LNG+ data

Methodology & How to Read Guide

Updated April 2024

NGI

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How to Read the LNG Tables Within NGI's Daily Gas Price Index

NGI's LNG tables were developed in collaboration with the North American LNG and natural gas markets. This document serves as both a methodology and a "how to read" guide for the various LNG related charts, graphs and tables we publish each business day. For more information, please contact us at markets@naturalgasintel.com.

Prompt Month Statistics - Previous 5 Trading Days Summary Table

The Summary Table provides a quick snapshot of key data from the various charts and data tables we publish each day. Our goal in providing data from the previous 5 trading days is to allow readers to pick up on trends and relationships that may be forming in the marketplace in one concise, easy to read format.

By listing the data into separate groups for Asia, Europe, Latin America and the United States, we seek to make it easier for our readers to focus on one particular region or to compare regions to one another.

Prompt Month Statistics - Previous 5 Trading Days NGI

U.S. Fundamentals	8-Apr	9-Apr	10-Apr	11-Apr	12-Apr
Max GOM Netback ($US/MMBtu)	8.262	8.272	8.272	8.623	9.035
L48 LNG Feedgas Del (Million Dth/d)	12.750	12.690	12.510	12.330	12.050
Henry Hub Futures	1.844	1.872	1.885	1.764	1.770
Shipping ($US/MMBtu)*					
Sabine Pass to Tokyo	1.313	1.313	1.313	1.307	1.308
Sabine Pass to Milford Haven (U.K.)	0.617	0.614	0.610	0.619	0.624
Sabine Pass to Gate (NW Europe)	0.645	0.642	0.639	0.647	0.654
Landed Price Arbitrage ($US/MMBtu)**					
Sabine to Tokyo	6.142	6.119	6.104	6.274	6.302
Sabine to Gate	6.127	5.920	5.737	6.586	7.000
Boston Mean Temp (°F)	52	51	48	47	TBD
% Diff From 30-Yr Normal	*13.2%*	*11.2%*	*3.6%*	*0.0%*	
Chicago Mean Temp (°F)	61	58	56	47	TBD
% Diff From 30-Yr Normal	*31.1%*	*23.3%*	*19.3%*	*0.0%*	
Los Angeles Mean Temp (°F)	62	68	68	60	TBD
% Diff From 30-Yr Normal	*2.3%*	*12.2%*	*12.8%*	*0.0%*	
Latin America Fundamentals					
Mexico					
East (Altamira) DES	8.43	8.44	8.44	8.47	8.50
West (Manzanillo) DES	8.87	8.88	8.88	8.91	8.94
Argentina DES	8.92	8.93	8.93	8.95	8.98
Brazil DES	8.68	8.69	8.69	8.71	8.74
Chile DES	8.97	8.98	8.98	9.00	9.04
Colombia DES	8.49	8.50	8.50	8.53	8.56
Panama DES	8.51	8.52	8.52	8.55	8.58

Europe Fundamentals	8-Apr	9-Apr	10-Apr	11-Apr	12-Apr
NBP Futures ($US/MMBtu)	8.826	8.624	8.450	9.242	9.580
TTF Futures ($US/MMBtu)	8.893	8.715	8.544	9.262	9.689
Gas in Storage (TWh)***	676.8	680.2	683.6	685.7	687.2
% Full	*59.9%*	*60.3%*	*60.6%*	*60.9%*	*61.0%*
Difference to Last Year (TWh)	52.5	54.6	55.9	55.7	55.6
Gas in LNG Storage (10^3 m^3)***	4633.7	4410.0	4535.3	4609.9	4721.3
% Full	*53.9%*	*51.3%*	*52.7%*	*53.6%*	*54.9%*
Spark Spread (Eur/MWh)	-5.47	-4.14	-5.00	-4.51	-5.26
Clean Spark Spread (Eur/MWh)	-32.26	-31.17	-31.53	-33.15	-35.33
Dark Spread (Eur/MWh)	8.96	9.38	7.59	11.67	12.77
Clean Dark Spread (Eur/MWh)	-54.97	-55.10	-55.73	-56.65	-58.97
PVB/TTF Premium (%) (Mar)	0.0%	0.0%	-0.1%	-0.1%	-0.1%
NW Europe Mean Temp (°F)	59	53	51	56	TBD
% Diff From 30-Yr Normal	*26.8%*	*14.2%*	*9.6%*	*19.2%*	
Asia Fundamentals					
JPN/KOR Futures ($US/MMBtu)	9.575	9.585	9.585	9.610	9.645
JPN/KOR Oil Parity Slope	10.6%	10.7%	10.6%	10.7%	10.7%
Brent Oil Price Parity ($US/MMBtu)	15.55	15.38	15.56	15.44	15.56
Japan Coal Price ($US/MMBtu)	6.56	6.54	6.56	6.59	6.61
Beijing Mean Temp (°F)	61	54	49	59	66
% Diff From Normal	*10.7%*	*-2.8%*	*-13.1%*	*4.2%*	*15.7%*
Seoul Mean Temp (°F)	56	58	56	59	60
% Diff From Normal	*16.9%*	*19.4%*	*14.1%*	*20.3%*	*20.9%*
Tokyo Mean Temp (°F)	66	59	53	57	59
% Diff From Normal	*20.7%*	*8.5%*	*-3.8%*	*3.2%*	*4.7%*

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

North America Focused Content

NGI's U.S. Gulf Coast LNG Netback Prices (12-Month Strip)

Our **U.S. Gulf Coast Netback Prices** table aims to measure the value of LNG sold on a Free on Board (FOB) basis in the U.S. Gulf Coast by starting with the futures prices of natural gas in both Asia and

Europe, and deducting from that shipping costs to move LNG from Sabine Pass to those respective markets. The highest netback from the three individual routes we consider is the resulting netback price for each month.

For example, in the chart below, the November Japan/Korea futures price is $5.820/MMBtu, and the estimated round-trip cost to transport LNG from Sabine Pass to, and back from, that part of the world is $2.551/MMBtu. The resulting netback from that route is therefore $3.269/MMBtu. Applying the same formula to the National Balancing Point (U.K.) and the Title Transfer Facility (Netherlands) yields respective netbacks of $4.046/MMBtu and $3.865/MMBtu. $4.046 is the highest of the three – or maximum as we call it in the chart - and thus is the November Gulf Coast netback price for that day.

Example Calculation of NGI's U.S. Gulf Coast LNG Netback Price

All Figures in $US/MMBtu	JPN/KOR	National Balancing Point (NBP)*	Title Transfer Facility (TTF)*
November Futures Price	$5.820	$5.340	$5.235
Less: Round Trip Shipping Costs from Sabine Pass	$2.551	$1.294	$1.370
U.S. Gulf Coast Netback	$3.269	$4.046	$3.865
Maximum Netback (& therefore the overall November Gulf Coast Netback Price):	$4.046		

**Because the NBP and TTF contracts trade in pence/therm and Euro/MWh, respectively, we convert them to $US/MMBtu, based on the current forex futures strip for each currency.*

We calculate the U.S. Gulf Coast LNG netback prices in the same manner for the next 11 months, using relevant futures contract prices, shipping rate assumptions and exchange rates for each listed month.

Higher Gulf Coast netback prices certainly indicate stronger international LNG demand, but we also believe they could lead to increased pipeline gas flows into the Gulf Coast region, which in turn could impact U.S. regional natural gas basis differentials.

One of the key inputs we use to calculate months 2-12 shipping costs is the **West of Suez LNG Vessel Rate Curve**, a chart we describe in more detail on page 5. Since these shipping costs are based on historical seasonality, the resulting netback curve may not necessarily reflect what current conditions the market may be discounting. However, we believe this chart offers the industry a comparative baseline as to where the next 12 months of Gulf Coast netback prices likely would be, assuming current market vessel rates and historical vessel rate seasonality hold.

