

# NGI's LNG INSIGHT



Bringing a North American Focus to International LNG

THURSDAY, JULY 9, 2020 - VOL. 1, NO. 186

## Daily Rundown

- BP will be the first international energy company to regasify LNG at a Chinese terminal and supply customers
- Noble Energy continues to progress on natural gas export projects offshore Africa and Israel
- U.S. LNG feed gas demand hit a new 2020 low on Thursday

See *The Offtake* on Pg. 8 for Other LNG Highlights

## ASIA

### BP Inks Deal to Supply, Regasify LNG for China's ENN Group

Under the supply agreement, BP would provide 300,000 metric tons of regasified LNG to ENN Group for two years beginning Jan. 1, 2021. The LNG would be received and regasified at an LNG receiving terminal in Southern China's Guangdong Province where BP holds regasification capacity.

BP's Dev Sanyal, executive vice president of gas and low carbon energy, said the deal marks the first time an international energy company would regasify LNG through a Chinese terminal and also directly supply gas to customers via pipeline.

"Our strategy is to integrate energy value chains and, with this transaction, we have created an innovative model that integrates upstream gas resources, transportation and trading, into downstream markets in China," Sanyal said.

LNG would arrive at Guangdong Dapeng LNG Co. Ltd.'s (GDLNG) receiving terminal in the coastal province. BP has a 30% stake in GDLNG, which has delivered 50% of the Guangdong region's natural gas consumption over the last decade.

China is the world's second largest LNG importer. According to BP's 2020 **Statistical Review of World Energy**, global natural gas consumption grew by 2% in 2019, with a 54 billion cubic meter (Bcm) increase in LNG exports. The strong growth was boosted by China, where the country's LNG imports rose by 11.3 Bcm, making it the largest increase in a single country.

China has in recent years unveiled various policies to enhance energy reform and attract investment. According to BP's review, the country was by far the biggest driver of energy, accounting for more than three quarters of net global growth. Global gas production grew by 3.4% last year and China was also among the key contributors to upstream gains, with 16 Bcm of additional volumes.

ENN Chairman Wang Yusuo said the deal with BP would not only provide its customers with more resources, but also strengthen energy industrial reform and development in the country.

ENN has upstream, midstream and downstream

...cont' pg. 4

## FREE TRIAL ENDING SOON!

Subscribe today to continue receiving LNG Insight  
Click to visit [Natgasintel.com/LNGInsight](http://Natgasintel.com/LNGInsight)  
for more information

Prompt Month Statistics - Previous 5 Trading Days					
	2-Jul	6-Jul	7-Jul	8-Jul	9-Jul
Max GOM Netback (\$US/MMBtu)	1.518	1.583	1.586	1.533	1.437
L48 LNG Feedstock Deliveries (dth/d)	3.04	3.21	3.10	3.06	2.94
<b>Futures (\$US/MMBtu)</b>					
Henry Hub	1.734	1.830	1.876	1.824	1.779
JPN/KOR	2.200	2.195	2.195	2.190	2.170
NBP	1.916	1.904	1.950	1.902	1.832
TTF	1.958	2.024	2.027	1.974	1.907
<b>Shipping (\$US/MMBtu)*</b>					
Sabine Pass to Tokyo	0.918	0.918	0.919	0.919	0.973
Sabine Pass to Milford Haven (U.K.)	0.424	0.424	0.426	0.425	0.453
Sabine Pass to Gate (NW Europe)	0.439	0.441	0.442	0.441	0.470
<b>Landed Price Arbitrage (\$US/MMBtu)**</b>					
Sabine to Tokyo	-0.712	-0.828	-0.882	-0.827	-0.848
Sabine to Gate	-0.476	-0.522	-0.572	-0.565	-0.609
<b>Europe Fundamentals</b>					
Gas in Storage (TWh)***	887.0	898.4	902.3	908.6	905.5
% Full	80.2%	81.2%	81.6%	82.1%	81.8%
Difference to Last Year (TWh)	92.6	89.8	90.1	91.5	83.6
Gas in LNG Storage (10 <sup>3</sup> m <sup>3</sup> )***	4893.45	5375.6	5322.9	5164.7	4948.2
% Full	52.2%	57.3%	56.8%	55.1%	52.8%
Spark Spread (Eur/MWh)	22.10	23.19	23.61	23.34	23.27
Clean Spark Spread (Eur/MWh)	10.09	10.22	10.86	10.47	10.76
Dark Spread (Eur/MWh)	16.09	17.33	18.09	17.91	17.91
Clean Dark Spread (Eur/MWh)	-12.55	-13.62	-12.34	-12.81	-11.93
PVB/TTF Premium (%)	27.9%	28.8%	27.7%	28.2%	28.5%
NW Europe Mean Temp (°F)	68	62	61	62	TBD
% Diff From 30-Yr Normal	5.6%	-2.6%	-5.0%	-3.5%	N/A
<b>Asia Fundamentals</b>					
JKM/KOR Oil Parity Slope	5.1%	5.1%	5.1%	5.1%	5.1%
Brent Oil Price Parity (\$US/MMBtu)	7.42	7.41	7.41	7.45	7.28
JKM/KOR Futures (\$US/MMBtu)	2.20	2.20	2.20	2.19	2.17
Japan Coal Price (\$US/MMBtu)	2.94	2.98	2.99	2.97	2.97
Beijing Mean Temp (°F)	77	77	81	81	71
% Diff From Normal	2.9%	-0.5%	0.5%	-6.6%	-11.3%
Seoul Mean Temp (°F)	73	75	73	74	76
% Diff From Normal	2.0%	3.3%	1.2%	1.6%	5.0%
Tokyo Mean Temp (°F)	79	78	80	79	76
% Diff From Normal	6.9%	4.0%	6.7%	4.6%	0.3%
<b>Latin America Fundamentals (\$US/MMBtu)</b>					
Mexico					
East (Altamira) DES	1.68	1.75	1.75	1.70	1.60
West (Manzanillo) DES	2.09	2.16	2.16	2.11	2.02
Argentina DES	2.10	2.17	2.18	2.12	2.03
Brazil DES	1.89	1.96	1.96	1.91	1.82
Chile DES	2.18	2.25	2.25	2.20	2.11
Colombia DES	1.73	1.79	1.80	1.74	1.65
Panama DES	1.75	1.81	1.82	1.76	1.67

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) 9-Jul-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	\$2.170	\$1.832	\$1.907	\$0.973	\$0.453	\$0.470	\$1.197	\$1.379	\$1.437	\$1.437	(\$0.096)	\$1.779	(\$0.342)

Rest of Curve (shipping based on 1-Yr vessel rate, adjusted for seasonality)

