# **Platts**

# **GAS DAILY**

Wednesday, October 18, 2017

## **NEWS HEADLINES**

## AGA outlook sees gas heating bills rising 5%

- Colder weather to drive 3% rise in residential gas use
- Structural changes boost peak use

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## Renewables driving 'peak deliverability' demand

- Cal ISO 'duck curve' is deepening
- Renewables to flatten western US gas demand

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## Chatterjee presents ambitious priorities list

- NOPR builds on price formation work
- 'Flashpoint' for pipe challenges will be economic need question

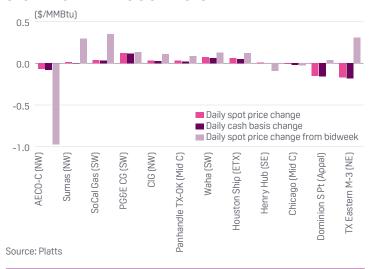
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## Rockies gas faces future of demand hurdles

- Wind, solar and Permian gas on the rise in Southwest
- Denver-Julesburg Basin rules the Rockies

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## SPOT PRICE AND BASIS CHANGES



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## FINAL DAILY PRICE SURVEY - PLATTS LOCATIONS (\$/MMBtu)

Midpoint

Absolute

Common Vol. Deals

NATIONAL AVERAGE PRICE: 2.620 Trade date: 17-Oct Flow date(s): 18-Oct

Northern, demarc

Northern, Ventura REX. Zone 3 delivered

Upper Midwest regional average

		міоропі	+/-	Ausolute	Common	VOI. D	6912
Northeast							
Algonquin, city-gates	IGBEE21	2.960	-0.325	2.870-3.050	2.915-3.005	301	73
Algonquin, receipts	IGBDK21		-0.205	1.200-1.200	1.200-1.200	10	1
Dracut, Mass.	IGBDW21		_				_
Iroquois, receipts	IGBCR21	2.980	+0.030	2.970-3.100	2.970-3.015	91	16
Iroquois, zone 2	IGBEJ21	3.025	-0.010	3.000-3.080	3.005-3.045	79	11
Niagara	IGBCS21	_	_			_	_
Tennessee, z6 (300 leg) del.	IGBJC21	_	_			_	_
Tennessee, zone 6 del.	IGBEI21	2.815	-0.270	2.750-2.900	2.780-2.855	73	12
Tx. Eastern, M-3	IGBEK21	1.490	-0.170	1.460-1.500	1.480-1.500	64	18
Transco, zone 5 del.	IGBEN21	2.895	-0.005	2.850-2.920	2.880-2.915	92	14
Transco, zone 5 del. North	IGCGL21	2.900	-0.010	2.850-2.900	2.890-2.900	4	2
Transco, zone 5 del. South	IGCHL21	2.895	-0.005	2.885-2.920	2.885-2.905	88	12
Transco, zone 6 N.Y.	IGBEM21	2.805	-0.045	2.600-2.900	2.730-2.880	42	15
Transco, zone 6 non-N.Y.	IGBEL21	2.815	-0.050	2.580-2.860	2.745-2.860	114	18
Transco, zone 6 non-N.Y. North	IGBJS21	2.815	-0.050	2.580-2.860	2.745-2.860	114	18
Transco, zone 6-non-N.Y. South	IGBJT21						
Northeast regional average	IGCAA00	2.555					
Appalachia							
Columbia Gas, App.	IGBDE21	2 670	+0.020	2.660-2.700	2.660-2.680	116	28
Columbia Gas, App. non-IPP	IGBJU21		_				
Dominion, North Point	IGBDB21		-0.115	1.100-1.180	1.125-1.165	71	16
Dominion, South Point	IGBDC21		-0.150	1.100-1.195	1.115-1.165	382	79
Lebanon Hub	IGBFJ21		+0.030	2.730-2.750	2.735-2.745	63	11
Leidy Hub	IGBDD21		-0.090	1.350-1.350	1.350-1.350	100	4
Millennium, East receipts	IGBIW21		-0.245	0.850-1.025	0.950-1.025	31	6
REX, Clarington Ohio	IGBG021	_	_			_	_
Tennessee, zone 4-200 leg	IGBJN21	2.235	-0.130	2.050-2.250	2.185-2.250	185	20
Tennessee, zone 4-300 leg	IGBFL21	0.975	-0.255	0.850-1.050	0.925-1.025	92	10
Tennessee, zone 4-313 pool	IGCFL21	1.970	-0.185	1.950-2.010	1.955-1.985	8	5
Tennessee, zone 4-Ohio	IGBH021	_	_			_	_
Texas Eastern, M-2 receipts	IGBJE21	1.140	-0.140	1.100-1.180	1.120-1.160	274	63
Transco, Leidy Line receipts	IGBIS21	1.055	-0.225	0.900-1.190	0.985-1.130	115	26
Appalachia regional average	IGDAA00	1.585					
Midcontinent							
ANR, Okla.	IGBBY21	2.590	+0.035	2.565-2.620	2.575-2.605	99	14
Enable Gas, East	IGBCA21		+0.010	2.600-2.680	2.610-2.650	43	7
NGPL, Amarillo receipt	IGBDR21		+0.010	2.685-2.730	2.685-2.705	76	13
NGPL, Midcontinent	IGBBZ21		+0.065	2.680-2.700	2.685-2.695	119	12
Oneok, Okla.	IGBCD21		+0.005	2.410-2.490	2.450-2.490	79	14
Panhandle, TxOkla.	IGBCE21		+0.030	2.550-2.620	2.570-2.605	284	29
Southern Star	IGBCF21		+0.040	2.510-2.550	2.510-2.530	54	11
Tx. Eastern, M-1 24-in.	IGBET21		+0.025	2.775-2.775	2.775-2.775	6	1
Midcontinent regional average	IGEAA00						_
Upper Midwest							
Alliance, into interstates	TCDDD21	2.775	-0.005	2.765-2.800	2.765-2.785	310	39
ANR, ML 7	IGBDP21 IGBDQ21		+0.020	2.760-2.795	2.780-2.795	28	3
Chicago city-gates	IGBDQ21		-0.010	2.760-2.793	2.780-2.793	783	98
Chicago-Nicor	IGBEX21		-0.010	2.780-2.820	2.785-2.805	380	51
Chicago-NIPSCO	IGBEX21		-0.005	2.780-2.820	2.795-2.803	340	35
Chicago-Peoples	IGBGX21		-0.003	2.760-2.810	2.760-2.790	63	12
Consumers city-gate	IGBDY21		-0.330	2.900-2.945	2.905-2.925	252	54
Dawn, Ontario	IGBCX21		+0.025	2.865-2.980	2.890-2.950	429	67
Emerson, Viking GL	IGBCW21		-0.020	2.400-2.640	2.535-2.640	150	37
Mich Con city-gate	IGBDZ21		+0.025	2.770-2.810	2.775-2.795	270	44
Northern Bdr., Ventura TP	IGBGH21		+0.000	2.700-2.715	2.700-2.710	49	7
				=			

2.735-2.755 436

IGBDV21 2.710 +0.010 2.700-2.725 2.705-2.715 175

**IGBDU21** 2.710 +0.005 2.700-2.730 2.705-2.720

IGBR021 2.745 +0.025 2.720-2.760

IGFAA00 2.770

## AGA outlook sees gas heating bills rising 5%

The American Gas Association is anticipating a 5% average increase in US natural gas heating bills this winter compared with last winter, with colder weather driving an average 3% increase in residential gas use.

The trade group Tuesday released its winter outlook based on a survey of 42 local gas utilities comprising about a quarter of the gas transported to residential customers nationwide.

About 50% of the companies surveyed expected normalized heating bills to go up, while 50% said they did not; the expectations ranged from 24% higher to 3% lower, with the vast majority of companies estimating single-digit increases.

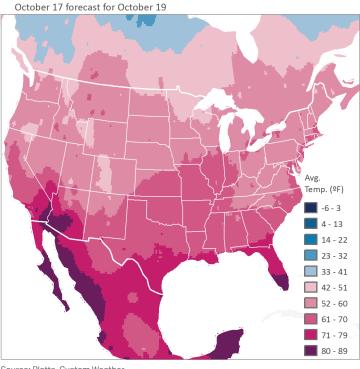
## Platts Analytics sees higher supply, demand

According to Platts Analytics' Bentek Energy, the upcoming season — November 2017 to March 2018 — will be characterized by higher supply and demand compared with the period a year earlier.

Should temperatures come in at normal levels this winter, Platts Analtyics forecasts that US demand from the generation, industrial, residential, and commercial sectors will average roughly 5.1 Bcf/d

(continued on page 3)

## 2-DAY-AHEAD TEMPERATURE FORECAST MAP



Source: Platts, Custom Weather

## ASSESSMENT RATIONALE

Platts Gas Daily indices are based upon trade data reported to Platts by market participants. The indices are calculated using detailed transaction level data from these providers. Platts editors screen the data for outliers that may be further examined and potentially removed. A volume weighted average is then calculated from the remaining set of data. For more details on this methodology please see our North American Natural Gas Methodology and Specifications Guide on Platts.com, located at <a href="http://www.platts.com/lM.Platts.Content/MethodologyReferences/MethodologySpecs/na\_gas\_methodology.pdf">http://www.platts.com/lM.Platts.Content/MethodologyReferences/MethodologySpecs/na\_gas\_methodology.pdf</a>

Questions may be directed to Curt Mrowiec at 713-658-3271 or <u>curt.mrowiec@platts.com.</u>