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

NGI

Data as of **12-Apr-2024**

	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)**
May-24	$9.645	$9.580	$9.689	$1.308	$0.624	$0.654	$8.337	$8.956	$9.035	***$9.035***	$0.412	$1.770	$7.265
Rest of Curve (shipping based on 1-Yr vessel rate, adjusted for seasonality)													
Jun-24	$10.565	$9.508	$9.649	$1.553	$0.739	$0.777	$9.012	$8.770	$8.871	***$9.012***	$0.277	$2.029	$6.983
Jul-24	$10.620	$9.479	$9.619	$1.579	$0.751	$0.791	$9.041	$8.727	$8.828	***$9.041***	$0.277	$2.350	$6.691
Aug-24	$10.895	$9.622	$9.782	$1.685	$0.805	$0.849	$9.210	$8.816	$8.933	***$9.210***	$0.262	$2.458	$6.752
Sep-24	$11.070	$10.103	$10.045	$1.781	$0.861	$0.906	$9.289	$9.242	$9.139	***$9.289***	$0.233	$2.445	$6.844
Oct-24	$11.470	$10.319	$10.375	$2.139	$1.049	$1.109	$9.331	$9.270	$9.266	***$9.331***	$0.272	$2.542	$6.789
Nov-24	$12.255	$11.546	$11.334	$2.289	$1.135	$1.198	$9.966	$10.411	$10.137	***$10.411***	$0.292	$2.946	$7.465
Dec-24	$13.075	$12.126	$11.736	$2.188	$1.077	$1.132	$10.887	$11.049	$10.603	***$11.049***	$0.288	$3.493	$7.556
Jan-25	$13.435	$12.265	$11.854	$1.941	$0.942	$0.987	$11.494	$11.323	$10.867	***$11.494***	$0.257	$3.769	$7.725
Feb-25	$13.250	$12.243	$11.882	$1.755	$0.845	$0.884	$11.495	$11.398	$10.998	***$11.495***	$0.277	$3.609	$7.886
Mar-25	$12.260	$11.874	$11.730	$1.558	$0.751	$0.787	$10.702	$11.123	$10.944	***$11.123***	$0.251	$3.255	$7.868
Apr-25	$12.260	$11.455	$11.238	$1.488	$0.707	$0.739	$10.772	$10.748	$10.499	***$10.772***	$0.262	$3.064	$7.708
NTM Avg	***$11.733***	***$10.843***	***$10.744***				***$9.962***	***$9.986***	***$9.843***	***$10.105***	***$0.280***	***$2.811***	***$7.294***

West of Suez Spot 174K XDF/MEGI Vessel Day Rate: **$47,000**

West of Suez 1-Yr TC 174K XDF/MEGI Vessel Rate: **$77,000**

Source: CSI, Fearnleys, NGI calculations

Understanding the LNG Production Margin

Subtracting current Henry Hub futures contracts from our Gulf Coast Netback prices yields an estimated LNG production **margin** at Sabine Pass, which is another measure used by the industry to estimate relative global demand for LNG.

The higher this difference/margin, the more U.S. LNG is in demand, and the more robust LNG liquefaction gross margins in the Gulf Coast become, everything else being equal.

How Does NGI Calculate Shipping Costs?

Each of our shipping costs represents the estimated round-trip cost to transport LNG from Sabine Pass to Asia and Europe, and are based on the following assumptions:

NGI Shipping Route Calculation Assumptions

All Routes	
Vessel	
Vessel Size (m^3)	174,000
Vessel Propulsion	XDF/MEGI
Assume cold vessel?	Yes
Spot & 1-Yr West of Suez Vessel Headline Rates	Updated daily from Fearnleys
Ballast Leg Discount?	No
Includes ballast bonus/repositioning fees?	No
Knots (Both Laden & Ballast)	17
Boiloff/Fuel	
Boiloff (both Laden & Ballast)	0.06%
Boiloff (in port)	0.02%
Heel	5.0%
# of Port Days	4
Bunker Fuel (mt/d)	65
Spot Houston 380 Centistoke Bunker Fuel	Current Bloomberg rate
Other	
m^3 to MMbtu Conversion Rate	23.12
Insurance/day	Not included
Ship broker fees	Not included

Specific Routes			
Route	**JPN/KOR**	**NBP**	**TTF**
Receiving Port	Futtsu	Milford Haven	Gate
Shipping Days (one-way)	23.1	11.2	12.2
Total Shipping Days*	50.2	26.5	28.4
Canal Fees	Panama	None	None
Port Fees	Market	Market	Market

*Includes port days

Monthly Forward Vessel Rates

* Based on current spot market and 1-year TC rates for a 174,000 m^3 XDF/MEGI vessel.
* First month of curve equals the spot price, simple average of all curves equals the one-year rate.
* Months 2-12 shaped based on historical seasonality.

Calculations for months 2-12 include relevant commodity prices and exchange rates for each of those months, along with our estimate of what a 12-month forward strip may look like, based on the current $USD spot market and 1-year time charter rates for a 174,000 m^3 (cubic meters) two-stroke vessel published by Fearnleys AS, along with historical seasonality. For more information, please see the **Spot Vessel Rate Forward Curve** section below.

Please also be advised that our other assumptions, such as knots, boiloff percentages, number of days in port, etc. differ somewhat from those used by Fearnleys, so the various Sabine Pass-based shipping costs they calculate may also differ from our figures.

Defining the Spot Month

In our calculations, the spot month changes to the next month after the 15th of each month since that is the approximate date when the Asian futures contract expires.

For example, on the first trading day after Oct. 15, the spot month would become December for all the futures contracts in the table, even though some of those other contracts would still be trading for November. This allows a way to remain consistent in the months measured.

In this example, the actual spot month Henry Hub contract (November) does not expire until the third to last trading day of the month, and the two European contracts go off the board one trading day later. In order to fill this coverage gap, we continue to list the actual spot market contracts for each of the futures prices on the front page of our publication.

West of Suez LNG Vessel Rate Curve

The spot market vessel rate curve we publish each day serves two main functions. First, it is a major component in our monthly shipping rates calculations, which we need to fill out months 2-12 of our Gulf Coast Netback table. Second, it indicates what spot market LNG vessel rates ***could*** look like for the next 12 months, based on current LNG vessel rates and historical seasonality.

Our West of Suez LNG Vessel Rate Curve is not an actual traded curve. Rather, it is something we impute based on the current one-month spot market rate for a 174,000 m^3 XDF/MEGI vessel in the Atlantic Basin, the 1-yr term contract rate for the same vessel, and historical spot market rate seasonality. Said differently, our spot LNG vessel rate curve indicates what the expected Atlantic Basin spot rate should be for the next 12 months ***if*** current LNG spot vessel rates, current LNG 1-year term charter rates and historical vessel rate seasonality all hold.

The average of our individual 12-month rates will equal the current 1-year term contract rate.

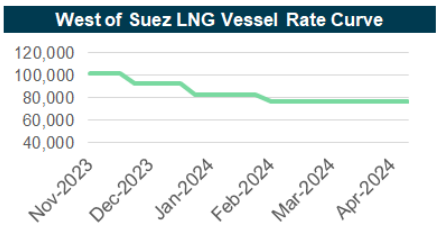
West of Suez LNG Vessel Rate Curve

NGI

Data as of **12-Apr-2024**

Month	12-Apr	11-Apr	Change
May-24	47,000	47,000	-
Jun-24	63,242	63,242	-
Jul-24	65,055	65,055	-
Aug-24	72,366	72,366	-
Sep-24	79,153	79,153	-
Oct-24	104,972	104,972	-
Nov-24	114,411	114,411	-
Dec-24	105,022	105,022	-
Jan-25	85,819	85,819	-
Feb-25	72,349	72,349	-
Mar-25	59,903	59,903	-
Apr-25	54,707	54,707	-
Average	***77,000***	***77,000***	-

Source: NGI estimates based on Fearnleys data



Note: Figures are $US/day, 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

In addition to our signature Gulf of Mexico LNG netback price, we also calculate netback prices to Cove Point, MD; Kitimat, BC; and Costa Azul, MX. Our methodology for these three locations is exactly the same as that described above for the Gulf of Mexico, in that we start with gas prices in Asia and Europe, then deduct LNG shipping costs from those to determine the maximum netback price at each location for the next twelve months. We then compare that forward LNG netback strip to the forward curve for the nearest physical market index in order to determine the LNG production margin at each location. We also include Waha forward prices in a separate column, because we believe more U.S. LNG purchases will be tied to this index in the coming years.

