STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-100, SUB 133

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of Rulemaking Proceeding to Consider Allocation Methods in Rate Hike Proceedings and Integrated Resource Plans	))))	REPLY COMMENTS BY NC WARN

NOW COMES the North Carolina Waste Awareness and Reduction Network, Inc. ("NC WARN"), through the undersigned attorney, with reply comments relating to its petition to open a rulemaking docket on rate allocation methodologies and planning. These reply comments adopt by reference the bases for the proposed rules provided in the petition for rulemaking filed in this docket.

1. The Commission has the duty to allocate costs between customers and customer classes without discrimination in its determination of a utility's rates. Rate cost allocation is one of the principal considerations in meeting the G.S. 62-131 requirements for "just and reasonable rates."

2. NC WARN continues to maintain that the Commission rules should be amended to include additional analysis in rate hike proceedings to closely examine different cost allocation methodologies, and in integrated resource plans ("IRPs") to assess of the costs of meeting new demand by different types of generating facilities. The filing of rates based on a variety of rate allocation methods would assist the Commission in formalizing the rates. Additional information and analysis in the IRPs on meeting new demand would better assist

the Commission in aligning rates with planning.

3. In response to the rulemaking petition, the initial comments by the other parties centered around the three interconnected arguments:

a. The rate allocation methodologies are best dealt within rate cases.

b. The IRPs adequately analyze how new demand will be met.

c. The issues in the Petition are not important enough for consideration at this time.

NC WARN disagrees and offers statements from Professor Gene Nichol, UNC Center on Poverty, Work and Opportunity (ATTACHMENT A), and William Marcus, JDS Energy (ATTACHMENT B), in support of its Petition.

4. The allocation of costs between customers and customer classes is a fundamental factor in determining just and reasonable rates, and must be closely examined to determine its effects on residential customers, and especially low-income families. Professor Nichol directly states that the Summer Coincident Peak ("SCP") "places an unfair and onerous burden on the poorest residents of our state and should be replaced by one that leads to more balanced and equitable results." Professor Nichol then proceeds to provide a compelling argument on why many low and moderate income families cannot afford basic household necessities such as utilities. He concludes that these issues are of crucial importance and should be addressed outside a rate case where they often get overlooked.

5. As stated in the Petition, the purpose of the rulemaking is to place the cost allocation methodologies before the Commission outside of a rate case, so

that the matter is directly addressed and not simply deferred to subsequent proceedings. As noted in the Petition, the Commission has determined that the SCP, currently advocated by Duke Energy, yielded unfair rates in previous Progress Energy and Dominion NC rate cases. Yet in the most recent Duke Energy rate case, Docket No. E-7, Sub 989, the difference between the Duke Energy and the Public Staff positions were acknowledged in the stipulation agreement but did not necessitate Commission action. As stated by Mr. Marcus in his statement, the Commission often does not address the issue because of stipulations and settlements even though the issues related to the allocation of costs between customers and customer classes is one of the most important factors in achieving just and reasonable rates.

6. In his statement, Mr. Marcus further provides the Commission with a range of methodologies that take into account both the need for peak generation and the need for generation to meet energy needs throughout the year. Mr. Marcus also discusses why rate allocation methodologies should address more than just peak demand, and directly cites the most recent IRPs of Duke Energy and Dominion to demonstrate that all planning contains energy-related components. Rate allocation should reflect the different types of generation, especially given the increasingly costly, capitol-intensive baseload units. Rates and planning should be aligned as much as possible; the customers who drive the need for a certain type of plant should pay their fair share for that plant.

7. Additional analysis is required for the Commission to determine if rate structures are just and reasonable. Given the information filed in the rate cases

and the IRPs, the Commission does not have adequate input to determine how to fairly allocate the costs of operating current generating facilities or new facilities to meet new demand. The utilities should say explicitly in their IRPs which customers, or class of customers, the new plants are needed and then make them pay for them proportionately.

8. NC WARN renews its offer to participate in a working committee of interested parties.

Respectfully submitted, this the 27th day of July 2012.

/s/ John D. Runkle

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John D. Runkle
Attorney at Law
2121 Damascus Church Rd.
Chapel Hill, N.C. 27516
919-942-0600
jrunkle@pricecreek.com

CERTIFICATE OF SERVICE

I hereby certify that the following REPLY COMMENTS BY NC WARN was filed to the persons on the service list by deposit in the U.S. Mail, postage prepaid, or by email transmission.

This is the 27th day of July 2012.

/s/ John D. Runkle

_____

Attorney at Law

UNC SCHOOL OF LAW

THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

THE CENTER ON POVERTY, WORK AND OPPORTUNITY

LAW SCHOOL ANNEX
101 E. WEAVER ST.
CB #3382
CHAPEL HILL, NC 27599-3382

T 919.843.8796
F 919.843.8784
www.law.unc.edu/centers/poverty

July 16, 2012

North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, NC 27699-4325

Re: Docket E-100, Sub 133; Order Requesting Comments

Dear North Carolina Utilities Commission:

The UNC Center on Poverty, Work and Opportunity submits the following statement in support of the petition filed by the North Carolina Waste Awareness and Reduction Network, Inc. (NC WARN) requesting a rulemaking proceeding to consider allocation methods in rate hike proceedings. The Center on Poverty, Work, and Opportunity supports the challenge to the Summer Coincident Peak methodology currently used to allocate costs to each customer class. This measure places an unfair and onerous burden on the poorest residents of our state and should be replaced by one that leads to more balanced and equitable results.

Poverty afflicts more North Carolinians than is commonly realized. Statewide, more than one in six—17.5 percent—fall below the stingy federal poverty level.[1] Disturbingly, the numbers for children are even worse: nearly one in four children in the state is impoverished.[2] And these overarching statistics disguise the grim fact that poverty disproportionately affects racial and ethnic minorities. Nor do they reveal the

[1] U.S. Census Bureau, 2010 American Community Survey 1-Year Estimates
[2] *Id.*

staggeringly high poverty rates in chronically distressed counties where well over 20 percent of the population is poor.