Sep-20	\$2.600	\$2.192	\$2.185	\$1.199	\$0.572	\$0.597	\$1.401	\$1.620	\$1.588	\$1.620	(\$0.061)	\$1.821	(\$0.201)
Oct-20	\$3.255	\$2.760	\$2.808	\$1.472	\$0.716	\$0.752	\$1.783	\$2.045	\$2.056	\$2.056	(\$0.041)	\$1.922	\$0.134
Nov-20	\$4.015	\$4.028	\$3.906	\$1.587	\$0.784	\$0.823	\$2.428	\$3.243	\$3.083	\$3.243	(\$0.063)	\$2.344	\$0.899
Dec-20	\$4.625	\$4.741	\$4.285	\$1.513	\$0.746	\$0.777	\$3.112	\$3.995	\$3.508	\$3.995	(\$0.003)	\$2.737	\$1.258
Jan-21	\$5.015	\$5.000	\$4.375	\$1.337	\$0.650	\$0.671	\$3.678	\$4.350	\$3.705	\$4.350	(\$0.027)	\$2.865	\$1.485
Feb-21	\$5.200	\$5.024	\$4.393	\$1.210	\$0.580	\$0.595	\$3.990	\$4.444	\$3.798	\$4.444	(\$0.027)	\$2.865	\$1.579
Mar-21	\$4.800	\$4.704	\$4.330	\$1.076	\$0.510	\$0.525	\$3.724	\$4.194	\$3.805	\$4.194	(\$0.010)	\$2.731	\$1.463
Apr-21	\$4.375	\$4.281	\$4.183	\$1.012	\$0.476	\$0.493	\$3.363	\$3.805	\$3.690	\$3.805	(\$0.015)	\$2.472	\$1.333
May-21	\$4.280	\$4.048	\$4.094	\$1.029	\$0.483	\$0.502	\$3.251	\$3.565	\$3.591	\$3.591	(\$0.023)	\$2.439	\$1.152
Jun-21	\$4.230	\$3.876	\$3.979	\$1.092	\$0.515	\$0.538	\$3.138	\$3.361	\$3.442	\$3.442	(\$0.025)	\$2.481	\$0.961
Jul-21	\$4.240	\$3.892	\$3.996	\$1.110	\$0.524	\$0.548	\$3.130	\$3.367	\$3.448	\$3.448	(\$0.028)	\$2.530	\$0.918
<b>NTM Avg</b>	<b>\$4.067</b>	<b>\$3.865</b>	<b>\$3.703</b>				<b>\$2.850</b>	<b>\$3.281</b>	<b>\$3.096</b>	<b>\$3.302</b>	<b>(\$0.035)</b>	<b>\$2.416</b>	<b>\$0.887</b>

West of Suez Spot 174K XDF/MEGI Day Rate: \$42,000

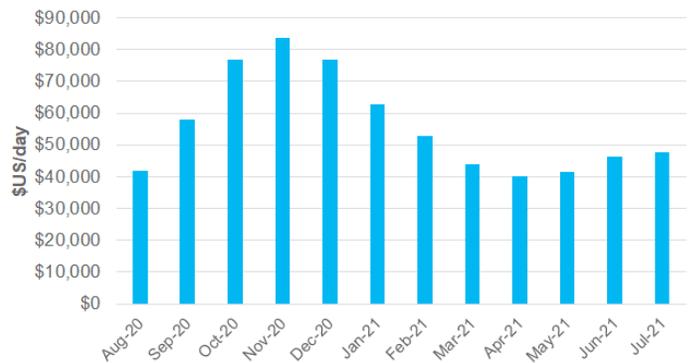
West of Suez 1-Yr TC 174K XDF/MEGI Vessel Rate: \$56,000

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 m<sup>3</sup> 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.

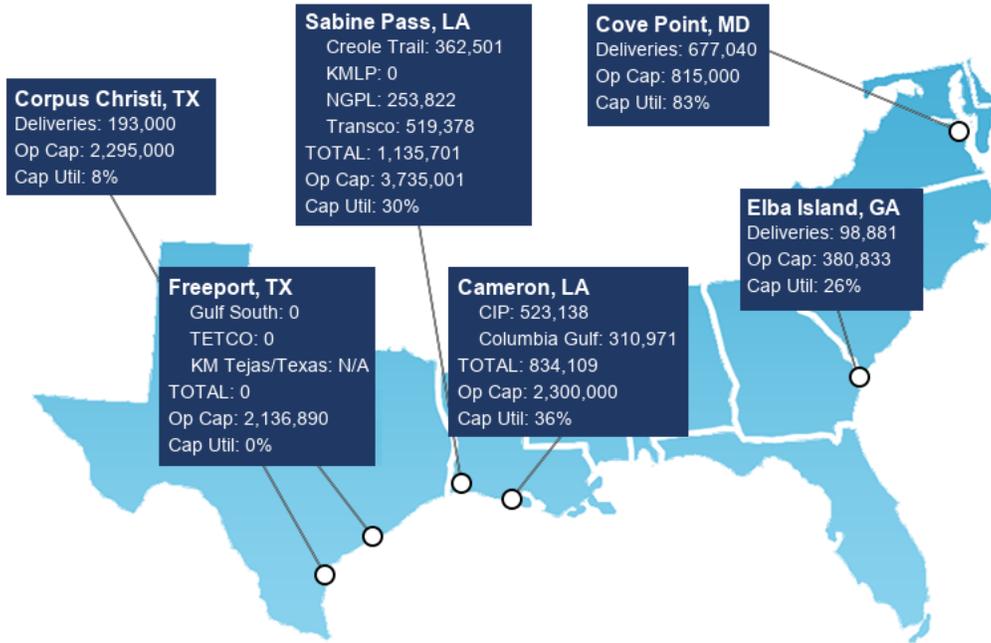
Other North America LNG Netback Prices 9-Jul-2020

