

NGI's LNG INSIGHT



Bringing a North American Focus to International LNG

TUESDAY, JULY 7, 2020 - VOL. 1, NO. 184

Daily Rundown

- Large amounts of capital are at risk as the LNG market weakens, according to Global Energy Monitor
- Henry Hub spot prices are expected to average \$1.93/MMBtu in 2020, EIA said
- The agency said U.S. LNG exports will average 5.4 Bcf/d in 2020 and 7.3 Bcf/d in 2021

MARKETS

Report Warns Weak Global Market Has Created a 'Gas Bubble'

A “perfect storm” of oversupply, low prices and the Covid-19 pandemic has snarled billions of dollars worth of liquefied natural gas (LNG) projects, creating a bubble that could burst if the outlook doesn't improve on multiple fronts, according to a report by Global Energy Monitor.

GEM said Monday that the landscape for LNG has drastically changed since its last overview of industry projects in 2019. A combination of overbuilding, low commodity prices, pandemic disruptions, increasing environmental opposition and growing political resistance to the super-chilled fuel have slowed the sector's rapid ascendancy.

“LNG was once considered a safe bet for investors,” said GEM research analyst Greig Aitken. “Not only was it considered a climate-friendly fuel, but there was substantial governmental support to make sure that these mega-projects — including some of the largest capital sector projects ever built — were shepherded to completion with the billions they needed. Suddenly, the industry is beset with problems.”

Over the last year, the amount of LNG import and export terminal capacity under construction worldwide has more than doubled, with total capital expenditures rising from \$82.8 billion to \$196.1 billion, GEM said, noting that four of the five top export developing companies are based in the United States. They include Cheniere Energy Inc., NextDecade Corp., Venture Global LNG Inc. and Alaska Gasline Development Corp.

GEM's report tallied at least two dozen global projects that have recently been cancelled or delayed due to a variety of factors, including difficulties acquiring financing, pandemic-related workforce issues, souring economics or effective protests. GEM said export terminals in earlier stages of development are even more vulnerable to the weaker global economy as the failure rate for such projects stands at 61% between 2014 and 2020.

While companies, particularly in the United States, have flocked to take advantage of cheap unconventional natural gas supplies and what were once premium prices in key import markets overseas, many were never expected to be built in such a competitive landscape. Despite the pandemic's impact on securing supply agreements with offtakers and even financing for projects, LNG demand is still expected to grow in the years ahead, when the supply and demand balance is forecast to tighten.

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Prompt Month Statistics - Previous 5 Trading Days					
	30-Jun	1-Jul	2-Jul	6-Jul	7-Jul
Max GOM Netback (\$US/MMBtu)	1.591	1.537	1.518	1.583	1.586
L48 LNG Feedstock Deliveries (dth/d)	4.47	3.26	3.04	3.21	3.09
Futures (\$US/MMBtu)					
Henry Hub	1.751	1.671	1.734	1.830	1.876
JPN/KOR	2.150	2.200	2.200	2.195	2.195
NBP	2.011	1.961	1.916	1.904	1.950
TTF	2.031	1.934	1.958	2.024	2.027
Shipping (\$US/MMBtu)*					
Sabine Pass to Tokyo	0.917	0.918	0.918	0.918	0.919
Sabine Pass to Milford Haven (U.K.)	0.425	0.425	0.424	0.424	0.426
Sabine Pass to Gate (NW Europe)	0.441	0.439	0.439	0.441	0.442
Landed Price Arbitrage (\$US/MMBtu)**					
Sabine to Tokyo	-0.781	-0.639	-0.712	-0.828	-0.882
Sabine to Gate	-0.423	-0.426	-0.476	-0.522	-0.572
Europe Fundamentals					
Gas in Storage (TWh)***	880.8	883.3	887.0	898.4	902.3
% Full	79.6%	79.8%	80.2%	81.2%	81.6%
Difference to Last Year (TWh)	96.3	93.9	92.6	89.8	90.1
Gas in LNG Storage (10 ³ m ³)***	5068.06	4901.5	4893.5	5375.6	5322.9
% Full	54.1%	52.3%	52.2%	57.3%	56.8%
Spark Spread (Eur/MWh)	21.58	22.34	22.10	23.19	23.61
Clean Spark Spread (Eur/MWh)	9.72	10.18	10.09	10.22	10.86
Dark Spread (Eur/MWh)	16.46	16.57	16.09	17.33	18.09
Clean Dark Spread (Eur/MWh)	-11.84	-12.45	-12.55	-13.62	-12.34
PVB/TTF Premium (%)	30.5%	27.9%	28.8%	27.7%	28.2%
NW Europe Mean Temp (°F)	63	66	68	62	TBD
% Diff From 30-Yr Normal	-0.2%	3.4%	5.6%	-2.6%	N/A
Asia Fundamentals					
JKM/KOR Oil Parity Slope	5.2%	5.2%	5.1%	5.1%	5.1%
Brent Oil Price Parity (\$US/MMBtu)	7.08	7.23	7.42	7.41	7.41
JKM/KOR Futures (\$US/MMBtu)	2.15	2.20	2.20	2.20	2.20
Japan Coal Price (\$US/MMBtu)	2.91	2.89	2.94	2.98	2.99
Beijing Mean Temp (°F)	83	82	77	77	81
% Diff From Normal	2.9%	-0.5%	0.5%	-6.6%	1.2%
Seoul Mean Temp (°F)	69	69	73	75	73
% Diff From Normal	-3.6%	-2.7%	2.0%	3.3%	1.2%
Tokyo Mean Temp (°F)	77	78	79	78	80
% Diff From Normal	5.4%	5.9%	6.9%	4.0%	6.7%
Latin America Fundamentals (\$US/MMBtu)					
Mexico					
East (Altamira) DES	1.72	1.70	1.68	1.75	1.75
West (Manzanillo) DES	2.12	2.11	2.09	2.16	2.16
Argentina DES	2.13	2.12	2.10	2.17	2.18
Brazil DES	1.92	1.91	1.89	1.96	1.96
Chile DES	2.21	2.20	2.18	2.25	2.25
Colombia DES	1.76	1.75	1.73	1.79	1.80
Panama DES	1.78	1.77	1.75	1.81	1.82

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.



