

# Appendices

- A-1 List of Materials the SBAR Panel Shared with SERs During Panel Outreach
- A-2 June 29, 2010 Meeting Summary
- A-3 August 25, 2010 Meeting Summary
- B-1 Written Comments the SBAR Panel Received from SERs
- B-2 Written Comments the SBAR Panel Received from Non-SERs

# **APPENDIX A-1**

**List of Materials the SBAR Panel Shared with SERs During Panel Outreach**

**Materials for EPA's Outreach Meeting with Small Entity Representatives**  
**Tuesday, June 29, 2010**

1. PowerPoint Presentation - "Revision of Subpart AAA Residential Wood Heaters & Additional New Source Performance Standards (NSPS)"
2. Fact Sheet for Potential Small Entity Representatives - Revision of New Source Performance Standards for Wood Stoves, other Residential Solid Biomass Combustion Devices, and Coal Stoves Under Section 111(b)(1)(B) of the Clean Air Act
3. List of Potential Small Entity Representatives

**Materials for EPA's Outreach Meeting with Small Entity Representatives**  
**Wednesday, August 25, 2010**

1. Invitation letter from Alex Cristofaro, Chair of the Small Business Advocacy Review Panel (SBAR), to SERs.
2. PowerPoint Presentation - Revision of Subpart AAA Residential Wood Heaters & Additional New Source Performance Standards (NSPS)
3. Questions for Small Entity Representatives - Revision of New Source Performance Standards for New Residential Wood Heaters and Additional NSPS(s) for Other Residential Solid Biomass Combustion Devices
4. List of Small Entity Representatives

**Appendix A-2**  
**June 29, 2010 Meeting Summary**

**EPA's Outreach Meeting with  
Potential Small Entity Representatives (SERs)**  
*Revision of New Source Performance Standards for New Residential Wood Heaters*

**Tuesday, June 29, 2010**  
**EPA Headquarters, Washington, D.C.**

**Attendees**

**Federal Agency representatives**

Alexander Cristofaro, EPA  
Caryn Muellerleile, EPA  
Cortney Higgins, OMB  
David Cole, EPA  
Gil Wood, EPA  
Jan King, EPA

John Dupree, EPA  
Joe Johnson, SBA  
Keith Holman, SBA  
Ken Munis, EPA  
Lucinda Power, EPA  
Scott Jordan, EPA

**Potential SERs**

Ben Myren, Myren Consulting  
Brian Klipfel, Fireworks Masonry  
Bryan Light, BIA  
Charles Clark, BIA  
Chris Neufeld, Blaze King Industries  
Clay Dennis, Zephyr Stoves Inc.  
Dean Lehmann, Hitzer Coal Stoves  
Eric Moshier, Solid Rock Masonry Inc.  
Frank Moore, Hardy Manufacturing  
James Frisch, Western Masonry  
Jim Buckley, Buckley Rumford Co.  
Joe Anderson, Knoxville Stove Works

John Crouch, HPBA  
John Klopstad for Jim Hussong, Kozy Heat  
John Russo, Bluestone Boiler Corporation  
Mike Haefner, American Energy Systems  
Mitch Pisik, Breckwell Hearth Products  
Paul S. Anderson, Chip Energy Inc.  
Paul Williams, U.S. Stove Company  
Robert Huta, RLH Industries Inc.  
Ron Pihl, Warmstone  
Scott Jacobs, Ozark Hardwood Products  
Scott Nichols, Bioheat USA  
Timothy Seaton, Timely Construction

**Other Attendees**

Al Breckel, Breckwell Hearth Products  
Claren Lehmann, Hitzer Coal Stoves

Nicholas Bian, HPBA  
Seth Voyles, HPBA

**SER discussion points**

- **Potential SER comment:** Is EPA going to require that all testing labs and pellet stove manufacturers use the same quality pellet for emissions testing of stoves? This is important since most stove manufactures are testing with a very low ash (<0.5% ash) pellet so they can pass PM2.5 testing. If EPA requires testing of a super premium pellet, it will exclude a number of pellet manufacturers.
  - **EPA response:** The decision is between the appliance manufacturers and the pellet manufacturers as to the appropriate quality of pellet. EPA is not encouraging any particular grade of pellet. Once the appliance manufacturers have made the decision, then it should be tested. EPA requested additional test data on different grades of pellets.
- **Potential SER comment:** Most of our industry (family-owned businesses) isn't aware of the proposed regulations. For example, most masons don't understand test methods (e.g., difference between methods

5G and 5H, how to measure emissions per burn rate, etc.) EPA needs to take more time to understand the industry and how masonry fireplaces are built. Including fireplaces in the NSPS regulations at this time is not a good idea. It would put several hundred thousand people out of work and destroy an entire segment of the masonry industry without, we think, much noticeable benefit.

- **EPA response:** Masons will not need to know the difference between Test Methods 5G and 5H. Ideally, there will be a few designs that any mason can use that will have been shown to meet the emission limits. There are a number of State and local agencies and environmental groups who want EPA to regulate fireplaces (both manufactured and masonry) because of the emissions concern. There are ways to regulate fireplaces that won't put small entities out of business.
- **Potential SER comment:** Which units will be grandfathered-in in the new NSPS? Will any currently-listed products that meet or burn cleaner than the new standards be grandfathered-in?
  - **EPA response:** EPA is not planning to regulate existing devices in this NSPS, but we are expanding the scope of the current standard to regulate other new devices that are not currently included. All new units regulated by the NSPS will be required to comply with the NSPS. However, EPA continues to support change-outs of existing devices to appliances that will burn cleaner.
- **Potential SER comment:** What is EPA's thinking about testing pellet stoves at different burn rates? It's common for the consumer to set the burn rate at a "3" or "4". A weighted average burn rate is okay as long as the manufacturer isn't required to do unnecessary testing and that efficient models designed at low burn rates are not knocked out of the market.
  - **EPA response:** The intent of testing at low burn rates is to include the performance of the stoves at the low burn rates that homeowners use. If the device is designed so the homeowner cannot operate it at the typically lower-efficiency, higher-emission low burn rate, then that is good for the homeowner and the environment, and that will be incorporated into the test methods (e.g., heat storage). More information is needed on this question, and EPA will follow up with the potential SER.
- **Potential SER comment:** Is EPA going to establish a certain number of designs for site-built masonry fireplaces that would be put into the building code?
  - **EPA response:** Industry would be responsible for developing the designs. We are considering development of a two-prong approach for masonry heaters and fireplaces that allows wide-spread use of generic designs and are shown to meet the emission limits in lieu of testing each new model line.
- **Potential SER comment:** It would be a profound change and very disruptive for a mason following a building code to design and test a system. Within a short time, will all those masonry fireplaces have to be built according to a certain design? Who's going to come up with the design? Or the testing parameters to come up with the design?
  - **EPA response:** We hope that the industry will work together to develop a few good designs that all masons can opt to use. Ideally, these designs would be incorporated into the building code so the masons can follow the code like they are used to doing all the time. The parameters for testing are already established in the ASTM test method.
- **Potential SER comment:** Will these fireplaces have to be accredited by ISO?

- **EPA response:** We are patterning the NSPS from the voluntary fireplace program. The testing of the design will be done by an ISO-accredited lab, and an ISO-accredited certifying body will review the test and the quality control plan and do some inspections to determine that the units are consistent with the design. This information would be given to EPA, and then the device would get an EPA label.
- **Potential SER comment:** One of the potential SERs indicated that he participated in some of the “fireplace” discussions, but the discussions were focused on manufactured units, not site-built units. For the most part, fireplace masons were not part of those discussions. According to the potential SER, the masons have not been involved in discussions about testing representative models. It would take a lot of effort for the average fireplace mason to get on board with that concept.
  - **EPA response:** Although the discussions focused on manufactured units, there also were discussions that led to the agreement to use the ISO-accredited certifying body to review the quality control plan and inspect an appropriate number of site-built fireplaces.
- **Potential SER comment:** EPA should have a separate meeting with the Mason Contractors Association of America (MCAA) to voice opinions on masonry fireplaces.
  - **EPA response:** We agree that a separate discussion with fireplace masons is appropriate.
- **Potential SER comment:** We agree that the expansion of the NSPS merits a move to an electronic system for submitting and reviewing compliance test reports. A change like this involves some expenditures...will OECA have the resources to go to an electronic system?
  - **EPA response:** We definitely want to move toward an electronic system, but the Office of Environmental Information has some concerns about the system; other rules with electronic submissions would need to be considered as well.
- **Potential SER comment:** Would EPA have the workforce to do third-party certification testing for pellet fuel quality?
  - **EPA response:** There would be a resource concern if EPA were to do this. We are very hopeful that the Pellet Fuels Institute will take this on.
- **Potential SER Comment: It is good** to see that Slide 27 notes that the current NSPS gave additional time for initial compliance for small-volume manufacturers and that EPA expects to do that again. Many companies will need more time.
  - **EPA response:** There is a difference between small entity and small volume. In the NSPS, it is small volume.
- **Potential SER comment:** [Commenting on Slide 29, “Example Wood Stove Example Options,” by 2014, all wood stoves (catalytic and non-catalytic stoves) comply with a 3 grams per hour limit] Although this example option (one number) would encourage the development of new technologies, there’s a financial concern about the R&D costs to manufacturers of constantly testing new products to comply with lower emission numbers.
  - **EPA response:** EPA will look into that.

- **Potential SER comment:** What cost benefit is there to continue lowering the emission limits for pellet stoves?
  - **EPA response:** The health benefits provide a strong motive for reducing particulate matter emissions.
  
- **Potential SER comment:** We are concerned with the costs of testing masonry heaters and fireplaces. One potential SER has a lot of third-party test data, but every one of his masonry heaters is disqualified based on EPA's example option for 2014 compliance, i.e., the combination of the 2 g/hr daily average number with the 7.5 g/hr cap during the actual burn time. As a follow up, masonry heater test data will be sent to EPA.
  
- **Potential SER comment:** Do coal stoves show up in the national inventory? Coal is such a small part of the total inventory. Is it worth spending the time [developing a regulation] on it?
  - **EPA response:** No, they do not show up in the inventory, though we've received a number of requests for coal stoves to be included in the revised rule. We are trying to level the playing field for all appliances. [Note: EPA subsequently found emission inventory data for coal stoves and sent it to the SERs.]
  
- **Potential SER comment:** [Referring to Slide 38, questioning the "high cost-effectiveness" [sic] number]. The number \$500K per ton of PM<sub>2.5</sub> emissions reduced – that would cut across different industries. What is the likelihood of that happening and the impact of yearly sales on new appliances?
  - **EPA response:** That number is based on the benefits, not the compliance costs. We are still working on the costs and economic impacts. Once the SBAR Panel convenes, hopefully we will have a better understanding of what the costs are and how it will impact small businesses. EPA needs more data. For example, we don't have good data for number of manufacturers and how many are small entities. We will appreciate what information the SERs can provide.
  
- **Potential SER comment:** There was a request for the sources of the information found on Slide 38 of the slide presentation (benefits of PM<sub>2.5</sub> reductions in general and for wood stove change-outs), as one potential SER feels the numbers are too high.
  - **EPA response:** We will provide that information.
  
- **Question from EPA to Potential SERs:** EPA needs more data from the industry. For example, how many manufacturers are there? How many are small businesses and members of HPBA? Please send us whatever emissions and efficiency data you have. How much are you currently spending on R&D, production, marketing and warranty claims? What is the price elasticity for various devices? What are the market drivers? We need data on return on investment and product substitution. These are the areas of data that would be very helpful to EPA in developing this rule.
  
- **Potential SER comment:** [Referring to Slide 4—13 percent of the 2008 national emissions inventory is from residential wood combustion] Where is the other 87 percent coming from. What kind of regulatory pressure is being put on these other industries? He would like to see the percent emissions contribution for the other industries.
  - **EPA response:** A lot of the other emissions are from mobile sources and large industries that EPA and the States have regulated for years. EPA will provide data on the other sources in the inventory.



- **Potential SER comment:** Are there numbers on yearly sales of appliances?
  - **EPA response:** We will provide that information. Again, we are interested in information that the SERs may have that will help inform our analyses
  
- **Potential SER comment:** How are venting manufacturers going to be affected by this rule (flexible chimney liners, Class A chimney manufacturers, etc)? We are being pounded by the economic downturn. Has EPA done a statistical analysis of how this rule will affect small venting manufacturers?
  - **EPA response:** We don't have enough information yet to determine what the impacts of the rule will be on venting and chimney manufacturers. We need information on price elasticity. Please provide this if you have it.
  
