

Appliance Standards Awareness Project
Natural Resources Defense Council

June 24, 2021

Mr. Bryan Berringer
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–TP–0027/RIN 1904-AE65: Request for Information for Test Procedures for Packaged Terminal Air Conditioners and Packaged Terminal Heat Pumps

Dear Mr. Berringer:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP) and Natural Resources Defense Council (NRDC) on the request for information (RFI) for test procedures for packaged terminal air conditioners (PTACs) and packaged terminal heat pumps (PTHPs). 86 Fed. Reg. 28005 (May 25, 2021). We appreciate the opportunity to provide input to the Department.

We continue to encourage DOE to incorporate in the test procedure the additional energy use associated with PTACs and PTHPs that provide makeup air. We are pleased that DOE is investigating the design and operation of make-up air PTACs and PTHPs. DOE explains in the RFI that most PTACs and PTHPs are used in hotel applications; because newer building codes no longer allow supply make-up air to be provided via corridors, make-up air PTACs and PTHPs have been introduced to provide dehumidified outdoor air.¹ We continue to encourage DOE to incorporate the additional energy use associated with make-up air PTACs and PTHPs so that the test procedure is representative for these units.

We continue to encourage DOE to adopt efficiency metrics that reflect annual energy consumption, including any fan operation when the compressor is off. As DOE explains in the RFI, the current test procedure for PTACs and PTHPs measures only full-load cooling and heating efficiency.² Yet PTACs and PTHPs likely rarely operate at full load. An amended test procedure that captures part-load performance would thus be more representative and would also capture the potential efficiency gains associated with variable-speed compressors.

In the RFI, DOE requests comment on potential part-load efficiency metrics.³ First, we encourage DOE to adopt cooling and heating efficiency metrics that attempt to reflect the annual energy consumption of PTACs and PTHPs in typical applications. Second, we encourage DOE to adopt an amended test procedure that tests all PTACs and PTHPs the same way, regardless of whether a unit is single-speed or two-stage/multi-stage/variable speed. Testing all units the same way will provide comparable efficiency ratings. Furthermore, in addition to capturing the efficiency benefits of variable-speed compressors,

¹ 86 Fed. Reg. 28008.

² 86 Fed. Reg. 28009.

³ 86 Fed. Reg. 28010-11.

measuring part-load efficiency for all units will capture differences in cycling losses among individual single-speed models. Finally, we encourage DOE to capture in amended efficiency metrics any fan operation when the compressor is off.

In addition, as part of the consideration of metrics that reflect annual energy consumption, we continue to encourage DOE to investigate a load-based test procedure, which would provide a realistic representation of how all units perform in the field, including capturing the importance of control strategies.

We continue to encourage DOE to capture performance at lower ambient temperatures, including defrost performance, in the heating efficiency metric. We are pleased that DOE is investigating the operation of PTHPs at low ambient temperatures. DOE notes in the RFI that the Department is aware of at least one PTHP model that can operate using the heat pump cycle at temperatures as low as -5°F.⁴ As we explained in our comments on the December 2020 RFI, by testing PTHPs only at 47°F, the test procedure does not differentiate the ability of equipment to maintain good heating capacity using the heat pump cycle at low ambient temperatures.⁵ We also continue to encourage DOE to capture defrost performance, which would differentiate the performance of different defrost strategies.

Thank you for considering these comments.

Sincerely,



Joanna Mauer
Technical Advocacy Manager
Appliance Standards Awareness Project



Joe Vukovich
Energy Efficiency Advocate
Natural Resources Defense Council

⁴ 86 Fed. Reg. 28011.

⁵ <https://www.regulations.gov/comment/EERE-2019-BT-TP-0027-0004>.