	Netback to Western Canada				Netback to Costa Azul				Netback to Cove Point				Netback to Zn 5			
	NGI's AECO Forwards	Diff	Diff %	NGI's SoCal Border Forwards	Diff	Diff %	NGI's Transco Zn 5 Forwards	Diff	Diff %	NGI's Waha Forwards	Diff	Diff %	NGI's Waha Forwards			
	\$US/MMBtu	\$US/MMBtu	%	\$US/MMBtu	\$US/MMBtu	%	\$US/MMBtu	\$US/MMBtu	%	\$US/MMBtu	\$US/MMBtu	%	\$US/MMBtu			
Aug-20	\$1.780	\$1.445	\$0.335	23%	\$1.709	\$2.017	-\$0.308	-15%	\$1.544	\$1.854	-\$0.310	-17%	\$1.467			
Sep-20	\$2.124	\$1.456	\$0.668	46%	\$2.034	\$1.927	\$0.107	6%	\$1.773	\$1.846	-\$0.073	-4%	\$1.388			
Oct-20	\$2.740	\$1.485	\$1.255	84%	\$2.641	\$1.874	\$0.767	41%	\$2.330	\$1.945	\$0.385	20%	\$1.324			
Nov-20	\$3.371	\$1.828	\$1.543	84%	\$3.244	\$2.320	\$0.924	40%	\$3.464	\$2.407	\$1.057	44%	\$1.744			
Dec-20	\$3.930	\$1.874	\$2.056	110%	\$3.791	\$3.328	\$0.463	14%	\$4.133	\$3.447	\$0.686	20%	\$2.244			
Jan-21	\$4.358	\$1.930	\$2.428	126%	\$4.227	\$3.380	\$0.847	25%	\$4.425	\$4.739	-\$0.314	-7%	\$2.392			
Feb-21	\$4.628	\$1.920	\$2.708	141%	\$4.516	\$3.220	\$1.296	40%	\$4.523	\$4.624	-\$0.101	-2%	\$2.386			
Mar-21	\$4.295	\$1.858	\$2.437	131%	\$4.198	\$2.457	\$1.741	71%	\$4.258	\$3.035	\$1.223	40%	\$2.116			
Apr-21	\$3.933	\$1.623	\$2.310	142%	\$3.850	\$1.991	\$1.859	93%	\$3.887	\$2.652	\$1.235	47%	\$1.839			
May-21	\$3.863	\$1.572	\$2.291	146%	\$3.785	\$1.974	\$1.811	92%	\$3.703	\$2.491	\$1.212	49%	\$1.769			
Jun-21	\$3.805	\$1.571	\$2.234	142%	\$3.725	\$2.172	\$1.553	72%	\$3.582	\$2.551	\$1.031	40%	\$1.897			
Jul-21	\$3.785	\$1.631	\$2.154	132%	\$3.698	\$2.728	\$0.970	36%	\$3.570	\$2.365	\$1.205	51%	\$2.091			
<b>NTM Avg</b>	<b>\$3.551</b>	<b>\$1.683</b>	<b>\$1.868</b>	<b>111%</b>	<b>\$3.452</b>	<b>\$2.449</b>	<b>\$1.003</b>	<b>41%</b>	<b>\$3.433</b>	<b>\$2.830</b>	<b>\$0.603</b>	<b>21%</b>	<b>\$1.888</b>			

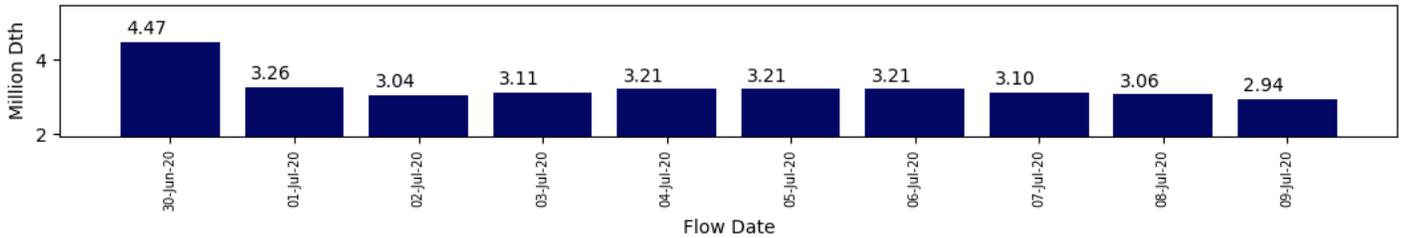
Note: Netbacks are based on deliveries to Asia & Europe. LNG Canada and Costa Azul liquefaction facilities are not expected to be in-service until 2025 and 2023, respectively. But the above calculations give an indication of how LNG may be priced on an FOB basis if those locations were operational. NGI's 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](http://natgasintel.com/product/forward-look)

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

NGI's LNG INSIGHT U.S. LNG EXPORT TRACKER 09-Jul-2020

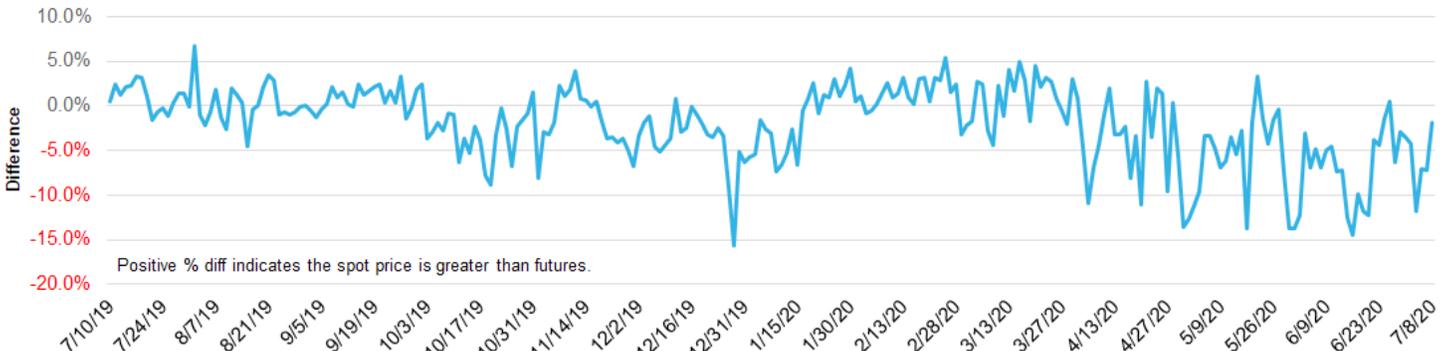


Daily Summary (Volumes Listed in Dekatherms)	
Total Deliveries to U.S. LNG Export Facilities:	2,938,731
Previous Day:	3,062,991
Change:	-124,260



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 calculations

NGI's Daily Henry Hub Spot Index vs. Prompt (CME) Futures Contract 9-Jul-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](http://natgasintel.com/product/daily-gpi) for more details.

