
Spring Thaw

U.S. power and gas weekly.

Morningstar Commodities Research

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Data Sources Used in This Publication

USDA
NOAA
ICE

Spring Thaw

The end of winter not only brings spring but marks the beginning of the melting season in the Pacific Northwest. Winter temperatures lingered late in the season, but the short-term forecast shows large parts of the region warming up. As temperatures begin to rise, it's worth looking at the potential impact of rising river levels on hydro generation for the region.

Winter Weather

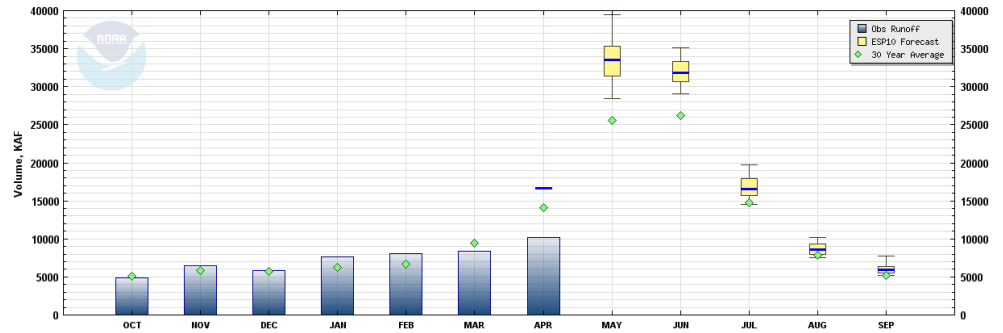
The winter started in a relatively modest way, with heating-degree days in Washington and Oregon slightly above historical norms in November and December and slightly below historical levels in January. Winter really picked up in the two states in February and March, with heating-degree days ranging from 92 to 176 above normal levels. April heating--degree days so far are also higher than normal.

Current snowpack telemetry snow water equivalent, or SWE, levels show significantly higher levels of water north of the Columbia River, between 110% to 189% above normal levels. The higher SWE levels and the colder temperatures have essentially pushed back the melting period, which historically occurs much earlier in the spring, also pushing back the impacts related to the spring melting period. The more water available in the mountains means the likelihood of that water finding its way to the river system increases, and because hydro dams on the Columbia River contribute a significant amount of generation for the Pacific Northwest, power prices at Mid-C depend on this annual occurrence.

Hydro Generation

Using Bonneville Dam as a proxy, the Northwest River Forecast Center expects healthy water supply volumes this season (Exhibit 1). The April water supply levels are forecast to be 111% of the average, with May and June forecast to be 120% and 132%, respectively. Forecasts beyond June are also higher than normal by between 115% and 125% of the 30-year norms, which is symbolized by the green dots. The excess water in the system will lead to greater hydro generation this spring and summer. Considering hydro generation falls at the lower end of the stack, significant increases in hydro generation put downward pressure on power prices.