## DAILY PRICE SURVEY - FINAL PLATTS LOCATIONS (\$/MMBtu)

Trade date: 17-0ct Flow date(s): 18-0ct

Flow date(s): 18-Oct		Midpoint	+/-	Absolute	Common V	olume De	eals
East Texas							
Aqua Dulce Hub	IGBAV21		_				_
Carthage Hub			+0.000	2.790-2.870	2.800-2.84	10 10	
Florida Gas, zone 1		2.880	+0.045	2.860-2.930			
Houston Ship Channel		3.000		3.000-3.000			
Katy		2.975	+0.045	2.965-3.030			4
NGPL, STX		2.830	+0.000	2.825-2.840			
NGPL, Texok zone	IGBAL21		+0.010	2.770-2.790			
Tennessee, zone 0		2.815	+0.030	2.770-2.820			
Tx. Eastern, ETX		2.795	+0.015	2.780-2.810			
Tx. Eastern, STX		2.845	+0.045	2.835-2.850			
Transco, zone 1		2.805	+0.025	2.800-2.860			1
Transco, zone 2	IGBBU21	2.850	+0.065	2.845-2.850			
East Texas regional average	IGGAA06	2.855					
Louisiana/Southeast							
ANR, La.	TGRRE 21	2.790	+0.090	2.770-2.800	2.785-2.80	00 50	
Columbia Gulf, La.		2.790	+0.040	2.755-2.810			
Columbia Gulf, mainline		2.760	+0.030	2.730-2.825			3
Florida city-gates	IGBED21		_				
Florida Gas, zone 2		2.845	+0.025	2.820-2.860	2.835-2.85		
Florida Gas, zone 3		2.900	+0.023	2.855-2.920			2
Henry Hub		2.880	+0.010	2.855-2.900			
Southern Natural, La.		2.850		2.830-2.860			- 6
Tennessee, 500 Leg		2.855	+0.035	2.820-2.865			7
Tennessee, 800 Leg		2.830					
Tx. Eastern, ELA				2.795-2.810			1
Tx. Eastern, M-1 30-in.		2.800	+0.045	2.730-2.730			
Tx. Eastern, WLA		2.730		2.835-2.850			_
<u> </u>	IGBA021		+0.030	2.750-2.815			3
Tx. Gas, zone 1	IGBBT21		+0.040	2.750-2.615	2.750-2.76		
Tx. Gas, zone SL			- 0.025	2,020, 2,000	2045.205	- 220	_
Transco, zone 3		2.855	+0.035	2.830-2.880			3
Transco, zone 4		2.865	+0.045	2.845-2.870			7
Trunkline, ELA		2.780	+0.000	2.780-2.780			
Trunkline, WLA		2.890	+0.030	2.890-2.890			
Trunkline, zone 1A		2.770	+0.040	2.760-2.770	2.770-2.77	0 41	
Louisian/Southeast regional avera	aye IGHAAW	2.020					_
Rockies/Northwest							
Cheyenne Hub		2.595	+0.030	2.590-2.605			1
CIG, Rockies		2.590	+0.035	2.585-2.620			1
GTN, Kingsgate		2.495	+0.065	2.480-2.500	2.490-2.50	00 15	
Kern River, Opal	IGBCL21	2.690		2.640-2.750		20 367	5
NW, Can. bdr. (Sumas)		2.645	+0.015	2.630-2.650	2.640-2.65		2
NW, s. of Green River	IGBCQ21	2.595	+0.005	2.580-2.605	2.590-2.60	00 51	
NW, Wyo. Pool	IGBCP21	2.630	+0.040	2.620-2.655	2.620-2.64	10 63	
PG&E, Malin	IGBD021	2.685	+0.040	2.660-2.700	2.675-2.69	5 104	2
Questar, Rockies	IGBCN21	2.600	+0.040	2.600-2.600	2.600-2.60	00 13	
Stanfield, Ore.	IGBCM21	2.635	+0.035	2.620-2.645	2.630-2.64	10 47	
TCPL Alberta, AECO-C*	IGBCU21	0.230	-0.070	0.175-0.290	0.200-0.26	0 497	8
Westcoast, station 2*	IGBCZ21	0.220	+0.140	0.120-0.350	0.165-0.28	30 75	2
White River Hub	IGBGL21	2.595	+0.035	2.570-2.605	2.585-2.60	5 122	1
Rockies/Northwest regional avera	ege IGIAA00	2.615					
Southwest							
El Paso, Bondad	IGBCG21	2.570	+0.070	2.520-2.570	2.560-2.57	'0 206	1
El Paso, Permian	IGBAB21	2.535	+0.050	2.500-2.630			Ę
El Paso, San Juan		2.570	+0.070	2.520-2.580			1
El Paso, South Mainline		2.885	-0.215	2.850-2.950			
Kern River, delivered		2.960	+0.195	2.940-3.000			2
PG&E city-gate		3.305	+0.125	3.280-3.340			
PG&E, South		2.665	+0.070	2.645-2.700			1
SoCal Gas		2.940	+0.040	2.750-3.000			- 2
SoCal Gas, city-gate		5.110	-0.605	4.550-5.500			- 2
Transwestern, Permian		2.575	+0.090	2.550-2.590			
Transwestern, San Juan		2.580	+0.085	2.530-2.590			
Waha	IGBAD21	2.570	+0.075	2.480-2.635	2.530-2.61	0 403	- 5

<sup>\*</sup>Price in C\$ per gj; C\$1=US\$0.7969; Volume in 000 MMBtu/day. Symbols represent gas flow date.

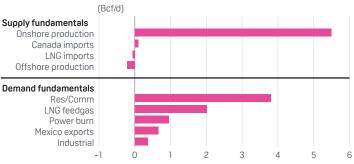
IGJAA00 2.940

Southwest regional average

higher than last winter. That adds to a forecast increase of nearly 2.7 Bcf/d of higher demand for LNG feedgas and exports to Mexico which have accelerated with infrastructure coming into service.

But if temperatures match last winter's, the impact on prices may be bearish, as total US production is forecast to average nearly 5.5 Bcf/d higher year-on-year, while structural demand additions from LNG and Mexico exports will have only grown by 2.7 Bcf/d, according to Platts Analytics. That would leave US markets longer by an average 2.8 Bcf/d winter over winter, according to Platts Analytics' data.

## FORECAST CHANGE IN FUNDAMENTALS, WINTER 17-18 VS. WINTER 16-17



Source: Platts Analytics' Bentek Energy

AGA noted its price forecasts are below EIA's estimates for the 2017-2018 season of a 12% increase in gas bills on average, amid a 9% rise in gas consumption during the winter heating season, and a 2.5% rise in the average winter heating season residential cost of gas.

A key factor driving the increase in AGA's outlook is near-normal temperatures, compared with temperatures in the range of 16-17% above normal, reflecting an "enormous deviation from the norm," the last two winters, said Chris McGill, AGA vice president of energy analysis and standards. The Upper Midwest, which has a large number of gas consumers, is forecast to see more normal temperatures, he noted.

For AGA members, a deviation of 16-17% above normal means gas put into storage is not fully used and throughputs tend to be down, "so even a return to normal is good for our distribution companies," McGill noted.

"The price of natural gas this winter for residential customers has largely been influenced by stable and now growing production, a flexible underground storage position and the presence of strong pipeline exports to Mexico, as well as growth in LNG exports," he said.

## SUBSCRIBER NOTE

Platts launches three new daily, monthly ICE natural gas indices

S&P Global Platts has launched the following three new ICE natural gas indices in both the daily and monthly market:

ICE Algonquin, Millennium - Ramapo receipts

ICE Algonquin, TGP-Mahwah receipts

ICE ETC, Cleburne

Please see the attached methodology guide for the respective symbols. <a href="http://www.platts.com/IM.Platts.Content/MethodologyReferences/MethodologySpecs/">http://www.platts.com/IM.Platts.Content/MethodologyReferences/MethodologySpecs/</a> na gas methodology.pdf

Please contact Ryan Ouwerkerk at  $\underline{\text{ryan.ouwerkerk@spqlobal.com}}$  with any questions.

"If the weather forecast holds up, we're looking at great consumer value for natural gas customers — [a] relatively uneventful winter," he said. "What does not seem to be negatively impacting it today are things like more gas to power generation, more gas to LNG exports."

## Structural changes boost peak use

The outlook reflects climbing domestic natural gas production, with a record set in early October. He also pointed to the 3.6 Tcf currently in storage, which is expected to grow, even amid relatively modest underground storage injections.

Amid production levels well above those a decade earlier, fears that exports would run up prices for domestic consumers have not been realized, he said. "That has not happened one iota. The way I look at the export picture, it's more a rounding out of the marketplace. Having demand is what this marketplace is still looking for," he said.

On the other hand, McGill highlighted the structural change affecting the market, as more gas is being used for generation, on top of the winter heating loads. With that shift, the peak day consumption on January 6 was higher than any year since the polar vortex, he said, citing data from Platts Analytics that showed peak day consumption of 134.9 Bcf/d in 2017.

— <u>Maya Weber, Eric Brooks</u>

## Renewables driving 'peak deliverability' demand

Growing renewable power generation in the western US is making peak deliverability of natural gas an increasingly essential midstream business offering in the region, an executive with Kinder Morgan said Wednesday.

With a 38% stake in the US natural gas transportation industry, Kinder Morgan potentially stands to lose out in the western states over the coming years where the pipeline owner and operator sees renewables devouring the equivalent of some 2.8 Bcf/d of gas demand by 2025.

"Renewable generation will continue to erode gas," Will Brown, vice president of business management at Kinder Morgan, told an audience in his opening remarks at the Rockies & West LDC Forum in Denver.

Already in 2017, renewable power generation from solar and wind are displacing the equivalent of about 870 MMcf/d of gas demand in the California ISO, according to Brown.

But as renewables continue to eat away at demand for baseload generation, the need for peak deliverability of natural gas supply is growing, says Brown. He sees the inevitability of that growth as a business opportunity.

## Cal ISO 'duck curve' is deepening

Referring to the Cal ISO duck chart, which depicts a U-shaped demand curve for baseload power over the course of a typical 24-hour day in California, Brown highlighted the growing need for peak deliverability of natural gas between the hours of 3 pm and 6 pm.

During that three-hour period, demand for baseload electricity in the Cal ISO ramped up by as much as 13,000 MW in 2016. As renewable generation continues to grow, the size of that end-of-day demand ramp is expected to continue growing.

Increasing demand for peak-hour gas supply in the western US has already started transforming the midstream business, says Brown.

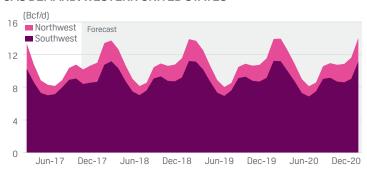
"Some of our customers already hold firm capacity for peak-hour gas supply" Brown said on the sidelines of the Rockies and West LDC Forum. He sees that demand continuing to rise in coming years.

As those peak deliverability needs increase, he expects that the availability of interruptible capacity will likely decline to accommodate that end-of-day increase in gas-fired generation.

## Renewables to flatten western US gas demand

As renewable power from solar and wind continues to grow in California and beyond, Platts Analytics sees gas demand in the western US holding relatively flat thorough the end of this decade.

#### **GAS DEMAND: WESTERN UNITED STATES**



Source: Platts Analytics' Bentek Energy

In 2017, regional demand is expected to average just over 8.5 Bcf/d which is down about 2% from last year, thanks to robust hydro generation along the West Coast this year.

In 2018, regional demand is forecast to recover somewhat, rising to an average 9 Bcf/d. By 2020 though, renewables are expected to cut total demand to an average 8.8 Bcf/d, Platts Analytics' forecast shows.

– <u>J. Robinson</u>

## Chatterjee presents ambitious priorities list

Neil Chatterjee outlined a wide ranging, ambitious priorities list for his tenure on the US Federal Energy Regulatory Commission in his maiden keynote address delivered at the Energy Bar Association's mid-year forum Tuesday.

Confirmed by the Senate August 3 for a term ending June 30, 2021, and tapped days later to temporarily serve as chairman until Jones Day attorney Kevin McIntyre is confirmed, Chatterjee has wasted no time settling in, naming a chief of staff and general counsel.

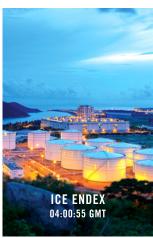
Chatterjee is leading the commission's effort to respond to the Department of Energy's request that it quickly finalize a rule to value resilience in wholesale power markets.

The notice of proposed rulemaking (RM18-1) DOE sent to FERC last month has been criticized as a blatant attempt by the Trump administration to push coal-fired and nuclear generation into a more advantageous market position over renewables and natural gas.

Chatterjee, however, said at the EBA forum that "the DOE NOPR fits comfortably within [FERC's] efforts" to facilitate the creation of market

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structures that incent reliability-related investment, monitor and enforce grid reliability within those markets and provide oversight of the North American Electric Reliability Corp.'s reliability standard-setting activities.

#### NOPR builds on price formation work

"I believe there's real value in Secretary [Rick] Perry initiating conversation regarding whether FERC-jurisdictional organized markets adequately compensate certain generators for their contributions to the reliability and resilience of the nation's grid," Chatterjee said, adding that "this is entirely consistent with FERC's historical efforts to ensure that organized markets provide necessary compensation for reliability-related services."

In Chatterjee's view, the NOPR builds on the commission's existing regulatory initiatives on price formation. "It's a conversation that I believe we need to have," he said. "We must ensure that we don't find ourselves coming to regret not having asked hard questions like these amongst all the changes in the energy industry."

Beyond maintaining grid reliability and resilience, Chatterjee said other key areas where "FERC can build upon the successes of the past to grow stronger in meeting the demands of the future" include natural gas and hydroelectric project reviews; electric transmission investment incentives; cybersecurity; *de novo* reviews in enforcement actions; and Public Utility Regulatory Policies Act reforms.

Chatterjee noted that FERC's review from formal application submission through issuance of a FERC certificate, on average, can

take around 30 months for hydropower projects, four years for relicensing of hydro projects and 18 months for significant natural gas pipeline projects.

"Ultimately, I would like to see FERC significantly reduce its review timelines for major natural gas pipeline certificates and other projects," he said. "I'm under no illusions as to the magnitude of that challenge," he added, noting it will necessitate a deeper dive into existing regulations, policies and practices than previously undertaken and an enormous effort by FERC staff already engaged on a number of other critical issues facing the commission.

He predicted that effort would include a look at the commission's relationships and interactions with other federal and state agencies involved in the permitting process. "Even if legislation is not enacted to make those interactions more efficient, I believe we should pursue understandings that can be reached on an agency-to-agency basis to help improve the review process," he said.

