

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

April 4, 2022

Ms. Catherine Rivest
U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Building Technologies Office, EE-2J
1000 Independence Avenue SW, Washington, DC 20585

RE: Docket Number EERE-2017-BT-STD-0017: Proposed Rule for Energy Conservation Standards for Dehumidifying Direct-Expansion Dedicated Outdoor Air Systems

Dear Ms. Rivest:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP), the American Council for an Energy-Efficiency Economy (ACEEE), New York State Energy Research and Development Authority (NYSERDA), and the Natural Resources Defense Council (NRDC) on the notice of the proposed rule for energy conservation standards for dehumidifying direct-expansion dedicated outdoor air systems (DX-DOASes). 87 Fed. Reg. 5560 (February 1, 2022). We appreciate the opportunity to provide input to the Department.

DOE is proposing to adopt the ASHRAE 90.1-2016 (and ASHRAE 90.1-2019) efficiency levels for DX-DOASes with a crosswalk to translate the ASHRAE levels to the ISMRE2 and ISCOP2 metrics in AHRI 920-2020. However, we have some concerns with DOE's methodology in determining the crosswalk from ISMRE to ISMRE2, which may risk establishing levels lower than the ASHRAE 90.1 levels. In addition, we encourage DOE to merge the equipment classes with and without a ventilation energy recovery system (VERS). We also encourage DOE to initiate the rulemaking for certification requirements as soon as possible.

We urge DOE to determine the crosswalk from ISMRE to ISMRE2 using models closest to 'minimally compliant'. In the NOPR, DOE acknowledged that a crosswalk consistent with the process at 42 U.S.C. 6293 would generally involve testing 'minimally compliant' units.¹ Due to the lack of published information about the efficiency of DX-DOASes, DOE stated that the Department did not necessarily select units for testing that were 'minimally compliant' with ASHRAE 90.1 levels. Figure 1 shows that the DOE-selected samples exceeded ASHRAE 90.1 levels by 15 to 90%. DOE's investigative testing results showed a large variation among sample units, from -21% to 14%, in the impact of the updated test procedures on the dehumidification metric values.² We are concerned that in simply taking the average of this dataset, which includes units that exceed the 90.1 levels by a wide margin, DOE risks setting a standard that is lower than the ASHRAE 90.1 level.

¹ <https://www.govinfo.gov/content/pkg/FR-2022-02-01/pdf/2022-01375.pdf>. p. 5577.

² Table IV.2 <https://www.regulations.gov/document/EERE-2017-BT-STD-0017-0008>. p. 5577

We suggest that DOE instead determine the crosswalk based on the performance of the units that are closest to ‘minimally compliant’: samples 1, 3, and 4 in Figure 1.³ With this approach, the crosswalk would be 4% instead of -5% (i.e., the ISMRE2 would be 4% *higher* than ISMRE instead of the 5% *lower* proposed in the NOPR).

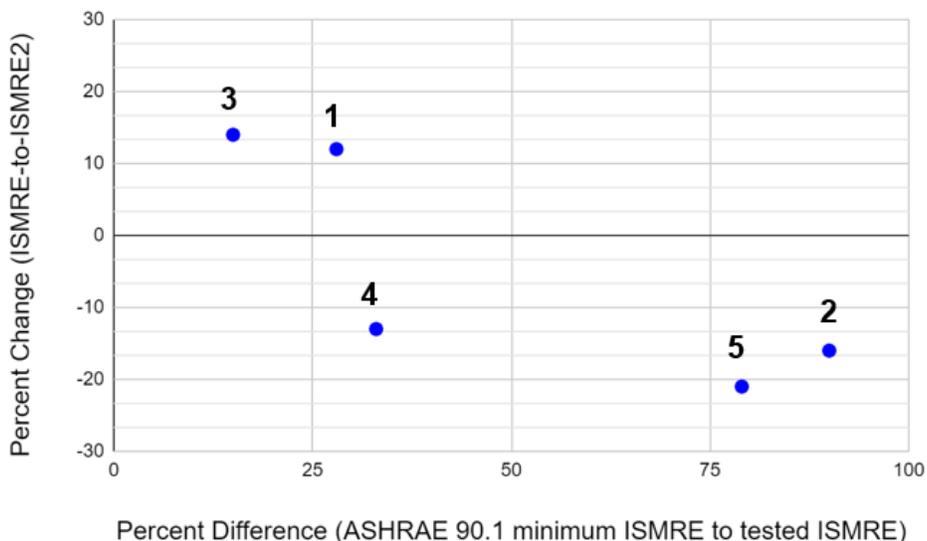


Figure 1. Deviation of tested ISMRE value from ASHRAE 90.1 minimum ISMRE versus percent difference between tested ISMRE and ISMRE2 values for the sample units.⁴

We encourage DOE to consider merging equipment classes for DX-DOASes with and without VERS. We understand that equipment without energy recovery does not offer distinct customer utility. Both types of equipment provide ventilation and dehumidification of 100% outdoor air, with the VERS functioning to precondition the outdoor air. Due to this preconditioning, a DX-DOAS with VERS can consume significantly less energy than a model without energy recovery. In the 2019 NODA/RFI on DOASes, DOE estimated that an air-cooled baseline unit (i.e., just meeting ASHRAE 90.1 levels) with VERS consumes 23% less energy than a baseline unit without VERS.⁵ Therefore, we believe that energy recovery, which offers significant potential for energy savings, should be treated as a design option to improve efficiency.

We encourage DOE to not delay the establishment of certification requirements for DX-DOASes. DOE stated that the Department will address specific certification reporting requirements in a different rulemaking prior to the compliance date for standards promulgated for DX-DOASes. We fully support the proposed 18-month compliance date while also urging DOE to finalize all pertinent certification provisions for DX-DOASes as soon as possible (including issuance of final certification templates) to allow time for stakeholders to review and submit feedback.

³We note that in the crosswalk analysis for IS COP to IS COP2, DOE modeled ‘minimally compliant’ models whose deviation from ASHRAE 90.1 minimum IS COP ranged from -4 to 9%. The ISMRE deviation for samples 1, 3, and 4 are 28%, 15%, and 33%, respectively. These are still above baseline, but more representative of models on the margins of compliance with minimum standards.

⁴Table IV.2 <https://www.regulations.gov/document/EERE-2017-BT-STD-0017-0008>. p. 5577

⁵In Table III.8, DOE estimated the unit energy consumption of a baseline unit (ASHRAE 90.1-2016 levels) with and without VERS to be 22,151 kWh/yr and 28,796 kWh/yr, respectively. <https://www.regulations.gov/document/EERE-2017-BT-STD-0017-0001>. p. 48027.

Thank you for considering these comments.

Sincerely,

Handwritten signature of Rachel Margolis in black ink.

Rachel Margolis
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Appliance Standards Awareness Project

Handwritten signature of Amber Wood in black ink.

Amber Wood
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American Council for an Energy-Efficient Economy

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