where applicable. A second set of valuations include fixed assumptions for capital and operating expenses. The Platts hydrogen prices are not based on observed or reported market transactions. Details on the Platts hydrogen methodology can be found at:

https://www.spglobal.com/platts/en/our-methodology/methodology-specifications/ energy-transition/hydrogen-methodology.

VOLUNTARY CARBON CREDITS, NOVEMBER 1

	\$/mtCO2e	Change	Eur/mtC02e	Change
Platts CEC	7.050	-0.250	6.092	-0.176

Note: The Platts CEC assessment reflects the value of CORSIA-eligible credits in the voluntary carbon market, and is not a component of Platts hydrogen assessments.

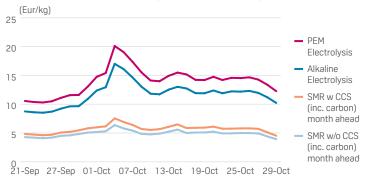
UK HYDROGEN ASSESSMENTS, NOVEMBER 1

Production Pathway	GBP/kg	Change	GBP/KWh	Change
ATR w CCS	3.5151	+0.1055	0.1055	+0.0032
ATR w CCS (inc. Capex & Carbon)	3.8343	+0.1055	0.1150	+0.0031
Alkaline Electrolysis	9.8373	+0.0174	0.2951	+0.0005
Alkaline Electrolysis (inc. Capex)	10.4460	+0.0179	0.3134	+0.0005
PEM Electrolysis	11.3611	+0.0201	0.3409	+0.0006
PEM Electrolysis (inc. Capex)	12.4517	+0.0210	0.3736	+0.0006

NETHERLANDS HYDROGEN ASSESSMENTS, NOVEMBER 1

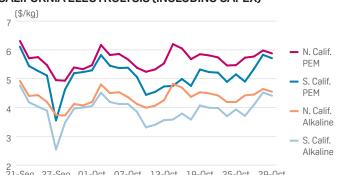
Production Pathway	Eur/kg	Change	Eur/KWh	Change
SMR w/o CCS	3.0067	+0.0480	0.0902	+0.0014
SMR w/o CCS (inc. Capex)	3.4417	+0.0468	0.1033	+0.0014
SMR w/o CCS (inc. Carbon)	3.5196	+0.0389	0.1056	+0.0012
SMR w/o CCS (inc. Capex & Carbon)	3.9546	+0.0377	0.1186	+0.0011
SMR w CCS	3.8169	+0.0515	0.1145	+0.0015
SMR w CCS (inc. Capex)	4.5213	+0.0496	0.1357	+0.0015
SMR w CCS (inc. Carbon)	3.8682	+0.0506	0.1161	+0.0016
SMR w CCS (inc. Capex & Carbon)	4.5726	+0.0487	0.1372	+0.0015
Alkaline Electrolysis	9.4746	-0.0248	0.2843	-0.0007
Alkaline Electrolysis (inc. Capex)	10.1929	-0.0269	0.3058	-0.0008
PEM Electrolysis	10.9419	-0.0287	0.3283	-0.0009
PEM Electrolysis (inc. Capex)	12.2290	-0.0323	0.3669	-0.0010

NETHERLANDS HYDROGEN (INCLUDING CAPEX)



Source: S&P Global Platts

CALIFORNIA ELECTROLYSIS (INCLUDING CAPEX)



21-Sep 27-Sep 01-Oct 07-Oct 13-Oct 19-Oct 25-Oct 29-Oct

Source: S&P Global Platts