

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

Open Government Outreach Presentation  
May 21, 2010

# Goals of this presentation

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- Provide Background
- Show EPA's preliminary thoughts
- Reinforce that EPA is interested in hearing your:
  - Interests
  - Concerns
  - Recommendations

# 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 limits, have representative model lines be tested by EPA-accredited labs, and attach EPA labels and hangtags after EPA approval
- Originally promulgated February 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))

## Important: If you can, replace your pre-NSPS wood stove with a newer, cleaner appliance

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- Upgrading 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 upgrades because they can result in very large emission reductions, greater energy efficiency, less wood burned, and less money wasted
- For more info, see [www.epa.gov/burnwise](http://www.epa.gov/burnwise)

# Burn Wise

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- Learn before you burn
- Burn the right wood, the right way, in the right appliance
- Your choices and actions make a difference
- 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.
- For more info, see [www.epa.gov/burnwise](http://www.epa.gov/burnwise)

# Concerns about Outdoor Wood Boilers

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- An Outdoor Wood Boiler (OWB) combusts wood to heat water that is typically piped to another building for heat and hot water
- Technically, it is not a “boiler” but a “Hydronic Heater” (it heats but doesn’t boil the water)
- Old dirty OWBs are a significant problem in numerous areas because of high emissions, short stacks, too close to neighbors...
- A few pictures to illustrate...

# How Outdoor Wood Boilers Work

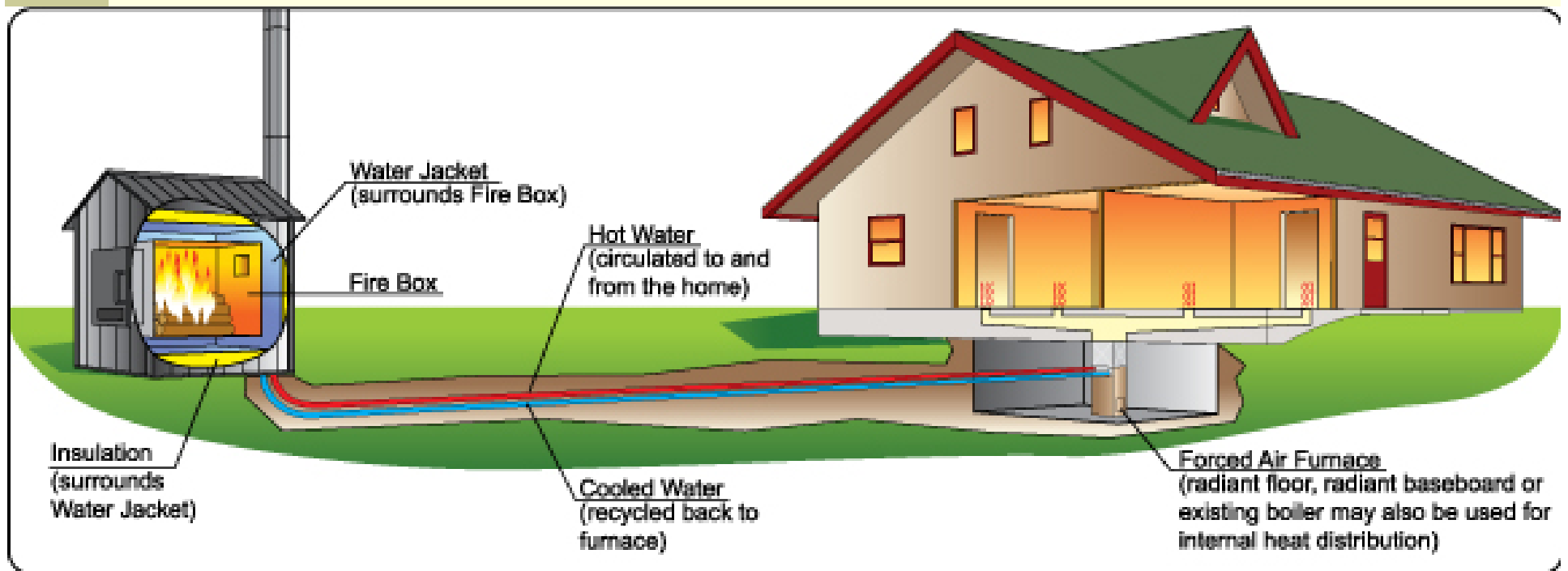


Diagram Courtesy of HPBA

## Photos of OWB Emissions



Photos courtesy of Vermont DEC

5/21/2010



# Petition to regulate Outdoor Wood Boilers (OWB)

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- 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
- Our initial response:
  - We developed a voluntary program and provided technical and financial support for NESCAUM model rule... faster than an EPA regulation...
  - Phase 1 rolled out January 2007
  - 22 partners, 12 qualified models (70% reduction)

# Industry request for OWB rules

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- 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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- April 29, 2008 joint letter to EPA 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 response was to develop additional voluntary programs...

