

THURSDAY, DECEMBER 13, 2018

## Sharp Loss Sets Up Potential Test of Support at \$4.00/MMBtu

- Heavy technical selling helped exacerbate yesterday's comparatively moderate decline in weather-driven demand. Technicals suggest further declines may be warranted and could soon challenge—potentially breaking through—support at \$4.00/MMBtu.
- The resolution of substantial weather model uncertainty in the 11-15 day period may be the key near-term price driver. If the cold Week 4 forecast (more on p. 2) covering days 16-22 verifies and rolls forward into the closely watched 11-15 day range, however, the natural gas market may begin to recapture recent losses.
- Amid the sizable move lower, a surprise in today's EIA Storage Report could intensify the sell-off—or help stem losses. Our 81 Bcf projection lies in the middle of consensus analyst estimates of 79-84 Bcf, but we highlight the potential for strong linepack ahead of particularly cold weather late last week to result in a bullish surprise.

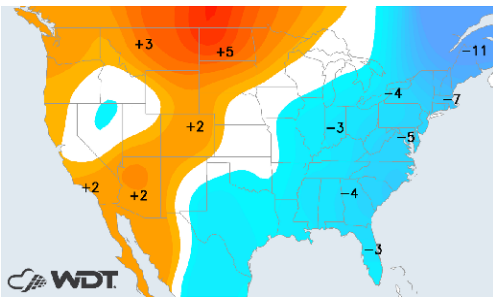
January Natural Gas Contract  
Wednesday's close: \$4.136  
**Down 27.1 cents (-6.1%)**

### NYMEX Front-Month Natural Gas Contract Price Trends

Forecast Period	EBW Predicted Trend
7-10 days (January 2019 Contract)	Could Challenge Support at \$4.00 or Below
30-45 days (February 2019 Contract)	Heavily Weather Dependent

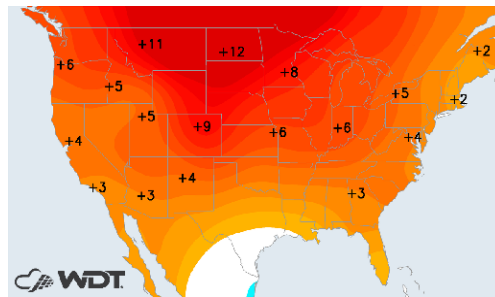
#### Storage Week 1: Dec 7 to Dec 13

Projected Storage Change: -141 Bcf



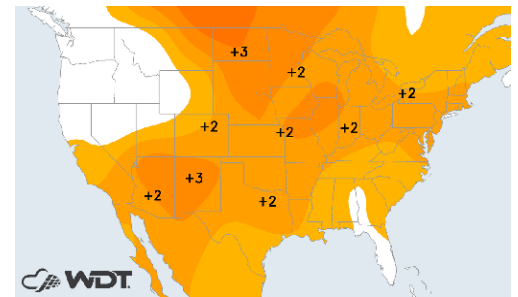
#### Storage Week 2: Dec 14 to Dec 20

Projected Storage Change: -68 Bcf



#### Storage Week 3: Dec 21 to Dec 27

Projected Storage Change: -97 Bcf



Maps show anomalies vs. 30-year norm.

#### Storage Week 1: Gas-Weighted HDDs

Actual/Forecast <b>198.8 HDDs</b>	30-Year Norm	190.5
	Anomaly	+8.3
	Δ Since Yesterday	-0.9
	CDDs	0.8

#### Storage Week 2: Gas-Weighted HDDs

Forecast <b>167.0 HDDs</b>	30-Year Norm	201.6
	Anomaly	-34.6
	Δ Since Yesterday	+1.2
	CDDs	0.9

#### Storage Week 3: Gas-Weighted HDDs

Forecast <b>191.7 HDDs</b>	30-Year Norm	209.1
	Anomaly	-17.4
	Δ Since Yesterday	-1.7
	CDDs	0.4

#### Storage Week 1: Weather Driven Demand

Actual/Forecast <b>68.2 Bcf/day</b>	Δ Since Yesterday	-0.1
	Δ Since Last Year	-1.8

#### Storage Week 2: Weather Driven Demand

Forecast <b>57.8 Bcf/day</b>	Δ Since Yesterday	+0.3
	Δ Since Last Year	+0.1

#### Storage Week 3: Weather Driven Demand

Forecast <b>62.2 Bcf/day</b>	Δ Since Yesterday	-0.3
	Δ Since Last Year	-12.9

#### Cumulative Changes Since Yesterday

<b>HDDs</b>	<b>Demand</b>	<b>Price Impact</b>
<b>-1.4</b>	<b>-0.5 Bcf</b>	<b>-0.2¢/MMBtu</b>

