

# 2015 Standards of Performance for New Residential Wood Heaters: Wood Stoves, Hydronic Heaters and Forced-Air Furnaces

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# What will this presentation cover?

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- Background
- Overview of residential wood heater rule
- Health benefits and costs
- Rule Summary
- History

# What is the background for this rule?

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- On March 16, 2015, EPA revised the Woodheater New Source Performance Standards (NSPS) for new residential wood heaters in accordance with section 111 of the Clean Air Act.
- The original rule was promulgated in 1988 and set emission limits for new adjustable burn-rate stoves and fireplace inserts only (a wood stove that fits into a fireplace).

# What is regulated by the 2015 NSPS?

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NSPS regulates new wood-burning appliances:

- Adjustable burn-rate stoves
- Single burn-rate stoves
- Pellet stoves
- Fireplace inserts (a wood stove that fits into a fireplace)
- Hydronic heaters
- Forced air furnaces

# What is not regulated by the 2015 wood heater rule?

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- Existing heating devices currently in use
- Masonry heaters
- Fireplaces, pizza ovens, barbecues, chimeneas, fire pits, or new or existing heaters fueled solely by oil, gas, or coal
- Appliance efficiency or carbon monoxide (CO) but does require testing and reporting

# What are the benefits and costs of the 2015 rule?

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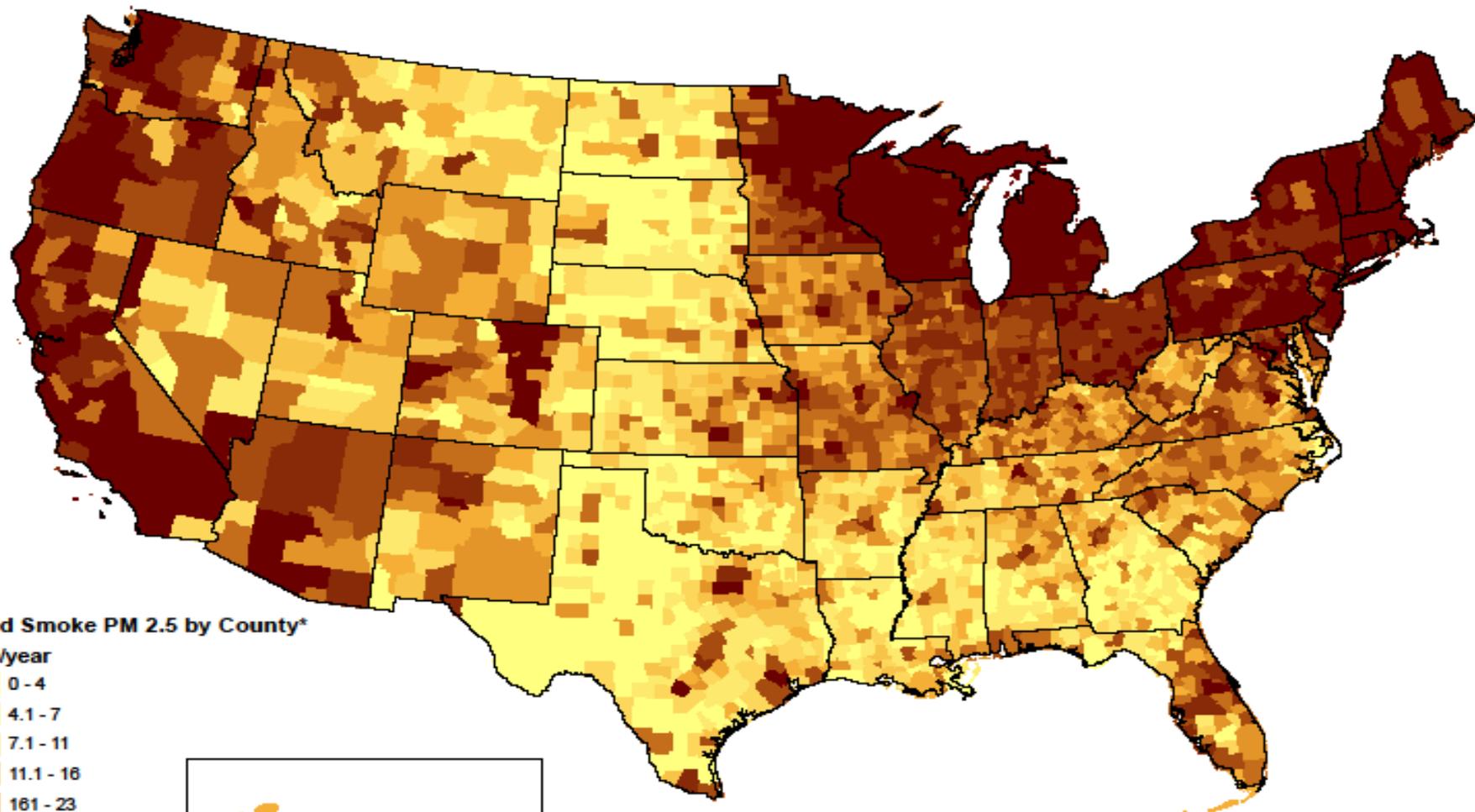
Reduces emissions by:

