NGI's LNG INSIGHT

Bringing a North American Focus to International LNG

TUESDAY, JUNE 16, 2020 - VOL. 1, NO. 170

BP Impairing Up to $17.5B in Assets on 'Enduring Impact' from Covid-19 and Quicker Energy Transition 4

Daily Rundown

- China's LNG imports continue rising and have exceeded last year's levels
- U.S. deliveries to the country displaced dominant supplies from other producers such as Australia
- BP expects to impair assets as the outlook for oil and natural gas prices dims

See The Offtake on Pg. 7 for Other LNG Highlights

ASIA

As Chinese LNG Imports Increase, U.S. Gains Market Share

China's liquefied natural gas (LNG) imports have continued to increase and are above 2019 levels year-to-date as spot prices in the region have plummeted, U.S. import tariffs have been waived and industrial demand recovers from the pandemic.

Australia and Qatar are among some of China's biggest gas suppliers, but the United States has finally seen its market share increase this year after a preliminary trade agreement in January eased tensions that had halted exports to the country. China took in 10 cargoes from the United States between April and May, according to Wood Mackenzie.

By value, China purchases about one-third of all Australian exports, and demand for energy products has boomed in the wake of the Covid-19 outbreak earlier this year, according to Wood Mackenzie. The firm's Asia Pacific Vice Chair Gavin Thompson said in a blog post last week that through May versus the first five months of 2019, iron ore imports were up 8%, while LNG was up 9%.

Thompson noted, however, that Australia's market share slipped slightly in May as it was cut by rising imports from the United States. While tensions have flared up between China and both countries over its role in the pandemic, LNG imports from Australia and the United States have held up.

April marked the first time in over a year that an LNG cargo from the United States arrived in China. Meanwhile, Australian consultancy EnergyQuest noted last week that Chinese imports from Australia were 2.8 million tons (Mt) in April, the highest level from Australia on record.

Analysts with Tudor, Pickering, Holt & Co. said recently global LNG trade in May was 7% above their forecast, "led by continued strength out of China" and stronger European flows. Chinese demand, analysts said this month, "appears to be fully back and then some," up 10% month/month and 25% year/year, "driven largely by a swapping of cheaper LNG volumes in place of pipeline imports," which were down 20% year/year.

Spot prices in North Asia have fallen precipitously this year from the demand destruction caused by the coronavirus

...cont' pg. 4

Prompt Month Statistics - Previous 5 Trading Days

	10-Jun	11-Jun	12-Jun	15-Jun	16-Jun
Max GOM Netback ($US/MMBtu)	1.156	1.219	1.324	1.394	1.401
L48 LNG Feedstock Deliveries (dth/d)	4.35	4.23	3.86	3.83	3.72
Futures ($US/MMBtu)					
Henry Hub	1.780	1.813	1.731	1.669	1.701
JPN/KOR	2.070	2.070	2.065	2.063	2.250
NBP	1.515	1.601	1.744	1.805	1.714
TTF	1.605	1.653	1.737	1.831	1.837
Shipping ($US/MMbtu)*					
Sabine Pass to Tokyo	0.939	0.913	0.911	0.912	0.918
Sabine Pass to Milford Haven (U.K.)	0.432	0.419	0.420	0.422	0.421
Sabine Pass to Gate (NW Europe)	0.448	0.434	0.434	0.436	0.437
Landed Price Arbitrage ($US/MMbtu)**					
Sabine to Tokyo	-0.916	-0.928	-0.837	-0.768	-0.624
Sabine to Gate	-0.891	-0.866	-0.688	-0.525	-0.555
Europe Fundamentals					
Gas in Storage (TWh)***	825.2	826.6	827.6	836.1	839.6
% Full	*74.6%*	*74.7%*	*74.8%*	*75.6%*	*75.9%*
Difference to Last Year (TWh)	132.2	128.4	124.6	120.1	119.3
Gas in LNG Storage (10^3 m^3)***	5443.42	5406.8	5426.6	5252.9	5514.1
% Full	*58.1%*	*57.7%*	*57.9%*	*56.0%*	*58.8%*
Spark Spread (Eur/MWh)	20.45	19.58	18.99	18.72	19.87
Clean Spark Spread (Eur/MWh)	10.22	9.62	9.16	8.79	9.68
Dark Spread (Eur/MWh)	14.67	14.41	14.05	14.20	14.98
Clean Dark Spread (Eur/MWh)	-9.75	-9.33	-9.41	-9.51	-9.33
PVB/TTF Premium (%)	28.7%	31.7%	29.0%	27.4%	28.6%
NW Europe Mean Temp (°F)	58	60	64	64	TBD
% Diff From 30-Yr Normal	*-3.3%*	*-1.2%*	*5.4%*	*5.3%*	*N/A*
Asia Fundamentals					
JKM/KOR Oil Parity Slope	5.0%	5.4%	5.3%	5.2%	5.5%
Brent Oil Price Parity ($US/MMBtu)	7.18	6.63	6.66	6.83	7.05
JKM/KOR Futures ($US/MMBtu)	2.07	2.07	2.07	2.06	2.25
Japan Coal Price ($US/MMBtu)	2.73	2.72	2.73	2.75	2.75
Beijing Mean Temp (°F)	79	77	81	85	85
% Diff From Normal	*2.9%*	*-0.5%*	*0.5%*	*-6.6%*	*9.1%*
Seoul Mean Temp (°F)	74	76	71	71	72
% Diff From Normal	*11.1%*	*13.0%*	*6.3%*	*3.9%*	*5.6%*
Tokyo Mean Temp (°F)	78	77	79	79	78
% Diff From Normal	*13.8%*	*12.1%*	*14.0%*	*13.4%*	*10.9%*
Latin America Fundamentals ($US/MMbtu) (Jun Prices)					
Mexico					
East (Altamira) DES	1.32	1.38	1.49	1.56	1.46
West (Manzanillo) DES	1.72	1.79	1.89	1.96	1.87
Argentina DES	1.73	1.79	1.89	1.96	1.87
Brazil DES	1.52	1.59	1.69	1.76	1.67
Chile DES	1.81	1.88	1.98	2.05	1.96
Colombia DES	1.36	1.43	1.53	1.60	1.51
Panama DES	1.39	1.45	1.55	1.62	1.53

Current prompt month prices are for Aug, unless otherwise noted.
*Assumes full freight for both laden and ballast legs.
**Excludes regas fees.
***Most recent data available. Typically delayed by two calendar days.