U.S. Gulf Coast LNG Netback Prices (12-Month Strip) 7-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	\$2.195	\$1.950	\$2.027	\$0.919	\$0.426	\$0.442	\$1.276	\$1.525	\$1.586	\$1.586	\$0.003	\$1.876	(\$0.290)

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

Sep-20	\$2.600	\$2.303	\$2.295	\$1.189	\$0.568	\$0.593	\$1.411	\$1.735	\$1.702	\$1.735	\$0.024	\$1.939	(\$0.204)
Oct-20	\$3.250	\$2.836	\$2.867	\$1.458	\$0.709	\$0.745	\$1.792	\$2.127	\$2.122	\$2.127	\$0.007	\$2.028	\$0.099
Nov-20	\$4.025	\$4.097	\$3.940	\$1.573	\$0.777	\$0.815	\$2.452	\$3.320	\$3.125	\$3.320	\$0.060	\$2.381	\$0.939
Dec-20	\$4.615	\$4.755	\$4.324	\$1.500	\$0.739	\$0.770	\$3.115	\$4.017	\$3.554	\$4.017	\$0.068	\$2.782	\$1.235
Jan-21	\$4.990	\$5.017	\$4.406	\$1.325	\$0.644	\$0.665	\$3.665	\$4.373	\$3.741	\$4.373	\$0.084	\$2.908	\$1.465
Feb-21	\$5.165	\$5.052	\$4.414	\$1.200	\$0.575	\$0.590	\$3.965	\$4.477	\$3.824	\$4.477	\$0.060	\$2.908	\$1.569
Mar-21	\$4.775	\$4.730	\$4.352	\$1.068	\$0.506	\$0.520	\$3.707	\$4.224	\$3.831	\$4.224	\$0.067	\$2.768	\$1.456
Apr-21	\$4.350	\$4.287	\$4.158	\$1.005	\$0.472	\$0.489	\$3.345	\$3.814	\$3.669	\$3.814	\$0.033	\$2.499	\$1.315
May-21	\$4.350	\$4.064	\$4.111	\$1.023	\$0.479	\$0.498	\$3.327	\$3.586	\$3.612	\$3.612	\$0.024	\$2.465	\$1.147
Jun-21	\$4.250	\$3.895	\$3.992	\$1.084	\$0.510	\$0.533	\$3.166	\$3.385	\$3.459	\$3.459	(\$0.058)	\$2.506	\$0.953
Jul-21	\$4.255	\$3.908	\$3.994	\$1.102	\$0.520	\$0.543	\$3.153	\$3.388	\$3.451	\$3.451	(\$0.019)	\$2.554	\$0.897
NTM Avg	\$4.068	\$3.908	\$3.740				\$2.865	\$3.331	\$3.140	\$3.350	\$0.029	\$2.468	\$0.882

West of Suez Spot 174K XDF/MEGI Day Rate: \$38,000

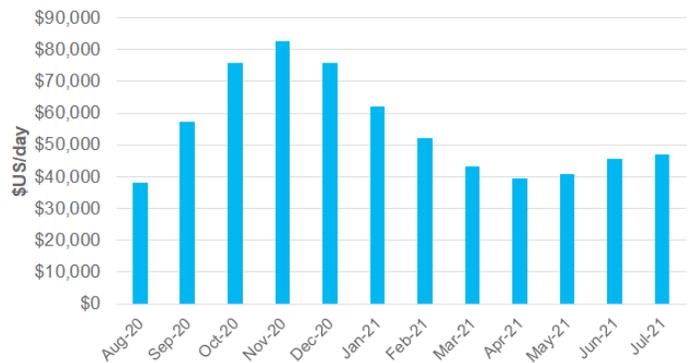
West of Suez 1-Yr TC 174K XDF/MEGI Vessel Rate: \$55,000

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.

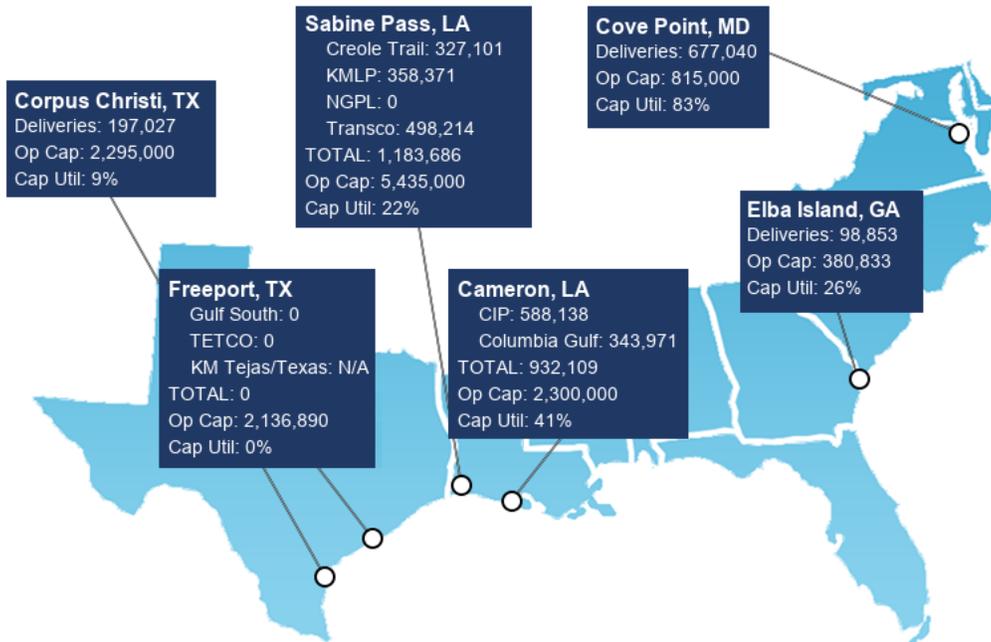
Other North America LNG Netback Prices 7-Jul-2020

	Netback to NGI's AECO				Netback to NGI's SoCal				Netback to NGI's Transco				NGI's Waha
	Western Canada	Forwards	Diff	Diff %	Costa Azul	Border Forwards	Diff	Diff %	Cove Point	Zn 5 Forwards	Diff	Diff %	Forwards
	\$US/MMBtu	\$US/MMBtu	\$US/MMBtu	%	\$US/MMBtu	\$US/MMBtu	\$US/MMBtu	%	\$US/MMBtu	\$US/MMBtu	\$US/MMBtu	%	\$US/MMBtu
Aug-20	\$1.817	\$1.449	\$0.368	25%	\$1.749	\$2.030	-\$0.281	-14%	\$1.674	\$1.861	-\$0.187	-10%	\$1.469
Sep-20	\$2.129	\$1.482	\$0.647	44%	\$2.042	\$1.940	\$0.102	5%	\$1.888	\$1.864	\$0.024	1%	\$1.393
Oct-20	\$2.740	\$1.506	\$1.234	82%	\$2.644	\$1.872	\$0.772	41%	\$2.394	\$1.953	\$0.441	23%	\$1.318
Nov-20	\$3.389	\$1.806	\$1.583	88%	\$3.264	\$2.269	\$0.995	44%	\$3.539	\$2.405	\$1.134	47%	\$1.693
Dec-20	\$3.928	\$1.830	\$2.098	115%	\$3.792	\$3.299	\$0.493	15%	\$4.155	\$3.447	\$0.708	21%	\$2.173
Jan-21	\$4.341	\$1.882	\$2.459	131%	\$4.213	\$3.342	\$0.871	26%	\$4.448	\$4.742	-\$0.294	-6%	\$2.357
Feb-21	\$4.600	\$1.879	\$2.721	145%	\$4.490	\$3.188	\$1.302	41%	\$4.556	\$4.622	-\$0.066	-1%	\$2.350
Mar-21	\$4.276	\$1.807	\$2.469	137%	\$4.181	\$2.410	\$1.771	73%	\$4.288	\$3.036	\$1.252	41%	\$2.073
Apr-21	\$3.912	\$1.598	\$2.314	145%	\$3.831	\$1.924	\$1.907	99%	\$3.897	\$2.620	\$1.277	49%	\$1.788
May-21	\$3.936	\$1.541	\$2.395	155%	\$3.860	\$1.897	\$1.963	103%	\$3.723	\$2.458	\$1.265	51%	\$1.698
Jun-21	\$3.828	\$1.541	\$2.287	148%	\$3.751	\$2.115	\$1.636	77%	\$3.598	\$2.516	\$1.082	43%	\$1.844
Jul-21	\$3.804	\$1.600	\$2.204	138%	\$3.720	\$2.669	\$1.051	39%	\$3.573	\$2.328	\$1.245	53%	\$2.035
NTM Avg	\$3.558	\$1.660	\$1.898	114%	\$3.461	\$2.413	\$1.048	43%	\$3.478	\$2.821	\$0.657	23%	\$1.849

