

EXCLUSIVE INTERVIEW

Q&A with Juan Carlos Zepeda on Mexico's Natural Gas Market Development

Editor's Note: NGI's Mexico Gas Price Index, a leader tracking Mexico natural gas market reform, is offering the following question-and-answer (Q&A) column as part of a regular interview series with experts in the Mexican natural gas market.

This 31st Q&A in the series is with Juan Carlos Zepeda, an energy consultant and expert based in Mexico City.

Zepeda, one of the most prominent figures in the Mexican energy industry for more almost a decade, was the President Commissioner at the National Hydrocarbons Commission (CNH) from 2009-2018, where he oversaw the country's first ever oil and natural gas field auctions for private companies following the 2013 energy reform. The auctions welcomed dozens of international companies to develop hydrocarbons in the country for the first time in more than 75 years, and generated billions of dollars in investment.

Prior to his time at the CNH, Zepeda was the Director General of Hydrocarbons at the Energy Ministry (Sener) from 2007-2009, the Vice President of Operations at the National Commission

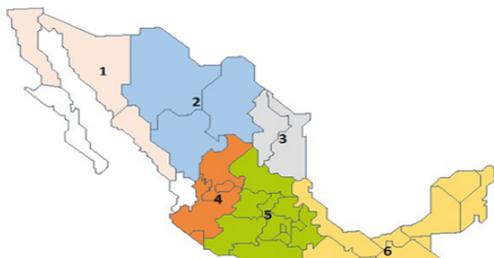
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MEXICO IPGN PRICES (MXN/GJ & US/MMBtu)

Month	MXN/GJ	US/MM	COs	VOL	DEALS
May-19	54.301	3.0014	23	5728	296
Jun-19	50.8769	2.7825	21	6282	238
Jul-19	47.4129	2.6236	25	7560	347
Aug-19	52.927	2.8505	26	8066	293
Sep-19	60.3116	3.2425	25	7633	282
Oct-19	57.9721	3.1577	25	7348	273
Nov-19	57.6655	3.1535	24	6154	238
Dec-19	57.9798	3.1898	23	5549	237
Jan-20	52.0535	2.9203	24	6086	261
Feb-20	48.2574	2.7131	23	5987	271
Mar-20	46.2114	2.2193	22	5572	292
Apr-20	48.9707	2.1299	26	5909	274

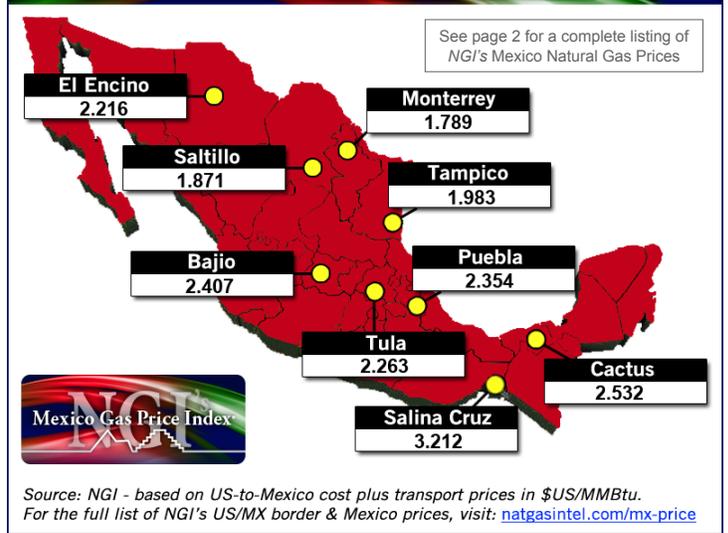
Regional Breakout of April 2020 IPGN

Region	MXN/GJ	US/MMBtu	COs	VOL	DEALS
Region 1	24.0551	1.0462	-	657	22
Region 2	37.9190	1.6492	-	684	37
Region 3	52.1159	2.2667	-	2082	54
Region 4	74.1793	3.2263	-	357	31
Region 5	65.2212	2.8367	-	1481	114
Region 6	44.1346	1.9196	-	647	21



IPGN prices are published by CRE. Companies represents the number of marketers who submitted trade data to CRE. Vol is total reported commercialized volumes converted to MMcf/d. Deals represents the net number of transactions CRE used to calculate the IPGN (gross transactions reported less atypical deals CRE excluded from the data). For more information, and access to raw aggregated data behind these figures, including exchange rate information, please visit the CRE website, which you can access [here](http://www.cre.gob.mx).

NGI's MEXICO NATGAS PRICE TRACKER



U.S./Mexico NatGas Market Snapshot

- Natural gas futures snap losing streak, but headwinds linger
- LNG demand still overwhelmingly bearish; reports of imports surface
- Cash prices fall again as heat stays trapped out West

Read more on pg. 7

NGI's US DAY-AHEAD SPOT MARKET PRICES

Trade Date: 29-May-2020 Flow Date(s): 01-Jun-2020 to 01-Jun-2020

	RANGE	AVG	CHG	VOL	DEALS
CALIFORNIA					
Ehrenberg	1.600-1.650	1.630	-0.060	181	31
EAST TEXAS / SOUTH LOUISIANA					
Henry Hub	1.525-1.700	1.595	-0.095	449	66
Houston Ship Channel	1.600-1.620	1.605	-0.135	25	6
ROCKIES					
El Paso San Juan	1.460-1.550	1.505	-0.070	194	40
SOUTH TEXAS					
NGPL S. Tx	1.440-1.440	1.440	-0.180	1	2
Tennessee S. Tx	1.460-1.470	1.465	-0.140	109	20
TETCO S. Tx	1.540-1.600	1.560	-0.130	196	40
South Texas Avg ¹	1.440-1.600	1.488	-0.150	306	62
WEST TEXAS					
El Paso Permian	1.440-1.550	1.465	-0.070	654	114
Waha	1.400-1.520	1.475	-0.070	1243	201

All prices are in \$U.S./MMBtu. Data are excerpted directly from NGI's Daily Gas Price Index except for the (1) South Texas Avg, which is a simple average of NGPL S. Tx, Tennessee S. Tx, and TETCO S. Tx. For more information on how we calculate our next-day and next-month price indexes, please refer to our Price Index Methodology, which is located [here](http://www.naturalgasintel.com).

NOTE: NGI's Mexico Gas Price Index plans to calculate our own Mexico spot prices in the same manner as we do for locations in the United States & Canada as soon as possible. For more information, or if you wish to participate in NGI's Mexico natural gas price survey, please contact Dexter Steis at +1-703-318-8848, or e-mail us at prices@naturalgasintel.com.

