02 06 2014 Last update 12:12:48 AM ISSN 2331-1223

Oregon economist challenges analysis keeping NW's only nuclear plant alive

Details 15 Jan 2014

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January 15, 2014 – An independent economic analysis concludes that shutting down the last nuclear power plant in the Pacific Northwest – the Columbia Generating Station (CGS) – would yield almost $3 billion in savings if the plant were replaced by new gas-fired generation. Portland, Ore., consulting economist Robert McCullough, in a January 2 memo to his clients, disputes a November study by Energy Northwest (formerly the Washington Public Power Supply System, a consortium of regional public power systems) and IHS CERA, the utility's consultant. The Energy Northwest study found that keeping the 1,170-MW Columbia station (formerly WNP-2) was less costly than new gas generation.

McCullough writes, "Replacing the arbitrary (and erroneous) assumptions with actual data from Energy Northwest filings and IHS CERA forecasts changes the results dramatically – $5.6 billion for CGS versus $2.90 billion for natural gas units using data from the Kalama Energy Center." The Kalama project is a 346-MW gas plant Energy Northwest had planned, but is now in doubt because one of the partners in the project has pulled out. Energy Northwest markets the output of the plant to the Bonneville Power Administration for distribution to its many public power, rural electric, and other customers.

Energy Northwest and CERA compared the costs of continuing to run CGS to a hypothetical gas plant to be built in 2020, not as the Kalama project, which has solid data for making comparisons. "The [hypothetical] natural gas unit's cost is reported to be 6.8 cents/KWh," says McCullough, "roughly twice the cost of Energy Northwest's own Kalama Energy Center presented to the Energy Northwest board on numerous occasions." The studies for Kalama "indicated that it was cheaper, more efficient, and less polluting than the assumed project" in the Energy Northwest analysis. McCullough adds that the Energy Northwest analysis also combines "arithmetic errors, incorrect or dated assumptions, and resource planning errors."

One fundamental error, McCullough notes, is the assumption for the hypothetical gas plant that "natural gas prices in the future will be the same as those experienced over the last 12 years. This assumption is wildly inconsistent with respected industry forecasts and actual forward prices." The utility system's cost analysis also appears to ignore the official 10-year forecast for CGS, issued in May. "Instead," he says, "they used considerably lower values than the official forecast for incremental capital expenses and operations and maintenance."

Many CERA assumptions used in the November report are also significantly at odds with real-world data from the Kalama Energy Center project, notes McCullough. For example, the CERA data estimated a heat rate for its notional gas plant of 7,412 million BTU/KWh, while the Kalama project was based on a heat rate of 6,158, thus the hypothetical gas plant in the November utility report was assumed to be 21% less efficient than the Kalama project. McCullough points out that the Kalama Project "was the subject of numerous board presentations and used in official filings with state and federal agencies. The November study is simply a set of undocumented assumptions."

McCullough also took aim at the assumption about natural gas prices in Energy Northwest's November study, which, ironically, clash with CERA estimates done in its independent analysis, as well as predictions from the Energy Information Administration. The Energy Northwest analysis assumed a long-term natural gas price of $5.30/mmBtu, while CERA's separate forecast sees long-term gas prices of well under $5. He adds that a separate study by Bonneville Power Administration analysts also shows lower gas prices than the November report.

The Energy Northwest comparison of the existing nuclear plant with new gas generation is also skewed by market purchase assumptions, says McCullough. The utility paper based its cost conclusions on closing the nuke "midway through a refueling cycle and then purchasing its full output at $32/MWh until the new power plant is ready, whether or not the energy was needed." McCullough comments, "Put colloquially, closing the plant earlier than the next fueling cycle is like throwing out the food already in your refrigerator because you don't like the advertised prices at the grocery store."

The proper economic course of action, McCullough said, would be to "close GCS in mid-2015. After decommissioning, BPA would probably prefer to purchase energy as needed – not the maximum output of CGS."