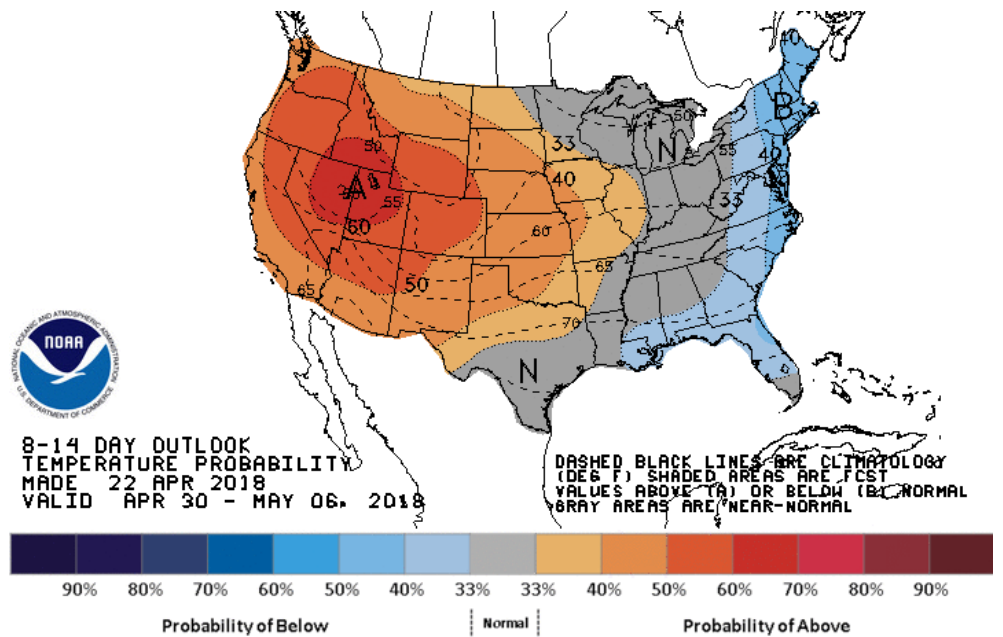
Exhibit 1 Water Supply Volume Monthly Forecast Bonneville Dam



Source: USDA

According to the National Oceanic and Atmospheric Administration (Exhibit 2), the Pacific Northwest should see a significant warming in the coming days, and with the warmer temperatures, winter accumulation should begin to melt. The anticipation of the strong water supply for the spring and summer along the Columbia River has already affected on-peak power prices at Mid-C, where the April and May 2018 contracts are trading at \$11.04 per megawatt-hour and \$17.75/MWh, respectively.

Exhibit 2 NOAA 8- to 14-Day Outlook



Source: NOAA

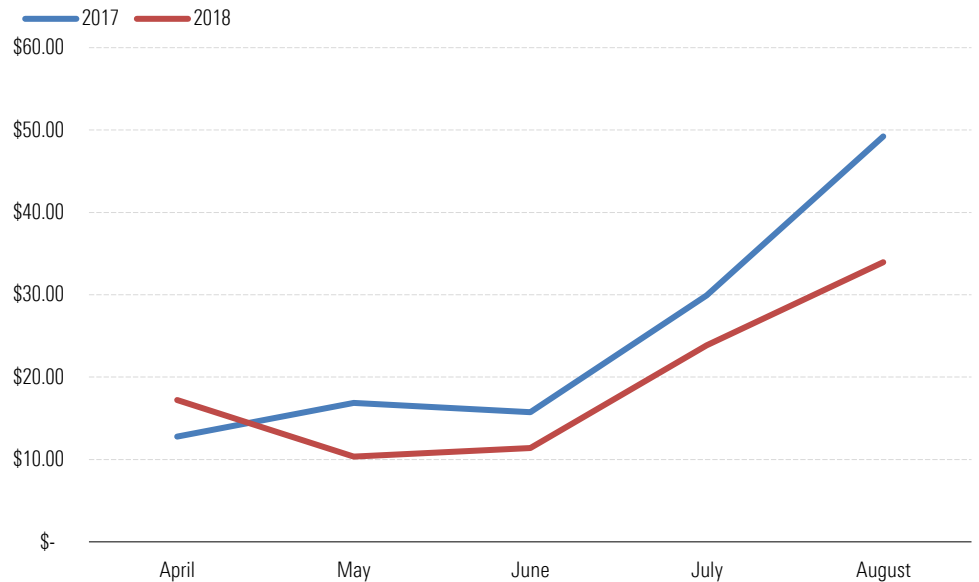
Spring and Summer Prices

Strong levels of water supply do not necessarily equate to maxing out hydro generation, and there are limits to how much hydro generation can be realized. During times of high runoff, stakeholders balance

the requirement to minimize flooding risk while maintaining environmentally healthy river levels. The way stakeholders manage river levels, and as a result the hydro generation in the Pacific Northwest, can influence power prices in the California ISO, as lower cost hydro generation finds its way into the California market.

