Appliance Standards Awareness Project
American Council for an Energy-Efficient Economy
Natural Resources Defense Council
New York State Energy Research and Development Authority

June 27, 2022

Ms. Julia Hegarty
U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Building Technologies Office, EE-5B
1000 Independence Avenue SW
Washington, DC 20585

RE: Docket Number EERE–2019–BT–STD–0042/RIN 1905–AE59: Notification of Proposed Determination for Commercial Warm Air Furnaces

Dear Ms. Hegarty:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP), American Council for an Energy-Efficient Economy (ACEEE), Natural Resources Defense Council (NRDC), and New York State Energy Research and Development Authority (NYSERDA) on the notification of proposed determination (NOPD) for commercial warm air furnaces (CWAFs). 87 Fed. Reg. 24455 (April 26, 2022). We appreciate the opportunity to provide input to the Department.

In the NOPD, DOE stated that there is not clear and convincing evidence that amended standards would be economically justified at this time. Thus, DOE has preliminarily determined that the energy conservation standards for CWAFs do not need to be revised. However, DOE did not evaluate potential amended energy conservation standards based on the February 2022 proposed updates to the test procedure for CWAFs. As described in more detail below, we believe that there may be significant opportunities for energy savings if DOE evaluates amended standards for this equipment based on a revised test procedure.

We urge DOE to evaluate amended standards for CWAFs based on a revised test procedure. The current metric used to calculate the efficiency of CWAFs is "thermal efficiency," which only accounts for flue losses and does not capture other factors that can significantly impact overall efficiency. In February 2022, DOE published a test procedure NOPR that proposed to incorporate jacket losses and part-load operation into a new thermal efficiency metric.[1] We believe the proposed metric would better reflect a representative average use cycle and would encourage design changes that could reduce energy consumption. However, DOE did not evaluate potential amended energy conservation standards based on the proposed test

[1] https://www.regulations.gov/document/EERE-2019-BT-TP-0041-0011.

procedure and new metric. Instead, for the NOPD, DOE relied on analysis from the 2016 Direct Final Rule (DFR) and did not consider technology options, such as increased jacket insulation and decreased jacket leakage, that would improve efficiency as measured by the new proposed thermal efficiency metric.[2]

Furthermore, in our comments on the test procedure NOPR,[3] we recommended that DOE evaluate the potential to incorporate the test method and metric from the forthcoming CSA P.8 revised standard, which will incorporate factors such as total enclosure heat losses and heat gains from heat recovery.[4] In the 2016 DFR, DOE found that condensing levels, which can reduce annual fuel use by around 13%,[5] would yield full-fuel-cycle energy savings of around 2 quads compared to the standard level adopted.[6] According to a report from the Northwest Energy Efficiency Alliance (NEEA), increased enclosure insulation and reduced damper leakage have the potential to result in heating savings of 1-6% and 1-4%, respectively, depending on the building type.[7] In other words, just these two measures could result in energy savings on the order of half those achieved with condensing technology, but potentially at a significantly lower cost.

The CSA P.8 metric would also capture the efficiency gains resulting from heat recovery components (e.g., heat recovery ventilators and energy recovery ventilators). The NEEA report found that the addition of energy recovery components can result in heating savings of 18-34%, depending on the building type.[8]

In summary, capturing the impact of features such as improved enclosure insulation, reduced damper leakage, and heat recovery components would result in a better representation of the overall energy consumption of CWAFs and could uncover significant energy savings opportunities. We therefore urge DOE to set aside this proposed determination and re-evaluate potential amended standards based on an updated test procedure and efficiency metric.

[2] 87 Fed. Reg. 24461.
[3] https://www.regulations.gov/comment/EERE-2019-BT-TP-0041-0021.
[4] https://betterbricks.com/uploads/resources/Efficient-RTU_SystemRequirements.pdf.
[5] https://www.regulations.gov/document/EERE-2013-BT-STD-0021-0050. p. 7-9.
[6] https://www.regulations.gov/document/EERE-2013-BT-STD-0021-0050. p. 10-16.
[7] Energy Savings from Efficient Rooftop Units in Heating Dominated Climates. https://neea.org/resources/energy-savings-from-efficient-rooftop-units-in-heating-dominated-climates. pp. 38-39.
[8] Energy Savings from Efficient Rooftop Units in Heating Dominated Climates. https://neea.org/resources/energy-savings-from-efficient-rooftop-units-in-heating-dominated-climates. p. 36.

Thank you for considering these comments.

Sincerely,

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