- **Potential SER comment:** Will efficiency testing for wood and pellet stoves be required?
  - **EPA response:** Yes.
  
- **Potential SER comment:** We want retailers to be part of the panel. Do you still plan to include them?
  - **EPA response:** The current standard and the voluntary program include permanent labels and hangtags, owner's manuals, etc. We need to know from retailers how best to do that for all of the appliances already included and the additional types of appliances that will be added.
  
- **Potential SER comment:** Is EPA looking into pellet stove efficiency standards?
  - **EPA response:** We are not sure if we will set a standard versus just requiring reporting of the test results. We don't have as much efficiency information for pellet stoves as we would like to have.

**Appendix A-3**  
**August 25, 2010 Meeting Summary**

**EPA's Outreach Meeting with  
Small Entity Representatives**  
*Revision of New Source Performance Standards for New Residential Wood Heaters*

**Wednesday, August 25, 2010**  
**EPA Headquarters, Washington, D.C.**

**Attendees:**

Federal Agency Representatives:

Alex Cristofaro, EPA  
Lanelle Wiggins, EPA  
Lucinda Power, EPA  
Grant MacIntyre, EPA  
Joan Rogers, EPA  
Lester Facey, EPA  
John Dupree, EPA  
Scott Jordan, EPA  
Gil Wood, EPA  
David Cole, EPA  
Jan King, EPA  
Kevin Bromberg, SBA  
Cortney Higgins, OMB  
Beth Friedman, EC/R (EPA Contractor)

SERs and Other Small Entities:

John Crouch, Hearth, Patio and Barbecue Association (HPBA)  
Chris Neufeld, Blaze King Industries  
Richard Thomas, Courtland Hearth  
Timothy Seaton, Timely Construction  
Dean Lehman, Hitzer Inc.  
Duane Miller, Kitchen Queen LLC  
Aaron Stoll, Pioneer Stoves  
Don Serrena, National Association of Home Builders  
Calvin Haggard, US Stove Co.  
August S.L. Jones, US Stove Co.  
Paul Williams, US Stove Co.  
Frank Moore, Hardy Manufacturing  
Charles Clark, BIA  
Allan Cagnoli, HPBA  
Peter Wyckoff, Pillsbury Winthrop  
Nicholas Bian, HPBA  
Leslie Wheeler, HPBA  
Scott Jacobs, Ozark Hardwood Products  
Ben Myren, Myren Consulting  
Scott Nichols, Bioheat USA  
Mitch Pisik, Breckwell Hearth Products

Clay Dennis, Zephyr Stoves Inc.  
Eric Moshier, Solid Rock Masonry Inc.  
Mike Haefner, American Energy Systems Inc.  
Jim Buckley, Buckley Rumford Co.  
Brian Klipfel, Fireworks Masonry  
Al Breckel, Breckwell Hearth Products  
John Russo, Bluestone Boiler Corporation

Alex Christofaro, EPA Small Business Chair, opened the outreach meeting and provided a brief background on the Regulatory Flexibility Act. He added that previous discussions and discussions held today will help inform the SBREFA panel on recommendations for the proposal. He reminded all participants that written comments are due to the Panel by September 12, 2010. The Panel will then prepare a report to document specific recommendations for the Administrator to consider with respect to regulatory flexibility options for small businesses. The report will include all of the written comments from the SERs, and it will be placed in the rulemaking docket and made available to the public at the same time the rules are proposed.

EPA OAQPS presented briefly the main points of the rule, including a recap of proposals under consideration, as discussed at the June 29, 2010 outreach meeting. Since this last meeting with SERs, EPA OAQPS has met in person or by phone with a number of SERs to better understand their concerns and to obtain cost and emissions data—Masonry Heater Association, Mason Contractors Association of America, Brick Industry Association, and hydronic heater industry representatives. EPA emphasized the need for SERs to provide more of these data to support development of regulatory options and the economic impacts analysis. After EPA's introductory remarks, the SERs requested time during the meeting to formally present comments and concerns to help frame some of the questions EPA has asked the SERs to respond to. Their comments and concerns are described below.

### **General**

SERs are concerned that the proposed rule will require a massive effort given the number of subcategories EPA anticipates regulating, and that some of these appliance types have never been tested. One SER stated that ideally some of these questions that were posed to the SERs would already have been answered by EPA's Office of Research and Development if they had been able to continue funding research at the levels they did in the early 1990's.

### **SERs Representing Fireplace Manufacturers (including "Builders")**

SERs strongly believe that more time is needed to develop standards for site-built fireplaces given the high variability of these appliances and the voluntary program EPA has in place.

Fireplaces will need their own "significance" listing.

One SER estimated that, based on information from manufacturers of fireplace dampers, about 35,000 site-built (masonry) fireplaces were built in 2009. In a good market, that number is closer to 50,000 units. The SER estimated there are about 140,000 masons in the U.S., but the industry does not know how many are residential versus commercial. The masons became involved in discussions on the NSPS revision "late in the game"; therefore, this industry needs more time to react to EPA's suggestion of a certification program for masons, testing protocols, etc. The SER expressed concern that site-built fireplaces do not lend themselves to a single cookie-cutter design; consequently developing multiple "clean" designs would be very difficult.

### **SERs Representing Wood Stove Manufacturers**

One SER stated that some consumers may not purchase new wood stoves if they are dramatically more expensive than their existing ones. Another SER indicated that the NSPS revision will have a significant impact on his

company, as they manufacture not only wood stoves, but six other wood heater categories (e.g., pellet stoves, corn stoves, warm air furnaces, coal stoves, cook stoves, etc.).

### **SER Representing Indoor Wood Furnace Manufacturers**

One SER stated that the test protocol for warm-air [wood-burning] furnaces only began to be developed in April 2010. Although his company and others he is representing are committed to the NSPS revision, they will need more time to comply with the rule.

### **SER Representing Wood, Pellet and Corn-burning Appliance Manufacturers**

The SER representing wood, pellet and corn-burning appliance manufacturers first described an overview of his company. The SER expressed concern about these appliances achieving an emission limit of 1 gram per hour using pellet fuel with a high-ash content. The SER asked how EPA will test for appliances that burn multiple fuels—will an appliance be certified using the worst-grade fuel? Will manufacturers be required to list emissions for each individual fuel? The SER believes this will be a problem for them. According to the SER, pellet stoves represent less than 5 percent of the total residential wood heater market, and less than 1 to 2 percent of the market for multiple fuel-burning appliances. The SER estimated that the revised NSPS would increase the average cost of a wood pellet stove by about \$300-\$500 per unit (based on industry-established volume of sales between \$5-7 million), a cost increase that the market is not likely to bear when sales are down. He also estimated it would take about 12 years for manufacturers to recoup their expenses from developing and testing, and about 4½ years to develop a new product line that can comply with the test method. The SER is most concerned about the expense of setting up a test lab (estimated cost \$300,000) in such a short timeframe during a weak economy.

### **SER Representing Wood Pellet Fuel Manufacturers**

The SER representing wood pellet fuel manufacturers presented an overview of the pellet industry. He reported that the majority of pellet producers have fewer than 50 employees. In 2008, North American total wood pellet fuel capacity was 4.2 million metric tons. In 2009, capacity decreased to 2.6 million metric tons (including new plants). Over 80 percent of pellets are shipped to destinations within the U.S. The remainder goes to Europe, a growing trend. The new, larger pellet start-ups are exporting about 90 percent of its production to European markets.

Pellet fuel is a growing market. The recent growth in pellet production is due to the rising cost of oil, climate change and increased demand for biomass. According to the SER, the pellet industry is receiving the revised NSPS well; however, there is a need for pellet standardization--super premium pellets with low ash content (less than 5 percent) is not generally available across the U.S. One SER is concerned that EPA's current testing and certification of pellet stoves is based on pellet fuel with a low-ash content from Douglas fir from the Northwest, which is not typical of pellet fuels in New England and other parts of the U.S. Best Demonstrated Technology for pellet stoves should not be based on pellet grades that do not represent most of the country.

### **SERs Representing Hydronic Heater Manufacturers**

Outdoor Hydronic Heaters--The SER representing outdoor wood/pellet hydronic heater (HH) manufacturers (without thermal heat storage) indicated that although numerous HH models are already qualified to meet the level of the Phase 1 voluntary program (0.60 pounds per million Btu heat input) and the Phase 2 voluntary program level (0.32 pounds per million BTU heat output), new units meeting the Phase 2 voluntary program level will cost about \$10,000 to \$11,000 per unit, about double the cost of the Phase 1-qualified units, and the costs for Phase 3 models will be even higher. The SER believes that potential consumers will view the newer HH units as "unaffordable" based on the consumer's desire for a 4-year return on investment, and "definitely not affordable" if the return on investment takes 8 years, despite the overall net payback. The HH industry is developing (and will submit to EPA) an approach to address the many differences between the European test method and the EPA-approved Method 28-OWHH. The SER is also concerned about the increased price of a unit (about 10

percent) if the revised NSPS requires heat storage. The SER also commented that EPA should be looking at real-world burn rates (based on cordwood) and not lab testing (based on cribs). The SER expressed concern that BDT for these appliances would be too costly for the consumer.

More comments from SER representing outdoor hydronic heaters:

- The manufacturers would like to see a hold at the current (voluntary Phase 2) emission qualifying level of 0.32 lbs/mm btu heat output indefinitely for the following reasons.
  - Since the Phase 2 HH models with the 0.32 lbs/mm btu output limit are relatively new to the marketplace, there is no way to determine lifespan of these models.
  - Even small cuts to the already low limit make it exponentially tougher for manufacturers to develop, test, manufacture, and bring new appliances to market.
  - Adding more stringent limits will only add more restrictions to fuel used, maintenance required, and more complicated electronics/sensors that will drive prices up and discourage potential customers.
  - The limit of 0.32 lbs/mm btu output is already a very low limit in comparison to other types of appliances whose emissions are NOT based on output/efficiency. This is the first time that wood heating appliances in the U.S. have had to meet an efficiency requirement. By comparison, indoor woodstoves have never had to meet an efficiency requirement and it is unknown how decreasing the emissions limit from 7.5 g/hr to 4.5 g/hr as Washington did, effects efficiency. Therefore, there are really no other products to base that information on.
- Currently, there are some programs available to provide consumer rebates, tax credits, and discounts to purchase appliances that use renewable energy for home heating.
  - The costs associated with engineering, testing and bringing to market new products to meet a specific emissions limit (efficiency requirement) could have effects that reach beyond the costs associated with manufacturers:
    - In turn, the market may limit consumer choices regarding the numbers of appliances available in the marketplace to a very few,
    - It could limit the appliances capabilities to provide adequate heat by significantly reducing or completely replacing fossil fuels, rather than just providing supplemental heat,
    - It has already been shown to drive prices up for these products (indoor woodstoves & outdoor wood furnaces, i.e., engineering, testing, materials, marketing, etc.),
    - New technology makes appliances more difficult to operate – especially compared to the “conventional” technology,
    - Prevent consumers from voluntarily changing out their older, more polluting and less efficient appliances to renewable alternative energy sources.

Indoor Hydronic Heaters--The SER representing indoor hydronic heaters (with thermal heat storage) made several remarks about HH testing: (1) Timing: More time is needed to phase in the tighter emission level for indoor models. The SER believes EPA is favoring outdoor HH over indoor units in terms of the “grace period” (phase-in) given to the industry to meet the tighter emission level— 5-7 years for outdoor units versus 3 years for indoor units. The SER stated that the indoor HH industry wants the same opportunity as the outdoor industry in order to solidify the indoor test method. More time is needed to test and set up a dilution tunnel for his indoor

models. There's a problem not knowing in advance what indoor HH test methods would be available in 2012 when EPA plans to issue the revised rule. (2) The SER indicated he was not part of the ASTM process for HH, and that Method 28-OWHH was designed for outdoor, not indoor, units. The SER stated that, unlike the development of the Outdoor HH test method, there has been no input from EPA, NESCAUM States or HPBA on development of an indoor HH test method. (3) There's a need for a method to test HH indoor units with remote thermal storage.