Comparing the current water supply at Bonneville Dam against previous years, 2018 is forecast to rank 10th healthiest since 1970, at 121% above normal levels for the April to September period. This year ranks right behind 2017, which was the only other year in the top 10 since 1999. Analyzing power prices at Mid-C last year may help in understanding what could happen this year (Exhibit 3).

Exhibit 3 Mid-C Day-Ahead on Peak Power Prices



Source: ICE

Considering the water supply forecast falls short of last year's, the May and June Mid-C on-peak contracts appear oversold and could provide an opportunity to go long the May and June contracts. July and August contracts are probably best traded as a spread against SP15. The spread between Mid-C and SP15 day-ahead on-peak power for July and August settled at \$11.58/MWh and \$5.74/MWh last year, respectively, and the corresponding spreads this year are currently trading at \$21.65/MWh and \$18.25/MWh. The risk of going long Mid-C and short SP15 for the July and August contracts lies in the potential for prices at SP15 to move up, but our view is that prices at Mid-C will move up more than prices at SP15, leaving the Mid-C/SP15 spread to collapse. ■■■

Natural Gas Important Points

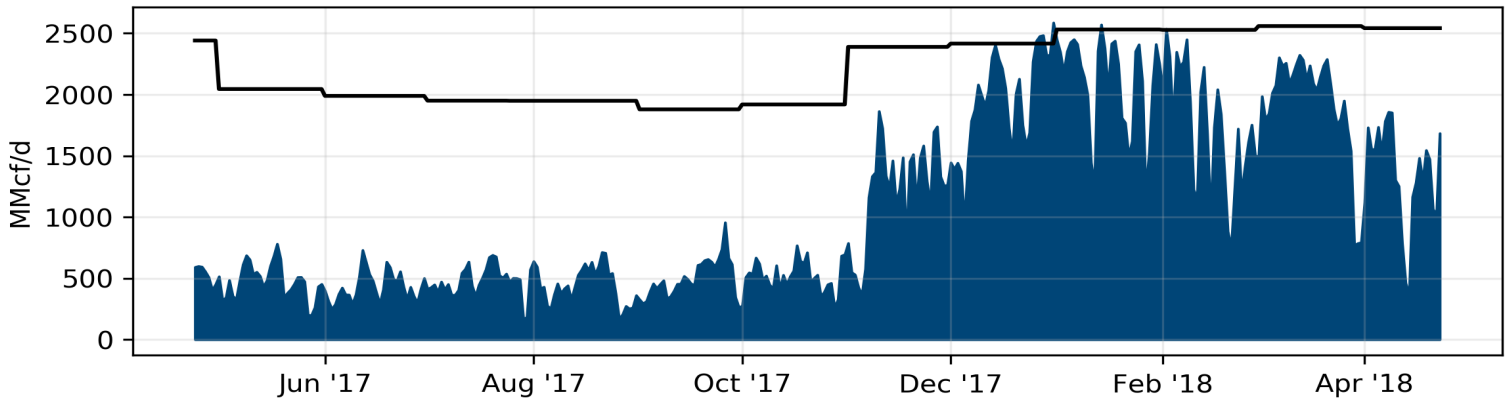
Algonquin: Stony point Compressor



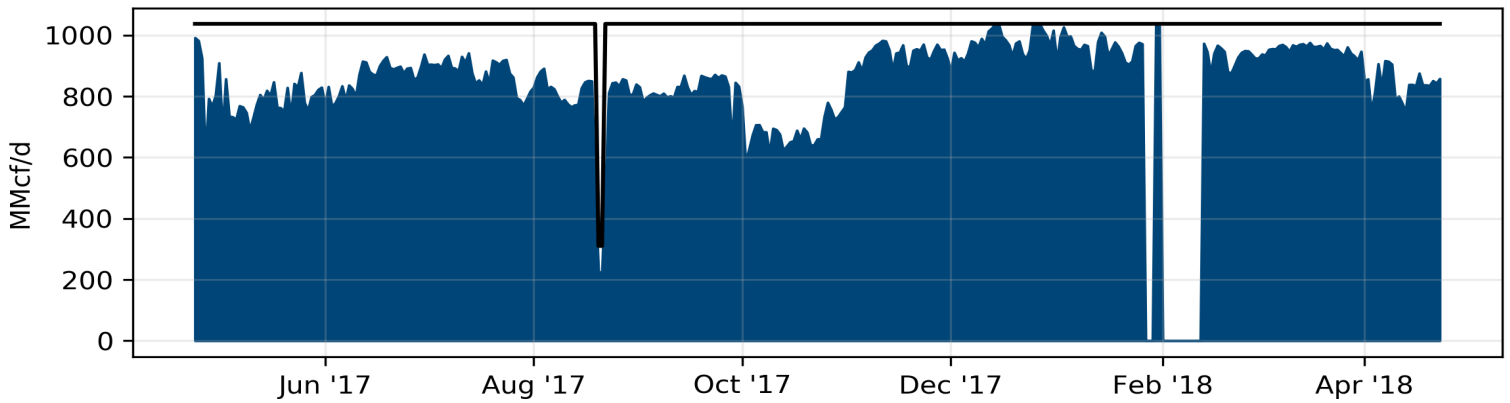
Transcontinental: Leidy Line Station 505



