Northwest **Power** and **Conservation** Council

March 5, 2024

TO: **Council Members**

FROM: **Kevin Smit**

SUBJECT: **Comments to DOE on Proposed Efficiency Standard for Fans and Blowers[1] (EERE-2022-BT-STD-0002-0140)**

PROPOSED ACTION:

Staff recommends the Council submit a letter of support for a proposed new energy conservation standard for fans and blowers. The draft letter of support will be circulated to council members prior to the meeting.

SIGNIFICANCE:

Fans and blowers represent a significant portion of the electricity consumption for the commercial and industrial sectors in the nation and the Pacific Northwest. In the 2021 Power Plan, commercial and industrial fans represented over 250 average megawatts of energy efficiency potential. The proposed recommendations support a federal efficiency standard that is new to fans and will give a boost to our regional energy efficiency efforts.

BUDGETARY/ECONOMIC IMPACTS: None

BACKGROUND

The Department of Energy (DOE) has released its Notice of Proposed Rulemaking (NOPR). In this NOPR, DOE proposes energy conservation standards for two categories of fans and blowers: air circulating fans ("ACFs"), and fans and blowers that are not ACFs, referred to as general fans and blowers ("GFBs"). These are large fans typically found in commercial buildings and industrial facilities.

[1] https://www.regulations.gov/document/EERE-2022-BT-STD-0002-0140

The tables below are from the NOPR (and there are many more), but I have included them to show the types of fans covered (Equipment Class). The first table is for the general fans and blowers (GFBs) and the second is for the air circulating fans (ACFs). The payback periods for the ACFs are very low, ranging from 0.1 to 0.5 years, while the GFBs have a much wider range of paybacks, ranging from 0.6 to 9.6 years.

Table I-4 Impacts of Proposed Energy Conservation Standards on Consumers of GFBs

Equipment Class	Average LCC Savings *2022$*	Simple Payback Period *Years*
Axial Inline	550	9.6
Axial Panel	1,702	1.7
Centrifugal Housed	2,423	0.6
Centrifugal Inline	955	6.1
Centrifugal Unhoused	1,170	1.2
Axial Power Roof Ventilator	945	7.0
Centrifugal Power Roof Ventilator - Exhaust	154	8.9
Centrifugal Power Roof Ventilator - Supply	973	1.7
Radial Housed	3,714	1.7

Table I-5 Impacts of Proposed Energy Conservation Standards on Consumers of ACFs

Equipment Class*	Average LCC Savings *2022$*	Simple Payback Period *Years*
Axial ACFs; 12 inches ≤ D < 36 inches	327	0.5
Axial ACFs; 36 inches ≤ D < 48 inches	478	0.2
Axial ACFs; 48 inches ≤ D	668	0.1
Housed Centrifugal ACFs	N/A	N/A

*D: diameter in inches
N/A: Not applicable; DOE is not proposing to set a standard for this equipment class.

Pursuant to the Energy Policy and Conservation Act (EPCA), any new or amended energy conservation standard must be designed to achieve the maximum improvement in energy efficiency that DOE determines is technologically feasible and economically justified.

There are three primary reasons that staff are recommending support of this standard: 1) significant conservation potential, 2) to support background efforts by the region (i.e., NEEA), 3) supports a difficult to achieve measure. From the national perspective, this is the second largest conservation standard that is expected to save 18.3 quads[2] of electricity; second only to water heaters at 27.3 quads. See **Attachment A** for a summary of all approved and proposed appliance and equipment efficiency standards. From our Northwest perspective, the 2021 Power Plan found over 250 average megawatts of conservation potential for commercial and industrial fans and blowers, and much of that being cost-effective.

[2] Quadrillion Btus

Second, NEEA has been instrumental in developing the new metric of fan energy index (FEI), as well as influencing the test procedures, which were developed prior to this proposed standard. NEEA is heavily involved with the “Motor Coalition”; a group of industry experts working towards aggregable metrics for evaluating motors and motor-driven systems, including fans.

Third, this conservation standard will significantly help our region achieve the efficiency potential for fans. Utility programs have often struggled to acquire significant savings from fans measures. This standard will enable this resource to be acquired through natural turnover of fan equipment, and then utility programs can focus on higher levels of efficiency.

The proposed letter summarizes the Council’s support for the proposed standard, particularly the proposed efficiency level EL4, for both GFBs and ACFs. DOE evaluated up to seven levels of efficiency for some fan types. When DOE creates or reviews a standard, they look at a variety of efficiency levels, and ultimately selects the one that is “designed to achieve the maximum improvement in energy efficiency that DOE determines is technologically feasible and economically justified.” In this case that was level four, or EL4. The letter will also indicate support for DOE’s approach to evaluating the efficiency of variable speed drives that is consistent across multiple motor-driven systems. This is another specific area where NEEA has had significant influence.

ALTERNATIVES

The Council could choose not to support this recommendation.

Attachment A – 2023-2024 DOE Appliance Efficiency Standards Updates

Darker shaded cells are approved standards, lighter colors are proposed but expected to be approved in 2024.

Standard	Savings (Quads)
Water heaters	24.80
Fans and blowers	**18.30**
Distribution transformers	10.61
Expanded scope electric motors	8.90
Light bulbs- backstop	5.70
Refrigerators and freezers	5.60
Light bulbs	4.00
Commercial refrigeration equipment	3.11
Electric motors	3.00
Clothes dryers	2.73
Air cleaners	1.80
Dedicated-purpose pool pump motors	1.56
Walk-in coolers and freezers	1.51
Room ACs	1.41
Clothes washers	1.26
Battery chargers	1.20
Ceiling fans	0.92
Circulator pumps	0.45
Pool heaters	0.43
Dehumidifiers	0.33
Miscellaneous refrigeration products	0.31
Cooking products	0.21
Dishwashers	0.21
Automatic commercial ice makers	0.16
External power supplies	0.11
Refrigerated beverage vending machines	0.09
Microwave ovens	0.06
Commercial water heaters*	
Furnaces (non-weatherized gas)*	
Boilers*	
Total	98.77

*Natural gas only standard