Additionally, North Carolina's unemployment rate has outpaced the nation's since before the onset of the Great Recession. In May 2012, the state unemployment rate of 9.4 percent was the fourth-highest in the country.[3] Almost 40 percent of North Carolinians earn less than 200 percent of the federal poverty standard—approximately the figure many experts consider a conservative estimate of a "living wage" in North Carolina.[4]

These startling numbers paint a bleak picture of the ability of low and moderate income families to afford basic household necessities such as utilities. This is especially true given that the average price of residential electricity has far exceeded income gains. Between 1990 and 2010, the average residential price of electricity in North Carolina increased 29 percent,[5] while median household income rose a mere 2.7 percent.[6] Nationally, poorer households are spending an ever greater percentage of income on electricity. In 2012, families with a pre-tax income of less than ten thousand dollars are estimated to spend 19.5 percent of their household budget on residential electricity, up markedly from 15 percent in 2005 and 11.4 percent in 2001.[7]

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[3] U.S. Department of Labor, Bureau of Labor Statistics, May 2012. Available at: www.bls.gov

[4] For example, the federal poverty threshold for a family with one adult and one child is $15,030; therefore 200 percent of poverty equals $30,060. The living income standard for North Carolina for the same family is $35,727. For two children and two adults, the poverty threshold is $22,113; the living income standard is $51,954. Poverty threshold data is available from the U.S. Census Bureau, Poverty Thresholds. North Carolina living income standard data is available from Alexandra Forter Sirota and Edwin McLenaghan, Making Ends Meet After the Great Recession: The 2010 Living Income Standard for North Carolina, NC Budget and Tax Center, NC Justice Center.

[5] U.S. Energy Information Administration, Electricity Data, Average Retail Price of Electricity to Ultimate Customers, By State, by Provider, Annual Back to 1990 (Form EIA-861). Available at: http://www.eia.gov/electricity/data.cfm.

[6] U.S. Census, State Median Income, Annual Social and Economic Supplement. Available at: http://www.census.gov/hhes/www/income/data/statemedian/index.html.

[7] *See* American Coalition for Clean Coal Electricity, Energy Cost Impacts on American Families, 2001-2012 at 15 (incorporating data from U.S. Bureau of the Census, Current Population Survey Supp. (2001. 2005, 2011 eds.); U.S. DOE Residential Energy Consumption Survey (2001, 2005 eds.); U.S. DOE/EIA Annual

North Carolina electricity customers cannot choose their providers and have little choice but to accept each rate hike with stoicism, no matter how unfairly the costs may have been allocated. As a result, it is crucial that the allocation method accurately reflect use among customer classes. Duke Energy's current rate allocation method—the Summer Coincident Peak—fails this simple test of fairness. The Summer Coincident Peak evaluates energy use at a particular point in time and determines the proportion of electricity used by each class of customer in order to fix costs. This method is flawed, however, in two fundamental ways. First, the peak use for residences and small businesses has no correlation to year-round or average use. Second, the Summer Coincident Peak obscures important differences in energy use between classes. Residences and small businesses are much more likely to experience fluctuations in demand; whereas industrial and commercial entities require large, but constant, amounts of energy. As a result, while small businesses and residences may comprise a large percentage of the overall use during the peak hour, this use is not representative of annual energy consumption.

To emphasize the unfairness that can result from the Summer Coincident Peak method, NC WARN compiled data from the most recent rate case before the Commission, Duke Energy's Application for a Rate Increase filed June 1, 2011 (Docket No. E-7 Sub 989), to compare the cost of electricity for different customer subclasses. The results showed that costs allocated according to the Summer Coincident Peak method

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Energy Review 2005 and Short-Term Energy Outlook (January 2012); Congressional Budget Office, Effective Federal Tax Rates Under Current Law, 2001-2014 (August 2004) and Effective Federal Tax Rates, 1979-2006 (April 2009); and Federation of Tax Administrators). Available at: http://www.americaspower.org/sites/default/files/Energy_Cost_Impacts_2012_FINAL.pdf

were heavily skewed against residential and small business customers.[8] Many large industrial and commercial users (including several new data processing centers) possess the means to go off-grid during peak hours, often in response to tips from Duke Energy. The smaller number of total customers within these classes coupled with the widespread practice of reducing demand during the distribution system's peak makes an appreciable difference in the amount of electricity consumed and recorded. The unfortunate result is that by switching for a short time to on-site power generation, large industrial and commercial customers circumvent the Summer Coincident Peak method to shift yearly costs onto residences and small businesses—costs that include the construction of generators necessitated by the data centers themselves.

Under Section 2 of the Public Utilities Act, the Commission is charged with providing "fair regulation of public utilities in the interest of the public."[9] This includes providing:

> just and reasonable rates and charges for public utility services without unjust discrimination, undue preferences or advantages, or unfair or destructive competitive practices and consistent with long-term management and conservation of energy resources by avoiding wasteful, uneconomic and inefficient uses of energy.[10]

It is important to remember that "the public" includes all North Carolina citizens, including low and moderate income residents who feel the squeeze as utility rates continue to climb. The Summer Coincident Peak method allocates costs in an inequitable manner, allowing high-load industrial and commercial customers (including some of the

[8] *See* Jim Warren, On the Backs of Families: Duke Energy Carolinas Justifies New Power Plants by Giving Breaks to the World's Richest Corporations at 4 (incorporating data from North Carolina Utilities Commission Docket E-7 Sub 989, E-1 Item 42C pages 1-16). Available at: http://www.ncwarn.org/wp-content/uploads/2012/05/REPORT_cost_alloc_FINAL.pdf
[9] N.C. Gen. Stat. § 62-2(a)(1)
[10] N.C. Gen. Stat. § 62-2(a)(4)

world's richest corporations) to game the system and pass the cost of the electricity they use, as well as the new plants that are being built primarily to meet their large annual demand, onto other ratepayers. This method rewards those customer classes that take advantage of peak-shaving techniques—a result the Commission is duty-bound by statute to prevent.

Blindly allowing the state's public utilities to continue allocating costs according to the Summer Coincident Peak method will only serve to exacerbate the economic pressures felt by North Carolina's struggling ratepayers. While corporations like Apple and Google pay for their electricity at 2.45 cents per kilowatt hour after fuel costs, residential customers pay 6.74 cents per kilowatt hour and small businesses pay 7.64 cents per kilowatt hour after fuel costs.[11] There is no justification—in law, in logic, in morality—for these discrepancies. The growing number of data processing centers in North Carolina (most of which were aggressively recruited by Duke Energy) will only augment demand for electricity within the state, necessitating the construction of new power plants. As long as costs are allocated solely according to proportional use during a single peak hour, residential and small business customers will continue to subsidize these new plants while large-volume customers reap the benefits of peak-shaving techniques.