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





LNG Freight Costs for Selected Routes

9-Jul-2020

Trade Route (\$ / MMBtu)	174k MEGI			160k TFDE			145k ST		
Bonny / Montoir	0.408	0.015	▲	0.412	0.004	▲	0.448	0.001	▲
Bonny / Tokyo	0.853	0.046	▲	0.910	0.014	▲	1.027	0.004	▲
Ras Laffan / Montoir	0.439	0.011	▲	0.447	0.006	▲	0.469	0.001	▲
Ras Laffan / Tokyo	0.334	0.012	▲	0.355	0.007	▲	0.397	0.002	▲
Dampier / Tokyo	0.285	0.008	▲	0.303	0.005	▲	0.348	0.001	▲
Zeebrugge / Bahia Blanca	0.505	0.030	▲	0.560	0.009	▲	0.639	0.002	▲
Zeebrugge / Dahej	0.543	0.030	▲	0.587	0.009	▲	0.713	0.003	▲
Zeebrugge / Tokyo	0.853	0.049	▲	0.958	0.015	▲	1.073	0.004	▲
Sabine / Bahia Blanca	0.501	0.030	▲	0.565	0.009	▲	0.634	0.003	▲
Sabine / Dahej	0.753	0.044	▲	0.854	0.014	▲	0.939	0.004	▲
Sabine / Tokyo	0.739	0.044	▲	0.835	0.014	▲	0.929	0.004	▲
Sabine / Zeebrugge	0.421	0.023	▲	0.514	0.008	▲	0.616	0.003	▲
Port Moresby / Tokyo	0.283	0.008	▲	0.302	0.005	▲	0.344	0.001	▲

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)

9-Jul-2020

Vessel Rates		
Vessel Type / Region	WEST	EAST
174k XDF / MEGI	42,000	40,000
155k - 165k TFDE	34,000	31,000
138k - 145k ST	23,000	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, or to Gibraltar for intra Atlantic basin voyages

Source: Fearnleys (www.fearnleys.com)

West of Suez LNG Vessel Rate Curve 9-Jul-2020

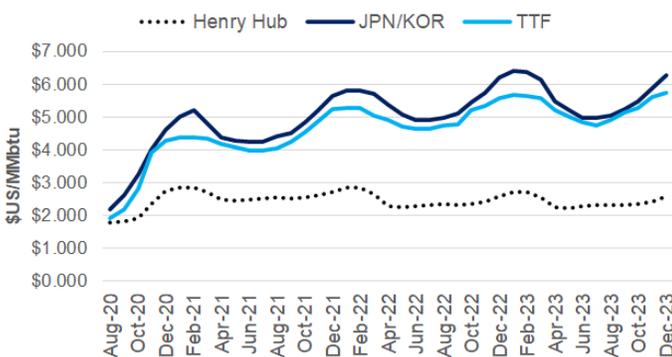
Month	9-Jul	8-Jul	Chg
Aug-20	42,000	38,000	4,000
Sep-20	57,898	58,266	-368
Oct-20	76,784	77,271	-488
Nov-20	83,688	84,219	-531
Dec-20	76,821	77,308	-488
Jan-21	62,774	63,173	-399
Feb-21	52,921	53,257	-336
Mar-21	43,817	44,095	-278
Apr-21	40,016	40,270	-254
May-21	41,436	41,699	-263
Jun-21	46,260	46,553	-294
Jul-21	47,586	47,888	-302
<b>Average</b>	<b>56,000</b>	<b>56,000</b>	<b>0</b>

Note: Based on 174,000 m³XDF/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.



Source: NGI estimates based on Fearnleys data

Global Futures Settles Through 2023 9-Jul-2020



Contract	Date	12-Month Strip*	CY2021	CY2022	CY2023
Henry Hub	9-Jul-20	\$2.416	\$2.612	\$2.457	\$2.415
	8-Jul-20	\$2.445	\$2.636	\$2.463	\$2.409
	Chg	(\$0.029)	(\$0.025)	(\$0.006)	\$0.006
JPN/KOR	9-Jul-20	\$4.067	\$4.730	\$5.422	\$5.625
	8-Jul-20	\$4.096	\$4.760	\$5.450	\$5.635
	Chg	(\$0.029)	(\$0.030)	(\$0.028)	(\$0.010)
TTF	9-Jul-20	\$3.703	\$4.356	\$5.015	\$5.289
	8-Jul-20	\$3.738	\$4.386	\$5.039	\$5.310
	Chg	(\$0.035)	(\$0.030)	(\$0.024)	(\$0.021)

\*Aug 2020 through Jul 2021

Source: Bloomberg, CSI, NGI calculations



Global LNG & NatGas Futures Prices (Aug 2020) 9-Jul-2020

Contract	Cur/Unit	Settle	Chg	% Chg	Settle (\$US/MMBtu)
JPN/KOR	\$US/MMBtu	\$2.170	-\$0.020	-0.9%	\$2.170
NBP	pence/therm	14.51p	-0.56p	-3.7%	\$1.832
TTF	Eur/MWh	€ 5.757	-€ 0.180	-3.0%	\$1.907
Henry Hub	\$US/MMBtu	\$1.779	-\$0.045	-2.5%	\$1.779

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

Source: NGI calculations, CSI

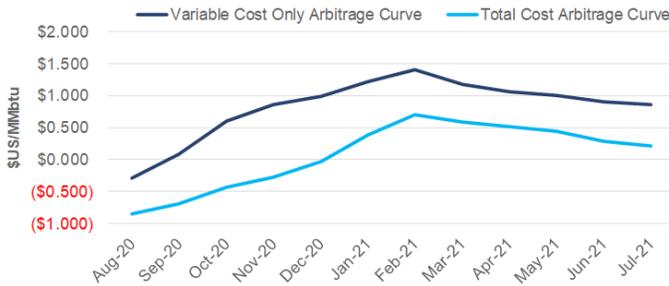


... from ASIA - BP Inks Deal to Supply, pg. 1

operations. It operates more than 200 city gas projects and provides gas services to more than 20 million households and 149,000 industrial and commercial operations.

For BP, the deal strengthens its foothold in the country, where the company already engages in oil and gas exploration and development, petrochemicals, and oil and gas trading, among other things.

**Estimated Sabine Pass / Asia 12-Month Forward LNG Arbitrage Curves 9-Jul-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	\$2.046	\$0.410	\$0.563	\$2.455	\$3.018	\$2.170	(\$0.285)	(\$0.848)
Sep-20	\$2.094	\$0.423	\$0.776	\$2.517	\$3.293	\$2.600	\$0.083	(\$0.693)
Oct-20	\$2.210	\$0.442	\$1.029	\$2.653	\$3.682	\$3.255	\$0.602	(\$0.427)
Nov-20	\$2.696	\$0.465	\$1.122	\$3.161	\$4.283	\$4.015	\$0.854	(\$0.268)
Dec-20	\$3.148	\$0.484	\$1.030	\$3.631	\$4.661	\$4.625	\$0.994	(\$0.036)
Jan-21	\$3.295	\$0.495	\$0.841	\$3.790	\$4.632	\$5.015	\$1.225	\$0.383
Feb-21	\$3.295	\$0.501	\$0.709	\$3.796	\$4.505	\$5.200	\$1.404	\$0.695
Mar-21	\$3.141	\$0.489	\$0.587	\$3.629	\$4.217	\$4.800	\$1.171	\$0.583
Apr-21	\$2.843	\$0.476	\$0.536	\$3.319	\$3.855	\$4.375	\$1.056	\$0.520
May-21	\$2.805	\$0.473	\$0.555	\$3.278	\$3.833	\$4.280	\$1.002	\$0.447
Jun-21	\$2.853	\$0.472	\$0.620	\$3.325	\$3.945	\$4.230	\$0.905	\$0.285
Jul-21	\$2.910	\$0.472	\$0.638	\$3.381	\$4.019	\$4.240	\$0.859	\$0.221