#### Cumulative Changes Since Last Friday

<b>HDDs</b>	<b>Demand</b>	<b>Price Impact</b>
<b>-15.0</b>	<b>-26.5 Bcf</b>	<b>-8.8¢/MMBtu</b>

Projected end-of-March natural gas storage at Wednesday's strip prices: 1,179 Bcf | Coal displacement: 0.0 Bcf/day

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Natural Gas Storage Change				
Week Ending	HDDs	Injection	Changes	vs. 2017
11/29/2018 (actual)	162.3	-63	0	-65
12/06/2018 (forecast)	169.9	-81	0	-12
12/13/2018 (forecast)	198.8	-141	1	41
12/20/2018 (forecast)	167.0	-68	-2	44
12/27/2018 (forecast)	191.7	-97	2	109

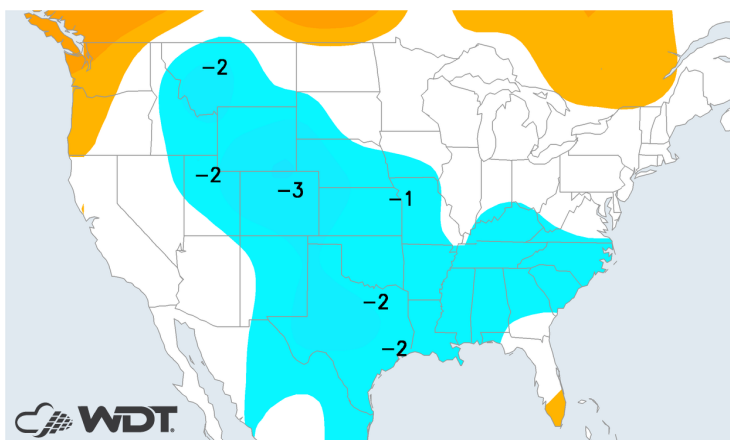
Total Underground Storage (Bcf)			
Week Ending	Total Storage	vs. 2017	vs. 5-Year Avg
11/29/2018 (actual)	2,991	-704	-725
12/06/2018 (forecast)	2,910	-726	-721
12/13/2018 (forecast)	2,769	-701	-709
12/20/2018 (forecast)	2,701	-647	-655
12/27/2018 (forecast)	2,605	-550	-648

### Significant Developments

- At Greentech Media's energy storage conference in San Francisco yesterday, several speakers expressed the view that energy storage is not yet economic. The underlying realities, however, may be more complex.
- While the estimated cost per kilowatt hour for lithium ion battery storage is still higher than other alternatives, a number of other speakers—including representatives of Duke Energy, Xcel and others—reported that nearly every new greenfield storage project is considering a hybrid solar/storage configuration. Further, some states could soon insist that new renewable energy PPAs require that solar be bid on a firm basis for up to ten hours today—a requirement that would result in storage being attached to almost every new project.
- These trends could result in as much as 5,000-10,000 MW/year of new storage being added yearly by early in the next decade—a far more rapid deployment rate than most industry observers currently expect.
- If this occurs, the ability to use storage to shift electricity generated from solar into hours in which the sun is no longer shining could start to significantly reduce the use of natural gas—in peaking units by as early as 2022 or 2023, and bring construction of new gas-fired combustion turbines to a halt in many parts of the country.

### What the Charts Are Telling Us

WDT Week 4 Preview for the Week Ending January 3rd



- WDT's Week 4 preview features a break from the prevailing Week 3 pattern, with colder-than-normal weather covering portions of the west, central and southeastern portions of the US.
- Current forecasts suggest heating demand could increase by 25 gHDDs from Week 3 to Week 4, potentially increasing weather-driven gas consumption by 7.7 Bcf/d week-over-week.
- From a meteorological perspective, the stratospheric pattern is expected to once again become more favorable to cold weather during a stretch that includes Week 4 as the Madden-Julian Oscillation weakens and ridging returns over Alaska and the West Coast. The exact timing of those climatological developments is uncertain, however.
- WDT's outlook, if it verifies, could substantially bolster the case for bullish NYMEX futures trading to close the month.

### Weekly Degree Days by EIA Region

### Calendar

NG Storage Report	Today
EIA DPR	December 17
NG Storage Report	December 20th

January Options Expire	December 26
January Contract Expires	December 27
EIA 914 Report	December 31