Other North America LNG Netback Prices

NGI

Data as of **12-Apr-2024**

All prices are in $US/MMBtu

	Netback to Western Canada	NGI's AECO Forwards	Diff	Diff %	Netback to Costa Azul	NGI's SoCal Border Forwards	Diff	Diff %	Netback to Cove Point	NGI's Transco Zn 5 Forwards	Diff	Diff %	NGI's Waha Forwards
May-24	$9.054	$1.055	$7.999	758%	$8.936	$1.393	$7.543	542%	$9.163	$1.873	$7.290	389%	-$0.289
Jun-24	$9.890	$1.046	$8.844	845%	$9.753	$1.736	$8.017	462%	$9.050	$2.241	$6.809	304%	$0.442
Jul-24	$9.933	$1.077	$8.856	822%	$9.794	$2.670	$7.124	267%	$9.010	$2.595	$6.415	247%	$0.981
Aug-24	$10.159	$1.103	$9.056	821%	$10.009	$3.461	$6.548	189%	$9.163	$2.621	$6.542	250%	$1.382
Sep-24	$10.289	$1.142	$9.147	801%	$10.129	$2.918	$7.211	247%	$9.453	$2.593	$6.860	265%	$1.466
Oct-24	$10.522	$1.328	$9.194	692%	$10.326	$2.581	$7.745	300%	$9.531	$2.539	$6.992	275%	$1.555
Nov-24	$11.238	$2.086	$9.152	439%	$11.026	$4.211	$6.815	162%	$10.695	$2.874	$7.821	272%	$2.010
Dec-24	$12.106	$2.407	$9.699	403%	$11.904	$6.960	$4.944	71%	$11.318	$4.055	$7.263	179%	$2.796
Jan-25	$12.581	$2.518	$10.063	400%	$12.405	$7.334	$5.071	69%	$11.556	$6.499	$5.057	78%	$3.650
Feb-25	$12.483	$2.518	$9.965	396%	$12.326	$6.201	$6.125	99%	$11.605	$6.081	$5.524	91%	$3.490
Mar-25	$11.584	$2.352	$9.232	393%	$11.447	$3.585	$7.862	219%	$11.305	$3.970	$7.335	185%	$2.336
Apr-25	$11.617	$2.243	$9.374	418%	$11.487	$2.821	$8.666	307%	$10.918	$3.534	$7.384	209%	$1.762
NTM Avg	***$10.955***	***$1.740***	***$9.215***	***530%***	***$10.795***	***$3.823***	***$6.973***	***182%***	***$10.230***	***$3.456***	***$6.774***	***196%***	***$1.798***

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. 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

How Can NGI Publish Netback Prices for Kitimat & Costa Azul? Those Export Facilities Aren't Operational Yet!

As of this writing (April 2024), the LNG Canada facility in Kitimat, BC and the Energia Costa Azul export project in Baja California, Mexico were expected to begin commercial operations in 2025. Obviously, the netback prices we publish for these two locations are not based on any actual LNG flows. However, we believe these figures will allow the industry to monitor the theoretical profitability of these two locations over time, and will help the market understand how seasonal physical market price movements in Western Canada and near the California/Mexico border could impact the economics of these two locations over the coming years.

NGI's U.S. LNG Export Tracker

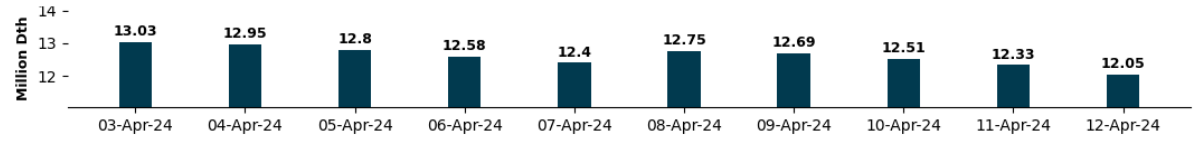
Our **U.S. LNG Export Tracker** is created each trading morning and shows the number of dekatherms (Dth) that have been nominated via the pipelines serving the various North American LNG export facilities for that gas day. Because we create the tracker in the morning (U.S. Eastern Time), the flows are based on the best nomination cycle at the time, which tends to be the evening cycle.

However, we realize more gas may be nominated during the subsequent three intraday cycles, so we also perform another scrape of the various pipeline electronic bulletin boards the next day, to ensure we bank the final total. For example, in the chart below, the 12.05 million Dth for April 12 represent flows based on the evening cycle, whereas the 9 days before that are all adjusted figures taken after the final intraday 3 nomination cycles for those flow days. However, if that 12.05 million Dth preliminary figure for April 12 were to change, we would show the updated and final number in following versions of that table.

North America LNG Export Flow Tracker

NGI

Data as of 12-Apr-2024

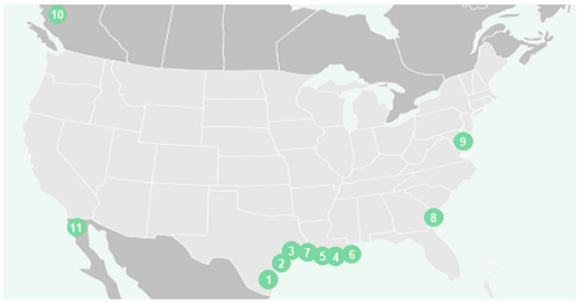


U.S. LNG Locations

1. Corpus Christi, TX		**2. Freeport, TX**		**3. Golden Pass, TX**	
Deliveries:	2,177,780	Deliveries:	115,664	Deliveries:	0
Op Cap:	2,750,000	Op Cap:	2,610,615	Op Cap:	2,600,910
Cap Util:	79%	Cap Util:	4%	Cap Util:	0%
4. Calcasieu Pass, LA		**5. Cameron, LA**		**6. Plaquemines, LA**	
Deliveries:	1,317,340	Deliveries:	2,264,935	Deliveries:	N/A
Op Cap:	2,125,000	Op Cap:	2,359,000	Op Cap:	N/A
Cap Util:	62%	Cap Util:	96%	Cap Util:	N/A
7. Sabine Pass, LA		**8. Elba Island, GA**		**9. Cove Point, MD**	
Deliveries:	4,942,637	Deliveries:	358,675	Deliveries:	871,499
Op Cap:	5,700,000	Op Cap:	396,066	Op Cap:	900,332
Cap Util:	87%	Cap Util:	91%	Cap Util:	97%
Canada		**Mexico**			
10. LNG Canada		**11. Energia, Costa Azul**			
Deliveries:	N/A	Deliveries:	N/A		
Op Cap:	N/A	Op Cap:	N/A		
Cap Util:	N/A	Cap Util:	N/A		

U.S. Daily Summary (Volumes Listed in Dekatherms)

Total Deliveries to U.S. LNG Export Facilities:	12,048,530
Previous Day:	12,331,650
Change:	-283,120



Note: Figures are in Dekatherms. Current day figures are based on the posted Evening cycle and all previous day figures are the Intraday 3 cycle.

Source: Compiled by NGI from Wood Mackenzie data, Pipeline EBBs, NGI calculations

General/Global Focused Content

Global Natural Gas Futures Settles

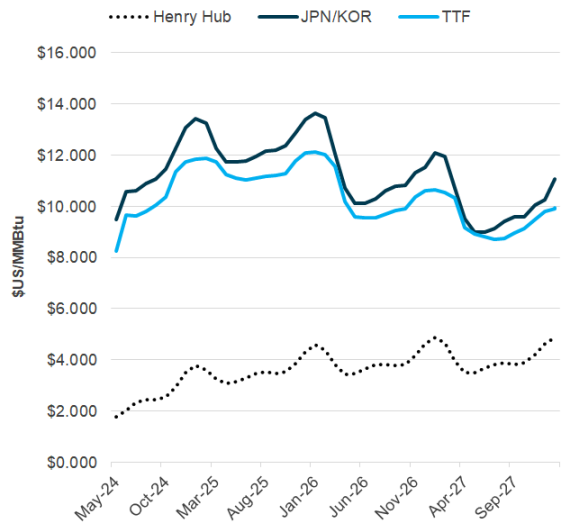
Our global natural gas futures settle provides next 12-month and next complete three-year calendar strips for the Henry Hub, JPN/KOR and TTF futures contracts. Each curve is expressed in $US/MMbtu. Both the Henry Hub and JPN/KOR contracts trade in $US/MMbtu, but because TTF trades in Euro/MWh, we convert those to $US/MMBtu by bootstrapping a Euro/USD foreign exchange forward curve for each relevant month.

Please note these curves only list futures prices, and do not incorporate any shipping costs to move gas between the U.S. and Asia/Europe. As a result, these curves should not be taken as a direct proxy for the economics of shipping gas from the U.S to Asia/Europe, or between Asia & Europe. However, the wider these spreads, the more in the money such transactions are likely to be.