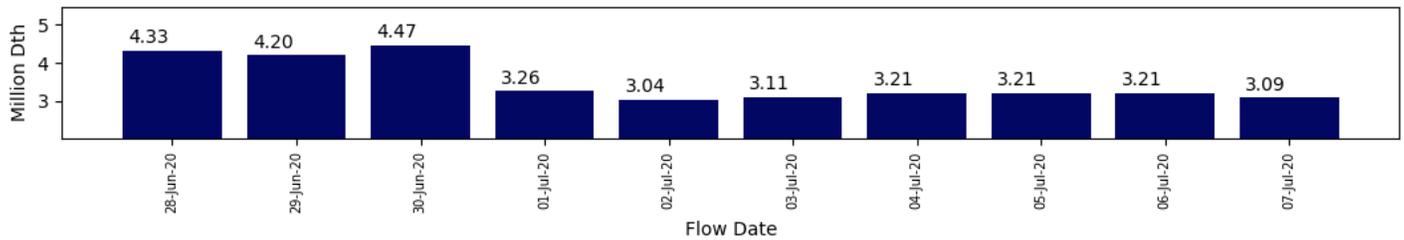
Note: Netbacks are based on deliveries to Asia & Europe. LNG Canada and Costa Azul liquefaction facilities are not expected to be in-service until 2025 and 2023, respectively. But the above calculations give an indication of how LNG may be priced on an FOB basis if those locations were operational. NGI's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

NGI's LNG INSIGHT U.S. LNG EXPORT TRACKER 07-Jul-2020

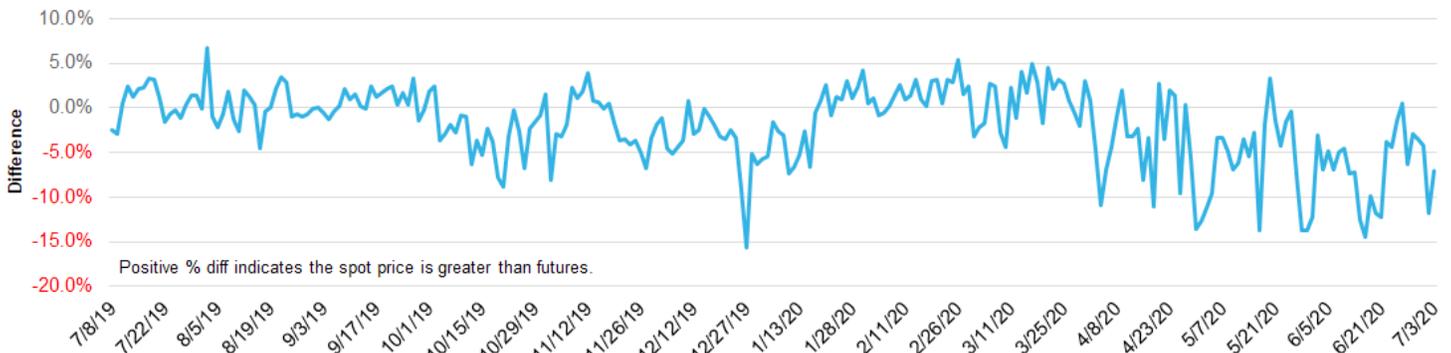


Daily Summary (Volumes Listed in Dekatherms)	
Total Deliveries to U.S. LNG Export Facilities:	3,088,715
Previous Day:	3,208,961
Change:	-120,246



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 7-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 for more details.

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





LNG Freight Costs for Selected Routes

7-Jul-2020

Trade Route (\$ / MMBtu)	174k MEGI			160k TFDE			145k ST		
Bonny / Montoir	0.393	0.001	▲	0.408	0.001	▲	0.448	0.002	▲
Bonny / Tokyo	0.808	0.003	▲	0.898	0.007	▲	1.027	0.012	▲
Ras Laffan / Montoir	0.428	0.001	▲	0.442	0.001	▲	0.469	0.002	▲
Ras Laffan / Tokyo	0.323	0.001	▲	0.348	0.001	▲	0.397	0.003	▲
Dampier / Tokyo	0.278	0.000	◀	0.300	0.001	▲	0.350	0.002	▲
Zeebrugge / Bahia Blanca	0.476	0.002	▲	0.552	0.005	▲	0.639	0.008	▲
Zeebrugge / Dahej	0.513	0.002	▲	0.579	0.005	▲	0.713	0.008	▲
Zeebrugge / Tokyo	0.805	0.004	▲	0.945	0.008	▲	1.073	0.013	▲
Sabine / Bahia Blanca	0.472	0.002	▲	0.557	0.005	▲	0.634	0.008	▲
Sabine / Dahej	0.710	0.003	▲	0.842	0.007	▲	0.939	0.012	▲
Sabine / Tokyo	0.696	0.003	▲	0.823	0.007	▲	0.929	0.012	▲
Sabine / Zeebrugge	0.398	0.003	▲	0.508	0.006	▲	0.616	0.011	▲
Port Moresby / Tokyo	0.276	0.001	▲	0.298	0.002	▲	0.344	0.003	▲

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)

7-Jul-2020

Vessel Rates		
Vessel Type / Region	WEST	EAST
174k XDF / MEGI	38,000	38,000
155k - 165k TFDE	33,000	30,000
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 voyages staying within the Atlantic basin

Source: Fearnleys (www.fearnleys.com)