NGI MEXICO NATURAL GAS PRICES

Estimated US-to-Mexico Natural Gas Cost Plus Transport Prices

Flow Date(s): 01-Jun-2020 to 01-Jun-2020

US/MX Exchange Rate: 22.18

To the U.S./Mexico Border (a la frontera de EE.UU./Mexico)

Location (U.S./Mexico)	U.S. Index + Transport From:	\$US/MMBtu				MX/GJ			
		U.S. Index Price	Transport Fee ¹	Total Price	Chg	Molécula	Transporte ¹	El Border	Cambio
Arizona/West Texas									
Clint, TX / Juárez, CH	Waha + El Paso Natural Gas	\$1.475	\$0.042	\$1.517	-\$0.072	31.008	0.890	31.898	-1.535
Presidio, TX / Ojinaga, CH	Waha + Trans-Pecos Pipeline	\$1.475	\$0.216	\$1.691	-\$0.070	31.008	4.537	35.545	-1.505
San Elizario, TX / Juárez, CH	Waha + Roadrunner Pipeline	\$1.475	\$0.473	\$1.948	-\$0.070	31.008	9.933	40.941	-1.510
Sasabe, AZ / Sásabe, SO	Waha + EPNG & Sierrita Pipeline	\$1.475	\$0.048	\$1.523	-\$0.070	31.008	1.000	32.008	-1.512
California									
Ogibly, CA / Los Algodones, BN	Ehrenberg + North Baja	\$1.630	\$0.016	\$1.646	-\$0.060	34.267	0.335	34.602	-1.304
South Texas									
Alamo, TX / Reynosa, TM	HSC + Tennessee Gas Pipeline	\$1.605	\$0.013	\$1.618	-\$0.136	33.741	0.280	34.021	-2.882
Brownsville, TX / Matamoros, TM	HSC + Valley Crossing	\$1.605	\$0.291	\$1.896	-\$0.138	33.741	6.127	39.868	-2.926
Rio Grande, TX / Carmago, TM	HSC + NET Mexico	\$1.605	\$0.324	\$1.929	-\$0.135	33.741	6.812	40.553	-2.884
Roma, TX / Mier, TM	HSC + Kinder Morgan Texas	\$1.605	\$0.136	\$1.741	-\$0.137	33.741	2.864	36.605	-2.902

Deliveries Within Mexico (entregas dentro de Mexico)

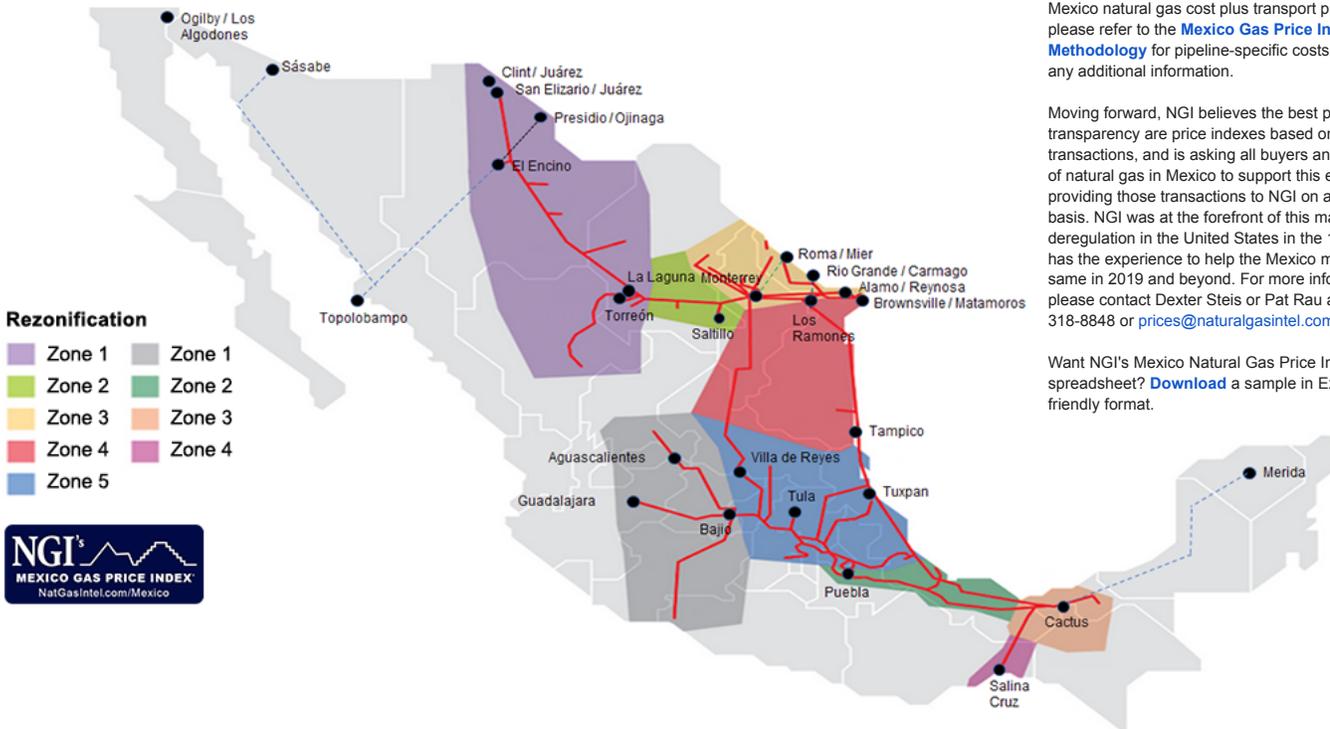
Region	Border/Hub Point + Transport From:	\$US/MMBtu				MX/GJ			
		Border/Hub Price	Transport Fee ¹	Total Price	Chg	Border/Hub	Transporte ¹	Total	Cambio
Aguascalientes	La Laguna + La Laguna-Aguascalientes*	\$2.343	\$0.139	\$2.482	-\$0.070	49.253	2.934	52.187	-1.510
Bajío	Alamo / Reynosa + SNG Zn 3 to Zn 6	\$1.618	\$0.789	\$2.407	-\$0.137	34.021	16.580	50.601	-2.939
Cactus3	Puebla + SNG Zn 7 to Zn 8	\$2.354	\$0.178	\$2.532	-\$0.137	49.486	3.741	53.227	-2.938
El Encino2	San Elizario + Tarahumara	\$1.948	\$0.268	\$2.216	-\$0.070	40.941	5.648	46.589	-1.510
Guadalajara	Aguascalientes + VAG*	\$2.482	\$0.133	\$2.615	-\$0.070	52.187	2.791	54.978	-1.510
La Laguna	El Encino + El Encino-La Laguna*	\$2.216	\$0.127	\$2.343	-\$0.069	46.589	2.664	49.253	-1.510
Los Ramones	Alamo / Reynosa + SNG Zn 3 to Zn 3	\$1.618	\$0.215	\$1.833	-\$0.138	34.021	4.509	38.530	-2.939
Merida	Cactus + Mayakan	\$2.532	\$0.352	\$2.884	-\$0.137	53.227	7.398	60.625	-2.938
Monterrey2	Roma / Mier + Kinder Morgan Mexico	\$1.741	\$0.048	\$1.789	-\$0.136	36.605	0.995	37.600	-2.903
Puebla	Alamo / Reynosa + SNG Zn 3 to Zn 7	\$1.618	\$0.736	\$2.354	-\$0.137	34.021	15.465	49.486	-2.938
Salina Cruz	Cactus + SNG Zn 8 to Zn 9	\$2.532	\$0.680	\$3.212	-\$0.136	53.227	14.289	67.516	-2.938
Saltillo	Alamo / Reynosa + SNG Zn 3 to Zn 2	\$1.618	\$0.253	\$1.871	-\$0.138	34.021	5.317	39.338	-2.939
Tampico	Alamo / Reynosa + SNG Zn 3 to Zn 4	\$1.618	\$0.365	\$1.983	-\$0.138	34.021	7.659	41.680	-2.939
Topolobampo	El Encino + Topolobampo Pipeline	\$2.216	\$0.580	\$2.796	-\$0.069	46.589	12.181	58.770	-1.510
Torreón	Clint / Juarez + SNG Zn 1 to Zn 1	\$1.517	\$0.199	\$1.716	-\$0.072	31.898	4.168	36.066	-1.565
Tula	Alamo / Reynosa + SNG Zn 3 to Zn 5	\$1.618	\$0.645	\$2.263	-\$0.137	34.021	13.546	47.567	-2.938
Tuxpan	Matamoros + Sur de Texas-Tuxpan	\$1.896	\$0.388	\$2.284	-\$0.137	39.868	8.147	48.015	-2.926
Villa de Reyes	Tula + Tula-Villa de Reyes*	\$2.263	\$0.157	\$2.420	-\$0.137	47.567	3.302	50.869	-2.939

*Delivery pipeline not yet in service

The current assessments are estimated US-to-Mexico natural gas cost plus transport prices; please refer to the [Mexico Gas Price Index Methodology](#) for pipeline-specific costs and for any additional information.

