

Workgroup Recommendations and Other Potential Control Measures
Homes and Restaurants Workgroup

HR002 – Set More Stringent Standards for Wood Stoves And Fireplace Inserts

Description

Wood burning is estimated to be the largest segment (31%) of the direct fine-particulate matter (PM_{2.5}) emissions in New Jersey's 2002 inventory with over 9,000 tons emitted. While some issues with the emission factors and activity data could change this estimate, the category will likely continue to rank as the number one source of directly emitted particles in the State's inventory.

The United States Environmental Protection Agency (USEPA) New Source Performance Standards (NSPS) for new wood burning stoves and fireplace inserts¹ have been in place since 1992, and have not been updated since. These standards are 7.5 grams per hour for non-catalytic controlled units and 4.1 grams per hour for catalytic controlled units. There are no control requirements for fireplace inserts or wood stove units put in place prior to 1992, and these units emit from 30 to 70 grams per hour.

More stringent State standards for new units are in place in Washington and Oregon. The current standards for units sold in Washington and Oregon State are 4.5 grams per hour (or roughly 40% of the USEPA standards). In general, industry does not have an issue with meeting the more stringent standards, as technology is available to achieve these levels. About 75% of the models available in the United States currently meet these more stringent State standards with the remaining 25% only meeting the USEPA standards, according to one workgroup member. The USEPA indicates that they do not have any plans to update the NSPS anytime soon but instead is choosing to focus on voluntary wood stove change-out programs rather than new standards.

Implementation

1. The USEPA should be urged to adopt more stringent NSPS for wood burning stoves and fireplace inserts.

The options for the State of New Jersey to encourage this include:

- Create a resolution through one of the Regional Planning Organizations (RPOs) (e.g., Mid-Atlantic/Northeast Visibility Union (MANE-VU), Northeast States for

¹ A wood burning stove can be defined as a free standing enclosed wood-burning unit, vented to the atmosphere, and designed to provide heat to a home. A fireplace insert can be defined as a self-enclosed unit that sits within a masonry structure, vented to the atmosphere, that is not designed as a primary heating source for a home. The USEPA emission standards do not cover masonry constructed fireplaces without fireplace inserts that could be built in a home but these unique fireplaces are thought to account for a very small segment of the wood burning conducted in the State.

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Coordinated Air Use Management (NESCAUM), Mid-Atlantic Regional Air Management Association (MARAMA), State and Territorial Air Pollution Program Administrators and the Association of Local Air Pollution Control Officials (STAPPA/ALAPCO)) asking USEPA to do so.

- The New Jersey Department of Environmental Protection (NJDEP) or the Governor petitions the USEPA to investigate creating new NSPS Standards.
- File suit in Federal Court to have the USEPA propose new NSPS standards.

2. New Jersey should consider adopting the Washington or Oregon rules if the USEPA does not develop revised standard at least as stringent as these.

The practical benefit of this new standard would be to remove the dirtiest 25% of the wood stoves and fireplaces from sale. New wood stoves and fireplace inserts would need to be certified for sale in New Jersey as meeting the State standards.

Options:

- “Piggy-back” off of the certifications of units and testing required by Washington State so units accepted for sale there would be accepted for sale in New Jersey as well.
- Use the testing methods of the USEPA or Washington State but establish a different emission standard.
- Create these standards and testing methods through MANE-VU as a regional initiative through a “model” rule.
- Establish NJDEP certification for new units for sale in the State in accordance with our own standards and testing methods.

Recommendation:

It is recommended that NJDEP adopt the same standards for new units as in affect in Washington and Oregon (4.5 grams per hour). After adoption, New Jersey should allow the sale of only units certified by Washington State as meeting their standards.

Cost

The cost to consumers for new wood stoves and fireplace inserts that would meet the lower NSPS standards would be minimal, since 75% of all new units already meet the lower Washington / Oregon Standards. Also, new wood stoves and fireplace inserts are more thermally efficient than older units so a consumer would have a long-term cost saving by using less wood to get the same amount of heat.

