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# Revision of Subpart AAA Residential Wood Heaters & Additional New Source Performance Standards (NSPS)

Pellet Fuels Institute Annual Meeting  
July 19, 2010

# Background

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- Current rule requires manufacturers of new residential wood heaters (e.g., wood stoves) to design heaters to meet particulate emission (PM) limits, have representative model lines tested by EPA-accredited labs, and attach EPA labels and hangtags after EPA approval
- Originally promulgated February 26, 1988
- Proposal was first regulatory negotiation by EPA (included industry, labs, states, consumer advocates)
- Not substantively reviewed until now
- Revisions are not negotiation but are transparent, open government rulemaking ([www.epa.gov/open](http://www.epa.gov/open))

## Perspective: Wood Smoke Can Cause Significant Health Effects

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- There are a number of communities where residential wood smoke can increase particle pollution to levels that cause significant health concerns (e.g., asthma attacks, heart attacks, premature death).
- Several areas with wood smoke problems either exceed EPA's health-based standards for fine particles or are on the cusp of exceeding those standards.
- For example, residential wood smoke contributes 25 percent of the wintertime pollution problem in Keene, New Hampshire.
- In places such as Sacramento, California, and Tacoma, Washington, wood smoke makes up over 50 percent of the wintertime particle pollution problem.

# Perspective: State, Local, and Tribal Officials Working to Reduce Wood Smoke Emissions

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- Wood smoke programs are very important in numerous areas working to attain or maintain the National Ambient Air Quality Standards (NAAQS) or to avoid exceeding the NAAQS.
- Some have implemented changeouts; some have implemented burn bans; others have implemented combinations of education, wood-burning curtailment and changeout programs.
- EPA has provided: “Strategies for Reducing Residential Wood Smoke”, EPA-456/B-09-001, October 29, 2009  
<http://www.epa.gov/ttn/oarpg/t1/memoranda/strategies-doc-8-11-09.pdf>
- For areas that are not meeting or may not meet the NAAQS for fine particles, EPA has encouraged a wood smoke reduction plan to achieve wood smoke emission reductions as soon as possible.

## Perspective: EPA Encourages Replacement of Pre-NSPS Wood Stoves with Newer, Cleaner Appliances

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- Replacing pre-NSPS wood stoves with newer, cleaner, more efficient appliances, can reduce fine particle emissions by ~70%
- EPA's wood stove focus of the last 5 years has been on encouraging replacements because they can result in large emission reductions, greater energy efficiency, less wood burned, and less money wasted.
  - For example, a wood stove changeout program implemented in Libby, Montana changed out over 1,100 wood stoves and reduced wintertime particle pollution levels by 7 micrograms per cubic meter (~28%). This reduction has helped Libby attain the 1997 annual and 24-hour fine particle national standards. Also, indoor pollution was reduced by ~70%.
  - Over 44 areas have conducted changeout campaigns. For more info, see [www.epa.gov/burnwise](http://www.epa.gov/burnwise)
- While changeouts can provide significant air quality improvements, EPA and NACAA (National Association of Clean Air Agencies) want the replacements to be today's technology, not 1988 technology
- When asked, EPA has been very supportive of tax incentives for more efficient and cleaner appliances.

## Perspective: EPA Encourages Best Practices via “Burn Wise”

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- “Learn before you burn”
- “Burn the right wood, the right way, in the right appliance”
- “A properly installed, correctly used wood-burning appliance should be smoke-free. If you see or smell smoke, that means you may have a problem”
- EPA has coordinated efforts with HPBA and NACAA
- For more info, see [www.epa.gov/burnwise](http://www.epa.gov/burnwise)

## Perspective: Potential Benefits are Large

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- The overall benefits for wood residential wood smoke emission reductions are ~\$500,000 per ton of PM<sub>2.5</sub> emissions reduced (actual values will vary by location)
- For example, the benefits of changing out all the old wood stoves in the U.S. to 1988 NSPS level appliances are \$35 billion to \$86 billion per year
- This is based principally on reductions in mortality, non-fatal heart attacks, and chronic bronchitis

# Serious Concerns about Hydronic Heaters, aka Outdoor Wood Boilers

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- Old technology, dirty OWBs are a significant problem in numerous areas because of high emissions, short stacks, too close to neighbors...
- A few pictures to illustrate...

