

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-2, SUB 1089

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of)	
Application of Duke Energy Progress, LLC for a)	AFFIDAVIT OF
Certificate of Public Convenience and Necessity)	WILLIAM E. POWERS
to Construct a 752 Megawatt Natural Gas-Fueled)	FOR NC WARN AND
Electric Generation Facility in Buncombe County)	THE CLIMATE TIMES
Near the City of Asheville)	

1. My name is William E. Powers, P.E., and I am principal of Powers Engineering, 4452 Park Blvd., Suite 209, San Diego, CA 92116. I am a consulting and environmental engineer with over 30 years of experience in the fields of power plant operations and environmental engineering. I have worked on the permitting of numerous combined cycle, peaking gas turbine, micro-turbine, and engine cogeneration plants, and am involved in siting of distributed solar photovoltaic (PV) projects. I began my career converting Navy and Marine Corps shore installation projects from oil firing to domestic waste, including wood waste, municipal solid waste, and coal, in response to concerns over the availability of imported oil following the Arab oil embargo in the 1970's.
2. I authored "*San Diego Smart Energy 2020*" (2007) and "*(San Francisco) Bay Area Smart Energy 2020*" (2012), and have written articles on the strategic cost and reliability advantages of local solar over large-scale, remote, transmission-dependent renewable resources. I have a B.S. in mechanical

engineering from Duke University, an M.P.H. in environmental sciences from UNC – Chapel Hill, and am a registered professional engineer in California.

3. I am submitting this affidavit for NC WARN and The Climate Times in response to the June 17, 2016, testimony of Duke Energy Progress (DEP) witness, Mr. Mark Landseidel. I previously submitted an affidavit in this docket as Exhibit C to the NC WARN and The Climate Times Position and Comments, filed February 12, 2016.
4. **\$100M in additional environmental controls at Asheville coal units can be avoided by substituting with available regional combined cycle or hydro capacity**

Mr. Landseidel claims that DEP will incur \$100 million in environmental control costs, due to existing regulatory compliance dates, if the operation of the two coal units at the Asheville plant is extended two additional years while an appeal of the proposed Asheville combined cycle plant is adjudicated. The alleged environmental compliance costs include: \$25 million to modify a wastewater treatment system at the plant; \$50 million to convert the fly ash collection system from wet to a dry system; \$25 million to convert the bottom ash collection system from wet to dry.¹

These costs can be avoided by shutting down the two Asheville coal units on schedule and relying on available existing regional generation to meet reliability need if that becomes necessary. There are six existing transmission

¹ Transcript of Evidentiary Hearing, June 17, 2016, NCUC Docket E-2 Sub 1089, p. 37.

interties to DEP West with a total capacity of at least 2,200 MW.^{2,3} DEP West is “winter peaking” service territory. Even when the N-1 NERC grid reliability standard is applied, the provision of service to all customers without interruption with the largest single 230 kV transmission line or largest generation element (N-1) is out-of-service at peak load, DEP West will have at least 1,600 to 1,800 MW of available transmission capacity and at least 300 MW of existing generation capacity without Asheville 1 and 2 coal units.⁴ This quantity of existing reliably available capacity in DEP West, at least 2,000 MW, is about double the DEP West winter peak load. The currently available reserve margin in DEP West, applying the NERC federal grid reliability standard, is several times the reserve margin requirement of 17 percent.

DEP West has available off-the-shelf hydropower and combined cycle gas turbine options in the region to supply capacity if additional capacity is needed due to a 24-month delay caused by an appeal.

Four Smoky Mountain Hydro units near the North Carolina-Tennessee border have a capacity of 378 MW and produce 1.4 million MWh annually. These units are in the TVA system, which is connected to DEP West by a single 161 KV line from TVA to the substation at the Walters Hydro Plant in

² Richard S. Hahn affidavit, February 12, 2016, NCUC Docket E-2 Sub 1089, Table 1, p. 4. Total capacity of the six existing transmission interties to DEP-West is at least 2,200 MVA.

³ For the purposes of this affidavit, “MW” is assumed to equal “MVA”.

⁴ Hahn affidavit, Exhibit C.

DEP West. The power produced by these units is not currently contracted for purchase.⁵

The underutilized merchant 523 MW Columbia Energy combined cycle plant outside of Columbia, SC, built more than a decade ago when the capital cost of combined cycle power construction was lower than it is today, could serve some or all of any need that might arise.⁶ Columbia Energy LLC was granted party status in this proceeding on February 4, 2016.⁷ According to Columbia Energy, DEP is legally obligated to purchase Columbia's energy and capacity at DEP's avoided cost, and the company is pursuing efforts to sell its capacity via a power purchase agreement with DEP.⁸

5. **\$40M in major equipment contracts' cancellation costs**

Mr. Landseidel indicates that DEP will incur \$40 million in major equipment contract cancellation costs in the event of an appeal: "Subsequent to the May 2nd filing, we have now given full release to the three major equipment suppliers, one for the two gas turbines, one for the two steam turbines and one for the two boilers, or in combined cycle we call them heat recovery steam generators or HRSGs, so they've been fully released and they were released on May 31st."⁹

However, DEP signed those major equipment contracts when the parties to Docket No. E-2, Sub 1089 were still in the process of exhausting their

⁵ Ibid, p. 11.

