

Fusion: Not a Near-Term or Mid-Term Substitute for Energy Efficiency

John A. Hodges

The Department of Energy (DOE) has announced an exciting scientific breakthrough: producing in a laboratory setting more energy from fusion than the laser energy used to drive it (fusion ignition). DOE says that this will pave the way for advancements in clean power,¹ since fusion does not produce carbon dioxide and produces almost no waste. While fusion is deemed by many to be the “holy grail” of clean energy and could lead to long-term benefits in the effort to achieve a net-zero carbon economy, such benefits appear to be well into the future.

Hence, DOE also continues to press forward with many other initiatives, including a blizzard of activity on energy efficiency standards and test procedures pursuant to the Energy Policy and Conservation Act (EPCA).² The federal efficiency program is an important part of a “comprehensive national energy policy,”³ provided for in EPCA over 40 years ago—and is a high priority in the Biden Administration. We have covered activity under the program and other efficiency initiatives in prior advisories.⁴

Industry therefore needs to continue taking this efficiency activity into account in planning for its products and strategies. Stakeholders should make their views known in such rulemaking proceedings—keeping in mind that filings are permissible in DOE rulemaking proceedings even after the formal comment period has closed. The following is a list of DOE’s efficiency rulemakings just since our November 28, 2022, advisory.⁵

- **Oil, Electric, and Weatherized Gas Consumer Furnaces.** DOE has announced the availability of the preliminary analysis it has conducted for purposes of evaluating the need for amended standards for non-weatherized oil-fired furnaces (NWOFs), mobile home oil-fired furnaces (MHOFs), weatherized gas furnaces (WGFs), weatherized oil-fired furnaces (WOFs), and electric furnaces (EFs). The analysis is set forth in the DOE’s accompanying preliminary technical support document (TSD) for this rulemaking. DOE held a webinar on December 19, 2022. Comments are due by January 30, 2023.⁶
- **Dedicated-Purpose Pool Pumps.** DOE has proposed to amend the test procedures for dedicated-purpose pool pumps (DPPPs) to incorporate by reference the latest version of the relevant industry standards; to codify DOE’s current enforcement policy regarding the scope of the DPPP test procedure pertaining to DPPPs that cannot be appropriately tested by the current DOE test procedure; to align DOE’s DPPP definitions with DOE’s corresponding DPPP motor definitions; and to remove an obsolete DOE DPPP test procedure appendix. DOE held a webinar on December 12, 2022. Comments are due by January 31, 2023.⁷

- **Commercial Unitary Air Conditioner and Commercial Unitary Heat Pumps.** DOE held two additional open meetings of the Commercial Unitary Air Conditioner and Commercial Unitary Heat Pump (CUAC and CUHP) working group. The meetings were held by webinar on December 7, 2022, and December 8, 2022.⁸
- **Circulator Pumps.** DOE has proposed standards for circulator pumps. The proposed standards are expressed in terms of a maximum circulator energy index (CEI). CEI represents the weighted average electric input power to the driver over a specified load profile, normalized with respect to a circulator pump serving the same hydraulic load that has a specified minimum performance level. DOE will hold a webinar on January 19, 2023. Comments are due by February 6, 2023. Comments regarding the likely competitive impact of the proposed standards should be sent to the Department of Justice (DOJ) by February 6, 2023.⁹
- **Single Package Vertical Air Conditioners and Single Package Vertical Heat Pumps.** DOE has amended its test procedures for single package vertical air conditioners (SPVACs) and single package vertical heat pumps (SPVHPs), collectively referred to as single package vertical units (SPVUs). DOE is incorporating by reference the most recent version of the relevant industry test standard, AHRI 390-2021, and amending certain provisions for representations for SPVUs. DOE is also establishing definitions for “single-phase single package vertical air conditioners with cooling capacity less than 65,000 Btu/h” and for “single-phase single package vertical heat pumps with cooling capacity less than 65,000 Btu/h” to distinguish such equipment from certain residential central air conditioners and heat pumps.¹⁰ DOE is also proposing to amend the current standards for SPVUs such that the existing standard levels would be based on a new cooling efficiency metric of Integrated Energy Efficiency Ratio (IEER) for SPVACs and SPVHPs, and the current heating efficiency metric of Coefficient of Performance (COP) for SPVHPs (but without any increase in stringency). In addition, DOE has initially determined that more-stringent standards for SPVUs would not be economically justified and would not result in a significant conservation of energy. DOE will hold a webinar on January 9, 2023. Comments are due by February 6, 2023. Comments regarding the likely competitive impact of the proposed standards should be sent to DOJ by January 9, 2023.¹¹
- **Commercial Package Air Conditioning and Heating Equipment.** DOE has amended its test procedures for air-cooled, three-phase, small commercial package air conditioning and heating equipment with a cooling capacity of less than 65,000 Btu/h and air-cooled, three-phase, variable refrigerant flow air conditioners and heat pumps with a cooling capacity of less than 65,000 Btu/h to incorporate by reference the latest version of the relevant industry test standard. DOE has adopted the seasonal energy efficiency ratio 2 (SEER2) and heating seasonal performance factor 2 (HSPF2) metrics specified by that industry test standard in the DOE test procedures for the three-phase equipment that is the subject of its final rule. Additionally, DOE has amended certain provisions for representations and enforcement for this equipment to harmonize with single-phase products.¹²

