Comments on Fuel Cell Tariff Docket 11-362

The proposed fuel cell tariff may cost over three times more than advertised and add $750 million to electric consumer bills over the life of the contract. Public Service Commission approval of the proposed fuel cell tariff application will require acceptance of unrealistic assumptions that understate the cost to electric consumers. More realistic assumptions show the added consumer cost of $3.50/megawatt-hour will exceed the limit set in the fuel cell legislation of $2.70/megawatt-hour based upon the cost premium of offshore wind. Large electric users could pay $100,000 more annually. This added cost will place manufacturers in Delaware at a competitive disadvantage with other states. Since electricity consumers are being asked to assume the entire risk of the fuel cell project, conservative assumptions should be used so they know the extent of that risk.

We estimate meeting the $1/megawatt-hour target discussed in legislative negotiations will require cutting the proposed fuel cell plant in half to 15 megawatts or reducing the tariff by about a third to $115/Megawatt-hour or a combination of both. Meeting the $1/megawatt-hour target will still add an average $10 million/year to electric bills. Bloom would have two years to improve their product and re-apply for additional capacity at a lower tariff without disrupting the current 5 MW capacity addition per quarter.

The Caesar Rodney Institute does not support the tendency of state energy legislation to shift the impact and risk of high cost, unreliable renewable power projects to electric consumers. However, CRI has been cautiously supportive of the economic development of Bloom Energy fuel cells pending the release of additional information included in this docket. Our study of the docket shows the assumptions used provide an unacceptable risk of higher electric bills to consumers. Our concerns are discussed below. We have also made several suggestions to minimize the cost to consumers.

Bloom Energy offers economic development potential for Delaware which could add 1500 jobs to the state. The technology is promising enough to eventually offer competitively priced distributed electric power to avoid 10% of the power produced being lost to transmission. The current cost of fuel cell power, at nearly $.17/kilowatt-hour, is almost twice the cost of conventional power generation but the cost is partially offset by reducing the need for even more expensive solar power at $.35 to .45/kilowatt-hour. Fuel cells also operate 97% of the time as opposed to intermittent solar and wind power operating at 14% and 25% of the time respectively.

The proposed 30 megawatt fuel cell plant will operate on natural gas. This is the first time the state has recognized the value of a conventional fuel source in reducing pollution. This opens the way for a transition to a Clean Energy Standard that could include natural gas, nuclear, and energy efficiency in our efforts to have reliable, affordable, clean energy. This may be the most important outcome of the Bloom project.

Recommendations

1) Calculate the potential fuel cell tariff cost to electric consumers using more reasonable assumptions
    a) Use the electricity cost projections from the 2011 U.S Energy Information Agency Market Outlook (1.9%/year growth) instead of the higher estimates used in the fuel cell docket "Expected Case" (4.5%/year growth). This raises levelized customer impact by $1/month to both the fuel cell and offshore wind projects. Calculations should include adequate generation capacity in Delaware.
    b) Use the current spot market price ($100) for the future value of Solar Renewable Energy Credits and $1.50 for Renewable Energy Credits. Using data presented in the Part 2 of the Application, this raises levelized customer impact to $2.41/month and exceeds the offshore wind impact of $1.70/month thus exceeding the allowable cost limit.
    c) Add the cost impact of the risk from natural gas "banking" to the monthly "Expected" fuel cell case rate which raises the levelized customer impact another $.10/month.
2) Release spread sheet calculations used to determine expected tariff costs and calculate the cost impact of a reduced rate of increase for electric prices
3) Cap Bloom Project Company revenues at the projected megawatt-hour production times any approved tariff
    a) Any additional revenue from natural gas "banking" would be deducted from this cap
    b) Any additional revenue from production above the current projection would be deducted from this cap whether from accelerated project start up, better than expected efficiency (heat rate), improved efficiency from future generation replacement fuel cells, or other unanticipated source.
    c) A specific fuel cell replacement cost estimate applied to the tariff should be adjusted by the actual cost. We anticipate future fuel cell generations will be less expensive because of process improvements and economies of scale
4) Extend the double count of Renewable Energy Credits approved by Secretary O'Mara from the first fifteen years to the entire term of the tariff
5) The pollution savings from the 30 megawatt fuel cell plant are negligible and comparable to a lower cost conventional natural gas plant of the same size so should not be considered in the tariff approval process
6) The 30 megawatt fuel cell plant, fueled by natural gas and set up as a central power plant, will have transmission losses similar to a conventional power plant and lower efficiency (heat rate of 7550 compared to 7100 used in Part 2 of Application). The ability of Bloom Servers to burn renewable fuels and to act as a distributed source of power should not enter into the tariff approval process.

