

DOE/EA-1774-S1

Environmental Assessment

for

**10 CFR Part 430 Energy Conservation Standards: Energy
Conservation Standards for Direct Heating**

November 2011

**ANALYSIS OF EMISSIONS REDUCTIONS RELATED TO AN
EXCLUSION FOR PRIMARILY DECORATIVE VENTED HEARTH PRODUCTS**

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1.1 INTRODUCTION

This Final Rule is closely related to standards set forth in an earlier DOE rule, namely DOE's April 16, 2010, Final Rule, *Energy Conservation Standards for Residential Water Heaters, Direct Heating Equipment, and Pool Heaters*. 75 FR 20112 (April 2010 Final Rule). In that rule, DOE *inter alia* established exclusions for certain vented heating products (explicitly) and vented gas log sets (through a subsequent interpretation). The parts of this Final Rule that might have an impact on the human environment do not establish new energy efficiency standards. Rather, the rule revises the exclusion for certain primarily decorative hearth products from the otherwise applicable energy conservation standards for "vented hearth heaters" contained in the April 2010 Final Rule. As one of the criteria to qualify for the exclusion, a primarily decorative hearth product is not permitted to have a standing pilot light or other continuously-burning ignition source. It is the elimination of these components that would result in additional reductions in energy consumption, as compared to the reductions attributable to the April 2010 Final Rule. Primarily decorative hearth products that qualify for the exclusion actually emit lower levels of air pollutants than products that precisely meet the existing standards.

Pursuant to the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 *et seq.*), the U.S. Department of Energy (DOE) prepared an Environmental Assessment (EA) of the potential impacts of the energy conservation standards for direct heating equipment in the April 2010 Final Rule. DOE included the EA as chapter 16 of the technical support document (TSD) for the April 2010 Final Rule. DOE found that the environmental effects associated with the energy conservation standards for vented heating equipment were not significant. Therefore, DOE issued a Finding of No Significant Impact (FONSI), pursuant to NEPA, the regulations of the Council on Environmental Quality (40 CFR parts 1500–1508), and DOE's regulations for compliance with NEPA (10 CFR part 1021). The FONSI is available on DOE's NEPA website. *See* http://www1.eere.energy.gov/buildings/appliance_standards/pdfs/fonsi_direct_heating_equipment.pdf (November 08, 2011)

Nothing in the instant Final Rule alters DOE's FONSI for the April 2010 Final Rule. This rule would have further beneficial impacts on the environment, but these impacts are a fraction of those resulting from the April 2010 Final Rule. To avoid redundancy, DOE does not here repeat qualitative information about pollutant impacts, relevant EPA regulations, and background information already set forth in the EA for the April 2010 Final Rule. For that analysis, please refer to Chapter 16 of the TSD for the April 2010 Final Rule. *See* http://www1.eere.energy.gov/buildings/appliance_standards/residential/pdfs/htgp_finalrule_ch16.pdf (April 16, 2010). DOE's limited purpose here is to identify additional emissions reductions that DOE anticipates would result from the rule proposed in the NOPR. Based on DOE's review of these emissions reductions, DOE believes that the resulting, additional, beneficial impacts are so insignificant that the EA for the April 2010 Final Rule adequately addresses the environmental impacts from the Proposed Rule.

1.1.1 Alternatives

DOE does not here restate or reconsider the Trial Standard Levels for direct heating equipment and associated emissions reductions that DOE analyzed in the April 2010 Final Rule. That is because this rule is limited to considering a revised exclusion from the particular standard (TSL 2) that DOE adopted in the April 2010 Final Rule. Thus, the alternatives considered here are: (1) a No Action Alternative, which assumes that vented heating equipment, including decorative hearth heaters, are subject to the April 2010 Final Rule; and (2) an Action Alternative, which assumes that all manufacturers of vented hearth products are granted an exclusion from the standards set forth in the April 2010 Final Rule.

1.1.2 Analytical Methods for Air Emissions

The operation of vented hearth products requires use of fossil fuels and results in emissions of carbon dioxide (CO₂) and nitrogen oxides (NO_x) at the sites where these appliances are used. Therefore, DOE calculated the effect of the performance measure on the above site emissions based on emissions factors derived from the literature. The emissions factors used are 50.6-68.6 kg/Gigajoule (GJ) for CO₂ and 40-66 g/GJ for NO_x. For a more detailed discussion of how DOE calculates on-site emissions of CO₂ and NO_x, please refer to the EA for the April 2010 Final Rule. *EA* at 16-13, 16-14.

1.1.3 Effects on Household Emissions

Unlike some of the other products subject to the April 2010 Final Rule, primarily decorative vented hearth products use natural gas, not electricity, as an energy source. As such, they do not indirectly affect emissions from electric generating units (EGUs). Rather, their impacts on the environment result from direct emissions of CO₂ and NO_x at the site of the product within the household.

Table 1.1.1 shows the total emissions reductions from all direct heating equipment under the April 2010 Final Rule (No Action Alternative). Table 1.1.2 shows the additional emissions reductions that would result when primarily decorative vented hearth products that lack standing pilot lights or other continuously-burning ignition sources are excluded from the April 2010 Final Rule (Action Alternative). The tables display changes in CO₂ and NO_x in selected years. There are no SO₂ emissions impacts because the savings only come from natural gas, combustion of which does not release SO₂. “Mt” refers to million metric tons.

Table 1.1.1 Alternative 1 (No Action) – Emissions Impacts from April 2010 Final Rule, Including Standards for Primarily Decorative Vented Hearth Products, as Compared to AEO 2010 Reference Case

Reference	2010	2015	2020	2025	2030	2035	2040	2044	Total 2013- 2044
2010 Heating Products difference from AEO2010 Reference Case									
CO ₂ (million metric tons)	0.000	0.738	-3.193	-6.070	-6.957	-6.957	-6.957	-6.570	-163.8
NO _x (thousand tons)	0.000	0.565	-2.513	-4.670	-5.272	-5.272	-5.272	-4.915	-125.0
Hg (tons)	0.000	-0.023	-0.087	-0.146	-0.148	-0.148	-0.148	-0.135	-3.91

Table 1.1.2 Alternative 2 (Action Alternative) -- Household Emissions Impacts for Primarily Decorative Vented Hearth Products Without Continuous Pilot Light or Other Source of Continuous Ignition as Compared to 2010 Heating Products Final Rule

Reference	2010	2015	2020	2025	2030	2035	2040	2044	Total 2013- 2044
Additional Reductions Compared to April 2010 Final Rule									
CO ₂ (million metric tons)	0.000	0.040	0.017	-0.010	-0.057	-0.060	-0.060	-0.060	-0.79
NO _x (thousand tons)	0.000	0.032	0.013	-0.008	-0.045	-0.047	-0.047	-0.047	-0.63

Notes: (1) The negative values represent decrease in emissions.

(2) With respect to Table 1.1.1, cumulative total is over 2015 to 2044 for water heaters; cumulative total is over 2013 to 2042 for direct heating equipment and pool heaters.

(3) The AEO2010 forecast ends in 2035. To be consistent, household emission impacts past 2035 are also assumed to be equal to the impacts in 2035.