Appliance Standards Awareness Project
American Council for an Energy-Efficient Economy
CLASP
Consumer Federation of America
National Consumer Law Center, on behalf of its low-income clients

June 6, 2022

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–2014–BT–STD–0059/RIN 1904–AD97: Notice of Proposed Rulemaking for Energy Conservation Standards for Room Air Conditioners

Dear Mr. Berringer:

This letter constitutes the comments of the Appliance Standards Awareness Project (ASAP), American Council for an Energy-Efficient Economy (ACEEE), CLASP, Consumer Federation of America (CFA), and National Consumer Law Center, on behalf of its low-income clients (NCLC) on the notice of proposed rulemaking (NOPR) for room air conditioners (ACs). 87 Fed. Reg. 20608 (April 7, 2022). We appreciate the opportunity to provide input to the Department.

In the NOPR, DOE has proposed strong efficiency standards for room ACs, which the Department estimates would save 1.4 quads of energy over 30 years of sales and yield net present value (NPV) savings for consumers of $4.8 to $10.6 billion.[1] We support the proposed standards for room ACs ≥8,000 Btu/h, which would transition the market for larger units to high-efficiency variable-speed technology. However, as described in more detail below, for smaller units (<8,000 Btu/h), we encourage DOE to evaluate and consider adopting levels equivalent to the proposed standards plus the addition of an ECM fan motor, which we believe could provide greater cost-effective savings.

We support the proposed standards for room ACs ≥8,000 Btu/h. For units ≥8,000 Btu/h, DOE has proposed standards equivalent to the performance of existing variable-speed models. For Product Class 3,[2] which represents the majority of sales in this capacity range, DOE estimates average life-cycle cost savings for consumers of about $100 with a payback period of less than three years.[3] As of May 2022, there were nearly 80 variable-speed room AC models certified to DOE from multiple manufacturers.[4]

[1] 87 Fed. Reg. 20611.
[2] Without reverse cycle, with louvered sides and 8,000 to 13,900 Btu/h.
[3] 87 Fed. Reg. 20611. Table I.2.
[4] https://www.regulations.doe.gov/certification-data/CCMS-4-Air_Conditioners_and_Heat_Pumps_-_Room_Air_Conditioners.html#q=Product_Group_s%3A%22Air%20Conditioners%20and%20Heat%20Pumps%20-%20Room%20Air%20Conditioners%22. As of May 25, 2022. All the models with rated CEER values of 13.8 and above use variable-speed compressors.

We also specifically support DOE's approach of basing the proposed CEER levels for units ≥8,000 Btu/h on test results of units tested by DOE.[5] We recognize that the proposed CEER level for Product Classes 3 and 4 (16.0 Btu/Wh) is higher than the rated CEER value of the most-efficient existing variable-speed unit.[6] However, manufacturers have the option of rating conservatively, and we therefore believe it is appropriate to use the DOE test results for representing the CEER values of existing variable-speed units. We also note that DOE's analysis shows that CEER values significantly higher than those proposed are technologically feasible. For example, for Product Class 3, while the proposed standard is 16.0 CEER, DOE's analysis found that currently-available technologies, such as higher-efficiency variable-speed compressors, can allow for reaching CEER levels as high as 22.4.[7]

For room ACs <8,000 Btu/h, we encourage DOE to evaluate and consider adopting levels equivalent to the proposed standards plus the addition of an ECM fan motor. The proposed standards for units <8,000 Btu/h (EL 3) are based on the most-efficient single-speed compressors. For Product Classes 1 and 2,[8] which represent the majority of sales in this capacity range, DOE estimates average life-cycle cost savings for consumers of about $65 and $80, respectively, with payback periods of less than one year.[9]

The max-tech levels (EL 5) include the addition of multiple design options including ECM fan motors,[10] and the technical support document (TSD) notes that DOE expects that ECMs use up to 25% less energy than a PSC motor.[11] For Product Class 1, DOE estimates that the incremental installed cost of going from EL 4 to EL 5 is only $13,[12] which suggests that the cost of switching to an ECM fan motor is small. Therefore, for room ACs <8,000 Btu/h, we encourage DOE to evaluate and consider adopting levels equivalent to the proposed standards plus the addition of an ECM fan motor, which we believe could provide greater cost-effective savings.

We also specifically support DOE's approach of using the efficiency of the most-efficient single-speed compressor in developing the CEER level for EL 3. As DOE noted at the public meeting on May 2, the CEER value at EL 3 reflects what it technologically feasible based on existing single-speed compressors.[13]

We support DOE's learning rate methodology. As we described in our comments on the preliminary TSD, we would expect that prices of variable-speed compressors will decline faster than the total price of room ACs.[14] We therefore strongly support DOE's learning rate methodology applied in the analysis for the NOPR, which included applying a separate price trend to the controls portion of variable-speed compressors based on historical producer price index data on semiconductors.[15]

---

[5] DOE described this approach at the public meeting on May 2: https://www.regulations.gov/document/EERE-2014-BT-STD-0059-0038. p. 60.
[6] As of May 25, 2022, the rated CEER value of the most-efficient existing variable-speed unit was 15.7 Btu/Wh.
[7] 87 Fed. Reg. 20648. Table V.1.
[8] Without reverse cycle, with louvered sides and less than 6,000 Btu/h, and without reverse cycle, with louvered sides and 6,000 to 7,900 Btu/h.
[9] 87 Fed. Reg. 20611. Table I.2.
[10] https://www.regulations.gov/document/EERE-2014-BT-STD-0059-0030. p. 5-7.
[11] https://www.regulations.gov/document/EERE-2014-BT-STD-0059-0030. p. 5-20.
[12] https://www.regulations.gov/document/EERE-2014-BT-STD-0059-0030. p. 8-49. Table 8.4.1. The estimated installed costs at EL 4 and EL 5 are $464.91 and $477.52, respectively.
[13] https://www.regulations.gov/document/EERE-2014-BT-STD-0059-0038. pp. 18-19.
[14] https://www.regulations.gov/comment/EERE-2014-BT-STD-0059-0020. p. 4.
[15] 87 Fed. Reg. 20632.

We note that DOE evaluated "low" and "high" price decline scenarios, which have minimal impact on the economic results. For example, under the "low" price decline scenario, which includes an assumption of constant prices over time (with the exception of the controls portion of variable-speed compressors), the NPV savings at the max-tech levels range from $8.7 billion to $20.8 billion assuming discount rates of 7% and 3%, respectively, compared to $9.6 billion to $22.6 billion, respectively, under the "default" price decline scenario.[16] In other words, DOE's analysis shows very large savings for consumers at all efficiency levels, even using conservative assumptions regarding future product prices.

Thank you for considering these comments.

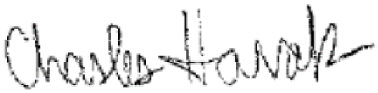
Sincerely,

Joanna Mauer
Technical Advocacy Manager
Appliance Standards Awareness Project

Amber Wood
Director, Buildings Program
American Council for an Energy-Efficient Economy

Matt Malinowski
Director of Climate Research
CLASP

Richard Eckman
Energy Policy Associate
Consumer Federation of America



Charles Harak, Esq.
National Consumer Law Center
(On behalf of its low-income clients)

[16] https://www.regulations.gov/document/EERE-2014-BT-STD-0059-0030. pp. 10C-6, 10C-7. Tables 10C.4.1, 10C.4.2. The "increasing price" price trend reflects the "low" price decline scenario.