

Innovation and the NSPS:

“How can the EPA encourage innovative new technologies?”

1 PM ET, May 9, 2013

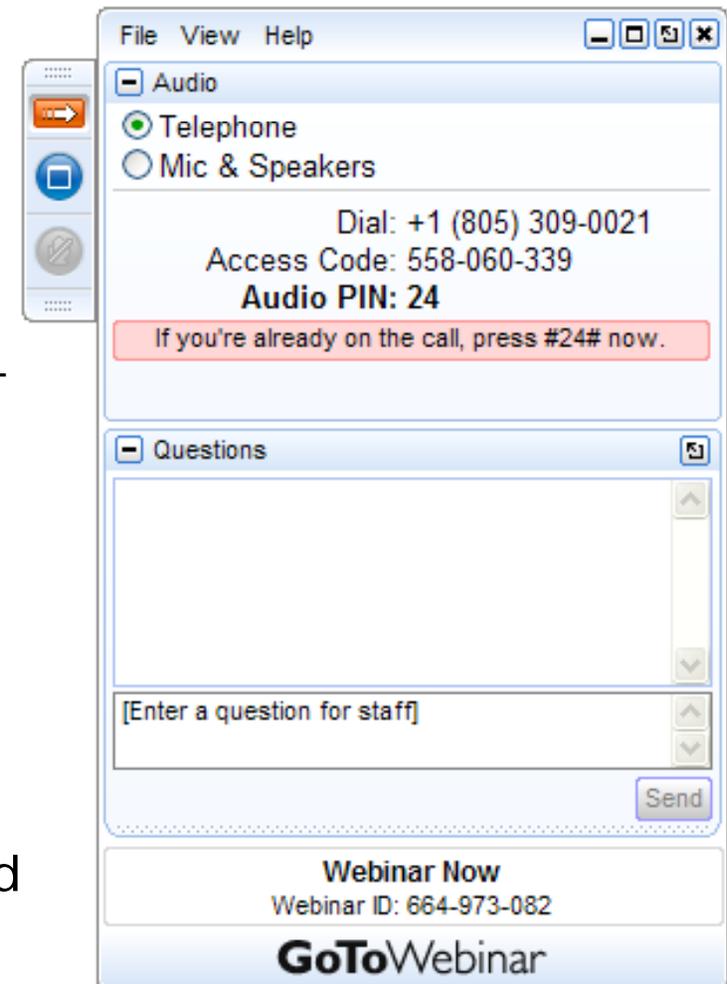
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Alliance for Green Heat (AGH) and the Biomass Thermal Energy
Council (BTEC)

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 1. Streaming Audio/Computer Speakers (Default)
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- The recording of the webinar and the slides will be available after the event. All registrants will be notified by email.



Speaker

- **Gil Wood** - Staff Lead, Development of Residential Wood Heat NSPS, Environmental Protection Agency

Moderator

- **John Ackerly** – President, Alliance for Green Heat

Presentation Outline

- I. Welcome/Event Intro –Seymour**
- II. Innovation and the NSPS - Wood**
- III. Q&A – Ackerly**
- IV. Closing - Seymour**

[Full presentation will be available online via BTEC website for paid registrants and members]

Introduction to BTEC

The Biomass Thermal Energy Council (BTEC) is the industry trade association dedicated to advancing the use of biomass for heat and other thermal energy applications.

Why was BTEC established?

1. To **advocate for and promote** the biomass thermal industry in the national energy policy debate
2. To **reach out** to and **educate** the public and decision makers on the benefits and advantages of using biomass for heat and CHP
3. To develop biomass energy **research and analysis** that enables sound investment and policy decisions

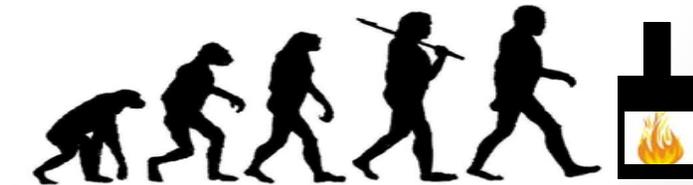




ALLIANCE FOR GREEN HEAT

clean, renewable & local

- **Who:** The Alliance for Green Heat is a consumer non-profit, 501c3 organization based in Maryland, right outside of DC. Founded in 2009.
- **Why:** We believe wood heat needs to be a vital part of our energy future and our energy policy.
- **How:** Our focus is in the residential sector and we work for cleaner, more efficient technology.