Moving forward, NGI believes the best price transparency are price indexes based on actual transactions, and is asking all buyers and sellers of natural gas in Mexico to support this effort by providing those transactions to NGI on a confidential basis. NGI was at the forefront of this market price deregulation in the United States in the 1980s and has the experience to help the Mexico market do the same in 2019 and beyond. For more information, please contact Dexter Steis or Pat Rau at +1 (703) 318-8848 or prices@naturalgasintel.com.

Want NGI's Mexico Natural Gas Price Index in a spreadsheet? [Download](#) a sample in Excel-friendly format.

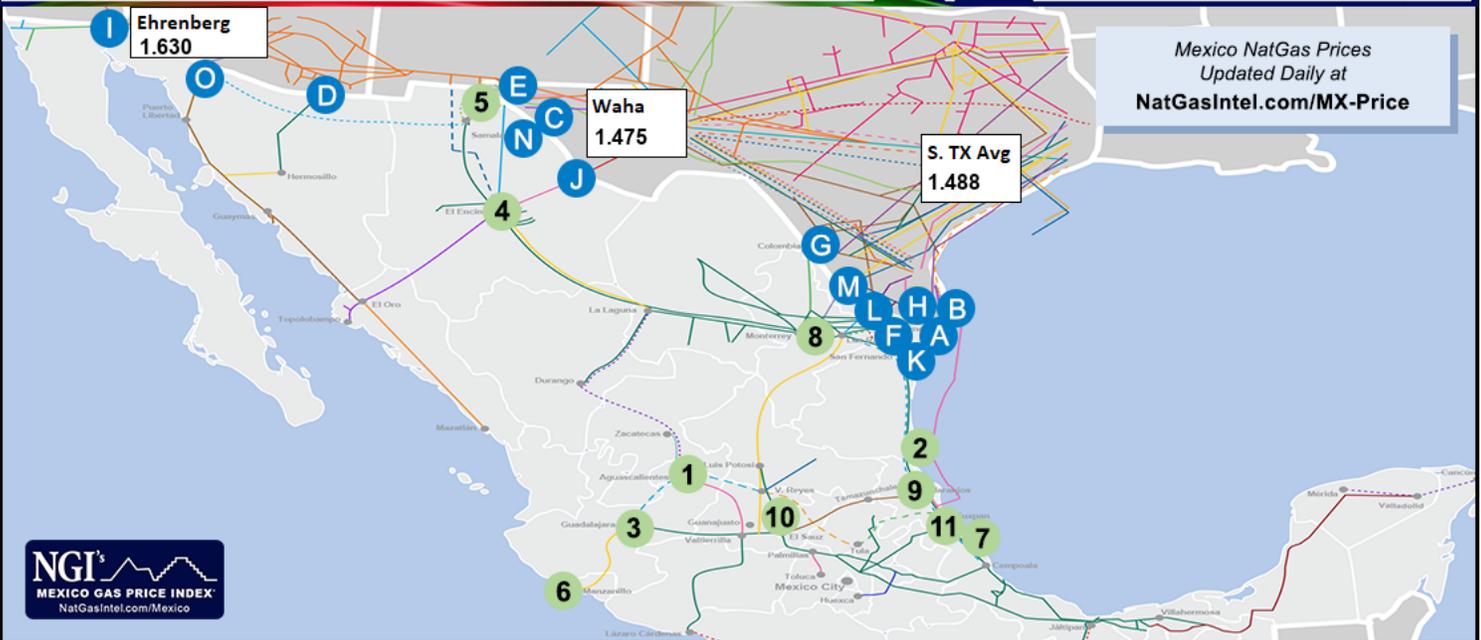


To learn more about accessing the Excel-readable datafeed file that accompanies this image, or to request historical data access, please contact ngidata@naturalgasintel.com

1) Transport rates for U.S. interstates, SISTRANGAS, and other Mexico pipelines taken from electronic bulletin boards (EBBs). However, Texas intrastate pipelines do not have EBBs, so our transportation costs for these are an estimates. For more information on which charges we include in these fees, please see the below note.
 2) Calculated Monterrey price would be the same as Los Ramones, and calculated El Encino would be the same as Torreón, if we had used the SISTRANGAS tariff, since SISTRANGAS is a zone based system.
 3) U.S. gas is not likely to be delivered to Cactus or Salina Cruz, but these represent a theoretical delivered price in Zonas Sur and Istmo.

NGI MEXICO NATGAS FLOW TRACKER

01-Jun-2020



Mexico NatGas Prices Updated Daily at NatGasIntel.com/MX-Price



U.S./MEXICO BORDER LOCATIONS

Key	Location	Delivery Pipeline	Deliveries (Dths/MMbtu)	Op Cap (Dths/MMbtu)	Deliveries (Gigajoules)	Op Cap (Gigajoules)	Cap Util %
A	Alamo, TX / Reynosa, TM	Tennessee / SISTRANGAS	96,400	479,700	101,707	506,110	20%
B	Brownsville, TX / Gulf of Mexico	Valley Crossing / Sur de Texas-Tuxpan	727,975	2,768,730	768,054	2,921,165	26%
C	Clint, TX / Ciudad Juarez, CH ¹	El Paso / Gasoducto de Chihuahua	123,590	544,500	130,394	574,478	23%
D	Cochise County, AZ (4 Points)	El Paso / Various	213,191	459,473	224,928	484,770	46%
E	El Paso, TX / Ciudad Juarez, CH	OkTex / Gas Natural de Juarez	0	55,000	0	58,028	0%
F	Hidalgo, TX / Reynosa, TM	Texas Eastern / SISTRANGAS	0	443,872	0	468,310	0%
G	Laredo, TX / Colombia, NL	Impulsora / Nueva Era	320,943	605,002	338,613	638,311	53%
H	McAllen, TX / Arguelles, TM	Energy Transfer / SISTRANGAS	131,031	250,000*	138,245	263,764	52%
H	McAllen, TX / Arugelles, TM	Kinder Morgan Border / SISTRANGAS	282,869	350,000*	298,443	369,270	81%
I	Ogilby, CA / Los Algodones, BC	North Baja / Gasoducto Rosarito	375,277	525,000	395,938	553,904	71%
J	Presidio, TX / Ojinaga, CH	Trans-Pecos / Ojinaga-El Encino	301,479	1,356,000	318,077	1,430,656	22%
K	Rio Bravo, TX / Rio Bravo, TM	Tennessee / Gasoducto Del Rio	240,273	430,500	253,501	454,202	56%
L	Rio Grande, TX / Camargo, TM	NET Mexico / SISTRANGAS	1,701,625	2,004,206	1,795,310	2,114,550	85%
M	Roma, TX / Ciudad Mier, TM	Kinder Morgan Texas / Mier-Monterrey	394,270	640,000	415,977	675,236	62%
N	San Elizario, TX / San Isidro, CH	Comanche Trail / San Isidro-Samalayuca	178,912	1,135,000	188,762	1,197,489	16%
O	Sasabe, AZ / Sasabe, SO	Sierrita / Sonora Pipeline	127,191	523,640	134,194	552,470	24%

*Contracted capacity. Figures may differ from operating capacity figures that appear on the SISTRANGAS EBB.