Texas Eastern: Lambertville Compressor

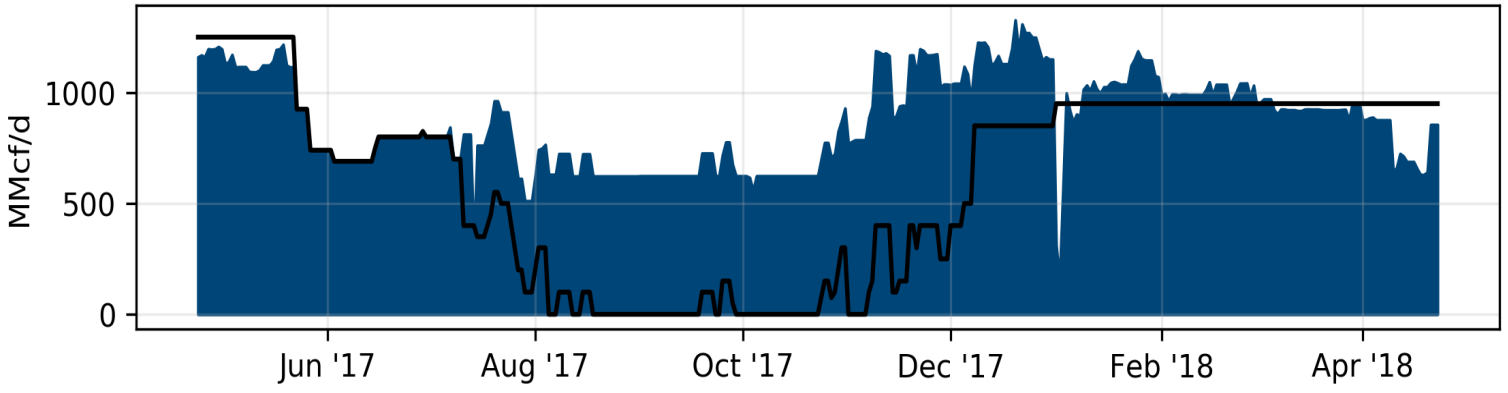


Millennium: Wagner West Compressor

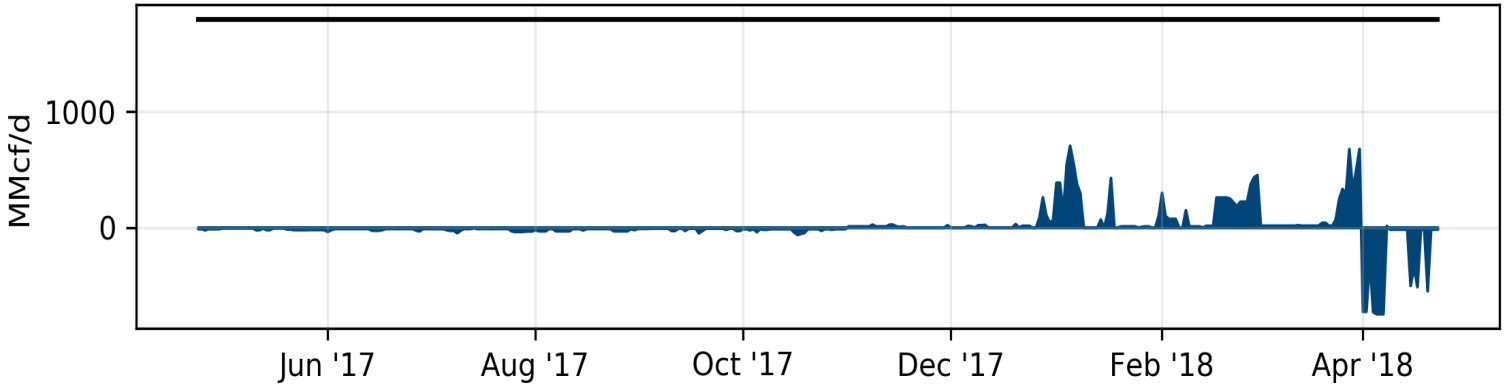


■ Volume — Capacity