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- Faster than a Federal Regulation
- October 2008 Phase 2 Hydronic Heaters Program
  - Tightened qualifying level [~90% overall reduction], expanded to indoor units, other solid biomass
  - 13 Phase 2 models have qualified, more in pipeline
- February 2009 Low-Mass Fireplace Program
  - Phase 1 and Phase 2 simultaneously
- July 2009 expanded to Masonry Fireplaces
  - 6 models qualified at Phase 2 level [70% reduction], more in pipeline
  - Considering tightening Phase 2 level

# Now, EPA has embarked on Review and Revision of the NSPS

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- Draft Review Document prepared
- Draft Preliminary Conclusions prepared
- Drafts released on November 4
- For more info on the rulemaking process, see [www.epa.gov/open](http://www.epa.gov/open)

# Summary of preliminary conclusions

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- Best Demonstrated Technology (BDT) has improved and emission limits should be tightened
- Should close “loopholes”, eliminate exemptions (e.g., cook stoves)
- Should add pellet stoves explicitly
- Should add wood “boilers” (hydronic heaters) and furnaces
- Should revise test methods as appropriate
- Should streamline certification process & incorporate International Standards Organization (ISO) process plus compliance affirmation
- Should improve compliance assurance & enforceability
- Should regulate fireplaces
- Should regulate devices fueled by other solid biomass, e.g., corn, various pelletized biomass
- Should regulate coal (in order to level the playing field)

# We have not yet recommended specific emissions limits because data are still being analyzed...

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## **For example:**

- An analysis shows that the burn rates used in 1988 for the NSPS should be increased an unspecified amount because of differences in burn end points in test methods used.
- HPBA has provided additional information on fireplace potential emission reductions.
- HPBA has provided a review of emissions per burn rate for certified stoves however there is concern that the NSPS equation for conversions between 5G and 5H is erroneous and needs to be re-established. EPA-accredited labs will conduct additional tests to do this.
- EPA is using §114 authority to request data for currently exempt pellet stoves.
- EPA is reviewing costs and analyzing market and economic data.
- Bioenergy2020+ has recently finalized a review of advanced combustion technology performance in Europe
- Catalytic Hearth Coalition is conducting a review of catalytic performance versus time
- EPA's Office of Research and Development is analyzing results of their tests of hydronic heaters, including typical and advanced designs.

# Very actively reviewing test methods...

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## For example:

- EPA & HPBA are participating on numerous ASTM work groups...
- HPBA has participated on revision of Canadian method B415.1
- NYSERDA (New York State Energy Research and Development Authority) is reviewing European test methods
- Continuing concern of “real world variability ” vs. lab tests, cribs, etc.
- Continuing discussions on emissions averaging (burn rate weightings), low burn rate, number of runs, time for hot start, caps, degradation, etc.
- Efficiency test methods (ASTM, CSA B415.1, etc.)



# More Inclusive Scope

- **Pellet Stoves** – data show excellent performance potential with premium pellets; need pellet fuel quality standards to ensure good performance and lower emissions
- **Masonry heaters** – considering development of 2-prong NSPS (emission limit and design default)
- **Cook stoves** – considering improved definition of “**traditional North American cook stoves**” (estimated to affect <2000 units)
- Also considering definitions of “**traditional Native American bake ovens**” and “**ceremonial fires**” so that they may be excluded
- **Hydronic heaters**
  - Over a dozen U.S. models already qualified at Phase 2 voluntary level
  - Typical European levels are much lower than Phase 2 voluntary level
  - Some new designs avoid operation at typically dirty low burn rates
  - Considering requiring heat storage which greatly reduces emissions
- **Furnaces** – manufacturers are beginning to get on board with developing BDT
- **Fireplaces** – numerous air agencies want regulations but HPBA has recommended that EPA allow the voluntary program to mature first.
- **Coal** – asked for data, will test, may use transfer of technology

# Pollutants

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- PM2.5 (>85% of the PM) is our focus
- Black Carbon, CO, CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O?
  - limited testing planned, principally for informational purposes
  - perhaps CO & efficiency limits which will also reduce PM2.5 emissions

# Environmental Justice

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- A tighter, more comprehensive NSPS will reduce environmental impacts for all
- Preliminary draft analysis results show no disparate impacts nationally
- We may look closer at a few specific geographic areas
- For now, we foresee no EJ-focused changes to the NSPS that would not apply to everyone

# Compliance & Enforcement Aspects

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## **We intend to:**

- Streamline certification process--- develop electronic system for submittals and approvals
- Improve compliance assurance --- inspections of labs and manufacturers, random audits, monitor websites and trade shows and fairs, alert foreign companies
- Make consumer-friendly --- Burn Wise website, spreadsheets of certifications ranked by emissions, tested efficiency, output
- Incentivize lab proficiency testing
- Streamline recordkeeping and reporting of manufacturing tolerances and quality control
- Require compliance tests on “worst” grade of each type of pellet that manufacturer specifies for use
- Require Federal rules if adequate industry standards are not in place in time

# Pellet Standards Specifications Needs

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- EPA has encouraged pellet manufacturers and appliance manufacturers to quickly meet and 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

# NSPS Timeline

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- Fall 2010 -- Complete staff draft of options, background materials and draft proposal package for EPA management review
- Summer 2011 – Proposal in Federal Register
- Summer 2012 – Promulgation

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