## Economic need question for the courts

Chatterjee also pointed to increased stakeholder participation by both those for and against pipeline projects as well as legal challenges adding to regulatory uncertainty for projects.

"I anticipate that a flashpoint for many of those legal challenges will be the question of economic need for new natural gas pipeline projects," he contended.

In a rare split decision on natural gas infrastructure, FERC late Friday approved the 604-mile, 1.5 Bcf/d Atlantic Coast Pipeline and the 301-mile, 2 Bcf/d Mountain Valley Pipeline, two major greenfield projects to move gas from the Marcellus and Utica plays amid growing demand in the Mid-Atlantic.

Commissioner Cheryl LaFleur dissented, saying she was not persuaded the two projects as proposed were in the public interest. Chatterjee characterized her dissent as suggesting "that FERC should depart from its longstanding policy of relying on precedent agreements with shippers to demonstrate economic need in favor of weighing a broad range of economic, social and aesthetic values."

On that point, he said he strongly disagreed with his colleague's position. "The commission has historically prioritized precedent agreements in its analysis because those are clear, unequivocal statements of economic need by the market itself," he said. "The companies who are willing to enter into contracts to pay for transportation service on a pipeline have a much clearer understanding of the market need for the gas than we could develop through studies in Washington, DC."

— <u>Jasmin Melvin</u>

## Rockies gas faces future of demand hurdles

Although Rockies gas production is expected to stay flat or grow nominally over the next five years, producers will likely face more difficulty in finding a destination market, according to a panel of analysts at the Rockies and West LDC Gas Forum in Broomfield, Colorado, on Tuesday.

By 2022, Rockies production is projected to average 7.8 Bcf/d while Rockies demand will average 2.3 Bcf/d, according to Platts Analytics'

Bentek Energy. These numbers nearly mirror current supply and demand fundamentals in the region.

Currently, 2.5 Bcf/d is being shipped to the upper Midwest, 1 Bcf/d to the lower Midwest, 2.1 Bcf/d to the Southwest and 600 MMcf/d to the Pacific Northwest. However, flows to the upper Midwest are expected to fall to 1.9 Bcf/d by 2022, Southwest flows are forecast to fall to 1.8 Bcf/d while flows to the other regions will likely remain the same.

However, declines might also occur in flow to the Pacific Northwest due to growing gas production in western Canada, which is projected to average 16.2 Bcf/d by 2022, an increase of nearly 2 Bcf/d.

## Wind, solar and Permian gas on the rise in Southwest

In the Southwest, the rise of renewables, such as wind and solar, combined with associated gas production growth in the New Mexico portion of the Permian is likely to hinder demand for Rockies gas.

At the same time, several major western US cities are attempting to move away from fossil fuels for power generation.

"In Denver, the mayor recently announced a plan to power at least 200,000 homes and businesses without using natural gas for electricity or heating," said Michael Sloan, managing director of ICF.

As for Midwest markets, Rockies gas will face increasing competition from the Marcellus and Utica shales, where analysts expect massive growth in the coming decades. Sloan expects US shale gas production to increase by about 24 Bcf/d by 2035, with Appalachia comprising more than 20 Bcf/d of that anticipated growth.

Also, interstate pipelines flowing from the Rockies to the Midwest, such as Rockies Express Pipeline and Trailblazer Pipeline, are already being utilized at near-maximum capacity.

There is some potential for new sources of demand, such as the proposed Jordan Cove LNG export facility in Oregon in the Pacific Northwest. However, it still faces a list of regulatory hurdles and, even if approved, it would likely not enter service until at least 2024.

#### DJ rules the Rockies

Despite an uncertain future for Rockies gas demand, drilling economics in the Denver-Julesburg Basin remain strong. Since 2013, operators have grown the average lateral length per well by 33%, according to Platts Analytics. That is more substantial lateral growth than either the Permian Basin or Eagle Ford Shale. Drilling time per well has decreased by 43% over the same time span.

Also, operators are saving cost by clustering more wells on every pad. For example, in 2013 Anadarko Petroleum, one of the most prolific DJ producers, has grown from averaging three wells per pad up to seven.

Only the DJ, and to a lesser extent the Piceance and Powder River basins, are expected to experience growth as the rest of the Rockies plays are projected to see production declines over the next five years.

— <u>Brandon Evans</u>

## EQT tries to fend off Jana opposition to Rice deal

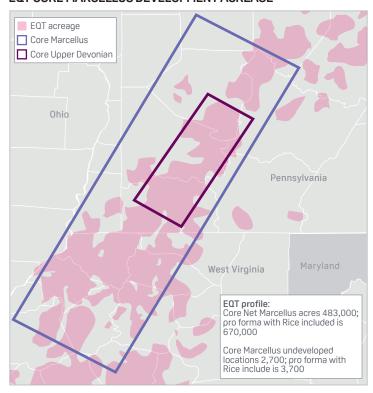
EQT is asking shareholders to ignore activist hedge fund Jana Partners' latest efforts to scuttle its \$6.7 billion bid to acquire Rice Energy and create the largest US natural gas producer, three weeks before a critical investor meeting and as companies in the sector prepare to release third-quarter financial results.

A key issue is the level of cost savings the combined company will achieve by putting together overlapping acreage in the Appalachian Basin, home to the prolific Marcellus and Utica shale plays, which are drawing billions of dollars of investment from midstream players looking to link increasing gas output with markets.

Jana, led by New York financier Barry Rosenstein, accused EQT in a regulatory filing on Monday of deceiving shareholders by overstating the financial benefits of the Rice deal by more than \$1 billion. EQT shot back Monday night, asserting in a statement that the acquisition presents a "pivotal strategic opportunity" that will benefit all sides. Analysts, meanwhile, remain generally bullish, ahead of a November 9 special meeting of shareholders to consider the transaction.

"The transaction should provide investors with an asset base that is able to consistently provide high economic returns in a shareholder friendly manner," RBC Capital Markets analyst Scott Hanold said in a note to clients Tuesday.

## **EQT CORE MARCELLUS DEVELOPMENT ACREAGE**



Source: EQT 2Q2017 Investor Presentation

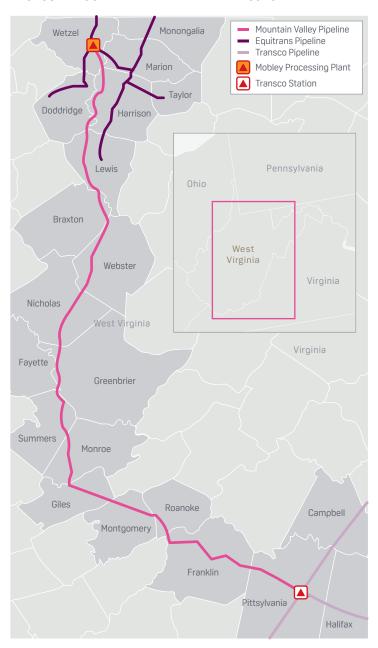
The EQT-Rice merger would combine not only substantial production and development acreage but also existing and future pipeline capacity commitments, an important runway for producers to sustain growth over time.

EQT currently holds roughly 3.5 Bcf/d of long-term firm transportation contracts on US Northeast pipelines including Equitrans, Rockies Express Pipeline, Tennessee Gas Pipeline and Texas Eastern Transmission, data compiled by Platts Analytics' Bentek

Energy show. It saw its future capacity holdings grow by more than 1 Bcf/d when the US Federal Energy Regulatory Commission issued approvals late last week for the Mountain Valley Pipeline project, on which EQT is a foundation shipper. EQT is subscribed to 1.1 Bcf/d of the project's 2 Bcf/d of design capacity, which is currently scheduled to come online in late 2018.

Rice currently holds roughly 1.3 Bcf/d of long-term firm transportation commitments, and this number is set to grow in the coming weeks as the Rice-backed Access South expansion on Texas Eastern brings on an incremental 320 MMcf/d of Northeast production takeaway capacity.

## PROPOSED MOUNTAIN VALLEY PIPELINE PROJECT



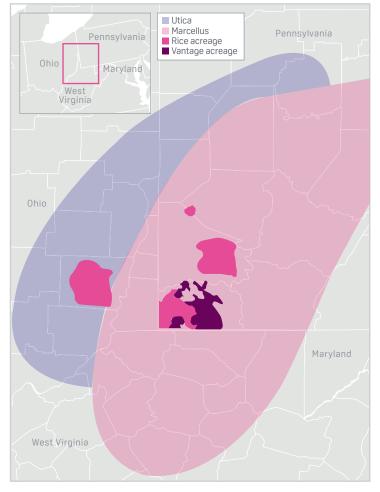
Source: Mountain Valley Pipeline, LLC

Both producers have been among the relatively few that have contributed to much of the production growth seen in recent years in the US Northeast. In its second-quarter earnings release, EQT reported having produced 198.1 Bcfe for the quarter, or roughly 2.2 Bcf/d over the period. Rice produced just under 1.4 Bcfe/d in the second quarter this year, in line with current capacity commitments.

When the merger deal was announced in June, the companies said they expected a present value of \$2.5 billion in synergies, as the vast majority of the acreage being acquired from Rice is contiguous with EQT's existing acreage position. Among other things, EQT anticipated a 50% increase in average lateral lengths for future wells in Greene and Washington counties in Pennsylvania. This same land synergy also complements the infrastructure footprint of EQT's midstream affiliate, the companies said.

Since then, EQT has said it has identified up to \$7.5 billion in additional cost savings that could come from the Rice transaction, which the companies hope to complete before the end of the year. EQT also has said it is considering strategic alternatives that may include selling or spinning off some of the midstream assets of the combined company once it completes its acquisition of Rice.

## RICE ENERGY'S APPALACHIAN ASSETS



Source: Rice Energy

But in a letter to shareholders urging them to vote "No" on the merger, which is part of its latest filing with the Securities and Exchange Commission, Jana, which owns approximately 6% of EQT's outstanding shares, said a review it commissioned by a leading petroleum engineering firm found that much of the Rice property that would be acquired by EQT never actually touches EQT's property. That, Jana says, means "much of the financial benefit EQT claims would result from the Rice acquisition appears to be false."

"In fact, in order to acquire the land between these EQT and Rice land holdings, we believe EQT may have to spend over a billion more of your dollars based on our expert's analysis," Jana told shareholders. "Only you can stop this massive destruction of value."

EQT said in its statement in response that the company is confident it will achieve the \$2.5 billion in synergies that it initially identified. The statement did not mention the up to \$7.5 billion in additional savings that the company has also said were possible. EQT is scheduled to release third-quarter financial results on October 26.

"For Jana to suggest that this acreage acquisition strategy, which is standard for Appalachian operators, is inconsistent with achieving the anticipated benefits of the transaction is highly misleading and inaccurate," EQT said.

In September 2016, Rice agreed to buy Vantage Energy for about \$2.7 billion in a deal that included 85,000 Marcellus acres and deeper rights to 52,000 Utica acres in Greene County in southwestern Pennsylvania, as well as another 37,000 acres in North Texas 'Barnett shale.

- Harry Weber, Eric Brooks

## US LNG's next wave faces credit risk: S&P

Cheap and abundant US supplies of natural gas combined with forecasts of growing global LNG demand early next decade aren't enough to ease the uncertainty facing the next wave of US export projects because of high construction costs and challenges securing long-term supply contracts, an S&P Global Ratings report released Tuesday says.

The main fear is that as developers along the Gulf, Atlantic and Pacific coasts seek creative ways to finance liquefaction units, they will be open to shorter agreements with smaller quantities and more flexible terms, raising concerns about their ability to repay debt as contracts come up for renewal more often.

There are more than a dozen LNG export projects currently being proposed to US regulators, though across the industry almost no final investment decisions have been announced over the last 18 months and some developers have delayed their decisions into 2018 or beyond. Few firm supply purchase agreements have been announced for the projects that have yet to commit to moving forward.

