Clean, Renewable, Emission-free

Federal Hydro Key in Energy, Environment Debate

There has been a great deal of talk in Washington about the need to reduce greenhouse gas emissions and to move toward energy independence. Hydropower generated at federal dams can be a part of the solution to these problems – if we are willing to spend the money to maintain and improve these facilities.

Hydropower is a clean, renewable resource. No greenhouse gasses are emitted in its generation. And it displaces thermal generation using fossil fuels. Shouldn't we be generating more hydro, rather than less?

Take for example the 24 Corps of Engineers hydropower plants whose energy and capacity is marketed by Southwestern Power Administration (SWPA), an agency of the Department of Energy that sells this clean, renewable resource to rural electric cooperatives and municipally owned electric utilities in Arkansas, Missouri, Oklahoma, Texas, Kansas and Louisiana. Through these consumer-owned, not-for-profit utilities, this hydro energy ultimately reaches about 8 million people in the six states.

The past 12 months has seen a lot of rain in this six-state area. This rain has been transformed at the Corps dams into almost 7,197 gigawatt-hours of electricity. That's the equivalent of:

- 3,438,632 tons of coal, or
- 11,892,732 barrels of oil, or
- 73,017,191,624 cubic feet of natural gas!

So hydro generation at these 24 dams has gone a long way toward displacing fossil fuels. At the same time, it has reduced greenhouse gasses that otherwise would have been produced had the same amount of electricity been generated at coal- or gas-fired units. The hydro generation ***offset*** the following greenhouse gas emissions:

- 5,966,311 tons of carbon dioxide (CO2), and
- 17,992 tons of sulphur dioxide (SO2), and
- 14,394 tons of nitrogen oxides (NOX).

Now the bad news

But, with all this good news comes some bad news. The federal government hasn't been providing enough money to maintain federal hydropower plants. The disparity between the need and the available funding grows every year. The result – forced outages, or plants that are forced off-line because something is broken. Even worse, when federal hydro generation is not available, utilities have to replace it with conventional – fossil-fueled – generation. That means more greenhouse gases are emitted, more use of fossil fuels, and less renewable energy.

For example, during the same 12-month period cited above, forced outages at the 24 Corps of Engineers hydro projects serving SWPA customers caused the additional ***consumption*** of:

- 82,026 tons of coal, or
- 283,694 barrels of oil, or
- 1,741,780,781 cubic feet of natural gas.

This additional use of fossil fuels caused the following ***increase*** in greenhouse gas emissions over the past 12 months:

- 142,323 tons of CO2, and
- 429 tons of SO2, and
- 343 tons of NOX.

Last year was not an anomoly; an increase in forced outages at Corps hydro plants over the last decade is directly related to a decrease in appropriations for operation and maintenance (O&M) of Corps hydro facilities. For example, since 1996 almost 1.9 million MWh hours of energy have lost due to long-term outages at the Ozark and Webbers Falls projects. These losses were replaced with thermally generated energy, which exacerbates domestic natural gas shortages, contributes to foreign energy dependence, and increases greenhouse gas emissions. If all eight units at the two projects were returned to maximum efficiency and availability, they would offset about 538,000 tons per year of greenhouse gases that would otherwise be produced by thermal generation. Full availability of the two plants at maximum efficiency would displace about 1.1 million barrels of oil, 307,000 tons of coal or 6.6 billion cf of natural gas annually that would be required to supply an equal amount of thermally generated electricity.

What's wrong with this picture?

Congress has expressed alarm at our nation's increased reliance on fossil fuels and foreign sources of oil, as well as the greenhouse gases associated with electrical generation from these fuels. At the same time, Congress is considering requiring electric utilities to generate a specific proportion of their energy from renewable resources. How can the federal government with a straight face force expensive new technologies, fuels and operational changes on industries and individuals and at the same time contribute to these problems by failing to fund needed Corps hydro maintenance?

Particularly galling is that SWPA, through a component of their wholesale power rate, is already collecting for the replacement of Corps hydro components as the equipment nears the end of its useful life. That money is going into the U.S. Treasury to fund the work – but Congress is not appropriating the money already deposited in the Treasury to get the work done! Because the work isn't getting done, hydro plants are being taken off-line when components fail. This means less clean, renewable hydro; more fossil-fired energy; the associated increase in fossil fuel use and greenhouse gas emissions; and higher rates for consumers as the replacement energy costs several times more than hydro!

The Solution

The federal government is a part of the problem by failing to adequately maintain its fleet of hydro plants at Corps dams. It can also be a part of the solution to greenhouse gas reduction, decreased reliance on fossil fuels and increased production of renewable energy by appropriating enough funds to maintain federal hydro generation at maximum efficiency. The irony is that there is no long-term cost to the government because all capital costs of federal hydropower is returned, with interest, to the Treasury through SWPA's wholesale power rates.

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