- **8,300 tons** of fine particles, a **68 percent reduction** over estimated emissions without the rule.
- **9,300 tons** of VOCs, a **68 percent reduction** over estimated emissions without the rule.
- **46,100 tons** of CO, a **62 percent reduction** over estimated emissions without the rule.
- Health benefits of **\$3.4 billion to \$7.6 billion** annually
  - This includes the value of avoiding asthma attacks, non-fatal heart attacks, emergency room visits for asthma, lost work days, and premature deaths, among other effects.
- Costs of **\$46 million** annually
- \$74 to \$165 in health benefits for every dollar spent

# Final Rule – Summary of Standards

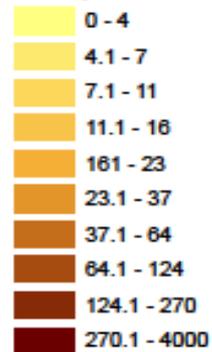
| Wood-Fired Heating Device  | Step                                    | Effective Date<br>*after F.R. Notice                          | Particulate Matter Emission<br>Standard   | Test Fuel  |
|--|---|---|---|--|
| Wood stoves & Pellet Stoves<br>(both adjustable and single<br>burn rate) (both catalytic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

# Wood Smoke Fine Particulate Matter by County



Wood Smoke PM 2.5 by County\*

Tons/year



\* Fine Particulate matter, often referred to as PM 2.5 because the diameter of this matter is 2.5 micros or smaller. Fine Particulate Matter, or PM 2.5, is a complex mixture of extremely small particles and liquid droplets that get into the air which can affect the heart and lungs and cause serious health effects.

Data Source: EPA 2011 National Emissions Inventory Version 1.5

# More information

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Final rule website: <https://www.epa.gov/residential-wood-heaters>

Burn Wise website: <https://www.epa.gov/burnwise/>

NSPS Contact: EPA Office of Air Quality Planning & Standards:  
[aldridge.amanda@epa.gov](mailto:aldridge.amanda@epa.gov); [baumgart-getz.adam@epa.gov](mailto:baumgart-getz.adam@epa.gov)

# History of Wood Heater Rule

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February 1988: EPA publishes the original NSPS for residential wood stoves.

1995: Washington State tightens catalytic wood stove emission limits to 4.5 g/hr

November 2009: EPA released a draft review document with preliminary draft conclusions.

2009 – 2012: EPA conducts numerous stakeholder outreach activities and prepares technical and economic information necessary for a draft proposal. The proposal does not have great support and EPA considers other options.

November 2012: State and local air agencies host a national forum for a broad range of stakeholders (including EPA and manufacturers) to discuss issues and potential options.

February 2013: New options are proposed after consideration of the information and recommendations discussed in the November forum and numerous follow-up discussions.

February 2014: EPA publishes proposed standards that reflect current best systems of emission reduction and add emission limits for new appliances that were not regulated in 1988, such as hydronic heaters, forced air furnaces and single-burn-rate stoves. The proposal also includes improvements to test method precision, testing requirements to address short-term emission peaks, and testing with cordwood to better represent real-world conditions.

March 2015: EPA publishes NSPS for woodstoves, hydronic heaters and forced-air furnaces.

The monetized health benefits far exceed the costs.