"The repayment of project finance debt is from cash flow generated by long-term LNG offtake agreements with investment-grade companies; however, for a variety of reasons, these contracts are increasingly difficult to procure," the report said. "The credit quality of new facilities could suffer if project finance structures are used but backed by shorter-term agreements (which introduce re-contracting risk) and/or merchant sales (and associated market risk) or include

revenue counterparties that we rate below investment grade."

Cheniere Energy's Sabine Pass terminal in Louisiana is the only US facility currently exporting LNG produced from shale gas. The four liquefaction units, or trains, that it is currently operating there were financed with 20-year take-or-pay contracts with creditworthy buyers, setting a standard for the industry. Dominion Energy's Cove Point export terminal in Maryland, which is expected to start shipping LNG later this year, has similar deals in place, as do the several other projects that are currently being built, including facilities in Freeport, Texas, and Corpus Christi, Texas.

But for projects still going through the regulatory approval process, the well has been running dry of late. Bank decisions also are in the mix. Earlier this month, French bank BNP Paribas decided to stop doing business with companies that are primarily involved in oil and gas production from shale, a potential impediment to other projects' ability to pay for construction if more banks follow suit.

"This isn't to say that liquefaction facilities will no longer be built in the US," the S&P Global Ratings report said. "However, the nature of these facilities could change. For example, we expect to see a greater number of smaller, more modular units, and potentially shorter-term contracts up to five years in length, with gas procurement arrangements changing as well."

The report added, "We think these changes will likely introduce a host of new credit issues, such as market and recontracting risk, while possibly eliminating others, such as counterparty risk."

Cheniere recently told regulators it has decided to change the design of a later stage of its LNG export facility in Corpus Christi to incorporate mid-scale LNG trains, instead of large-scale units. The Houston-based company has been considering new mid-scale liquefaction opportunities as a way of reducing per-train construction costs and making it easier to find offtakers to buy the capacity.

— <u>Harry Weber</u>

## Utopia Pipeline to carry ethane only

Citing a lack of demand for one form of natural gas liquids, Kinder Morgan, in a recent filing with Canadian regulators, indicated that it no longer plans for its Utopia pipeline to carry ethane-propane mix as well as ethane. It will proceed with the project as an ethane-only pipeline.

In an October 10 filing with Canada's National Energy Board, Kinder Morgan revised its previous filings to delete references to E/P mix, and it detailed the rates for shipment of purity ethane.

"There is currently no customer interest in shipping ethane-propane mix on the line (just ethane for now), so we removed that from the tariff," spokeswoman Melissa Ruiz said in an email Tuesday. She added that the pipeline company has the ability to apply to add E/P mix back into the project if end-user demand warrants that change at a later date.

The project, which the company expects to put into service in January, is proposed to carry natural gas liquids from the Marcellus and Utica shale plays of the southwestern Appalachian Basin to markets in Windsor, Ontario, Canada.

The Utopia project calls for Kinder Morgan to develop, construct, own and operate a 215-mile, 12-inch-diameter pipeline from Harrison County, Ohio, to the Michigan border. From there the ethane will flow

via an existing pipeline to Windsor. From there, Plains Midstream's Windsor-Sarnia Pipeline can be used to move product north to Nova Chemicals' Corunna steam cracker, according to Platts Analytics Bentek Energy.

## **UTOPIA PIPELINE ROUTE**



Source: Kinder Morgan

Kinder Morgan held a binding open season for the project from September 5, 2014, until October 6, 2014.

"We executed a long-term transportation agreement with Kinder Morgan to transport ethane from the Utica Shale Basin through Kinder Morgan's previously announced Utica to Ontario Pipeline Access (Utopia) project," Nova Chemicals spokesman Mark Horner said in an email Tuesday.

Although the project was advertised and built as a common carrier pipeline, in practice Nova is the only shipper and receiver on the pipe, and since the Corunna plant can only take ethane as a feedstock, there is little to no demand for E/P mix in the region.

## Utopia to provide option to move ethane to market

Once in service, Utopia will give Appalachia producers the option to ship ethane more cheaply than delivering it to the petrochemical complex in Mont Belvieu, Texas. Most ethane produced in the region is rejected, or allowed to remain in the natural gas stream, as there is no profitable market for it.

Currently one other pipeline, the 50,000 b/d capacity Sunoco Logistics Partners' Mariner West line, carries ethane products from southwestern Appalachia to markets in Canada. That line originates in the gas processing and fractionation region of Houston, Pennsylvania, and transports product to Marysville, Michigan, and the Canadian border

Delivery of ethane to Corunna from either MarkWest's Cadiz interconnect or Utica East Ohio's Scio plant on Utopia and Windsor-Sarnia is estimated to cost between 7.6 cents per gallon and 12.6 cents/gal, depending up on the volume shipped, compared to 13.6 cents/gal on Mariner West pipeline, from Houston, Pennsylvania, Platts Analytics said.

Combined, the two competing pipelines can move 100,000 b/d of ethane. The steam cracker at Corunna is expected to take in approximately 52,000 b/d of ethane next year following an upcoming restart at the site.

In comparison, committed rates from Houston, Pennsylvania, to Mont Belvieu on Enterprise Products' ATEX pipeline are seen to range from 15.2 cents/gal to 16.9 cents/gal, depending on the volume.

— <u>Jim Magill, Daniel Vagasky, Andrew Neal</u>

## Tellurian says no takers for \$8/MMBtu LNG offer

No potential customers of LNG in Japan took up an offer this summer from Tellurian — which would be the operator of the planned Driftwood LNG plant in Louisiana — to buy cargoes at a fixed price of \$8/MMBtu, a senior company official said Tuesday.

Speaking at the Oil & Money conference in London, Tellurian Senior Vice President Mark Stubbe said, "Nobody has lifted the offer to date."

Tellurian Chairman Charif Souki in May said the company was making the innovative marketing offer, saying the company would offer 7 million mt of LNG for five years, for deliveries starting in 2023, at a fixed price of \$8/MMBtu.

Souki claimed his proposal would "take the volatility out of the market."

However, with the current oversupplied global LNG market and the growth in LNG spot and short-term trading, buyers are increasingly reluctant to sign up for new term LNG contracts.

Nonetheless, Stubbe said the current Tellurian business model — which now includes having US upstream gas assets as well as liquefaction operations — would enable the company to get its LNG from Driftwood onto a vessel for \$2.75-\$3.25/MMBtu.

Effectively, he said, this meant LNG produced for \$3/MMBtu.

"You have to provide at low cost throughout the cycle — you have to harness the whole value chain, from the well to the water," Stubbe said.

Buying gas at Henry Hub prices and then liquefying is less economic than owning the upstream assets themselves, with production costs at under \$1.50/MMBtu across all US gas production plays.

Tellurian is looking to expand its upstream footprint into the Eagle Ford shale following its decision to buy assets in Louisiana's Haynesville to feed its Driftwood LNG plant.

The 26 million mt/year Driftwood facility is expected to come online in 2022 despite not having announced any offtake agreements.

Nonetheless, Tellurian is planning to prove commercial viability for Driftwood by the first half of 2018 with construction targeted to begin shortly after.

— <u>Stuart Elliott</u>

## Sempra unit files for Port Arthur LNG pipeline

Sempra Energy's Port Arthur Pipeline has formally applied for federal authorization of a natural gas pipeline project that would carry 2 Bcf/d to the proposed Port Arthur LNG liquefaction and export terminal.

The pipeline company on Monday submitted an abbreviated application to the US Federal Energy Regulatory Commission for its Louisiana Connector project. It would include a 131-mile, 42-inch-diameter pipeline, a new compressor station and facilities to connect the project to interstate and intrastate pipeline infrastructure. Port Arthur Pipeline told FERC that it has entered into precedent agreements with its Sempra affiliate Port Arthur LNG LLC for 100% of the capacity on the line (CP18-7).

"By providing the feed gas supply to the Liquefaction Project, the Louisiana Connector Project will support realization of the public benefits associated with the liquefaction project," Port Arthur Pipeline said in its application.

Port Arthur Pipeline in February asked FERC to begin the early review process for the pipeline project, which would interconnect with gas pipelines in Allen, Beauregard, Calcasieu and Cameron parishes in Louisiana and Jefferson County, Texas (PF17-5).

#### PORT ARTHUR PIPELINE LOUISIANA CONNECTOR PROJECT



Source: Port Arthur Pipeline

Port Arthur LNG applied in November 2016 for the LNG export project, which would be Sempra's second US LNG export terminal. The Cameron liquefaction and export facility is under construction in Hackberry, Louisiana, but has faced delays amid labor complications and weather challenges.

The Port Arthur LNG terminal would include two liquefaction trains, each capable of producing about 6.7 million metric tons per year. The developers said they expect the first train to enter service in the first quarter of 2023, with the second train coming online in the third quarter of that year. The export facility will also include three LNG storage tanks, two LNG vessel marine berths and combustion turbine generators for electric power (CP17-20).

Sempra in June became one of a handful of US LNG export developers to sign deals with Korea Gas to begin negotiations for more LNG for South Korea. In addition to a possible contract for LNG from the Port Arthur terminal, the memorandum of understanding covers engineering and construction work as well as feed gas sourcing and equity participation in the project.

— <u>Rachel Adams-Heard, S&P Global Market Intelligence</u>

## Regulator to review Mountain Valley permit

A federal appeals court allowed the West Virginia Department of Environmental Protection to start over on its review of an application for a water quality certificate submitted by the EQT Midstream Partners-led Mountain Valley Pipeline natural gas transportation project.

In a Tuesday order, the US Court of Appeals for the 4th Circuit granted the state agency's motion for voluntary remand and vacated the \$3.7 billion project's Clean Water Act Section 401 water quality certification (17-1714).

The Mountain Valley developers said the decision to vacate the permit was simply part of a move by the state agency to rid itself of a challenge by environmental groups to the original certificate. The developers said the order would not affect the project schedule.

"The court did not rule on the merits or validity of the WVDEP's 401 certification," EQT spokeswoman Natalie Cox said in a statement on behalf of the project. "Today's decision by the court was purely an administrative act based on the motion to dismiss as filed by the WVDEP on September 13, 2017. The WVDEP is currently reevaluating Mountain Valley Pipeline's 401 certification, and the MVP project team does not expect this work to alter its current plans or schedule."

The state agency filed the motion to invalidate the original water quality certificate after a coalition of environmental groups contested

the certificate. The coalition included the Sierra Club, Chesapeake Climate Action Network and the West Virginia Rivers Coalition. The groups said they were pleased the state agency decided to take back the certificate.

"It's assuring that DEP is taking its obligations under the Clean Water Act seriously, especially on a project that is likely the largest the agency has ever reviewed under Section 401," West Virginia Rivers Coalition Executive Director Angie Rosser said in a statement. "The agency could have simply thrown up its hands and waived its authority, but it didn't. It is up to this task."

The 2-Bcf/d Mountain Valley pipeline project is a joint venture of EQT Midstream and affiliates of NextEra Energy, RGC Resources, WGL Holdings and Consolidated Edison. The pipeline would run about 300 miles from West Virginia to connections in Virginia with Williams Partners' Transcontinental Gas Pipe Line and TransCanada's Columbia Gas Transmission pipelines.

The US Federal Energy Regulatory Commission issued a Natural Gas Act certificate authorizing the project October 13. FERC gave the developers three years to put the project in service (CP16-10).

— <u>Sean Sullivan, S&P Global Market Intelligence</u>

#### PIPELINE MAINTENANCE

Start date	End date	Pipeline	Description
28-Sep	31-0ct	NGPL	NGPL restricts Station 302 flows through October 31 to conduct repairs, causing flow direction to change
01-Jun	31-0ct	Westcoast	Update: Station 4B South is scheduled to be restricted to 1.05 Bcf/d starting September 1 and lasting through September 21, a decrease of 26 MMcf/d from where restrictions were at for end of Aug

## **SUBSCRIBER NOTE**

#### Platts announces natural gas parallel publishing dates and details

After several months of preparation and testing, Platts is ready to begin parallel publishing of natural gas indices with ICE. Key dates and details of the parallel publishing period are as follows:

#### **DAILY INDICES**

August 31: Platts to publish new preliminary daily indices in parallel with ICE daily indices. The preliminary indices will be available through market data subscription or via a free trial on the Gas Daily Preliminary Price Report website.

