




**National Rural Electric
Cooperative Association**

A Touchstone Energy® Cooperative 



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Office of Hearings and Appeals
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0107
OHA.filings@hq.doe.gov

Re: The Vaughn Thermal Corporation Application for Exception of November 21, 2014

This letter provides joint comments of the National Rural Electric Cooperative Association (NRECA), the Natural Resources Defense Council (NRDC), and the American Council for an Energy-Efficient Economy (ACEEE) supporting the Application for Exception filed by the Vaughn Thermal Corporation on November 21, 2014.

NRDC is an international nonprofit environmental organization with more than 1.3 million members and online activists. Since 1970, our lawyers, scientists, and other environmental specialists have worked to protect the world's natural resources, public health, and the environment. NRDC has offices in New York City, Washington, D.C., Los Angeles, San Francisco, Chicago, Livingston, Montana, and Beijing. NRDC's top institutional priorities are curbing global warming and creating a clean energy future. To that end, NRDC has advocated for stronger federal and state energy efficiency standards for household appliances and commercial products, and for strong implementation and enforcement of these standards for more than 30 years. NRDC also advocates for carbon pollution reduction under EPA's power plant standards. NRDC's members generally benefit from stronger energy efficiency standards and would be injured if an exception were granted that did not offer a reasonable prospect of advancing a cleaner, more efficient electricity system.

NRECA is the national service organization dedicated to representing the national interests of cooperative electric utilities and the consumers they serve. NRECA represents more than 900 not-for-profit rural electric utilities that provide electric energy to over 42 million people in 47 states or 12 percent of electric customers. Cooperatives own and maintain 2.5 million miles or 42 percent of the nation's electric distribution lines covering three-quarters of the nation's landmass. As a major owner and operator of the Nation's electrical grid, NRECA has a large stake in the efficient operation of the grid. Over 250 of our rural electric cooperative members in 33 states use electric water heaters for their electric thermal storage, load control, and demand response programs and many more are planning to in the future. Exception for the Vaughn product will support innovation and development of cooperative load control programs that currently have a peak load reduction capability of more than 500 MW during both summer and winter months, saving consumers hundreds of millions of dollars, and will lead to the more efficient operation of the nation's grid, enable cheap electricity storage, and help to integrate increasing amounts of renewable energy generation sources.

The American Council for an Energy-Efficient Economy (ACEEE), a nonprofit, 501(c)(3) organization, acts as a catalyst to advance energy efficiency policies, programs, technologies,

investments, and behaviors. We believe that the United States can harness the full potential of energy efficiency to achieve greater economic prosperity, energy security, and environmental protection for all its people.

Our respective organizations have given considerable attention to the issue of grid-interactive water heating. We supported DOE's efforts to develop an appropriate approach to a waiver in Docket Number EERE-2012-BT-STD-0022; RIN 1904-AC78, and subsequently collaborated in developing a proposed legislative approach, as well. However, given that those two avenues have not progressed and that the time remaining before the efficiency standard takes effect, we understand the urgency of Vaughn Thermal Corporation's request.

We share the view that there is great potential for energy efficiency to deliver consumer and environmental benefits. The use of large residential heat pump water heaters, the standards for which Vaughn Thermal Corporation is seeking an exemption, is an excellent example of an energy efficiency approach that is available today and improving rapidly, promising to deliver increasing consumer and environmental benefits over the foreseeable future. We anticipate significant growth in the take-up of high-efficiency heat pump water heaters over the short and long term, with resulting consumer and environmental benefits.

However, we also share the view that in many cases, there appears to be a large potential for water heaters to be operated in a way that reduces high-cost system peaks, provides additional operating flexibility to the electricity grid, and could facilitate the expansion of variable output generation with low or zero emissions and marginal costs, such as wind and solar. Further, we recognize that the additional grid services that Vaughn Thermal Corporation is developing, e.g., frequency regulation, may deliver economic and environmental benefits by reducing the need for fossil-fueled generators to provide that function.

In general, the technical, economic and environmental analysis of grid-interactive and storage water heating is complex, dynamic, and at a nascent but rapidly improving state. While it is not clear whether the increased use of grid-interactive and storage water heaters will increase or decrease the use of high-emissions generators in many cases under today's generation mix, in our view the prospective benefits for a more efficient, more economic, and ultimately lower-emissions electricity system overall make this progress in analytic and technical aspects of water heating and thermal energy storage something we all can support.

The approach proposed by Vaughn Thermal Corporation appears thoughtful, and likely to contribute to better experience and understanding. Further, the risk of leakage or bypassing of the water heater efficiency standards without commensurate development of grid-interactive and storage capabilities appears limited. This is in large part due to the requirement that water heaters be shipped with a utility-controlled software activation key and clear labeling, which should minimize the likelihood that customers will not be participants in a utility program.¹

Finally, while it may ultimately prove possible to achieve the same or greater consumer and environmental benefits using grid-interactive heat pump water heaters (or simply by taking advantage of the far lower energy use of heat pump water heaters), that remains undemonstrated and an area for further analysis, and does not fit with Vaughn Thermal

¹ We note that the joint legislative proposal for a grid enabled water heater included some requirements that go beyond Vaughn Thermal Corporation proposal, including a higher-efficiency Energy Factor, and additional labeling requirements. It seems reasonable to not require those of Vaughn Thermal Corporation, however, given the lower likely volume and the short remaining time for tank manufacturers to develop suitable products.

Corporation current capabilities and approach. We anticipate that the attention and analysis that would result from this exception would contribute to a better understanding of the opportunity not just for grid-interactive electric resistance water heating, but for heat pump water heating as well.

We appreciate the opportunity to provide these comments, and would welcome any question on this issue.

Respectfully submitted,



Robin Roy
and Ben Longstreth
NRDC



Keith Dennis, PE
Senior Principal
NRECA



Harvey M. Sachs, Ph.D.
Senior Fellow
ACEEE