Source: NGI calculations, CSI, Fearnleys

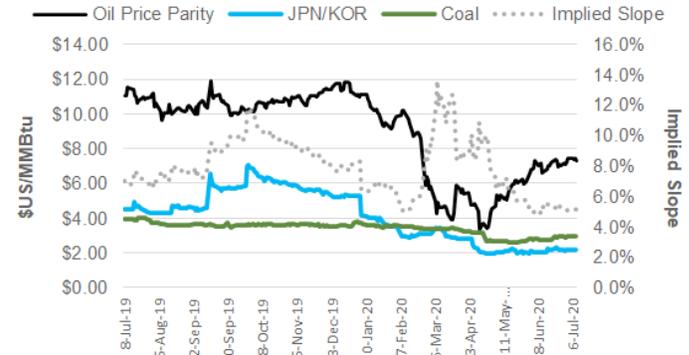


**Daily Prompt Oil Linked Asia Parity Prices 9-Jul-2020**

Current Spot Month Japan/Korea Futures Contract Price (Aug): **\$2.170**  
 Current Spot Month Brent Crude Oil Futures Price (Sep): **\$42.35**  
 Current Spot Month Japan Coal Price (Jul): **\$2.97**  
 Implied Current Japan/Korea Slope to Brent: **5.1%**

Crude Mo.	3 Mo Avg JCC	Brent	3 Mo Avg JCC	Brent
Sep-20	\$58.23	\$42.35	\$10.02	\$7.28

**Trailing 12M Daily Prompt Japan/Korea Futures**



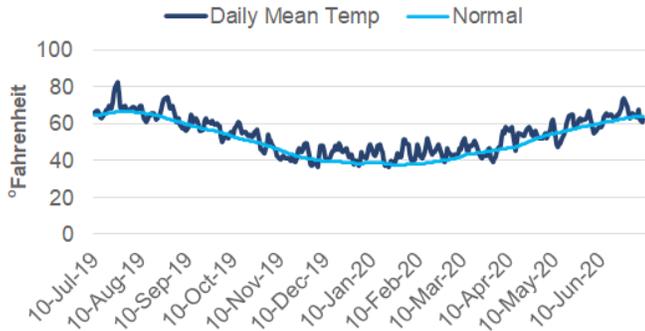
**Note:** Oil linked parity figures tend to serve as a cap on Asian LNG market prices, while coal prices can help act as a floor.

Source: NGI calculations, ICE, CSI, METI

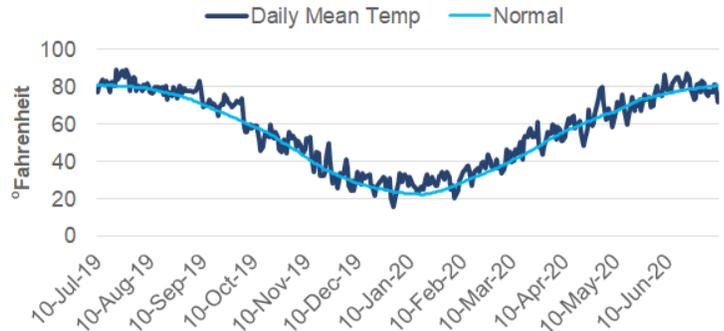


**Europe & Asia Weather Data 9-Jul-2020**

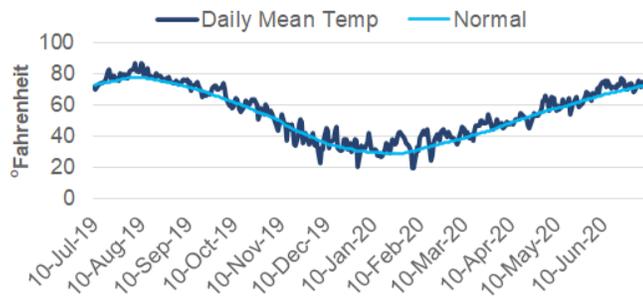
**Trailing 365 Day Mean Temperatures - Northwest Europe**



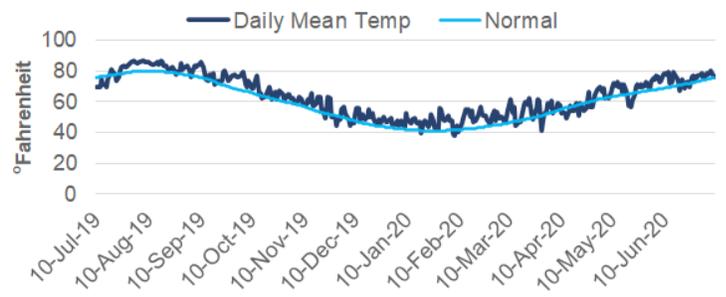
**Trailing 365 Day Mean Temperatures - Beijing**



**Trailing 365 Day Mean Temperatures - Seoul**



**Trailing 365 Day Mean Temperatures - Tokyo**



Source: NGI calculations, Bloomberg



**U.S. Landed vs. European Prices Aug 2020  
9-Jul-2020**

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

Source	Pricing Point	HH Price	Gate Landed Price (GLP)
GOM	Henry Hub	\$1.779	\$2.194

**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	€ 5.62	\$1.862	-\$0.332
Czech Rep	CZ VTP	€ 6.19	\$2.051	-\$0.143
France	PEG	€ 5.65	\$1.872	-\$0.322
Germany	NCG	€ 5.81	\$1.924	-\$0.270
Italy	PSV	€ 6.75	\$2.236	\$0.042
Netherlands	TTF	€ 5.76	\$1.907	-\$0.287
Slovakia	CEGH VTP	€ 6.58	\$2.179	-\$0.016
Spain	PVB	€ 7.47	\$2.475	\$0.281
UK	NBP	14.51p	\$1.832	-\$0.363

Euro Exchange Rate: 1.13055  
 Pound Exchange Rate: 1.26240



**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

**E&P NEWS**

**Noble Bringing Back Curtailed U.S. Oil Volumes, Expanding NatGas Export Capacity Overseas**

Noble Energy Inc. said Thursday the bulk of its shut-in U.S. oil and gas production would be brought back online in the coming weeks.

