

January 21, 2014

Natural Gas Trends

Highlights

Polar vortex 'stressed' gas, power grids: FERC

The recent polar vortex broke new winter peak-demand records for gas and electricity while testing the limits of the power and pipeline grids in several regions, the Federal Energy Regulatory Commission said in a preliminary report Thursday. "Cold temperatures stressed the bulk power system with high loads, increased generator forced outages and other challenging operating conditions," said David Burnham, an official with FERC's Office of Electrical Reliability. Still, Burnham said, the system "remained stable and generally performed reliably throughout the event."

US gas demand climbed to 137 Bcf/d on January 7 at the height of the rare cold snap, breaking a five-year-old winter record by a full 11 Bcf/d and pushing gas prices to an average of \$70/MMBtu along the I-95 corridor between New Jersey and Richmond, according to the report presented at FERC's monthly meeting Thursday. Electricity prices generally followed, with on-peak average real-time prices climbing as high as \$765/MWh in PJM and \$510/MWh in the NYISO, FERC said. "On balance, the system responded well," FERC Acting Chairwoman Cheryl LaFleur told reporters Thursday. "There will definitely be lessons learned."

The weather event, in which temperatures throughout much of the US were roughly 20 to 40 degrees below normal, caused a variety of generation problems for systems operators, including frozen coal stockpiles at coal-fired plants and some wind turbines not reaching minimum operating temperatures. But the impacts of low temperatures may have been felt most deeply in the gas sector, according to the report. The Midwest, Northeast and Southeast regions set record demands for gas while Eastern and Central regions neared all-time peaks. As demand soared, compressor station outages on the Texas Eastern Transmission pipelines in western Pennsylvania caused throughput reductions of 10% of pipeline load, while other pipelines curtailed interruptible or secondary form transportation and storage services, FERC said.

"A number of Northeast and Midwest local distribution companies reported pressure drops on their systems, asking non-essential customers to voluntarily curtail gas use," said Alan Haymes, an economist with FERC's Office of Enforcement. "Well freeze-offs in some major producing basins reduced natural gas supply, just as demand was peaking." Haymes said gas supply from the Marcellus Shale formation fell by 1 Bcf/d last week. These various restrictions stressed electrical supply as well, but efforts, including gas-electric coordination procedures, "generally worked well," Burnham said. Forced generation outages in the "most severely impacted" areas of the Eastern Interconnection were about 50 GW on January 6 and 7, according to Mike Moon, senior director for reliability risk management at the North American Electric Reliability Corporation.

"Upon rudimentary analysis, this is higher than the historical wintertime average forced outage of 33 GW," Moon said. "Additional analysis is needed to understand the initial outage numbers in their overall context of performance relative to historical trends, recognizing that not all of the outages were due to weather." The estimates appear lower than the outage estimates released by operators. MISO, for example, said Wednesday that there were nearly 28.8 GW of outages over the weather event's two days while PJM reported more than 38 GW over the same timeframe. ERCOT reported 3.7 MW of outages during those two days. FERC officials cautioned that the data was preliminary and a more thorough report was expected later this year.

"On the whole, preliminary data indicates that forced outages were significant in some regions," Burnham said. "However, more analysis is needed to determine how much of this was weather-related." Moon said that while analysis of the weather event's impact on outages was still in the preliminary stages, the "overall outcome" of last week's weather appeared to be better than the outages caused by a similar cold weather event in February 2011. Source: Platts Gas Daily

Data

- February 2014 Natural Gas Futures Contract (as of January 17), NYMEX at Henry Hub closed at \$4.326053 per million British thermal units (MMBtu)
- February 2014 Light, Sweet Crude Oil Futures Contract WTI (as of January 17), closed at \$94.37 per U.S. oil barrel (Bbl.) or approximately \$16.27 per MMBtu

Last week: Texas cooler than normal

For the week beginning 1/12/14 and ending 1/18/14, heating degree days (HDD) were higher than normal (cooler) for the week and the year to date for most Texas cities shown and for the US.

Source: www.cpc.ncep.noaa.gov

HEATING DEGREE DAYS (HDD)				
City or Region	Total HDD for week ending 1/18/14	*Week HDD +/- from normal	Year-to-date total HDD	* YTD % +/- from normal
Amarillo	154	-56	2225	-3%
Austin	111	-1	1183	27%
DFW	99	-50	1412	7%
El Paso	120	-27	1325	-11%
Houston	86	-12	947	12%
SAT	71	-34	876	-2%
Texas**	92	-31	1242	12%
U.S.**	169	-40	2272	0%

* A minus (-) value is warmer than normal; a plus (+) value is cooler than normal. NOAA uses 65° Fahrenheit as the 'normal' basis from which HDDs are calculated. ** State and U.S. degree days are population-weighted by NOAA.

