

**BEFORE  
THE PUBLIC UTILITIES COMMISSION OF OHIO**

<b>In the Matter of the Application of Duke</b>	)	
<b>Energy Ohio, Inc. for Approval of its</b>	)	<b>Case No. 13-0431-EL-POR</b>
<b>Energy Efficiency and Peak Demand</b>	)	
<b>Reduction Portfolio Programs.</b>	)	

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**OBJECTIONS AND RECOMMENDED MODIFICATIONS  
TO THE DUKE ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PLAN  
BY THE  
NATURAL RESOURCES DEFENSE COUNCIL**

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**I. Introduction**

The Natural Resources Defense Council (“NRDC”) files these objections, recommended modifications and proposed program additions to the energy efficiency and peak demand reduction portfolio plan (“Plan”) of Duke Energy of Ohio, Inc. (“Duke” or “Company”).<sup>1</sup> These objections, et al, are timely filed<sup>2</sup> and are intended to improve the offerings to Duke’s customers in order to maximize the potential energy efficiency savings available within the Company’s service territory. NRDC respectfully requests that the Commission consider the impact of the proposals below and require their adoption by Duke in order to benefit the Company’s customers.

**II. Objections, Recommended Modifications and Program Additions**

**A. NRDC recommends that Duke work with the Collaborative to design and pilot a design assistance program for commercial and industrial customers.**

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<sup>1</sup> Pursuant to Ohio Adm. Code 4901:1-39-04(D).

<sup>2</sup> The most recent Entry in this case set July 1, 2013, as the deadline for any objections (See, Entry at ¶6(a) – June 13, 2013).

Efficient commercial and industrial new construction projects are eligible for incentives under the Company's Smart Saver program.<sup>3</sup> NRDC proposes a new program that encourages the Company to begin engaging with customers earlier in the design process. This program would encouraging these customers to adopt whole building design strategies, could lead to deeper and more cost-effective savings than are available with the current approach. Other utilities – such as Xcel Energy<sup>4</sup> in Minnesota and Pacific Gas & Electric<sup>5</sup> in California – offer programs that provide incentives to building owners and design teams to design buildings that exceed performance thresholds. NRDC recommends that Duke work with the Collaborative to design and pilot a design assistance program for commercial and industrial customers and add it to this Plan, if possible.

**B. NRDC recommends that Duke work with the Collaborative to design and pilot a continuous commissioning program for large commercial and industrial customers.**

NRDC is encouraged by the inclusion of the Energy Management and Information Services Pilot in the Application.<sup>6</sup> A Continuous Commissioning program for large buildings (< 100,000 square feet) – where building performance is optimized with a combination of installed measures and operational changes (and then monitored over time to ensure persistence of savings) – could also generate cost-effective savings. NRDC recommends that Duke work with the Collaborative to design and pilot a continuous commissioning program for large commercial and industrial customers, which could allow persistent building operation savings to count toward energy efficiency benchmarks, and add it to this Plan, if possible.

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<sup>3</sup> Summary filing on page 26 - <http://www.duke-energy.com/ohio-large-business/smart-saver/frequently-asked-questions.asp>

<sup>4</sup> [https://www.xcelenergy.com/Save\\_Money\\_&\\_Energy/Find\\_a\\_Rebate/Business\\_New\\_Construction\\_-\\_MN](https://www.xcelenergy.com/Save_Money_&_Energy/Find_a_Rebate/Business_New_Construction_-_MN)

<sup>5</sup> See <http://www.savingsbydesign.com/>

<sup>6</sup> Summary filing on page 5.

**C. NRDC recommends that Duke work with the Collaborative to design and pilot a data center, server room, and server closet program for commercial and industrial customers, modeled on American Electric Power-Ohio's program.**

The Company's Market Potential Study investigated network computer power management as a potential measure for commercial and industrial customers,<sup>7</sup> but appeared to omit other promising measures like comprehensive data center design or server virtualization. Data center and server efficiency programs were pioneered by Pacific Gas & Electric starting in 2005 and are now offered by utilities around the country. AEP-Ohio recently introduced<sup>8</sup> a data center efficiency program (recently approved by the Commission) that provides incentives for participating businesses to support:

- Facility assessment to identify energy efficiency opportunities;
- Technical assistance from an approved program implementation contractor;
- Program incentives paid directly to the contractor;
- Installation of approved energy-savings equipment by an approved, trained contractor, and;
- Pre- and post-installation inspections to ensure quality and verify energy savings.

Although data centers, servers and IT equipment generally are considered "high tech," these types of facilities and equipment are highly inefficient in their energy use. Much of a data center's energy is wasted. Due to their rapid market growth and spread into all aspects of business, data centers and servers represent a major efficiency opportunity.