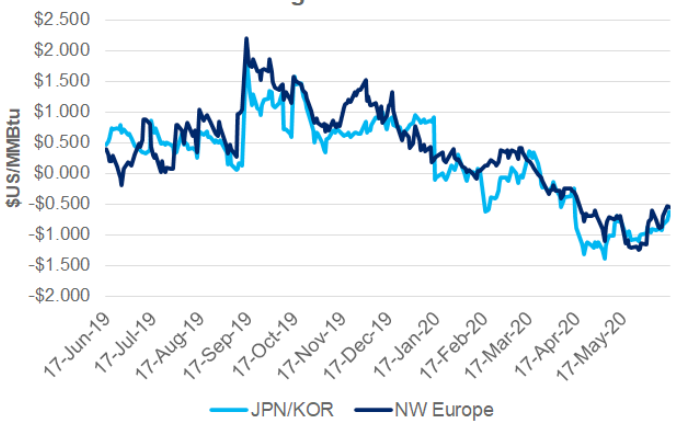
NGI's LNG INSIGHT

U.S. Gulf Coast LNG Netback Prices (12-Month Strip) 16-Jun-2020

	Futures Settle ($US/MMbtu)			Est Shipping Cost from Gulf Coast ($US/MMBtu)			Gulf Coast Netback ($US/MMBtu)					Netback Less Henry Hub Futures ($US/MMbtu)	
Spot Month (shipping based on spot market vessel rate)													
Month	JPN/KOR	NBP	TTF	JPN/KOR	NBP	TTF	JPN/KOR	NBP	TTF	***Max***	Chg	HH	Diff (Margin)
Aug-20	$2.250	$1.714	$1.837	$0.918	$0.421	$0.437	$1.332	$1.293	$1.401	***$1.401***	$0.025	$1.701	($0.300)
Rest of Curve (shipping based on 1-Yr vessel rate, adjusted for seasonality)													
Sep-20	$2.500	$2.079	$2.046	$1.182	$0.563	$0.587	$1.318	$1.516	$1.459	***$1.516***	($0.111)	$1.756	($0.240)
Oct-20	$2.915	$2.516	$2.598	$1.445	$0.703	$0.739	$1.470	$1.813	$1.859	***$1.859***	($0.005)	$1.868	($0.009)
Nov-20	$3.600	$3.668	$3.525	$1.557	$0.769	$0.807	$2.043	$2.899	$2.718	***$2.899***	($0.002)	$2.286	$0.613
Dec-20	$4.215	$4.169	$3.855	$1.484	$0.728	$0.760	$2.731	$3.441	$3.095	***$3.441***	$0.032	$2.787	$0.654
Jan-21	$4.600	$4.390	$3.961	$1.310	$0.633	$0.656	$3.290	$3.757	$3.306	***$3.757***	$0.031	$2.928	$0.829
Feb-21	$4.775	$4.437	$3.981	$1.185	$0.564	$0.581	$3.590	$3.873	$3.400	***$3.873***	$0.032	$2.928	$0.945
Mar-21	$4.440	$4.136	$3.925	$1.054	$0.495	$0.512	$3.386	$3.641	$3.413	***$3.641***	$0.032	$2.787	$0.854
Apr-21	$4.150	$3.786	$3.803	$0.995	$0.463	$0.481	$3.155	$3.323	$3.322	***$3.323***	$0.030	$2.495	$0.828
May-21	$4.090	$3.626	$3.764	$1.012	$0.471	$0.491	$3.078	$3.156	$3.273	***$3.273***	$0.042	$2.466	$0.807
Jun-21	$3.985	$3.536	$3.705	$1.073	$0.503	$0.527	$2.912	$3.033	$3.178	***$3.178***	$0.041	$2.500	$0.678
Jul-21	$4.025	$3.452	$3.673	$1.092	$0.511	$0.536	$2.933	$2.941	$3.137	***$3.137***	N/A	$2.539	$0.598
NTM Avg	***$3.795***	***$3.459***	***$3.389***				***$2.603***	***$2.890***	***$2.797***	***$2.941***	***$0.157***	***$2.420***	***$0.521***

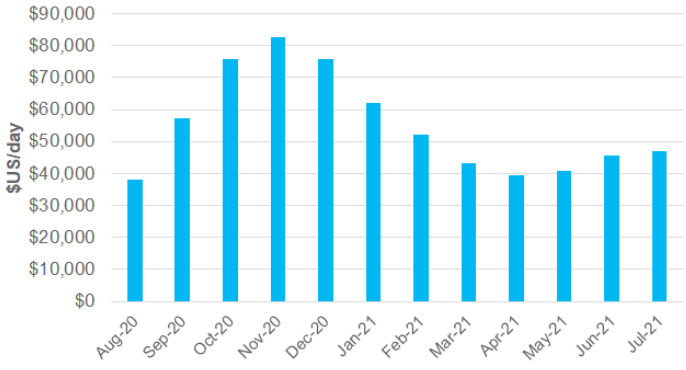
West of Suez Spot 174K XDF/MEGI Day Rate: **$38,000** West of Suez 1-Yr TC 174K XDF/MEGI Vessel Rate: **$55,000**

Spot Month Sabine Pass Export Landed Price Arbitrage Continuation Chart



Source: NGI calculations, CSI, Fearnleys

West of Suez LNG Vessel Rate Curve



Note: Based on 174,000 m³ XDF/MEGI vessels. This is *not* an actual traded curve. Figures represent NGI's estimate of a laden leg forward curve based on current spot market and 1-yr charter rates, adjusted for historical seasonality. The simple average of all months equals the 1-yr charter rate.

Other North America LNG Netback Prices 16-Jun-2020

	Netback to Western Canada $US/MMBtu	NGI's AECO Forwards $US/MMBtu	Diff $US/MMBtu	Diff %	Netback to Costa Azul $US/MMBtu	NGI's SoCal Border Forwards $US/MMBtu	Diff $US/MMBtu	Diff %	Netback to Cove Point $US/MMBtu	NGI's Transco Zn 5 Forwards $US/MMBtu	Diff $US/MMBtu	Diff %	NGI's Waha Forwards $US/MMBtu
Aug-20	$1.872	$1.307	$0.565	43%	$1.806	$2.048	-$0.242	-12%	$1.487	$1.791	-$0.304	-17%	$1.404
Sep-20	$2.032	$1.338	$0.694	52%	$1.946	$1.902	$0.044	2%	$1.666	$1.826	-$0.160	-9%	$1.300
Oct-20	$2.411	$1.392	$1.019	73%	$2.317	$1.812	$0.505	28%	$2.129	$1.945	$0.184	9%	$1.262
Nov-20	$2.970	$1.709	$1.261	74%	$2.848	$2.341	$0.507	22%	$3.115	$2.479	$0.636	26%	$1.692
Dec-20	$3.535	$1.836	$1.699	93%	$3.401	$3.404	-$0.003	0%	$3.576	$3.458	$0.118	3%	$2.218
Jan-21	$3.957	$1.883	$2.074	110%	$3.832	$3.488	$0.344	10%	$3.829	$4.851	-$1.022	-21%	$2.402
Feb-21	$4.216	$1.881	$2.335	124%	$4.109	$3.338	$0.771	23%	$3.949	$4.677	-$0.728	-16%	$2.395
Mar-21	$3.946	$1.819	$2.127	117%	$3.854	$2.571	$1.283	50%	$3.701	$3.137	$0.564	18%	$2.142
Apr-21	$3.716	$1.541	$2.175	141%	$3.637	$2.037	$1.600	79%	$3.402	$2.622	$0.780	30%	$1.827
May-21	$3.680	$1.497	$2.183	146%	$3.607	$2.005	$1.602	80%	$3.382	$2.461	$0.921	37%	$1.777
Jun-21	$3.568	$1.488	$2.080	140%	$3.493	$2.226	$1.267	57%	$3.316	$2.511	$0.805	32%	$1.912
Jul-21	$3.578	$1.536	$2.042	133%	$3.496	$2.731	$0.765	28%	$3.256	$2.310	$0.946	41%	$2.076
NTM Avg	***$3.290***	***$1.602***	***$1.688***	***105%***	***$3.195***	***$2.492***	***$0.704***	***28%***	***$3.067***	***$2.839***	***$0.228***	***8%***	***$1.867***

