



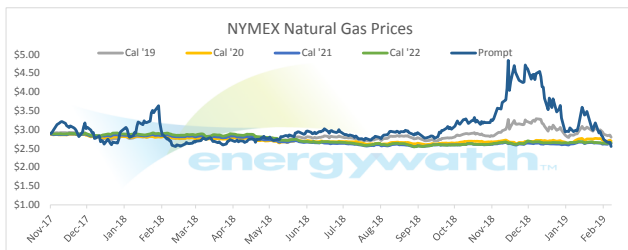
Week Ending: 2/7/2019

**Weekly Update:**

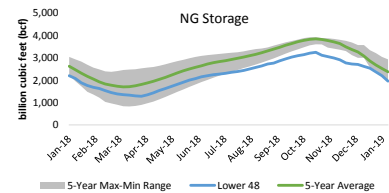
NYMEX front month natural gas closed yesterday at \$2.551/MMBtu, down 6.69% from last week's closing price of \$2.734/MMBtu. We saw a 237 bcf withdrawal from storage which was 13 bcf lower than the expected 250 bcf extraction, but was more than double the 116 bcf pull this same week last year and higher than the 150 bcf five-year average. "The larger than normal withdrawal was the result of frigid weather across the Midwest and East last week which resulted in very strong heating demand" (Constellation). "According to data from the National Oceanic and Atmospheric Administration (NOAA), daily temperatures in the Lower 48 states averaged 28° Fahrenheit (F) for the week ending January 31, which was 6° lower than the thirty-year average for the same period and 11° lower than year-ago levels" (EIA). The total 1,960 bcf in storage is 6.4% below last year and 17.5% below the five-year average.

"The natural gas share of U.S. electricity generation largely depends on natural gas prices. Relatively low natural gas prices lead to higher utilization of existing plants and to more natural gas power plant construction. The price of natural gas delivered to electric power plants averaged \$3.42 per million British thermal units (Btu) in 2018, and in the AEO2019 Reference case, EIA projects that it will average (in real dollar terms) \$5.36 per million Btu in 2050" (EIA). Natural gas accounted for 34% of total electricity generation in 2018. EIA's Annual Energy Outlook 2019 report stated that in the Reference case, natural gas's share of electricity generation is expected to "grow to 40% by 2032 and then remain between 39% and 40% throughout 2050" (EIA). Coal and nuclear electricity generation shares are expected to decline gradually as they become less cost competitive with natural gas and renewables. Electricity generation from renewables is expected to surpass nuclear by 2020 and coal by the mid-2020s (EIA).

Natural gas pricing plays a key role in electricity power pricing due to the increasing reliance on natural gas fired generators as nuclear, coal, and oil generation is retired and mothballed. As the marginal unit of generation, gas prices are directly correlated to power pricing (more so in some regions such as NYC vs. others such as PJM). We keep an eye on natural gas market fundamentals in order to provide insights into forward power pricing for our clients. Gas production is expected to continue to grow, however, there is speculation that demand growth will outpace supply primarily due to LNG and Mexican exports and increased power burn, presenting upside risk to power pricing in the future.

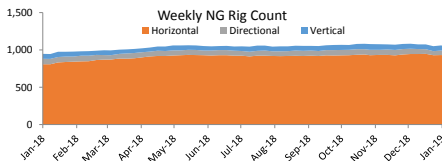


Natural Gas Storage	
Week Ending 2/1/2019	
Current Week Stocks (bcf)	1,960
Previous Week Stocks (bcf)	2,197
Implied Net Change (bcf)	-237
Expected Net Change (bcf)	-250
Variance(bcf)	13
Year-Ago Stocks (bcf)	2,095
Variance vs Prev. Year (%)	-6.4%
5-Year Average (bcf)	2,375
Variance vs 5-YR Avg (%)	-17.5%