Noble, whose vast U.S. portfolio extends across Texas and Colorado, said its second quarter curtailments totaled ...cont' pg. 7

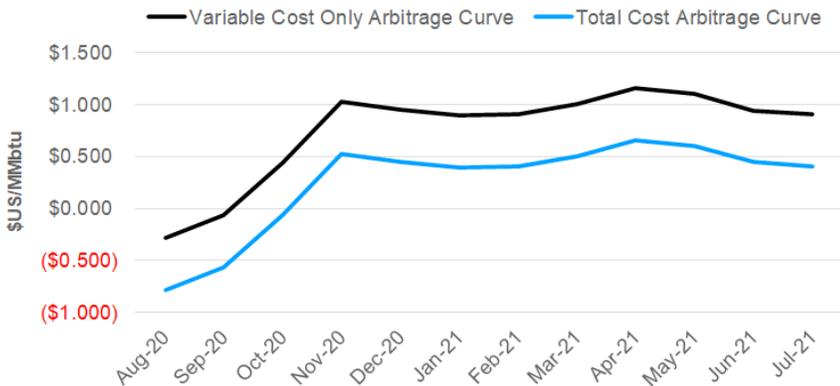
**Spanish PVB vs. Dutch TTF Futures 9-Jul-2020**

Period	PVB \$US/ MMBtu	Chg	TTF \$US/ MMBtu	Chg	PVB/TTF Premium (\$)	PVB/TTF Premium %
Aug-20	\$2.475	-\$0.060	\$1.907	-\$0.066	\$0.568	29.8%
Sep-20	\$2.730	-\$0.057	\$2.185	-\$0.066	\$0.545	24.9%
Oct-20	\$3.129	-\$0.041	\$2.808	-\$0.045	\$0.321	11.4%
4Q20	\$3.851	-\$0.034	\$3.666	-\$0.040	\$0.185	5.1%
1Q21	\$4.612	-\$0.032	\$4.366	-\$0.028	\$0.246	5.6%
2Q21	\$4.281	-\$0.021	\$4.085	-\$0.019	\$0.196	4.8%

Source: NGI calculations, CSI



**Estimated Sabine Pass / Europe (Gate) 12-Month Forward LNG Arbitrage Curves 9-Jul-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 additional 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	\$2.046	\$0.149	\$0.322	\$2.194	\$2.694	\$1.907	(\$0.287)	(\$0.787)
Sep-20	\$2.094	\$0.153	\$0.444	\$2.247	\$2.747	\$2.185	(\$0.062)	(\$0.562)
Oct-20	\$2.210	\$0.164	\$0.588	\$2.374	\$2.874	\$2.808	\$0.435	(\$0.065)
Nov-20	\$2.696	\$0.182	\$0.641	\$2.877	\$3.377	\$3.906	\$1.029	\$0.529
Dec-20	\$3.148	\$0.188	\$0.589	\$3.335	\$3.835	\$4.285	\$0.950	\$0.450
Jan-21	\$3.295	\$0.189	\$0.481	\$3.484	\$3.984	\$4.375	\$0.891	\$0.391
Feb-21	\$3.295	\$0.190	\$0.406	\$3.485	\$3.985	\$4.393	\$0.908	\$0.408
Mar-21	\$3.141	\$0.189	\$0.336	\$3.329	\$3.829	\$4.330	\$1.001	\$0.501
Apr-21	\$2.843	\$0.186	\$0.307	\$3.029	\$3.529	\$4.183	\$1.154	\$0.654
May-21	\$2.805	\$0.185	\$0.318	\$2.990	\$3.490	\$4.094	\$1.104	\$0.604
Jun-21	\$2.853	\$0.183	\$0.355	\$3.036	\$3.536	\$3.979	\$0.943	\$0.443
Jul-21	\$2.910	\$0.183	\$0.365	\$3.093	\$3.593	\$3.996	\$0.903	\$0.403

Source: NGI calculations, CSI, Fearnleys

**European Spark/Dark Spreads (Aug 2020)  
9-Jul-2020**

EUA Carbon Price (Eur/mt): 28.5

Nation	Eur/MWh	Spark Spread		Clean Spark Spread	
		EFFCY 49%	45%	49%	45%
Power Futures					
BE	34.06	5.620	22.62	21.57	11.02
CZ	36.74	6.190	24.14	22.98	12.54
FR	35.72	5.650	24.22	23.16	12.62
DE	34.48	5.808	22.66	21.57	11.06
IT	37.65	6.749	23.91	22.65	12.31
NL	32.70	5.757	20.98	19.91	9.38
SK	37.74	6.575	24.36	23.13	12.76
ES	36.55	7.470	21.35	19.95	9.75
UK*	36.40	5.528	25.15	24.12	5.37
<b>Average</b>			<b>23.27</b>	<b>22.12</b>	<b>10.76</b>

Nation	Eur/MWh	Dark Spread		Clean Dark Spread	
		EFFCY 35%	35%	35%	35%
Power Futures					
BE	34.06	49.50	16.19		-11.48
CZ	36.74	49.50	18.87		-8.80
FR	35.72	49.50	17.85		-9.82
DE	34.48	49.50	16.61		-11.06
IT	37.65	49.50	19.78		-7.89
NL	32.70	49.50	14.83		-12.84
SK	37.74	49.50	19.87		-7.80
ES	36.55	49.50	18.68		-8.99
UK*	36.40	49.50	18.53		-28.66
<b>Average</b>			<b>17.91</b>		<b>-11.93</b>

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



11,000 b/d of oil. But “significant improvements in operating costs and netback pricing” will allow the company to return the majority of those volumes to sales by the end of July.