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Adopting the same standards and certification requirements as Washington State would be the least costly alternative for the State. New Jersey would have to address the issue of new units only offered for sale on the east coast of the United States and investigate how these units would be certified by us.

Effectiveness

The USEPA's New Source Performance Standards only affect new units and does not lower emissions from existing units (unless the existing unit is replaced with a newer unit). Short-term effectiveness of this measure then would be low, as the turnover of wood stoves and fireplace inserts from units built before 1992 is very slow (on the order of less than 1% per year: current population of post-1992 wood stoves and fireplace inserts (10% to 40% of all such units) divided by the # of years of the USEPA's NSPS regulation equals 0.8 to 3% turnover per year). Long-term effectiveness of the measure, on the order of 10 to 20 years, would be significant, as eventually change-over to newer units would occur. This changeover to newer units could be accelerated with a wood stove change-out program.

The benefits of replacing one-hundred pre-1992 uncontrolled units, burning 1 ton of wood, with fireplace inserts that meet a new standard (set at the level of the Washington Standards) would be 610 pounds of PM reduced.

If New Jersey were to adopt the Washington State standard of 4.5 grams per hour, exposures to particulate would be less when new units are installed. After just 12 hours of wood burning, a person living next to a new wood stove emitting at the 7.5 gram / hour USEPA standard (but not meeting the Washington State standard of 4.5 grams per hour) would have as much extra exposure to particulate as if a diesel truck idled in the neighbor's driveway for one hour.²

The effectiveness of the program can be increased by cross-referencing the State standards in the Department of Community Affairs Uniform Construction Code. This means that the installation of new units would be subject to local permitting and applicable inspection requirements at the time of installation to ensure that only units meeting the State standard are installed.

² Assumes a diesel truck emits 36 grams / hour. Washington Standard = 4.5 grams/hr. and USEPA standard = 7.5 grams / hour so difference of 3 grams / hour times 12 hours = 36 grams equal to the 1 hour diesel emissions.

Disclaimer – The recommendations contained within this white paper do not constitute official state decisions nor reflect any pending regulatory or nonregulatory actions. The NJDEP welcomes public feedback on this (or any other) white paper.

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Pros of the USEPA creating a new NSPS Standard

- Creates nationwide standard that would alleviate concerns of state or regional cost inequities, state or regional enforcement issues, manufacturer and distribution issues, or seller (point-of-sale) issues.
- Technical issues (like testing methods, current technology availability) could be addressed nationally with potentially more resources and focus.
- Regional benefit to air quality from all states.
- Would not need to cross-reference standards within the State uniform construction code as enforcement could be done at the manufacturer or distributor level.

Cons of the USEPA creating a new NSPS Standard

- USEPA has no plans to update the NSPS standards at this time so establishment of a more stringent federal standard is many years away.
- NSPS standards only affect new or replacement units and the turnover on old higher emitting units is slow.

Pros of creating a State Standard

- Over time lowers emissions from the largest segment of directly emitted particulate.
- Removes the dirtiest 25% of the new wood burning stoves and fireplace inserts from sale or installation in New Jersey.
- Technical issues (like testing methods, current technology availability) have already been addressed by another state.
- Could be extended to a regional initiative for greater air quality benefit.
- If adopted by New Jersey or regionally, may eventually lead to lower national standards as well.
- It is likely other northeastern States would join New Jersey in the initiative.

Cons of Creating a State Standard

- Creates an NSPS standard for a minority of states in the United States, potentially creating concerns of state or regional cost inequities, state or regional enforcement issues, manufacturer and distribution issues, or seller (point-of-sale) issues.
- NSPS standards only affect new or replacement units and the turnover on old higher emitting units is slow.

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Related White Papers

HR004 – Wood Stoves and Fireplace Inserts Change-out Programs

HR011 – Require Owners of Wood Burning Fireplaces to Change-over to Natural Gas Fireplaces and Allow Only Natural Gas Fireplaces in New Construction