Global Futures Settles Through 2027

NGI

Data as of **12-Apr-2024**



Henry Hub	Date	12-Month Strip*	CY2025	CY2026	CY2027
	12-Apr-24	$2.811	$3.525	$3.940	$4.032
	11-Apr-24	$2.790	$3.500	$3.887	$3.977
	Chg	*$0.021*	*$0.025*	*$0.053*	*$0.055*

JPN/KOR	Date	12-Month Strip*	CY2025	CY2026	CY2027
	12-Apr-24	$11.675	$12.583	$11.288	$10.017
	11-Apr-24	$11.426	$12.344	$11.122	$10.055
	Chg	*$0.249*	*$0.239*	*$0.166*	*($0.038)*

TTF	Date	12-Month Strip*	CY2025	CY2026	CY2027
	12-Apr-24	$10.625	$11.455	$10.414	$9.438
	11-Apr-24	$10.362	$11.206	$10.298	$9.503
	Chg	*$0.264*	*$0.249*	*$0.116*	*($0.066)*

*Apr 2024 through Mar 2025

Source: Bloomberg, CSI, NGI calculations

Fearnleys LNG Freight Costs & Spot LNG Vessel Rates

Each day, we republish with permission certain key LNG shipping data provided by Fearnleys, one of the world's most prominent shipbrokers.

The Fearnleys charts provide spot market vessel rates and related charges for steam turbine, TFDE and two stroke vessels (XDF & MEGI) in both the Atlantic (West) and Pacific (East) Basins.

In addition, Fearnleys provides *NGI* with LNG freight cost calculations for certain key routes throughout the world and breaks those down by the three propulsion classes.

We believe these charts provide an excellent reference point for shipping costs around the world. As noted before, our Sabine Pass route calculations may differ a bit from those in the Fearnleys charts, because our assumptions are somewhat different (see page 4 for our assumptions).

For more information about these Fearnleys data, please go to www.fearnleys.com.

LNG Freight Costs for Selected Routes

12-Apr-2024

Trade Route ($/MMBtu)	174k MEGI			160k TFDE			145k ST		
Bonny / Montoir	0.696	0.002	▲	0.718	0.002	▲	0.880	0.002	▲
Bonny / Tokyo	1.405	0.006	▲	1.440	0.003	▲	1.811	0.005	▲
Ras Laffan / Montoir	0.910	0.007	▲	0.974	0.009	▲	1.196	0.013	▲
Ras Laffan / Tokyo	0.762	0.006	▲	0.815	0.008	▲	1.040	0.013	▲
Dampier / Tokyo	0.497	0.000	◀▶	0.530	-0.001	▼	0.671	-0.001	▼
Zeebrugge / Bahia Blanca	0.799	0.009	▲	0.889	0.011	▲	1.126	0.016	▲
Zeebrugge / Dahej	0.762	0.000	◀▶	0.815	-0.001	▼	1.208	0.017	▲
Zeebrugge / Tokyo	1.340	0.020	▲	1.511	0.018	▲	1.888	0.027	▲
Sabine / Bahia Blanca	0.672	-0.004	▼	0.794	-0.001	▼	0.972	-0.001	▼
Sabine / Dahej	1.006	0.000	◀▶	1.193	0.000	◀▶	1.435	0.000	◀▶
Sabine / Tokyo	0.980	-0.003	▼	1.171	0.000	◀▶	1.420	-0.002	▼
Sabine / Zeebrugge	0.502	-0.003	▼	0.590	0.000	◀▶	0.722	-0.001	▼
Port Moresby / Tokyo	0.493	0.000	◀▶	0.522	0.001	▲	0.655	0.001	▲

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

Spot LNG Vessel Rates ($USD/day)

Data as of **12-Apr-2024**

Vessel Rates		
Vessel Type / Region	**WEST**	**EAST**
174k XDF / MEGI	47,000	51,500
155k - 165k TFDE	34,000	34,000
138k - 145k ST	25,000	25,000
Pacific Voyage Parameters		
100% Fuel and 100% Hire on Ballast Bonus to Hub		
Middle East Voyage Parameters		
100% Fuel and 100% Hire on Ballast Bonus to Load Port		
Atlantic Voyage Parameters		
100% Fuel and 100% Hire on Ballast Bonus to Load Port		

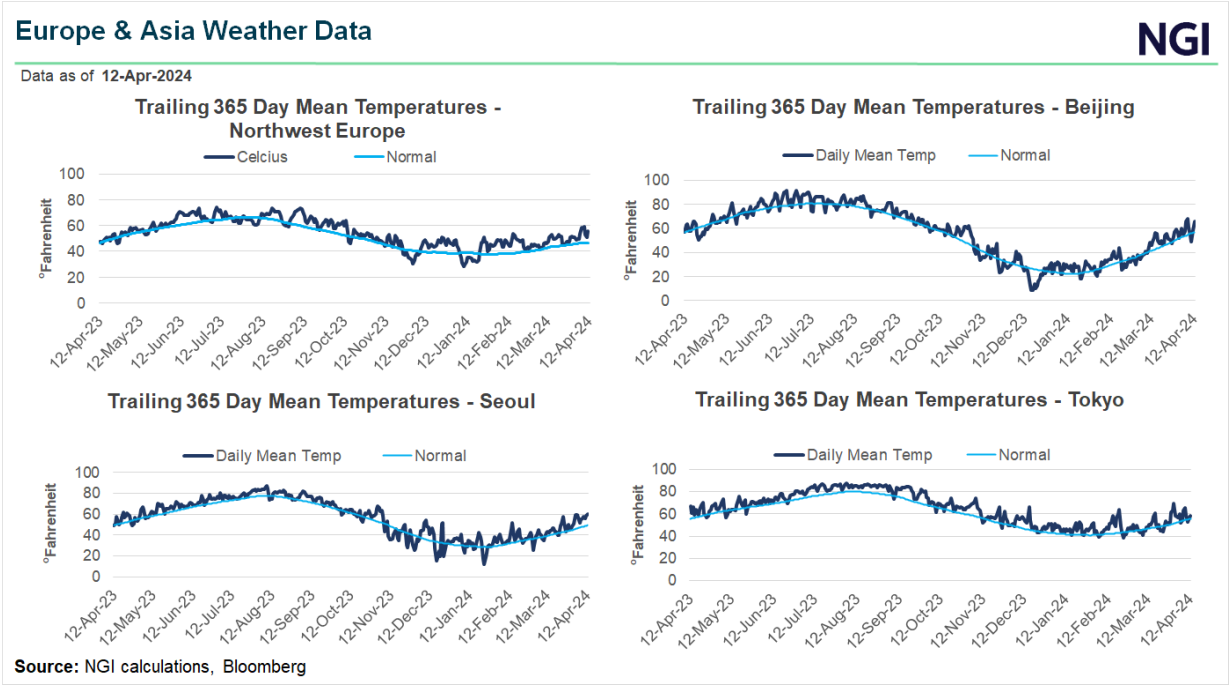
Source: Fearnleys (www.fearnleys.com)

Europe & Asia Weather Data

According to data from the International Group of Liquefied Natural Gas Importers (GIIGNL), Europe and Asia accounted for more than 95% of global LNG imports in 2019, and weather is a key driver of consumption in both regions. Our daily Europe & Asia Weather Data chart shows actual and normal average temperatures for the trailing 365 days in Northwest Europe, Beijing, Seoul, and Tokyo.

Weather is certainly not the only determinant of demand in these two continents, but we believe the historical normal temperature curve, which is based on data from the previous 30 years, is a good approximation for the load profile and seasonality in each of these markets. Notice the shape of the 30-year normal curve is different for each of these areas. For example, Northwest Europe tends to have cooler summers than those in Asia, while winters in Beijing are typically colder than they are in Seoul and Japan. All these regions have a somewhat different load profile from that in the United States. So, to

the extent that these areas are having an atypically mild or cold winter/summer, that could impact demand for U.S. cargoes that runs counter to historical U.S.-only seasonal consumption.



Asia Focused Content

While Europe serves as the market of "last resort" for LNG, thanks in large part to its ample underground storage capacity, Asia's high demand for the fuel often times makes it the market of "first resort" for LNG shippers. According to GIIGNL, Asia accounted for 65% of global LNG imports in 2022, led by Japan, China, and South Korea. Moreover, we believe overall LNG demand tends to be less price sensitive in Asia than in Europe, because several key Asian energy consuming countries have relatively low to no access to pipeline gas and other fuel sources.