The Commission has stated in previous rate cases that the Summer Coincident Peak method is an unreasonable means of allocating costs and setting rates, rejecting Carolina Power & Light's 1988 request to switch to a peak-only method by ruling that "it

[11] *See* Jim Warren, On the Backs of Families: Duke Energy Carolinas Justifies New Power Plants by Giving Breaks to the World's Richest Corporations at 4 (incorporating data from North Carolina Utilities Commission Docket E-7 Sub 989, E-1 Item 42C pages 1-16). Available at: http://www.ncwarn.org/wp-content/uploads/2012/05/REPORT_cost_alloc_FINAL.pdf
See Appendices B and C

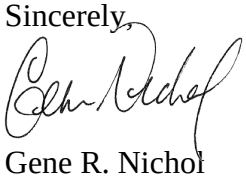
is only appropriate that high load factor customers pay their share of the cost of the base load plants built primarily to serve them."[12] When Dominion Power attempted the same maneuver two years later, the Commission again rejected a peak-only methodology by requiring Dominion to retain a cost allocation that "recognizes that not all production plant fixed costs are demand-related" and "recognizes that energy-related production plant fixed costs should be allocated by kWh energy."[13] Precedent such as this makes it difficult to justify the continued use of the Summer Coincident Peak method by any public utility in North Carolina.

Electricity is more than a convenience—it is a physical necessity. Not only is it vital for air conditioning, almost 60 percent of households in North Carolina use electricity to heat their homes, compared to 35 percent of U.S. households overall.[14] With Duke Energy occupying the role of sole electricity provider for most of North Carolina after the Duke-Progress merger, it is imperative that the Commission investigate the manner in which the Summer Coincident Peak method allocates costs amongst customer classes. Residential customers in North Carolina are currently shouldering most of the burden of the enormous cost of providing electricity to high-load customers with sustained, year-round demand. As the Commission was created to serve the public interest and ensure fairness for all customers, it must reject a cost allocation method that results in the poorest customer classes subsidizing the power bill of heavily resourced multinational corporations. NC WARN's rulemaking petition will bring this concern before the Commission outside the context of a rate case, where the issue of fairness of cost allocation methods is often overlooked or settled before any serious broader inquiry

[12] Docket E-2 Sub 537, Order Granting Partial Increase in Rates and Charges, p. 130.
[13] Docket E-22, Sub 314, Order Approving Partial Rate Increase, p. 17.
[14] 2010 American Community Survey 1-Year Estimates.

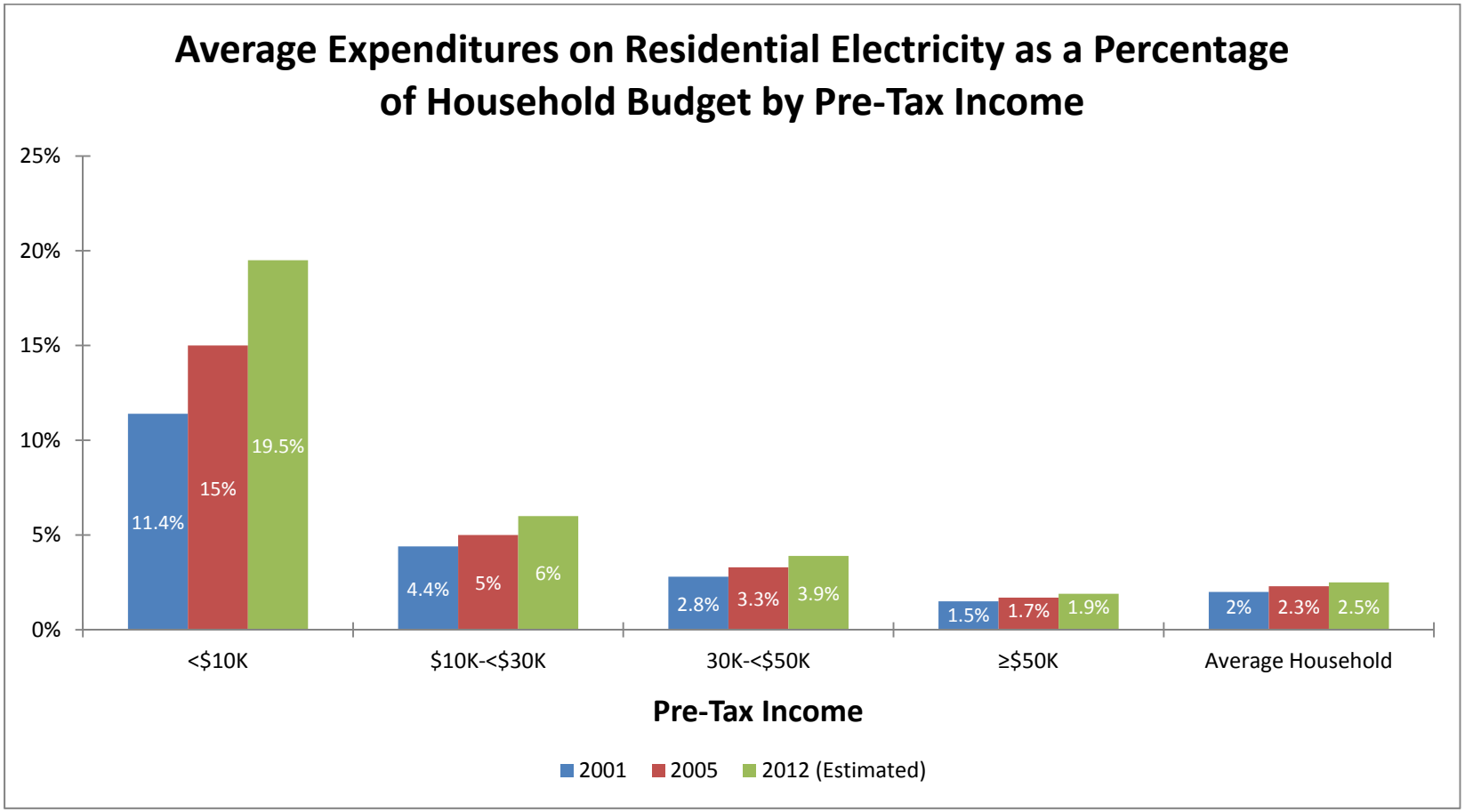
is made. The Center on Poverty, Work, and Opportunity therefore supports NC WARN's petition to open rulemaking proceedings that would require re-consideration of rate determination methodologies in every rate case before the Commission.

