

PNGC Power Pulse

October 2019

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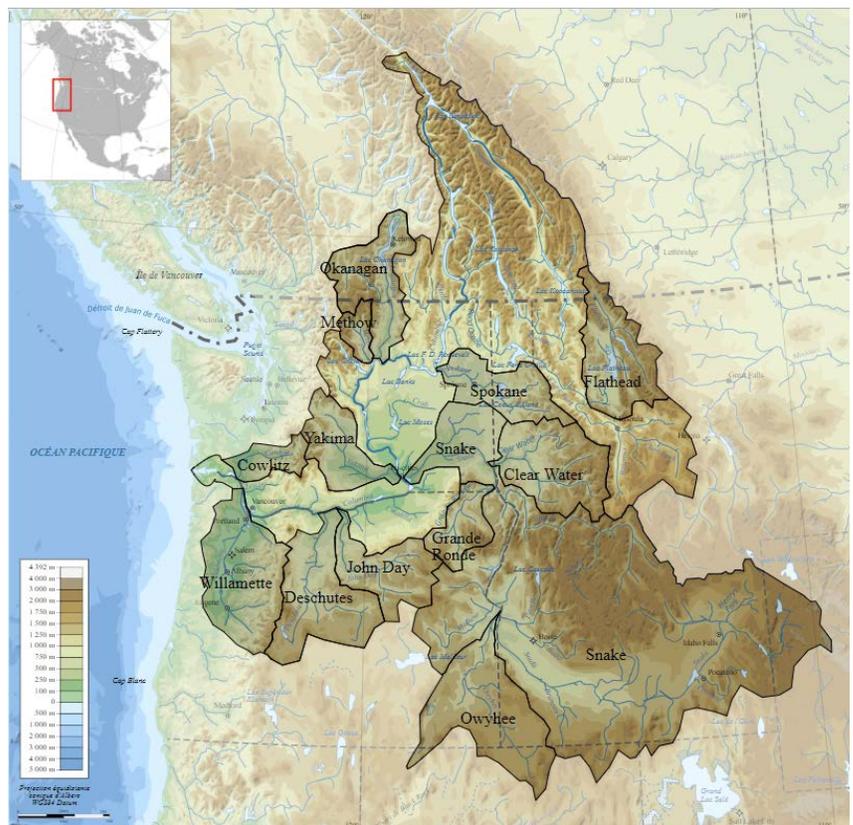
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New Water Year

Happy New Water Year! October 1 marked the start of the 2020 water year and after the drenching in September, we are off to a relatively dry but cold start to the new year. Living so close to and relying on the Columbia River as much as we do, we can sometimes fail to appreciate the strength of our regional powerhouse. The Columbia River is giant! It is the 4th largest river in the United States (by volume), with an average flow of 278,000 cubic feet per second (cfs). That average discharge of 278 kcfs could fill an Olympic size swimming pool in under 3 tenths of a second. For reference, your eyes blink at a rate of a tenth of a second, so by the time you blink three times in a row the Columbia River can fill an Olympic size swimming pool completely.

The Columbia River also has extraordinary geography ideal for hydropower generation, which is explained by looking at the numbers. The Columbia River hydro projects account for roughly 30% of the nameplate capacity of all US hydro generation, however the Columbia River produces nearly 50% of hydroelectric energy output of the generators. If you include the Columbia projects in British Columbia, then projects along the Columbia River account for six of the top ten biggest hydropower generation facilities in the country. Grand Coulee's 6,809 MW capacity tops the list at #1. That's over double the capacity of the next hydro project on the list, which is Bath County Pumped Storage Station's 3,009 MW capacity, located in Virginia.

The watershed areas that drain into the Columbia River are vast. The total drainage area checks in at 258,000 square miles, an area equivalent to the size of the state of Texas. This is why the water year is so important to the Pacific Northwest power

