9

BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

In the matter of the 2010 Long-Term Forecast Report of the Duke Energy Ohio, Inc.) Case No. 10-503-EL-FOR

DIRECT TESTIMONY OF MAX NEUBAUER

ON BEHALF OF

THE OHIO ENVIRONMENTAL COUNCIL

INTRODUCTION AND BACKGROUND

Q. What is your name and business address?

A. My name is Max Neubauer. My business address is 529 14th Street, NW, Suite 600, Washington DC 20045.

Q. On whose behalf are you testifying today?

A. I am testifying on behalf of the Ohio Environmental Council.

Q. Please describe your current position, responsibilities and experience in the field of electric utility energy efficiency programs.

A. I have been a research associate with ACEEE for over three (3) years, and in the industry for six (6) years. I work predominantly in ACEEE's State Policy program, where my responsibilities include: acting as project manager for ACEEE's state efficiency potential studies; providing technical assistance to states looking to develop and implement energy efficiency policies and programs, including participation in regulatory hearings; developing and managing ACEEE's

State Technical Assistance Toolkit, and; a variety of other research and managerial tasks. I also work with ACEEE's sister organization, the Appliance Standards Awareness Project, assisting with their technical analyses, database, and website management.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to address the reasonableness of Duke Energy of Ohio Corporation's projections of energy efficiency potential as stated in its Electric Long-term Forecast Report and Resource Plan and the testimony of its submitted experts. In preparation for this matter I reviewed filing, the Electric Long-term Forecast Report and Resource Plan, the associated testimony and data from a variety of sources applicable to Ohio, listed below.

Q. Following your review of this material, have you been able to reach any conclusions regarding the plan and the energy efficiency potential alleged by Duke Energy?

A. Yes. It is clear that the energy efficiency potential outlined by Duke Energy in the filing and in the testimony is far lower than what we have seen in other states and by other utilities in Ohio. This leads us to the basic conclusion that Duke Energy is projecting energy efficiency potential that is far lower than is reasonable.

OVERALL ASSESSMENT OF THE LONG TERM FORCAST REPORT

Q. Have you reviewed any documents or material in developing your opinions?

A. Yes. I have reviewed Duke's *2010 Electric Long-term Forecast Report and Resource Plan*, the associated testimony and other items on the docket, and other related materials.

Q. What other material have you reviewed?

A. A variety of items; Duke's *Ohio Market Potential Study for Demand Side Management Programs Final Report*, AEP's *Energy Efficiency/Peak Demand Reduction (EE/PDR) Action*

Plan, DP&L's *Assessment of Electric Energy-Efficiency Potential (2010-2019)*, and the most recent state-wide potential study.

Q. What is the most recent state-wide potential study?

A. It is a 2009 study entitled "Shaping Ohio's Energy Future: Energy Efficiency Works," completed by the ACEEE, with data and analysis from Summit Blue Consulting, ICF International, and Synapse Energy Economics.

Q. Could you please describe why you have focused your review of the Electric Long-term Forecast Report and Resource Plan on energy efficiency potential?

A. Yes. Energy efficiency is a low-cost, high-benefit opportunity to address growing energy demand. As a low-cost, labor-intensive resource, it is in the interest of all states to embrace energy efficiency as a means of reducing total electric system costs to ratepayers while also providing direct energy savings benefits to consumers, creating jobs and stimulating economic growth.

Q. What is your overall opinion of the Electric Long-term Forecast Report and Resource Plan submitted by Duke Energy?

A. The conclusion of the plan, that there is low long term energy efficiency potential is untenable. It is clear that Duke's energy efficiency potential estimate is not consistent with other assessments, and the inputs utilized to create the plan are not consistent with experience and data from across the nation.

<u>WEAKNESS OF DUKE ENERGY'S EFFICINECY POTENTIAL ESTIMATES</u>

Q. What does Duke Energy estimate to be the level of cost-effective energy efficiency potential through 2025?

A. Duke estimates, on page one (1) of its potential study, a cumulative cost-effective savings potential of 13% of projected demand over twenty (20) years, or through 2029. This estimate is elaborated upon in Duke's Electric Long-Term Forecast and Resource Plan in Table 4.7 on page 172.