West of Suez LNG Vessel Rate Curve 7-Jul-2020

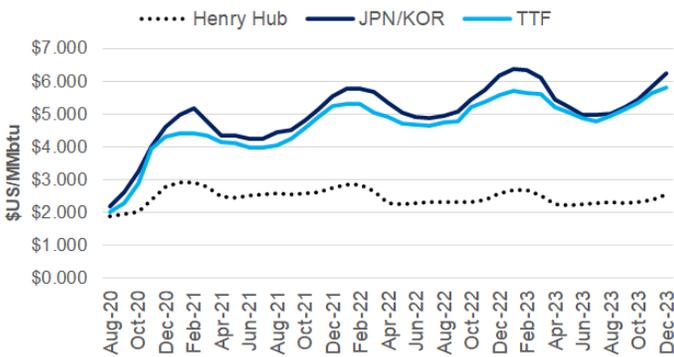
Month	7-Jul	6-Jul	Chg
Aug-20	38,000	38,000	0
Sep-20	57,163	57,163	0
Oct-20	75,809	75,809	0
Nov-20	82,625	82,625	0
Dec-20	75,845	75,845	0
Jan-21	61,977	61,977	0
Feb-21	52,249	52,249	0
Mar-21	43,261	43,261	0
Apr-21	39,508	39,508	0
May-21	40,909	40,909	0
Jun-21	45,672	45,672	0
Jul-21	46,982	46,982	0
Average	55,000	55,000	0

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 7-Jul-2020



Contract	Date	12-Month Strip*	CY2021	CY2022	CY2023
Henry Hub	7-Jul-20	\$2.468	\$2.639	\$2.451	\$2.396
	6-Jul-20	\$2.432	\$2.612	\$2.444	\$2.401
	Chg	\$0.036	\$0.026	\$0.008	(\$0.005)
JPN/KOR	7-Jul-20	\$4.068	\$4.717	\$5.400	\$5.600
	6-Jul-20	\$4.019	\$4.671	\$5.387	\$5.575
	Chg	\$0.050	\$0.046	\$0.014	\$0.025
TTF	7-Jul-20	\$3.740	\$4.367	\$5.027	\$5.310
	6-Jul-20	\$3.725	\$4.355	\$5.002	\$5.288
	Chg	\$0.015	\$0.012	\$0.025	\$0.022

*Aug 2020 through Jul 2021

Source: Bloomberg, CSI, NGI calculations



Global LNG & NatGas Futures Prices (Aug 2020) 7-Jul-2020

Contract	Cur/Unit	Settle	Chg	% Chg	Settle (\$US/MMBtu)
JPN/KOR	\$US/MMBtu	\$2.195	\$0.000	0.0%	\$2.195
NBP	pence/therm	15.53p	0.30p	2.0%	\$1.950
TTF	Eur/MWh	€ 6.124	€ 0.028	0.5%	\$2.027
Henry Hub	\$US/MMBtu	\$1.876	\$0.046	2.5%	\$1.876

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

Source: NGI calculations, CSI



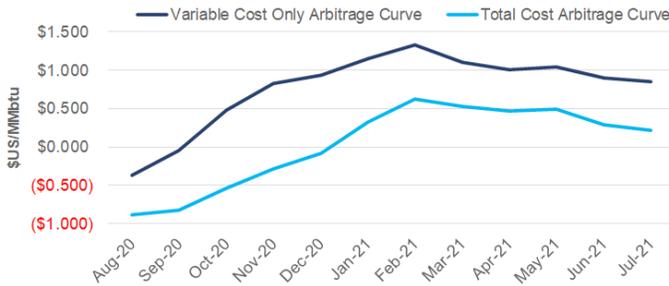
... from MARKETS - Weak Global Market Has Created a 'Gas Bubble', pg. 1

"Currently, the LNG market is in a tough position, but that does not mean its future is any less bright," a spokesperson for the Center for Liquefied Natural Gas (CLNG) told NGI. "Natural gas will be essential to a cleaner energy future helping to support renewables as a flexible baseload."

The massive export terminals currently under development in North America and abroad require enormous amounts of capital and the world's leading financiers haven't stopped

...cont' pg. 6

Estimated Sabine Pass / Asia 12-Month Forward LNG Arbitrage Curves 7-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 Shipping Costs			Variable Only Landed		Total Landed		Variable Arbitrage		Total Arbitrage	
	Futures	Variable	Fixed	Cost	Cost	Futures	Spread	Spread	Spread	Spread	
Aug-20	\$2.157	\$0.410	\$0.509	\$2.568	\$3.077	\$2.195	(\$0.373)	(\$0.882)			
Sep-20	\$2.230	\$0.422	\$0.766	\$2.652	\$3.418	\$2.600	(\$0.052)	(\$0.818)			
Oct-20	\$2.332	\$0.442	\$1.016	\$2.774	\$3.790	\$3.250	\$0.476	(\$0.540)			
Nov-20	\$2.738	\$0.465	\$1.108	\$3.203	\$4.311	\$4.025	\$0.822	(\$0.286)			
Dec-20	\$3.199	\$0.483	\$1.017	\$3.682	\$4.699	\$4.615	\$0.933	(\$0.084)			
Jan-21	\$3.344	\$0.494	\$0.831	\$3.838	\$4.669	\$4.990	\$1.152	\$0.321			
Feb-21	\$3.344	\$0.500	\$0.700	\$3.844	\$4.544	\$5.165	\$1.321	\$0.621			
Mar-21	\$3.183	\$0.488	\$0.580	\$3.671	\$4.251	\$4.775	\$1.104	\$0.524			
Apr-21	\$2.874	\$0.475	\$0.530	\$3.349	\$3.878	\$4.350	\$1.001	\$0.472			
May-21	\$2.835	\$0.475	\$0.548	\$3.310	\$3.858	\$4.350	\$1.040	\$0.492			
Jun-21	\$2.882	\$0.472	\$0.612	\$3.354	\$3.966	\$4.250	\$0.896	\$0.284			
Jul-21	\$2.937	\$0.472	\$0.630	\$3.409	\$4.039	\$4.255	\$0.846	\$0.216			

Source: NGI calculations, CSI, Fearnleys

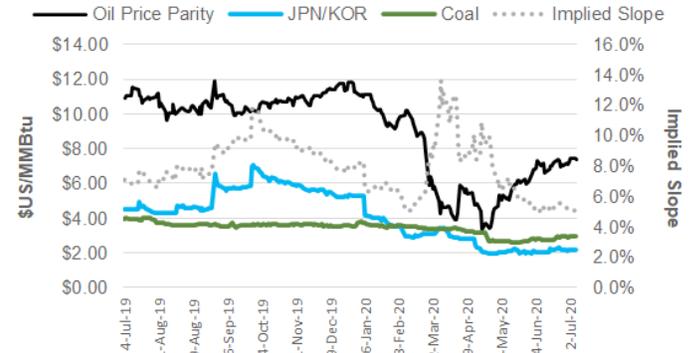


Daily Prompt Oil Linked Asia Parity Prices 7-Jul-2020

Current Spot Month Japan/Korea Futures Contract Price (Aug): **\$2.195**
 Current Spot Month Brent Crude Oil Futures Price (Sep): **\$43.08**
 Current Spot Month Japan Coal Price (Jul): **\$2.99**
 Implied Current Japan/Korea Slope to Brent: **5.1%**