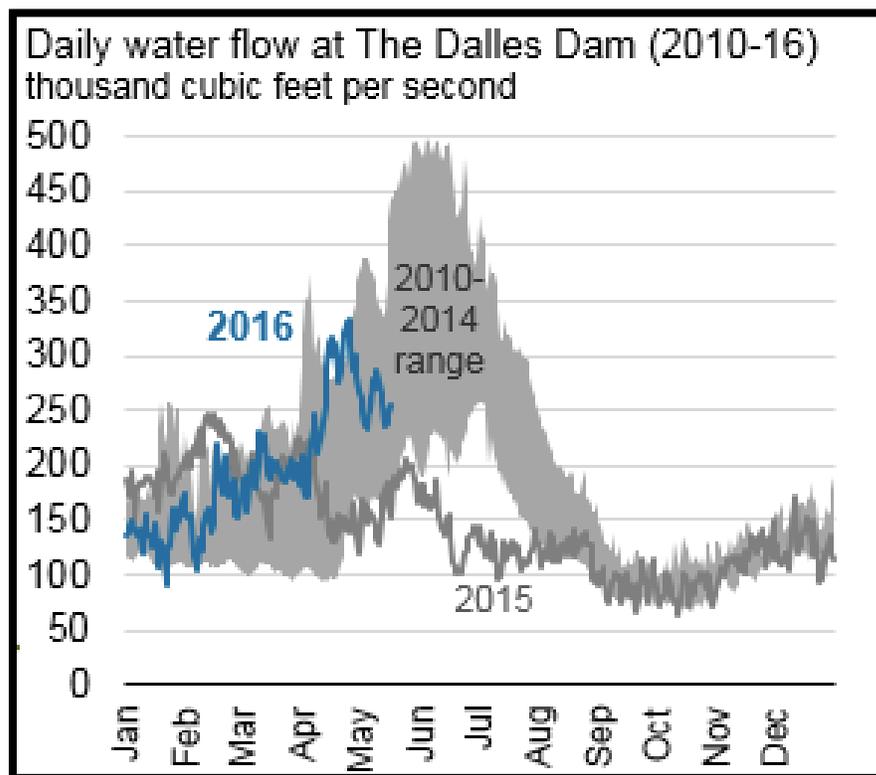


The map above illustrates all the watershed areas that drain into the Columbia River.

market. Everything revolves around Mother Nature and what she gives us. This includes the type of precipitation (snow or water), timing of precipitation, location of precipitation, temperatures, and all combinations of the aforementioned elements in any given year. And each water year is different, with the potential for major variability.

The 2020 water year has just begun, and it is off to a slow start. However, if the past few water years are any indication, it's the age old saying "it ain't over 'til it's over" that applies. The weather can catch up in a hurry as evidenced most recently by last year's (2019) miraculous recovery during April. The future is unpredictable, but it's going to affect us all. Welcome to Water Year 2020!

**data pulled from the US Energy Information Administration on EIA.gov*



Water Variability: the graph to the left shows the variability between years (in this case 2015 and the beginning of 2016) along with the gray historical range (in this case 2010 – 2014). The 2015 water year saw the Columbia River with near record high discharge levels during the winter months of Jan – Mar and by the middle of June it had already bottomed out. The past few water years follow a similar pattern of higher than “historical normal” flows in the middle of winter, and the water running out in early June, rather than historical plentiful June energy into the first week or two of July.

PNGC Annual Meeting

The PNGC Annual Meeting was held this year at the Hotel Eastlund in Portland, on September 30 and October 1, 2019. The annual event is a time for PNGC cooperative Boards, general managers, and key staff to gather together to look back at the past year, but more importantly, look to the future of PNGC Power.

This year's speaker line-up was especially focused on looking forward. The day began with PNGC Power's Vice President of Government Affairs and Policy, Ashley Slater, having a discussion with Jeffrey Connor, NRECA's Chief Operating Officer. The two dove into topics on a national level that have impacts back here at home. "It's always nice when we can hear from our national organization, and Jeffrey's insights are always illuminating," said Slater.

The theme continued with a panel entitled "Getting Ready for the Future Now," and it featured four regional leaders in the industry offering their insights into how they are planning for the future. Therese Hampton (Executive Director of the Public Generating

Pool), Mark Johnson (General Manager of Flathead Electric Cooperative), Tom Bechard (President & CEO of Powerex), and Roger Kline (Manager and Chief Executive Officer of Northern Wasco County People’s Utility District) all offered up their expertise in this candid group discussion, led by PNGC Power’s CEO, Roger Gray.

John Hairston, BPA’s new Chief Operating Officer spoke to the group about his thoughts on BPA, and how he sees the agency working into the new contract periods. And PNGC’s General Counsel and Vice President of Corporate Strategy, Chris Hill, led a panel discussion on PNGC’s Strategic Plan moving forward that featured three PNGC Board members—Foster Hildreth, OPALCO; Debi Wilson, Lane Electric; and Dave Hagen, Clearwater Power. The Board members were able to share experience from their own cooperatives as well as speak to the goals of the group at large. Like Hildreth said in his remarks, “United we stand.”