### **SER Representing Masonry Heater Manufacturers**

The SER representing masonry heater manufacturers presented an overview of this industry sub-category, which is dominated by one large manufacturer, selling 15,000 units per year worldwide and accounting for 60-70 percent of sales. In a good year, the other masonry heater manufacturers might each sell 20 units. According to the SER, only the top one or two largest producers are likely to remain in business as a result of the rule. The SER questioned the feasibility of testing masonry heaters—representativeness of the crib method and the fact that efficiency testing is based on another method. The SER is not aware of any masonry heater models that can meet the levels beyond those required in Colorado and Washington State, especially a 7.5 g/hr cap during the combustion period.

### **SERs Representing Cook Stove Manufacturers**

One SER recommended a tighter definition for cook stoves (intimating that cook stoves should not be subject to the new NSPS). About 80 percent of cook stoves are marketed to the Amish, and the NSPS will have an impact on their way of life. Another SER indicated that the traditional North American cook stove is based on the Amish design; the definition of "cook stove" HPBA recommended to EPA is based on this design.

### **SER Representing Coal-fired Heaters**

- One SER indicated that, because the coal stove industry has a smaller footprint than wood and other biomass combustion appliances, the industry does not have the capital necessary to develop a test method for coal-only appliances. The SER also commented that a challenge for this sub-category is the type and availability of fuel produced in different parts of the U.S. For example, a coal stove designed for Pennsylvania anthracite coal will not burn effectively in a coal stove that relies on bituminous coal produced from other parts of the country. On average, approximately 5000-6000 coal stoves are sold per year industry-wide, and about 23 units per year from the SER's coal stove company.

### **SER Representing Third-party Testing Labs**

The SER representing third-party testing labs expressed concern about the ability of manufacturers to comply with the standards in a timely manner, given the complexity of requirements and lack of sufficient resources and additional time needed to test and certify the additional number of appliance categories anticipated to be subject to the rule. The SER also commented that many wood heater manufacturers do not have in-house testing capability, which will mean not only certification testing but also R&D testing will have to be conducted by an outside lab. He foresees logjams where the handful of outside labs are unable to keep up with the demand, and where appliances that are ready for certification testing will need to wait long periods of time before they can be tested. To reduce this logjam, the SER suggested exempting certified models from testing and certification at the time EPA issues the rule, and giving these certified models more time to meet the new standards. The SER added that EPA's regulation should focus on the units that are not yet certified.

### **SER Representing Home Builders**

The SER representing the National Association of Home Builders reported that new home sales have declined 12.4 percent so far in 2010, the lowest levels on record, according to the U.S. Department of Commerce. In addition, single-family housing starts in July 2010 were at a seasonally-adjusted annual rate of 432,000, also according to the Department of Commerce. The SER added that home builders purchase a lot of wood heater products and that it will take time for small businesses to meet the new/revised standards.

### **Additional Discussion Topics**

#### **Compliance Time (2-year phase-in period)**

Many SERs are concerned that the 2-year phase-in period EPA is considering for residential wood and other biomass combustion devices is not enough time to have their products tested and certified. According to the SER representing pellet stove manufacturers, 4 years is not an unreasonable timeframe for testing.

#### **Model Testing and Certification**

Many SERs do not have testing facilities and will need to outsource testing to certified labs, which will increase their costs. The SER representing pellet stove manufacturers indicated that test lab construction would cost \$700,000 or more and an ongoing cost of about \$200,000 per year. The SER estimates that lab testing could cost \$20,000, not including engineering time.

A number of SERs are concerned that not knowing what the test methods will be for appliances makes it hard for them to plan ahead.

#### **Costs**

The SERs are concerned about increased costs of the revised/new standards to the consumer. Will consumers purchase lower-emitting appliances if they are priced above what the consumer is willing to pay? The SER representing pellet stoves is concerned that his return on investment for his products could take 2-3 years to 4 years or more, depending on the model. Another SER is concerned about the cost of appliances equipped with catalysts and that his company has already invested \$120,000 for an indoor catalytic unit; the cost of in-house testing of one of his catalytic appliances is over \$30,000; the cost would be even more at an outside lab. The SER is also frustrated about not knowing in advance of the rule what the test methods and protocols would be for forced air indoor furnaces and the economic impact from not being able to systematically schedule research and development and testing of different models over an extended time frame. The SER is concerned about the increased cost to his company associated with testing requirements for confirmation runs.

#### **Grandfathering Previously Certified Models**

Some SERs wanted relief for already certified models and suggested exemptions from re-testing and re-certification for models that have already been tested and certified under the 1988 standard, especially those that meet the levels of the new standards.

#### **Consumer Information and Outreach**

One SER believes that improvements need to be made to hangtags and instruction manuals on existing appliances because they can be very confusing to the consumer—wood stove efficiency numbers, for example. The SER



also referred to EPA's "Burnwise" program and recommended that EPA require manufacturers to display the EPA website prominently (up front) in the owner's manual. The SER also noted that consumers base their purchase decisions largely on model appearance and price, not efficiency. According to the SER, the average cost of a wood stove model achieving Best Demonstrated Technology is \$3400 to \$6700, while the average cost of models that are best sellers is \$1600 to \$2100.

**EPA's Remarks about List of EPA's Questions for SERs (Responses needed by September 12, 2010)**

- One of the key pieces of information on cost impacts EPA would like to have is the number of model lines on a per company basis.
- Answers to all of the cost questions will help EPA develop a good cost analysis.
- EPA will look into the time issue (for phase-in); expects that EPA will give additional time. How much time will it take to stay in business?

**Question from SBA (Kevin Bromberg)**

- It is difficult to have an ISO certification for fireplaces. Has testing protocol been developed? For the wood stove process, you have to put it on a scale. Part of this issue with fireplaces is the thermal mass. Masonry fireplaces are good for storing that heat.

**Comment from SBA (Kevin Bromberg)**

- Does not feel that the EPA NSPS should be so inclusive in scope.
- Perhaps EPA should exclude masonry heaters and coal stoves, as no protocol for these devices has been developed.
- Can we do better with voluntary standards for some of these product categories?

**Comment from EPA (Gil Wood)**

- Factory built fireplaces are the majority of the fireplaces built. Masonry fireplaces are a small part of the overall figure.
- All options are still on the table.
- EPA is exploring the option that if a device has a valid certification before the new NSPS goes into effect, that certification would extend through the 5-year period. When it does expire, the device would need to meet the standards in place at the time.

# **APPENDIX B-1**

**Written Comments the SBAR Panel Received from SERs**

## Small Entity Representative (SER) Written Comments

### Revision of New Source Performance Standards for New Residential Wood Heaters

<b>Comment #</b>	<b>SER Name / Company</b>	<b>SER Type</b>
1	Ben Myren (Myren Consulting)	Third-party testing lab
2	Richard Thomas (Courtland Hearth and Hardware)	Wood & Pellet heater retailer
3	Scott Nichols (Bioheat USA)	Outdoor/indoor hydronic heaters with thermal heat storage
4	Jim Hussong (Kozy Heat)	Hand-fired wood heaters; non-catalytic technology
5	Mike Haefner (American Energy Systems, Inc)	Manufacturer of wood, pellet, and corn-burning appliances
6	Ron Pihl (Warmstone Fireplaces)	Importer/installer of masonry heaters
7	Joe Anderson (Knox Stove Works)	Wood Cook Stoves
8	Scott Jacobs (Ozark Hardwood Products)	Wood Pellet Fuel Manufacturer
9	Jim Buckley (Buckley Rumford Co.)	Clay Flue Manufacturer
10	Frank Moore (Hardy Manufacturing)	Outdoor hydronic heaters without heat storage
11	Brian Klipfel (Fireworks Masonry)	Masonry Heater Manufacturer
12	Dean Lehman (Hitzer Coal Stoves)	Coal-fired heaters
13	Tim Seaton (Timely Construction)	Masonry Heaters
14	Charles Clark (Brick Industry Association)— resubmitted same comments from 7/13/10	Fireplace Mason
15	John Crouch (Hearth, Patio & Barbecue Association)	Trade Association Representative
16	Paul Williams (U.S. Stove Company)	Indoor Wood Furnaces (“warm air”, “forced air”)
17	Steve Vogelzang (Vogelzang International Corporation)	Single burn rate appliance manufacturer

## **Comment 1 – Ben Myren**

### INTRODUCTION:

This testimony is being presented by Alben (Ben) T Myren Jr. I reside at 512 Williams Lake Road, Colville, WA 99114. I own and operate Myren Consulting, Inc., one of EPA's accredited woodstove testing laboratories. I have been involved in wood stove testing since 1984, when I participated in the State of Oregon Department of Environmental Quality's (DEQ) rule making process and began setting up a wood stove test lab. That lab was eventually accredited in 1985. In 1986 I started participating in EPA's Regulatory Negotiation (Reg Neg) process that eventually led to the development of the present New Source Performance Standard (NSPS) for Wood Heaters. The Oregon DEQ accredited lab eventually became an EPA accredited lab. In 1991 I left that lab and became Director of Research and Development at a major wood stove company. After leaving that company I became involved in the development wood smoke control technology and secured accreditation for the present lab in 1996.

So I am a long term survivor who has weathered the ups and downs of the marketplace and the impact of additional government regulations on the hearth products industry. Our company's success has been due to our ability to innovate and find the necessary solutions to reduce emissions so that an appliance was in compliance. This was an expensive, complex process and many wood stove companies did not survive. With the new rules EPA has proposed in at least a "Straw Man" form and the proposed timetable for implementation most recently included in the SBRFA information, I would expect to see another round of casualties unless EPA recognizes the cost and complexity of what they are proposing. Some of the affected companies have never been regulated before and have absolutely no clue as to what is about to happen. Others are old hands at dealing with government rules. But there is no guarantee of survival for any company.

### PERSPECTIVE:

I want to make a couple of brief comments here about the major societal choices that this country needs to (has to) make. Today we are faced with global pollution issues like climate change. We need to change our energy use habits but to do that takes time, effort, money and involves major societal choices and tradeoffs in how things get regulated. Choices like, for a period of time, are we willing to tolerate a slightly higher level of PM in some of our air sheds in order to reduce our dependence on oil (and the other fossil fuels) in order to avoid another major catastrophe like has happened in the Gulf of Mexico and slow the pace of climate change. Or like, are we willing to recognize that we can't have it all immediately, and so we need to prioritize our activities in a way that gets the "biggest bang for the buck", in this case lowering the emissions from Residential Wood Combustion (RWC) appliances in a way that first focuses on appliances that have been previously unregulated? Or, because Bio Mass is the low hanging fruit on the tree of alternative energy solutions with known clean burning technologies, are we willing to foster the development of these technologies with a realistic time frame that allows and fosters the development of new technologies? I think you all get the drift of what I am trying to say here. I have lived in a town that had a severe PM wood smoke pollution problem, so I know what that can be like. But I also know that to just outright ban products that can burn biomass fuels cleanly is neither a realistic or viable long term solution. People need to stay warm and will find ways to do so. We want them to purchase and use clean burning certified products rather than building their own.

### COMMENTS:

I want to focus my testimony on what I will call "Process" and I will divide these comments into 3 separate parts: (1.) Logjam, (2.) Process and (3.) Complexity. I will start with Complexity first.

1.Complexity: One of the things that many folks who are involved in this NSPS review process do not realize is that the test methods for bio mass fired appliances are quite complex simply because the lab has to conduct the emissions test AND operate the appliance simultaneously. In most other EPA source tests, the company conducting the test only has to run the test equipment.

In addition to the particulate matter (PM) test procedure with its criteria, each appliance type has its own fueling and operating test protocol with procedures and criteria specific to that appliance. All of the criteria for both test methods have to be met for a test to be valid. In the lab this means that one week you may be testing a wood stove, then a fireplace the next week, followed by a hydronic heater and a masonry heater. While that seems simple, it is not. I have been doing this work for over 25 years and each time we switch to one of the new appliance types being regulated, I still have to get out the rules and reread them just to insure we are performing the test correctly. I can't imagine what it would be like for a new lab with new personnel to try to do that. The word that comes to mind is "Chaos" and the potential for making mistakes is huge.