Crude Mo.	Oil Price		Oil Parity Price (17.2% Slope)	
	3 Mo Avg JCC	Brent	3 Mo Avg JCC	Brent
Sep-20	\$58.23	\$43.08	\$10.02	\$7.41

Trailing 12M Daily Prompt Japan/Korea Futures



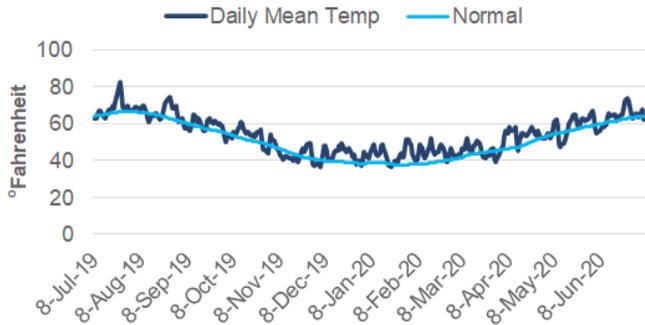
Note: Oil linked parity figures tend to serve as a cap on Asian LNG market prices, while coal prices can help act as a floor.

Source: NGI calculations, ICE, CSI, METI

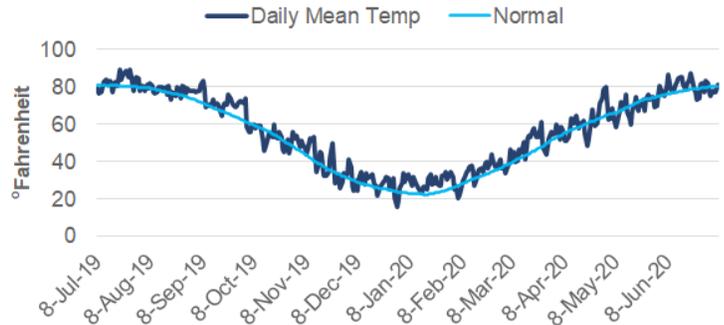


Europe & Asia Weather Data 7-Jul-2020

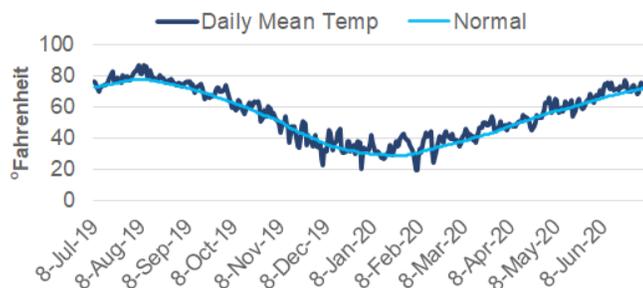
Trailing 365 Day Mean Temperatures - Northwest Europe



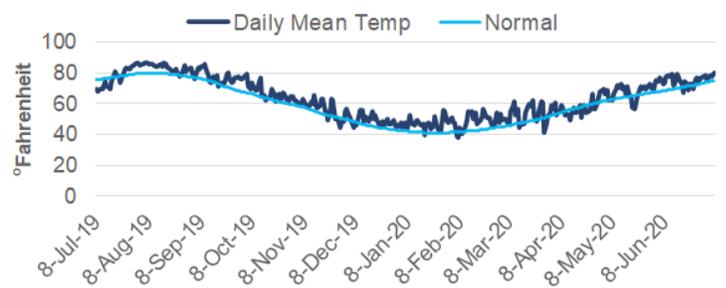
Trailing 365 Day Mean Temperatures - Beijing



Trailing 365 Day Mean Temperatures - Seoul



Trailing 365 Day Mean Temperatures - Tokyo



Source: NGI calculations, Bloomberg



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

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

Source	Pricing Point	HH Price	Gate Landed Price (GLP)
GOM	Henry Hub	\$1.876	\$2.308

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	€ 5.99	\$1.983	-\$0.325
Czech Rep	CZ VTP	€ 6.50	\$2.152	-\$0.156
France	PEG	€ 6.03	\$1.995	-\$0.313
Germany	NCG	€ 6.23	\$2.064	-\$0.244
Italy	PSV	€ 7.13	\$2.361	\$0.053
Netherlands	TTF	€ 6.12	\$2.027	-\$0.280
Slovakia	CEGH VTP	€ 6.78	\$2.243	-\$0.065
Spain	PVB	€ 7.85	\$2.599	\$0.291
UK	NBP	15.53p	\$1.950	-\$0.357

Euro Exchange Rate: 1.12965
Pound Exchange Rate: 1.25580



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

investing. GEM noted that the world's 35 leading banks offered \$22.4 billion in financing for the LNG industry last year, the highest level since 2016 when the same banks provided the sector with \$21.9 million via project finance, general corporate finance and the underwriting of corporate bonds.

GEM warned, however, that the combination of massive capital at risk and deteriorating market conditions could lead to deep financial losses in the years ahead.

A weak market could also persist beyond the ...cont' pg. 7

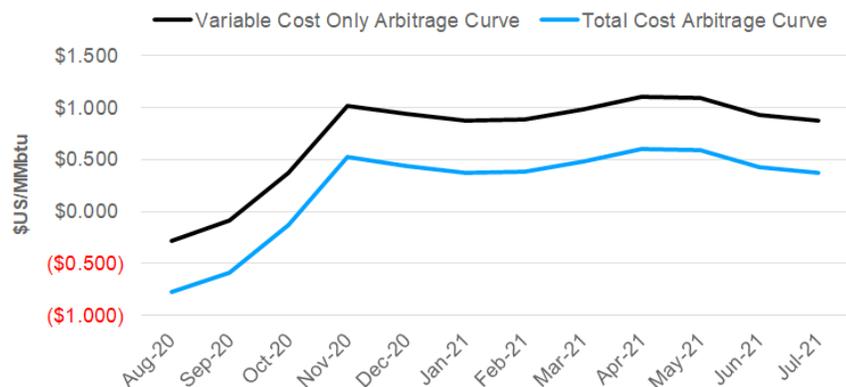
Spanish PVB vs. Dutch TTF Futures 7-Jul-2020

Period	PVB \$US/ MMBtu	Chg	TTF \$US/ MMBtu	Chg	PVB/TTF Premium (\$)	PVB/TTF Premium %
Aug-20	\$2.599	\$0.015	\$2.027	\$0.004	\$0.571	28.2%
Sep-20	\$2.841	\$0.001	\$2.295	-\$0.006	\$0.545	23.8%
Oct-20	\$3.193	\$0.006	\$2.867	\$0.003	\$0.325	11.3%
4Q20	\$3.886	\$0.018	\$3.710	\$0.036	\$0.177	4.8%
1Q21	\$4.613	\$0.001	\$4.390	\$0.033	\$0.223	5.1%
2Q21	\$4.278	-\$0.016	\$4.087	-\$0.003	\$0.191	4.7%

