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June 6, 2011

Renne C. Vance
Chief Clerk
NC Utilities Commission
4325 Mail Service Center
Raleigh, NC 27699-4325

FILED
JUN 06 2011
Clerk's Office
N.C. Utilities Commission

Re: Docket No. E-100, Sub 128

Dear Ms. Vance:

Please find for filing the original and 30 copies of the BRIEF OF NC WARN. I am also enclosing a CD with the brief in several different formats for your convenience.

Thank you for your attention to this matter.

Sincerely,



John D. Runkle
Counsel for NC WARN

cc. Service List (via email)

*Full Dist
Disk - P. Barnes*

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
DOCKET NO. E-100, SUB 128

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BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of)
Investigation of the Integrated Resource) **BRIEF OF NC WARN**
Plan in North Carolina for 2010)

NOW COMES the North Carolina Waste Awareness and Reduction Network, Inc. ("NC WARN"), through the undersigned attorney, with its brief on the integrated resources plans ("IRPs") filed by Duke Energy and Progress Energy (the "utilities") in this docket. By filing this as a brief rather than as a proposed order, NC WARN is relying on the other parties to file proposed orders containing the customary procedural matters.

This brief adopts by reference the Initial Comments by NC WARN filed in this docket on February 11, 2011. The Commission can take judicial notice of the governmental studies cited or attached to those comments, and further find that the studies by experts and trade journal articles cited or attached to those comments are reliable sources to make findings of fact. Those comments are supplemented by the detailed and comprehensive comments filed by the Southern Alliance for Clean Energy ("SACE") on February 10, 2011, and the testimony and exhibits from the public hearing on January 24, 2011. Together they provide the factual and legal basis for the findings and conclusions discussed below.

ARGUMENT

The Commission's role in addressing the costs and benefits of generation and

demand reduction measures is clear. G.S. 62-2(3a) states that the policy of the State is to find the "**least cost mix** of generation and demand-reduction measures which is achievable, including consideration of appropriate rewards to utilities for efficiency and conservation which decrease utility bills." (emphasis added). In addition to approving the least cost mix of generation, efficiency and renewable energy sources, G.S.62-110.1(c) requires the Commission to keep current an analysis of the long-range needs for expansion of facilities for the generation of electricity in North Carolina.

While it is evident the Commission has determined that the annual review of IRPs is a tool for carrying out the State policy, the IRP process itself carries less and less weight in determining the "least cost mix." In the past several years, the Commission has routinely concluded that each of the annual IRPs filed by Duke Energy and Progress Energy have met both the statutory requirements of G.S.62-110.1(c) as well as the reporting requirements of NCUC Rule 8-60. However, a detailed analysis of the costs of the various alternatives and scenarios would lead to a far different conclusion than the IRPs presented by the utilities, and especially when comparing the costs of nuclear and other baseload plants to any of the other alternatives. Moreover, when comparing the utilities' estimated growth of demand in their recent IRPs with actual growth, it is apparent that overestimations of growth are the primary impetus for unnecessary new baseload units.

In the present docket, NC WARN urges the Commission to reexamine its previous orders as they relate to the acceptance of IRPs in general and in particular, to consider of the impact of the excessive, and costly baseload generation. As shown below and in NC WARN's Initial Comments, Duke Energy and Progress Energy have

significantly overestimated the need for baseload power plants over the IRP planning horizon, and as a result, continue to include expensive new baseload units rather than depend on renewable energy projects and energy efficiency to meet future load demand.

In addition, the upcoming merger between Duke Energy and Progress Energy makes it unreasonable for the Commission to rely on the 2010 IRPs to make substantive decisions on future demand and load requirements, especially in its consideration of specific generation projects.

1. Excessive, and costly baseload capacity. Relevant to the IRPs again this year, case law points out that the purpose of the IRP statute, G.S. 62-110.1, is to prevent **costly overbuilding**. *State ex. rel Utils. Comm'n v. High Rock Lake Ass'n*, 37 NC App. 138, 245 S.E.2d 787, cert. denied, 295 N.C. 646, 248 S.E.2d 257 (1978). The utilities' 2010 IRPs are fundamentally flawed because they reach the conclusion that more baseload generation is necessary without a full discussion of the costs and risks associated with the proposed baseload generating units. The Commission is therefore unable to assess whether the new generation units proposed in the IRPs make sense, in terms of basic economics and impact on ratepayers.

NC WARN's Initial Comments, ¶¶ 6 -10, demonstrate the excess baseload needs projected by each of the utilities throughout their IRP planning horizons. In its February 2, 2011 filing in Docket E-7, Sub 935, Duke Energy reports in its Base Load Power Plant Performance Report filed pursuant NCUC Rule 8-53 that it currently has 11,854 MW in baseload units, broadly defined as those units with 500 MW of capacity.