Sincerely,



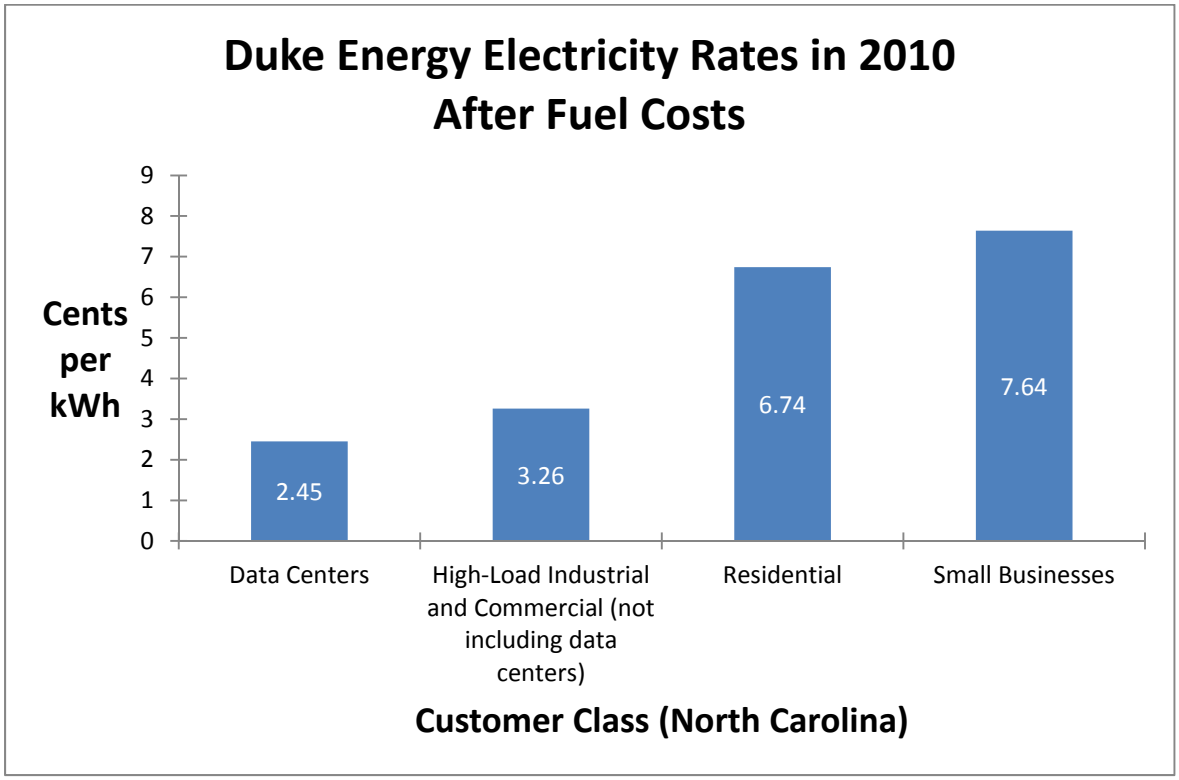
Gene R. Nichol
Center on Poverty, Work and Opportunity
University of North Carolina
Chapel Hill, NC

APPENDIX A



Source: American Coalition for Clean Coal Electricity, Energy Cost Impacts on American Families, 2001-2012 at 15 (incorporating data from U.S. Bureau of the Census, Current Population Survey Supp. (2001. 2005, 2011 eds.); U.S. DOE Residential Energy Consumption Survey (2001, 2005 eds.); U.S. DOE/EIA Annual Energy Review 2005 and Short-Term Energy Outlook (January 2012); Congressional Budget Office, Effective Federal Tax Rates Under Current Law, 2001-2014 (August 2004) and Effective Federal Tax Rates, 1979-2006 (April 2009); and Federation of Tax Administrators). Available at: http://www.americaspower.org/sites/default/files/Energy_Cost_Impacts_2012_FINAL.pdf

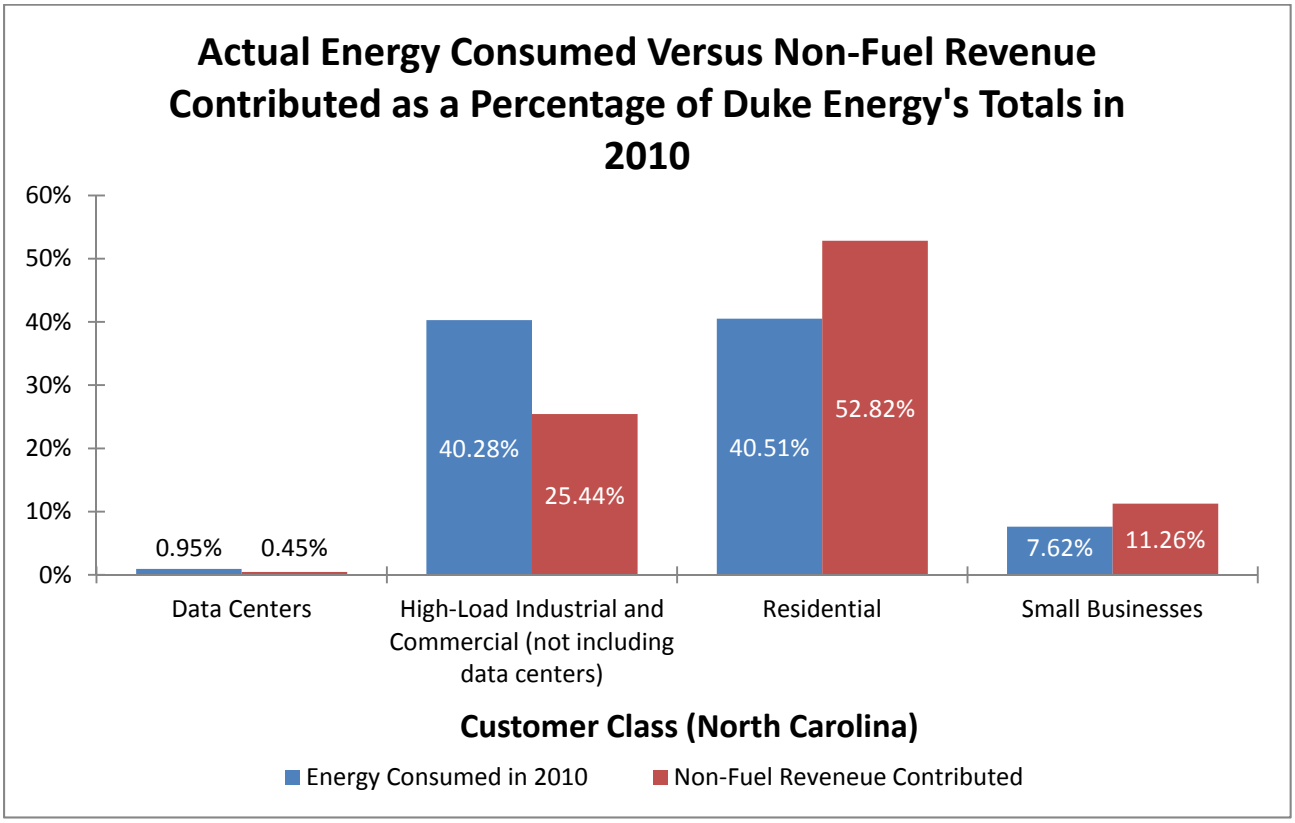
APPENDIX B



Source: NC Warn. *See* Jim Warren, On the Backs of Families: Duke Energy Carolinas Justifies New Power Plants by Giving Breaks to the World's Richest Corporations at 4 (incorporating data from North Carolina Utilities Commission Docket E-7 Sub 989, E-1 Item 42C pages 1-16). Available at: http://www.ncwarn.org/wp-content/uploads/2012/05/REPORT_cost_alloc_FINAL.pdf