LOCATIONS WITHIN MEXICO

Key	Location	Delivery Pipeline	Volume (Dths/MMbtu)	Op Cap (Dths/MMbtu)	Deliveries (Gigajoules)	Op Cap (Gigajoules)	Cap Util %
1	Aguascalientes	SISTRANGAS / Gasoductos de Bajio	43,346	58,812	45,732	62,050	74%
2	Altamira Receipts	LNG / SISTRANGAS	287,289	N/A	303,106	N/A	N/A
3	El Castillo	Manzanillo-Guadalajara / SNG	0	109,292	0	115,309	0%
4	El Encino	Ojinaga-El Encino / El Encino-Mazatlan	264,256	670,000	278,805	706,888	39%
4	El Encino	Ojinaga-El Encino / El Encino-La Laguna	40,957	1,500,000	43,212	1,582,584	3%
5	Gloria a Dios, CH	Gasoducto de Chihuahua / SNG	56,751	121,232	59,875	127,907	47%
6	Manzanillo	LNG / Manzanillo-Guadalajara	264,349	500,000	278,903	527,528	53%
7	Montegrande	Sur de Texas-Tuxpan / SNG	0	500,000	0	527,528	0%
8	Monterrey	KM Mexico / SISTRANGAS	116,000	425,104	122,387	448,509	27%
9	Naranjos	Sur de Texas-Tuxpan / Naranjos-El Sauz	546,184	919,200	576,255	969,807	59%
10	Pedro Escobedo	Naranjos-El Sauz / SISTRANGAS	283,855	433,870	299,483	457,757	65%
11	Tuxpan	Sur de Texas-Tuxpan / Tuxpan-V de Reyes	0	886,000	0	934,780	0%

Note: Delivery and operating capacity data are as of the morning of the stated flow date. Prices are from our U.S. Mexico Spot Market Price table.

¹The four EPNG points in Cochise County, AZ are: Douglas (DOUGLAS), El Fresnal (ICFEAGUA), Monument 90 (DPMEXWIL), and Willmex (IMEXWIL).

* Design and/or contractual capacity. Actual scheduled volumes can exceed this amount, depending on SNG system pressure and activity on nearby pipelines.

Source: Pipeline EBBs, NGI calculations

NGI Summary SISTRANGAS NatGas Pipeline Flows 01-Jun-2020

<u>Deliveries By Sector</u>	<u>Sched Qty</u>	<u>Chg</u>	<u>Receipts By Sector</u>	<u>Sched Qty</u>	<u>Chg</u>
Distribution	470,802	29,576	Import	2,515,971	263,907
Electric	1,600,980	150,914	National	2,021,938	30,499
Industrial	848,167	11,218	Other	113,870	-138,219
Petroleum	159,844	-35,916	TOTAL	4,651,779	156,187
Other	1,326,030	-47,058			
TOTAL	4,405,823	108,734			

<u>Electric Deliveries Breakout</u>	<u>Sched Qty</u>	<u>Chg</u>	<u>Receipts By Type</u>	<u>Sched Qty</u>	<u>Chg</u>
CFE Points ²	984,777	123,644	Import Receipts	2,515,971	263,907
Other	616,203	27,270	LNG Receipts	303,106	22,765
TOTAL ELECTRIC	1,600,980	150,914	Production Receipts	1,418,529	2,818
			Other Receipts	414,173	-133,303
			TOTAL	4,651,779	156,187

<u>Deliveries By Zone</u>	<u>Sched Qty</u>	<u>Chg</u>	<u>Receipts By Zone</u>	<u>Sched Qty</u>	<u>Chg</u>
Zone 1	263,871	25,315	Zone 1	59,875	15,283
Zone 2	79,428	23,088	Zone 2	0	0
Zone 3	510,556	6,582	Zone 3	2,872,318	248,627
Zone 4	551,986	122,908	Zone 4	381,155	26,685
Zone 5	1,305,364	35,078	Zone 5	325,073	3,815
Zone 6	504,813	27,903	Zone 6	0	0
Zone 7	267,237	-7,516	Zone 7	169,650	-3
Zone 8	585,494	-122,513	Zone 8	729,838	-1
Zone 9	20,067	20	Zone 9	0	0
Other ¹	317,007	-2,131	Other ¹	113,870	-138,219
TOTAL	4,405,823	108,734	TOTAL	4,651,779	156,187

¹ Denotes deliveries & receipts where CENAGAS has no zone designations as yet. ² includes those locations with a CFE prefix per SISTRANGAS' list of location codes.
 Source: CENAGAS, NGI's Mexico Gas Price Index calculations

NGI WAHALAJARA PRICES (CALCULATED)

Flow Date(s): 01-Jun-2020 to 01-Jun-2020



Location	US\$/MMBtu	MX/GJ
Waha	1.475	31.008
+ Roadrunner	0.473	9.933
San Elizario	1.948	40.941
+ Tarahumara	0.268	5.648
El Encino	2.216	46.589
+ El Encino-La Laguna	0.127	2.664
La Laguna	2.343	49.253
+ La Laguna-Aguascalientes	0.139	2.934
Aguascalientes	2.482	52.187
+ VAG	0.133	2.791
Guadalajara	2.615	54.978

Shipping costs in italics. Figures may not total because of rounding resulting from currency conversions.



Source: NGI calculations & estimates, CENAGAS, Banco de Mexico, pipeline tariffs

NGI's Forward Curves At U.S. Locations Key To Mexico

01-Jun-2020

Fixed Prices

	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21
East Texas/South Louisiana												
Henry Hub	1.722	1.850	1.941	1.989	2.069	2.387	2.808	2.952	2.916	2.795	2.514	2.486
D/D Change	0.000	0.022	0.021	0.013	0.010	0.010	0.014	0.014	0.013	0.013	0.004	0.002
Houston Ship Channel	1.689	1.852	1.940	1.973	2.039	2.352	2.759	2.910	2.869	2.730	2.459	2.424
D/D Change	-0.004	0.032	0.027	0.016	0.014	0.013	0.017	0.015	0.014	0.014	0.004	0.006
South Texas												
NGPL S Tx	1.678	1.852	1.945	1.956	1.994	2.363	2.758	2.909	2.869	2.730	2.462	2.455
D/D Change	-0.004	0.032	0.033	0.016	0.014	0.014	0.016	0.015	0.013	0.013	0.004	0.006
Tenn Zn 0 South	1.608	1.780	1.840	1.873	1.937	2.270	2.681	2.821	2.811	2.686	2.410	2.410
D/D Change	-0.004	0.027	0.027	0.016	0.014	0.013	0.016	0.015	0.013	0.013	0.004	0.006
TETCO S Tx	1.692	1.852	1.950	1.963	1.994	2.365	2.761	2.896	2.869	2.723	2.467	2.465
D/D Change	-0.004	0.011	0.023	0.016	0.014	0.013	0.016	0.015	0.013	0.013	0.004	0.006
South Texas Average*	1.659	1.828	1.912	1.931	1.975	2.333	2.733	2.875	2.850	2.713	2.446	2.443
D/D Change	-0.004	0.023	0.028	0.016	0.014	0.014	0.016	0.015	0.013	0.013	0.004	0.006
West Texas												
El Paso Permian	1.392	1.544	1.649	1.539	1.518	1.906	2.364	2.552	2.501	2.195	1.883	1.864
D/D Change	-0.002	0.090	0.084	0.063	0.081	0.107	0.096	0.099	0.083	0.083	0.085	0.109
Waha	1.386	1.534	1.639	1.534	1.520	1.902	2.371	2.541	2.503	2.210	1.899	1.865
D/D Change	-0.001	0.092	0.080	0.059	0.082	0.104	0.089	0.088	0.080	0.085	0.094	0.119
Rockies												
El Paso San Juan	1.489	1.609	1.701	1.664	1.625	2.108	2.822	2.958	2.782	2.492	1.921	1.880
D/D Change	0.003	0.025	0.032	0.016	0.017	0.050	0.034	0.034	0.041	0.050	0.051	0.051
California												
SoCal Border	1.639	2.057	2.213	2.026	1.962	2.435	3.425	3.526	3.373	2.620	2.081	2.053
D/D Change	0.000	0.015	0.021	0.013	0.012	0.011	0.016	0.017	0.020	0.043	0.027	0.025