Estimated Sabine Pass / Asia 12-Month Forward Arbitrage Curve

This chart shows the economics of shipping LNG from Sabine Pass to Asia (specifically, to the Futtsu import facility near Tokyo, Japan) for the next twelve months. Our methodology is similar to the calculation we use in our Sabine Pass / Gate (Europe) 12-month arbitrage curve chart, in that we start by taking 115% of the Henry Hub price, and add to that our estimate of shipping costs between Sabine Pass and Japan for each month in the forward curve. We also calculate separate variable cost only and total cost curves, for the reasons explained on pages 12.

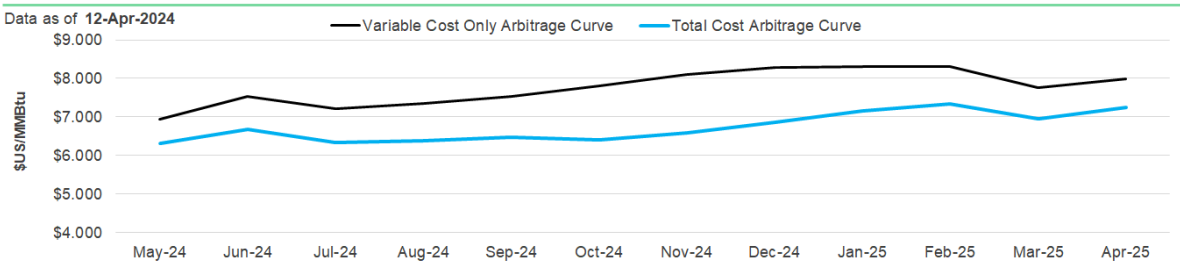
However, there are two main differences between Asia and Europe one should keep in mind when comparing our Asia and European Arbitrage Curves. First, LNG delivered into Asia tends to change hands at sea, which means the JPN/KOR futures prices are much more of an LNG price than the TTF price in Europe. One does not have to factor in any regasification or pipeline access fees for Asian deliveries, as is the case for LNG cargoes shipped to Europe. Second, negative portions of this Asia arbitrage curve are not necessarily a signal that U.S. cargo shut-ins may be forthcoming, because those cargoes could still be

injected into underground storage facilities in Europe, the so-called market of last resort. But a deeply negative curve does potentially eliminate Asia as a destination for U.S. cargoes, and that could place downward pressure on both the Henry Hub and U.S. Gulf of Mexico FOB LNG prices.

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

NGI

Data as of **12-Apr-2024**



Month	115% Henry Hub Futures	Shipping Costs Variable	Shipping Costs Fixed	Variable Only Landed Cost	Landed Cost	JPN/KOR Futures	Variable Arbitrage Spread	Total Arbitrage Spread
May-24	2.036	0.678	0.630	2.713	3.343	9.645	**6.932**	**6.302**
Jun-24	2.333	0.705	0.848	3.038	3.886	10.565	**7.527**	**6.679**
Jul-24	2.703	0.706	0.872	3.409	4.281	10.620	**7.211**	**6.339**
Aug-24	2.827	0.715	0.970	3.541	4.511	10.895	**7.354**	**6.384**
Sep-24	2.812	0.720	1.061	3.532	4.593	11.070	**7.538**	**6.477**
Oct-24	2.923	0.732	1.407	3.655	5.062	11.470	**7.815**	**6.408**
Nov-24	3.388	0.755	1.534	4.143	5.677	12.255	**8.112**	**6.578**
Dec-24	4.017	0.780	1.408	4.797	6.205	13.075	**8.278**	**6.870**
Jan-25	4.334	0.791	1.150	5.125	6.275	13.435	**8.310**	**7.160**
Feb-25	4.150	0.785	0.970	4.935	5.905	13.250	**8.315**	**7.345**
Mar-25	3.743	0.755	0.803	4.498	5.301	12.260	**7.762**	**6.959**
Apr-25	3.524	0.755	0.733	4.278	5.012	12.260	**7.982**	**7.248**

Note: Variable costs assume vessels have been chartered and include fuel, boil-off, Panama Canal and port fees. Total costs include variable costs and fixed vessel chartering fees.

Source: NGI calculations, CSI, Fearnleys

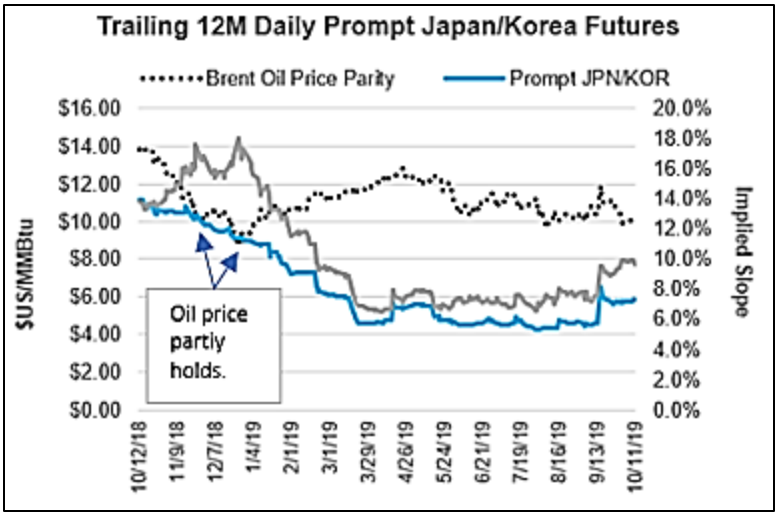
Daily Prompt Oil Linked Asia Parity Prices

Our **Daily Prompt Oil Linked Asia Parity Prices** chart lists the current spot market value of LNG delivered to Asia, the current actual slope of that Asian LNG price, the theoretical maximum 17.2% slope vs. the current spot Brent crude price, and the estimated cost of coal in Japan. We also calculate the 17.2% slope vs. the trailing three-month average of the Japan Crude Cocktail price, as that is a common reference point as well.

As previously mentioned, Asia represented 65% of global LNG demand in 2022, and the majority of LNG contracts in that region are linked to Brent crude oil prices. As a result, Brent prices tend to serve as a cap on Asian LNG prices.

The percentage of Brent at which LNG is priced, also called the **slope**, can vary. Historically, it has tended to be more than 14%, but as of this writing, we believe new contracts were being signed more in the 11%–15% range.

Our **oil parity price** uses a slope of 17.2% of Brent, which we believe is a bit more conservative, since it is based on the reciprocal of the 5.8-to-1 heating value equivalent to a barrel of crude oil to one MMBtu of natural gas. As such, this should be the theoretical maximum slope at which Asian LNG should trade against crude, something that occurred two times in the chart below. Of course, extreme market conditions can and have pushed JKM/KOR prices well above parity, particularly in the aftermath of the Russia/Ukraine conflict.



We also show the estimated price of coal in Japan, which is based on the prompt month Australia Newcastle Coal futures price, plus the current cost of transport to ship coal from Australia to Japan. Unlike how Brent Oil Price Parity tends to serve as a hard cap on JKM prices, coal prices do not necessarily serve as an absolute floor on LNG prices in Asia, but they do show the area in which coal becomes more economic relative to gas fired generation in the region.

Asia LNG Parity Prices

NGI

Data as of **12-Apr-2024**

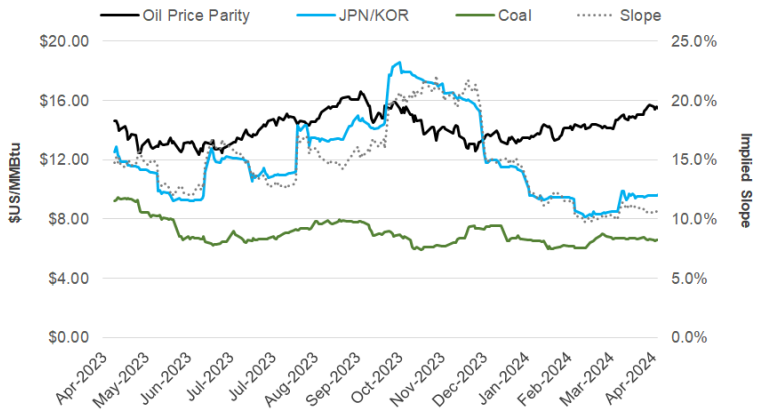
Current Spot Month Japan/Korea Futures Contract Price (May):	**$9.645**
Current Spot Month Brent Crude Oil Futures Price (Jun):	**$90.45**
Current Spot Month Japan Coal Price (Apr):	**$6.61**
Implied Current Japan/Korea Slope to Brent:	**10.7%**

Trailing 3-Mo JCC	
Month	**Price**
Nov-23	$93.898
Dec-23	$90.222
Jan-24	$85.774

Oil Price		
Oil Price	**3 Mo Avg JCC**	**Brent**
Apr-24	$89.96	$90.45

Oil Parity Price (17.2% Slope)	
3 Mo Avg JCC	**Brent**
$15.47	$15.56

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: ICE, CSI, METI, NGI calculations

Europe Focused Content

Europe tends to be the "market of last resort" for LNG cargoes, because of its extensive underground storage network and well-established physical pipeline network. As a result, if U.S. sourced LNG cannot work its way into Europe, then there is an increased probability that these American cargoes may be cancelled, or "shut in," everything else being equal.