The logo features a stylized blue woodstove with a yellow flame inside. To its right, the text "NEXT GENERATION" is in a small, blue, sans-serif font. Below that, "Woodstove" is written in a larger, bold, blue font, with the "stove" part in orange. Underneath, "DesignChallenge" is written in a blue, sans-serif font.

NEXT GENERATION
Woodstove
DesignChallenge

- 14 Teams selected to compete for \$25,000 grand prize and \$10,000 second prizes
- Nov. 15 – 19, National Mall, Washington DC
- In the real world (not the lab) which one will be the most

- ✓ Efficient
- ✓ Clean
- ✓ Affordable
- ✓ Innovative
- ✓ User friendly



Partners

Committed to innovation, improved technology and a cleaner wood heating future

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- ✓ Help encouraging members of Congress to visit
- ✓ And your ideas! Contact us at

challenge@forgreenheat.org or (301) 841-7755



- ✓ Help with public and media outreach



- ✓ Volunteers

Gil Wood, EPA Lead on NSPS

- 1986: NRDC and New York State threaten to sue the EPA for failing to keep the country's air clear of wood smoke.
- 1988: EPA Phase I emission standards: Requires stoves to emit less than 8.5 grams per hour. (316 models pass muster)
- 1990: EPA Phase II emission standards: requires stoves to emit less than 7.5 grams per hour. (134 models pass muster)
- 1992: All new stoves sold meet Phase II standards.
- 1995: Washington State requires all stoves sold in the state emit no more than 4.5 grams per hour.
- 2009: EPA officials formally recommend a review of the New Source Performance Standards (NSPS) to reassess if national emissions standards should be stricter.



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Residential Wood Heaters NSPS Draft Proposal
Update for May 9, 2013 Webinar

Does NOT represent final EPA decisions

Today's Update

- ▶ Key Changes
- ▶ Wood Stoves (and single-burn-rate stoves and pellet stoves)
- ▶ Hydronic Heaters (aka indoor and outdoor wood boilers)
- ▶ Forced-air Furnaces
- ▶ Masonry Heaters
- ▶ Test methods
 - ▶ Peak, Shorter-term Emissions
 - ▶ Cordwood Test Method
- ▶ Efficiency and Carbon Monoxide
- ▶ Timeline
- ▶ Appendix - Historical Overview

Key Changes

▶ Two-Step Approach Preferred for Proposal

- ▶ The states feel strongly about the need for stringent stepped standards as soon as possible as they strive to attain and maintain the NAAQS.
- ▶ We would propose to require compliance with Step 1 emission limits immediately and Step 2 tighter emission limits in 5 years for all subcategories (except no tighter Step 2 for masonry heaters).

▶ Three-Step Approach for Comment

- ▶ We would ask for comments and environmental and economic data for potential justification of a Three-Step Approach that would require Phase 1 immediately, an interim Step 2 in 3 years, and a final Step 3 in 8 years. The emission limits would be identical for Step 2 in the Two-Step Approach and Step 3 in the Three-Step approach.
- ▶ EPA's current preference is for the Two-Step Approach but we will consider the information submitted during the public comment period and the final rule will include the appropriate approach. We do not expect the final rule to allow individual manufacturers to choose between approaches.

Wood Stoves

Preferred Two-Step Approach for Wood Stove NSPS Proposal

- ▶ **Step 1: Washington State noncat emission level upon promulgation**
 - Over 85% of sales of EPA-certified wood stoves are models that already meet this level.

- ▶ **Step 2: “Best Systems” emission level five years after promulgation**

- ▶ We would combine catalytic and non-catalytic units under one emission limit.

- ▶ We would include single-burn-rate stoves and pellet stoves.

- ▶ We would prefer to establish an emission limit for cordwood (rather than cribs) for 2019, if possible. We appreciate the testing that labs are conducting now to help inform us of what is possible.

Hydronic Heaters

Preferred Two-Step Approach for Hydronic Heater NSPS Proposal

- ▶ **Step 1: Partnership Program Phase 2 level upon promulgation**
 - 36 hydronic heater models (27 cordwood and 9 pellet models) built by 17 U.S. manufacturers have already been qualified at this level.

- ▶ **Step 2: “Best Systems” five years after promulgation**

Forced-air Furnaces

Preferred Two-Step Approach for Forced-air Furnaces NSPS Proposal

- ▶ **Step 1: CSA B415 level upon promulgation**
 - The two primary U.S. manufacturers of forced-air furnaces both have models that can meet Step 1 already. Other manufacturers are conducting tests now.