Additions to the Duke Energy generation fleet are several natural gas-fueled combined cycle and combustion turbines, along with two proposed Lee nuclear units in South Carolina. Looking at the projected load forecast curves in its IRP, pages 54 (without energy efficiency) and 57 (with energy efficiency), Duke Energy clearly has excessive baseload through 2025 even without any new baseload additions. Under the scenario with Duke Energy's projected energy efficiency programs, the current baseload plants provide excessive capacity for more than 50% of the year through 2025.

In its January 27, 2011 filing in Docket E-2, Sub 971, Progress Energy reports a total of 6,359 MW for its 500 MW-plus baseload units, however in its IRP, at pages B-1 - B-4, it designates 7,373 MW as baseload resource type by including several smaller coal plants, Asheville 1 and 2, Robinson 1, in its baseload total. In its IRP, page 22, Progress Energy expects to add 5046 MW of capacity, most of which are combustion turbines or combined cycle natural gas plants, with only 550 MW of new undesignated baseload. Progress Energy's load forecast curves in its IRP, pages 26-28, show that for approximately 60% of the hours in the year 2010, and 38% in the year 2025 not all of the currently designated baseload plants were required to meet its load.

Close scrutiny is required now more than ever because the IRPs propose new baseload generation facilities to meet their forecasted load, and present in both of the utilities' IRPs are proposed nuclear plants. The cost of new nuclear-generated electricity (if the proposed plants come in on time and on budget) is now in the 13 -18 cents per kWh range. NC WARN's Initial Comments, ¶ 19. The extremely high costs of these plants should put them outside the least-cost mix required by State policy. This is the very costly overbuilding warned against in *High Rock Lake, supra*, especially when

compared to the declining costs of renewable energy projects and energy efficiency measures discussed below.

NC WARN's Initial Comments, ¶ 14 - 18, present the escalating costs of construction of nuclear units with the cost nationally, before the disaster at the Fukushima Daiichi nuclear plants, now in the \$10 -12 billion range. The EIA in its most recent Annual Energy Outlook, AEO2011, determined that the updated overnight capital cost estimates for nuclear power plants were 37% above those in the AEO2010. ATTACHMENT B to NC WARN's Initial Comments.¹ The IRPs as filed with the Commission contain little justification for the costs of the proposed nuclear units, and even less discussion about the risks associated with going ahead with these large-scale projects. If the utilities, and Duke Energy in particular, continue to go ahead with the proposed plants, electricity bills will go up considerably over the next decade (or longer given likely construction delays). These large nuclear units, each more than 1050 MW, would require large reserve capacity in case they are out of operation, increasing the costs even more.

One of the fundamental problems leading to costly overbuilding is the ambitious load growth projections by the utilities. NC WARN's Initial Comments, ¶ 23 - 26, show the constant lowering over the years of almost all of the successive projections of increased electricity demand. The last several IRPs show nearly flat growth in actual electricity demand over the past decade and a half. Progress Energy's actual retail

¹ Note that the rapidly escalating cost estimates for nuclear plants happened prior to the on-going Fukushima nuclear disaster, and "lessons learned" from Fukushima could increase costs of new nuclear plants considerably.

sales grew only 0.3% annually from 2000-2009. As noted in its IRP, page 50, Duke Energy's grew only 0.7% annually from 1994-2009, with negative growth from 2004-2009. In its 2009 rate case, Docket E-7, Sub 909, Duke Energy adjusted earlier projections to reflect the impact its rate hike would have on customer usage; the revised estimates projected a slightly negative trend in retail sales over the next five years. Notably, these projections were made in early 2009, before the worst impacts of the current economic recession and decreased per capita energy consumption.

The utilities in their 2010 IRPs still show ambitious and, given the impacts of costly overbuilding, unreasonable growth projections. In its IRP, pages 50-51, Duke Energy forecasts 1.5% retail load growth. In its IRP, page 5, Progress Energy forecasts a retail demand growth rate of approximately 1.8% across the forecast period, and then is able to reduce this to 1.1% after adjusting for demand-side management ("DSM"). As a direct result of these growth projections, the utilities maintain their need for baseload additions in their North and South Carolina jurisdictions. In its IRP, page 81, Duke Energy is proposing two units at the Lee Nuclear Station in Gaffney, South Carolina, forecasted to be in operation in 2021 and 2023. Taking a more realistic approach, Progress Energy advances three scenarios in its IRP, page A-5, and while it has apparently backed away from its proposal to build new reactors at the Harris site, it still continues to include new baseload units in two of its three scenarios.

In comparison to the costly overbuilding of unnecessary baseload units apparent in the utilities' IRPs, the utilities have not embraced renewable energy and energy efficiency projects as a way to meet the least-cost mix. The development of energy efficiency and renewable energy sources has increased as a significant component of

State policy as evidenced in the REPS provisions of Session Law 2007-397. G.S. 62-62-133.8(b)(1) establishes the REPS requirement for various years with a 12.5% of the 2020 North Carolina retail sales for the year 2021 and thereafter. Although the utilities can meet the REPS with any number of projects and types of purchases, it is State policy that renewable energy and energy efficiency are required to be a significant part of the utilities' least cost mix, and reflected in their IRPs.