There are a number of reasons that U.S. LNG cargoes may not be able to discharge in Europe, including realized prices in Europe that are less than the variable transportation costs between those two markets, otherwise profitable U.S. LNG cargoes are still more expensive than local European prices, or storage in the European Union (EU) could be full. We assess these various factors via the following charts:

Estimated Sabine Pass / Gate 12-Month Forward LNG Arbitrage Curve

This chart shows the potential for U.S. LNG shut-ins by subtracting the landed price of Sabine Pass sourced LNG versus the TTF price for each of the next twelve months. We calculate the various landed prices by taking 115% of the monthly Henry Hub futures price and adding our estimate of shipping costs between Sabine Pass and the Gate Terminal in the Netherlands for those the next twelve months.

Those shipping costs can have both a fixed (sunk) and a variable (incremental) component to them, depending on how one treats the expense of procuring an LNG vessel. Similar to the obligations faced by firm transportation take-or-pay pipeline shippers in the United States, who must pay those fees regardless of whether they use that capacity, LNG shippers are on the hook for vessel charter fees no matter their usage. As a result, these are sunk, or non-incremental costs, and existing holders of LNG vessels will be more concerned about covering the variable, or incremental costs of transporting LNG. We show this via our **variable cost only arbitrage curve**, in which we only include boil-off, fuel, port fees, and canal charges (where applicable) in our calculated shipping costs.

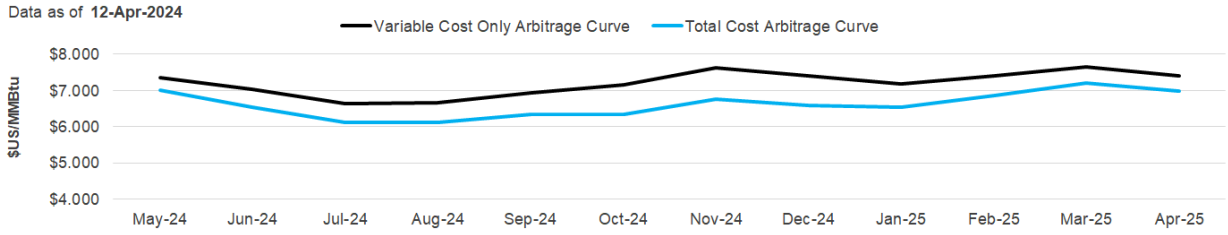
Our **total cost arbitrage curve** includes all shipping costs, including the variable costs mentioned above, and the expense of chartering an LNG vessel. Such a curve is more appropriate for entities who do not already have an LNG vessel, because for them, charting a vessel is a variable cost.

Said differently, our variable cost-only arbitrage curve should be used by existing shippers who have LNG vessel capacity already, while our total cost arbitrage curve is more appropriate for 1.) entities who are considering entering the LNG space, and 2.) analysts who are looking at the long-term competitiveness of U.S. sourced LNG. The higher the total cost-only arbitrage window, the greater the potential threat for other LNG players to enter the market.

Complicating this analysis is the fact that the TTF is a pipeline price, so one should also include the variable costs of LNG regasification and accessing the Dutch pipeline grid in order to create a true apples-to-apples comparison. We have elected to exclude such fees from our arbitrage window calculations, for the sake of simplicity, and because actual variable costs can differ greatly among shippers. We believe a representative range of them is somewhere between $0.10 and $0.50 per MMBtu, depending on the regasification facility. So, those looking for "fully loaded" arbitrage window calculations should add another $0.10 to $0.50 to both the variable only and total cost arbitrage curves.

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

NGI



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
May-24	2.036	0.294	0.360	2.329	2.689	9.689	**7.360**	**7.000**
Jun-24	2.333	0.293	0.485	2.626	3.111	9.649	**7.023**	**6.538**
Jul-24	2.703	0.292	0.499	2.994	3.493	9.619	**6.624**	**6.126**
Aug-24	2.827	0.295	0.555	3.122	3.676	9.782	**6.661**	**6.106**
Sep-24	2.812	0.299	0.607	3.111	3.718	10.045	**6.934**	**6.327**
Oct-24	2.923	0.305	0.805	3.228	4.033	10.375	**7.147**	**6.342**
Nov-24	3.388	0.321	0.877	3.709	4.586	11.334	**7.626**	**6.749**
Dec-24	4.017	0.327	0.805	4.344	5.149	11.736	**7.391**	**6.586**
Jan-25	4.334	0.329	0.658	4.664	5.322	11.854	**7.190**	**6.533**
Feb-25	4.150	0.330	0.554	4.480	5.035	11.882	**7.402**	**6.848**
Mar-25	3.743	0.328	0.459	4.071	4.530	11.730	**7.659**	**7.200**
Apr-25	3.524	0.319	0.419	3.843	4.262	11.238	**7.395**	**6.975**

Note: 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.
Source: NGI calculations, CSI, Fearnleys

U.S. Landed vs. European Prices

U.S. LNG competes with natural gas delivered via pipeline in Europe, so even if the Sabine Pass-TTF arbitrage window is positive, meaning U.S LNG is cheaper than gas in the Netherlands, it could still be the case that U.S. LNG is more expensive than gas prices in other European countries.

Our **U.S. Landed vs European Prices** chart compares the landed price of U.S. LNG at the Gate Terminal in the Netherlands ("Gate Landed Price," or GLP) to the prompt futures price in Belgium, Czech Republic, France, Germany, Italy, Netherlands, Slovakia, Spain, and the U.K. Negative values in the "Diff to GLP" column indicate that imported U.S. LNG from the Gulf of Mexico is more expensive than the local price.

Note our GLP calculation only includes variable shipping costs and does not include the charter cost of the vessel. We also exclude any additional European variable costs from this calculation, such as regasification and pipeline access fees. For more on these costs, please see the Estimated Sabine Pass / Gate 12-Month Forward Arbitrage Curve section above.

U.S. Landed vs European Prices, May 2024

NGI

Data as of **12-Apr-2024**

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

Source	Pricing Point	HH Price	Gate Landed Price (GLP)	Euro Exchange Rate:	Pound Exchange Rate:
GOM	Henry Hub	$1.770	$2.329	1.0758	1.2542

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	€ 30.65	$9.662	$7.333
Czech Rep	CZ VTP	€ 32.88	$10.367	$8.038
France	PEG	€ 30.66	$9.665	$7.336
Germany	NCG	€ 30.87	$9.731	$7.402
Italy	PSV	€ 32.16	$10.140	$7.811
Netherlands	TTF	€ 30.73	$9.689	$7.360
Slovakia	CEGH VTP	€ 31.60	$9.964	$7.634
Spain	PVB	€ 30.69	$9.676	$7.347
UK	NBP	76.38p	$9.580	$7.250

Note: U.S. landed price is to Gate terminal in the Netherlands. It excludes regas or pipeline grid fees. All local European prices are Eur/MWh, except UK, which is pence/therm.

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

European Spark/Dark Spreads

The combination of coal and natural gas fired generation typically accounts for between 30%-40% of European Union electricity generation, not an insignificant figure. However, the relative percentage use of those two competing fuels at any particular time depends heavily on just how economic each is in producing electricity.

Each day, we calculate the gross margin of producing power in Europe by natural gas via the **spark spread**, and the comparative gross margin for generating European electricity by coal by way of the **dark spread**.

Dirty spark and dark spreads only consider the input fuel cost of generating electricity, while **clean** spark and dark spreads also include the cost of emissions in Europe (and in the case of the United Kingdom, the local Carbon Support levy).

The more economic the clean spark spread is to the clean dark spread, the more likely Europe will burn natural gas in favor of coal in generating electricity.