Basis Prices

	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21
East Texas/South Louisiana												
Henry Hub	0.000	0.001	0.001	0.001	0.001	-0.002	-0.003	-0.003	-0.003	-0.003	0.002	0.002
D/D Change	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Houston Ship Channel	-0.033	0.003	0.000	-0.015	-0.029	-0.037	-0.052	-0.045	-0.050	-0.068	-0.053	-0.060
D/D Change	-0.004	0.010	0.006	0.003	0.004	0.003	0.003	0.001	0.001	0.001	0.000	0.004
South Texas												
NGPL S Tx	-0.044	0.003	0.005	-0.032	-0.074	-0.026	-0.053	-0.046	-0.050	-0.068	-0.050	-0.029
D/D Change	-0.004	0.010	0.012	0.003	0.004	0.004	0.002	0.001	0.000	0.000	0.000	0.004
Tenn Zn 0 South	-0.114	-0.069	-0.100	-0.115	-0.131	-0.119	-0.130	-0.134	-0.108	-0.112	-0.102	-0.074
D/D Change	-0.004	0.005	0.006	0.003	0.004	0.003	0.002	0.001	0.000	0.000	0.000	0.004
TETCO S Tx	-0.030	0.003	0.010	-0.025	-0.074	-0.024	-0.050	-0.059	-0.050	-0.075	-0.045	-0.019
D/D Change	-0.004	-0.011	0.002	0.003	0.004	0.003	0.002	0.001	0.000	0.000	0.000	0.004
South Texas Average*	-0.063	-0.021	-0.028	-0.057	-0.093	-0.056	-0.078	-0.080	-0.069	-0.085	-0.066	-0.041
D/D Change	-0.004	0.001	0.007	0.003	0.004	0.004	0.002	0.001	0.000	0.000	0.000	0.004
West Texas												
El Paso Permian	-0.330	-0.305	-0.291	-0.449	-0.550	-0.483	-0.447	-0.403	-0.418	-0.603	-0.629	-0.620
D/D Change	-0.002	0.068	0.063	0.050	0.071	0.097	0.082	0.085	0.070	0.070	0.081	0.107
Waha	-0.336	-0.315	-0.301	-0.454	-0.548	-0.487	-0.440	-0.414	-0.416	-0.588	-0.613	-0.619
D/D Change	-0.001	0.070	0.059	0.046	0.072	0.094	0.075	0.074	0.067	0.072	0.090	0.117
Rockies												
El Paso San Juan	-0.233	-0.240	-0.239	-0.324	-0.443	-0.281	0.011	0.003	-0.137	-0.306	-0.591	-0.604
D/D Change	0.003	0.003	0.011	0.003	0.007	0.040	0.020	0.020	0.028	0.037	0.047	0.049
California												
SoCal Border	-0.083	0.208	0.273	0.038	-0.106	0.046	0.614	0.571	0.454	-0.178	-0.431	-0.431
D/D Change	0.000	-0.007	0.000	0.000	0.002	0.001	0.002	0.003	0.007	0.030	0.023	0.023

Waha-to-Houston Ship Channel Spread -0.303 -0.318 -0.301 -0.439 -0.519 -0.450 -0.388 -0.369 -0.366 -0.520 -0.560 -0.559

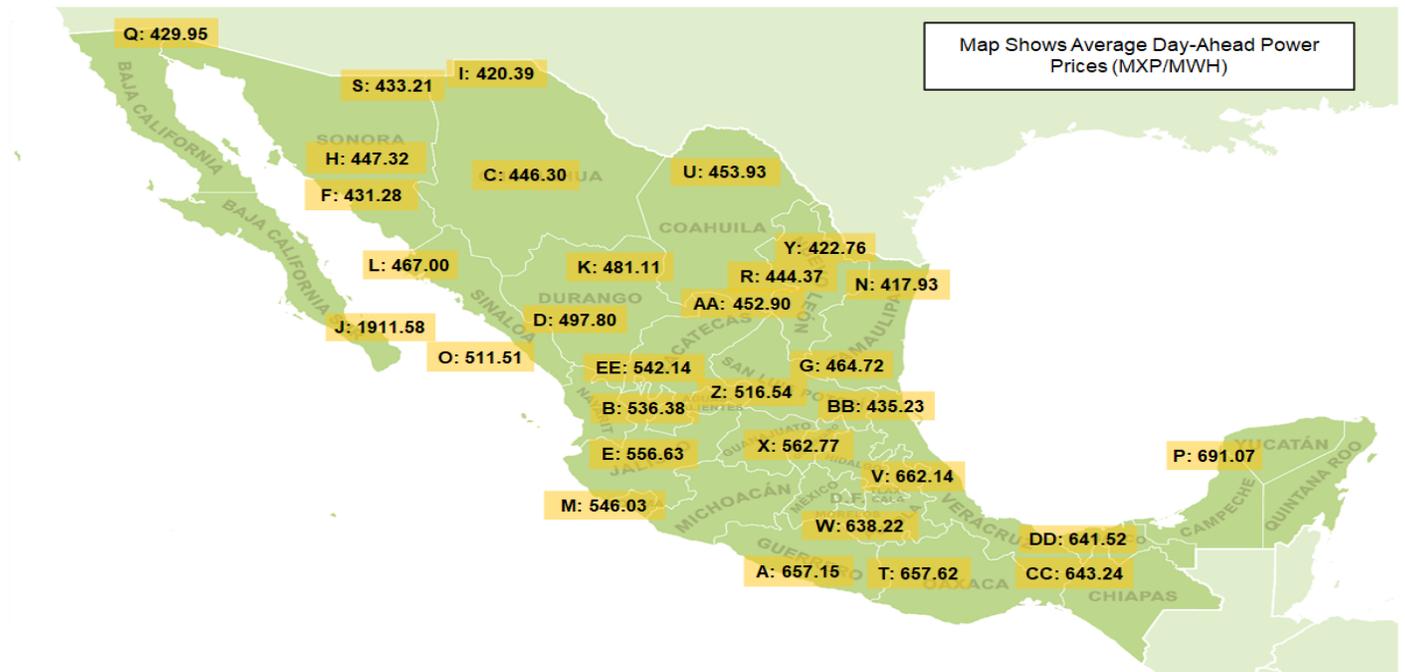
*Average of the three pipelines that appear in the South Texas section. This is different from the South Texas Regional Average that appears in the various versions of NGI's Gas Price Index newsletters