- ▶ **Step 2: “Best Systems” five years after promulgation**

Masonry Heaters

Preferred Compliance Requirements for Masonry Heater NSPS Proposal:

- ▶ **Level Equivalent to HH emission level upon promulgation except for small volume manufacturers.**
 - Based on data submitted by the Masonry Heater Association, over 10 models already achieve this level.
 - Many other models are expected to use a computer simulation to show that their design would be expected to achieve the NSPS level without conducting further testing.

- ▶ **For small volume manufacturers (less than 15 total units per year), compliance deadline would be 5 years after promulgation**
 - Most masonry heater manufacturers are very small businesses that produce less than 12 heaters per year.

Scope of the Rules

- ▶ We feel strongly about the need to minimize potential loopholes.

- ▶ We are considering proposing three subparts as follows:
 - Subpart AAA, aka “room heaters”
 - Adjustable burn rate stoves, single-burn rate stoves, and pellet stoves

 - Subpart QQQQ, aka “central heaters”
 - Outdoor and indoor hydronic heaters
 - Forced-air furnaces

 - Subpart RRRR
 - Masonry Heaters

Test Methods

▶ **Peak, shorter-term emissions**

- ▶ We would add multiple 1-hour filters for each test run to gather data regarding start-up and anticipated peaks.
- ▶ For Step 2, we would require compliance with emission limits at the lowest burn rate (“Category 1”) and the maximum burn rate (“Category 4”) rather than the weighted average of the four burn rates in the current NSPS.

▶ **Cordwood test method**

- ▶ We would add testing with cordwood to encourage best real-world performance. For Step 1, the manufacturer would submit test reports with both cribs and cordwood and choose which results to use for certification. For Step 2, the tests would all be with cordwood.
- ▶ We are working with states and labs and industry on the details.

▶ **Precision**

- ▶ We would propose improvements to the test methods to improve precision.

Efficiency and Carbon Monoxide

- ▶ **Efficiency**

- ▶ We would require testing and reporting but not a minimum efficiency.

- ▶ **Carbon Monoxide**

- ▶ We would require testing and reporting of CO but not an emission limit.

Timeline

- ▶ Draft for EPA Internal Review May 2013
- ▶ Proposal Summer 2013
- ▶ 90-day public comment period
- ▶ Promulgation (Final Rule) Summer 2014

EPA Contact

Gil Wood

wood.gil@epa.gov

919-541-5272

Q & A

Questions were requested in advance.

Time may be available for additional questions. Should time permit, please use the **Questions Panel** on the right side of your screen.

The webinar slides and recording will be made available after today.

Question #1

- This NSPS is not a technology forcing regulation, as EPA has employed elsewhere. Technically, its just requiring manufacturers to adopt best practices. But the EPA has floated numbers as strict as 1.3 grams an hour for wood stoves, which could kick in 5 years after promulgation. How much innovation will be required for all stoves to meet a standard like that, or is it just a matter of adopting best existing practices?

Question #2

- Could there be a way for automated stoves to be tested that do not have manual air controls with 4 burn rates? Requiring a company to petition for an alternative test method is cumbersome and involves a lot of resources and uncertainty – and probably discourages innovation. Is there a way to streamline approval of alternative test methods, or are there other solutions?

Taylor Myers, team captain
Wood Stove Design Challenge
University of Maryland
College Park, MD

Question #3

- We've been dialoging with the Washington State Dept. of Ecology for over a year on a green label for wood and pellet stoves which could really spur innovation. How does the EPA feel about this green label initiative and is there a way that they NSPS can recognize and refer to a green label, even though it is not a regulatory program?

Jon Strimling,

Founder of woodpellets.com &

Board member of the Alliance for Green Heat

New Hampshire

Question #4

- Given the constant updates from the scientific community and the EPA about the ever increasing potential impact of climate change and the need to act decisively now to head off some of these impacts, will EPA be willing to accept some tradeoffs in terms of short air quality to encourage the development and deployment of clean burning biomass technology?

Ben Myren

President, Myren Consulting

Colville, WA

Question #5

- Will the EPA consider certifying only biomass appliances that have air control tied in with the oxygen flue gas concentration, considering that low emissions throughout the heat output range are reasonably obtainable by using technological improvements and minimizing idling scenarios?