- **Commercial Warm Air Furnaces.** DOE has determined that it lacks clear and convincing evidence that amended standards for commercial warm air furnaces (CWAFFs) would be economically justified. DOE has therefore determined not to amend the standards for CWAFFs.¹³
- **General Service Lamps.** DOE has issued a pre-publication proposal for amended standards for general service lamps (GSLs). The proposal raises the minimum lightbulb efficiency level from 45 to over 120 lumens per watt for the most common bulbs. DOE will hold a webinar on February 1, 2023. Comments are due by 75 days after date of publication in the Federal Register. Comments regarding the likely competitive impact of the proposed standards should be sent to DOJ by 30 days after publication in the Federal Register.¹⁴
- **Dishwashers.** DOE has issued a pre-publication amendment to its current test procedures for dishwashers; adopting a new test procedure appendix; incorporating by reference Association of Home Appliance Manufacturers (AHAM) standards—AHAM DW-1-2020 and DW-2-2020—and applying certain provisions of the industry standards to the test procedures appendices. The amendments to the current appendix establish requirements for water hardness, relative humidity, and loading pattern; update requirements for ambient temperature, detergent dosage, and standby power measurement; and include testing approaches from published dishwasher waivers. The new test procedure appendix additionally includes provisions for a minimum cleaning index threshold to validate the selected test cycle and updated annual number of cycles and low-power mode hours for the calculation of annual energy consumption.¹⁵
- **Residential and Commercial Clothes Washers.** On June 1, 2022, DOE published a final rule amending its clothes washer test procedures. DOE has now issued a new rule correcting formatting and typographical errors and omissions in the regulatory text of that final rule.¹⁶
- **Uninterruptible Power Supplies.** DOE has issued a pre-publication proposal to amend its test procedures for uninterruptible power supplies (UPSs) to consider the latest revision of the industry standard that is incorporated by reference and to provide an optional test method for measuring power consumption of a UPS at no-load conditions. DOE will hold a webinar on February 2, 2023. Comments are due by 60 days after publication in the Federal Register.¹⁷
- **Federal Buildings.** DOE has issued a supplemental notice of proposed rulemaking (SNOPR) to establish revised energy performance standards for the construction of new federal buildings, including commercial buildings, multi-family high-rise residential buildings, and low-rise residential buildings. The SNOPR presents an updated proposal with a new focus that accounts for the needs of federal agencies and the goals of President Biden’s Administration and

responds to comments received on prior NOPR and SNOPR documents. DOE will hold a webinar on January 5, 2023. Comments are due by February 21, 2023.¹⁸

- **Consumer Conventional Cooking Products.** DOE has issued a pre-publication SNPOR for new and amended energy conservation standards for consumer conventional cooking products. DOE proposes to remove the existing prescriptive standard for gas cooking tops prohibiting a constant burning pilot light. Instead, for conventional cooking tops, DOE proposes performance standards only, which are the maximum allowable integrated annual energy consumption (IAEC) and expressed in kWh/year for electric cooking tops and kBtu/year for gas cooking tops. For conventional ovens, the proposed standard is a prescriptive design requirement for the control system of the oven. Conventional ovens shall not be equipped with a control system that uses a linear power supply. DOE will hold a webinar on January 31, 2023. Comments are due by 60 days after the date of publication in the Federal Register. Comments regarding the likely competitive impact of the proposed standards should be sent to DOJ 30 days after the date of publication in the Federal Register.¹⁹
- **Distribution Transformers.** DOE has issued a pre-publication NOPR to amend standards for distribution transformers. The proposed standards, which are expressed in efficiency as a percentage, would apply to low-voltage dry-type distribution transformers, liquid-immersed distribution transformers, and medium-voltage dry-type distribution transformers. DOE will hold a webinar on February 16, 2023. Comments are due by 60 days after date of publication in the Federal Register. Comments regarding the likely competitive impact of the proposed standard should be sent to DOJ by 30 days after date of publication in the Federal Register.²⁰

Conclusion. There are many important developments in the quest to reduce carbon emissions. The recent achievement of fusion ignition is a spectacular example. The federal efficiency program under EPCA continues to be a workhorse—and will continue to be so for the foreseeable future. DOE recently noted that the Biden Administration had taken more than 110 actions to strengthen efficiency standards in 2022.²¹ And there is much more to come—as DOE adds more products to the efficiency program and makes standards more stringent. Stakeholders should take advantage of opportunities to participate in efficiency initiatives that could affect them.

* * * *

For more information on HWG LLP's energy practice, please contact [John A. Hodges](#) or [Gena E. Cadieux](#).

This advisory is not intended to convey legal advice. It is circulated publicly as a convenience and does not reflect or create an attorney-client relationship.