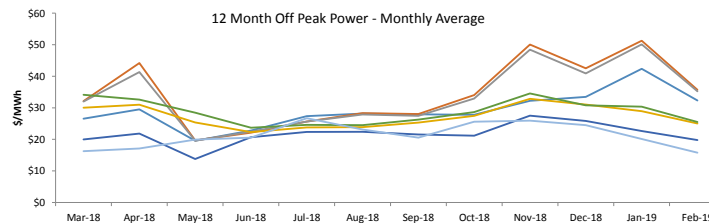
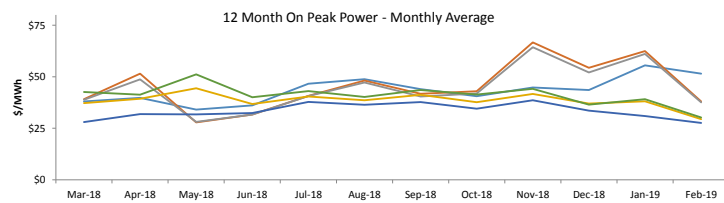
	\$/MMBtu	W-o-W Δ	Y-o-Y Δ
<b>Prompt Month</b>	\$2.551	-5.7%	-1.6%
<b>12-Month</b>	\$2.752	-2.6%	-0.4%
<b>24-Month</b>	\$2.719	-1.2%	-1.9%
<b>Cal 19</b>	\$2.801	-2.2%	0.9%
<b>Cal 20</b>	\$2.701	0.0%	-2.7%
<b>Cal 21</b>	\$2.627	0.4%	-6.7%
<b>Cal 22</b>	\$2.649	0.3%	-7.3%

Week Ending:	2/1/2019	W-o-W Δ	Y-o-Y Δ
Oil Rigs	847	-1.7%	10.7%
Gas Rigs	198	0.5%	9.4%
Vertical	63	-7.4%	-4.5%
Horizontal	925	-0.8%	14.5%
Directional	57	-3.4%	-20.8%



	Price	W-o-W Δ	Y-o-Y Δ	\$/MMBtu
<b>Natural Gas (\$/MMBtu)</b>	\$2.551	-\$0.30	-5.4%	\$2.55
<b>WTI Crude Oil (\$/bbl)</b>	\$52.64	-\$1.59	-13.9%	\$8.99
<b>#2 Heating Oil (\$/gal)</b>	\$1.90	\$0.00	-1.1%	\$13.72