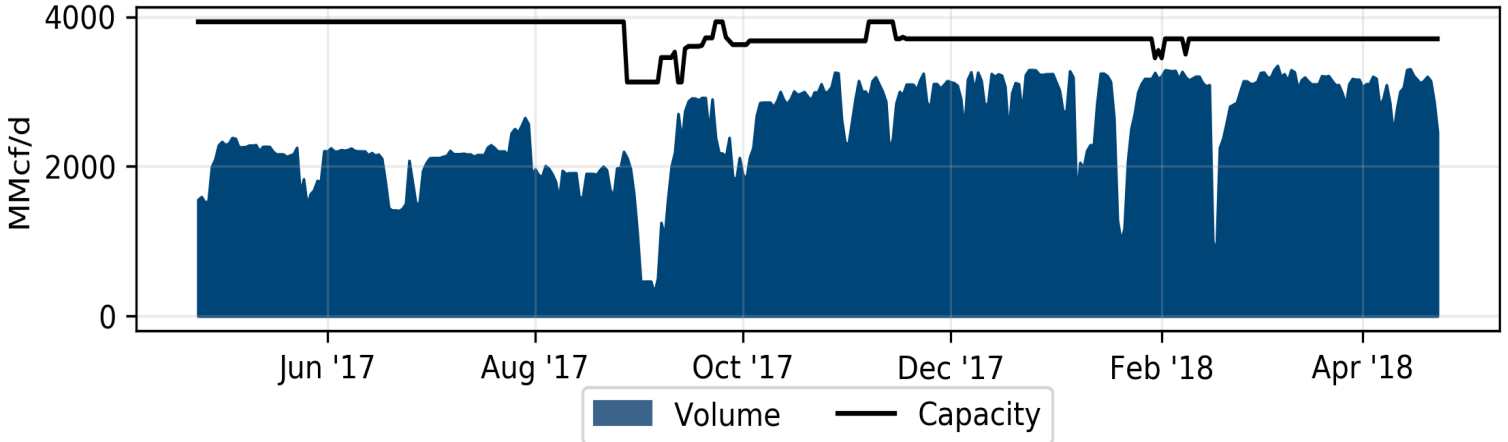
Columbia Gas Trans: Braxton-Stonewall



LNG: Cove Point



LNG: Sabine



■ Volume — Capacity

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