Note: Netbacks are based on deliveries to Asia & Europe. LNG Canada and Costa Azul liquefaction facilities are not expected to be in-service until 2025 and 2023, respectively. But the above calculations give an indication of how LNG may be priced on an FOB basis if those locations were operational. NGI's Forward Look has 10-year forward curves for more than 60 locations in North America. For more information, please visit our Forward Look product page at natgasintel.com/product/forward-look

Source: NGI's Forward Look, CSI, Fearnleys, NGI calculations

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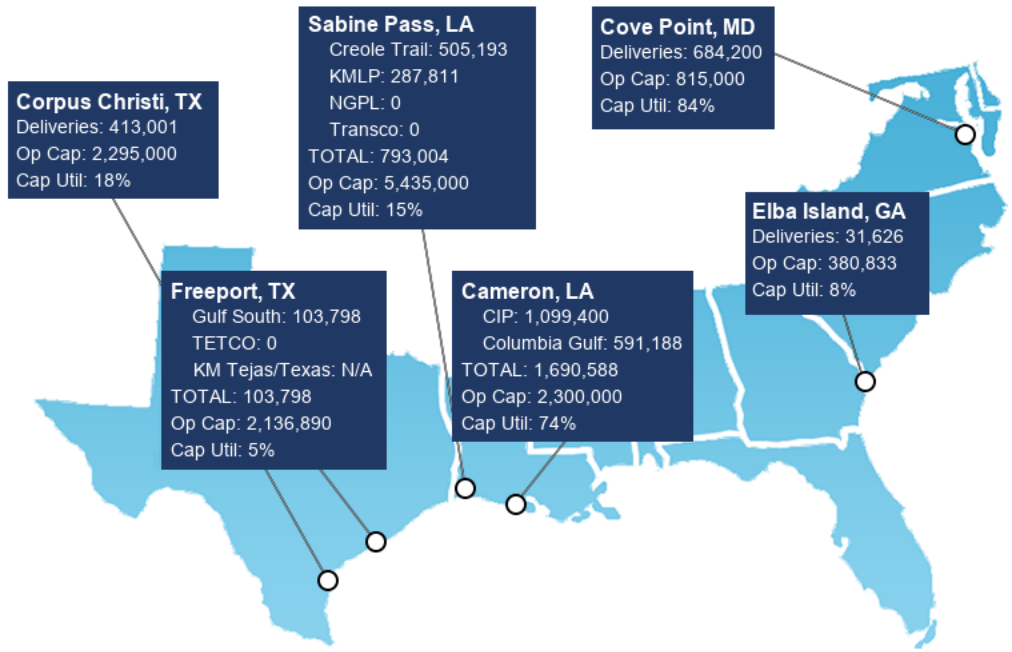
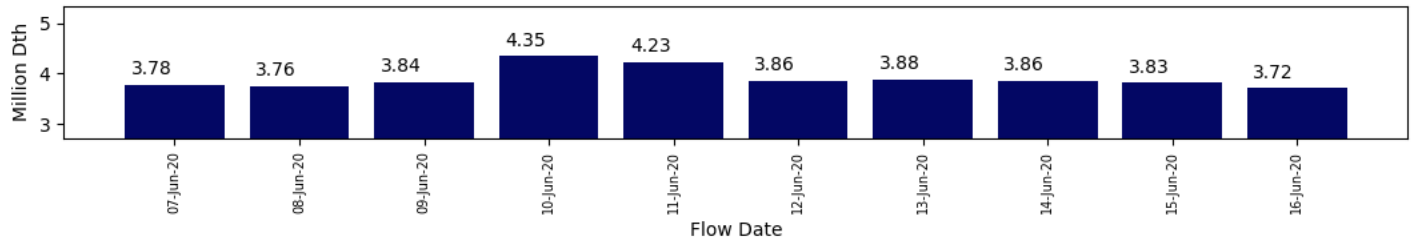
IPI's LNG INSIGHT U.S. LNG EXPORT TRACKER 16-Jun-2020



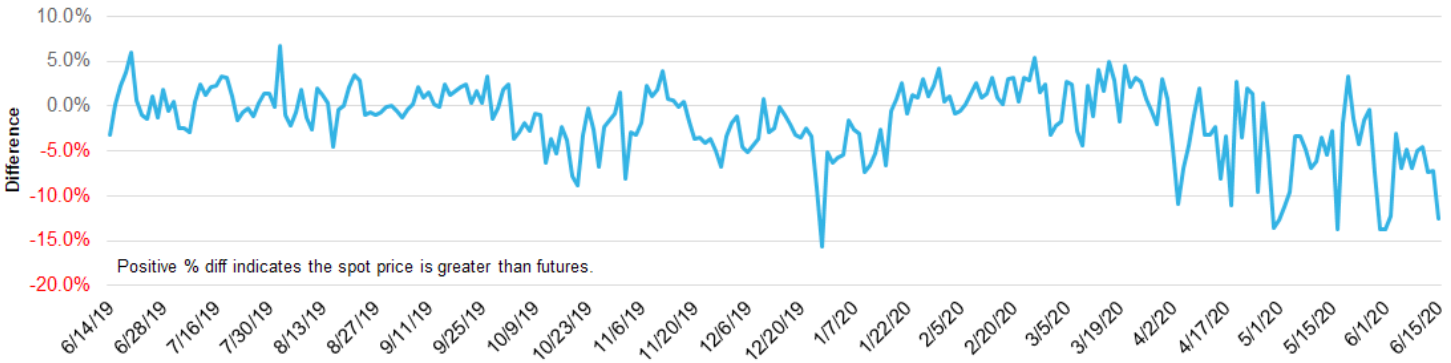
Daily Summary (Volumes Listed in Dekatherms)	
Total Deliveries to U.S. LNG Export Facilities:	3,716,217
Previous Day:	3,825,116
Change:	-108,899



Note: Figures are NGI's estimates of gas delivered to each respective LNG liquefaction facility, listed in dekatherms, and based on best available cycle as of the morning of each listed gas day.

Source: Pipeline EBBs, NGI's Daily GPI, NGI calculations

NGI's Daily Henry Hub Spot Index vs. Prompt (CME) Futures Contract 16-Jun-2020



Interested in the data behind this chart? NGI publishes daily and monthly spot market prices for Henry Hub and more than 140 other locations in North America. Please go to natgasintel.com/product/daily-gpi for more details.