Terrence Sauvé,
Environmental Management Branch,
Ontario Ministry of Agriculture, Food and Rural Affairs
Ontario, Canada

Question #6

- Has the EPA made any calculations as to how much more stoves may cost as a result of this NSPS? Are there any numbers you can share with us? How do you have to take into account low-income Americans who rely on wood stoves to heat their homes?

Al Steele

Northeastern Area State and Private Forestry

US Forest Service

Morgantown, WV

Question #7

- "Outdoor wood boilers produce are clearly one of the very biggest reasons this NSPS is needed. Even the Phase 2 units are still far too polluting. For the states that only allow Phase 2, the NSPS may just continue the status quo for 5 more years. How could this NSPS help Phase 2 units become cleaner upon promulgation, not after 5 years? And, can the NSPS require that outdoor boilers be professionally sized and installed?"

Anonymous

Question #8

- New Source Performance Standards are to be based on the best system of emission reduction. If data shows that certain stoves, such as pellet stoves, already emit levels well below the Washington State non-cat emission level, then shouldn't a more stringent emission limit be used than the Washington State level since this is an NSPS? If not, what is EPA's justification for this?

Stephen Fotis, Partner
Van Ness Feldman
Washington, DC

Question #9

- How does EPA plan to create NSPS requirements that will allow consumers to fairly and accurately compare emission and efficiency performance among appliances tested with different methods? Will there be equivalency ratios or a perhaps a single flue gas efficiency test at full load per B 415.1 that will allow for a single point of comparison?

Scott Nichols

Tarm USA

Lyme, NH

Question #10

- What is EPA's rationale for combining pellet stoves with single-burn rate stoves?

Britt S. Fleming, Partner

Van Ness Feldman

Washington, DC

Question #11

- If 3 furnaces are loaded with 1 million Btus of biomass, lets say about 142 lbs. The first furnace burns all of the fuel in 4 hours. The second in 8 hrs, and the 3rd in 12 hrs. Total particulate emissions for each of the units is equal. However, the 4 hr burn is considered to have the best thermal efficiency and therefore declared the best unit. Why is this true?
- The 12 hr burn had lower stack temperatures and CO levels than the 4 hr burn. Why is the 4 hr burn considered to have the best efficiency?

Jeff and Jessica

ClearStak

Woodstock, CT

Upcoming Events

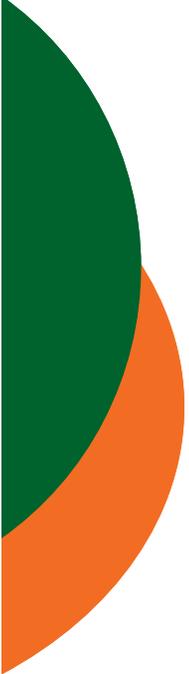
- **NEFI Energy Expo**
 - June 11-12, 2013, Foxborough, MA
 - Visit the BTEC Biomass Thermal Pavilion

- **PFI Annual Conference***
 - July 28-30, 2013, Asheville, NC

- **International Training Seminar Biomass Heating - Market development and technologies**
 - Sept. 9-13, 2013, Linz, Austria
 - <http://www.oec.at/en/projects/events/international-training-seminar-biomass-heating-2013/>

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Thank You!

Appendix - Rulemaking Overview

- ▶ On February 26, 1988, EPA published the original NSPS for residential wood heaters.
- ▶ In 1995, Washington State tightened the emission limits in WA. Almost all manufacturers chose to meet the WA limits for all U.S. models. Today, over 85% of EPA-certified models meet the WA emission levels.
- ▶ In November 2009, EPA released a draft review document with preliminary draft conclusions.
- ▶ EPA conducted numerous stakeholder outreach activities and prepared the technical and economic information necessary for a draft proposal. However, the February 2012 draft proposal did not have great support and EPA began to consider other options.
- ▶ In November 2012, State and local air pollution control agencies hosted a national forum for a broad range of stakeholders (including EPA, manufacturers, health organizations, and environmental groups) to discuss the issues and potential options.
- ▶ EPA has prepared new options for the draft proposal after consideration of the information and recommendations discussed in November and in numerous follow-up discussions.
- ▶ The new options would better reflect current best systems of emission reduction and add emission limits for new appliances that were not regulated in 1988, such as indoor and outdoor wood boilers, forced-air furnaces, and single-burn-rate stoves. They would also include improvements of the repeatability of the test methods and add testing requirements to address short-term emission peaks and testing with cordwood to better represent real-world conditions.
- ▶ The monetized health benefits far exceed the costs for all options considered.