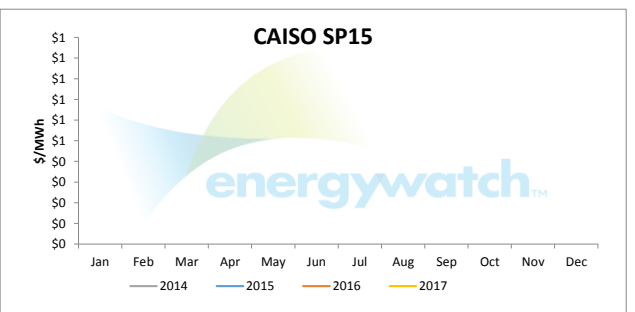
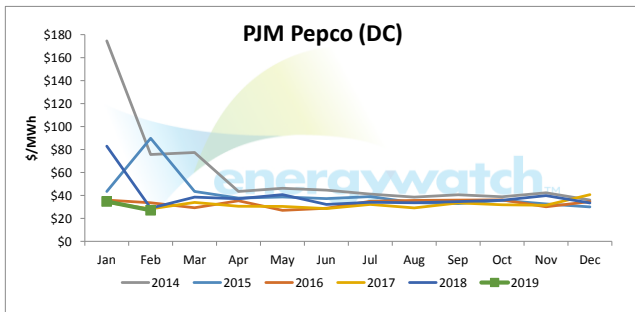
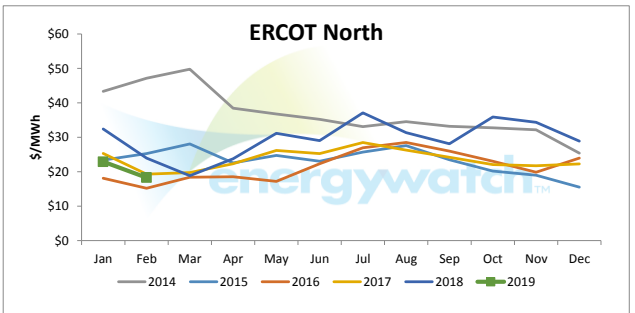
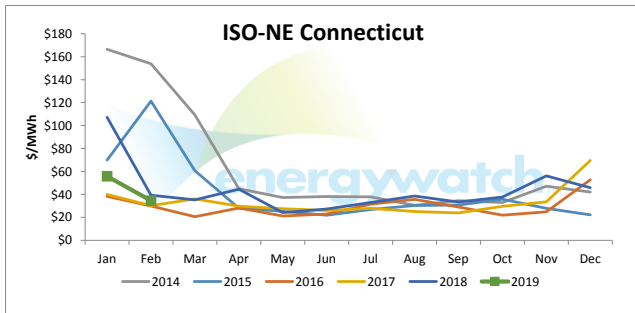
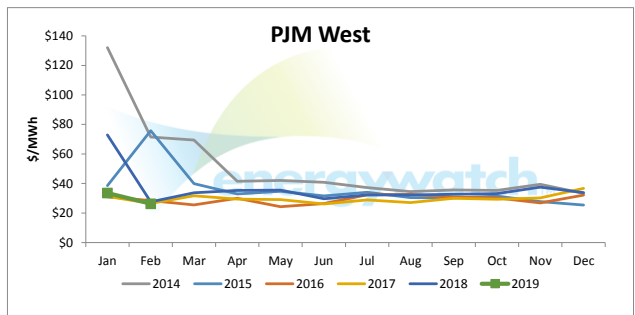
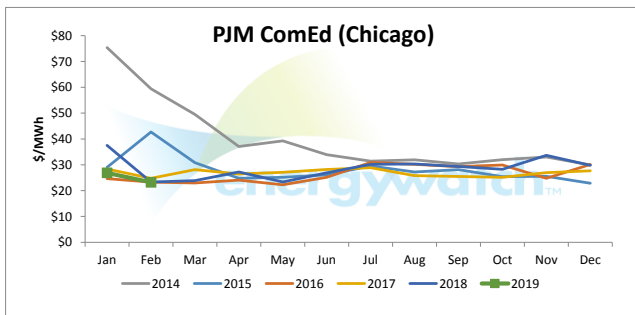
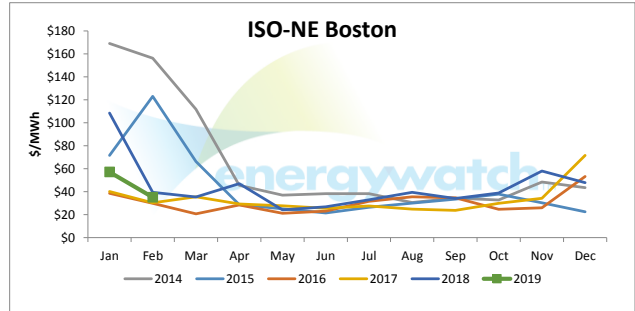
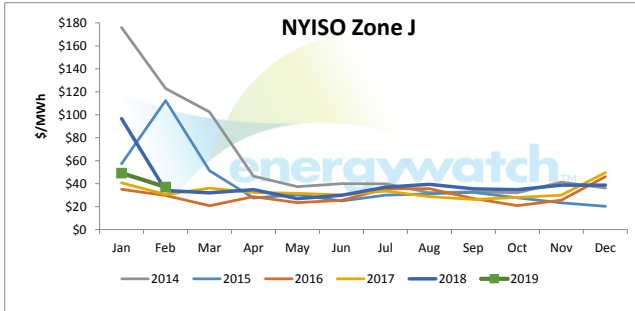
	Avg. Temp	Departure		CDD	HDD
		Past 10 Weeks	From Normal		
Boston	39	→	8	0	26
Chicago	31	→	9	0	35
Columbus	49	→	19	0	16
Dallas	61	→	25	4	8
Denver	6	→	-25	0	59
Detroit	40	→	10	0	25
Hartford	39	→	0	0	26
Houston	68	→	22	6	3
Indianapolis	44	→	16	0	21
Las Vegas	42	→	-8	0	23
Los Angeles	51	→	-8	0	14
Miami	71	→	2	6	0
Minneapolis	12	→	-1	0	53
New York City	41	→	7	0	24
Philadelphia	45	→	10	0	20
Phoenix	48	→	-9	0	17
Salt Lake City	23	→	-6	0	42
San Diego	53	→	-5	0	12
San Francisco	47	→	-4	0	18
Seattle	30	→	-15	0	35
St. Louis	33	→	4	0	32
Washington D.C.	48	→	12	0	17



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### 2014 - 2019 YTD Locational Marginal Pricing (LMPs)



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