Our daily **European Spark/Dark Spreads** table features clean and dirty spark/dark spreads that we calculate for Belgium, Czech Republic, France, Germany, Italy, the Netherlands, Slovakia, Spain, and the United Kingdom, based on applicable prompt month electricity, natural gas, and coal contracts for each country, and subject to the assumptions and formulas shown above.

European Spark/Dark Spreads (May 2024)

NGI

Data as of **12-Apr-2024**

EUA Carbon Price (Eur/mt): 71.55

			Spark Spread		Clean Spark Spread				Dark Spread	Clean Dark Spread
	EFFCY		49%	45%	49%	45%			35%	35%
	Power Futures	Gas Futures	Spark Spreak	Spark Spreak	Spark Spreak	Spark Spreak	Power Futures	Coal Futures	Dark Spread	Dark Spread
Nation	Eur/MWH	Eur/MWH	Eur/MWH	Eur/MWH	Eur/MWH	Eur/MWH	Eur/MWh	$US/Mt	Eur/MWh	Eur/MWh
BE	48.04	30.65	-14.34	-20.06	-43.46	-52.19	48.04	119.75	2.60	-66.87
CZ	65.95	32.88	-0.98	-7.13	-30.10	-39.25	65.95	119.75	20.51	-48.96
FR	29.49	30.66	-32.91	-38.63	-62.03	-70.76	29.49	119.75	-15.95	-85.42
DE	64.91	30.87	2.08	-3.68	-27.04	-35.81	64.91	119.75	19.47	-50.00
IT	87.76	32.16	22.29	16.28	-6.83	-15.84	87.76	119.75	42.32	-27.15
NL	59.05	30.73	-3.50	-9.24	-32.62	-41.37	59.05	119.75	13.61	-55.86
SK	64.50	31.60	0.17	-5.73	-28.95	-37.85	64.50	119.75	19.06	-50.41
ES	28.37	30.69	-34.10	-39.83	-63.22	-71.96	28.37	119.75	-17.07	-86.54
UK*	75.78	30.39	13.94	8.26	-23.73	-33.29	75.78	119.75	30.35	-59.51
Average:			-5.26	-11.08	-35.33	-44.26			12.77	-58.97

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

NGI European Spark/Dark Spread Assumptions & Formulas

Assumptions

Electricity Prices: Prompt month baseload futures contract for each individual country. All futures contracts in Eur/MWh.
Natural Gas Prices: Prompt month futures contract for each individual country. All futures contracts trade in Eur/MWh, expect the National Balancing Point, which is listed in pence/therm. We contract that to Eur/MWh for our calculations.
Coal Price: Prompt month CIF ARA futures contract. We use this as the coal price for all European countires. The contract trades in $US/mt, but we convert this to Eur/MWh using the formula listed in the section below.
Coal Conversion Factor: 1 mt of coal = 7 Mwh
Carbon Price: December EUA futures price. Trades in Eur/mt, which we convert to Eur/MWh.
UK Carbon Price Support Levy (for UK spark & dark spreads only): 18.00 GBP/mt, which we convert to Eur/MWh.
Plant Efficiencies: 49% and 45% for natural gas fired plants, 35% for all coal generation.
CO^2 Adjustment Factors: Gas Fired 49% efficiency: .407 Gas fired 45% efficiency: .449
Coal fired 35% efficiency: .971

Formulas

Dirty Spark Spread

Dirty Spark Spread = Power Price (Eur/MWh) - (Gas Price (Eur/Mwh) /Power Plant Efficiency)

Ex.) Power Price = 28.05 Eur/MWh Gas Price = 8.675 Eur/MWh Efficiency = 49%
Dirty Spark Spread = 28.05 - (8.675/.49) = 10.39

Clean Spark Spread

*Clean Spark Spread = Dirty Spark Spread - (Carbon Price (Eur/MWh) * CO^2 Adjustment)*

Ex.) Dirty Spark Spread from above = 10.39 Carbon Price = 19.82 Eur/mt CO^2 Adjustment .407
Clean Spark Spread = 10.39 - (19.82*.407) = 2.33

Dirty Dark Spread

Dirty Dark Spread = Power Price - (Coal Price (Eur/MWh) / Power Plant Efficiency)
Coal Price (Eur/MWh) = Coal Price ($US/mt) / (US/Euro exchange rate) / coal energy conversion factor

Ex.) Power Price = 28.05 Eur/MWH Coal Price = US$ 45.85/mt Efficiency = 35%
Euro/US Exchange Rate = 1.09915 Coal Energy Conversion Factor = 7
Coal Price (Eur/MWh) = 45.85/1.09915/7 = 5.959
Dirty Dark Spread = 28.05 - (5.959/.35) = 11.02

Clean Dark Spread

*Clean Dark Spread = Dirty Dark Spread - (Carbon Price * CO^2 Adjustment)*

Ex.) Carbon Price = 19.82 Eur/MWh CO^2 Adjustment = .971
Clean Dark Spread = 11.02 - (19.82*.971) = -8.22

Spanish PVB vs. Dutch TTF Futures

The Dutch Title Transfer Facility (TTF) is one of the most liquid natural gas pricing points in the world, and as a result, it tends to be used as a proxy for LNG prices in Europe. Because of this, we use TTF as the main European pricing point in our various LNG arbitrage calculations. However, TTF is a pipeline price, and therefore is likely more reflective of regional fundamentals rather than those in the global market.

We believe the emerging Punto Virtual de Balance (PVB) in Spain is a more representative price indicator of European LNG, because the Iberian peninsula receives a greater percentage of its total supply from cargoes than the rest of the continent. Spain also has an abundance of storage capacity and

a relatively large number of regasification facilities with reloading capability, making it a more of an "LNG friendly" destination.

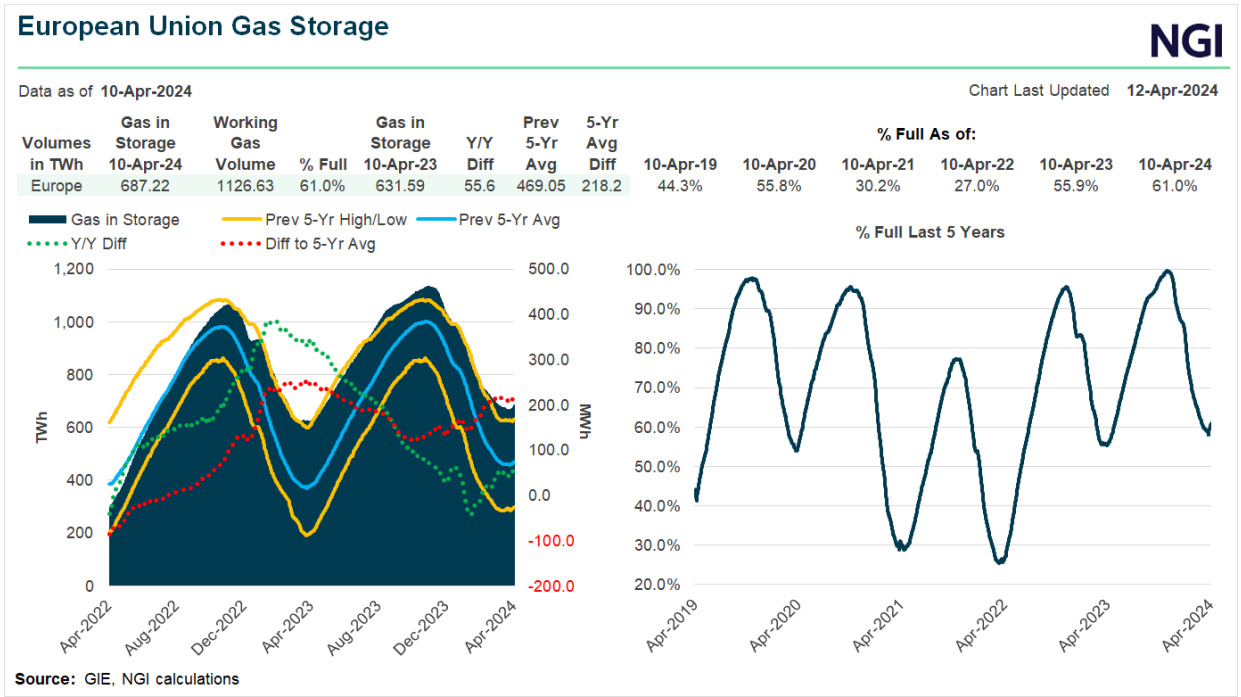
As of March 2024, the TTF futures contract had nearly 7x the open interest of its PVB counterpart.

