

Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces Update

Briefing for NACAA

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Background on NSPS

- The original New Source Performance Standards (NSPS), issued in 1988, covered new adjustable burn-rate woodstoves and fireplace inserts.
- The 2015 NSPS, published on March 16, 2015
 - Regulates new residential wood heaters
 - Covers adjustable and single burn-rate woodstoves, pellet stoves, hydronic heaters, forced air furnaces, and fireplace inserts
 - Does NOT regulate existing heating devices currently in use, masonry heaters, fireplaces, pizza ovens, barbecues, chimeneas, fire pits, or heaters fueled solely by oil, gas, or coal

Background on NSPS

- Because 90% of wood heater manufacturers are small businesses, a number of accommodations were included in the 2015 final rule:
 - Phased compliance approach: Step 1 in May 2015 and Step 2 in May 2020
 - 8 month sell-through period
 - Automatic Step 1 certification for the 85% of wood heaters previously certified under the 1988 NSPS.
 - Automatic Step 1 certification for hydronic heaters qualified under EPA's Voluntary Program
 - Automatic Step 1 certification for forced-air furnaces independently certified (not self tested).

Overview of Wood Heater Industry

Characteristics of Industry taken from 2015 NSPS RIA

- In 2005 wood heaters are in 9% of US homes.
- > 90% manufacturers are small businesses
- Sales: \$1.3 billion in 2008.
- Appliance Sales in 2008: 59% room heaters (woodstoves - 33%, pellet stoves -26%, fireplace inserts -1%), 3% hydronic heaters, ≤1% forced air furnaces and masonry heaters, plus 38% “unregulated” appliances
- All industry characteristics reflect data collected before 2013

Appliances compliant with Step 2 emission limits as of Spring 2018

- Wood & pellet stoves – 78 models
- Hydronic heaters – 9 models
- Forced-air furnaces – 1 model; and another currently being reviewed by EPA

Notice of Proposed Rulemaking

- **On November 21, 2018, the EPA Administrator signed proposed amendments to the 2015 NSPS for Residential Wood Heaters.**
 - Proposes to add a two-year “sell-through” period for Step 1 compliant hydronic heaters (HHs) and forced-air furnaces (FAFs) manufactured before May 2020
 - Taking comment on whether a “sell through” period would be appropriate for wood heaters
 - Taking comment on whether the minimum pellet fuel requirements should be retained, and if so, revised
 - The Notice was published in the Federal Register (FR) on Friday, November 30, 2018

Notice of Proposed Rulemaking

- **Comments requested for the proposed two-year “sell-through” for FAFs & HHs**
 - When are retailers no longer willing to buy Step 1-compliant heaters and the cost impacts to manufacturers
 - Typical time period for retailers to purchase and sell their products
 - Is the sell-through provision a viable option
 - Alternative sell-through period
 - Equal or different sell-through period for FAFs & HHs
 - Other small business relief options
 - Effect of a sell-through on consumers

Notice of Proposed Rulemaking

- **Comments requested regarding a two-year “sell-through” for Wood Heaters**
 - When are retailers no longer willing to buy Step 1-compliant wood heaters; whether there are disproportionate impacts in purchases of crib/cord wood vs. pellet wood; and cost impacts to manufacturers
 - Typical time period for retailers to purchase and sell their products
 - Is the sell-through a viable option
 - Alternative sell-through period
 - Number of units being designed for Step 2 compliance, units currently certified and time needed to submit certification application including time to manufacture, market, and distribute products
 - Potential impact on consumers if production of Step 2-compliant wood heaters is limited
 - Other small business relief options
 - Effect of a sell-through on consumers

Notice of Proposed Rulemaking

➤ **Comments requested for the pellet fuel requirements**

Requirements were established for pellet fuel in the 2015 NSPS to ensure comparable and consistent operation for every certification test and to provide some assurance that the pellet heater's performance in the home would be consistent with the certification test.

- Whether to maintain or revise the pellet fuel requirements
- If revised, what should the new requirements look like
- Viable rationale presented in the November 21, 2016, Memorandum titled “EPA’s Response to Remand of the Record for Residential Wood Heaters New Source Performance Standards”

Estimated Cost Savings

- Estimates reflect annual average cost savings for 2019-2022
- Estimates represent increase in revenues to manufacturers and retailers from sales during sell-through period
- Estimates are in 2016 dollars
- Costs calculated using data from unit cost memo for 2015 NSPS and appliance projections for the NSPS

	Cost Savings (millions of 2016\$)
RIA Scenario	
Scenario 1	\$0
Scenario 2 (primary scenario)	\$8.3
Scenario 3	\$10.6

Estimated Forgone Emission Reductions

- Estimates reflect annual average forgone emission reductions for 2019-2022
- Estimates are for the three pollutants most affected by the NSPS: PM_{2.5}, VOC and CO
- Baseline is the estimate of projected emissions in the 2015 NSPS emissions memo and RIA

	PM _{2.5} (tons)	VOC (tons)	CO (tons)
RIA Scenarios			
Scenario 1	0	0	0
Scenario 2 (primary scenario)	257	271	1,444
Scenario 3	385	551	2,162

Estimated Forgone Benefits

- Quantified forgone PM_{2.5}-related benefits of sell-through extension
- Estimated forgone benefits using PM_{2.5} benefit per-ton values, no such values available for VOC and CO
- Estimates based on annual average forgone PM_{2.5} emission reductions
- Range reflects two alternative approaches for estimating the risk of PM_{2.5}-related premature death