Q. Is this estimate, in your opinion, an accurate and defensible one? Please explain your answer.

A. No, it is not. There are a variety of reasons why Duke's potential numbers should be presumed to be inaccurate. Duke's estimate of the potential for energy efficiency in its service territory is inconsistent with other potential estimates, including the most-recent state-wide assessment done for Ohio. Other issues include avoided costs numbers that are artificially low, an incomplete cost-effectiveness test that leads by its nature to a lower estimate of potential, incomplete calculation of measure economics; smaller than average or justified projections for potential participants, incomplete, and low measure-lifetimes for several measures.

Q. You stated that Duke's efficiency potential estimate was inconsistent with other potential studies. With which estimates is the potential study inconsistent?

A. It is inconsistent with the potential estimates conducted by other investor-owned utilities in Ohio, as well as with the most recent state-wide assessment, conducted by the ACEEE.

Q. How is it inconsistent?

A. Duke's estimates of the economic potential are low when compared to estimates reported by American Electric Power, Ohio and Dayton Power & Light, as well as to those given by the ACEEE study. For example, AEP reports on p. 2 of its Action Plan cumulative *achievable* savings between 2009 and 2011 of 1.65%, or 842 GWh, of its projected 2011 sales. Estimates of achievable savings are derived from economic potential estimates, but take into account market and customer adoption barriers. As such, achievable savings are always reported as some fraction of economic potential savings estimates. According to Table 4.7 on p. 172 of its Resource Plan, through 2011, Duke estimates cumulative *economic* potential savings between 2009 and 2011 of 1.66%, or 329 GWh, of its projected 2011 sales. If AEP were to report its *economic* potential savings – which would allow an 'apples-to-apples' comparison – they would be noticeably higher than those estimated by Duke. As another example, DPL estimates cumulative economic potential savings between 2009 and 2019 of 17%, or 2,386 GWh, of its projected 2019 sales. However, Duke, in table 4.7 on p. 172 of its Resource Plan, estimates cumulative economic potential savings between 2009 and 2019 of 9.2%, or 1,903 GWh, of its projected 2019 sales, a very significant difference. In 2008, Quantec assessed the potential for energy efficiency in Iowa and, over 10 years (2008-2018), estimated economic potentials for Interstate Power & Light and MidAmerican Energy of 18% and 16%, respectively. Finally, ACEEE's recent statewide analysis identified cumulative economic potential savings of 28%, or 53,910 GWh, of projected state sales in 2025. See Table 1 below.

Table 1. Comparison of Electric Efficiency Potential Estimates.

	Economic	Achievable
Duke	1.66%	
AEP		1.65%

	Economic	Achievable
Duke	9.20%	
DP&L	17.00%	
Alliant	18.00%	
MidAmerican	16.00%	

Q. Please discuss the other deficiencies you identified, starting with the avoided cost estimates.

A. According to p.104 of the study, Duke reports its estimated avoided costs at 6 cents per kWh, a number that is significantly lower than recent experience in the industry would suggest. Experts project the costs of electricity from new coal plants in the 9 to 11 cents/kWh range (before any carbon costs), and for new baseload natural gas plants in the range of 7 to 10 cents per kWh. And those figures don't include avoided distribution system and other ancillary system costs that are avoided by energy efficiency, and which should be included in any estimate of avoided costs. To the extent that the Duke study underestimates avoided costs, it will underestimate the economic and achievable potential of energy efficiency.

Q. What makes the calculation of measure economics incomplete?

A. Measure economics calculations are incomplete because it is unclear whether or not measure economics were assessed for end-of-life measures, as well as retrofit measures. Measure economics need to be assessed equally for both circumstances, for the true cost-effectiveness for retrofit opportunities to be assessed. Failure to do so can result in miscalculation of cost-effectiveness, and hence overall potential.

Q. Are the potential participant figures in the study consistent with industry projections?

A. Most likely, they are not. Participation estimates identified in the DSM Program section of the study, starting on p. 55, are lower than normal. Only a small percentage of the customers in each sector were identified as "potential participants" in each DSM program that was recommended. It is unclear how Duke estimated the number of potential participants for each of their DSM programs. For example, why are there significantly fewer participants estimated for their C&I incentive program relative to their C&I rebate program? Without transparency, it is impossible to determine if their estimates of percent participation are reasonable and based on rigorous analysis. This also makes comparisons to programs run by utilities in other states problematic.