European Union Gas Storage

Another potential shut-in signal for U.S. (and globally sourced) LNG cargoes is the amount of gas in storage in Europe since the continent tends to serve as a last resort destination for LNG shipments. The fuller European gas storage, the less likely Europe will be able or willing to accept additional cargoes, among other considerations.

Each day, we run the following **European Union Gas Storage** chart, based on information furnished by Gas Infrastructure Europe (GIE). The graph to the left displays gas in storage relative to the high, low and average levels over the previous five years, while the one to the right is a running total of gas in storage over the previous six-years, including where storage stood on the current chart date in each of those years. That latter chart not only gives readers a sense of historical seasonality, but also highlights where current storage levels are compared to normal.

Note: Our EU storage figures do not include the Ukraine, which is a non-EU country.



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European Union LNG Regas Terminal Gas Storage

Our **European Union LNG Regas Terminal Storage** table shows daily changes in on-site storage levels at a number of key LNG import facilities in the region. Storage capacity at the various European regasification terminals represents a very small fraction of total European underground storage, and therefore does not act as a substitute for or complement to our European Union Gas Storage table described above.

However, we believe monitoring the daily percentage of storage utilization at these regasification facilities can help yield clues about their collective ability to receive more cargoes in the short-term. Between January 2013 and March 2024, the average storage capacity utilization of the European regasification facilities listed in the table below was 51.8%, so any current figure close to this total indicates recent European regasification activity has been operating close to normal. The maximum utilization since 2013 is 80%, meaning any utilization approaching that figure indicates these facilities may be effectively full. Similarly, storage at these regasification terminals was never lower than 22.8% during this time period, which suggests any capacity figure close to 23% means more cargoes are needed.

European Union LNG Regas Terminal Storage

NGI

Data as of **10-Apr-2024**

Chart Last Updated **12-Apr-2024**

Country	Terminal	Inventory (10^3 m^3)	Chg	Max Cap (10^3 m^3)	% Util	Country	Terminal	Inventory (10^3 m^3)	Chg	Max Cap (10^3 m^3)	% Util
Belgium	Zeebrugge	191.4	-50.7	566.0	33.8%	Lithuania	Klaipedos	15.8	-10.4	166.7	9.5%
Croatia	Krk	134.1	32.8	140.0	95.8%	Netherlands	EemsEnergy	43.4	0.0	175.4	24.7%
Finland	Inkoo	142.0	-4.0	148.8	95.4%		Gate	390.4	-72.1	540.0	72.3%
France	Dunkerque	392.5	88.6	570.0	68.9%	Poland	Swinoujscie	157.8	-32.1	320.0	49.3%
	Fos Tonkin	38.2	-7.2	80.0	47.7%	Portugal	Sines	153.7	-21.4	390.0	39.4%
	Montoir	151.5	-53.8	360.0	42.1%	Spain	Barcelona	380.9	122.2	760.0	50.1%
	Fos Cavaou	70.6	-16.7	330.0	21.4%		Bilbao	63.7	-17.5	450.0	14.2%
	Le Havre	214.8	-11.7	145.2	148.0%		Cartagena	354.9	-10.1	587.0	60.5%
Germany	Brunsbuettel	129.7	118.8	167.5	77.4%		Huelva	319.4	-26.8	619.5	51.6%
	Wilhelmshaven	86.1	-20.7	167.6	51.3%		Mugardos	273.3	-9.1	300.0	91.1%
	Ostsee	4.4	4.4	176.2	2.5%		Sagunto	504.1	-6.4	600.0	84.0%
Greece	Revythoussa	199.0	0.0	225.0	88.4%	***Total***		***4721.3***	***111.4***	***8601.5***	***54.9%***
Italy	Rovigo	217.6	125.3	250.0	87.0%						
	Panigaglia	50.2	10.9	75.0	66.9%						
	Piombino	42.2	-20.8	154.4	27.3%						
	Toscana	0.0	0.0	137.2	0.0%						

Source: GIE, NGI calculations

Latin America Focused Content

Latin America DES Prices

Our Latin America DES Prices table aims to measure the price of LNG for the next three months that is delivered ex-ship to Argentina, Brazil, Colombia, Chile, Mexico East (Altamira), Mexico West (Manzanillo), and Panama. These prices are essentially cost-plus, or net forward prices, that start with cost of LNG from a source country on an FOB basis and include estimated shipping costs to transport LNG from the source to the destination country. Our calculations are based on the following assumptions:

1.) The shipping routes we consider are heavily influenced by the source country of recent LNG imports into each nation. In most cases, those have been primarily from the U.S. or Trinidad & Tobago, especially since more L48 liquefaction capacity has come online, but we also consider reloaded cargoes from Europe.

2.) For U.S. and Trinidad-based cargoes, we use the netbacks we calculate in our U.S. Gulf Coast LNG Netback Prices table as the starting FOB price, and for Europe FOB prices, we use Spanish PVB futures prices, since we believe PVB prices are a closer representation of the LNG market than are the more commonly referred to TTF prices.

3.) The shipping costs we add to our U.S. netback and PVB futures prices are based on a 160,000 m^3 DFTE/TFTE vessel, as opposed to our U.S. GOM calculations, which are based on a 174,000 m^3 XDF/MEGI sized ship.

4.) Our published DES prices are the minimum delivered price from the U.S. GOM and Spain for each location.

Latin America DES Prices

NGI

Data as of **12-Apr-2024**

Country	Terminal	May	*Chg*	Jun	*Chg*	Jul	*Chg*
Argentina	Bahia Blanca	8.98	0.03	9.60	0.33	9.68	0.42
Brazil	Pecem	8.74	0.03	9.36	0.33	9.44	0.42
Chile	Quintero	9.04	0.03	9.66	0.33	9.74	0.42
Colombia	Colombia	8.56	0.03	9.18	0.33	9.26	0.42
Mexico East	Altamira	8.50	0.03	9.12	0.33	9.20	0.42
Mexico West	Manzanillo	8.94	0.03	9.56	0.33	9.64	0.42
Panama	Costa Norte	8.58	0.03	9.20	0.33	9.28	0.42

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

LNG Data Suite

NGI provides a portion of the data featured in this methodology in both Microsoft Excel format, as part of our datafeeds via API, and through our channel partners. The data suite offers daily netback prices, arbitrage curves, U.S. LNG export flow data, shipping costs, vessel rate curves (West of Suez), landed prices, Latin America DES Prices, and Slope-to-Brent Prices (Slopes).

For more information about this service and the data series included, click here.

For more information on how to download/scrape these data, please see our Data Spec & Automation page.

When Are the LNG Tables Updated Each Day?

The LNG charts are published in *NGI's Daily Gas Price Index* PDF and online. While we generally send out the PDF by 7 p.m. ET each business day, we do update the following versions of our content throughout the day, according to the following schedule:

Chart/Table	Update Time (U.S. Eastern Time)
LNG Related News/Analysis	Throughout the day
Prompt Month Statistics – Previous 5 Trading Days	Afternoon (usually after 5:00p ET)
U.S. Gulf Coast LNG Netback Prices (12-Month Strip)	Afternoon (usually after 5:00p ET)
Other North America LNG Netback Prices	Afternoon (usually after 5:00p ET)
U.S. LNG Export Tracker	Morning (usually by Noon ET)
Fearnleys LNG Freight Costs & Spot LNG Vessel Rates	Morning (usually by Noon ET)
West of Suez LNG Vessel Rate Curve	Afternoon (usually after 5:00p ET)
Estimated Sabine Pass / Asia 12-Month Forward LNG Arbitrage Curves	Afternoon (usually after 5:00p ET)
Daily Prompt Oil Linked Asia Parity Prices	Afternoon (usually after 5:00p ET)
Europe & Asia Weather Data	Afternoon (usually after 5:00p ET)
U.S. Landed vs European Prices	Afternoon (usually after 5:00p ET)
Spanish PVB vs. Dutch TTF Futures	Afternoon (usually after 5:00p ET)
Estimated Sabine Pass / Gate 12-Month Forward LNG Arbitrage Curves	Afternoon (usually after 5:00p ET)
European Spark/Dark Spreads	Afternoon (usually after 5:00p ET)
European Gas Storage	Morning (usually by Noon ET)
European LNG Regas Terminal Storage	Morning (usually by Noon ET)
Latin America DES Prices	Afternoon (usually after 5:00p ET)

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