And because the fueling and operating for each appliance category are different, the test report format also varies. So the person(s) preparing each report have to know the details of each test procedure to insure that the test report contains all of the required information. The same is true of the persons who will review the report at EPA. They also will have to know and understand the details of each test procedure to determine if an appliance qualifies for certification.

Both of the above require experienced, competent people who know what they are doing in both industry and government. As I stated during the hearing on August 25<sup>th</sup>, the biggest problem we all face is qualified, capable people. It takes several years to train a person so they understand the test methods and can do the work. What this means is that the people who do this now are the base for this big push ahead of us. And those companies who do not already have an in- house person will have to rely upon the existing base of consultants and lab people to help them.

2.Logjam: Logjam refers to a situation where the labs are unable to keep up with the demand and appliances that are ready for certification testing have to wait for long periods of time before they can actually be tested. The present NSPS has sections that are devoted to this topic and provide a mechanism for relief.

While the logjam provisions never came into play the last time around, this time the potential for a logjam is much greater simply because of the number of new appliance categories that will require both R&D and certification testing and the large number of presently certified stoves that will require retesting. All in a very short period of time if the proposed schedule is actually adopted. Thus, one of my comments in the PERSPECIVE section above. I think we need to focus on testing the presently unregulated appliance categories first and give already certified products a longer period of time to meet the new standards. Which brings me to a point in the COMPLEXTIY section. The problem isn't equipment. All of the labs can buy more equipment. The problem is trained people. You can't go to Job Service and say I need a wood stove testing technician. Instead, a lab has to hire a person and start training them. About a ¼ to ½ don't last a month. In 4-6 months a new tech will be somewhat up to speed, able to do their job and help run a test. In 12-18 months they will have a pretty decent grasp of the big picture, understanding why an appliance did this or that on any given day. So there is a substantial cost involved in training a new person to just be a testing technician. It takes years for a person to learn how to interpret test data and decide what design changes need to be made to reduce emissions and bring a unit into compliance. The cost of that is huge.

The manpower issue becomes an even greater issue because some of the existing stove companies rely heavily on the labs to do some of the R&D required on their new products. Add to that all of the companies who now make previously unregulated products that will have to do the work necessary to bring their products into compliance and who will have to turn to the same talent pool for help, and you can see why a Logjam is quite possible.

As I will point out in the next section, the same is true on the government side.

3.PROCESS: I am defining PROCESS as the procedures that a product must follow in order for it to become certified. Oftentimes interaction with EPA personnel is necessary at some point during the certification process. This has been particularly true recently as new innovative/ hybrid voluntary program products are being brought to the lab that require test procedure modifications so that the units can be tested the way they are designed to operate. Examples of these products are units with gas assisted combustion and units with electric devices, e.g., glow plugs, that help insure ignition in the firebox. The current NSPS for wood heaters needs to be revised so that these types of products can also be certified. I personally worked on a gas assisted combustion system that was ready to be tested only to find that EPA would not certify it because of some language in the NSPS. That language needs to disappear. The one thing we need to avoid at all costs is a mindset that forces appliances into a specific “box” and requires that they be tested a specific way. That eliminates or reduces the capacity for innovation and further emissions reductions.

Often times a lab doesn't know a new innovative or hybrid product is arriving until the appliance shows up at the lab. Then a (sometimes lengthy) negotiation process with EPA often ensues as the details of a revised test protocol are worked out. Any delays at this point in the process can cause major (re)scheduling issues or can tie up a test stand for days. And if we have to wait, and an appliance gets bumped out of line, that may turn out to be a real problem for the company involved because the company could miss the sales season for that product.

In addition, there have been times in the past when it took several months for an appliance to get certified after a test report had been submitted to EPA. If we are going to even come even close to meeting EPA's timetables for the implementation of these new rules and get as many products certified as possible, then these process delays have to be kept to an absolute minimum or eliminated.

Since the current NSPS was promulgated in 1988, EPA has issued 140 plus Appaability Determinations (AD's) to resolve questions that arose about specific topics in the NSPS. I assume that these AD's will be incorporated into the revised NSPS for wood heaters. But I can easily imagine where each new appliance category will have its own set of AD's as the inevitable questions arise. Timely resolution of these type questions will also require EPA staff time and any delays will create further problems.

4.Cost: If there are any ways where it is possible to reduce the overall cost of testing and produce equivalent data, then we should do that. At present EPA allows the use of 4 different test methods in the NSPS (EPA M5H, M5G-1, M5G-2 and M5G-3) to determine compliance with the wood heater regulations. Early on in the development of a test method for fireplaces, EPA asked that this number be reduced to one. The choice at that time was M5G-3, which was slightly modified and became ASTM E2515. Since that time some substantial issues have surfaced with E2515. It is more expensive to run than M5G-1 simply because of the number of trains (3 vs. 1) and the time required to maintain and calibrate those 3 sampling trains. In addition, E2515 also has some unexplained technical issues that can (has) substantially increased the cost of certification testing. The difference between the filter holder equipment costs is substantial. A M5G-1 filter holder with probe costs about \$750.00 and you only need 1 to do a test because the glassware is cleaned with acetone after every test. A M5G-3 (ASTM E2515) sampling setup requires 5 filter holders at about \$450.00/ holder (\$2250.00) plus multiple probes (15 to do a 5 run test series at \$55.00/ probe) (\$825.00). One of the problems with M5G-3 is that the

small filters (47mm) used in M5G-3 tend to clog, so you actually need 3 times the amount of hardware plus a manifold system to run a test. So the real hardware cost for M5G-3 is more like \$11,000.00 - 12,5000.00. When compared to \$750.00, even \$1000.00, that is a substantial difference, especially for an industry that is composed of (very) small businesses.

The difference in hardware costs has nothing to do with the technical issues. As noted, the small filters used in M5G-3 tend to clog easily, especially in high humidity situations. Then there is the problem we have encountered in my lab where the filters have a very high initial catch weight and then can take months - YES, MONTHS! - to weigh out. This has happened during at least 5 tests on 2 different appliance types, so I know it is NOT an isolated issue. (As far as I know, this problem has never occurred with M5G-1 filters.) Not only does the lab have to bear the cost of all the additional weighings, the client also has to wait for months to know if his appliance has passed. As yet there has not been a satisfactory resolution to or explanation for this problem. But if a logjam were to occur, this would be an impossible situation because of the time and effort that would be required to deal with these samples.

These technical and cost issues were not apparent at the time M5G-3 was selected because at least 2 labs had not used it and because M5G-3 had not been used to test several of the newly regulated appliance categories (hydronic heaters, fireplaces and masonry heaters) using the test procedures presently in E2515. I would like to suggest that EPA allow the use of either M5G-1 or M5G-3 (ASTM E2515) and let the labs and marketplace sort out which test method is cheapest and easiest to use on a production basis.

## Comment 2 – Richard Thomas

Question 1: What suggestions do SERs have on how to improve the requirements for labels, hang-tags, owner's manuals and certification list and how can the hang-tags be made more appealing ?

In an effort to provide the best possible suggestions for improving hang-tags, the HPBA sent out a blast e-mail “ Hang-tag Survey “ to Hearth Retailers immediately following our meeting at the EPA last month.

Sixty-six percent of those responding indicated that their customers “ Never or Rarely “ read the information on the hang-tags and twenty-seven percent responded that their consumers read but did not normally understand the information on the hang-tags.

Fifty-seven percent of respondents stated that the information on the hang-tags should be specific information to the particular fuel type of the appliance,

While forty-two percent responded that consistency is important, so that consumers can compare emission information from one fuel type appliance to another fuel type appliance.

When asked about increasing or decreasing the size or requiring the hang-tags to be placed on the glass of the appliance or for the information to be included in the sales brochure, a majority of the respondents answered “ NONE OF THE ABOVE “.

With all of that being stated, the following are my recommendations:

- \*\* One 8.5” x 11” Page, not two tags.
- \*\* Consistent on all Hearth Products
- \*\* All Manufacturers must comply with precise layout.
- \*\* Tested to U.S.A. EPA requirements / not Oregon etc.
- \*\* Change from a Hang-tag to a document with a look of importance – Certificate or Diploma look.
- \*\* Do Not require hang-tag on the appliance. Take the “Certificate” with the EPA information on one side, and the have manufacturer print the product warranty on the other side. Certificate would have importance to the consumer with the warranty on the opposite side. Insert the Certificate in the front of the owner's manual.
- \*\* Retailers are selling Warmth, Comfort, Savings and decorating style, NOT EMISSIONS STANDARDS.
- \*\* Consumers are buying Looks and Price – Not Emission specifications !
- \*\* Consumers are confused because every industry has different Labeling/Hang-tags to indicate EPA required data. ( Water Heaters / HVAC / Vehicles )

Question 2: What suggestions do SERs have for improving BurnWise and associated materials and how can we get the BurnWise messaging more successfully received by consumers ?

- \*\* BurnWise is actually very well done, but consumers are not at all aware of the site!
- \*\* This site is so well done that it should be required to be in BOLD print in the Owner's Manual of all hearth products in the Table of Contents under Owner Operation.

Question 3: How does price affect consumer demand?



BDT ( Best Demonstrated Technology ) is extremely important to our industry for future growth. With the testing methods being somewhat of a moving target to date, it is difficult to conclusively say that “ Most Expensive is Best “. However, it is easy to see that the appliances with the most options, easiest to operate, easiest to clean, and easiest to assure proper operation are the most expensive and sell in smaller numbers than less expensive models.

In this economy, the less expensive, “ More BTU for the BUCK” models are what make up most of the sales.

Anything that NSPS does to impact cost of the appliance will impact the final retail of that appliance, which will most certainly affect the demand on that appliance.

Lower Retail + Better Options = Higher Sales

Question 4: What percentage of sales are for replacements of similar or different product categories?

Twenty-five percent of our sales are Trade-in / Trade -up replacements in our retail stores. New for old trade-ins have historically been resold for profit, not unlike the auto industry. If trade-ins become non-compliant there would be no market value, and perhaps no incentive to trade up to BDT.

Where would the auto industry be without the ability to accept trade-ins?

Question 5: How would a more stringent NSPS affect your offerings?

The current economy has moved us backwards one decade in sales figures. We are currently selling at the rate we sold hearth appliances in 2000. Tighter NSPS requirements ( increased cost/retail ) could eliminate consumer interest in Hearth Products as the answer for consumers to save money to heat their homes with renewable energy.

What is better for the environment?? A two decade old fossil fuel furnace, or a current technology renewable fuel appliance ? ?

In Conclusion: Any cost impact caused by additional NSPS requirements for either the appliance or the fuel will affect the retail price to the consumer. Higher retail absolutely equals lower unit sales. I have conclusive evidence ( model sales charts ) that demonstrate higher price = lower unit sales.

If emission levels are lowered, many abundant sources of pellet fuel feedstock ( many agricultural ) will most certainly be eliminated from use in the manufacture of pellet fuel.

If the retail price of renewable fuel products like wood pellets or cord wood can not be kept in line with fossil fuel products ( oil & gas ) homeowners will just continue to use decade old fossil fuel technology to heat because it is easier, but not better for our environment.

Increases in any costs of the appliance or the fuel will place undue economic hardship on the small business retailers of our industry.

To promote renewable energy use in residential home heating, there must be a cost / benefit equation for the homeowner.

### Comment 3 – Scott Nichols

I regret that I was not able to personally attend the August 25th SBREFA meeting in Washington DC for the residential solid fuel NSPS process. Representing small businesses in my class of products is important to me, but at this time our travel budget has been pared to the bones. I knew that time would be at a premium on August 25th and with that in mind, I have focused my energy on this letter explaining the impacts that the NSPS will have on our company.