September 1: Platts to make available two Excel files for index comparison purposes each business day. The first file is a comparison of ICE daily indices to Platts preliminary daily indices (ICE Exchange trades only), Platts current final daily indices (data submitted by price reporters), and Platts future final daily indices (data submitted by price reporters in addition to non-price reporter ICE Exchange trades) for selected locations. The second file is a comparison of Platts current final daily indices to Platts future final daily indices for all Platts locations. These files will be posted on the Gas Daily Preliminary Price Report website and on the natural gas agreement resource page located at <a href="www.platts.com/ice.">www.platts.com/ice.</a>

October 31: The methodology for Platts final daily indices changes. Final daily indices will now include non-price reporter ICE Exchange trades. In addition, Platts may assess daily prices.

#### MONTHLY INDICES:

September 25: Platts to publish new monthly indices in parallel with ICE monthly indices. The preliminary indices will be available through market data subscription or via a free trial on the Inside FERC Bidweek Watch website.

October 2: Platts to make available two Excel files for index comparison purposes when final monthly indices are published. The first file is a comparison of ICE final monthly indices to Platts current final monthly indices (data submitted by price reporters) and Platts future final monthly indices (data submitted by price reporters in addition to non-price reporter ICE Exchange trades) for selected locations. The second file is a comparison of Platts current final monthly indices to Platts future final monthly indices for all Platts locations. These files will be posted on the Inside FERC Bidweek Watch website and on the natural gas agreement resource page located at <a href="https://www.platts.com/ice.">www.platts.com/ice.</a>

December 1: The methodology for final monthly indices changes for December bidweek. Final monthly indices will now include non-price reporter ICE Exchange trades.

Please send any Platts questions or comments to <u>gas\_survey\_comments@platts.com</u> and <u>pricemethodology@spglobal.com.</u> Send any ICE questions or comments to <u>NaturalGas@theice.com.</u>

For Platts written comments, please provide a clear indication if comments are not intended for publication by Platts for public viewing. Platts will consider all comments received and will make comments not marked as confidential available upon request.

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## **NATURAL GAS FUTURES**

## NYMEX Nov. gas climbs 1.6 cents to \$2.962

The NYMEX November natural gas futures contract rose Tuesday following alternating price movements over the past three days.

The November contract settled at \$2.962/MMBtu, up 1.6 cents from Monday's close.

Although price movements have been varied in the short term, the front-month contract as a whole has been relatively consistent over the past several months, not having strayed more than 25 cents in either direction of \$3/MMBtu since May 22.

The relative long-term stability in the front-month contract price comes as bullish and bearish factors have been prevalent in the market.

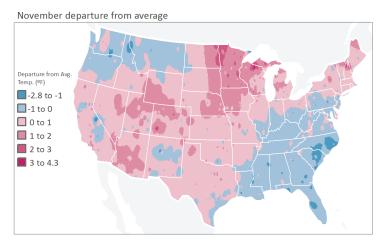
After seeing 13 of the last 18 storage injections come in below average, national gas storage stocks currently sit at an estimated 0.2% deficit to the five-year average, according to the US Energy Information Administration. The below-average stocks could support prices, especially if winter weather is cooler than average.

Increased dry gas production has helped to offset concerns of decreased storage numbers, as US dry gas production has paced well above year-to-date levels. According to Platts Analytics' Bentek Energy data, US dry gas production has averaged 73.1 Bcf/d month to date, well above the 71.6 Bcf/d averaged year to date. US dry gas production is projected to average 74.3 Bcf/d over the next 14 days.

Increased demand for exports to Mexico and LNG feedgas could boost prices, as month-to-date Mexican exports and LNG feedgas have totaled 6.8 Bcf/d, above the 6 Bcf/d averaged year to date, according to Platts Analytics.

Looking ahead, the most recent six- to 10-day outlook from the National Weather service continues to call for warmer-than-average weather across the country, which could cut into heating demand through October.

#### MONTH-AHEAD TEMPERATURE FORECAST MAP



Source: Platts, Custom Weather

## NYMEX HENRY HUB GAS FUTURES CONTRACT, OCT 17

	Settlement	High	Low	+/-	Volume
Nov 2017	2.962	3.026	2.937	0.016	97552
Dec 2017	3.128	3.182	3.105	0.020	32391
Jan 2018	3.248	3.292	3.225	0.021	10607
Feb 2018	3.257	3.298	3.235	0.020	2266
Mar 2018	3.218	3.256	3.197	0.016	3044
Apr 2018	2.970	2.990	2.958	0.010	3905
May 2018	2.946	2.963	2.935	0.009	1106
Jun 2018	2.975	2.988	2.971	0.008	70
Jul 2018	3.005	3.018	2.993	0.007	167
Aug 2018	3.008	3.019	2.998	0.007	203
Sep 2018	2.989	3.000	2.979	0.006	345
Oct 2018	3.011	3.023	3.000	0.006	667
Nov 2018	3.065	3.075	3.051	0.007	240
Dec 2018	3.198	3.206	3.185	0.007	386
Jan 2019	3.279	3.286	3.266	0.007	263
Feb 2019	3.249	3.252	3.238	0.006	76
Mar 2019	3.171	3.174	3.162	0.003	20
Apr 2019	2.782	2.786	2.780	-0.002	24
May 2019	2.740	2.741	2.737	-0.004	40
Jun 2019	2.762	2.762	2.760	-0.005	41
Jul 2019	2.785	2.785	2.784	-0.006	1
Aug 2019	2.786	2.791	2.786	-0.008	5
Sep 2019	2.769	2.776	2.769	-0.010	3
Oct 2019	2.793	2.793	2.789	-0.009	3
Nov 2019	2.853	2.854	2.853	-0.009	1
Dec 2019	3.001	3.012	3.001	-0.011	1
Jan 2020	3.105	3.105	3.105	-0.012	0
Feb 2020	3.082	3.095	3.082	-0.013	2
Mar 2020	3.027	3.027	3.027	-0.014	0
Apr 2020	2.717	2.717	2.717	-0.014	0
May 2020	2.691	2.691	2.691	-0.014	0
Jun 2020	2.714	2.714	2.714	-0.014	0
Jul 2020	2.740	2.740	2.740	-0.014	0
Aug 2020	2.750	2.750	2.750	-0.014	0
Sep 2020	2.746	2.717	2.717	-0.014	0
Oct 2020	2.772	2.772	2.772	-0.014	0

Contract data for Monday

Volume of contracts traded: 433,469

Front-months open interest:

Nov, 162,085; Dec, 222,536; Jan, 197.237

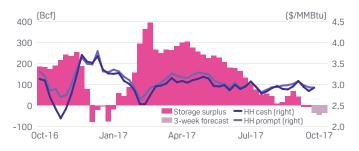
Total open interest: 1,381,749

Data is provided by a third-party vendor and is accurate as of 5:30 pm Eastern time.

#### NYMEX PROMPT MONTH FUTURES CONTINUATION



## BENTEK US GAS STORAGE SURPLUS vs ROLLING 5-YEAR AVERAGE



## **NORTHEAST GAS MARKETS**

## Markets lower as production rebounds

Cash markets across the US Northeast moved lower throughout trading Tuesday, as expectations for firm demand levels were offset by production growth, which bounced back above the 25 Bcf/d mark after being weighed down by regional pipeline issues.

After averaging 24.6 Bcf/d October 11-15, when a *force majeure* on Texas Eastern Transmission reduced regional outflow capacity by 1.8 Bcf/d, Northeast production bounced back Monday and Tuesday, adding 400 MMcf/d to average 25.4 Bcf/d week to date, Platts Analytics' Bentek Energy data shows.

The incremental build, which comes simultaneously with Sunday evening's lifting of the *force majeure*, brings production back in line with average levels seen during the 30 days prior to the *force majeure* event.

Cash markets in both Appalachian and New England saw losses Tuesday, despite expectations that demand will remain at 15.2 Bcf/d, or 1.2 Bcf above the October-to-date average, Wednesday, likely the result of this counterbalancing production growth.

Algonquin city-gates shed over 30 cents to trade at \$2.96/MMBtu, while production region benchmark Dominion South Point shed 13 cents to trade at \$1.165/MMBtu.

Elsewhere in Appalachia, Tennessee Gas Pipeline announced a force majeure at its Station 204, Unit 11A near Albany, Ohio, early Tuesday. The outage is expected to impact an additional 25 MMcf/d above the current 28 MMcf/d currently impacted at the location due to ongoing scheduled maintenance. It is unclear when the additional restrictions will be lifted, but while in place they are expected to cause primary in path nominations to be reduced to a pro rata portion effective Wednesday, TGP said in a notice early Tuesday.

Flows through the station 204 have averaged 1.768 Bcf/d over the last 30 days, compared to a current capacity of 1.785 Bcf/d, Platts Analytics flow data shows.

The limitations did little to affect gas on TGP's 200 leg, which saw downward movement largely in line with its regional peers, shedding around 13 cents to \$2.235/MMBtu.

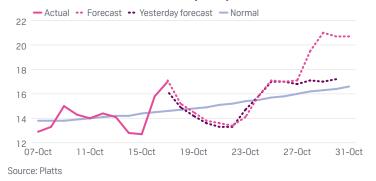
Total Northeast to Southeast net outflows on TGP sat at 1.3 Bcf/d Tuesday, in line with the running seven day average, but nearly 200 MMcf/d below the running 30-day average, the flow data also shows

## NORTHEAST SPOT AND FORWARD BASIS (\$/MMBtu)

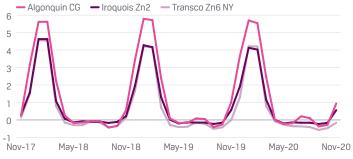
	<u>Spot basis</u>					Prompt forward basis			
	17-0ct	16-0ct	Chg	MTD Avg.	MTD last year	Chg	17-0ct	16-0ct	Chg
Henry Hub	2.88	2.87	0.01	2.88	2.99	-0.12			
Northeast region									
Algonquin CG	0.08	0.42	-0.34	-0.05	-1.14	+1.10	0.25	0.28	-0.04
Iroquois Zn2	0.15	0.17	-0.02	0.02	-1.06	+1.08			
Tenn Zn6 Dlvd	-0.07	0.22	-0.28	-0.17	-1.25	+1.09	0.15	0.19	-0.04
Transco Zn 6 NY	-0.08	-0.02	-0.06	-0.39	-2.11	+1.72	0.14	0.13	0.01
Transco Zn5 Dlvd	0.02	0.03	-0.02	0.03	-0.29	+0.33	0.18	0.17	0.01
Transco Zn6 Non-NY	-0.07	-0.01	-0.06	-0.37	-1.74	+1.37	0.07	0.08	-0.01
TX Eastern M-3	-1.39	-1.21	-0.18	-1.58	-2.20	+0.62	-0.62	-0.67	0.05
Appalachia									
Col Gas Appal	-0.21	-0.22	0.01	-0.26	-0.20	-0.05	-0.26	-0.26	0.00
Dominion N Pt	-1.74	-1.61	-0.13	-2.09	-2.25	+0.16	-1.00	-1.01	0.02
Dominion S Pt	-1.74	-1.58	-0.16	-2.07	-2.26	+0.18	-0.89	-0.93	0.04
Lebanon Hub	-0.14	-0.16	0.02	-0.21					
Millennium East Receipts	-1.89	-1.63	-0.26	-2.08	-2.26	+0.19			
Tenn Zn4-200 Leg	-0.65	-0.51	-0.14	-0.86	-2.11	+1.25	-0.74	-0.78	0.04
Tennessee zone 4-300 leg	-1.91	-1.64	-0.27	-2.10	-2.28	+0.18	-1.04	-1.09	0.04
Texas Eastern M-2 receipts	-1.74	-1.59	-0.15	-2.09	-2.28	+0.19			
Transco Leidy Line receipts	-1.83	-1.59	-0.24	-2.04	-2.24	+0.20			
Other locations									
Dracut MA							0.29	0.32	-0.03
Iroquois Receipts	0.10	0.08	0.02	-0.03	-1.05	+1.02			
Niagara					-2.34				

Source: Platts M2M data

## NORTHEAST DEMAND FORECAST (Bcf/d)

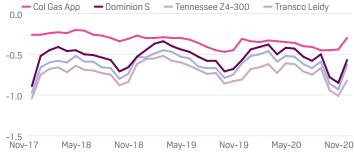


#### NORTHEAST FORWARD BASIS (\$/MMBtu)



Source: Platts

## APPALACHIA FORWARD BASIS (\$/MMBtu)



Source: Platts

## **SOUTHEAST GAS MARKETS**

## Decline stalls, HSC back up at \$3/MMBtu

Following a significant dip in the Southeast cash market Monday, the downward spiral stalled during Tuesday trading and points sought to reclaim some of Monday's decline even as demand is expected to continue to slip lower.