Potential energy efficiency measures covered by data center programs include:

- Identification and decommissioning of unused "ghost" servers;
- Server virtualization to reduce the number of physical servers by using virtual servers; on a few host machines, increasing server utilization up to ten-fold and enhancing reliability;
- Use of Centralized or Cloud Services by migrating IT workloads from equipment in server rooms to "the cloud" or a central data center, where operations are highly efficient;
- Refreshing older equipment with Energy Star Servers with maximum power supply efficiencies and minimum power factors at various loads, saving 10-15%;

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<sup>7</sup> Market Potential Study, page 128.

<sup>8</sup> <https://aepohio.com/save/programs/DataCenterProgram.aspx>

- Efficient Cooling through improved airflow, efficient Computer Room Air Conditioning (CRAC) or Computer Room Air Handler (CRAH) units, variable-speed drives, etc.

In addition to the above measures that are applicable in small server rooms as well as larger data centers, the following measures should also be considered for application in specialized central data centers:

- A High Efficiency Uninterruptible Power System (UPS), with savings of up to 10% of overall data center consumption;
- Efficient Floor Layout with hot-aisle/cold-aisle arrangements, which is easier to achieve if coupled with server virtualization, to reduce cooling energy up to 10%;
- Optimized Temperature and Humidity Set Points, which are typically set lower than needed for equipment operation, resulting in reduced reliability and increased energy use;
- Air-side economizers to reduce cooling energy by using direct outside air whenever ambient temperature and humidity are low enough to cool the space and equipment without mechanical refrigeration. This strategy is enhanced by optimizing set points;
- Other strategies include air-to-air heat exchangers (exhaust air heat recovery) or water-side economizers (direct use of cooling towers to bypass mechanical chiller operation).

NRDC recommends that Duke work with the collaborative to design and pilot a data center, server room, and server closet program that engages with customers and the IT industry to promote energy efficient IT systems with commercial and industrial customers and add it to this Plan if possible.

**D. NRDC recommends that Duke work with the Collaborative to investigate a cool roof measure for commercial and industrial customers.**

A cool roof both reflects solar energy and emits thermal radiation to cool itself, reducing energy needs for cooling during the summer peak and improving occupant comfort.<sup>9</sup> The Market Potential Study investigated cool roofs as a residential measure, but not as a commercial measure. NRDC recommends that Duke work with the Collaborative to investigate a cool roof

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<sup>9</sup> <http://heatisland.lbl.gov/coolscience/cool-science-cool-roofs>

measure for inclusion in the Smart Saver incentive program for commercial and industrial programs and add it to this Plan if possible.

**E. Duke's reliance on the Home Energy Comparison Report is potentially problematic, as it does not provide long-lived savings and will not contribute substantially to cumulative savings. NRDC recommends that Duke work with the Collaborative to rebalance the portfolio in favor of long-lived, cost-effective measures.**

Duke relies on one measure – the Home Energy Comparison Report – for around 19% of its annual incremental kWh savings in 2014, 2015, and 2016.<sup>10</sup> This is potentially problematic: the Home Energy Comparison Report does not contribute substantially to cumulative savings, is not as cost effective as other programs, and could be displacing energy efficiency investments that would create deeper and longer-lasting savings in residences.

The Home Energy Comparison Report does not contribute substantially to cumulative savings because customers must receive paper reports in order for the program to continue to save energy. A customer that receives a report this year and institutes changes to save 2% of their electricity use will likely not maintain this reduction until 2025, absent further receipt of the report. In other words, unlike other programs, if the Company wishes to maintain savings from this program until 2025, it will have to continue to treat customers with the comparison reports through 2025, thus incurring program costs each year. This is different from measure-based programs: A CFL that is rebated this year will continue to save energy for 7 years, but the utility does not have to continue paying the customer over the CFL's useful life. Duke's reliance on this measure for around 20% of its savings is problematic because it is potentially displacing other energy efficiency opportunities, some of which are more cost effective (the Appliance Recycling Program and Smart Saver Residential are both more cost-effective on both a UCT and TRC basis) and that *would* contribute to cumulative savings.

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<sup>10</sup> Summary filing pages 13-15 (April 15, 2013).

The solution here is not necessarily to ramp down the program: after all, it is producing cost-effective savings. However, NRDC recommends that Duke work with the Collaborative to redouble efforts to save energy from durable equipment improvements and new construction programs in the residential sector in order to produce more durable savings.

### **III. Conclusion**

For the foregoing reasons, the Natural Resources Defense Council respectfully requests that the Public Utility Commission of Ohio consider these objections and the recommended modifications and adopt them prior to approving Duke's energy efficiency and peak demand reduction portfolio plan.

Respectfully submitted,

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## **CERTIFICATE OF SERVICE**

I hereby certify that a true and accurate copy of the foregoing *Objections* has been filed with the Public Utilities Commission of Ohio and has been served upon the following parties via electronic mail on July 1, 2013.

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Summary: Objection and Recommended Modification of Duke's Portfolio Plan electronically filed by Mr. Christopher J Allwein on behalf of Natural Resources Defense Council