Source: NGI's Forward Look. For more info on forward curves at 60+ U.S. locations out 10+ years, see natgasintel.com/forwardlook/locations

Average Mexico Day-Ahead Power Prices at Selected Distributed Nodes 01-Jun-2020

US/MX Exchange Rate: 22.18

Location	Power Prices (MXP/MWH)				Power Prices (USD/MWH)			
	24 Hr. Low	24 Hr. High	24 Hr. Avg.	D/D Chg.	24 Hr. Low	24 Hr. High	24 Hr. Avg.	D/D Chg.
A Acapulco	620.79	690.97	657.15	137.53	\$27.99	\$31.15	\$29.63	\$6.22
B Aguascalientes	508.55	620.82	536.38	80.05	\$22.93	\$27.99	\$24.18	\$3.63
C Chihuahua	387.95	551.97	446.30	35.35	\$17.49	\$24.89	\$20.12	\$1.61
D Durango	458.16	587.67	497.80	60.59	\$20.66	\$26.50	\$22.44	\$2.75
E Guadalajara	534.76	621.52	556.63	93.20	\$24.11	\$28.02	\$25.10	\$4.22
F Guaymas	323.22	517.66	431.28	30.88	\$14.57	\$23.34	\$19.44	\$1.41
G Huasteca	394.99	602.85	464.72	29.20	\$17.81	\$27.18	\$20.95	\$1.33
H Hermosillo	344.37	540.72	447.32	33.53	\$15.53	\$24.38	\$20.17	\$1.53
I Juarez	364.05	521.94	420.39	26.45	\$16.41	\$23.53	\$18.95	\$1.21
J La Paz	1117.94	3509.85	1911.58	197.98	\$50.40	\$158.24	\$86.19	\$9.00
K Laguna	429.36	587.09	481.11	50.35	\$19.36	\$26.47	\$21.69	\$2.29
L Los Mochis	348.26	535.38	467.00	37.41	\$15.70	\$24.14	\$21.05	\$1.70
M Manzanillo	526.71	604.49	546.03	89.17	\$23.75	\$27.25	\$24.62	\$4.04
N Matamoros	366.41	521.51	417.93	35.66	\$16.52	\$23.51	\$18.84	\$1.62
O Mazatlan	475.18	584.34	511.51	63.63	\$21.42	\$26.35	\$23.06	\$2.89
P Merida	634.12	739.27	691.07	144.92	\$28.59	\$33.33	\$31.16	\$6.56
Q Mexicali	-16.00	595.45	429.95	30.54	-\$0.72	\$26.85	\$19.38	\$1.39
R Monterrey	391.01	550.43	444.37	40.09	\$17.63	\$24.82	\$20.03	\$1.82
S Nogales	335.67	538.46	433.21	28.03	\$15.13	\$24.28	\$19.53	\$1.28
T Oaxaca	607.01	700.76	657.62	143.28	\$27.37	\$31.59	\$29.65	\$6.48
U Piedras Negras	394.89	566.72	453.93	46.34	\$17.80	\$25.55	\$20.47	\$2.11
V Poza Rica	586.48	723.49	662.14	167.23	\$26.44	\$32.62	\$29.85	\$7.56
W Puebla	588.51	677.30	638.22	139.38	\$26.53	\$30.54	\$28.77	\$6.30
X Queretaro	534.09	629.56	562.77	95.93	\$24.08	\$28.38	\$25.37	\$4.34
Y Reynosa	370.17	526.74	422.76	36.08	\$16.69	\$23.75	\$19.06	\$1.64
Z San Luis Potosi	484.44	605.36	516.54	70.69	\$21.84	\$27.29	\$23.29	\$3.20
AA Saltillo	402.18	556.52	452.90	43.60	\$18.13	\$25.09	\$20.42	\$1.98
BB Tampico	358.39	569.85	435.23	17.14	\$16.16	\$25.69	\$19.62	\$0.79
CC Tuxtla	574.71	671.29	643.24	132.62	\$25.91	\$30.27	\$29.00	\$6.00
DD Villahermosa	575.64	669.23	641.52	130.85	\$25.95	\$30.17	\$28.92	\$5.92
EE Zacatecas	513.27	630.58	542.14	80.23	\$23.14	\$28.43	\$24.44	\$3.64



Note: Power prices are the average of hourly day-ahead (MDA) prices for each listing, as published by CENACE, and include energy, congestion, and line loss components. \$US/MWH to MX/GJ exchange rate listed above.

Source: CENACE, Banco de México, NGI calculations

MARKET STORY

Natural Gas Futures Bounce as Late Buying Intensifies; Cash Still Weak

Natural gas futures capped the week in positive territory, but the weight of bloating storage inventories and U.S. export concerns were on full display. The July Nymex gas futures contract hit a \$1.763/MMBtu intraday low and traded in the red throughout most of Friday's session before settling the day at \$1.849, up 2.2 cents from Thursday's close. August was up 2.1 cents to \$1.940.

Spot gas, which traded Friday for gas delivery on Monday, continued to slide further. With losses becoming more pronounced than on Thursday, NGI's Spot Gas [National Avg.](#) dropped 11.0 cents to \$1.495.

Coming off two straight days of declines for futures, continued warming in the latest weather models snapped the losing streak at the start of Friday's session. However, the momentum didn't last as traders continued to digest the latest government storage data.

The Energy Information Administration (EIA) on Thursday said that inventories for the week ending May 22 grew by 109 Bcf, which essentially kept the surplus to year-ago levels intact but expanded the overhang to the five-year average by some 16 Bcf.

Genscape Inc. senior natural gas analyst Eric Fell, who had projected a 103 Bcf injection, said when compared to degree days and normal seasonality, the EIA figure appeared loose by around 1 Bcf/d versus the prior five-year average. However, the 109 Bcf injection was more than 7 Bcf/d tighter than the all-time record loose number from the storage week ending April 16, according to Genscape.

"Steep production declines are driving tighter supply/demand balances, with average weekly production down nearly 7 Bcf/d compared to the week of April 16 (86.2 Bcf/d versus 93 Bcf/d), and off nearly 3 Bcf/d week/week," Fell said.

The rapid pace of production decreases have been driven by a combination of shut-in oil/associated gas, a curtailment of about 1 Bcf/d by EQT Corp. in the Northeast and structural declines driven by the accelerated reduction in rig counts/new well completions, according to the analyst.

West Texas Intermediate crude oil prices are now back above \$30/bbl and "have rebounded back to levels where a number of producers have stated they would bring back shut in oil production; this suggests that we could see a quicker rebound in associated gas than many are currently assuming, including us."

Tudor, Pickering, Holt & Co. (TPH) analysts agreed. The firm's pipeline flow data has not yet show any "meaningful" return of associated volumes, but the team expects "a significant share of the estimated 2-3 Bcf/d currently shut-in could return in June."

As for the EIA's latest storage report, the TPH analysts said the 109 Bcf figure likely represented the floor on demand, which they peg at 77.5 Bcf/d, with gains from power expected to offset losses in the residential/commercial sector moving into summer. They expect at least one more 100-plus Bcf build, and potentially as many as three, before cooling demand tightens the market in late June.

Data for the May 26-29 work week, said TPH analysts, showed supply/demand balances "largely unchanged," and they issued a preliminary estimate of an 106 Bcf injection for the next EIA report, which would be in line with the five-year average. From there, analysts see production and liquefied natural gas (LNG) utilization being the key variables to watch.

