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The Not-So-Green Machine

The hidden environmental cost of the Pacific Northwest's lone nuclear power plant.



ILLUSTRATION: Chris Danger

For a week now, the people running the Pacific Northwest's only nuclear power plant have been on the defensive—and for good reason.

A devastating report about the Columbia Generating Station's finances released last week shows it's one of the most expensive of its kind in the U.S. to run, and it's needlessly costing ratepayers \$200 million a year in higher electricity bills ("[Costly to the Core](#)," *WW*, Dec. 11, 2013).

The plant's operator, [Energy Northwest](#), disputes the findings of the report, written by

Portland-based [McCullough Research for Physicians for Social Responsibility](#), a group opposed to nuclear power. Energy Northwest, while acknowledging its high costs, says the region still needs the 29-year-old plant, located on the Hanford Nuclear Reservation in southeastern Washington.

Energy Northwest—owned by a coalition of public utilities—also says the nuclear plant produces environmentally friendly energy.

“[The plant] began delivering power to the region in 1984,” Energy Northwest said in a statement on its website. “Since then it has provided billions of dollars’ worth of electricity while emitting virtually no greenhouse gases or carbon emissions commonly associated with natural gas, coal and other fossil fuel-powered plants.”

The report’s author, Robert McCullough, says mining and processing Energy Northwest’s uranium fuel produces enormous amounts of greenhouse gases. “Energy Northwest has frequently claimed the Columbia Generating Station is carbon-free,” he says. “That’s not true.”

McCullough calculated that one year’s operations of the nuclear plant caused the emission of 490,000 tons of carbon—about the same amount a typical natural gas-powered generating plant in Washington would have released last year.

McCullough calculated the amount of carbon released by mining the uranium, processing it with coal-fired electricity and enriching it through a decades-old process that releases carbon dioxide.

In 2012 and 2013, the United States Enrichment Corporation completed a massive order for Energy Northwest, producing the equivalent of more than 35 years’ worth of nuclear fuel.

McCullough also learned that the enrichment process generated substantial quantities of another harmful pollutant, Freon.

Freon is the brand name of a chlorofluorocarbon, or CFC. Beginning in 1987, U.S. and international regulators banned CFCs because they destroy the ozone layer that protects the earth from ultraviolet rays.

Only a few industrial users retained the right to continue using Freon, and the United States Enrichment Corporation was one of them.

Freon 114, released during the uranium enrichment process, is also a greenhouse gas, the [U.S. Environmental Protection Agency](#) says.

McCullough says the fact that the Freon and carbon-dioxide emissions entered the air in Kentucky, rather than the Pacific Northwest, does not change the fact Energy Northwest is responsible.

“When they say ‘carbon-free,’” he says, “what they mean is ‘carbon elsewhere.’”

Energy Northwest spokeswoman Angela Walz acknowledges that the fuel production process causes carbon emissions. But she says comparing those emissions to emissions from a natural gas plant is “questionable.”

Walz says the comparison should include emissions attributable to various plants, including construction and fuel consumption. That comparison, she says, favors nuclear energy.

“Even if the calculation had merit,” Walz says, “it is still compared improperly.”

McCullough disagrees. He says he sought to answer whether it makes economic sense to keep the plant running, and an accounting of carbon emissions attributable to the plant is part of the study.

Walz says the long-term fuel deal Energy Northwest struck with its now-defunct supplier will save ratepayers \$88 million from 2014 to 2017 and potentially more after that.

But McCullough accounted for the purchase price of the fuel in his study, which found the plant will add \$1.7 billion in unnecessary costs to ratepayers’ bills over the next two decades.

“We used their fuel costs and their 10-year plan,” McCullough says of how he reached his conclusions. “In my opinion, it’s not a very good deal.”