Source: NGI's Daily Gas Price Index, CSI, NGI calculations

LNG Freight Costs for Selected Routes

16-Jun-2020

Trade Route ($ / MMBtu)	174k MEGI			160k TFDE			145k ST		
Bonny / Montoir	0.455	0.001	▲	0.489	0.001	▲	0.557	0.002	▲
Bonny / Tokyo	0.795	0.002	▲	0.859	0.003	▲	0.995	0.006	▲
Ras Laffan / Montoir	0.426	0.000	◀▶	0.439	0.000	◀▶	0.462	0.000	◀▶
Ras Laffan / Tokyo	0.319	0.000	◀▶	0.342	0.000	◀▶	0.385	0.000	◀▶
Dampier / Tokyo	0.274	0.000	◀▶	0.294	0.000	◀▶	0.339	0.001	▲
Zeebrugge / Bahia Blanca	0.467	0.001	▲	0.528	0.002	▲	0.618	0.004	▲
Zeebrugge / Dahej	0.504	0.001	▲	0.554	0.002	▲	0.693	0.004	▲
Zeebrugge / Tokyo	0.791	0.002	▲	0.904	0.004	▲	1.038	0.006	▲
Sabine / Bahia Blanca	0.463	0.001	▲	0.531	0.002	▲	0.613	0.004	▲
Sabine / Dahej	0.697	0.002	▲	0.805	0.003	▲	0.908	0.006	▲
Sabine / Tokyo	0.683	0.002	▲	0.786	0.003	▲	0.898	0.005	▲
Sabine / Zeebrugge	0.386	0.002	▲	0.478	0.003	▲	0.583	0.005	▲
Port Moresby / Tokyo	0.272	0.000	◀▶	0.291	0.001	▲	0.331	0.002	▲

Source: Fearnleys (www.fearnleys.com). Assumes cold vessel. Speed used is 17 knots on laden passage and 16 knots on ballast passage.

Spot LNG Vessel Rates ($USD/day)

16-Jun-2020

Vessel Rates		
Vessel Type / Region	WEST	EAST
174k XDF / MEGI	38,000	38,000
155k - 165k TFDE	32,000	30,000
138k - 145k ST	24,000	21,000

Pacific Voyage Parameters
Fuel and 50% Hire on Ballast Bonus to Singapore
Middle East Voyage Parameters
Fuel and 50% Hire on Ballast Bonus to Fujairah
Atlantic Voyage Parameters
Fuel and 50% Hire on Ballast Bonus to Load Port

Source: Fearnleys (www.fearnleys.com)

West of Suez LNG Vessel Rate Curve 16-Jun-2020

Month	16-Jun	15-Jun	Chg
Aug-20	38,000	51,822	-13,822
Sep-20	57,163	56,682	481
Oct-20	75,809	75,170	638
Nov-20	82,625	81,930	695
Dec-20	75,845	75,207	638
Jan-21	61,977	61,455	522
Feb-21	52,249	51,810	440
Mar-21	43,261	42,896	364
Apr-21	39,508	39,176	333
May-21	40,909	40,565	344
Jun-21	45,672	45,288	384
Jul-21	46,982	N/A	N/A
Average	***55,000***	***55,000***	***0***

Note: Based on 174,000 m^3 XDF/MEGI vessels. This is *not* an actual traded curve. Figures represent NGI's estimate of a laden leg forward curve based on current spot market and 1-yr charter rates, adjusted for historical seasonality. The simple average of all months equals the 1-yr charter rate.

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Source: NGI estimates based on Fearnleys data

Global LNG & NatGas Futures Prices (Jul 2020) 16-Jun-2020

Contract	Cur/Unit	Settle	Chg	% Chg	Settle ($US/MMBtu)
JPN/KOR	$US/MMBtu	$2.063	$0.000	0.0%	$2.063
NBP	pence/therm	13.21p	-1.13p	-7.9%	$1.662
TTF	Eur/MWh	€ 5.261	-€ 0.255	-4.6%	$1.739
Henry Hub	$US/MMBtu	$1.614	-$0.055	-3.3%	$1.614

NBP & TTF converted to $US/MMBtu using same month forex futures contracts.

Source: NGI calculations, CSI

NGI's LNG INSIGHT

See NGI's LNG Glossary Here

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and a steady flow of supplies to the region. While Chinese LNG import growth continued in 2019 at a slower annual pace of 14% compared to 2018, the country remained the world's second largest LNG importer, according to the International Group of Liquefied Natural Gas Importers.

China took in 61.7 Mt last year and had a 17.4% market share. U.S. exports to the country have resumed at a time when they've fallen off elsewhere amid the global supply glut and price rout that has made American LNG uneconomic.

However, after China was first rocked by the pandemic earlier in the year, when some of the country's leading buyers declared force majeures, faced falling demand and higher-priced oil-linked contracts, intake has recovered quickly. Buyers now appear to be forgoing contractual volumes for cheaper spot purchases.

Bloomberg New Energy Finance said in a note last week that China Petroleum & Chemical Corp., aka Sinopec, had a 10% year/year increase in its May LNG deliveries, while contractual volumes from the Australia Pacific region fell by 29%. Bloomberg also reported on Tuesday that one of the country's largest private importers, ENN Energy Holdings Ltd., intends to increase spot purchases for the remainder of the year instead of searching out term supply contracts. ■

NEWS

BP Impairing Up to $17.5B in Assets on 'Enduring Impact' from Covid-19 and Quicker Energy Transition

With an expectation that the energy transition away from fossil fuels may be sooner than expected, BP plc on Monday said it plans to impair up to $17.5 billion on the value

...cont' pg. 6

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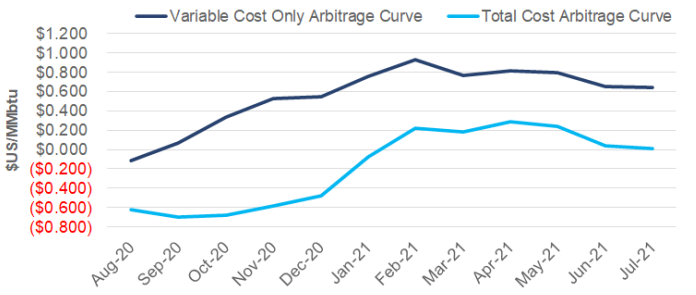
Estimated Sabine Pass / Asia 12-Month Forward LNG Arbitrage Curves 16-Jun-2020



Note: Assumes title changes hands at sea, so no regas fees. Negative GOM/Asia spreads may not increase the risk of GOM LNG shut-ins as much as those between GOM and Europe, since Europe has much more storage capacity than Asia. As such, Europe often serves as the market of "last resort." Variable costs assume vessels have been chartered, and include fuel, boiloff, Panama Canal and port fees only. Total costs includes variable expenses and fixed vessel chartering fees.