I am the president and co-owner of Tarm USA, Inc. We are an importer and distributor of wood and wood pellet central heating boilers (Hydronic Heaters). The boilers we handle can be used in either residential or commercial applications. Our company has been in the importing/distribution business since 1994. It is a family run company that has its roots in hearth products dating back to the late 1960s, when my grandfather sold wood stoves at Nichols Hardware. The hardware store later became a reasonably large hearth shop that also sold wood fired central heat. My father, Jim Nichols and uncle, Lloyd Nichols were early pioneers in efficient wood burning appliances. Our company has been selling gasifying, or two stage, wood boilers since the early 1980s. I entered the family business in 1995 because I believed then, as I do now, that by selling and properly supporting the best wood burning products available, we offer an important renewable energy technology that has positive societal benefits. To that end, we were the first company among those now still in business, to offer and encourage remote mass thermal storage for use with our boilers to achieve the highest efficiency and cleanest emissions possible. We were also the first to encourage the use of boiler return water temperature lifting valves to support higher temperature, thus cleaner combustion. We offered the first integrated bulk fed wood pellet boilers for residential use in 2000. In 2008, we introduced the first Lambda controlled wood burning boilers for residential use (real time monitoring and adjustment of combustion). For years we have risked our reputation and forfeited easy sales to promote products that enable the highest level of wood combustion that is possible on a residential level. In 2009 we won a Vesta Award with the Fröling P4 pellet boiler. This is the first fully automatic pellet boiler in the United States that utilizes both a Lambda control and mass thermal storage for maximum efficiency. Using thermal storage with pellet boilers was previously not a consideration in the United States and we fight an uphill battle encouraging this best practice. Like many other participants in the SBREFA process we are small, handle small quantities of appliances and keep waiting for high oil prices to bring us from marginal profitability to a level of sales worthy of excitement.

We currently import boilers from three different European companies. The product line consists of 14 models, 7 of which are wood pellet or pellet/maize boilers. All of the boilers are tested and listed for installation in buildings normally inhabited by humans. The boilers cannot sit on their own in an outdoor environment because they are not self contained, sheltered and insulated products. Please see the appendix to view pictures of our various boiler types.

Among all of the products we sell there are only two types that we are confident will pass Method 28 hydronic heater tests. These boilers are Lambda

controlled appliances with automatic air modulation, or in the case of the wood pellet boiler, automatic fuel supply modulation based on real time exhaust gas analysis. These products automatically optimize combustion based on exhaust temperature and oxygen levels. The Lambda function results in a retail price increase of between \$1,000 and \$3,000 depending upon which boilers are compared.

Our company employs 10 people. The wood heating business is seasonal and also cyclical, but current economic conditions are especially difficult. At the moment stable and low conventional fuel prices combined with an uncertain economy are causing consumers to be less likely to use their cash to make a long term investment in efficient, but expensive heating boilers. Adding thermal storage to a boiler in this economic environment is very difficult for consumers as the thermal storage system can double our invoice from \$8,000.00 or more to \$16,000.00 at a minimum. Because our four best selling wood boiler models can only be used with thermal storage, our sales volume for these products is down. To be clear, selling thermal storage doesn't benefit our bottom line as much as it drives customers to competitors selling an easier solution, but we do it because it is best practice and we believe that best practice will always have a market even if it is small.

EPA has requested answers to many questions about how our businesses are run. I cannot answer all of the questions, but there are some details that are of more consequence to our business than others. One in particular deserves more description. Hydronic heating is complicated. Homeowners often make installation errors or hire installers unfamiliar with the requirements of proper installation and these installers make installation errors. Installation errors with hydronic heating create serious safety and performance problems. When hydronic heaters do not perform correctly they can produce copious particulate emissions. We feel strongly that selling through trained and certified installers is what is best for our industry. Having local dealers encourages more sales on one hand, but installation by trained professionals costs more, which drives many of our customers to cheaper competition that is sold to them directly. Over and over we find that doing the right thing is damaging to our bottom line because the regulatory environment does not adequately support doing the right thing. Of course, the wood heating industry is quite tiny and more regulation threatens our very existence. This is a catch-22. Somehow EPA should react to this issue. I suggest that the best way to do this is to establish a marketing campaign that rewards the best companies and their products. For instance, an Energy Star type rating on products that meet or exceed certain performance thresholds, including being sold and installed by trained professionals, should be considered. This would give these companies and their products an advantage without that advantage being derived in regulation.

We are facing a testing cost and testing method conundrum. Each EPA hydronic heater test costs about \$25,000.00. In addition to this cost, it is prudent to pre-test all models in order to finalize combustion and other settings to prepare for the final EPA approved laboratory test. These pre-tests can be accomplished in house, but the assembly of a dilution tunnel and associated equipment combined with providing a facility with adequate height ceilings and staffing the lab is estimated to cost at least an additional \$500,000. We do not currently have a

dilution tunnel nor do any of our European partners. All in all we expect that if we were to test our 14 models for the EPA Phase II voluntary program prior to 2012 it will cost a minimum of \$500,000.00 assuming all of our models pass the first test made, which is unlikely given our complete inexperience.

At this time we still do not know what test method or methods will be available to us in 2012. This presents a real problem. To add further disincentive to voluntary testing, Method 28 tests may soon be replaced with testing methods that are much more appropriate for our indoor boilers. It is especially troublesome because the test available to us now was created for outdoor hydronic heaters, without our input, so we have no idea what we will face when the tests begin. This is a very small business. Our company is not financed by angel investors or other speculative money. Our operational cash comes through profits. As business owners we are making substantial investments in our company to keep it going during slow business times. We care deeply for our employees and want to get them back to full time employment.

A little history is necessary to express the testing problem for indoor boilers more clearly. Because our products are generally used in buildings occupied by humans, we did not consider the outdoor hydronic heater voluntary program a factor until the winter of 2008/2009 when the word "outdoor" was removed from the test method. We began asking Gil Wood questions about participating in the voluntary program at that time. The questions can be viewed in a letter I have attached to the email also carrying this letter. EPA Method 28 test for hydronic heaters is derived from ASTM method 2618. While Tarm USA, Inc. was initially involved with the outdoor hydronic heater caucus as ASTM method 2618 was being developed, we were not a part of the process after 2006. At that time it became clear that the method was intended for outdoor hydronic heaters only. During the process we felt that our input was considered counter-productive to the needs of the outdoor hydronic heater manufacturers and to NESCAUM, EPA, and HPBA, all of whom wanted a method to be created quickly due to the serious emissions problems that the outdoor units were causing. In fact, I am not aware of a single indoor boiler company that was involved in the ASTM process after 2006, and it is debatable whether any indoor company other than ours was ever involved. When EPA made the decision to rename Method 28 to remove the word "outdoor" from its title we feel that the impact on our company and others like ours was over-looked. ASTM Method 2618 is derived from a consensus method created only by outdoor hydronic heater representatives. To Mr. Wood I must sound like a broken record as I have made this point over and over, but the impact of not being directly involved in this process is easy to under-estimate.

Immediately upon learning about the removal of the word "outdoor" from EPA Method 28, our company began work on a new ASTM test method (Appendix II, ASTM 2618) for boilers using remote mass thermal storage. An ASTM work area was created in early December, 2009. Work on this method is ongoing. However, the ASTM work area we created has had no input from EPA representatives, NESCAUM, or HPBA, which has surprised us, given the high level of participation by these and other entities during creation of the base Method ASTM 2618. This is indicative of the high level of concern that existed for emissions from outdoor hydronic heaters.

Indoor boilers appear at this time to be treated as an afterthought. To us it seems as though many appliances with only small sales volumes are now caught in the emissions dragnet, but EPA isn't sure what to do with these appliances of secondary importance. We do appreciate the encouragement from EPA to continue development of the ASTM 2618 Appendix II method, but we'd like more input and involvement, so that we are likely to develop a method that is beneficial to all who might be impacted by it.

While the EPA hydronic heater voluntary program has not had a regulatory impact for us at the federal level, several states have used Phase I and Phase II as thresholds for approval of outdoor hydronic heaters. Our experience indicates that thankfully, emissions of indoor boilers installed in homes remain un-regulated in all states. It has therefore been unnecessary for us to test any of our boilers for emissions. Earlier we had intended to join the voluntary program, but methods have been unsettled and there has been no incentive to test. Again, it was not until 2010 that we learned for the first time that EPA is considering requiring Phase II compliance for all hydronic heaters at publication of its final rule. As we see it, EPA is tentatively proposing to allow less grace period for indoor boilers to comply with the new NSPS than it has allowed for outdoor hydronic heaters, even though indoor boilers are consistently cleaner and are a much smaller product category by sales volume (about 1/10th the size by my estimation). Mr. Wood has said that this seems fair because EPA Method 28 voluntary program was initiated in 2007 (HPBA meeting, March 2010). By 2012, when the final rule is intended to be published, Mr. Wood stated that effectively this will amount to a 5 year grace period from the 2007 establishment of the voluntary program. Again, this holds true for outdoor hydronic heaters, but not for indoor boilers. Indoor boilers would have a grace period closer to three years, but with no clear testing requirement.

The costs of the NSPS process are especially hard for us to swallow because we already have European emissions tests on all of our products that clearly demonstrate our products are low emissions products. We understand that EN303-5 and EPA Method 28 testing cannot be compared simply, but when evidence exists that our products are clean burning and our history is evidence that we are not presenting a problem, but rather an alternative to dirty appliances, it is frustrating that we could be eliminated from the market with an emissions testing method that was not designed with our products in mind. We are encouraged to hear that Amanda Aldridge is among those comparing European and EPA testing methods and hope for results that could help us in this process. Of course, we offer our assistance including providing what European data we have if it is desired.

Sales of indoor wood and wood pellet boilers are a small fraction of U.S. hydronic heater sales. When making a sales volume comparison between high efficiency indoor boilers and outdoor boilers, one can draw a comparison between sales volumes for coal stoves and wood stoves for example. Based on a report created by BRG consult it is estimated that fewer than 10,000 indoor wood and wood pellet burning boilers were sold in the record breaking year 2008. For our company (and others as indicated by my conversations with principals) 2008 was a record year with sales and revenues growing four-fold from 2007 levels. Since 2008, our sales have declined about four-fold again. In 2010, I estimate liberally that no more than

5,000 indoor wood and wood pellet boilers will be sold in the North America by all participants. These are small numbers like coal stove numbers, but there is a difference. Many of the indoor boilers included in the estimated 5,000 unit figure are two stage gasification boilers or are pellet burning boilers. These are relatively clean products despite being exempt and un-regulated. A large portion of these boilers are European products or are utilizing two stage/down draft gasification technology. There are comparatively small emissions impacts from indoor hydronic heaters as compared to outdoor hydronic heaters, yet our product category is expected to be held to the same schedules, testing methods, and costs. A possible result is that some outdoor hydronic heater companies with more experience and higher sales volumes may succeed while smaller companies like ours selling very clean and efficient products will struggle despite the fact that we are generally aligned with the emissions goals of the EPA both in product capability and philosophy of educating the end user.

There are a couple of beacons of hope for us. One is that the EPA will adopt the thermal storage test method Appendix II to ASTM 2618. Our company initiated the ASTM work area in early December, 2009. The goal has been to create a test method that is appropriate for equipment that utilizes remote thermal storage. At the moment other contributors to the method are turning its purpose on its head, but we are somewhat confident that there could be a useable method resulting. Secondly, we applaud the idea to accredit ISO labs for EPA emissions testing. Choosing ISO labs will create more lab competition and lab availability instantly. Testing on hydronic heaters has indicated that there is tremendous variability from test to test and from lab to lab. For example, our colleagues at the Econoburn company have shown us data from tests conducted at Intertek Laboratory and at Omni Test Laboratory that indicated a measured boiler output that differed by about 50,000 Btu. The ability to use ISO laboratories over-seas where our products are developed will also defray costs for testing as some of our manufacturers have their own ISO laboratories where TÜV and other testing agencies certify products. Furthermore, allowing ISO certification for the test should help to ensure more accurate test results because manufacturer's instructions will be followed and technicians will have plenty of experience with hydronics.

I have presented many comments and would like to summarize them for your convenience:

- 1) Selling high efficiency and clean burning products is not easy. These products are expensive, often use foreign concepts, and can be sold with expensive accessories such as heat storage. Educating customers in the proper use of this equipment requires much care and diligence. Selling this equipment should be rewarded not punished.
- 2) Testing costs and preparation for testing will cost many multiples of today's annual sales revenue. Our company is already losing money.
- 3) EPA is proposing to use an outdoor hydronic heater testing method created without a consensus of indoor boiler representatives to test indoor boilers.
- 4) We are actively working on an ASTM method for testing boilers with remote mass thermal storage ASTM 2618 Appendix II. We need more time to complete the method and more input from EPA.
- 5) By changing the EPA voluntary OUTDOOR hydronic heater test method wording

to include indoor boilers as well, EPA risks penalizing cleaner products if it requires Phase II compliance at publishing of the final rule. Indoor boilers should be given the same time to comply that outdoor hydronic heaters have had.