Source: NGI calculations, CSI



**Estimated Sabine Pass / Europe (Gate) 12-Month Forward LNG Arbitrage
Curves 7-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 Fixed	Variable Only Landed Cost	Total Landed Cost	TTF Futures	Variable Arbitrage Spread	Total Arbitrage Spread
Aug-20	\$2.157	\$0.150 \$0.291	\$2.308	\$2.808	\$2.027	(\$0.280)	(\$0.780)
Sep-20	\$2.230	\$0.155 \$0.438	\$2.385	\$2.885	\$2.295	(\$0.089)	(\$0.589)
Oct-20	\$2.332	\$0.164 \$0.581	\$2.496	\$2.996	\$2.867	\$0.371	(\$0.129)
Nov-20	\$2.738	\$0.182 \$0.633	\$2.920	\$3.420	\$3.940	\$1.020	\$0.520
Dec-20	\$3.199	\$0.188 \$0.581	\$3.388	\$3.888	\$4.324	\$0.936	\$0.436
Jan-21	\$3.344	\$0.190 \$0.475	\$3.534	\$4.034	\$4.406	\$0.872	\$0.372
Feb-21	\$3.344	\$0.190 \$0.400	\$3.534	\$4.034	\$4.414	\$0.880	\$0.380
Mar-21	\$3.183	\$0.189 \$0.332	\$3.372	\$3.872	\$4.352	\$0.980	\$0.480
Apr-21	\$2.874	\$0.186 \$0.303	\$3.060	\$3.560	\$4.158	\$1.098	\$0.598
May-21	\$2.835	\$0.185 \$0.314	\$3.020	\$3.520	\$4.111	\$1.091	\$0.591
Jun-21	\$2.882	\$0.183 \$0.350	\$3.065	\$3.565	\$3.992	\$0.927	\$0.427
Jul-21	\$2.937	\$0.183 \$0.360	\$3.120	\$3.620	\$3.994	\$0.874	\$0.374

Source: NGI calculations, CSI, Fearnleys

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

EUA Carbon Price (Eur/mt): 29.12

Nation	Eur/MWh	Eur/MWh	Spark Spread		Clean Spark Spread	
			49%	45%	49%	45%
Power Futures	Gas Futures	Spark Spread	Spark Spread	Spark Spread	Spark Spread	Spark Spread
BE	34.61	5.990	22.42	21.30	10.57	8.22
CZ	37.97	6.500	24.74	23.53	12.89	10.45
FR	36.89	6.025	24.63	23.50	12.77	10.43
DE	35.70	6.234	23.01	21.85	11.16	8.77
IT	39.24	7.131	24.73	23.39	12.87	10.32
NL	33.43	6.124	20.97	19.82	9.11	6.75
SK	38.92	6.775	25.13	23.86	13.28	10.79
ES	37.50	7.850	21.52	20.06	9.67	6.98
UK*	37.36	5.891	25.37	24.27	5.38	2.21
Average			23.61	22.40	10.86	8.32

Nation	Eur/MWh	Eur/MWh	Dark Spread		Clean Dark Spread	
			35%	35%	35%	35%
Power Futures	Coal Futures	Dark Spread	Dark Spread	Dark Spread	Dark Spread	Dark Spread
BE	34.61	51.90	15.86		-12.42	
CZ	37.97	51.90	19.22		-9.06	
FR	36.89	51.90	18.14		-10.14	
DE	35.70	51.90	16.95		-11.33	
IT	39.24	51.90	20.49		-7.79	
NL	33.43	51.90	14.68		-13.60	
SK	38.92	51.90	20.17		-8.11	
ES	37.50	51.90	18.75		-9.53	
UK*	37.36	51.90	18.61		-29.09	
Average			18.09		-12.34	

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



pandemic. GEM noted that increasingly efficient and cost-competitive renewable energy sources also raise questions of long-term financial viability and stranded asset risk if LNG terminals are underutilized long before their useful life of 30-40 years.

But CLNG noted that the role natural gas plays in supporting and furthering renewable energy deployment across the globe is not once mentioned in the report.

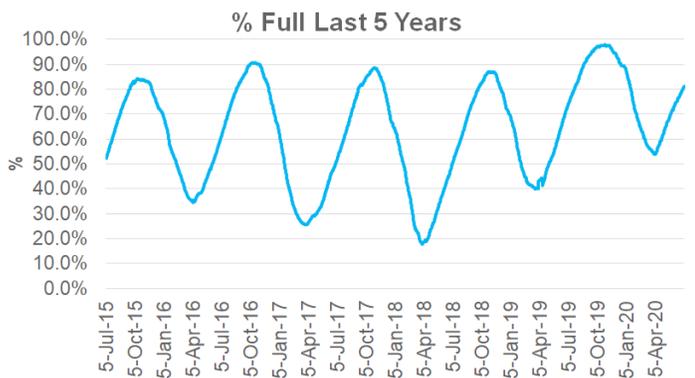
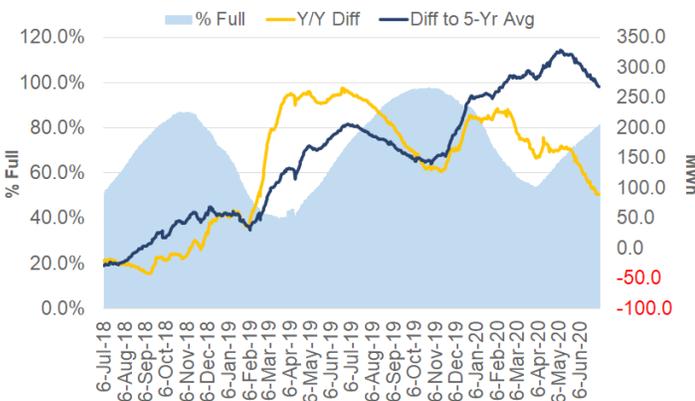
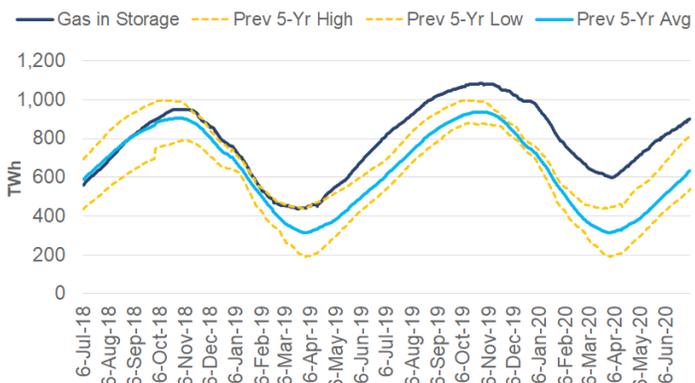
“In addition to helping reduce emissions through partnering with renewables, natural gas has helped drive down