*Note: The Residential category used in these statistics incorporated the rate schedules for Residential Service (RS), Residential Service Energy Star Standard (ES), Residential Service – Electric Water Heating and Space Conditioning (RE), Residential Service – Energy Star All Electric (ESA), and Residential Service – Time of Use (RT). The Small Business category as used in the report refers only to customers billed under the rate schedule for Small General Service (SGS). The High-Load Industrial and Commercial category includes customers billed under the rate schedules for Optional Service Time of Use – Commercial Customers (OPTG), Optional Service Time of Use – Energy Only (PILOT) (OPTE), and Optional Power Service Time of Use Industrial Customers (OPT-I). The Data Center category refers only to customers billed under the Optional Service Time of Use – High Load Factor (OPTH) schedule.

APPENDIX C

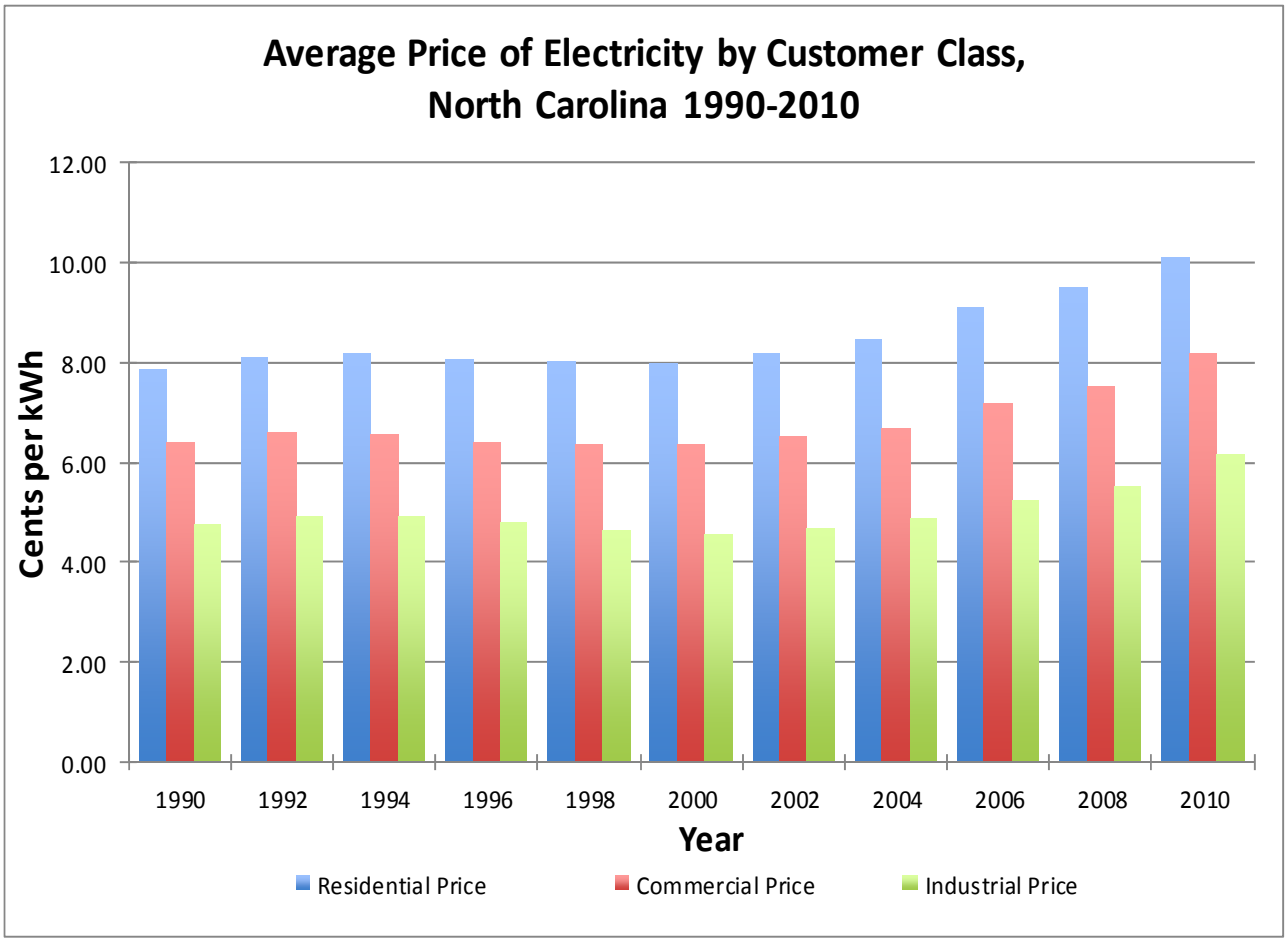


Source: NC Warn. *See* Jim Warren, On the Backs of Families: Duke Energy Carolinas Justifies New Power Plants by Giving Breaks to the World's Richest Corporations at 4 (incorporating data from North Carolina Utilities Commission Docket E-7 Sub 989, E-1 Item 42C pages 1-16). Available at: http://www.ncwarn.org/wp-content/uploads/2012/05/REPORT_cost_alloc_FINAL.pdf

*Note: This chart does not incorporate every rate schedule, so the values will not equal 100%.