Month	115% HH Futures	Shipping Costs Variable	Shipping Costs Fixed	Variable Only Landed Cost	Total Landed Cost	JPN/KOR Futures	Variable Arbitrage Spread	Total Arbitrage Spread
Aug-20	$1.956	$0.409	$0.509	$2.365	$2.874	$2.250	($0.115)	($0.624)
Sep-20	$2.019	$0.416	$0.766	$2.436	$3.202	$2.500	$0.064	($0.702)
Oct-20	$2.148	$0.429	$1.016	$2.577	$3.593	$2.915	$0.338	($0.678)
Nov-20	$2.629	$0.449	$1.108	$3.078	$4.186	$3.600	$0.522	($0.586)
Dec-20	$3.205	$0.468	$1.017	$3.673	$4.690	$4.215	$0.542	($0.475)
Jan-21	$3.367	$0.479	$0.831	$3.847	$4.677	$4.600	$0.753	($0.077)
Feb-21	$3.367	$0.485	$0.700	$3.852	$4.552	$4.775	$0.923	$0.223
Mar-21	$3.205	$0.475	$0.580	$3.680	$4.259	$4.440	$0.760	$0.181
Apr-21	$2.869	$0.466	$0.530	$3.335	$3.865	$4.150	$0.815	$0.285
May-21	$2.836	$0.464	$0.548	$3.300	$3.848	$4.090	$0.790	$0.242
Jun-21	$2.875	$0.461	$0.612	$3.336	$3.948	$3.985	$0.649	$0.037
Jul-21	$2.920	$0.462	$0.630	$3.382	$4.012	$4.025	$0.643	$0.013

Source: NGI calculations, CSI, Fearnleys

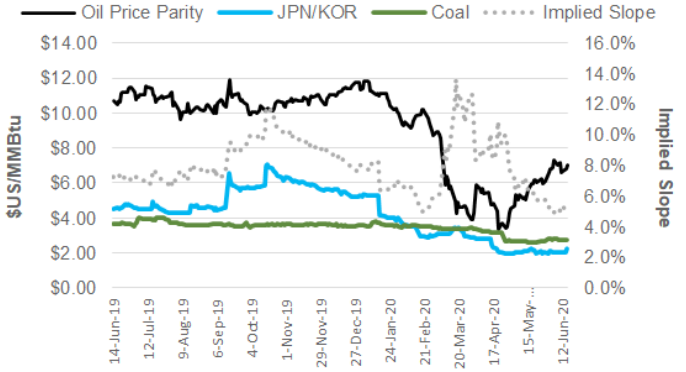
NGI's LNG INSIGHT

Daily Prompt Oil Linked Asia Parity Prices 16-Jun-2020

Current Spot Month Japan/Korea Futures Contract Price (Aug):	**$2.250**
Current Spot Month Brent Crude Oil Futures Price (Aug):	**$40.96**
Current Spot Month Japan Coal Price (Jun):	**$2.75**
Implied Current Japan/Korea Slope to Brent:	**5.5%**

	Oil Price		Oil Parity Price (17.2% Slope)	
Crude Mo.	3 Mo Avg JCC	Brent	3 Mo Avg JCC	Brent
Aug-20	$67.61	$40.96	$11.63	$7.05

Trailing 12M Daily Prompt Japan/Korea Futures



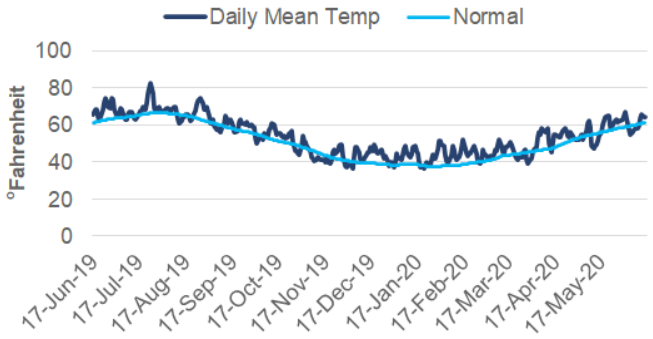
Note: Oil linked parity figures tend to serve as a cap on Asian LNG market prices, while coal prices can help act as a floor.

Source: NGI calculations, ICE, CSI, METI

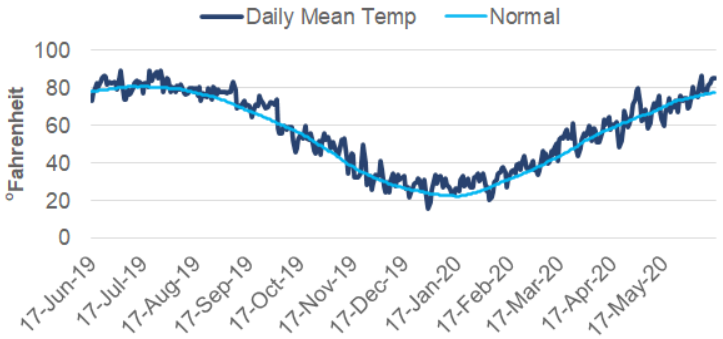
NGI's LNG INSIGHT

Europe & Asia Weather Data 16-Jun-2020

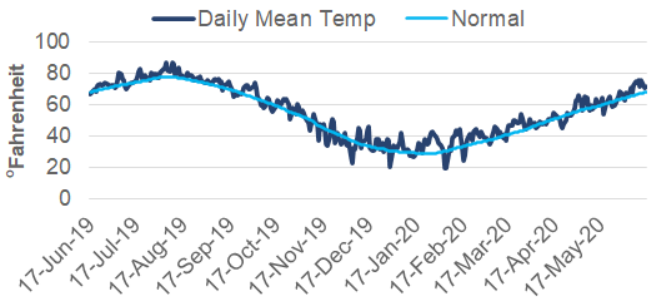
Trailing 365 Day Mean Temperatures - Northwest Europe



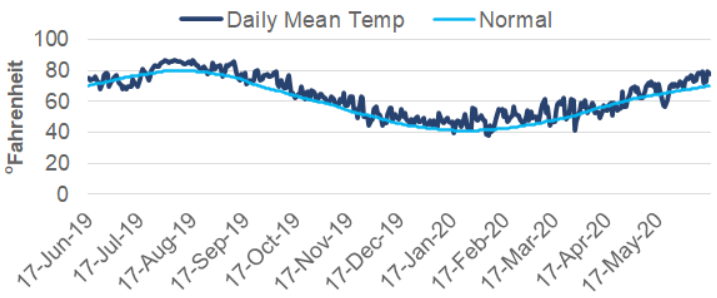
Trailing 365 Day Mean Temperatures - Beijing



Trailing 365 Day Mean Temperatures - Seoul



Trailing 365 Day Mean Temperatures - Tokyo



Source: NGI calculations, Bloomberg

NGI's LNG INSIGHT

U.S. Landed vs. European Prices Aug 2020
16-Jun-2020

Estimated U.S. LNG Landed Price ($US/MMBtu)

Source	Pricing Point	HH Price	Gate Landed Price (GLP)
GOM	Henry Hub	$1.701	$2.102

European NatGas Futures Prices (Eur/MWh & Pound/therm)

Country	Pricing Point	Local Price MWh or therm	Local Price $US/MMBtu	Diff to GLP* $US/MMBtu
Belgium	ZTP	€ 5.14	$1.700	-$0.401
Czech Rep	CZ VTP	€ 5.71	$1.888	-$0.214
France	PEG	€ 5.43	$1.795	-$0.307
Germany	NCG	€ 5.62	$1.859	-$0.243
Italy	PSV	€ 6.66	$2.202	$0.101
Netherlands	TTF	€ 5.55	$1.837	-$0.264
Slovakia	CEGH VTP	€ 6.23	$2.059	-$0.042
Spain	PVB	€ 7.30	$2.413	$0.312
UK	NBP	13.21p	$1.662	-$0.440

Euro Exchange Rate: **1.1288**
Pound Exchange Rate: **1.25810**

Note: U.S. landed price is to the Gate Terminal in the Netherlands, and exclude any regas or European pipeline grid access fees. We estimate the variable portion of such charges range between $0.10-$0.50 per MMbtu. All local European prices are Eur/MWh, except UK, which is pence/therm.