## Photos of OWB Emissions



Photos courtesy of Vermont DEC

# Requests to Regulate OWBs

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- Petition from 6 northeastern states plus Michigan and NESCAUM (Northeast States for Coordinated Air Use Management)
  - Requested EPA develop an NSPS for OWB or revise the current wood stove NSPS to include OWB
- Letter from Hearth, Patio, and Barbecue Association (HPBA) Outdoor Wood-fired Hydronic Heater (OWHH) Caucus
  - Expressed “unanimous support for EPA establishment of an NSPS for OWHH”
  - Their concern was proliferation of local bans and state rules with differing requirements

# Wood Stove NSPS Revision Request

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- Joint letter from NESCAUM and WESTAR (Western States Air Resources Council)
- Requesting:
  - “review and revision of the current residential wood heater/ indoor wood stove NSPS to capture the broader suite of RWD (residential wood heating devices)”
  - “fireplaces, masonry heaters, pellet stoves, and indoor and outdoor wood boilers, furnaces, and heaters... we urge EPA to develop standards...”

# EPA Initial Responses: Developed Voluntary Programs

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- Faster than Federal Regulation
- Hydronic Heaters
  - Phase 2 qualifying level ~90% overall reduction, includes pellets and other solid biomass
- Low-Mass (Manufactured) Fireplaces and Masonry (Site-built) Fireplaces
  - Phase 2 level (~70% reduction)

# EPA Review and Revision of the NSPS

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- Draft Review Document prepared
- Draft Preliminary Conclusions prepared
- Drafts released on November 4, 2009
- Have conducted numerous outreach presentations
- Have posted info on Burn Wise website

# Overview of Proposals under Consideration

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- Tighten emission limits to reflect today's Best Demonstrated Technology (BDT)
- Close “loopholes,” eliminate exemptions
- Add pellet stoves explicitly
- Add wood “boilers” (hydronic heaters) and furnaces
- Revise test methods as appropriate
- Streamline certification process & incorporate International Standards Organization (ISO) process plus compliance affirmation
- Improve compliance assurance & enforceability
- Regulate fireplaces
- Regulate devices fueled by other solid biomass, e.g., corn, various pelletized biomass
- Regulate coal-fired heaters (in order to level the playing field)

# Current Status

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EPA is:

- Conducting numerous outreach meetings,
- Developing options,
- Analyzing potential cost, economic, and environmental impacts
- Preparing for upper management decisions this fall

# Key items of importance to PFI members

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- NSPS will have more inclusive scope. For example, we intend to regulate pellet stoves and pellet boilers (residential).
- Emission data show excellent performance potential with premium pellets but pellet fuel quality standards are needed to ensure good performance and lower emissions.
- We intend to require compliance tests on “worst” grade of each type of pellet that appliance manufacturer warrants for use.
- We have encouraged pellet fuel manufacturers and appliance manufacturers to quickly meet and agree on grades of necessary characteristics.
- We are pleased with PFI’s efforts to develop industry standards.
- We intend to require Federal rules on pellet fuel quality certification **if** adequate industry agreement and adequate standards are not in place in time (see next slide).

# Pellet Fuel Quality Certification Needs

- We have encouraged pellet fuel manufacturers and appliance manufacturers to agree on grades of necessary characteristics, for example:
  - Durability
  - Ash %
  - Fines %
  - Fusion properties
- Limits on bark, dirt, sand, construction debris, chemicals, etc.
- Tailored QA/QC plans, training, transparency
- Testing frequency tailored to results
- Not just 3<sup>rd</sup> party analyses but also 3<sup>rd</sup> party inspections, approval of QA/QC plans, sampling, auditing, corrective actions, certification of conformity, reporting of results
- Goal: pellets that consumers, manufacturers, and Congress can consistently depend upon as they consider decisions to buy and/or support biomass fuels
- Deadline: October 2010

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