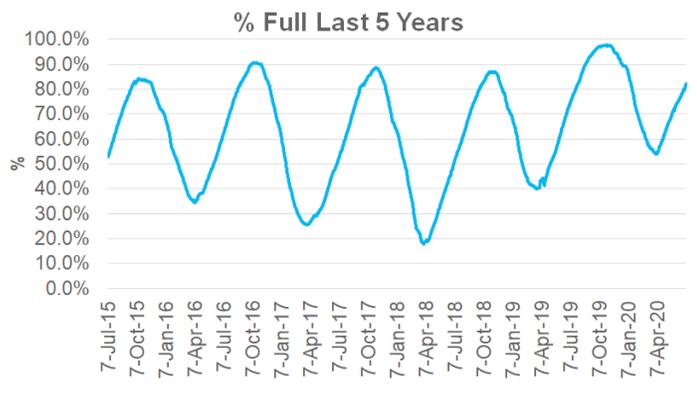
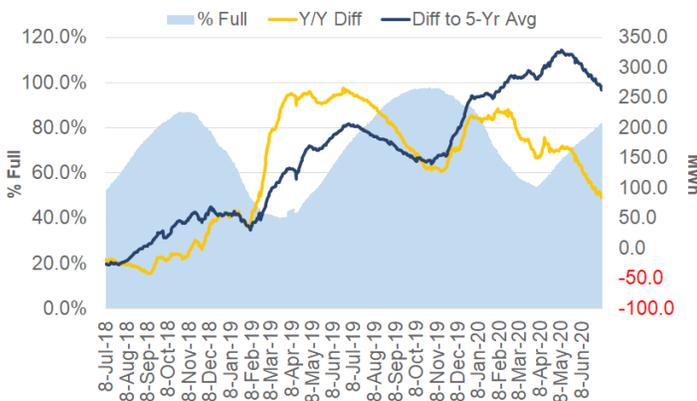
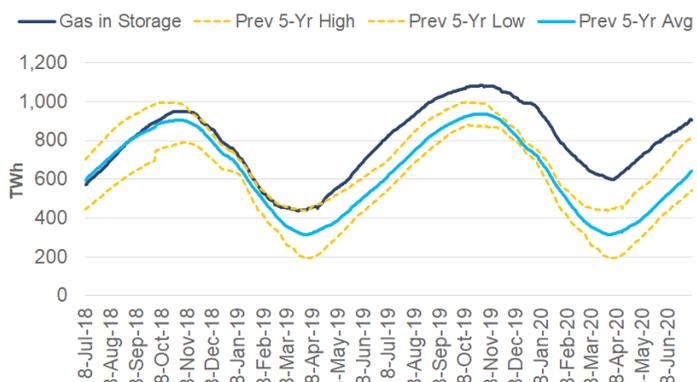
As the Covid-19 pandemic crushed demand and commodity prices nosedived earlier this year, Noble joined its peers in **announcing plans** to move cautiously through the year in the Lower 48 by shutting in wells and scaling back activity. But the company has continued to build natural gas infrastructure overseas.

Noble has cut capital expenditures for 2020 three *...cont' pg. 8*

### European Union Gas Storage

Data as of 7-Jul-20 Chart Last Updated 9-Jul-20

Volumes in TWh	Gas in Storage 07-Jul-20	Working Gas Volume	% Full	Gas in Storage 07-Jul-19	Y/Y Diff	Prev 5-Yr Avg	5-Yr Avg Diff
Europe	905.47	1106.78	81.8%	821.86	83.61	642.54	262.93



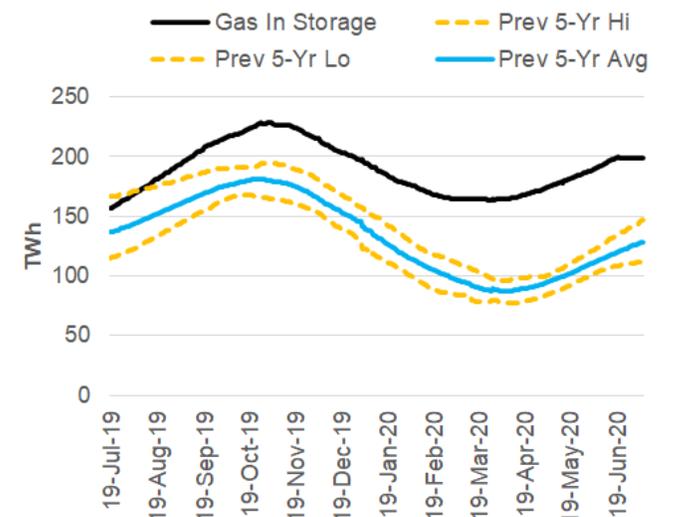
% Full As of	7-Jul-15	7-Jul-16	7-Jul-17	7-Jul-18	7-Jul-19	7-Jul-20
	53.0%	62.7%	53.1%	51.8%	75.2%	81.8%

Source: NGI calculations, GIE

### Ukraine Gas Storage

Data as of 7-Jul-20 Chart Last Updated: 9-Jul-20

7/7/20	WG Vol	% Full	7/7/19	Y/Y Diff	Prev 5-Yr Avg	5-Yr Avg Diff
199.19	320.17	62.2%	147.31	51.89	128.59	70.60



Source: NGI calculations, GIE

### European Union LNG Regas Terminal Storage

Data as of 7-Jul-20 Chart Last Updated: 9-Jul-20

Country	Terminal	Inventory (10 <sup>3</sup> m <sup>3</sup> )	Chg	Max Cap (10 <sup>3</sup> m <sup>3</sup> )	% Util
Belgium	Zeebrugge	442.9	91.0	563.0	78.7%
France	Dunkerque	444.8	-9.6	586.1	75.9%
	Fos Tonkin	40.3	-0.8	80.0	50.4%
	Montoir	227.4	-20.5	360.0	63.2%
	Fas Cavaou	124.8	-34.2	330.0	37.8%
Greece	Revythoussa	106.1	-10.5	225.0	47.1%
Italy	Porto Levante	135.2	0.0	250.0	54.1%
	Panigaglia	20.0	-16.3	40.0	49.9%
	Toscana	62.7	0.0	137.2	45.7%
Lithuania	Klaipėdos	114.9	-10.6	167.1	68.7%
Netherlands	Gate	513.0	-9.3	540.0	95.0%
Poland	Swinoujście	182.8	-23.1	320.0	57.1%
Portugal	Sines	261.0	-19.5	390.0	66.9%
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	160.1	0.0	300.0	53.4%
	Sagunto	0.0	0.0	0.0	0.0%
	TVB (Virtual)	816.9	-108.4	3307.9	24.7%
UK	Grain	824.6	-5.1	1026.4	80.3%
	South Hook	470.8	-39.6	751.7	62.6%
<b>Total</b>		<b>4948.2</b>	<b>-216.5</b>	<b>9374.3</b>	<b>52.8%</b>

Source: NGI calculations, GIE

# 2020 EDITION

NGI'S MAP OF NORTH AMERICAN NATURAL GAS PIPELINES, LNG FACILITIES & SHALE PLAYS



- 48 PROPOSED PIPELINES
- 177 OPERATIONAL PIPELINES
- 163 NORTH AMERICAN MARKET HUBS
- 53 LNG IMP/EXP TERMINALS
- PERMIAN ZOOMED PIPELINE INSET
- LA & TX LNG DETAILS
- 47 IMP/EXP BORDER POINTS
- BORDER VOLUMES FOR ALL BORDER POINTS

TO LEARN MORE, VISIT [NATGASINTEL.COM/NA-MAP](http://NATGASINTEL.COM/NA-MAP)

different times since March. Investments totaled \$100 million during the second quarter, while general and administrative expenses were down nearly 40% year/year to \$63 million.