**Negative numbers indicate imported U.S. LNG is more expensive than the local price.

Source: NGI calculations, CME, ICE, EEX, Powernext, CSI, Fearnleys

of its assets for the second quarter because of limited upside in natural gas and oil prices.

BP now assumes an average of $55/bbl Brent and $2.90/MMBtu Henry Hub gas from 2021-2050. The gas price reduction longer term is 31% lower than BP had forecast in its most recent annual report. The reduced long-term oil price is down by 27%.

The revised forecasts have come quickly since Covid-19 began to trample on energy demand.

In mid-February, only weeks before a global

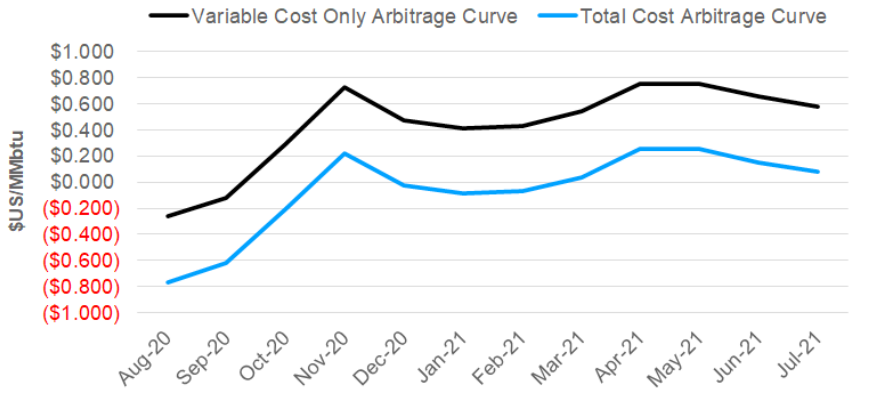
...cont' pg. 7

Spanish PVB vs. Dutch TTF Futures 16-Jun-2020

Period	PVB $US/MMBtu	Chg	TTF $US/MMBtu	Chg	PVB/TTF Premium ($)	PVB/TTF Premium %
Jul-20	$2.236	-$0.095	$1.739	-$0.091	$0.497	28.6%
Aug-20	$2.413	-$0.079	$1.837	-$0.082	$0.576	31.3%
Sep-20	$2.451	-$0.030	$2.046	-$0.075	$0.405	19.8%
3Q20	$2.365	-$0.069	$1.874	-$0.083	$0.491	26.2%
4Q20	$3.589	$0.027	$3.326	$0.023	$0.263	7.9%
1Q21	$4.212	$0.040	$3.956	$0.047	$0.256	6.5%

Source: NGI calculations, CSI

Estimated Sabine Pass / Europe (Gate) 12-Month Forward LNG Arbitrage Curves 16-Jun-2020



Note: Negative spreads increase the odds of U.S. Gulf of Mexico sourced LNG cargoes being shut-in. Variable costs assume vessels have been chartered, and include fuel, boil-off, and port fees only. Total costs include both variable expenses and fixed vessel chartering fees. Both exclude regas fees, which we estimate would add another $0.10-$0.50 in additonal costs to each arbitrage curve calculation.

Month	115% Henry Hub Futures	Shipping Costs Variable	Shipping Costs Fixed	Variable Only Landed Cost	Total Landed Cost	TTF Futures	Variable Arbitrage Spread	Total Arbitrage Spread
Aug-20	$1.956	$0.145	$0.291	$2.102	$2.602	$1.837	($0.264)	($0.764)
Sep-20	$2.019	$0.149	$0.438	$2.168	$2.668	$2.046	($0.122)	($0.622)
Oct-20	$2.148	$0.158	$0.581	$2.306	$2.806	$2.598	$0.292	($0.208)
Nov-20	$2.629	$0.173	$0.633	$2.802	$3.302	$3.525	$0.723	$0.223
Dec-20	$3.205	$0.179	$0.581	$3.384	$3.884	$3.855	$0.471	($0.029)
Jan-21	$3.367	$0.181	$0.475	$3.548	$4.048	$3.961	$0.413	($0.087)
Feb-21	$3.367	$0.181	$0.400	$3.548	$4.048	$3.981	$0.433	($0.067)
Mar-21	$3.205	$0.180	$0.332	$3.385	$3.885	$3.925	$0.539	$0.039
Apr-21	$2.869	$0.178	$0.303	$3.047	$3.547	$3.803	$0.755	$0.255
May-21	$2.836	$0.177	$0.314	$3.013	$3.513	$3.764	$0.750	$0.250
Jun-21	$2.875	$0.177	$0.350	$3.052	$3.552	$3.705	$0.653	$0.153
Jul-21	$2.920	$0.176	$0.360	$3.096	$3.596	$3.673	$0.577	$0.077

Source: NGI calculations, CSI, Fearnleys

European Spark/Dark Spreads (Aug 2020)
16-Jun-2020

EUA Carbon Price (Eur/mt): **22.8**

Nation	Power Futures Eur/MWh	Gas Futures Eur/MWh	Spark Spread EFFCY Eur/MWh	Spark Spread 49% Eur/MWh	Clean Spark Spread 45% Eur/MWh	Clean Spark Spread 49% Eur/MWh	Clean Spark Spread 45% Eur/MWh
BE	29.07	5.140	18.61	17.65	9.33	7.41	
CZ	33.03	5.707	21.41	20.35	12.13	10.11	
FR	31.21	5.425	20.17	19.15	10.89	8.92	
DE	30.60	5.619	19.16	18.11	9.88	7.88	
IT	34.53	6.657	20.98	19.74	11.70	9.50	
NL	28.49	5.554	17.19	16.15	7.91	5.91	
SK	35.46	6.225	22.79	21.63	13.51	11.39	
ES	31.95	7.295	17.10	15.74	7.82	5.50	
UK*	31.93	5.180	21.39	20.42	3.94	1.18	
Average			***19.87***	***18.77***	***9.68***	***7.53***	

Nation	Power Futures Eur/MWh	Coal Futures $US/Mt	Dark Spread EFFCY 35% Eur/MWh	Clean Dark Spread 35% Eur/MWh
BE	29.07	46.55	12.24	-9.90
CZ	33.03	46.55	16.20	-5.94
FR	31.21	46.55	14.38	-7.76
DE	30.60	46.55	13.77	-8.37
IT	34.53	46.55	17.70	-4.44
NL	28.49	46.55	11.66	-10.48
SK	35.46	46.55	18.63	-3.51
ES	31.95	46.55	15.12	-7.02
UK*	31.93	46.55	15.10	-26.52
Average			***14.98***	***-9.33***

Belgium (**BE**) / Czech Rep (**CZ**) / France (**FR**) / Germany (**DE**) / Italy (**IT**) Holland (**NL**) / Slovakia (**SK**) / Spain (**ES**) / United Kingdom (**UK**)

*UK clean spark and dark spreads incorporate the cost of the UK Carbon Price Support levy. See methodology for all assumptions.