6) We understand that EPA is reviewing European testing and comparing it to its own testing. This is important to us because we already have testing indicating that our products are clean burning. European sales of our products enable our products to be sold in the United States. Take care not to eliminate this important product class.

7) Indoor wood and wood pellet boilers represent a tiny fraction of sales as compared to outdoor hydronic heaters. Indoor boilers should not be held to the same schedules, testing methods, and costs or it is possible that this class of products could be eliminated from the market. There is a better way to handle these products that begins with taking time to fairly assess what makes indoor boilers unique. Indoor boilers should be given more consideration much the same way that coal stoves and other small product categories have been given a fresh look.

8) During the residential NSPS EPA should be cognizant of the fact that there is a commercial, industrial, and institutional NSPS that dramatically affects the same products.

9) Support the best equipment, best installer certification and education programs through special recognition that can be marketed and/or used for government incentive programs. Choose this path rather than regulation when possible.

10) We approve and encourage the following:

- a. The acceptance of a remote thermal storage testing method.
- b. EPA Burnwise program that also includes wood based hydronic heater sections.
- c. The approval of ISO laboratories.
- d. A cordwood based testing method.
- e. Comparison to existing European testing methods and attempts to harmonize the methods.

11) Lastly, we propose a separate initial compliance date for indoor boilers of two years after the signing of the final rule for the following reasons:

- a. Indoor boilers have a relatively low sales volume and a relatively low air impact as compared to outdoor wood boilers.
- b. Indoor boilers can easily be defined as those boilers that have been tested and listed for indoor installation.
- c. There remains much work to be done to finalize testing methods that relate to indoor boilers, there are ongoing projects analyzing how two stage indoor wood boilers perform, and there are ongoing projects that are comparing European testing methods and results to EPA testing methods and results.
- d. Indoor boilers representatives have not had the benefit of being involved with the creation of ASTM Method 2618 for the testing of outdoor wood boilers that EPA Method 28 for Hydronic Heaters is heavily based on.

To be clear, we believe 100% in the need for emissions testing for hydronic

heaters. Despite representing EPA exempt products for years, we have endeavored to supply products that represented the highest efficiency possible as though our products were already regulated. We have diligently educated our dealers and customers about how to properly use these products. We would like to continue trying to do the right thing for several decades. EPA can encourage our success or inhibit it based on decisions it is now making.



#### **Comment 4 - Jim Hussong**

My name is Jim Hussong, President of Kozy Heat fireplaces, and I want to thank you for taking the time to read my comments pertaining to the new NSPS guidelines. There are numerous areas that I want to touch on, but I wanted to start off by telling you a little bit about Kozy Heat fireplaces and how we arrived where we are today.

My father, Dudley Hussong, established Kozy Heat in his father's millwork shop in southern Minnesota in 1976. The first Kozy Heat was a wood burning fireplace that was created as a more efficient way to heat the shop during the 1970's fuel embargo. The word spread around town and a local contractor persuaded Dudley to build other fireplaces, this time for a residence. Within two years, Kozy Heat was selling fireplaces throughout Minnesota via distribution and dealer channels. Today the business offers not only wood burning fireplaces, but a variety of gas fireplaces. It's the classic entrepreneur story that our country was built upon.

Over the past 35 years Kozy Heat has always been known for its flame, heat, and value. All three of these components have been critical to get Kozy Heat where it is today, and also so where we want to go for the future.

The flame and heat is something we strive for in engineering a fireplace to give the homeowner that best appearance and heat output in their home. They are amazed by amount of heat that one of our fireplaces can produce and how much they can cut their heating bill.

The third element that we are known for and very critical is our value. Kozy Heat is not the most expensive fireplace on the market today, but we are also not the least expensive. Our fireplaces fit the niche of your average middle class American, which targets a very large portion of homeowners by giving them a fireplace that heats more than expensive models at a better value for the consumer.

Our production facility in Lakefield, Minnesota (Population 1,600) employs approximately 100 full time employees year around. This includes both our morning and evening production shifts. The majority of our employees resides in Lakefield, Minnesota and will often see their family members working right at Kozy Heat.

With the recent proposals to the NSPS regulations there are some impacting concerns that we have as a manufacture that would be very detrimental to our business, dealers, and customers. We currently carry two (Z42 & Z42-CD) non-catalytic fireplaces that are EPA certified to the Phase 2 requirement at 3.4 g/hr. If a new standard of 2.5 or 2.0 g/hr is passed this unit would likely be discontinued resulting in us redesigning and retesting a brand new fireplace.

As a small manufacturer in the hearth industry it would take us roughly two months just to come up with a design and fireplace that passes preliminary tests. If everything runs perfectly that totals 320 labor hours of just working 8 hour days. On average that expense is \$48,000 of just two engineers working on the project. This does not include the cost of materials to build the fireplace. Over the past 3 years steel prices have increased 15 – 18 percent; therefore experimenting with steel in design is much more costly today than what it was just 10 years ago.

After we have our design down, then it needs to go to an EPA testing facility, for approximately another 3 months to get it EPA certified. This expense can range anywhere from \$125,000 to \$175,000 depending on how successful the testing is, which by lowering the standards it will make it very difficult for many manufacturers to hit the first time around. Just keep in mind, the lower you make that standard the harder everyone has to work to try and achieve that goal, which in the end means more and more money that needs to be spent on design and testing where most manufactures are already stretched to the limit on that budget. And that doesn't even say

every manufacturer will be able to achieve your benchmark before going grossly over budget on engineering time.

Therefore, we have roughly a quarter of a million dollars just in design and testing for a new fireplace and that is the low estimation. It could easily get up to \$300,000 or find out we are not able to hit the NSPS requirement and you have to start over with design. It would take us roughly 3 - 5 years of selling that fireplace before we actually started turning a profit, and that is just in a "good" scenario of testing. I am sure with these new standards it is going to be something that takes some time.

Now you look at what that expense does not only to a manufacturer, but then we are forced to increase our prices of other products to try and recoup those lost monies to extensive testing and we now just have lost one of those critical building blocks of what our business is founded on, the value.

We are just coming out of the worst recession in 80 years, the last thing we can afford to do is tell consumers our prices are going up, but that is exactly what your hand is forcing us to do. And it may even come to the point that we do not even pursue the fireplace because of its additional costs and money. Not many businesses have \$300,000 just sitting on the books that they can easily disburse when EPA decides to lower the standards to such a low rate.

By not making that fireplace, we now force our dealers to bring in another manufacturers product into their showroom as they need to show gas and wood fireplaces. This often leads to the least rounded manufacturer losing more and more of their showroom displays and possibly losing that dealer to the better rounded manufacturer.

The other consequences if we are forced to discontinue our Z42 and Z42-CD fireplace is we would no longer be able to keep those welders employed. Last year, we strived not to lay off a single employee when our business took a 20 – 30 percent loss in sales due to the recession this country faced. Now, I have to bring people into a room and tell them we survived the hardest part of the year, but now your government has passed legislation to where we are left with no other decision than to terminate your employment. And this is the government that has a President saying we are going to decrease the unemployment rate, but rather the committees under him are doing just the opposite by forcing us to terminate jobs right in our hometown. In our small town community, where do you think these people will find jobs? We do not live in an area that has business left and right hiring people every day.

In your questions for small businesses on August 18, 2010 you had concern how long we keep that fireplace on the market before it needs cosmetic changes. It is very tough to say because there could be new technology or new designed released that begins taking away sales. On average once a unit is released it is on the market for approximately 5 – 6 years before we begin facing questions of cosmetic changes.

I know you were faced with a difficult decision when activists approached you asking to put tighter standards on fireplace industry. But I urge you to look at the consequences of these actions and how they would affect the company my Father and I built over the past 35 years. The amount of particles that fireplaces put into the atmosphere is a small percentage compared to coal plants, vehicle emissions, airplanes, and many other industrial emissions.

## American Energy Systems Inc. NSPS Impact Statement

What is known today as American Energy Systems Inc. (AES) began over 37 years ago (1973) as Northcentral Manufacturing in a small town in Glenham South Dakota. The citizens of the United States were looking for solutions to rising oil prices and shortages were paralyzing the markets. Consumers were huddling around their "barrel stove" or other makeshift stove in an attempt to heat their homes.

Like many manufacturers, infants in what is now known as the Hearth Industry, we set out to develop products that would replace the inefficient methods of heating from the past and consumers responded with enthusiasm for these products creating jobs for hundreds of small businesses. Product sales grew like wild fire until the late 80's until the first NSPS ruling took effect. Hundreds of small manufacturers', estimated at over 600, either made a business decision to get out before all profit was gone or were forced out of business with declining profits and too short of a timeline to adapt and recoup financial investment.

AES, along a few other manufacturers, survived the 1988 NSPS but not without battle scars. Our employee base dropped over 70% and our product offering dropped from several thousand units per year to a few hundred units. Because of the short timeline to comply with the new standards we had no choice but to drop several models of product and go into overtime to develop new product models.

Most small manufacturers in this industry do not have the luxury of having in-house R&D labs let alone full blown testing lab facilities to readily be able to test product changes on an ongoing basis. AES has relied on outside testing facilities, design engineering outsourcing and product design experts to help us in our development of product. Once we have a product close to where we think it needs to be to pass certification standards, we have to solicit the services of the testing lab to perform preliminary tests to assure compliance and then move into full testing certification. This becomes very expensive and even more time consuming.

The impact from the 1988 NSPS was devastating to AES and it took until the mid 1990's to launch a product line that we could afford to build and sell. The majority of this product line however was certified as EPA Exempt because of the short timelines and lack of finances for such a short period of time.

The proposed NSPS that we are looking at today poses immediate and devastating effects to our company. The severe economic environment that we are facing today along with banks tightening credit lines are overwhelming in itself without factoring in the impact on reductions in consumer credit and impending commercial failures in the future. We have not seen the worst of this economic crunch and any extraordinary financial hit WILL FORCE many small hearth manufacturers' out of business.

The following several pages of information deals with our product line and the impending cost to bring this product up to the proposed new NSPS certification standard. This information is in question and answer format with background information to substantiate the costs.

**Response to question regarding Certification costs: what are your typical certification costs and what are the elements that contribute to those costs? Do they vary by appliance?**

Because we are a very small manufacturer we rely heavily on changes in design to accommodate necessary improvements to happen over an extended period of time. We typically spread development of a new product model over 7 plus years. This enables us to be able to handle the financial burden. We typically make cosmetic changes that do not require a testing update yearly and every 2-3 years make efficiency or technology updates in increments so that the testing costs are spread out. Please keep in mind that, as explained in confidential submissions that the majority of our product line is outside of the NSPS with being listed as EPA EXEMPT. We are concerned that once all of these products are under the new NSPS that we will not have the luxury of minor updates without expensive submissions to the test lab to assure compliance with new testing standards. Typically certified product cannot be changed without extensive costs.

While it is difficult to predict what the actual costs will be to comply with the new NSPS certification requirements because they are not yet known, we do have experience, history and industry costs for equipment, lab time, outside engineering time, etc. to calculate within reason the expected costs.

As with most applications of this type, the first 60-75% of getting where you need to be costs less than trying to achieve even small increments of technology, emissions or efficiency changes in a firebox design. A quick example would be that while it would cost several hundred thousand dollars to design a firebox to achieve 7.5 g/hr emissions with a 75% efficiency rating, it would cost 2-3 times that to achieve a reduction to 4.5 g/hr and 80% efficiency rating.

