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July 9, 2009

Comments of Tom Gurdziel on Nine Mile Point 3

Before commenting on the possibility of economic success for Nine Mile 3, maybe a few words on the last nuclear plant built up here in Scriba, New York are appropriate. Nine Mile Point, Unit 2 cost so much money that the New York Public Service Commission finally put a cap on the amount that could be obtained from consumers.

If it had been a financial success for its major owner, Niagara Mohawk Power Corporation, I expect that the excess profits would have been returned to Niagara Mohawk customers in the form of lower electricity bills for some period of time after the plant was sold. I do not recall that as happening. In fact, it is possible that I am still paying for some "stranded costs" from that sale.

Since the Nine Mile Point Unit 2 construction days, the electricity world in New York has changed. Plant owners no longer choose which plants to run, and at what power level, and at what price. An independent organization uses a theory of "economic dispatch" to choose plants to generate the electric load, (demand), existing at any time.

The selection is made this way:

the lowest rate bid and its associated amount is selected, then the next lowest rate bid and its associated amount is selected, and so on until the required amount is obtained. All dispatched plants will then get paid the same rate as the highest one accepted.

Getting the plant dispatched

So how do you run your plant as "base-loaded"? Today, unless you have separate contracts for your electric power, the plant owner has to bid a low enough price for the amount offered to get dispatched. Then the owner has to hope that the last bid accepted is higher than the plant's cost of generation, otherwise the plant is running and losing money.

Transmission Line Capacity

It is known that adequate transmission line capacity only exists from the Nine Mile Point site to Clay, New York, (about 35 miles away), for a fourth nuclear plant. Either the cost of transmission line improvements from Clay, NY to New York City should be included in the cost of this plant OR the cost of backing down 2 existing plants (of the 3 on the site), should be included. Although this may seem the appropriate result of competition, both Nine Mile Point, Unit I and Nine Mile Point Unit 2 presently have an inadequate amount of money in their decommissioning funds. It is hard for me to see how those funds will be increased if their plants are not running.

Storage Costs for Used Nuclear Fuel

A standard plant design has been intelligently selected to minimize plant design cost. Unfortunately, it does not appear to include on site storage of 40 years of used nuclear fuel. These costs should be added in since Yucca Mountain is dead and there seems to be no progress in obtaining a replacement disposal method/area. Besides the concrete slab and container costs, they include licensing costs and security costs.

Cost of the Plant

In the days of regulated, (non-competitive) electricity generation, the cost of the plant was "in the rate base" and, actually, the higher the capital cost the more the return on (prudent) investment. Today, the cost of the plant and the interest cost of borrowed money have to come out of earnings from electricity generation.

Profit

Today, profit must come from generation earnings only.

Decommissioning Expenses

NRC-required decommissioning fund deposits would logically come from generation earnings. I believe that additional expenses will be incurred beyond those specified by the NRC. The source of these would probably be electricity generation earnings.

SAFSTOR

If this plant will be in the SAFSTOR condition for 60 years, the money to pay for it will have to come from electricity generation earnings, I would expect.

Life of the Plant

I, (not by myself), built a PWR in Pennsylvania. After it was built, it ran a few months then was broke and never used again. Who pays what if this new plant can't run 40 years? In particular, decontamination costs will be incurred shortly after plant operation starts, even thought plant earning were expected to stretch over 40 years, (or maybe 60).

Size

Is there enough world-wide experience running a 1500 Mwe turbine and generator so that there is some assurance it will be reliable? I note here that AEP/Cook 1 had a failure in their turbine blades, ("buckets"), in September 2008 and the plant is expected to be out of service until September 2009. This plant is only about 2/3 the size of Nine Mile 3, and the (replacement) turbine was newly purchased.

If two turbine generators had been provided, the Cook 1 plant could presently be running at half power, not no power.

I feel that, for 1500 Mwe, two turbine generators would make a lot more sense than one.

Surprises

Is any allowance being made for what now in smaller units are secondary effects, but may be major annoyances when the plant size is scaled up and the plant is actually run for a while? In particular, let me point out that I do not believe that Exelon/Quad Cities expected to have to learn about acoustic induced vibration after they installed a new, replacement steam dryer in one of their reactors. Also, I believe that the Entergy/Vermont Yankee mechanical cooling tower cell collapse occurred after that plant received permission to raise its power about 20%.

Conclusion

When all the above mentioned costs or expenses are obtained and assigned to the expected generation over the life of the plant, I believe that the plant's cost of generation will be very significantly higher than the present price being paid for electricity. (Tonight, as of 07/09/2009 20:00 ET, I found these prices on the New York Independent System Operator Day-Ahead Market Zonal LBMP map: ISO-NE $33.47; PJM $33.22; ISO-NY Central –C (our area) $29.45)

Can this plant make money or even break even on 3.3 cents per kilowatt-hour?

I thank you for this opportunity to make my comments.

Tom Gurdziel