Source: NGI calculations, CSI

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pandemic was declared, BP upended the autonomous upstream and downstream business distinctions to move toward becoming a net zero company "by 2050 or sooner," by fundamentally transforming the entire organization.

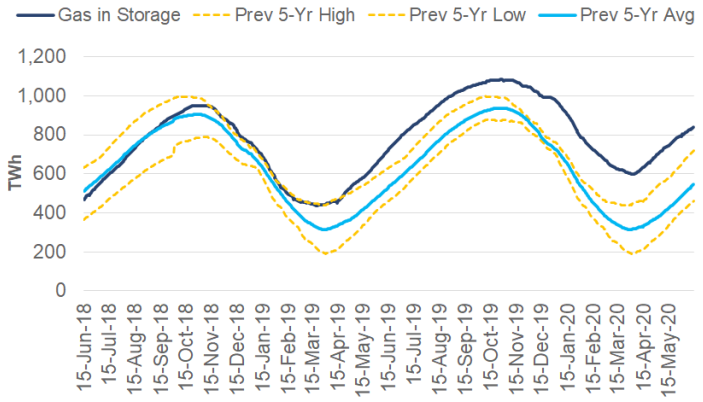
As the coronavirus sapped demand, the London-based supermajor then warned that the gas and oil world was facing a world of hurt in the short term, and it trimmed capital spending. Management last week then announced the massive job losses, with 10,000 people expected to lose their jobs by year's end.

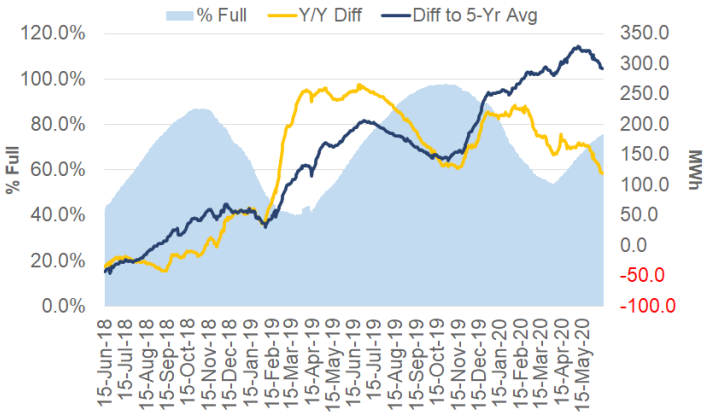
...cont' pg. 8

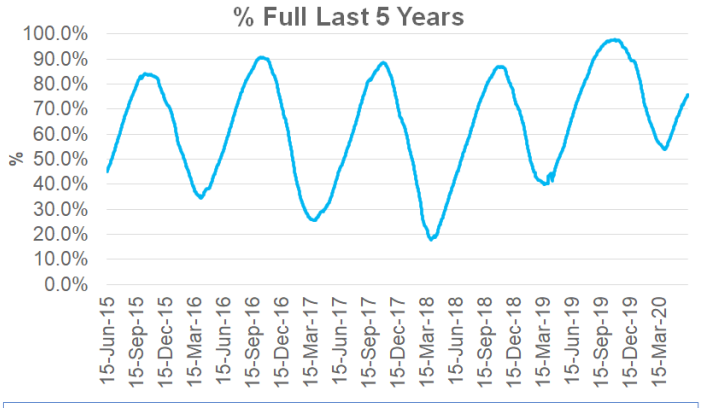
European Union Gas Storage

Data as of **14-Jun-20** Chart Last Updated **16-Jun-20**

Volumes in TWh	Gas in Storage 13-Jun-20	Working Gas Volume	% Full	Gas in Storage 13-Jun-19	Y/Y Diff	Prev 5-Yr Avg	5-Yr Avg Diff
Europe	**839.62**	**1106.30**	**75.9%**	**720.31**	**119.31**	**547.53**	**292.09**







% Full As of	14-Jun-15	44.8%	14-Jun-16	53.3%	14-Jun-17	45.7%	14-Jun-18	42.7%	14-Jun-19	66.0%	14-Jun-20	75.9%

Source: NGI calculations, GIE

NGI's LNG INSIGHT

THE OFFTAKE: LNG IN BRIEF

A ROUNDUP OF NEWS & COMMENTARY FROM NGI'S LNG INSIGHT

- **Unplanned maintenance for a pigging operation at the Gillis Compressor station on Cheniere Energy Inc.'s 1.5 Bcf/d Creole Trail Pipeline was expected to cut operational capacity to 582 MMcf/d on Tuesday and Wednesday (June 16-17). Genscape Inc. said no flow impacts were expected at Sabine Pass LNG from depressed feed gas demand.**
- **U.S. feed gas deliveries dipped below 4 Bcf/d last week and have yet to rebound. Only five LNG vessels departed the United States with cargoes during the week ending June 10, according to the Energy Information Administration, the lowest export volume on record since June 2017, when there was less export capacity.**
- **The Indian Gas Exchange (IGX) has launched the nation's first online gas trading platform as the country continues to invest in pipelines and LNG import terminals. IGX said the exchange is expected to boost price transparency and market participation.**
- **Cheniere said Tuesday it has obtained commitments from 17 financial institutions for a $2.5 billion term loan. The company said proceeds would be used to pay down debt.**

European Union LNG Regas Terminal Storage

Data as of **14-Jun-20** Chart Last Updated: **16-Jun-20**

Country	Terminal	Inventory (10^3 m^3)	Chg	Max Cap (10^3 m^3)	% Util
Belgium	Zeebrugge	346.1	-34.8	562.2	61.6%
France	Dunkerque	275.0	-9.8	586.1	46.9%
	Fos Tonkin	64.2	-3.6	80.0	80.2%
	Montoir	216.6	-6.9	360.0	60.2%
	Fas Cavaou	131.3	-9.0	330.0	39.8%
Greece	Revythoussa	219.6	-4.8	225.0	97.6%
Italy	Porto Levante	161.9	31.4	250.0	64.7%
	Panigaglia	34.8	8.8	40.0	87.0%
	Toscana	73.9	0.0	137.2	53.9%
Lithuania	Klaipedos	53.4	-24.1	167.1	32.0%
Netherlands	Gate	482.1	-7.7	540.0	89.3%
Poland	Swinoujscie	99.4	-17.9	320.0	31.0%
Portugal	Sines	232.6	-75.6	390.0	59.6%
Spain	Barcelona	0.0	0.0	0.0	0.0%
	Bilbao	0.0	0.0	0.0	0.0%
	Cartagena	0.0	0.0	0.0	0.0%
	Huelva	0.0	0.0	0.0	0.0%
	Mugardos	274.2	116.3	300.0	91.4%
	Sagunto	0.0	0.0	0.0	0.0%
	TVB (Virtual)	1314.7	250.9	3307.9	39.7%
UK	Grain	858.5	73.5	1026.4	83.6%
	South Hook	676.0	-25.4	751.7	89.9%
Total		***5514.1***	***261.2***	***9373.5***	***58.8%***