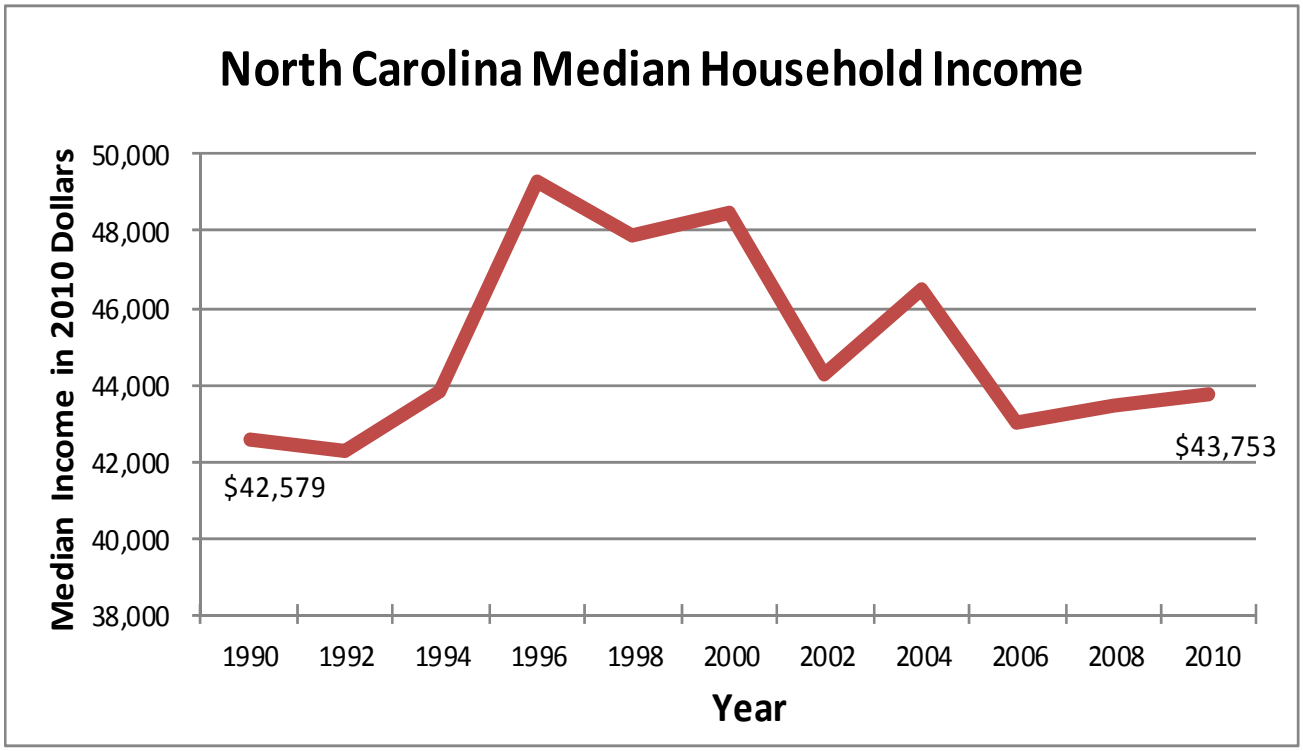
**Note: The Residential category used in these statistics incorporated the rate schedules for Residential Service (RS), Residential Service Energy Star Standard (ES), Residential Service – Electric Water Heating and Space Conditioning (RE), Residential Service – Energy Star All Electric (ESA), and Residential Service – Time of Use (RT). The Small Business category as used in the report refers only to customers billed under the rate schedule for Small General Service (SGS). The High-Load Industrial and Commercial category includes customers billed under the rate schedules for Optional Service Time of Use – Commercial Customers (OPTG), Optional Service Time of Use – Energy Only (PILOT) (OPTE), and Optional Power Service Time of Use Industrial Customers (OPT-I). The Data Center category refers only to customers billed under the Optional Service Time of Use – High Load Factor (OPTH) schedule.

APPENDIX D



Source: U.S. Energy Information Administration, Electricity Data, Average Retail Price of Electricity to Ultimate Customers, By State, by Provider, Annual Back to 1990 (Form EIA-861).
Available at:
http://www.eia.gov/electricity/data.cfm

APPENDIX E



Source: U.S. Census, State Median Income, Annual Social and Economic Supplement. Available at: http://www.census.gov/hhes/www/income/data/statemedian/index.html

ATTACHMENT B

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-100, SUB 133

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of	)	
Rulemaking Proceeding to Consider	)	STATEMENT OF
Allocation Methods in Rate Hike Proceedings	)	WILLIAM B. MARCUS
and Integrated Resource Plans	)	

This statement is prepared by William B. Marcus in support of NC WARN's petition for rulemaking on rate allocation methods and planning for new generation.

1. My name is William B. Marcus. I am the Principal Economist, JBS Energy, Inc. 311 D Street, West Sacramento, CA 95695.

2. I have 34 years of experience in the analysis of regulated gas and electric utilities. I have been a consultant at JBS Energy for 27 years; prior to that time, I worked for another consulting firm, for the California Energy Commission in progressively responsible positions as an economist, and for the Kennedy School of Government at Harvard as a casewriter. I hold an A.B. degree magna cum laude in economics from Harvard and an M.A. in economics from the University of Toronto. I have testified before approximately 40 regulatory bodies and courts in the United States and Canada. My summary CV is attached to this statement.

I. **Reasons for Construction of Generation**

3. In several instances, the rate allocation methodologies approved by the NC Utilities Commission do not result in fair and reasonable rates, especially if the summer coincident peak methodology is used. Often the issue of rate allocation is not addressed because of stipulation agreements. The allocation of generation costs on a summer peak or average and excess demand basis does not reflect the reasons why generation is built. The "Need for Generation" essentially must be broken down into two separate questions. The first is how much generation is required. The second is what kind of generation is required, because there are a variety of generating technologies with varying capital costs. Generation with lower capital costs tends to have higher variable costs, such as fuel, and vice versa.

A. Causes for Need for Generation

4. The amount of generation is generally calculated based on meeting the system coincident peak load with a reserve margin adequate to cover periods of system stress caused by generating plant outages. System stress does not just occur in the peak hour of the year but can occur in a considerable number of hours when loads are high. Stress can occur even in non-peak months when large generating plants are taken down for maintenance and there is the potential for other units to then suffer forced outages.

5. That is why the use of a single coincident month's peak (1 CP), the method used by Duke, is rarely used. Most summer peaking jurisdictions do not use a single coincident peak month for establishing peak demand but often instead use 3 CP or 4 CP.[1] Jurisdictions with higher levels of winter demand (and Duke and Dominion both have winter loads that are close to summer loads)[2] often use 6CP (the six highest months including two or three winter months) or even a 12 CP. The FERC tends to use 12 CP to allocate transmission costs unless systems are extremely peaked, and has laid out a number of tests as to whether 12 CP is reasonable.

6. Marginal cost jurisdictions (such as Nevada) spread generation demand costs using loss of load probability (LOLP), which includes not just high peak hours in both seasons but probabilities of load loss due to forced outages when units are on maintenance. The LOLP method spreads loads outside single peak hours in a month.

7. Other methods can be used to reflect the fact that high loads in a number of hours can theoretically contribute to system stress peak. One method has two names. Some utilities call it a Peak Contribution Allocation Factor (PCAF); others use the term Probability of Peak (POP). This method assigns diminishing amounts of capacity costs in each hour with load in

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[1] For example, Texas, for utilities that are not deregulated.

[2] Dominion has historically had winter peak loads at or in excess of summer peaks in some years.

excess of 80% of the peak (usually 100-300 hours depending on the specific year's load pattern) based on the amount in excess of 80% of the peak.[3] Thus the peak hour is weighted 19 times as much as an hour with 81% of the peak load, but some weight is given to all high load hours. Pacific Gas and Electric uses PCAF. NV Energy uses the same method, which it calls POP, to allocate transmission and distribution costs. Southern California Edison and San Diego Gas and Electric assign equal weight to each of the top 100 hours of the year.