Katy Hub increased nearly 5 cents to \$2.975/MMBtu, while Houston-area counterpart, Houston Ship Channel tacked on 6 cents to \$3/MMBtu, following a trend over the last 30 days of HSC trading within a range of \$2.81/MMBtu to \$3.035/MMBtu.

Platts Analytics' Bentek Energy Southeast demand data is expected to trend lower to 17.65 Bcf/d Wednesday, 550 MMcf/d below Tuesday's projected levels.

LNG feedgas to Sabine Pass has been averaging 2.65 Bcf/d throughout the first half of October, about 470 MMcf/d above the previous 2017 summer high of 2.2 Bcf/d in July, driven primarily by Train 4 operations that have fostered the possibility of closing the month out at record levels.

In just the first 15 days of October, the facility has sent 10 cargoes out of the Gulf of Mexico facility, already 60% of the previous month's total, according to Platts Analytics Eclipse Energy data.

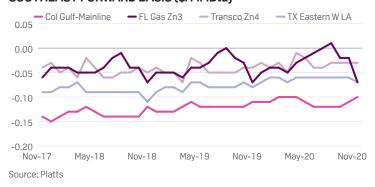
Currently, Platts Analytics cFlow data shows the Valencia Knutsen moored at the liquefaction facility as of Tuesday morning, signaling export cargoes will move to 11 shortly.

While the destination of these 10 cargoes is not yet known, five of the cargoes have transited the Panama Canal, eyeing either the Asian market or the Manzanillo import terminal along the Mexican Pacific coast, while two more cargoes in the Atlantic Basin maintain a high confidence of delivery to the Asian market, according to Platts Analytics cFlow data.

A driver in more cargoes to the Asian market is found in the early start to winter pricing for Platts JKM, which over the last 30 days has seen the front-month contract jump \$2.70/MMBtu to \$8.95/MMBtu as of Monday, a level not reached last winter until December 9.

During this 30-day timeframe, the differential between JKM and Platts Gulf Coast Market has skyrocketed from 54 cents/MMBtu to \$1.35/MMBtu as of Monday, averaging around \$1.07/MMBtu since September 6, possibly encouraging a jump in cargoes destined for the Asian market.

#### SOUTHEAST FORWARD BASIS (\$/MMBtu)



## SOUTHEAST SPOT AND FORWARD BASIS (\$/MMBtu)

			Spot	basis			Prompt	forward	basis
	17-0ct	16-0ct	Chg	MTD Avg.	MTD last year	Chg	17-0ct	16-0ct	Chg
Henry Hub	2.88	2.87	0.01	2.88	2.99	-0.12			
Southeast									
ANR LA	-0.09	-0.17	0.08	-0.13	-0.09	-0.04	-0.12	-0.12	0.00
Col Gulf LA	-0.09	-0.12	0.03	-0.09	-0.09	+0.00	-0.10	-0.10	0.00
Col Gulf-Mainline	-0.12	-0.14	0.02	-0.13	-0.10	-0.03	-0.14	-0.14	0.00
FL Gas Zn1	0.00	-0.04		-0.04	-0.04	+0.00	-0.06	-0.06	0.00
FL Gas Zn2	-0.04	-0.05	0.02	-0.04	-0.03	-0.01			
FL Gas Zn3	0.02		0.02	0.01	0.00	+0.00			
Florida CG				0.32	0.21	+0.11			
SoNat LA	-0.03	-0.05	0.02	-0.04	-0.05	+0.01	-0.10	-0.10	0.00
Tenn LA 500 Leg	-0.03	-0.05	0.03	-0.03	-0.04	+0.00	-0.10	-0.10	0.00
Tenn LA 800 Leg	-0.05	-0.10	0.05	-0.08	-0.06	-0.02	-0.09	-0.09	0.00
TETCO-M1	-0.15	-0.12	-0.03	-0.07	-0.04	-0.03	-0.10	-0.10	0.00
Texas Gas Zn SL				-0.14	-0.24	+0.10			
Texas Gas Zn1	-0.12	-0.15	0.03	-0.13	-0.13	+0.00			
Transco Zn2	-0.03	-0.09	0.06	-0.04	-0.13	+0.08	-0.19	-0.21	0.02
Transco Zn3	-0.03	-0.05	0.03	-0.04	-0.05	+0.01	-0.06	-0.07	0.00
Transco Zn4	-0.02	-0.05	0.04	-0.03	-0.04	+0.01	-0.04	-0.05	0.00
Trunkline E LA	-0.10	-0.09	-0.01	-0.09	-0.09	+0.00	-0.12	-0.12	0.00
Trunkline WLA	0.01	-0.01	0.02	-0.01	0.10	-0.10	-0.08	-0.08	0.00
Tx Eastern E LA	-0.08	-0.12	0.04	-0.06	-0.05	-0.01	-0.11	-0.11	0.00
TX Eastern W LA	-0.04	-0.06	0.02	-0.04	-0.05	+0.01	-0.09	-0.10	0.00
East & South Texas									
Agua Dulce					0.13		-0.03	-0.03	0.00
Carthage Hub	-0.06	-0.05	-0.01	-0.08	-0.10	+0.02	-0.10	-0.10	0.00
Houston Ship Channel	0.12	0.07	0.05	0.07	0.15	-0.08			
Katy	0.10	0.06	0.04	0.06	0.10	-0.04			
NGPL S TX	-0.05	-0.04	-0.01	-0.04	-0.09	+0.04			
NGPL Texok Zn	-0.10	-0.10	0.00	-0.13	-0.13	+0.00			
Tenn Zn0	-0.07	-0.09	0.02	-0.12	-0.07	-0.05	-0.10	-0.09	-0.01
Transco Zn1	-0.08	-0.09	0.02	-0.05	-0.14	+0.09	-0.09	-0.10	0.00
TX Eastern E Tx	-0.09	-0.09	0.01	-0.08	-0.13	+0.05	-0.09	-0.09	0.00
TX Eastern S TX	-0.04	-0.07	0.04	-0.01	0.00	-0.01	-0.05	-0.05	0.00

Source: Platts M2M data

## SOUTHEAST & TEXAS DEMAND FORECAST (Bcf/d)



Source: Platts

## EAST AND SOUTH TEXAS FORWARD BASIS (\$/MMBtu)



## **CENTRAL GAS MARKETS**

## Nicor pricing bucks constraints on oversupply

Chicago area pricing was unresponsive to nearby flow restrictions Tuesday as inflows into the region remained well above historical averages, continuing to keep the Upper Midwest in an oversupplied position.

ANR Pipeline announced a force majeure late Monday due to unexpected compressor repairs at its Birmingham Compressor Station in Van Buren County, lowa. The company expects the repairs to affect northbound flows through its Southwest Mainline Northbound by 155 MMcf/d, around half of which is the result of ongoing maintenance and the other half due to the repairs. The restrictions will start Wednesday and extend through October 27.

Northbound flows through the Southwest Mainline have averaged around 650 MMcf/d over the last two weeks, right at the segment's maintenance-induced constrained capacity. With the additional restrictions the segment is expected to see a total operating capacity of 544 MMcf/d, likely further reducing flows, including primary volumes, through the segment for the duration of the repairs.

The segment feeds the Chicago area markets, yet prices in the area did not see bullish movement due to the announcement, instead moving slightly lower, with NGPL Nicor trading at \$2.795/MMBtu, about 1 cent lower day on day.

The lack of response to the new restriction is likely the result of a largely oversupplied Upper Midwest market.

Inflows to the Upper Midwest have averaged 11.2 Bcf/d this month, around 25% greater than the same period last year, Platts Analytics' Bentek Energy data show. With outflows 50% lower year on year, these inflows have saturated Upper Midwest markets and taken Chicago city-gate pricing to a month-to-date average of \$2.75/MMBtu, around 12 cents below year-ago levels.

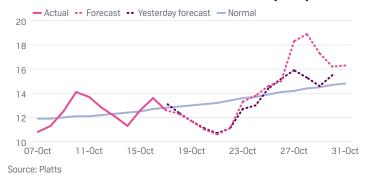
The oversupply also appeared to outweigh any price effect of a new capacity notice issued by Nicor, which limited deliveries to Nicor's city-gate from Northern Natural Gas for Wednesday's gas day.

Northern Natural Demarcation also bucked any price effect, gaining 1 cent to trade at \$2.71/MMBtu.

## CENTRAL SPOT AND FORWARD BASIS (\$/MMBtu)

	<u>Spot basis</u>					Prompt	Prompt forward basis			
	17-0ct	16-0ct	Chg	MTD Avg.	MTD last year	Chg	17-0ct	16-0ct	Chg	
Henry Hub	2.88	2.87	0.01	2.88	2.99	-0.12				
Midwest/East Canada										
ANR ML 7	-0.09	-0.14	0.05	-0.13	-0.12	-0.01	-0.05	-0.07	0.02	
Chicago CG	-0.09	-0.07	-0.02	-0.14	-0.12	-0.02	-0.10	-0.12	0.03	
Consumers Energy CG	0.04	0.38	-0.34	-0.03	-0.12	+0.09	-0.12	-0.14	0.02	
Dawn Ontario	0.04	0.03	0.02	-0.08	-0.14	+0.06	-0.04	-0.07	0.03	
Mich Con CG	-0.10	-0.11	0.02	-0.12	-0.14	+0.01				
Northern Ventura	-0.17	-0.17	-0.01	-0.22	-0.19	-0.03				
Viking-Emerson	-0.29	-0.26	-0.03	-0.59	-0.25	-0.35	-0.26	-0.26	0.00	
Midcontinent										
ANR OK	-0.29	-0.32	0.03	-0.37	-0.31	-0.06	-0.39	-0.39	0.00	
Enable Gas East	-0.25	-0.25	0.00	-0.21	-0.21	+0.00	-0.20	-0.20	0.01	
NGPL Midcontinent	-0.19	-0.25	0.06	-0.29	-0.22	-0.07				
Northern NG Demarc	-0.17	-0.17	0.00	-0.22	-0.16	-0.06				
Oneok OK	-0.41	-0.41	-0.01	-0.47	-0.37	-0.10				
Panhandle TX-0K	-0.30	-0.32	0.02	-0.38	-0.29	-0.09				
Southern Star TxOkKs	-0.36	-0.39	0.03	-0.40	-0.33	-0.07	-0.47	-0.47	-0.01	
Source: Platts M2M data							1			

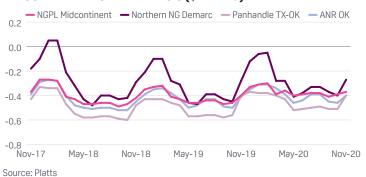
#### MIDWEST & MIDCONTINENT DEMAND FORECAST (Bcf/d)



#### MIDWEST FORWARD BASIS (\$/MMBtu)



## MIDCONTINENT FORWARD BASIS (\$/MMBtu)



## **WEST GAS MARKETS**

## SoCal Gas city-gate comes off one-day surge

After a one-day spike that saw the Southern California Gas city-gate pricing point rise some 70% to open the week, the market began to adjust to lower demand Tuesday, and prices fell correspondingly.