Source: NGI calculations, GIE

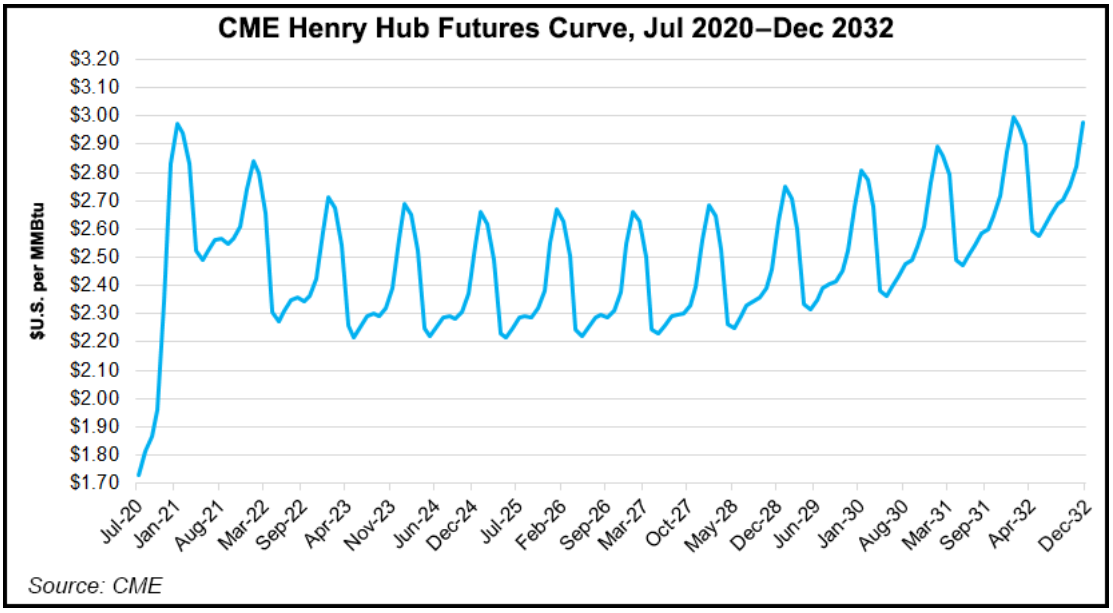
NGI's LNG INSIGHT

"In February we set out to become a net zero company by 2050 or sooner," CEO Bernard Looney said. "Since then we have been in action, developing our strategy to become a more diversified, resilient and lower carbon company.

"As part of that process, we have been reviewing our price assumptions over a longer horizon. That work has been informed by the Covid-19 pandemic, which increasingly looks as if it will have an enduring economic impact."

BP has reset its internal price outlook "to reflect that impact and the likelihood of greater efforts to 'build back better' toward a Paris-consistent world," Looney said of the United Nations global climate accord that was reached in late 2015.

The lower long-term price assumptions are considered "to be broadly in line with a range of transition paths consistent with the Paris climate goals. However, they do not correspond to any specific Paris-consistent scenario."



Regarding the one-time charges, management is reviewing whether to develop some exploration prospects, and "consequently is assessing the carrying values of the group's intangible assets." The impairment and intangible assets assessments are in progress, and BP has not yet precisely determined the impact.

However, BP currently estimates $8-11 billion in

...cont' pg. 10

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one-time charges against property, plant & equipment, as well as write-offs of exploration intangibles of $8-10 billion for 2Q2020 results, which in aggregate are $13-17.5 billion.

"All that will result in a significant charge in our upcoming results, but I am confident that these difficult decisions -- rooted in our net zero ambition and reaffirmed by the pandemic -- will better enable us to compete through the energy transition," said the CEO.

Because Covid-19's end is not in sight, "BP now sees the prospect of the pandemic having an enduring impact on the global economy, with the potential for weaker demand for energy for a sustained period."

Management also has a "growing expectation that the aftermath of the pandemic will accelerate the pace of transition to a lower carbon economy and energy system, as countries seek to 'build back better' so that their economies will be more resilient in the future."

BP also has updated the outlook for carbon prices to a total emissions carbon dioxide (teCO2) estimate of $100/teCO2 in 2030.

"The impairment shouldn't come as a big surprise," said Wood Mackenzie's Luke Parker, vice president, corporate analysis. "The risks were clearly flagged in BP's 2019 annual report. While these are noncash charges, with no bearing on cash flows, the implications -- near-term and long-term -- are very real."

If the writedown were to be $17.5 billion, it would "push BP's gearing ratio to 45%," including lease liabilities, Parker said. A $13 billion writedown would push gearing to 44% including the lease liabilities, "uncomfortably high. Greater urgency to pay down debt will put further pressure on the dividend. Of course, under BP's latest price assumptions, cash generation will be less than previously anticipated."

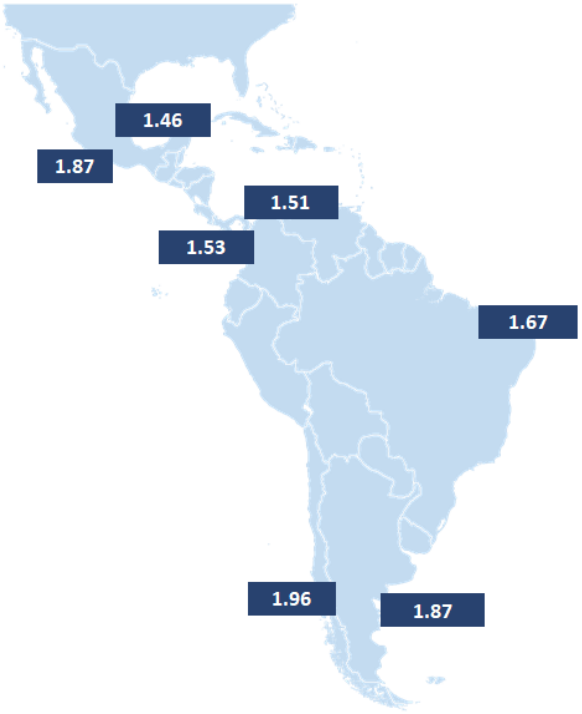
Over the longer term, the move is all about BP's shift from fossil fuels, said the Wood Mackenzie analyst.

"While that will be a multi-decade affair, BP is already getting to grips with the idea that its upstream assets are worth less than it believed as recently as six months ago. Indeed, some of them are worth nothing. Big picture, we see this as another step in the re-rating of oil and gas, and the journey from 'Big Oil' to 'Big Energy.'" ■

Latin America DES Prices 16-Jun-2020

$US/MMBtu

Country	Terminal	Jul	Chg	Aug	Chg	Sep	Chg
Argentina	Bahia Blanca	1.87	-0.09	2.08	0.14	2.42	0.23
Brazil	Pecem	1.67	-0.09	1.88	0.14	2.22	0.23
Chile	Quintero	1.96	-0.09	2.17	0.14	2.51	0.23
Colombia	Colombia	1.51	-0.09	1.72	0.14	2.06	0.23
Mexico East	Altamira	1.46	-0.09	1.68	0.14	2.02	0.23
Mexico West	Manzanillo	1.87	-0.09	2.08	0.14	2.42	0.23
Panama	Costa Norte	1.53	-0.09	1.74	0.14	2.09	0.23



For more regional coverage of Latin America, please see NGI's Mexico Gas Price Index at natgasintel.com/news/mexico-gas-price-index

Source: NGI calculations, CME Group, CSI, Fearnleys

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