⁶ Petition to Intervene of Columbia Energy LLC, February 2, 2016, NCUC Docket E-2 Sub 1089, p. 1.

⁷ Order Granting Petition To Intervene, February 4, 2016, NCUC Docket E-2 Sub 1089.

⁸ Petition to Intervene of Columbia Energy LLC, February 2, 2016, NCUC Docket E-2 Sub 1089, p. 2.

⁹ Transcript of Evidentiary Hearing, June 17, 2016, NCUC Docket E-2 Sub 1089, p. 38.

administrative and legal remedies to the approval of the Ashville Modernization Project. DEP could not be certain the NCUC approval was definitively final when the contracts were signed. As such, these contracts were signed at risk and are the responsibility of Duke Energy shareholders, not DEP ratepayers or parties in Docket No. E-2, Sub 1089 that are exercising their administrative and legal rights in a timely manner.

6. **\$8M in sunk development costs**

DEP claims, as a basis for the proposed bond value, that it is entitled to recover all of its development costs related to the Asheville Modernization Project: “My estimate would be is that if we were to delay the project for two years, we would have to rework a significant amount of this development effort, rebid equipment, rebid construction, rework our schedule, our cost estimate. A lot of the work we've done to date would effectively be wasted and we'd have to do it over again or rework.”¹⁰

DEP is incorrect on this point. These are “at risk” costs that are the responsibility of DEP shareholders. By way of example, DEP initially pursued a major new transmission line to meet projected reliability need in DEP West. Presumably DEP sunk substantial costs in developing the transmission line without certainty that the transmission line would ultimately be approved and built. The costs invested in unsuccessfully developing the transmission line were at risk costs that are an aspect of any major development project that may or may not be built. Neither parties to Docket No. E-2, Sub 1089 or

¹⁰ Transcript of Evidentiary Hearing, June 17, 2016, NCUC Docket E-2 Sub 1089, p. 46.

ratepayers are responsible for sunk development costs for projects that have not passed all timely-filed administrative and legal challenges.

7. **\$50M in increased projects costs, assuming a 2.5 percent annual cost escalation**

DEP provides no support for its claim of a 2.5 percent annual cost escalation: "...the approximate billion dollars of the project escalated at two and a half percent for two years was an additional \$50 million. The two and a half percent rate was based upon our Integrated Resource Planning Group who routinely looks at historical data for labor and material cost increases, and then two and a half percent is roughly the 20-year average, and that's what we use for resource planning, and I think it's reviewed by this Commission's staff from time to time."¹¹

In fact, industrial construction costs are lower in 2016 than they were in 2014. The current trend in plant construction costs, as reflected in the Chemical Engineering Plant Cost Index (CEPCI), is negative.¹² The CEPCI declined from 585.7 in 2011 to 556.8 in 2015. That equates to a negative cost escalator of approximately -1 percent per year over a four-year period. The preliminary April 2016 CEPCI index is 4.5 percent lower than the corresponding value from April 2015, indicating an accelerating negative cost

¹¹ Transcript of Evidentiary Hearing, June 17, 2016, NCUC Docket E-2 Sub 1089, p. 48-49.

¹² Chemical Engineering Magazine, Economic Indicators, August 2015, p. 76, and Chemical Engineering Magazine, Current Economic Trends – March 2016, March 30, 2016. CEPCI annual index: 2011 = 585.7; 2012 = 584.6; 2013 = 567.3; 2014 = 576.1; 2015 = 556.8.

escalator in 2016.¹³ A 24-month delay may in fact save DEP substantial money on the construction cost of the Asheville Modernization Project.

8. **\$45M in estimated fixed firm gas transportation service costs during a two year delay**

DEP misrepresents the alternatives it is has available regarding the gas transportation contract with PSNC: “Duke Energy Progress entered into a gas transportation contract with PSNC. That contract has been approved by this Commission. And in that contract, Duke Energy is required to pay for transportation on a monthly basis whether it's used or not, and if the project was delayed for two years, there would be a two-year period where DEP would be paying for this gas transportation and not actually bringing gas into the plant.”¹⁴

DEP has the business option to resell its firm capacity to third parties. There would likely be some discount on the sale of this capacity under typical conditions. However, during times of high demand in the Northeast, such as during winter cold snaps, DEP's firm capacity could likely be resold at a substantial premium to the terms of its contract with PSNC. It is not credible that DEP would allow this firm pipeline capacity to go unused and unsold during the 24-month appeal. If the capacity is resold, there may ultimately be relatively little difference between the cost of DEP using the firm capacity and the price a third party, or third parties, are willing to pay to DEP over time to

¹³ Chemical Engineering Magazine, Current Economic Trends: April 2016, June 20, 2016.

¹⁴ Transcript of Evidentiary Hearing, June 17, 2016, NCUC Docket E-2 Sub 1089, p. 50.

utilize that capacity. As a result, there is no basis for asserting any bond value to cover the cost of unused firm natural gas capacity.

This completes my affidavit.

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Near the City of Asheville)

I, William E. Powers, verify that the contents of the above affidavit filed in this docket are true to the best of my knowledge, except those matters stated on information and belief, and as to those matters, I believe them to be true.

William E. Powers
William E. Powers

Date 6/27/16

Sworn to and subscribed before me this the 27th day of June, 2016.

Elyce Marie Martinez
Notary Public

My commission expires: 10/26/2016

(seal)