SoCal Gas city-gate was down about 60 cents/MMBtu to about \$5.11/MMBtu.

The rise Monday was fueled by several factors, including an outage at Arizona Public Services' 1,402-MW Palo Verde-1 nuclear unit in Wintersburg, Arizona. At the same time, electrical flows on Bonneville Power Administration's DC line, which brings current from the Pacific Northwest to Southern California, have been cut to zero as the line undergoes maintenance.

Both events boosted demand for thermal power generation, and on Monday, the California Independent System Operator cranked out 268,464 MWh/d using fossil fuels, which marked a one-month high.

The last time CAISO produced more with thermal power generation was September 12, when 297,073 MWh/d was generated.

Although both outages continued Tuesday, overall demand in the West declined, with Platts Analytics' Bentek Energy indicating the region would need about 9.4 Bcf/d, down about 345 MMcf/d from Monday and 425 MMcf/d below the six-day average of 9.8 Bcf/d.

According to the US National Weather Service, temperatures in major demand areas of the Southwest are due to begin a cooling trend. In Los Angeles, highs are expected in the low 80 degrees Fahrenheit Wednesday before falling into the 70s through Saturday, cutting down the need for air conditioning.

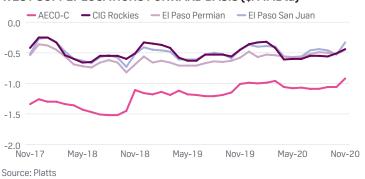
In Canada, Westcoast Station 2 saw a bit of an uptick after pipeline restrictions were loosened, allowing gas to flow from supply areas south to demand areas.

Westcoast Energy has been doing ongoing maintenance at its Station 4B South compressor, which has constricted flows. On Monday, capacity was limited to about 1,189,769 Gj/d, but on Tuesday they ramped up to 1,541,034 Gj/d. The company said those levels are expected to hold through October 23.

Westcoast Station 2 was trading at about 22 Canadian cents/Gj, up about 14 Canadian cents.

Looking ahead, the futures market was largely stable, with the NorthWest Power-Rockies November contract settling at about 36 cent/MMBtu, down about one cent from previous.

#### WEST SUPPLY LOCATIONS FORWARD BASIS (\$/MMBtu)



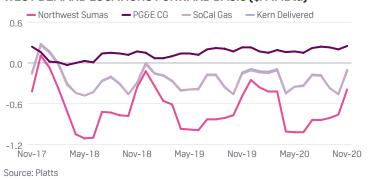
## WEST SPOT AND FORWARD BASIS (\$/MMBtu)

	Spot basis					Promp	Prompt forward basis			
	17-0ct	16-0ct	Chg		MTD Avg.	MTD last year	Chg	17-0ct	16-0ct	Chg
Henry Hub	2.88	2.87	0.01		2.88	2.99	-0.12			
Northwest										
GTN Kingsgate	-0.39	-0.44	0.06		-0.88	-0.48	-0.40			
Northwest Sumas	-0.24	-0.24	0.01		-0.36	-0.41	+0.04	-0.42	-0.40	-0.03
Northwest Stanfield	-0.25	-0.27	0.03		-0.37	-0.39	+0.02	-0.38	-0.40	0.02
Rockies										
Cheyenne Hub	-0.29	-0.31	0.02		-0.38	-0.33	-0.05	-0.42	-0.42	0.00
CIG Rockies	-0.29	-0.32	0.03		-0.39	-0.36	-0.03	-0.42	-0.42	0.00
Kern River Opal	-0.19	-0.26	0.07		-0.34	-0.32	-0.03			
NW WY Pool	-0.25	-0.28	0.03		-0.38	-0.37	-0.01			
Questar Rky	-0.28	-0.31	0.03		-0.39	-0.36	-0.04			
Southwest										
El Paso Permian	-0.35	-0.39	0.04		-0.49	-0.34	-0.15	-0.54	-0.51	-0.03
El Paso San Juan	-0.31	-0.37	0.06		-0.48	-0.33	-0.14	-0.52	-0.49	-0.03
Kern River Dlvd	0.08	-0.11	0.19		-0.21	-0.21	+0.00			
PG&E CG	0.43	0.31	0.12		0.25	0.33	-0.08			
PG&E Malin	-0.20	-0.23	0.03		-0.30	-0.27	-0.02			
PG&E South	-0.22	-0.28	0.06		-0.37	-0.23	-0.14			
SoCal Gas	0.06	0.03	0.03		-0.21	-0.23	+0.02	-0.16	-0.14	-0.03
SoCal Gas Citygate	2.23	2.85	-0.62		0.61	-0.10	+0.71	0.20	0.22	-0.02
Transwestern Permian	-0.31	-0.39	0.08		-0.48	-0.33	-0.15	-0.51	-0.49	-0.02
Waha	-0.31	-0.38	0.07		-0.44	-0.27	-0.17	-0.49	-0.46	-0.03
West Canada										
AECO-C	-2.65	-2.57	-0.08		-2.26	-0.10	-2.16			
Source: Platts M2M data				•						

## SOUTHWEST, NORTHWEST, ROCKIES DEMAND FORECAST (Bcf/d)



#### WEST DEMAND LOCATIONS FORWARD BASIS (\$/MMBtu)



## TOTAL NET PIPELINE FLOWS BY REGION (MMcf/d\*)

TOTAL NET FIFELINET LOWS BY REGION (MINCHO)										
	16-0ct	17-0ct	Change	MTD avg.	MTD last year	Change				
Supply regions – net pipeline outflows										
Texas	8,369	8,491	-122	8,314	8,117	197				
West Canada	7,891	7,973	-82	8,220	8,261	-41				
Rockies	6,741	6,736	5	6,637	6,639	-2				
Midcontinent	3,438	3,578	-140	3,248	2,850	398				
Northeast	7,634	7,662	-28	7,180	5,553	1,627				
Demand regions – net	pipeline inflo	ws								
Southwest	4,481	4,526	45	4,282	4,350	68				
Southeast	9,489	9,143	-346	8,975	8,276	-699				
Northwest	1,856	1,782	-74	1,793	1,638	-155				
Midwest	11,090	11,700	610	11,477	10,502	-975				
East Canada	2,816	3,105	289	2,989	2,758	-231				

<sup>\*</sup> Net pipeline flows by region are the aggregated total interstate pipeline flows across the regional border. Net supply regions are those that historically have had more supply than demand within the region and have been net suppliers of gas to other regions. Net demand regions historically have had more demand than supply and have been net receivers of pipeline gas from other regions.

## **HENRY HUB/NYMEX SPREAD**



## **GAS DAILY SUPPLEMENTS**

To access the latest issue of the Gas Daily supplements, click below.

Gas Daily Market Fundamentals (pdf)

Gas Daily Market Fundamentals Data (xls)

Gas Daily Monthly Price Guide (pdf)

\*Links require PMC login. For login help, contact support@platts.com.

## SHALE VALUE CHAIN ASSESSMENTS, OCT 17

	\$/MMBtu	+/-
Gulf Coast ethane fractionation spread	0.985	0.015
Gulf Coast E/P mix fractionation spread	0.872	0.015
E/P mix Midcontinent to Rockies fractionation spread	0.098	-0.091
E/P mix Midcontinent fractionation spread	-0.002	-0.121
National raw NGL basket price	7.808	-0.034
National composite fractionation spread	4.808	-0.094

The methodology for these assessments is available at:

www.platts.com/IM.Platts.Content/MethodologyReferences/MethodologySpecs/shale-value-chain.pdf

#### PLATTS OIL PRICES, OCT 17

	(\$/b)	(\$/MMBtu)	
Gulf Coast spot			
1% Resid (1)	51.25-51.27	8.20	
HSF0 (1)	49.50-49.52	7.92	
Crude spot			
WTI (Nov) (2)	51.87-51.89	8.94	
New York spot			
No.2 (1)	68.01-68.05	10.89	
0.3% Resid LP (3)	56.13-56.15	8.98	
0.3% Resid HP (3)	56.13-56.15	8.98	
0.7% Resid (3)	52.53-52.55	8.41	
1% Resid (3)	50.63-50.65	8.10	

1= barge delivery; 2= pipeline delivery; 3= cargo delivery

## S&P Global

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## Gas Daily Questions? Email:

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## FINAL DAILY GAS INDICES - ICE LOCATIONS (\$/MMBtu)

FINAL DAILY GAS INDICES – ICE LOCATIONS (\$/MMBtu)									
Trade date: 17-Oct								Powered	ıce
Flow date(s): 18-Oct			Daily	Absolute	Absolute	Common	Common	by	
Location	Symbol	Index	Change	Low	High	Low	High	Volume	Deals
Northeast	oyoo.	moox	Onlongo	2011	ı ııgıı	2011	· · · · · ·	volumo	20010
ICE Algonquin CG (Excl. J and G Lateral deliveries)	744424	2.060	0.205	2.060	2.040	2015	3.005	EOE	126
ICE Algonquin Citygates (Excl. J Lateral deliveries)	JAAAA21 JAAAB21	2.960	-0.305	2.860	3.040	2.915	3.005	505	126
ICE Iroquois, zone 1 (delivered excl. Waddington)	JAABS21								
ICE Iroquois, zone 2 (non-Hunts Point/Eastchester Lateral)	JAABT21	3.045	+0.025	3.020	3.080	3.030	3.060	73	16
ICE Iroquois, zone 2 Hunts Point/Eastchester Lateral	JAABU21	_		_	_	_			
ICE Maritimes, Hubline and Beverly Salem	JAACB21	_	_	_	_	_	_	_	
ICE Maritimes and Northeast Pipeline US (buyer's choice delivered)	JAACC21	_	_	_	_	_	_	_	_
ICE PNGTS (buyer's choice delivered)	JAADH21	_	_	_	_	_	_	_	_
ICE Stagecoach Marcellus Hub	JAAEN21								
ICE Tennessee, zone 5, 200 Line, delivered downstream of station 2	45 JAAEU21	2.750	-0.110	2.750	2.750	2.750	2.750	17	6
ICE Texas Eastern, Manhattan Lateral (delivered)	JAAEW21								
ICE Transco, Cove Point, Pleasant Valley Interconnect	JAAAY21								
ICE Transco, zone 6 (non-NY north mainline)	JAAEZ21								
ICE Transco, zone 6 station 210 Pool	JAAFA21	2.840	-0.010	2.800	2.860	2.825	2.855	83	16
Appalachia									
ICE Clarington Tennessee	JAAFI21								
ICE Columbia Gas, A04 Pool	JAAAU21								
ICE Columbia Gas, A06 Pool	JAAAV21								
ICE Columbia Gas, Segmentation Pool	JAAAW21								
ICE Millennium Pipeline (buyers' choice delivered) ICE Tennessee, zone 4, station 219 Pool	JAAHA21	2.195	-0.175	2.050	2.250	2.145	2.245	60	16
ICE Texas Eastern, M2 Zone (delivered)	JAAET21 JAAEV21	2.195	-0.175	2.050	2.250	2.145	2.245		
Midcontinent	JARLVII								
ICE Bennington, Oklahoma	7444424							_	
ICE Enable Gas, Flex Pool only	JAAAM21 JAABE21	2.625	-0.050	2.600	2.680	2.605	2.645	99	 18
ICE Enable Gas, North Pool only	JAABE21 JAABF21	2.025	-0.050	2.000	2.000	2.005	2.045		
ICE Enable Gas, West (W1 or W2 as mutually agreed)	JAABI21								
ICE Enable Gas, West Pool	JAABJ21			_				_	
ICE NGPL, Gulf Coast Mainline Pool	JAACI21	2.775	+0.040	2.770	2.775	2.775	2.775	40	4
ICE NGPL, Mid-Continent Storage PIN	JAAC021	_	_	_	_	_	_	_	_
ICE Northern Natural, Mid 13 - 16A Pool	JAACW21	_	_	_	_	_	_	_	_
ICE Northern Natural, Mid 1-7 Pool	JAACX21	_	_	_	_	_	_	_	_
ICE Northern Natural, Mid 8 -12 Pool	JAACY21								
ICE Salt Plains Storage (buyers' choice)	JAADV21			_					
ICE Salt Plains Storage (in-ground transfer only)	JAADW21								
Upper Midwest									
ICE Alliance, Chicago Exchange Hub	JAAAC21	2.775	+0.000	2.765	2.800	2.765	2.785	363	62
ICE Alliance, ANR Interconnect	JAAAD21								
ICE Alliance, Midwestern Interconnect	JAAFX21								
ICE Alliance, NGPL Interconnect	JAAAF21								
ICE Alliance, Nicor Interconnect	JAAAG21								
ICE AND Legist Harb CDD	JAAAH21	2.705		2.700	2.770	2.705	2.770		
ICE ANR, Joliet Hub CDP ICE Bluewater Gas Storage	JAAAK21 JAAAN21	2.765	+0.020	2.760	2.770	2.765	2.770	30	4
ICE Great Lakes Gas, St. Clair	JAABM21								
ICE Guardian, Guardian Hub	JAABN21					_		_	
ICE NGPL, Amarillo Pooling PIN	JAACG21	2.700	+0.015	2.685	2.730	2.690	2.710	152	28
ICE NGPL, Amarillo Storage PIN	JAACH21		_	_	_	_	_	_	
ICE NGPL, Iowa-Illinios Pooling PIN	JAACJ21	_	_	_	_	_	_	_	_
ICE NGPL, Iowa-Illinois Storage PIN	JAACK21	_	_	_	_	_	_	_	_
ICE NGPL, Mid-American Citygate	JAACN21	2.795	-0.015	2.795	2.795	2.795	2.795	19	2
ICE Northern Border, Harper Transfer Point	JAACS21								
ICE Northern Border, Nicor Interconnect	JAACT21								
ICE Northern Border, Vector Interconnect	JAACU21	2.775	-0.005	2.765	2.785	2.770	2.780	254	34
ICE Northern Border, Will County	JAACV21	2.770	-0.010	2.765	2.780	2.765	2.775	52	14
ICE REX (East), delivered into ANR	JAADK21	2.740	+0.030	2.730	2.750	2.735	2.745	354	54
ICE REX (East), delivered into Lebanon Hub	JAAHC21	2.750		2.740	2.750	2.750	2.750	120	
ICE REX (East), delivered into Midwestern Gas ICE REX (East), delivered into NGPL	JAADH21	2.750	+0.030	2.740	2.750	2.750	2.750	138 217	26 36
ICE REX (East), delivered into NoPL  ICE REX (East), delivered into Panhandle	JAADM21 JAADN21	2.740	+0.020	2.725	2.740	2.730	2.740	42	8
TOE THEN (EDOC), CONTOTO WITTO FOR HITTORION	JAMUNZI	2.133	.0.020	L.1 LJ	L.1 TU	2.130	L.1 70	74	