B. Energy Explains Why Specific Types of Generation are Built

8. The choice of generating plants is generally based on attempting to minimize total system costs taking into account fuel costs, fuel diversity, and sustained energy use, while maintaining reliability and responding to uncertainties.

9. There is a significant energy-related component to the choice of what to build. For instance, the Executive Summary of Dominion Energy's Integrated Resource Plan states:

> The Company's objective in developing the 2011 Plan was to identify the mix of resources necessary to meet future energy and capacity needs in an efficient and reliable manner at the lowest reasonable cost while considering uncertainties related to current and future regulations.[4]

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[3] Nevada uses Probability of Peak for transmission and distribution substations.

[4] Dominion, Dominion Virginia Power's and Dominion North Carolina Power's Report of Its Integrated Resource Plan, September 1, 2011, p. 3.

Duke also points specifically not just to capacity but to energy needs:

> Duke Energy Carolinas, LLC (Duke Energy Carolinas or the Company), a subsidiary of Duke Energy Corporation, utilizes an integrated resource planning approach to ensure that it can reliably and economically meet the electric energy needs of its customers well into the future.[5]

10. If a utility is building a plant that provides energy in a few hours at peak or for reserves, it builds a peaking plant – low capital costs, high fuel costs. If a utility needs energy around the clock, it builds baseload generation – much higher capital costs, much lower fuel costs. For intermediate loads, the utility builds a plant such as a combined cycle, which has capital costs and fuel costs between the peaker and the baseload plant.

11. Utilities also make choices of what to build based on fuel diversity as well as absolute fuel costs, and choose a diverse mix of fuels in order to hedge against both price and environmental risks associated with overconcentration in specific fuels.

12. The clearest examples explaining why generating plant costs are not entirely caused by peak loads come from units with extremely low fuel costs – nuclear, hydro and wind. It is clear that a nuclear plant or hydro plant or wind turbine is built to provide very cheap energy. With a high cost of initial capital, significant fixed O&M, and ongoing capital additions, a nuclear plant would only be cost-effective because it uses extremely

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[5]Duke Energy, The Duke Energy Carolinas Integrated Resource Plan (Annual Report), September 1, 2010, page 6.

inexpensive fuel to provide energy, less than 1 cent per kWh. A utility will also build hydro generation, which is far more expensive than equivalent fossil generation, to gain free fuel (or in the case of pumped storage, use off-peak energy that is less expensive to save fuel costs during peak periods). A utility will spend the capital to build wind generation to save fuel and gain environmental benefits that are entirely related to the energy that the plant produces. Wind energy has limited firm capacity per unit of energy but provides energy with low variable costs and no fossil fuel use when the wind is blowing. The intent when the plants were built was clear – they were built to save expensive fuel and provide diverse fuel sources. The meeting of peak load remains an incidental.

13. While NC WARN may disagree with some of the choices made by Dominion and Duke – in particular the choice of new nuclear generation – we must strongly remind the Commission that the utilities are not proposing to build new nuclear resources simply to meet the summer capacity hours in one or a few peak hours – the way in which they both generally allocate costs to consumers.[6] Instead, Dominion Virginia points not just to reliability but to energy-related considerations as the rationale for North Anna 3 "fuel diversity, stable long-term customer electricity rates, system reliability, and

[6] Duke uses a single summer peak hour; Dominion North Carolina has used an "average and excess" demand method before acceding to the Staff methodology recently, but as shown below, this is simply a set of mathematical gyrations that is almost identical to a peak-only allocation method except for streetlighting.

low greenhouse gas emissions."[7] Duke points out that nuclear is allegedly cheaper than an all gas future over a 50-year time horizon.[8] But these generating units are certainly not the cheapest form of capacity. A cost causation based on this rationale cannot possibly be squared with into a cost allocation based entirely or almost entirely on summer peak demand for the full capital cost of a nuclear plant.

14. Duke itself makes this point clear in its testimony of Witness Jeffrey Bailey in its last rate case (Docket E-7, Sub 989), by demonstrating that interruptible loads do not avoid baseload power; they only avoid peaking power. Even short-duration loads up to 20-30 hours per month do not save baseload capacity, such as nuclear generation.

> A properly designed and priced peak reduction program will defer the need for *peaking* capacity [emphasis in original], not baseload capacity. Where Witness O'Donnell's argument [for a higher peak saving credit] falls short is his expectation that customers who respond to a CP rate, and curtail just 20 to 30 hours per month, will defer the need for expensive baseload generating capacity. In other words, Witness O'Donnell contends that customers who utilize the system better than 96% of the time will defer generation designed to serve not only at peak times, but all of the other hours of the year as well. This position simply isn't realistic, and particularly so when the Lee Nuclear Station he cites will be built, in large part to provide greenhouse gas emission-free baseload generation in a carbon constrained future.

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[7] Dominion IRP, p. 70.

[8] Duke Carolinas IRP, Table A2, page 90.

> My conclusion regarding Witness O'Donnell's recommendation is that it produces an unreasonable subsidy to industrial customers that would in no way produce the benefits claimed.[9]

Mr. Bailey's testimony indicates that a new peaking unit costs $70 per kW-year and its existing fleet costs $42 per kW-year compared to a total demand charge of $170 per kW. The rest of Duke's generation "fixed" cost are largely related to the need for sustained energy. Mr. Bailey's testimony makes it clear that Duke wants to build the Lee Nuclear Station to serve sustained energy use.[10]

15. Lastly, operations, maintenance, and capital improvements to power plants also have energy-related reasons. Pollution control retrofits may be required on many baseload coal generation plants because they are used for many hours of the year; if they were used for reserves only, retrofit requirements would be less or non-existent.