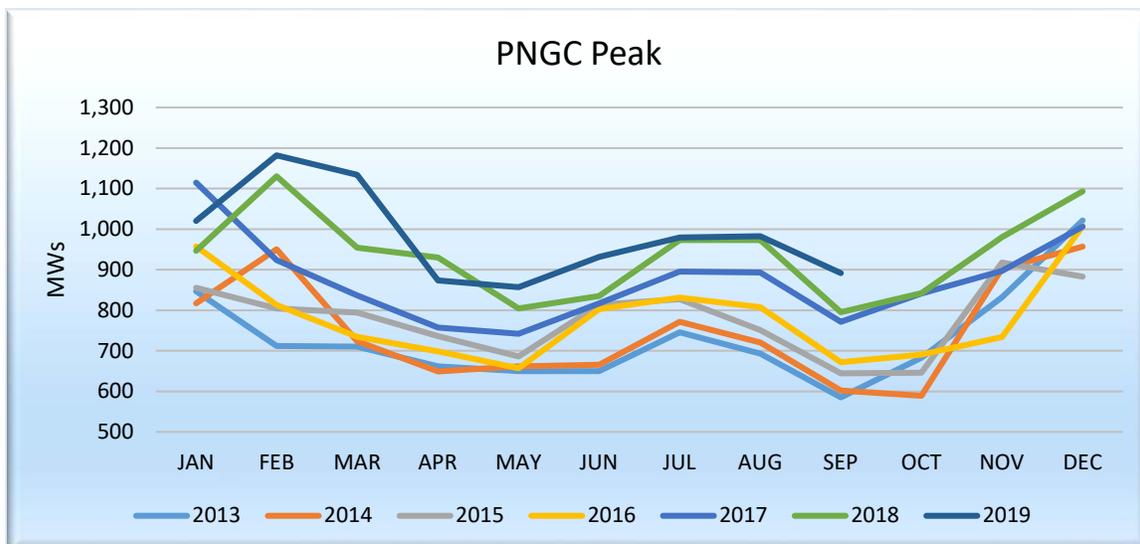
The end of the day featured speaker Rich Burk, who spoke about his experience going through major corporate change at AT&T during the 80s. He spoke of how disruptive and unexpected the change was, and how PNGC can relate to some of those lessons that he learned then and apply them to now. Lessons like: think outside the box, be prepared to get uncomfortable, and carpe diem. Poignant approaches to a future full of uncertainties and endless possibilities.



Rich Burk pushes the audience to think creatively at the 2019 PNGC Annual Meeting.

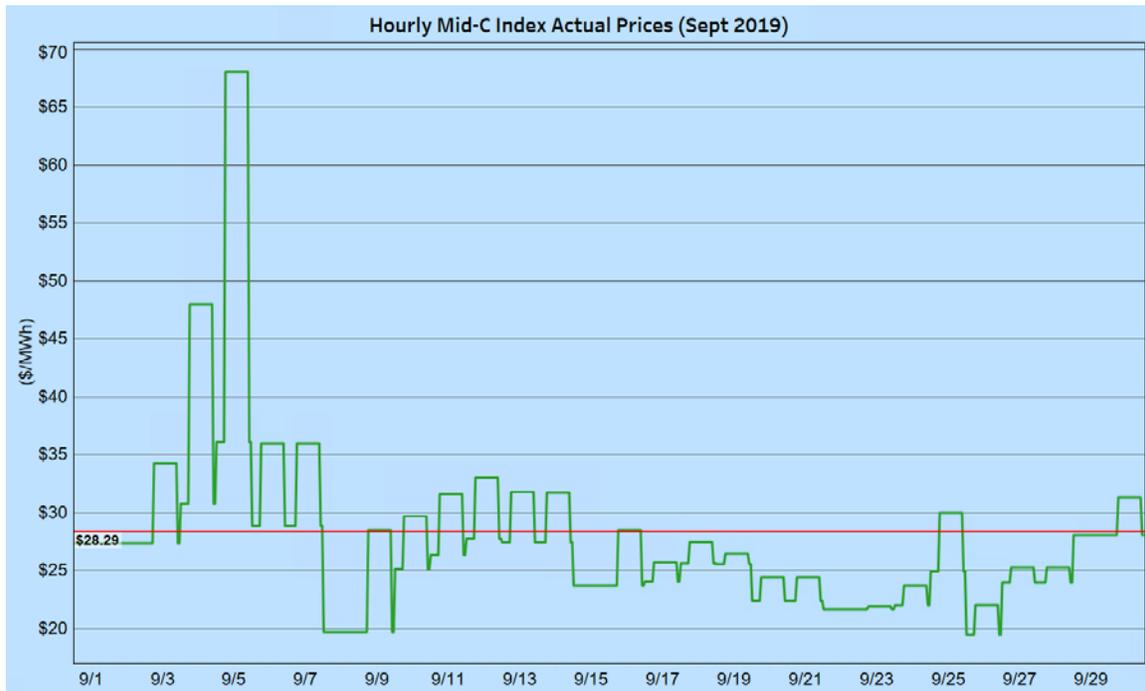
PNGC Peak

The graph below shows PNGC Peak for the past 5 years



Mid-C Pricing

The graph below shows Mid-C Pricing for the month of September 2019



BPA Happenings

- November 15 Quarterly Business Review (FY 2019 end-of-year)
- November 19 TC-22, BP-22 and EIM Phase III Workshop
- November 20 QBR Technical Workshop

Upcoming PNGC Events

- November 1 Clearwater Annual Meeting
- November 4 & 5 PNGC Board Meeting
- November 14 NWRP Annual Meeting
- November 28 & 29 Thanksgiving – PNGC Office Closed
- December 3 PNGC Board Meeting & Board Dinner



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About PNGC Power:

PNGC Power is a Portland-based electric generation and transmission (G & T) cooperative owned by 15 Northwest electric distribution cooperative utilities with service territory in seven western states (Oregon, Washington, Idaho, Montana, Utah, Nevada and Wyoming). The company creates value for its member systems by providing power supply, transmission, and other management services. PNGC Power is an aggregator of geographically diverse loads in the region.