Discussion

Projected increase in electric rates

Part 2 of the application provides the assumptions used to calculate the cost and offsets of the fuel cell tariff. The expected increase in electricity wholesale price over the 21 year term averages 4.5 % compared to 1.9% used over the same period in the 2011 Market Outlook Report published by the U.S Energy Information Agency in March of this year. The higher rate makes the fuel cell tariff look more attractive. The primary driver of the higher rates in Part 2 is the expectation new EPA environmental regulations on coal plants will cause rapid price escalations. Coal provides about 43% of electric generation capacity in the U.S. and the regulations would cause a rapid increase in prices.

The key question is whether the regulations are implemented as planned and how rapidly the electric industry responds by switching to lower cost natural gas. The 1990 Clean Air Act called for a 90% reduction in air pollution over a twenty year period. The goal was exceeded and the cost was about $20 billion. The next 5% reduction proposed will be required in only three to five years and may cost over $300 billion. The benefits of the new regulations are in doubt. The Clean Air Task Force, an activist group, estimates hospital visits for respiratory and cardiovascular events would drop only about 1% even if all power plant pollution went to zero. As a result the U.S. House of Representatives has already passed a budget that prohibits the EPA from spending money to implement the new regulations. The 2011 Market Outlook expected coals share of electric generation to fall to 43% by 2035 and the natural gas share to increase to 25%. These share levels are now expected to be met in 2012! The impact of potential EPA regulations falls rapidly as older coal plants are retired.

Delaware has paid a premium price in capacity charges because we import 60% of our power and add to grid congestion. Delaware needs about 1400 MW of added capacity to meet our needs and to maintain a 15.5% reserve margin. Several projects may help close that gap and reduce capacity charges such as 618 MW being considered by Calpine for Dover and 287 MW being brought on line by PBF Energy at the Delaware City Refinery. The PSC staff has asked Delmarva to consider adding 450 MW and the fuel cell project might eventually go to 50 MW. If not already done so, the "Expected Case" should assume adequate capacity in Delaware.

We strongly recommend the PSC require the use of the lower rate of electric price increases to measure the tariff cost impact on consumers.

Renewable Energy Credit price forecasts

The "Expected Case" assumes the price for regular Renewable Energy Credits (REC) will be $25.57 and for Solar Renewable Energy Credits (SREC) will be $205.32. The 2010 Delmarva Power Integrated Resource Plan, still under consideration by the PSC, uses rates of $18.29 and $164.43. The discussion in Part 2 of the fuel cell application indicates the 25% to 35% reduction in SREC requirements allowed by the tariff will work to reduce prices as would be expected.

Even before the fuel cell announcement spot market prices had dropped dramatically to $1.50 for REC's and $100 for SREC's because of increased supply from new large scale wind and solar farms. Solar panel prices came down 42% in 2011 because of a combination of too much solar panel production capacity in China and crashing demand in Europe as governments cut subsidies. Subsidies remain high in the U.S. and lower panel prices have led to an increased number of new solar farms such as the Dover Sun Park. Therefore, solar credits are flooding the market and the price for credits has dropped from about $300 to $100 each. With the reduced SREC requirements of the fuel cell project Delmarva has already covered 62% of its SREC needs through 2016. Even with subsidy reductions Europe is still exceeding solar installation targets. There is no obvious rational to expect an increase in price from the current spot market price let alone the increase from the IRP price assumptions.