"LNG has surprised so far this week, recovering to an average of 6.2 Bcf/d (around 62% utilization), but we expect this will be short lived given June cancellations and maintenance at Cove Point, which is scheduled to begin next week," said the TPH team.

The analysts could be correct. Bloomberg reported that a cargo reloaded in Belgium was expected to be delivered to Cheniere Energy Inc.'s Sabine Pass LNG terminal in Louisiana on June 12 for import. While Cheniere had not commented on the import, the cargo eventually could be reexported as it would end up in storage tanks and reduce the company's liquefaction production requirements, according to one source familiar with the terminal's operations. This would reduce the need to source feed gas from within the Lower 48.

Though LNG imports into the United States are not uncommon, they typically occur during the winter, often to supply the pipeline-constrained New England region. However, with U.S. gas prices tracking above global benchmarks, the economics make sense.

BTU Analytics LLC brought the issue of [summer imports](#) to light last week, noting that while spreads between international prices and Henry Hub may not move high enough to incentivize shipments from Australia or Qatar, they could convince shippers that are closer to take advantage of higher U.S. prices. Still, BTU analyst Connor McLean said summer imports "would be unexpected to say the least."

Whether the United States takes in any additional cargoes throughout the summer is unclear, especially as European prices were tracking below Henry Hub through October, but Energy Aspects sees September as "an inflection point for cargo cancellations from U.S. facilities."

This theory is predicated on the Japan Korea Marker (JKM) September contract now representing an open U.S. export arbitrage for companies that can consider their shipping costs as sunk. By September, the firm sees oil-indexed LNG potentially starting to compete with coal in South Korea, driving up the country's aggregate demand for LNG.

"There will also be year/year LNG demand growth in Asian markets as they recover from lockdowns, given the affordability of the fuel," said Energy Aspects analyst James Waddell. "U.S. and other cargo cancellations earlier in the summer should tighten the global balance." September is also the point on the JKM curve when floating storage starts making commercial sense, according to Waddell, allowing U.S. exports to be loaded for delayed delivery. "The deferred delivery of long-term contract cargoes to Pacific buyers in 2H20 is a threat to JKM prices offering a U.S. export arbitrage."

With no shortage of headwinds facing the futures market, prices remained firmly in the red for the bulk of Friday's session. Even after the latest [Baker Hughes Co.](#) rig data was released, which showed the total U.S. rig count now down nearly 500 units since mid-March, the small bump was not enough to move the July contract into positive territory.

However, some aggressive buying emerged in the last half hour of trading, "perhaps with folks simply not wanting to go into the weekend short given that we are seeing demand creep back," according to Bespoke Weather. The firm said that demand could get a boost if the hotter weather pattern sticks around as it suspects it will this summer.

"Data will be increasingly important moving forward," said Bespoke. "We still need to see more tightening to lower the risk of filling storage."

...cont' pg. 8

More Losses For Cash

Spot gas prices continued to fall Friday as generally mild spring-time weather conditions were expected to continue across the country. There were some exceptions, namely in the West, but the overall pattern remained “mostly comfortable,” according to NatGasWeather.

A cooler-trending weather system was on track to sweep across the Northeast late in the weekend, although it’s much too late in the season to drive any meaningful heating demand, the forecaster said. Meanwhile, upper high pressure is expected to strengthen over the central United States, the South and Southeast as the week progresses, resulting in warm highs of upper 80s to lower 90s. However, the northern and eastern part of the country “will be quite comfortable,” including the important corridor from Chicago to New York City, the firm said.

Given the lackluster weather demand, Northeast markets softened across the region, but most notably in New England, where **Iroquois Zone 2** gas for Monday’s delivery plunged 27.0 cents to \$1.300.

Farther upstream, the biggest mover in Appalachia was **Tenn Zone 4 200L**, which tumbled 15.5 cents to \$1.350.

Cash markets across the Southeast were down between 10.0 and 20.0 cents, similar to the decreases seen across Louisiana. Prices across the Midcontinent and Midwest slipped mostly around 10.0 cents or so, while in Texas, **Houston Ship Channel** spot gas fell 13.5 cents to \$1.605.

On the West Coast, **SoCal Citygate** cash plummeted 41.0 cents to \$1.805 for Monday’s gas delivery despite a maintenance event getting underway Monday on Southern California Gas (SoCalGas) that is expected to disrupt about 150 MMcf/d of flowing supply at the California-Arizona border.

SoCalGas is performing planned maintenance on its L235-2, one of the lines that went down in a force majeure incident in the fall of 2017. Work on this line for the past two and a half years has cut SoCalGas import capacity considerably through its Northern Zone within the Needles/Topock Area Zone, according to Genscape.

“For most of 2018 and 2019, flows were limited to 270-300 MMcf/d, but capacity increased to around 450 MMcf/d this past November,” analyst Joseph Bernardi said. “Now, flows will again be limited to 270 MMcf/d for what SoCalGas plans to be a two-month maintenance event.”

Compensatory flows will likely come via the SoCalGas interconnect with the Kern and Mojave systems at Kramer Junction, according to Bernardi. Not only has SoCalGas posted that extra capacity will be available here during the period of changed flow dynamics during the L235-2 maintenance, but there also is recent evidence for Kramer Junction propping up the imports on the SoCalGas Northern Zone, the analyst said.

That could be why, despite the heat that’s suffocating the region, prices across the state dropped Friday.

Meanwhile, construction appeared on track for the El Paso Natural Gas (EPNG) South Mainline Expansion project to meet the target July 1 in-service date, according to Genscape analyst Colette Breshears. The latest construction report filed by the pipeline on May 19 showed compressor construction completion at more than 80% and pipeline work at 100% complete.

The project, which adds the Dragoon, NM, and Red Mountain, AZ, compressor stations, as well as a 17-mile pipeline loop in Texas, would increase throughput out of the Permian Basin along the EPNG mainline by 182 MDth/d. ■

NGI's Estimated Daily PEMEX First Hand Sales (VPM) Prices

Flow Dates: 01-Jun-2020 to 01-Jun-2020

SISTRANGAS Regions	\$US/MMbtu	Chg	MX/GJ	Chg
Gulfo	\$2.025	-\$0.13	37.63	-1.58
Occidente	\$2.522	-\$0.15	46.88	-1.58
Sur	\$2.315	-\$0.14	43.02	-1.58
Other	\$US/MMbtu	Chg	MX/GJ	Chg
Gloria a Dios	\$1.972	-\$0.07	36.66	-0.44
Kinder Morgan Monterrey	\$2.080	-\$0.13	38.66	-1.56
Naco	\$1.952	-\$0.07	36.29	-0.45

Note: Prices in this table represent our estimate of the daily base firm VPM price for each region, based on the published VPM formula, and using *Daily GPI* indexes as the price reference. For more information, or if you wish to participate in NGI's Mexico natural gas price survey, please contact Dexter Steis at +1-703-318-8848, or e-mail us at prices@naturalgasintel.com.

... from *EXCLUSIVE-Q&A with Juan Carlos Zepeda on Mexico's Natural Gas*, pg. 1 for the Pension System from 2003-2006, and Tax Policy and Energy Sector Advisor at the Finance Ministry from 2000-2002.

Zepeda holds a master's degree in Economics from Georgetown University, a master's degree in Economics and Finance from Warwick University and a bachelor's degree in Economics from the Instituto Tecnológico Autónomo de México (ITAM).

