



Yesterday's newsletter discussed the announced closure of the Navajo Generating Station in Arizona. Today we discuss a report that advocates for the closure of the Columbia Generating Station nuclear facility located near Richland, Washington. With the Navajo plant, the project owners are opting to close it down, while the Columbia Generating Station owners want to keep operating it and a group that I was not heretofore familiar with – Physicians for Social Responsibility – would like to close it down.

Let's start with a little background on the Columbia Generating Station (CGS). CGS is a 1,107 nuclear facility which achieved commercial operation in 1984 after nearly 10 years of construction and cost over-runs. It was part of a larger effort known as the Washington Public Power Supply System (WPPSS which rhymes with "whoops"). The WPPSS story itself is worthy of a few newsletters. The public power movement is strong in the west and extremely strong in the northwest. WPPSS was formed under Washington state law in 1957 as a municipal corporation that allowed publicly owned utilities to combine resources and build power generation facilities. In the early 1970's, a combination of low water years, Arab oil embargoes, and ragingly bullish load forecasts laid the foundation for what would become plans for up to five nuclear power plants in the region.

Unfortunately, things did not play out as planned. In January of 1982, with planning and construction of multiple projects underway, things seriously unraveled. The WPPSS board halted work on two plants. Shortly thereafter, WPPSS defaulted on \$2.25 billion in bonds which were backed by the member utilities and ultimately ratepayers. This translated into an exposure

bond holders received pennies on the dollar in what became the second largest municipal bond default in US history ...

... and that's just the back story here. Out of the dust of this implosion came the Columbia Generating Station which has been operating since 1984 and accounts for approximately 12% of BPA's supply. A couple of years ago Physicians for Social Responsibility commissioned a consultant to analyze the economics associated with CGS. Last week they announced an update to the study with the claim

“that Northwest ratepayers would save an estimated \$261.2 million to \$530.7 million over the next ten years if the Bonneville Power Administration and public power consortium Energy Northwest agree to close the Columbia Generating Station (CGS) nuclear power plant – the Northwest’s only commercial nuclear power facility – and replace it with renewable energy sources.”

The study was performed by a Portland consulting firm called McCullough Research. The study is fairly easy to read, the assumptions are transparent, and it is easy to follow the analysis. While I'd make a number of changes to the some of the assumptions (assumed cost of renewables is too low, estimated value of renewable energy is too high), the most compelling argument made by this report is that the ongoing cost of running the CGS is well above the forward market price of around-the-clock power.

Figure 1 – Comparison of CGS Cost to Historic Market Price of Power (Figure 9 from Report)