Part 2 calculates the impact from lower REC prices. Using the prices from the IRP increases the impact of the fuel cell tariff by $.79/month to $1.79. The current spot market price increases the tariff impact by $1.41/month to $2.41. Either case exceeds the cost of the offshore wind tariff which is the maximum allowed by the "ACT TO AMEND TITLE 26 OF THE DELAWARE CODE RELATING TO DELAWARE'S RENEWABLE ENERGY PORTFOLIO STANDARDS AND DELAWARE-MANUFACTURED FUEL CELLS", which indicates that the tariff may not result in costs to consumers, on a levelized basis at the time of Commission approval, which exceed the highest price resource in Delmarva's portfolio of renewable options as of January 1. 2011. Offshore wind is the highest cost option at $1.70/month.

An Administrative Fixed Price for SREC's has been suggested for small Tier 1 and 2 generating facilities by the Renewable Energy Task Force but is not yet approved and should not be approved for the same reasons discussed here. Even if approved, most SREC's will come from Tier 3 and 4 projects not covered by the Administrative Price. Furthermore, the Renewable Portfolio Standard only extends to 2025 so no SREC value should be assigned beyond that date.

We strongly recommend the PSC require the use of the current lower spot market REC and SREC prices to measure the tariff cost impact on consumers.

Inclusion of natural gas "banking" costs in the "Expected Case"

If the Bloom project uses more or less natural gas than expected in a given month they have the right to use a banking mechanism. In some situations Bloom could gain revenue and the added risk to consumers of higher costs was calculated in the application to be from -$.01/month to +%.10/month. We strongly recommend the PSC require the use of the higher "banking" cost to measure the tariff cost impact on consumers.

Release of ICF spread sheet details

The cost calculations have been done by a consultant, ICF International, who supplied information on the assumptions used and summary results in Part 2 of the Fuel Cell Tariff Application. However, no detailed spread sheet has been supplied to allow a thorough analysis of the cost impact. We recommend more information be provided publically of costs calculations by year. We also recommend ICF conduct a sensitivity analysis with the lower rate of increase of electricity prices discussed above.

Use any additional Bloom Project Company revenues to reduce consumer impact

The cost to consumers will be based on the tariff in $/MWh applied to an expected twenty year electricity production rate of 5.2 million MWh, with natural gas costs added, and Bloom revenue from electricity production subtracted. Presumably, Bloom will keep the benefit of any lower than expected cost of construction and any additional revenue from additional power production. Since consumers are carrying all the risk of the project they should benefit from any gains.

For example, Bloom is assuming an average efficiency in converting natural gas to electricity of 50% and a 96% capacity factor. In their literature they expect 52% efficiency and field experience so far has shown a 99% capacity factor. They expect to have to replace the fuel cells every 4 to 5 years or three to four times over the life of the project. The great hope with Bloom is the fuel cells will become less expensive over time and may become more efficient and have a longer life. Fewer cell replacements and lower cell cost will lower the total cost of the project. More efficient cells will boost output and provide higher offsetting revenue to the tariff. We recommend these improvements be used to reduce the cost impact on consumers.

Extend double counting of REC's for the entire term of the contract

The Fuel Cell Act gave the Secretary of DNREC the authority to allow double counting of REC's generated by the fuel cell project. Secretary O'Mara did so for 15 years of the 21 years expected project life to reduce the cost impact on consumers. We recommend extending the double counting for the entire project life to further reduce consumer impact.

Give no credit to the project for pollution reduction or transmission efficiency

Bloom fuel cells can be used for distributed power, can use bio-fuels, and do reduce pollution compared to coal powered electric generation. However, the proposed facility will use natural gas and will be built as a central power plant. Delmarva could just as easily build a conventional natural gas plant and match the same benefits without the need for a special tariff. In fact, for the same investment, a much larger conventional plant could be built with a much greater reduction of pollution compared to coal than the fuel cell plant. Small conventional generators are also available for distributed power. We recommend the PSC give no weight to the claimed pollution reduction or transmission savings of the technology.