Despite impacts from the coronavirus, Noble also said that its Alen Gas Monetization project continues to move toward an early 2021 start-up. Natural gas from the Alen field offshore Equatorial Guinea would be processed at EG LNG's liquefied natural gas production facility and at Alba Plant LLC's liquefied petroleum gas processing plant. Noble said it took hedge positions in the second

## THE OFFTAKE: LNG IN BRIEF

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

- **Genscape Inc:** U.S. feed gas deliveries hit new low Thursday. Demand fell to 2.8 Bcf/d as of evening nomination cycle for gas day July 9, down 1.1 Bcf/d from June average. Since July 1, feed gas demand has remained relatively steady near 3 Bcf/d, firm said.
- Drop comes as U.S. cargo cancellations continue given uneconomic prices overseas. So far this summer, more than 70 LNG cargoes were canceled for June and July deliveries, and more than 40 cargoes were canceled for August deliveries, **Energy Information Administration** said this week.
- Given the lack of demand, U.S. storage could approach capacity this fall. EIA forecast this month that working gas in storage could reach more than 4 Tcf at the end of October, the highest monthly total on record and only 5% below EIA's estimate of demonstrated peak capacity
- **ClearView Energy Partners:** The range "could be problematic" since inventories might exceed EIA's forecasts due to uncertain U.S. supply/demand, reduced LNG exports, trade tensions with China and low global gas prices..

quarter to secure LNG revenues for a portion of the expected 2021 and 2022 gas revenues.

Meanwhile, efforts to enhance export capacity from the company's operations in Israel advanced during the quarter. Noble and its partners are preparing to commission onshore compression facilities to boost sales volumes into Egypt via the EMG pipeline. Sales volumes to Dolphinus Holdings Ltd. in Egypt from the Tamar and Leviathan field offshore Israel are expected to ramp through the rest of the month.

Noble was also awarded concessions last month on two exploration blocks offshore the Western Desert area of Egypt. Blocks 6 and 7 encompass more than 800,000 square acres. Final award of

the blocks is expected later this summer. Noble would hold a 27% non-operated working interest in the position. ■

### Noble Energy Current Offshore Israeli Assets & Infrastructure



Source: Noble Energy

SUBSCRIBE TO

# NGI's LNG INSIGHT



*Bringing a North American Focus to International LNG*

## SUBSCRIBE TODAY

TO CONTINUE RECEIVING DAILY INSIGHT INTO THIS  
GLOBAL MARKET

### EXPANDED LNG INSIGHT NOW INCLUDES

- Fundamentals-focused news and industry interviews
- US GOM, Western Canada and Western Mexico LNG netback prices
- US LNG export tracker with daily feedgas deliveries to the six L48 liquefaction facilities
- US LNG export destination monitoring with 12-month arbitrage curves to Europe and Asia
- US-landed vs European prices
- European natural gas storage, LNG regas terminal storage, and Spark/Dark spreads
- Global LNG and natural gas future prices, including Japan/Korea, nine European countries & Henry Hub
- Daily prompt oil-linked Asia Parity prices and Latin American DES prices

CLICK TO VISIT

**NATGASINTEL.COM/LNGINSIGHT**

FOR MORE INFORMATION



See NGI's LNG Glossary Here

# 2020 EDITION

## NGI'S MAP OF MEXICO'S EMERGING NATURAL GAS INFRASTRUCTURE

- 12 LNG FACILITIES
- 59 OPERATIONAL PIPELINES
- 25 PROPOSED PIPELINES
- 24 US/MX IMP/EXP BORDER POINTS
- 9 MX GAS PROCESSING PLANTS
- 27 NGI MX GAS PRICE MARKET HUBS
- S. TX / MX ZOOMED INSET DETAIL

TO LEARN MORE, VISIT [NATGASINTEL.COM/MX-MAP](http://NATGASINTEL.COM/MX-MAP)

### Latin America DES Prices 9-Jul-2020

Country	Terminal	\$/US/MMBtu					
		Aug	Chg	Sep	Chg	Oct	Chg
Argentina	Bahia Blanca	2.03	-0.09	2.22	-0.05	2.65	-0.03
Brazil	Pecem	1.82	-0.09	2.00	-0.06	2.44	-0.04
Chile	Quintero	2.11	-0.09	2.29	-0.06	2.73	-0.04
Colombia	Colombia	1.65	-0.09	1.83	-0.06	2.27	-0.04
Mexico East	Altamira	1.60	-0.09	1.78	-0.06	2.22	-0.04
Mexico West	Manzanillo	2.02	-0.09	2.20	-0.06	2.64	-0.04
Panama	Costa Norte	1.67	-0.09	1.85	-0.06	2.29	-0.04



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

Source: NGI calculations, CME Group, CSI, Fearnleys



NGI's LNG INSIGHT

THURSDAY, JULY 9, 2020  
VOLUME 1, No. 186

NGI's LNG Insight is published daily, each business day by Intelligence Press, Inc. (703) 318-8848.

In addition to LNG news and data, NGI also publishes an array of business intelligence services covering the North American continental natural gas market.

Please visit us at [naturalgasintel.com](http://naturalgasintel.com) for more information.

Contact us: **EDITORIAL:** [editorial@natgasintel.com](mailto:editorial@natgasintel.com); **PRICING:** [prices@natgasintel.com](mailto:prices@natgasintel.com); **SUPPORT/SALES:** [info@natgasintel.com](mailto:info@natgasintel.com); **ADVERTISE:** [adv@natgasintel.com](mailto:adv@natgasintel.com)

Intelligence Press, Inc. © Copyright 2020. Contents may not be reproduced, stored in a retrieval system, accessed by computer, or transmitted by any means without a site license or prior written permission of the publisher.

**DISCLAIMERS, LIMITATION OF WARRANTY AND LIABILITY:** The Information contained in this newsletter (our Content) is intended as a professional reference tool. You are responsible for using professional judgment and for confirming and interpreting the data reported in our Content before using or relying on such information. OUR CONTENT IS PROVIDED "AS IS" AND WE DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR YOUR PARTICULAR PURPOSE. Although we believe our Content to be complete and accurate as described therein, we make no representations regarding completeness or accuracy. We will not be liable for any damage or loss of any kind arising out of or resulting from access or lack of access to or use of our Content, including but not limited to your reliance on it, errors in the data it contains, and data loss or corruption, regardless of whether such liability is based in tort, contract or otherwise. NGI's full Subscriber Agreement is available here: [naturalgasintel.com/TOC](http://naturalgasintel.com/TOC).