II. Examples of Allocation Methods that Contain Additional Energy

16. There are five common methods that take energy into account.

a. The Base – Intermediate - Peak (B-I-P) method uses different allocation methods for different types of plant to reflect the different causes

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[9] Docket E-7, Sub 989, Transcript Volume 4 (November 30, 2011), page 247 (Rebuttal Testimony of Jeffrey R. Bailey, page 7). http://ncuc.commerce.state.nc.us/cgi-bin/webview/senddoc.pgm?dispfmt=&itype=Q&authorization=&parm2=8AAAAA34311B&parm3=000135371

[10] Id.

for constructing them; a heavily energy-oriented method for baseload power; a method such as 12 CP for intermediate plant (combined cycles and older coal plants), and a more heavily peaked method for plants used for peaking and reserves.

b. The Summer Winter Peak and Average (SWPA) method advocated by the Public Staff is a form of the Average and Peak Demand (APD_ method. This method multiplies the system load factor by average demand (energy) and one minus the system load factor by a measure of peak demand. This method reflects in broad general terms that usage of power plants and the type of plants that are being built is based on sustained energy but the amount of generation is based on peak. As a matter of general principle, the APD method, including the SWPA, is one of several ways to recognize that relatively inexpensive peaking plants are built to meet peak loads, but relatively expensive baseload facilities are constructed instead of cheaper peaking plants to meet sustained energy loads.

c. The Plant Capacity Factor (PCF) method takes the analysis to the individual plant level. Under this method, a baseload plant like a nuclear plant running at an 85% capacity factor would be classified 85% to energy and 15% to demand. A peaking plant running 2% of the time would be allocated 2% to energy and 98% to demand. This method produces an even higher energy allocation than APD or SWPA because the most expensive baseload power plants have the highest energy allocations.

d. Hourly Load Methods

1. The Probability of Dispatch (POD) method assigns costs of both capacity and energy based on hourly loads in the hours when plants are dispatched for native load. A POD model allocates generation costs by spreading the fixed costs of the various generation plants of a utility units across the hours of the year as the units are operated, based on the usage of those units by each customer class. Energy costs can be allocated generally in the same way, although complications may arise from off-system sales. Under the POD model, baseload plants, including capital, operations and maintenance and energy, are allocated to users across the year, while peaking plants are allocated to users in high load hours. A plant held for reserves and not operated is allocated based on the peak.

2. The marginal cost method assigns the fixed costs of a combustion turbine (with some possible adjustments) to capacity and other costs to energy. These can be short-run marginal costs (e.g., market prices) or longer run incremental costs (costs of combined cycle or coal generation). The total marginal costs can then be trued up to total generation costs (fixed, fuel, and purchased power), creating capacity-related and energy-related percentages of cost. Capacity is usually allocated by a loss of load probability method and energy based on hourly loads or loads in specific time periods to obtain percentages of capacity and energy. Nevada and California use a

short-run marginal cost method. Utilities in the Pacific Northwest have traditionally used a long-run incremental cost method.

3. The Average and Excess Demand (AED) was used by Dominion North Carolina in the past. Under the AED method, demand is computed in two parts. The system load factor is multiplied by each class's average demand) The remaining excess demand (one minus the system load factor) is allocated to each class based on its excess demand above the average. While proponents of this method claim that it recognizes sustained energy use or average demand in the calculation, the pure mathematics of the way the method works, unlike APD or SWPA is that it nearly always comes out very close to a pure peak demand allocation. The only small differences from a peak allocation arise from (1) the treatment of classes, like streetlighting, which would have negative excess demand; the negative number is set to zero, and (2) from differences in the definitions of peak loads used to compute the load factor and to compute the excess demand (which arise in some states).

III. Conclusion

17. The single summer peak method, and other methods that produce similar results, are rarely used because the results are often not fair or reasonable. The treatment of all of the generation "fixed" costs as being related entirely to peak demand is contrary to economic theory. A significant

relationship between generation fixed costs and energy usage arises from the principles of utility planning. A number of methods can be used to relate portions of generation "fixed" costs to energy. Even in states where fixed costs are considered demand-related, most states use multiple months of coincident peak demands or other methods to assign demand-related costs to multiple hours to recognize that peak loads are not driven by a single hour. To date in North Carolina, the methodologies leading to fair and reasonable cost allocations have not been resolved in rate cases.

18. This is the end of my statement.

William B. Marcus

Principal Economist,
JBS Energy, Inc.

William B. Marcus has 32 years of experience in analyzing electric and gas utilities.

Mr. Marcus graduated from Harvard College with an A.B. magna cum laude in economics in 1974 and was elected to Phi Beta Kappa. In 1975, he received an M.A. in economics from the University of Toronto.

In July, 1984, Mr. Marcus became Principal Economist for JBS Energy, Inc. In this position, he is the company's lead economist for utility issues.

Mr. Marcus is the co-author of a book on electric restructuring prepared for the National Association of Regulatory Utility Commissioners. He wrote a major report on Performance Based Ratemaking for the Energy Foundation.

Mr. Marcus has prepared testimony and formal comments submitted to the Federal Energy Regulatory Commission, the National Energy Board of Canada, the Bonneville Power Administration, the U.S. Bureau of Indian Affairs, U.S. District Court in San Diego, Nevada County Municipal Court; committees of the Nevada, Ontario and California legislatures and the Los Angeles City Council; the California Energy Commission (CEC), the Sacramento Municipal Utility District (SMUD), the Transmission Agency of Northern California, the State of Nevada's Colorado River Commission, a hearing panel of the Alberta Beverage Container Management Board; two arbitration cases, environmental boards in Ontario, Manitoba, and Nova Scotia; and regulatory commissions in Alberta, Arizona, Arkansas, British Columbia, California, Colorado, Connecticut, District of Columbia, Hawaii, Iowa, Manitoba, Maryland, Massachusetts, Nebraska, Nevada, New Jersey, New Mexico, North Carolina, Northwest Territories, Nova Scotia, Ohio, Oklahoma, Ontario, Oregon, South Carolina, Texas, Utah, Vermont, Virginia, Washington, Wisconsin, and Yukon. He has testified on issues including utility restructuring, stranded costs, Performance-Based Ratemaking, resource planning, load forecasts, need for powerplants and transmission lines, environmental effects of electricity production, evaluation of conservation potential and programs, utility affiliate transactions, mergers, utility revenue requirements, avoided cost, and electric and gas cost of service and rate design.

From 1975 to 1978, Mr. Marcus was a research analyst at the Kennedy School of Government, Harvard University. He prepared public policy case studies on environmental and transportation issues, benefit-cost analysis, and urban policy and finance for use in classes and publication in the Kennedy School Case Series.

From July, 1978 through April, 1982, Mr. Marcus was an economist at the CEC, first in the energy development division and later as a senior economist in the CEC's Executive Office. He prepared testimony on purchased power pricing and economic

studies of transmission projects, renewable resources, and conservation programs, and managed interventions in utility rate cases.

From April, 1982, through June, 1984, he was principal economist at California Hydro Systems, Inc., an alternative energy consulting and development company. He prepared financial analyses of projects, negotiated utility contracts, and provided consulting services on utility economics.

Mr. Marcus is currently the Chair of the Manufactured Home Fair Practices Commission for the City of Woodland, California. This Commission regulates space rents in the City's mobile home parks. He has served on several other local government advisory committees, including a 1991-92 SMUD Rate Advisory Committee, which recommended cost allocation and rate design changes to the SMUD Board.