In addition to reducing the need for new power plants and the ability to accelerate the closure of coal plants, the financial savings associated with energy efficiency and renewable energy are considerable. An important factor in the Commission's review of the IRPs is that the cost of solar energy and other renewable energy sources is expected to continue to decrease while projected costs of nuclear power plants have risen steadily for the past decade and are expected to increase even more over time. In his July 2010 paper, Dr. John O. Blackburn, Professor Emeritus and former Dean of Economics at Duke University, reviewed the costs of solar energy and nuclear power plants and determined that in 2010 solar energy has finally become less expensive than nuclear energy.² NC WARN's Initial Comments, ¶ 19, supported by the detailed SACE comments, present the average costs of renewables at approximately 9 -10 cents per kWh generated, with solar photovoltaics at approximately 18 cents per kWh with costs decreasing. Customer cogeneration also remains economical as its average costs are approximately 6 - 7 cents per kWh. Even more

² Blackburn and Cunningham, "Solar and Nuclear Costs – The Historic Crossover: Solar Energy is Now the Better Buy," July 2010. Available at www.ncwarn.org/?p=2290 Note that the study included all subsidies for both technologies and compared the cost per kWh generated by each.

cost effective are energy efficiency measures with a range of the costs of approximately 4 - 5 cents per kWh for residential customers.

Going beyond the REPS requirements to what actually can be accomplished with renewable energy and energy efficiency, the utilities can meet all of their generation needs and at the same time, retire most, if not all, of their coal plants. NC WARN's Initial Comments, ¶ 19, supported by the SACE comments. In the 2009 IRP hearing, Docket E-100, Sub 124, Dr. Blackburn presented his conclusions that almost 18% of Duke Energy's generation can be met by renewable energy sources by 2029 and more than 17% of Progress Energy's generation can be met by the same sources in 2024. In addition to the potential for renewable energy, energy efficiency will play a significant role in North Carolina's energy future. In its April 29, 2010 presentation to the Energy Policy Council, the American Council for an Energy-Efficient Economy ("ACEEE") presented an energy efficiency market potential study demonstrated that an annual electricity savings of 1.2 - 1.6% is achievable over the next decade.

ATTACHMENT C to NC WARN's Initial Comments. Several other studies presented to the Commission in recent years have shown that energy savings in the 24 - 32% range were achievable in North Carolina by 2025.

At a minimum, even if the utilities are not willing to commit to the renewable energy projects that are cost-effective and reasonably available, and the energy savings that are attainable, it is the Commission's responsibility to find the least-cost mix. The cost of nuclear baseload plants is accelerating at a rapid pace and cannot even be considered as part of the mix.

2. Merger considerations. The 2010 IRPs were filed prior to the announcements by Duke Energy and Progress Energy in Dockets E-7, Sub 986 and E-2, Sub 998, that they were seeking approvals for a merger of the two utilities. The merger, with its potential conditions, will result in a combined utility that will potentially be considerably different in any number of ways than either of the existing utilities. While the issues related to the merger will be debated in the merger dockets, a direct result of the merger would be to more closely combine the generation capacity and ability to dispatch generation facilities as required. Another issue would be the ability of the new utility to meet future load demand through the building of costly new generating facilities or through renewable sources of electricity, coupled with DSM and energy efficiency measures to significantly diminish the need for any new generating facilities.

Even if the Commission approves the 2010 IRPs, any order doing so should clearly declare that the IRPs filed by Duke Energy and Progress Energy do not reflect the pending merger and should therefore carry little weight in other proceedings, such as recent docket on the development costs for the Lee Nuclear Station, Docket E-7, Sub 819, or future applications for public convenience and necessity for new plants. If the merger is approved, a combined IRP meeting all of the requirements of G.S. 62-110.1(c) and NCUC Rule 8-60 would be required for the Commission in order to determine whether the future plans for the new utility meets State policy for the achieving the least cost mix and the prevention of costly overbuilding.

CONCLUSION

The Commission's responsibility is clear in seeking the "least cost mix" of

generation and energy efficiency; the mix should focus on energy efficiency measures and renewable energy sources and away from "costly overbuilding" of baseload generation. NC WARN urges the Commission to review the utilities' excessive baseload capacity, the minimal renewable energy and energy efficiency they rely on and the impacts of the merger on the need to meet load.

Respectfully submitted, this the 6th day of June 2011.



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CERTIFICATE OF SERVICE

I hereby certify that the persons on the service list have been served this COMMENTS BY NC WARN (E-100, Sub 128) by deposit in the U.S. Mail, postage prepaid, or by email transmission.

This is the 6th day of June 2011.



Attorney at Law