-
- ¹ DOE, *DOE National Laboratory Makes History by Achieving Fusion Ignition* (Dec. 13, 2022), <https://www.energy.gov/articles/doe-national-laboratory-makes-history-achieving-fusion-ignition>.
- ² 42 U.S.C.A. § 6291 *et seq.*
- ³ S. Rep. No. 516, 95th Cong., 1st Sess. 116 (1975), U.S.C.C.A.N. 1975, p. 1762 (Conf. Rep.).
- ⁴ HWG LLP, *HWG Energy Efficiency Updates*, HWG Law, <https://www.hwglaw.com/practice/energy/energy-efficiency-update/>.
- ⁵ John A. Hodges, *Energy Efficiency: Offramp on “Highway to Climate Hell”?*, HWG Law (Nov. 28, 2022), <https://www.hwglaw.com/wp-content/uploads/2022/11/Energy-Efficiency-Alert-.pdf>.
- ⁶ DOE, Office of Energy Efficiency and Renewable Energy, Energy Conservation Standards for Oil, Electric, and Weatherized Gas Consumer Furnaces, Notification of Availability of Preliminary Technical Support Document, 87 Fed. Reg. 73259 (Nov.29, 2022).
- ⁷ DOE, Office of Energy Efficiency and Renewable Energy, Test Procedure for Dedicated-Purpose Pool Pumps, Notice of Proposed Rulemaking (NOPR), *id.* 74023 (Dec. 2, 2022).
- ⁸ DOE, Office of Energy Efficiency and Renewable Energy, Appliance Standards and Rulemaking Federal Advisory Committee: Notice of Open Meetings of the Commercial Unitary Air Conditioner and Commercial Unitary Heat Pump Working Group, Notice of Open Meetings, *id.* 74137 (Dec. 2, 2022).
- ⁹ DOE, Office of Energy Efficiency and Renewable Energy, Energy Conservation Standards for Circulator Pumps, NOPR, *id.* 74850 (Dec. 6, 2022).
- ¹⁰ DOE, Office of Energy Efficiency and Renewable Energy, Test Procedure for Single Package Vertical Air Conditioners and Single Package Vertical Heat Pumps, Final Rule, *id.* 75144 (Dec. 7, 2022).
- ¹¹ DOE, Office of Energy Efficiency and Renewable Energy, Energy Conservation Standards for Single Package Vertical Units, NOPR; Notification of Proposed Determination, *id.* 75388 (Dec. 8, 2022).
- ¹² DOE, Office of Energy Efficiency and Renewable Energy, Test Procedure for Air-Cooled, Three-Phase, Small Commercial Package Air Conditioning and Heating Equipment With a Cooling Capacity of Less Than 65,000 Btu/h and Air-Cooled, Three-Phase, Variable Refrigerant Flow Air Conditioners and Heat Pumps With a Cooling Capacity of Less Than 65,000 Btu/h, Final Rule, *id.* 77298 (Dec. 16, 2022); *id.* 78513, Correction (Dec. 22, 2022).
- ¹³ DOE, Office of Energy Efficiency and Renewable Energy, Energy Conservation Standards for Commercial Warm Air Furnaces, Final Determination, *id.* 78821 (Dec.23, 2022).
- ¹⁴ DOE, Office of Energy Efficiency and Renewable Energy, Energy Conservation Standards for General Service Lamps, NOPR (pre-publication), <https://www.energy.gov/sites/default/files/2022-12/gsl-ecs-nopr.pdf>.
- ¹⁵ DOE, Office of Energy Efficiency and Renewable Energy, Test Procedure for Dishwashers, Final Rule (pre-publication), <https://www.energy.gov/sites/default/files/2022-12/dishwashers%20TP%20FR.pdf>.
- ¹⁶ DOE, Office of Energy Efficiency and Renewable Energy, Test Procedures for Residential and Commercial Clothes Washers; Correction, Final Rule; Correcting Amendments, 87 Fed. Reg. 78819 (Dec. 23, 2022).

-
- ¹⁷ DOE, Office of Energy Efficiency and Renewable Energy, Test Procedure for Uninterruptible Power Supplies, NOPR (pre-publication), <https://www.energy.gov/sites/default/files/2022-12/ups-tp-nopr.pdf>.
- ¹⁸ DOE, Office of Energy Efficiency and Renewable Energy, Clean Energy for New Federal Buildings and Major Renovations of Federal Buildings, SNOPR, 87 Fed. Reg. 78382 (Dec. 21, 2022).
- ¹⁹ DOE, Office of Energy Efficiency and Renewable Energy, Energy Conservation Standards for Consumer Conventional Cooking Products, SNOPR (pre-publication), <https://www.energy.gov/sites/default/files/2022-12/cooking-products-snopr.pdf>.
- ²⁰ DOE, Office of Energy Efficiency and Renewable Energy, Energy Conservation Standards for Distribution Transformers, NOPR (pre-publication), <https://www.energy.gov/sites/default/files/2022-12/dt-ecs-nopr.pdf>.
- ²¹ DOE, *Biden-Harris Administration Proposes Raising Efficiency Standard for Light Bulbs* (Dec. 19, 2022), <https://www.energy.gov/articles/biden-harris-administration-proposes-raising-efficiency-standard-light-bulbs>.