Taking into consideration discussions with EPA and the HPBA on proposed changes to the NSPS the following is an educated estimate on what it will cost to get one product line re-designed and certified. Please read the additional notes on each cost to get an idea of where these costs come from. This example is the cost to bring one product family to market with the new NSPS certification proposals. (product family is based on 3 -4 models of like design combined for efficiency of design, testing and certification)

<b>Design Engineer/Other Salaries.....</b>	<b>\$ 787,500</b>	<b>(note1)</b>
<b>Lab &amp; Laboratory Equipment.....</b>	<b>\$ 85,000</b>	<b>(note2)</b>
<b>Test Lab Salaries.....</b>	<b>\$ 405,000</b>	<b>(note2)</b>

Prototypes.....	\$ 26,250	(note3)
Test Fuel.....	\$ 87,750	(note4)
Pre-Testing Services.....	\$ 22,500	(note5)
Testing Services.....	\$ 202,500	(note6)
Outside Consultants.....	\$ 175,000	(note7)
Re-Tooling.....	\$ 125,000	(note8)
Marketing Expenses.....	\$ 75,000	(note9)
Education Expenses.....	\$ 150,000	(note10)
<b>Total financial commitment.....</b>	<b>\$ 2,141,500</b>	<b>(per product family)</b>

**Note 1: Design Engineer / Other salaries**

For small manufacturers to compete in the marketplace, have efficiencies and economics of manufacturing, sales and marketing there must be at least three (3) and preferably four (4) models that have the same basic “engine” (firebox design) that is tested to accomplish a model selection that gives the consumer a choice of look, features and operational compatibility with their home. This is true of stick wood stoves, wood pellet stoves and also flex-fuel stoves such as corn, wheat, etc.

Each “engine” can take up to 18 months to design, work out the bugs, and get vendor parts secured and have certified for manufacturing and sale. Using 2- full time design engineers, 1 full time experimented employee for running tests, one prototyping team for making parts and refining parts, one part time sourcing purchasing person to secure samples and order parts and clerical help to input data and handle paperwork results in a financial investment of approximately \$175,000 per year (based on pro-rating each employee salary for time involved and crossover for additional product family “engines”) for each “engine”. Estimating 4.5 years to get the 3 -4 models ready for market with full certification would result in \$787,500.00 total investment per product family.

American Energy Systems has 2 Magnum Flex-fuel appliance families of Stoves/Fireplace Inserts, 2 Country Flame Flex-fuel appliance families of Stoves/Fireplace Inserts, 1 Country Flame Wood Pellet (only) appliance family of Stoves, 1 Magnum Flex-fuel appliance family of Forced-air Furnaces, 1 Magnum wood burning Zero-clearance Fireplace appliance family, 1 Country Flame wood burning Zero-clearance Fireplace appliance family, 1 Country Flame wood burning Catalytic family of Stoves, 1 Country Flame wood burning Catalytic family of Fireplace Inserts, 1 Country Flame non-catalytic family of wood burning stoves.

This means that we would have 11 firebox “engines” that would need to be re-designed to comply with the proposed end result of the NSPS standard. **This would be a financial investment of over 8 million dollars for Salaries involved in re-design.**

**Note 2: Lab & Laboratory Equipment**

American Energy Systems has typically solicited the use of Intertek or Omni Testing Laboratories to validate product design changes before actual testing. The main reason for this is the substantial cost of setting up testing facilities and equipment and the space needed to accommodate such equipment.

With the accelerated time lines (in the current EPA proposal) for getting product re-tested and certified testing laboratories predicting that they will not be able to meet these deadlines; small manufacturers in particular will be overlooked for larger more lucrative business.

This necessitates the implementation of setting up in-house testing facilities, making space for such equipment and lab area and then hiring and training personnel to operate the lab.

Specialized equipment to handle new technologies, various fuel qualities and testing such, along with being able to test multiple "engines" and fuel types at one time will involve a costly setup. Being that we do not currently have this equipment or a testing lab facility we will be starting from scratch. We are estimating that it will take over \$935,000 to set up the full lab with proper equipment and spreading that over 11 product families comes to \$85,000 per product family.

Salaries to man the test lab, equipment, fuel test lab and set up for different tests along with analyzing data will take 1 full time testing engineer and 1 full time lab employee. Estimated financial investment for 4.5 years per product family is \$405,000 or \$90,000 per year.

**Note 3: Prototype units**

From previous experience in developing our product lines we know that it will take numerous prototype units with various changes to get to the final product. We are estimating that per product family there will be 7-8 prototypes per model so for a three (3) model product family there could be 21-24 prototypes needed to get to a finished product. At a \$1250.00 prototype minimum cost to produce and using 7 as a good number, the financial investment per product family would be \$26,250.

**Note 4: Test Fuel**

Most of the product lines that American Energy Systems produces are Flex-fuel (burns a variety of fuels). When developing a product we must make sure that the technology is sufficient for each type of fuel, burn rate and efficiency.

Each test typically will burn up \$50.00 - \$75.00 in fuel depending on the appliance, fuel feed rate being tested and results. Each "engine" product family will need a minimum of 150-175 tests on each fuel. Most of the appliances are certified currently for Corn, Wheat and Wood Pellets. Without adding additional biomass fuels we would have (using \$65.00 as an average) \$9750.00 for each fuel in each "engine" x 3 product models. This means that we would have \$87,750.00 in fuel for getting one product family tested.



**Note 5: Pre-testing services**

Because of the complexity of the proposed new NSPS standards, revisions to the testing protocol, difficulty in acquiring both low emissions and high efficiency and understanding the complexity of the actual certification process, we will have to solicit the testing laboratories as we have in the past to verify with sample testing whether our appliances will actually pass when submitted for actual testing. We are estimating that it will take approximately 3 weeks at an average of \$1500.00 per day plus travel, shipping and other expenses to get this accomplished. This amounts to \$22,500.00 per product family.

**Note 6: Testing services**

At this time it is very difficult to determine what testing certification of each product will cost. There has been no determination whether each model or each category of product family will have to be tested. With various differences in firebox design for smaller or larger model units, it will be difficult to develop a product family that can prove to have the same emissions while maintaining a high level of efficiency. We therefore must conclude at this time that each model will have to be tested for emissions and efficiency and on each of the fuels that the product will be certified to. One way of alleviating some expense would be to allow manufacturers to test to the worst case fuel and should it pass not have to test additional fuels. This in itself poses problems particularly in marketing where other manufacturers might be toting a lower emissions and higher efficiency. This brings us back to having to certify each fuel and each appliance.

We are estimating that testing protocol, meetings with lab, travel and testing for emissions, safety and efficiency for a product model will cost an average of \$1500.00 per day per fuel and take app. 3 weeks per product model. This comes to \$67,500.00 per model or \$202,500.00 for a product family of 3 models. These figures are based on our product models that are NOT currently certified and if the certification for the product models that ARE certified do not meet new standards and must be re-certified. We anticipate lower costs for product that currently will meet the new NSPS but must be re-certified to meet new efficiency standards to market. These costs can only be speculated on at this time so we have not included them in our cost analysis.

**Note 7: Outside Consultants**

In 2008, American Energy Systems purchased the wood burning equipment from Country Flame Technologies as a certified product. We do not have the expertise in the wood stove business to fully take on the technology changes that are necessary to bring the emissions in line with final NSPS standards and still maintain over 75% efficiency.

Therefore we will have no choice but to contract with industry experts in the combustion design of our wood products. We will also need this assistance in taking our Flex-fuel appliances to a design level that will meet the future certification standards.

We are expecting to contract with one or more companies for the next 3-4 years with additional yearly services needed for each year thereafter. The expected costs for these services will be in excess of \$175,000.00 per product family.

**Note 8: Re-tooling**

Changing "engine" design means changing tooling, fixtures, welding jigs, equipment hard-tooling, equipment programs, equipment jigs and fixtures, carting, racking, welding fixtures and inspection equipment.

To maintain a tighter rein on manufacturing tolerances to achieve lower emissions and higher efficiency will mean more sophisticated manufacturing fabrication equipment, welding fixtures and part fit up. Quality measurement tools will have to be implemented that will enable a closer tolerance and repeatability assurance.

We are estimating that cost to implement this equipment, process and procedures will cost \$125,000 per product family.

**Note 9: Marketing Expenses**

In today's market, marketing includes printed, verbal, video and online presence. It is considerably expensive to produce radio, television and YouTube material along with web sites and colored brochures.

The public is cautious and nervous about what is coming and will need proper education, blogs, videos' and written material to explain the new products. Operational materials will have to be produced to assure that appliances are operated, installed and maintained in order to assure continued compliance with the new certifications. Complex designs mean complex operation.

The estimated cost to produce the necessary materials for this endeavor is expected to cost in excess of \$75,000.00 per product family.

**Note 10: Educational expenses:**

New technology and operational characteristics mean more sophisticated installations and operational features. We will need to launch an aggressive Service Provider training course to assure that all of our resellers present the product properly, make sure it is installed, operated and serviced properly.



Extensive videos' on operation and maintenance will have to be produced and Service Providers trained on its presentation. Factory training sessions will need to be conducted on a regular basis to assure compliance.

The estimated cost per product family for this expense is set at \$150,000.00

**SUMMARY of expected testing/certification/lab costs (per product family):**

**The total expected cost per product family over the 4.5 year period of time to develop and test this product family is \$2, 141,500.00. This means a \$475,888.889 financial investment per year for each product family. American Energy Systems Inc., based on an industry average of 5 million in sales volume per year would have a yearly cash flow of approximately \$150-175 thousand dollars. Using this as a basis, it would take 12 plus years to recoup all expenses related to developing product for the new NSPS standard. Translating this into cost per unit, based on a yearly sales volume of 5 million dollars (app. 3500 units) this would add approximately \$136.00 to the overhead costs of building the appliance. This would translate into a \$226.00 increase in cost to the reseller of our products which ultimately would result in a \$378.00 increase in consumer cost. This does not include additional actual manufacturing costs with expected increases in quality control, advanced processes to achieve tighter tolerances, additional quality control stations and employee training.**

Once we have information regarding grandfathering product models, extended time frames for small manufacturers and other factors that will lower the investment costs, we will be able to predict exactly what it will cost to comply with the future NSPS standard.

**Response to question regarding manufacturing costs:**

Hearth manufacturers are faced today with an eroding economy and consumers do not have the discretionary income to spend on necessary appliances to heat their homes. Foreign models of like product are hitting the market and between consumer pressure to lower retail pricing and competitors positioning for market share in a down economy, we are forced to lower retail selling prices.

On the average we expect to have to lower retail prices by \$250.00 this fall to be able to move product. This means that we must lower our price to resellers by more than \$150.00 per unit so that they can maintain profitability while lowering the retail price to their customer.

In recent years steel prices and electrical components (precious metals) have escalated; eroding the percentage of difference between manufactured cost and what we can get for our product. Today, the average selling price of a product model which sells for \$1250.00 will cost us over \$875.00 to produce. It is expected that manufacturing a product to the new NSPS standard will increase our manufacturing costs by approximately \$85.00 per unit. This coupled with the overhead additional costs that we explained in our "cost of re-design/testing" section of

\$136.00 per unit makes a total of \$221.00 additional cost per unit that we are expecting to either have to absorb or try to pass on to the consumer.

The problem here is that we have a base gross margin of \$375.00 and we are going to take \$221.00 out of that if we cannot pass on the cost of overhead and manufacturing. This would add \$368.33 to the cost that we receive from our reseller and would add an additional \$613.89 to the retail sale of the product making it too high for consumers to buy.

This is where a 4.5 year assessment of return on investment dollars does not cut it. It would take a minimum of 7 years to recoup design and certification compliance costs and longer when it is not prudent to consider that 100% of available cash flow is available for just this project. It is imperative for the sustainability of AES to have a 7-year transitional period to have new product models certified to the new NSPS with grandfathering of existing product for a minimum of 4-5 years before obsolescence. This will afford us the time to clear all pipelines of existing product, change out showroom models in dealerships, clear out all existing raw materials for existing product, clear out excessive inventory built up during the past two years as a result of hard economics, re-tool and secure proper vendors, change electronics and have new product slowly coming through the design and certification stages.

**Response to questions asked about product already under the Voluntary programs, their effectiveness, how a new NSPS could affect these programs, should low volume product be placed under a voluntary program rather than a full certification and what advantages are there in continuing certain product categories under a voluntary program:**

The voluntary compliance program has already proven that it can and is an effective means of self regulating certain product categories. Factory-built fireplaces for example are such a low volume of product sold (AES percentage is app. 1% of sales volume) and industry wide is declining every year that it would be devastating to consider regulating this product under a strict program of certification. The consumer that wants this product would be subjected to prices that would drive them to other solutions. This product would collapse and manufacturers would have no choice but to abandon manufacturing of this category of product. While AES relies on all product categories (no matter how low the volume) to make up the total package offered, we would have no choice but to abandon this product category if a voluntary program is abandoned for full certification.