NGI: You recently completed a study that examines the relationship between the price of natural gas and the price of WTI crude. Can you give us a recap of what you found in your analysis?

Zepeda: Let me start with what I believe is a general understanding of the natural gas industry in North America. As a general understanding, we all know that as a ...cont' pg. 9

Juan Carlos Zepeda



consequence of the development of the shale basins in North America, we have seen a huge increase in associated gas production as a result of shale oil production. As a result of the boom in shale oil production, tremendous volumes of associated natural gas have been produced.

This associated natural gas has come largely as a by-product. As a shale play produces large amounts of oil, associated natural gas has been produced as a by-product. In some cases, this has resulted in negative prices for natural gas.

Recently, we were surprised to see negative prices for WTI crude. However, we have become accustomed to seeing negative prices for natural gas in the U.S., especially in the shale-dominant basins, such as the Permian. The common understanding is that the development of shale oil and gas has resulted in a steep decline in prices for natural gas in the U.S.

Many different analysts around the globe, and especially here in North America, are expecting natural gas prices to increase as a consequence of the drop in production that we are observing currently in the market. Now that shale oil production is declining as a result in the sharp drop in prices, we should expect that the prices of natural gas will come back. That is basic intuition.

My contribution here is to provide an estimation of how much we could expect prices of natural gas to increase as a consequence in the drop in production. In my study, I make an econometric estimation.

So, if many people are expecting natural gas prices to increase: How much could these prices increase? My effort is to make an econometric assessment of this possible increment in prices.

NGI: And how much do you forecast natural gas prices to increase?

Zepeda: I used what is known as a vector autoregression model, which considers different variables, such as production, prices, industrial production, and temperature as a proxy for natural gas demand for cold and warm days.

What the model captures is the relationship and dynamics of prices and quantity for a certain period that I studied, which was from 2006 to March 2020. The production numbers that I am using in the model are from associated natural gas output at the U.S. major shale oil formations. I am taking the production of the associated natural gas coming from the Permian and all the big unconventional plays in the U.S., which I sourced from the Energy Information Administration (EIA).

Also, the reason I am using 2006 as a start date for this study is because the shale revolution, which started in 2006, altered the relationship between WTI and associated natural gas. Prior to 2006, the two indexes moved almost together. Following the boom in shale production, that relationship changed and natural gas prices can no longer be explained by WTI. This is a unique phenomenon associated with the U.S. and forecasting Henry Hub became far more challenging following the shale revolution.

What the model reveals is that, if we look at the temporal inter-dynamics from 2006 to now, we can see that there is a negative relationship between production and prices. We knew that and the industry understands that shale oil production resulted in very low natural gas prices.

But what if a shock to the market was introduced? As an

example, let's say there was a 1% increase in associated natural gas production, after a six month period, what the model tells you is that then you will see a reduction in the Henry Hub price of approximately 2.75%.

So, the dynamic of a shock that increases production by 1% should reduce Henry Hub prices by around 2.75% after six months. That is the conclusion of this model using the statistical points that I mentioned.

NGI: Your analysis also includes how much associated natural gas production at U.S. shale formations will decline. What were your findings there?

Zepeda: The driver for associated natural gas is shale oil. So how much will shale production decrease? Analysts and companies have forecast reductions of around 2 to 3 million barrels per day. The study contemplates a scenario where prices remain in the range where they are now and there is a reduction of 3 million barrels per day of shale oil, and how that impacts the output of associated natural gas.

Considering the variables included in the study, the model shows that associated natural gas could decrease approximately 15%, and consequently the prices of Henry Hub could increase 45% as a result of the reduction in shale oil production and prices.

So, what I am expecting as a result of this new oil industry scenario in which we are observing a significant reduction in shale oil production of some 3 million daily barrels, then, as a consequence of that, we should see an increase in the Henry Hub prices of approximately 45%.

If Henry Hub is around \$1.90/MMBtu right now, then we should expect natural gas prices to increase to somewhere around \$2.80/MMBtu. According to this study, this could be expected in the next six months.

NGI: If that price increase is to occur at Henry Hub, how would that impact Mexico?

Zepeda: If Henry Hub prices were to increase to \$2.80/MMBtu, I looked at how much that would impact the natural gas price in a basin such as Burgos, in northern Mexico. The transportation price to move gas from Henry Hub to the Burgos basin is a cost of approximately \$0.60. That will put the natural gas price in Mexico at the Burgos basin at \$3.40.

My argument is the following: If prices rally to \$3.40 or so, then production of conventional non associated gas in the Burgos basin would be profitable again.

In Mexico, as a result of shale oil prices driving down natural gas prices, it became unprofitable to develop our natural gas basins. To clarify, I am referring to conventional – not unconventional or shale/fracking – production. I did this analysis with conventional development in mind, as it is understood that the current administration is not considering shale or unconventional development.

So, if the Henry Hub prices recover in the next six months, on the basis of this study, Mexico could see prices around \$3.40 by early next year. At that price, Mexico could reactivate or relaunch development in the Burgos basin together with other conventional non-associated gas basins in Mexico, such as Veracruz and Sabinas-Burros-Picacho in north of Mexico.

My recommendation is that Mexico prepare for this and to consider non-associated natural gas development again.

...cont' pg. 10

NGI: To return to the Burgos to develop fields, would that require a new auction, or would it be ventures with Pemex? What does reactivation of the Burgos field look like?

Zepeda: My recommendation is to open for farmouts to create joint ventures with our state-owned enterprises together with private companies. I'm not talking about just Pemex, but also the CFE. Why the CFE? Because for the CFE, natural gas is the main input for producing electricity. For Pemex, natural gas is not as important than it is for the CFE.

I think it would be very important for the CFE to take part in these farmouts, even though they don't produce or develop natural gas, because it is part of the international trend to vertically integrate natural gas production with electricity generators. Many oil and natural gas producers are doing this within the industry. A couple of examples are the French company, Total, and the Anglo-Dutch company, Shell.

The future for those major oil companies is to integrate vertically into the electricity sector. I think Mexico's state-owned enterprise, CFE, should do the same. If it paired with private companies, with the financial capital and expertise, I think farmouts for conventional development of natural gas could be a feasible option.

NGI: Since you left your position at the CNH, a lot has changed in the Mexican energy industry. What is your opinion on the current state of the industry and the changes in the last year and a half?

Zepeda: One positive thing is that the contracts that were awarded in the previous administration, as we have seen in the news recently, many are reporting successful exploration stages of the fields they were awarded. Some of the exploration stages take up to five years in the deep waters, for example, so it has been encouraging to see them announce successful exploration activities.

The way I see it is that we have started to see the positive results of the contracts that were signed in the previous administration. I also hope that farmouts will begin to be used more to continue to support national production. We didn't launch as many farmouts as we would have liked in the previous administration, so I would like to see more farmouts to bring capital injections to the projects and the areas awarded to Pemex.

NGI: In your opinion, and in the eyes of international investors, do you think Mexico is still seen as attractive and favorably as it was previously, or do you think that has changed?

Zepeda: I think the international industry is still looking at Mexico as a place with very important potential for the development and production of hydrocarbons. I believe the interest from the international industry is still there, and that it is in the hands of the new administration to figure out the way to develop new types of bidding rounds, or other strategies to determine how they want to increase production, either through farmouts or other alternatives.

Mexico is a very prolific opportunity for energy development. The institutions and the legal framework are still there. The interest is still there, and I just think that the new administration needs to define the way they want to keep moving forward, and how much private investment they want to bring to the sector. ■

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