## FINAL DAILY GAS INDICES - ICE LOCATIONS (\$/MMBtu)

Trade date: 17-Oct									
Flow date(s): 18-Oct			Daily	Absolute	Absolute	Common	Common		
Location	Symbol	Index	Change	Low	High	Low	High	Volume	Deals
Upper Midwest									
ICE REX (East), delivered into Trunkline	JAADO21	2.735	+0.010	2.720	2.765	2.725	2.745	61	10
ICE REX (West), delivered into ANR	JAADP21	_	_	_	_	_	_	_	_
ICE REX (West), delivered into Northern Natural	JAADQ21	_	_	_	_	_	_	_	_
ICE REX (West), delivered into Panhandle	JAADR21	_	_	_		_	_	_	_
East Texas									
ICE Agua Dulce Hub	JAAGI21								
ICE Atmos, zone 3, receipts	JAAAL21	_	_	_	_	_	_		
ICE Carthage Hub Tailgate	JAAAQ21	2.810	-0.010	2.790	2.870	2.790	2.830	32	8
ICE ETC, Maypearl	JAABK21	_	_	_	_	_	_	_	_
ICE Golden Triangle Storage & Hub	JAABL21	_	_	_	_	_	_	_	
ICE Gulf South, Pool Area #16	JAABP21	2.790	+0.015	2.785	2.830	2.785	2.800	213	32
ICE HPL, East Texas Pool	JAABR21	_	_	_	_	_	_	_	_
ICE Katy, ENSTOR Pool (excl. Kinder Morgan Texas)	JAABW21	2.975	+0.050	2.965	3.000	2.965	2.985	287	34
ICE Katy, Lonestar (warranted as Intrastate)	JAABX21	_		_	_	_			
ICE Katy, Lonestar Interstate	JAABY21	2.970	+0.045	2.965	3.000	2.965	2.980	165	18
ICE Katy, Oasis Pipeline	JAABZ21	2.985	+0.045	2.980	3.030	2.980	3.000	80	10
ICE Moss Bluff Interconnect (buyers' choice delivered)	JAACD21	2.960	+0.020	2.950	2.960	2.960	2.960	292	34
ICE Moss Bluff Storage (in-ground transfers only)	JAACE21								
ICE NGPL, TXOK East Pool	JAACP21	2.785	+0.010	2.770	2.805	2.775	2.795	264	34
ICE NGPL, TXOK West Pool	JAACQ21								
ICE NorTex, Tolar Hub	JAACR21	2.740	-0.015	2.700	2.750	2.730	2.750	25	6
ICE Tennessee, zone 0 North	JAAEP21								
ICE Tennessee, zone 0 South	JAAEQ21	2.815	+0.030	2.770	2.820	2.805	2.820	24	12
ICE Tres Palacios Hub - Injection	JAAFE21	2.855	+0.020	2.840	2.880	2.845	2.865	182	32
ICE Tres Palacios Hub - Withdrawal	JAAFF21	2.975	+0.060	2.965	3.000	2.965	2.985	156	24
Louisiana/Southeast									
ICE ANR, SE Transmission Pool	JAAAI21	2.790	+0.085	2.770	2.800	2.785	2.800	56	12
ICE ANR, SE Gathering Pool	JAAAJ21								
ICE Bobcat Interconnect (buyers' choice delivered)	JAAA021								
ICE Bobcat Storage (in-ground transfer only)	JAAAP21								
ICE Egan Interconnect (buyers' choice delivered)	JAAAZ21								
ICE Egan Storage (in-ground transfer only)	JAABA21								
ICE Enable Gas, Perryville Hub ICE Enable Gas, South Pool only	JAABG21	2 020		2 000	2.850	2.810	2 025	4	4
ICE Gulf South, Perryville Exchange Point	JAABH21 JAABO21	2.820	+0.070	2.800	2.850	2.800	2.835	26	4
ICE Jefferson Island Storage and Hub	JAABU21 JAABV21	2.000	+0.020 —	2.000	2.000	2.000	2.000		
ICE MS Hub Storage	JAACF21								
ICE NGPL, Louisiana Pooling PIN	JAACL21								
ICE NGPL, Louisiana Storage PIN	JAACM21								
ICE Pine Prairie Hub	JAADF21	2.830	+0.025	2.825	2.875	2.825	2.845	509	60
ICE Sonat, Zone 0	JAAHE21			_	_	_			
ICE Sonat, Zone O South Louisiana Pool	JAAEJ21	2.850	+0.030	2.830	2.860	2.845	2.860	836	136
ICE Sonat, Zone 1 North Pool	JAAEK21	_	_	_	_	_	_		_
ICE Southern Pines Hub	JAAEM21	_	_	_	_	_	_		
ICE Stingray, pool delivery	JAAE021	_	_	_	_	_	_	_	_
ICE Tennessee, zone 1 100 Leg Pool	JAAER21	2.780	-0.050	2.780	2.780	2.780	2.780	20	2
ICE Tennessee, zone 1, Station 87 Pool	JAAES21	2.780	+0.005	2.760	2.820	2.765	2.795	118	22
ICE Texas Gas, Mainline Pool	JAAEX21	2.760	+0.035	2.750	2.815	2.750	2.775	644	88
ICE Texas Gas, North Louisiana Pool	JAAEY21								
Rockies/Northwest									
ICE CIG, Mainline (sellers' choice, non-lateral)	JAAFY21	2.590	+0.045	2.585	2.620	2.585	2.600	77	18
ICE CIG, Mainline Pool	JAAFZ21	_	_	_	_	_	_	_	_
ICE CIG, Mainline South (sellers' choice)	JAAAT21		_	_	_		_		
ICE Kern River, on system receipt	JAACA21	2.690	+0.080	2.640	2.750	2.665	2.720	617	92
ICE Opal Plant Tailgate	JAADB21	2.690	+0.095	2.640	2.750	2.665	2.720	256	36
ICE PG&E, Onyx Hill	JAAHB21								
ICE Pioneer Plant Tailgate	JAADG21	2.695	+0.085	2.665	2.700	2.685	2.700	70	10
ICE Questar, North Pool	JAADI21	2.600	+0.000	2.600	2.600	2.600	2.600	2	2
ICE Questar, South Pool	JAADJ21	2.600	+0.040	2.600	2.600	2.600	2.600	14	4

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Rockies/Northwest									
ICE Ruby, Onyx Hill	JAADS21	2.685	+0.025	2.680	2.690	2.685	2.690	30	6
ICE Ruby, Receipt Pool	JAADT21	_	_	_	_	_	_		_
ICE Ryckman Creek Gas Storage	JAADU21	_	_	_	_	_	_		_
ICE WIC, Pool	JAAFH21		_	_	_	_	_	_	
Southwest									
ICE El Paso, Keystone Pool	JAABB21	2.505	+0.015	2.500	2.520	2.500	2.510	327	44
ICE El Paso, Plains Pool	JAABC21		_	_	_	_	_	_	
ICE El Paso, Waha Pool	JAABD21	2.555	+0.085	2.550	2.580	2.550	2.565	215	24
ICE Oasis, Waha Pool	JAACZ21	2.520	+0.045	2.480	2.550	2.505	2.540	52	6
ICE ONEOK, Westex Pool	JAADA21	2.560	+0.070	2.510	2.580	2.545	2.580	145	24
ICE PG&E, Daggett	JAADC21	_	_	_	_	_	_	_	
ICE PG&E, Kern River Station	JAADD21	_	_	_	_	_	_	_	_
ICE PG&E, Topock	JAADE21	2.670	+0.075	2.640	2.700	2.655	2.685	365	50
ICE Socal, Blythe	JAADX21	_	_	_	_	_	_	_	
ICE Socal, Ehrenberg (delivered)	JAADY21	2.985	-0.045	2.900	3.000	2.960	3.000	210	28
ICE Socal, Firm Storage only (Citygate)	JAADZ21	_	_	_	_	_	_	_	_
ICE Socal, In-ground transfer only (Citygate)	JAAEA21	_	_	_	_	_	_	_	_
ICE Socal, Interruptible Storage only (Citygate)	JAAEB21	_	_	_	_	_	_	_	_
ICE Socal, Kern River Station	JAAEC21	2.795	+0.080	2.750	2.800	2.785	2.800	83	16
ICE Socal, Kramer Junction	JAAED21	_	_	_	_	_	_	_	_
ICE Socal, Needles	JAAEE21	_	_	_	_	_	_	_	_
ICE Socal, sellers' choice delivered incl. CA production	JAAEF21	_	_	_	_	_	_	_	_
ICE Socal, Topock	JAAHD21	_	_	_	_	_	_	_	
ICE Socal, Topock, El Paso	JAAEG21	_	_	_	_	_	_	_	_
ICE Socal, Topock, Transwestern	JAAEH21	_	_	_	_	_	_	_	
ICE Socal, Wheeler Ridge	JAAEI21				_				
ICE Transwestern, Central Pool	JAAFB21	2.550	+0.070	2.550	2.550	2.550	2.550	20	2
ICE Transwestern, Panhandle Pool	JAAFC21			_	_		_		
ICE Transwestern, West Texas Pool	JAAFD21	2.590	+0.100	2.580	2.590	2.590	2.590	33	8
ICE Waha Hub, West Texas (buyer's choice delivered)	JAAFG21	2.615	+0.075	2.600	2.635	2.605	2.625	145	24

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