...cont' pg. 8

European Union Gas Storage

Data as of 5-Jul-20 Chart Last Updated 7-Jul-20

Volumes in TWh	Gas in Storage 05-Jul-20	Working Gas Volume	% Full	Gas in Storage 05-Jul-19	Y/Y Diff	Prev 5-Yr Avg	5-Yr Avg Diff
Europe	902.30	1106.36	81.6%	812.21	90.10	634.31	267.99



% Full As of	5-Jul-15	52.3%	5-Jul-16	62.0%	5-Jul-17	52.6%	5-Jul-18	50.9%	5-Jul-19	74.3%	5-Jul-20	81.6%
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Source: NGI calculations, GIE

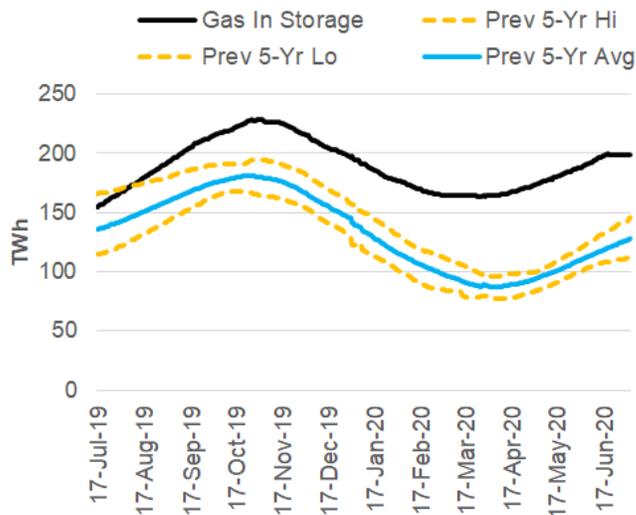


Ukraine Gas Storage

Data as of 5-Jul-20

Chart Last Updated: 7-Jul-20

5/7/20	WG Vol	% Full	5/7/19	Y/Y Diff	Prev 5-Yr Avg	5-Yr Avg Diff
199.19	320.17	62.2%	145.88	53.32	127.70	71.50



Source: NGI calculations, GIE



European Union LNG Regas Terminal Storage

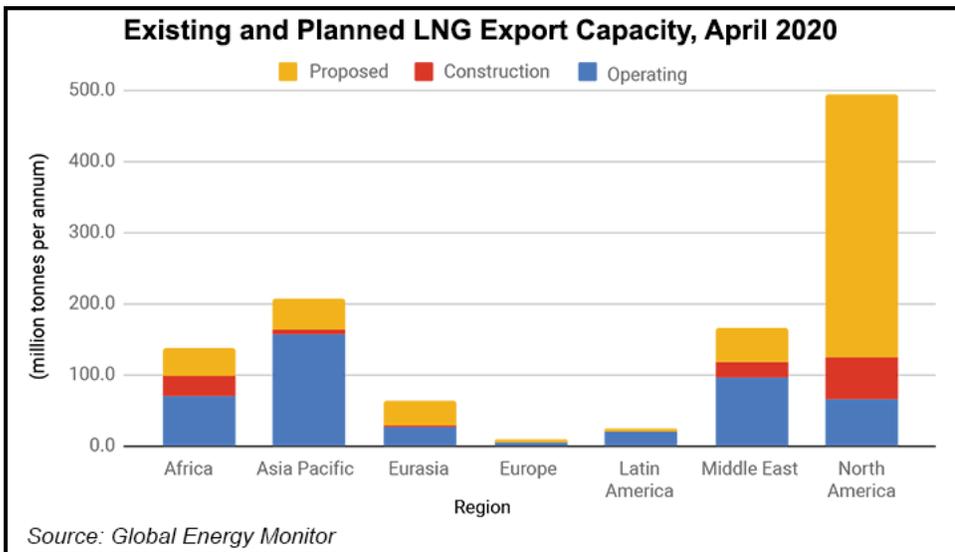
Data as of 5-Jul-20

Chart Last Updated: 7-Jul-20

Country	Terminal	Inventory (10 ³ m ³)	Chg	Max Cap (10 ³ m ³)	% Util
Belgium	Zeebrugge	392.6	-20.9	563.0	69.7%
France	Dunkerque	469.5	-15.1	586.1	80.1%
	Fos Tonkin	44.7	-3.6	80.0	55.9%
	Montoir	269.8	-21.9	360.0	74.9%
	Fas Cavaou	193.2	130.0	330.0	58.6%
Greece	Revythoussa	125.3	-4.6	225.0	55.7%
Italy	Porto Levante	178.4	-25.6	250.0	71.4%
	Panigaglia	31.4	9.3	40.0	78.6%
	Toscana	62.7	-36.6	137.2	45.7%
Lithuania	Klaipėdos	18.4	0.0	167.1	11.0%
Netherlands	Gate	438.2	-4.8	540.0	81.1%
Poland	Swinoujście	227.1	-20.4	320.0	71.0%
Portugal	Sines	299.8	-1.6	390.0	76.9%
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%
	Mugaridos	170.1	-65.9	300.0	56.7%
	Sagunto	0.0	0.0	0.0	0.0%
	TVB (Virtual)	1040.3	-184.5	3307.9	31.4%
UK	Grain	834.4	-4.6	1026.4	81.3%
	South Hook	527.0	218.2	751.7	70.1%
Total		5322.9	-52.7	9374.3	56.8%

Source: NGI calculations, GIE





emerge later in 2020 as demand for natural gas increases and production continues to decline, particularly in the fourth quarter when space heating demand rises.”

The front-month natural gas futures contract for delivery at the Henry Hub settled at \$1.67/MMBtu on July 1, down 10 cents from June 1. On June 26, EIA said, the price of the front-month futures contract fell to its lowest real price in the history of the contract.

“The drop in prices during the month was likely a result of above-average storage injections that further increased natural gas stock levels relative to the five-year average,” EIA said. “U.S. natural gas production decreased from 91.2 Bcf/d in June 2019 and 89.2 Bcf/d in May 2020 to 88.1 Bcf/d in June 2020. Meanwhile, U.S. consumption was 70.4 Bcf/d, essentially unchanged from 70.5 Bcf/day in June 2019 but nearly 3 Bcf/d more than in May 2020.”

On Thursday EIA reported a 65 Bcf injection for the week ending June 26, bringing working gas inventories to 3,077 Bcf, 30% more than the year-ago level and 18% more than the five-year average level.

“Weekly storage injections so far during the April-October injection season have been close to the five-year average rate as falling production has been offset by falling demand from the industrial sector and LNG exports,” EIA said.