Q, Are the measure lifetime estimates in the study accurate, in your opinion?

A. No, they are not. For instance, on p. 141 of the study the measure life for SEER 13 HP and CAC were attributed half their average lifetime; specifically 10 years versus the accepted and anticipated lifetime of 20 years. These two measures had some of the largest savings impacts and incremental costs associated with them, and thus, the highest estimates of levelized cost, as noted on p.42 of the study. There is no reason for this arbitrary reduction in the lifetime estimate of these measures. If operation and maintenance costs are included in the economic analysis, we should assume that the measures will continue to function over their full lifetime as a result. Accordingly, these measures, once properly calculated with accurate measure lifetimes, increase efficiency potential for the service territory.

Q. What makes the cost-effectiveness test incomplete?

A. The cost effectiveness test is not complete because of a 30% adder to incremental measure costs for program delivery, mentioned on p. 44 of the Duke's potential study. Traditionally, these costs are captured in actual costs utilized under a cost-benefit analysis. A proper cost effectiveness test next lumps these costs into program costs prior to a test run. The assumptions made on estimating the 30% adder are unclear, which represents a flaw in its cost-effectiveness test that could seriously skew results towards a lower than expected potential estimate.

Q. You mentioned earlier that the Duke Potential Study is widely inconsistent with the last state-wide potential assessment done for Ohio, is that correct?

A. Yes, that was the 2009 ACEEE potential study.

Q. Were you involved in the preparation of the ACEEE study in question?

A. Yes, I was the lead author and project manager of that report.

Q. While authoring and working on the ACEEE potential study, did you consult with Ohio utilities?

A. Yes, ACEEE met with and sent data and drafts to American Electric Power, Ohio, American Municipal Power, Ohio, Buckeye Power, Inc., Dayton Power & Light, First Energy, and Duke Energy, Ohio.

Q. Did you incorporate utility comments and feedback into the study?

A. Yes, we incorporated many of the comments and suggestions into the study.

Q. To your knowledge, has the study you conducted been utilized in Ohio?

A. Yes. FirstEnergy, in particular, has relied upon the study for the construction of its energy efficiency portfolio plan. Additionally, several commission decisions have sited to the study.

Q. On the basis of the analyses you have conducted, and the other relevant analyses you have reviewed, what is your conclusion in this case?

A. The energy efficiency potential outlined by Duke Energy in this case is notably lower than other contemporary estimates of energy efficiency potential in Ohio, and very likely significantly understates the true energy efficiency potential for Duke Energy in Ohio.

Q. Does this complete your testimony?

A. Yes.

CERTIFICATE OF SERVICE

I hereby certify that a true copy of the foregoing Direct Testimony of Max Neubauer, on behalf of the OEC, has been served upon the following parties by first class and/or electronic mail this 14th day of March, 2011.

William T. Reisinger

Elizabeth Watts
Assistant General Counsel
Duke Energy Ohio, Inc.
155 East Broad Street, 21st Floor
Columbus, OH 43215
Phone: 614-222-1330
Fax: 513-419-1846
Elizabeth.Watts@duke-energy.com

Thomas McNamee
Attorney General's Office
Public Utilities Commission of Ohio
180 East Broad Street, 6th Floor
Columbus, OH 43215
Thomas.mcnamee@puc.state.oh.us

Jeffrey L. Small
Ann M. Hotz
Assistant Consumers' Counsel
Office of the Ohio Consumers' Counsel
10 West Broad Street, Suite 180
Columbus, OH 43215
Phone: 614-466-8574
small@occ.state.oh.us
hotz@occ.state.oh.us

Tara C. Santarelli
Environmental Law & Policy Center
1207 Grandview Avenue, Suite 201
Columbus, OH, 43212
tsantarelli@elpc.org

Terrence O'Donnell
Thomas J. O'Brien
Bricker & Eckler LLP
100 South Third St.
Columbus, OH 43215-4891
todonnell@bricker.com
tobrien@bricker.com

Henry W. Eckhart, Counsel of Record
50 West Broad Street, #2117
Columbus, OH 43215
henryeckhart@aol.com

Shannon Fisk
Senior Attorney
Natural Resources Defense Council
2 N. Riverside Plaza, Suite 2250
Chicago, IL 60606
sfisk@nrdc.org