-999 = Normal Less Than 100 or Ratio Incalculable

Last week: U.S. natural gas storage at 2,530 Bcf

For the week ending 1/10/2014 working gas in storage decreased from 2,817 Bcf to 2,530 Bcf. This represents a decrease of 287 Bcf from the previous week. Stocks were 659 Bcf lower than last year at this time and 443 Bcf below the 5 year average of 2,973 Bcf.

Source: <http://ir.eia.gov/ngs/ngs.html>

U.S. WORKING GAS IN STORAGE				
Region	Week ending 1/10/14	Prior week	One-week change	Current Δ from 5-YR Average (%)
East	1,254	1,403	-149	-18.9%
West	364	395	-31	-11.2%
Producing	912	1,019	-107	-10.2%
Lower 48 Total	2,530	2,817	-287	-14.9%

Lower 48 states, underground storage, units in billion cubic feet (Bcf)

Last week: U.S. gas rig count down for the week

The gas rig count for the U.S. was up eight compared to the prior week and down 64 when compared to twelve months ago. The total rig count for the U.S. was up 23 for the week and up 28 when compared to twelve months ago. The total rig count includes both oil and natural gas rotary rigs.

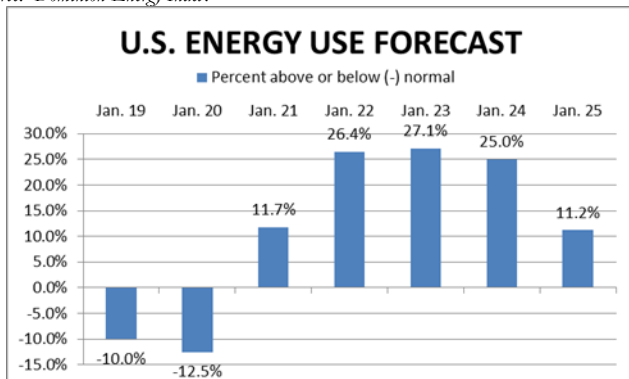
Source: Baker Hughes

BAKER HUGHES ROTARY RIG COUNT				
	As of 1/17/2014	+/- prior week	Year ago	+/- year ago
Texas	841	16	813	28
U.S. gas	365	8	429	-64
U.S. oil	1408	15	1316	92
U.S. total	1777	23	1749	28
Canada	565	88	601	-36

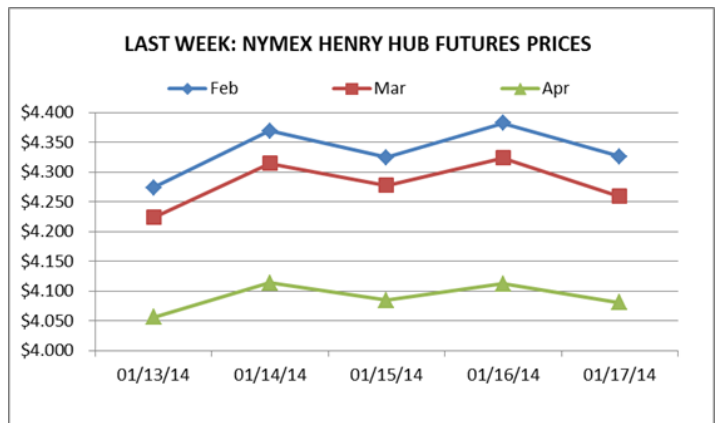
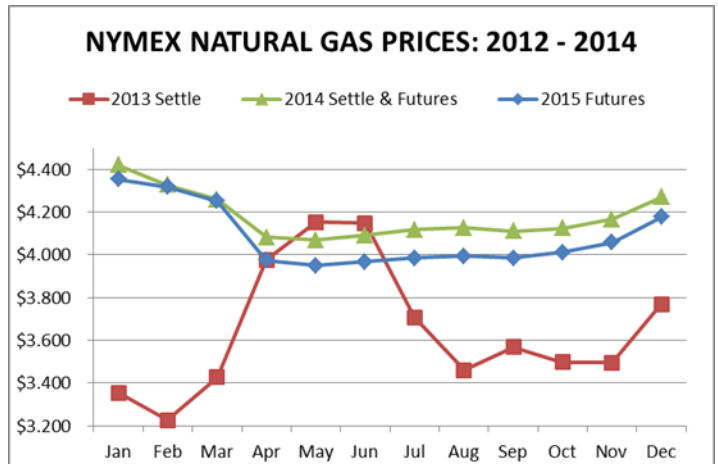
This week: U.S. energy use varies

U.S. energy use is predicted to be below normal early in the week increasing to above normal for the remainder of the week, according to the Dominion Energy Index, as shown below. Dominion forecasts total U.S. residential energy usage, a component of which is natural gas.

Source: Dominion Energy Index



2014 prices. Natural gas prices for 2014, shown below in green, are the NYMEX settlement prices for January and futures prices for the remainder of the year.



NATURAL GAS PRICE SUMMARY AS OF 1/10/2014

This Week	+/- Last Week	+/- Last Year	12-Month Strip Avg.
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US February futures

NYMEX	\$4.053	-\$0.251	\$0.827	\$3.995
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