The agency expects declining production will cause injections to fall short of the five-year average later in the summer. But because of the high starting point for inventories during the injection season, EIA is forecasting inventories will reach a record 4,039 Bcf by the end of October, which would be 8% more than the five-year average for that time period.

Estimated dry natural gas production was 89.9 Bcf/d in 2Q2020, a 6.3% (6.1 Bcf/d) decrease compared with 4Q2019. The production decline is the result of a sharp drop in drilling activity prompted by low gas and crude oil prices due to production curtailments, EIA said, and is likely through the end of the year, with 2020 production averaging an estimated 89.2 Bcf/d, down 3.0 Bcf/d (3.2%) from 2019. In 2021, EIA expects dry natural gas production to decline a further 5.0 Bcf/d (5.6%) from 2020, with the low point coming in 2Q2021. ...cont' pg. 10

carbon emissions in the United States to decades long lows,” said the Washington, DC-based advocacy group. “As massive countries like India and China turn to natural gas to help achieve their climate goals, they are also reaping the benefits of lower” pollutants.

GEM, a network of researchers focused on fossil fuel and alternative energy projects, was founded under a different name in 2008 and later became part of the Earth Island Institute, which is focused on ecology and social justice projects. GEM ultimately became an independent nonprofit organization. ■

PRICES

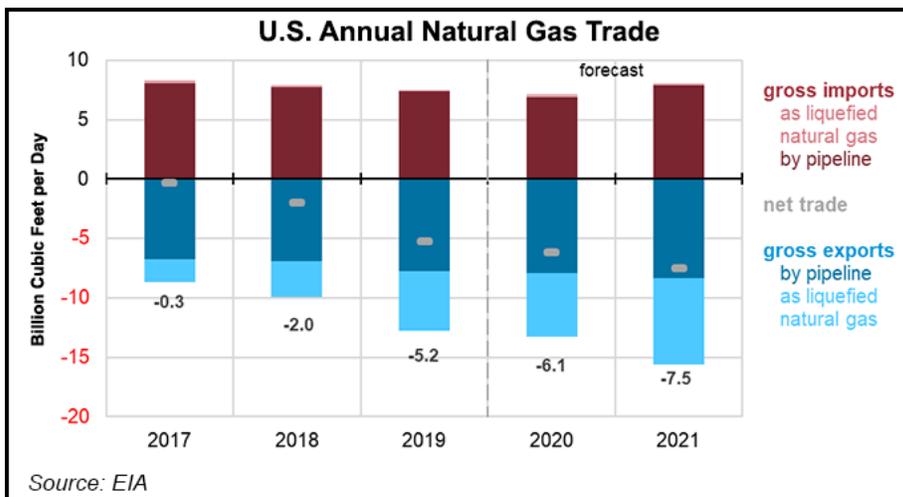
Demand Slowdown Outpacing Natural Gas Production Decline, Keeping Lid on Prices, Says EIA

Continuing economic sluggishness brought on by Covid-19 mitigation efforts is weighing down demand for natural gas, but there could be a price uptick on the horizon, according to the U.S. Energy Information Administration (EIA).

Henry Hub spot prices are expected to average \$2.46/MMBtu in 4Q2020, bringing the 2020 average to \$1.93/MMBtu, EIA said in its latest [Short-Term Energy Outlook](#) (STEO), which was released Tuesday. That full year forecast is down 11 cents from the agency’s previous STEO. EIA also said it expects the Henry Hub price will average \$3.10/MMBtu in 2021 — two cents higher than forecast in the previous STEO — as falling production levels continue to exert upward price pressures.

“Henry Hub spot prices averaged \$1.63/MMBtu in June, down 12 cents/MMBtu from May and the lowest inflation adjusted monthly average price since at least 1989,” EIA said.

“Currently, the effects of reduced natural gas demand are outweighing the effects of falling U.S. natural gas production and are contributing to low natural gas prices. EIA expects that these conditions will largely persist in the coming months, keeping the third quarter average price at \$1.65/MMBtu. However, EIA expects general upward price pressures to



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EIA forecasts the low point in natural gas production to occur in the second quarter of 2021 at an average of 83.3 Bcf/d, which would be down 12.7 Bcf/d (13.2%) from the 4Q2019 peak. “However, toward the second half of 2021, as Henry Hub prices rise and economic conditions become more favorable, EIA expects dry natural gas production to increase, reaching 85.6 Bcf/d in the fourth quarter of 2021,” according to the STEO.

EIA expects net natural gas exports will rise to average 6.1 Bcf/d in 2020 and 7.5 Bcf/d in 2021. Net exports of U.S. liquefied natural gas (LNG), which averaged an estimated 5.0 Bcf/d in 2019, are expected to increase to 5.4 Bcf/d this year and 7.3 Bcf/d next year.

“U.S. LNG exports averaged 7.7 Bcf/d through the first four months of 2020, but declined by 17% between April and May,” EIA said. “A mild winter and Covid-19 mitigation efforts have led to declining global natural gas demand and high natural gas inventories in Europe and Asia, reducing the need for LNG imports. Historically low natural gas and LNG spot prices in Europe and Asia have reduced the economic viability of U.S. LNG exports, which are highly price sensitive.

“In the summer 2020, more than 70 LNG export cargoes from the United States were canceled for June and July deliveries, and more than 40 cargoes were canceled for August deliveries. In comparison, 74 cargoes were exported from the United States in January 2020.”

As a result of those cancellations, U.S. LNG exports averaged an estimated 3.6 Bcf/d in June, and EIA forecasts that they will average 2.2 Bcf/d in July and August, implying a 25% utilization of LNG export capacity. EIA expects LNG exports to increase beginning in September and average 7.1 Bcf/d from December through February as global natural gas demand gradually recovers.

Pipeline exports to Mexico averaged 5.3 Bcf/d in 1Q2020, an increase of 9% compared with the same period in 2019, EIA said. Exports to Mexico are expected to continue to increase as more gas-fired power plants come online in Mexico and more pipeline infrastructure within Mexico is built. EIA expects gross U.S. pipeline exports to Mexico and Canada to average 7.9 Bcf/d and 8.3 Bcf/d in 2020 and 2021, respectively. ■

Latin America DES Prices 7-Jul-2020

Country	Terminal	\$/US/MMBtu					
		Aug	Chg	Sep	Chg	Oct	Chg
Argentina	Bahia Blanca	2.18	0.01	2.33	0.03	2.72	0.01
Brazil	Pecem	1.96	0.01	2.11	0.03	2.50	0.01
Chile	Quintero	2.25	0.01	2.40	0.03	2.79	0.01
Colombia	Colombia	1.80	0.00	1.95	0.02	2.34	0.01
Mexico East	Altamira	1.75	0.00	1.90	0.02	2.29	0.01
Mexico West	Manzanillo	2.16	0.00	2.31	0.03	2.70	0.01
Panama	Costa Norte	1.82	0.00	1.97	0.02	2.36	0.01



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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