	Forgone Benefits (Millions of 2016\$, Averaged Over 4 Years)	
	3% Discount Rate	7% Discount Rate
Scenario 1	\$0	\$0
Scenario 2 (primary scenario)	\$100 to \$230	\$94 to \$210
Scenario 3	\$160 to \$350	\$140 to \$320

Estimated Net Benefits

- Estimates are the benefits – costs, where in this context the cost savings are “benefits” and the monetized forgone PM_{2.5}-related benefits are the “costs”
- Estimated forgone benefits using PM_{2.5} benefit per-ton values
- Range reflects two alternative approaches for estimating the risk of PM_{2.5}-related premature death
- Costs calculated using data from unit cost memo for 2015 NSPS and appliance projections for the NSPS

RIA Scenarios	Forgone Net Benefits (Millions of 2016\$, Averaged Over 4 Years)	
	3% Discount Rate	7% Discount Rate
Scenario 1	\$0	\$0
Scenario 2 (primary scenario)	\$90 to \$220	\$85 to \$200
Scenario 3	\$150 to \$340	\$130 to \$310

Advance Notice of Proposed Rulemaking

- On November 21, 2018, the Administrator also signed an Advance Notice of Proposed Rulemaking (ANPRM). The Notice was published in the FR on Friday, November 30, 2018
- Taking comment on:
 - Test methods – transition to cordwood
 - Feasibility of Step 2 compliance date of May 15, 2020
 - Step 2 emission limits for forced-air furnaces, hydronic heaters and wood heaters
 - Step 2 emission limit based on weighted averages versus individual burn rates for hydronic heaters and forced-air furnaces
 - EPA compliance audit testing
 - ISO-accredited third-party review
 - Electronic Reporting Tool (ERT)
 - Warranty requirements for certified appliances

Advance Notice of Proposed Rulemaking

Taking comment on:

- **Test methods – transition to cordwood**
 - Data for more appropriate and validated operation and fueling protocol methods to deliver “real world” emissions data taking into account various species of wood, densities, sizes, etc.
 - New cord wood test methods and the development of new emission standards
- **Feasibility of the Step 2 Compliance date of May 15, 2020**
 - Percentage of wood heating devices meeting the Step 2 standard
 - Time, cost, and effort to bring the model to market
 - Limiting factors in meeting the 2020 deadline
 - How much more time is needed

Advance Notice of Proposed Rulemaking

Taking comment on:

- **Step 2 emission limits for forced-air furnaces, hydronic heaters and wood heaters**
 - Whether it is technically and economically feasible to comply with the Step 2 limits
 - How many units are ready to meet the Step 2 standard
 - Possible sub-categorization for wood heaters & units of standard (g/hr)
 - Potential environmental and public health impacts if compliance dates were extended
- **Step 2 emission limit based on weighted averages versus individual burn rates for HHs and FAFs**
 - Difficulties with compliance with individual burn rates vs. weighted averages
 - Data on cost and emission impacts

Advance Notice of Proposed Rulemaking

Taking comment on:

- **EPA compliance audit testing**
 - Should EPA pick the lab to perform audit testing & should it be a federal lab
 - Should audit tests be performed at the same lab that certified the wood heating device
 - Are there enough certified labs to do audit testing
 - How should we account for variability when assessing the audit test results
 - Cost and/or concerns with specifying a lab (federal vs. private)
- **ISO-accredited third-party review**
 - Third-party review process
 - Possible improvements

Advance Notice of Proposed Rulemaking

Taking comment on:

- **Electronic Reporting Tool (ERT)**
 - Electronic submission of non-CBI certification application, including compliance test data using ERT
 - Use of ERT to generate CBI and non-CBI test report and certification package
- **Warranty requirements for certified appliances**
 - Elimination, retention, or revision of the warranty requirements

Appendix

Projected Schedule

- December 17, 2018: Public Hearing in D.C.
- Spring 2019: Publish final rule based on comments received for the proposal
- Winter 2019: Publish a proposed rule based on comments received for the advance notice. This will not include new cord wood test methods. We intend to address technical corrections and other issues, as appropriate.
- Next several years: Our intent is to work with stakeholders to develop a cord wood test method and fueling protocol, collect sufficient test data with this method/protocol, and if necessary, revise NSPS.
- For more information visit our website at: <https://www.epa.gov/residential-wood-heaters/proposed-amendments-new-source-performance-standards-residential-wood>

2015 NSPS – Summary of Standards

Wood-Fired Heating Device	Step	Effective Date *after F.R. Notice	Particulate Matter Emission Standard	Test Fuel
Wood stoves & Pellet Stoves (both adjustable and single burn rate) (both catalytic & non-catalytic)	1	60 days (May 15, 2015)	4.5 grams/hour (g/hr)	Cribwood <u>or</u> Cordwood
	2	5 years (May 15, 2020)	2.0 g/hr	Cribwood
			2.5 g/hr	Cordwood
Hydronic Heaters - all wood fuels	1	60 days (May 15, 2015)	0.32 pounds (lbs)/million British Thermal Units (MMBtu) weighted average <u>AND</u> 18.0 g/hr individual test run cap <u>OR</u> EPA "Phase 2" Qualified	Cribwood <u>or</u> Cordwood
	2	5 years (May 15,2020)	0.10 lbs/MBtu for each burn rate	Cribwood
			0.15 lbs/MBtu for each burn rate	Cordwood
Forced Air Furnaces – all wood fuels		60 days (May 15, 2015)	New work practice and operational standards, including providing information on best operating practices in owner's manuals	N/A
	1	Small: 1 year (May 16, 2016) Large: 2 years (May 15, 2017)	0.93 lbs/MBtu weighted average	Cordwood
	2	All: 5 years (May 15, 2020)	0.15 lbs/MBtu for each burn rate	Cordwood