Rising Temps in Northwest May Impact Hydro, California

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By Alyson Kenward

PALO ALTO, Calif. -- Spring is just around the corner, but here on the West Coast it’s hard to believe winter was ever here. In Washington, Oregon, and particularly California, far less snow and rain has fallen this winter than usual and it has many people worried about water supplies further into spring and summer.

Low reservoir levels at the Lower Granite Lock and Dam, Washington State. Credit: BPA.

Currently, river levels are forecast to be well below average throughout Northern California this spring and summer. Among other things, that doesn’t bode well for hydropower. On the other hand, rivers should be running closer to normal in Washington and Oregon this year, according to the Natural Resources Conservation Service. It’s a small blessing for Californians, who rely on their northern neighbors for electricity each summer.

But in the coming decades, warmer temperatures could hamstring hydropower production in the Pacific Northwest, forcing California to look elsewhere for an electricity boost.

The Pacific Northwest largely powers itself with dams on several major rivers. In fact, 70 percent of the electricity generated in Washington State comes via hydropower. In the summer, when local demands for electricity are at their lowest — after all, it’s rarely hot enough to need air conditioning — Washington, Oregon, and even British Columbia, produce more hydropower than they can use, so they sell it to nearby California, where the need for electricity is much higher.

Within the next several decades, however, “the ability to transfer electrical energy from the Pacific Northwest to other regions is likely to decrease in May, June, July and August,” warns a 2010 study from the University of Washington’s Climate Impacts Group. As temperatures continue to climb in the region, the timing of snowmelt each year is changing, as is the time when rivers run at their highest. For example, the Columbia River currently peaks around the end of June, before water levels fall dramatically in July and August. But in the next 10-30 years, the study found that the Columbia River will have “earlier and reduced peak flows,” with most water flowing in early May. Further into the summer, water levels will tend to be much lower than they have been historically.

Bonneville Lock and Dam, OR. Credit: BPA

It’s important to note that in winters later this century, rivers may actually run higher, with warmer weather bringing more rain and less snow at that time of year. Warmer weather in December, January, and February will also mean...
people need less electricity to warm their homes and offices. But in the summer, the earlier snowmelt — and less of it — will lower water levels, which could reduce hydropower production by nearly 20 percent.

Lower water and electricity production aren’t the only problem. The Climate Impacts Group predicts that the demand for electricity each summer is going to climb dramatically in the Pacific Northwest in coming years. Population is expected to keep growing, and so is the need for air conditioning. Whereas today virtually none of the electricity consumed in the Pacific Northwest goes toward cooling and air conditioners, by the end of this century it could make up nearly 10 percent of the region’s total demands, and a much larger portion each summer.

The need for more electricity in future summers doesn’t blend well with the prediction that Washington and Oregon rivers will actually yield less power at the same time. In the end, those states may still be able to meet their own needs, but it will come at the expense of neighboring states, like California, that are used to importing clean electricity from the Pacific Northwest.

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Comments
By dan in illinois
on March 2nd, 2012

I came up with an idea that may be of benefit to Climate Central and similar websites. You could have your headlines written automatically by simply using the phrase “Global Warming May Cause ...” and then letting your computer randomly fill in a noun for the last word of the phrase. It often seems like that's just about what you're doing.

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