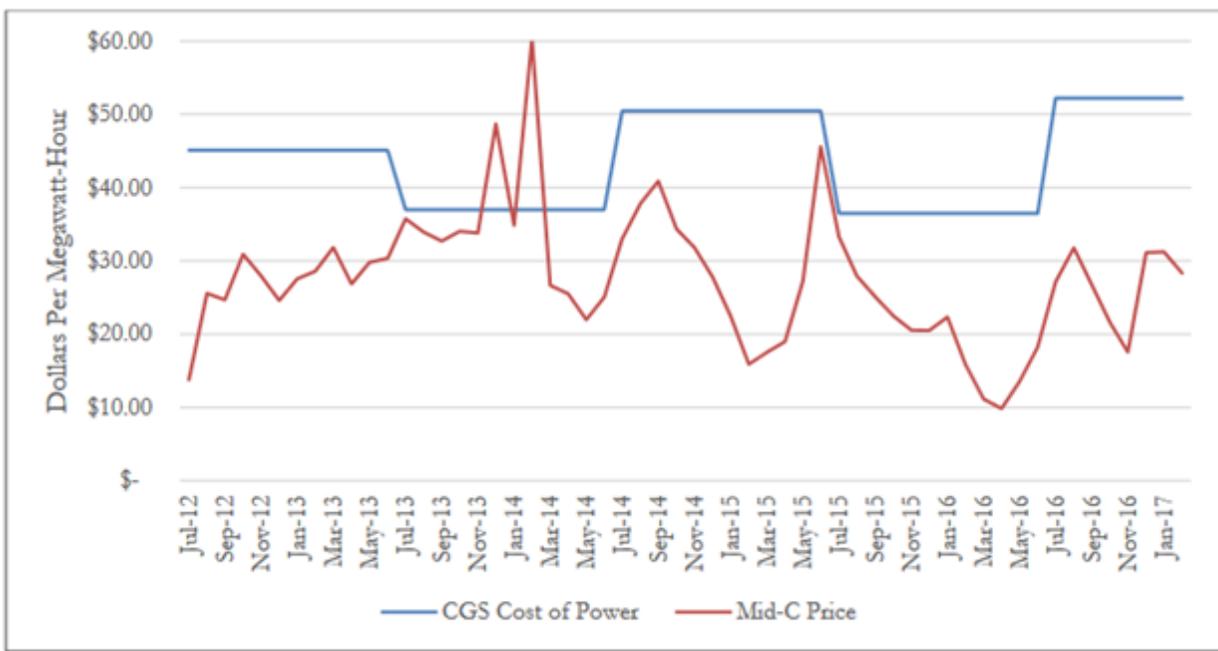
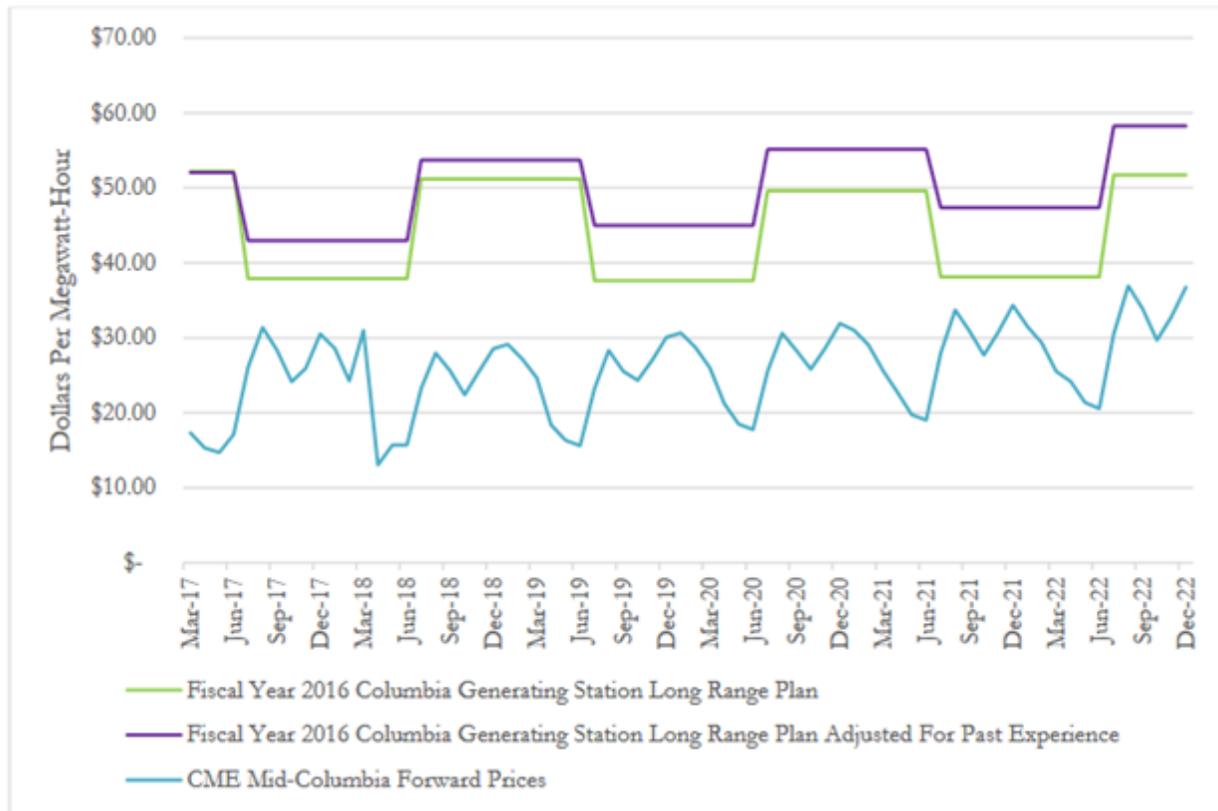


Figure 1 shows spot Mid Columbia prices compared to the cost of power reported by CGS for the same years. The CGS cost of power includes fuel, O&M, and capital costs. Between July 2012 and February 2016 the plant was out of the money by \$663 million according to the report.

Figure 2 – Comparison of CGS Projected Cost to Forward Market Price of Power (Figure 10 from Report)



The yellow line is CGS' estimated cost while the darker line just above it is an adjusted cost done by the consultant. Either way, a resource that is in the \$40 to \$50 range is well out of the money when compared to a forward market curve. Does this mean the project should be shut down? It is hard to say. CGS theoretically has capacity value in addition to energy value (this is a value that renewables will not enjoy to the same extent as a nuke). Unfortunately, the Pacific Northwest has no capacity market so it is difficult to say what it is worth. Looking at things differently, I'm sure that any of the Northwest merchant gas generators or hydro generators with excess power would be delighted to sell BPA some \$45 power on a five-year or ten-year basis. Having said that, a number of utilities show a need for resources in the next five years in their integrated resource plans. The CGS costs are still well below those of a new combined cycle natural gas plant.

I don't know where things go from here. Like the situation with Navajo in Arizona, we have a large, base load power plant with a colorful history facing a harsh economic reality in this low natural gas environment.

https://en.wikipedia.org/wiki/Energy_Northwest

<http://www.historylink.org/File/5482>