Wood Pellet / Biomass / Corn / Flex-fuel appliances also could be good candidates for a voluntary program. This product already burns cleaner than other product categories', has demonstrated that it does not need to be regulated and accounts for less than 5% of the total hearth product sold each year. Possibly a voluntary program that transitions into a full certification program over the next 7 years would be prudent.

Voluntary programs are an effective mechanism for bringing product that has not been traditionally regulated to a point where self-regulation gets the product to a place where full certification can be achieved without undue financial burden.

This should not be about leveling the playing field by forced compliance to unrealistic NSPS standards. There is no equality in placing a low volume product up against a volume product. Leveling the playing field and holding low volume product that would do well with a voluntary program to the same requirements as industry leading product would be suicide to most small manufacturers that have a specialty niche to fill that large companies leave alone.

**Wood Pellet, Corn, Biomass, Flex-fuel Appliances: What will determine the NSPS standard to comply with for each of these appliances? Particularly when AES manufactures product that will burn numerous fuels.**

If the current proposed NSPS standard for Wood Pellet appliances is adopted it would effectively eliminate all multi-fuel capable product models. In the past several years, with wood pellet shortages and rising costs, it has been important to consumers to have a product that offers them a choice in fuel. AES has developed over the past 30 years a line of multi-fuel products that burn several fuel choices.

What standard will dominate, what fuel will dominate and what emission level must be obtained when a multi-fuel product is certified? How will it be determined which fuel must be tested to obtain certification when there has been very little done in the test lab to certify various fuels, combinations of several fuels burned at one time and changes in fuel consistency.

If an appliance is required to test to the worst case fuel and be certified to that fuel, it will cause undue hardship for the manufacturer as they try to compete in the market place. There has not been enough research done by EPA and the industry to simply apply the same standard to Multi-fuel appliances as is proposed for Wood Pellet appliances.

With the entire Wood Pellet industry making up barely 5% of the market and multi-fuel appliances less than 2%, it does not seem that regulation is needed at this point. A voluntary program for now would be sufficient. Flex-fuel appliances (corn, wheat, barley, switchgrass, etc.) are very regional at this point. The bulk of sales are in the Midwestern states such as Minnesota, Wisconsin, Illinois, North and South Dakota, Nebraska, Michigan and parts of Indiana. Once you get past the western Dakotas from Montana east and south fewer than 150 units are sold per year. The Eastern states are not much better with Wood Pellet appliances mostly being sold. We sell fewer than 500 multi-fuel (flex-fuel) units per year in all of the eastern states.

It would seem too costly to regulate and force certification on such a small insignificant market. The wood pellet market, while still only making up 5% of the industry in sales, is sold on a national basis. Perhaps the mandatory NSPS would be prudent for wood pellet appliances while Corn burning (flex-fuel) appliances would be a better candidate for a volunteer program that overlays the mandatory program.

**Executive Summary: Final NSPS Impact on American Energy Systems**

The American Energy Systems Inc. (AES) product line is made up of 11 different product families. The majority of these product families are low volume (less than 500 units per year) but together make up a substantial offering for our customers. Consumers nationwide, into Canada and overseas have come to appreciate the special treatment that they get from a specialty manufacturer that offers such a diverse line of product.

Keeping costs down is a very important factor in being able to maintain such a large product mix and still offer consumers an affordable product. Should any one of these models have to be abandoned as a result of a standard that is too brought on too quick or not achievable because of financial burden starts a domino effect and product model after model will tumble into obsolescence.

Our entire Wood Pellet and Flex-fuel product line is certified to EPA Exempt. Having to comply with a NSPS certification that forces all of this product line to be redesigned to achieve emissions and efficiency compliance would take substantial time and financial resources'. We estimate that it would take up to 7 years to fully implement this large of a product offering change. Anything less would mean substantially reducing our product offering which would trigger higher costs for the remaining product offering. This may very well be the driving factor that would lead to AES having to exit the Hearth Market.

This would have a dramatic effect on the industry and employment. While we are just a very small manufacturer with less than 100 employees, the residual effect of exiting the industry will be felt across the nation. Not only would our local community suffer with AES being in the top 10 industries for our small town, but families across our great nation depend on our product to sustain their businesses.

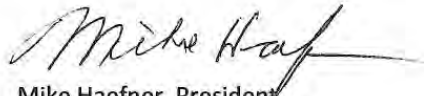
We cannot imagine how we could raise the capital to fund an extensive remake of our entire product line without a long term commitment. It will take 4-5 years to develop the right technology and get product to testing. It will take up to 7 years or longer to recoup the financial investment considering using 100% of available funds.

It would seem prudent to consider not including Corn/Flex-fuel appliances in the NSPS at this time. A volunteer program would seem wise and with these appliances already demonstrating that they are cleaner burning than what is proposed, why would they need to be regulated at

all? Given time, technology will advance to produce a product line that will exceed any standard without undue cost burden.

AES invites the EPA to consider low volume product only as a volunteer program candidate and keep them out of the NSPS at this time. We urge the EPA to consider the horrific financial impact that the NSPS proposed timelines will have on small businesses and to carefully consider increasing the length of time to bring product to a reasonable standard, grandfather in existing product that has been proven to be clean burning and to propose reasonable timelines for future standards.

With the best interests of the Environment, industry and small business in mind  
I respectfully submit these comments,

A handwritten signature in black ink that reads "Mike Haefner". The signature is written in a cursive style with a long horizontal stroke extending to the right.

Mike Haefner, President  
American Energy Systems Inc.

## **Comment 6 – Ron Pihl**

This is my written comment to you regarding input as an SER participating in the NSPS process. My focus with this participation has been masonry heaters and I am very concerned that the new NSPS process will delegate this small but growing industry in North America to the annals of history.

Masonry heaters have been well represented as SER's. I was fortunate enough to be included in an industry meeting in North Carolina with Gil Wood, Mike Toney and Beth Friedman on August 23<sup>rd</sup>. Having also participated in both conference calls for the SER meetings, I feel that I understand the issues regarding the industry and the EPA effort to update the NSPS, particularly in regards to masonry heaters. I now know that EPA also understands the dilemma that the masonry heater industry faces. My livelihood, that of my six employees and scores of other small businesses hinges on a reasonable outcome of this issue.

The undertaking of the NSPS review is extremely complex and the timeline is very short. It will have long lasting impacts across the hearth industry for years to come. We are small industries and almost all of the players are small businesses with little opportunity to influence government regulations.

I fear that these processes will likely result in more expensive biomass burning devices, fewer choices for consumers and fewer manufacturers. Tighter emissions regulations may well result in consumers deciding not to upgrade the thousands of less efficient, dirtier burning devices in use today – another negative for a small industry in a bad economy .

There are many ways to move forward in reducing particulate emissions from air sheds. There may well be more than one way to move forward in including masonry heaters in the NSPS. It is imperative that the NSPS process consider all of the implications of their actions and not kill an industry through neglect or time and budget constraints.

## Comment 7 – Joe Anderson

The Wood Cook Stove Caucus would like to present some of our concerns over the proposed NSPS regulations and the effect on our segment of the hearth industry. Throughout the period of the EPA Phase 1 and 2 regulations (1988-1992), the consensus among those studying the issue of the wood cook stove and regulatory compliance was both the lack of workable technology and relatively small sales numbers for wood cook stoves. The existing and proposed NSPS test methods were based upon a wood room heater. The test data used is weighted based upon expected burn rates. There was, and is, no relevance to a wood cook stove in this data due to the cook stove's use for cooking versus wood heater's use for generating heat.

No data has ever been gathered for normal use of a wood cook stove, as well as, no standard being established to test a cook stove. The crux of our dilemma is no best demonstrated technology (BDT) exists that would enable the cook stove to meet current or proposed standards.

As you have seen from the CBI's, the sales total for all of these five producing companies is less than one thousand units per year. Further, the majority of those sales are located in the five Midwestern states of Illinois, Indiana, Michigan, Ohio, and Pennsylvania. There is truly no national significance from the sale of wood cook stoves.

From a technological standpoint, one hurdle the wood cook stove faces is the need for extremely low operational temperatures in food simmering applications. Allen Carroll of Applied Ceramics stated the minimum operational temperature for a catalyst is approximately three hundred degrees Fahrenheit. In Applied Ceramics tests with both Hydronic Stoves and wood cook stoves, they found numerous burn tests resulting in temperatures below this minimum. The result is a malfunctioning of the catalyst rendering it useless. Temperature variation is also a result of firebox water coils, which allow the consumer to heat water for household use. This uses a tremendous amount of the firebox BTU's and is an option unique to the wood cook stove. With the current technology of secondary burn devices, dedicated temperature control is not possible. The ensuing variations would render reliable oven temperature control impossible.

An integral feature of any wood cook stove is the reliable control of the temperature in the oven. The use of both a pre-fire intake damper, as well as an oven bypass damper achieves this.

We, as manufacturers, have not been sitting idly by. Airtight firebox technology along with a tightening of the tolerances between the cooking surface parts are just two of the improvements introduced since 1988.

One of the concerns which have been expressed to us is the hijacking of the term "Wood Cook Stove" by some manufacturers in an attempt to avoid regulation. This is a valid concern and one which we have addressed. We propose adding two new items and eliminating one to the definition of a wood cook stove which would eliminate the use of the term on anything other than a true wood cook stove.

The complete definition, including our additions and subtraction of the shaker grate requirement is listed below.

- (1) An oven, with a volume of 0.028 cubic meters (1 cubic foot) or greater, and an oven rack,
- (2) A device for measuring oven temperatures,
- (3) A flame path that is routed around the oven,
- (4) An ash pan,



- (5) An ash clean-out door below the oven, and
- (6) The absence of a fan or heat channels to dissipate heat from the appliance.

Additions:

(7) A Cook Stove will have a cooking surface measured in square inches or square feet which is 1.5 times greater than the firebox which is measured in cubic inches or cubic feet.

Example: A firebox of 2 cubic feet would require a cooking surface of 3 square feet.

(8) A portion of at least four sides of the oven will be exposed to the flame path during the heating cycle of the oven while a flue gas bypass will be permitted for temperature control.

The need for wood cook stoves in rural homes that either do not have grid access or suffer frequent winter power outages is also of vital importance. During a period of electrical power failure, the wood cook stove becomes the most important appliance in the home.

An interesting aspect unique to the wood cook stove is the use by religious groups, including the Amish, Mennonites, and others, as an integral part of their religious heritage. An important tenet of their religious practice precludes the use of outside electrical or gas supplies. For this reason they are limited to the use of the wood cook stove to prepare their meals and heat their water. This religious practice is one they have followed for two hundred years.

If the wood cook stove is not granted exemption from the proposed NSPS regulations it will effectively end the wood cook stove industry in America. This action will cause undue hardship on people in rural areas who rely on it to cook their food and heat their water. Non-exemption would also force change upon the religious communities who have used it since its inception as not only a way of life, but an integral part of their religious practices.

Today, neither the hearth industry nor government agencies have been able to provide a BDT which would allow a wood cook stove to operate in the same manner as a wood room heater. No wood cook stove specific data has been gathered nor have any testing standards ever been established to give us a baseline from which to start.

By tightening the definition of a wood cook stove, we believe we have eliminated the possibility of companies using the term, "wood cook stove", as a method to usurp regulation. As we are a de minimis segment of the hearth industry, we respectfully request a continuation of exempt status for the true North American Wood Cook Stove.



## **Comment 8 – Scott Jacobs**

I appreciate the opportunity to provide comments as a Small Entity Representative (SER) representing the wood pellet industry during the Small Business Regulatory Enforcement Fairness Act (SEBREFEA) panel convened for the New Source Performance Standards (NSPS) revision. That being said, I am at a bit of a disadvantage on providing comments at this time because I submitted questions from our June 2010 pre-SER meeting and never received answers from EPA which were going to help me with my comments today. I brought it up again at the SER meeting on August 25, 2010 in Washington, DC and was told I would receive answers to my original questions after that meeting/call. I still have not received those answers. I was hoping to use that information in my comments, so again I say that I am at a disadvantage.

Additionally, I was expecting to provide comments on an actual proposal from the EPA. This whole process seems like an information gathering exercise instead a discussion of the pertinent issues. Now when the EPA debuts their proposal, the SERs will not have an actual forum to discuss them or will have a real voice to say how the proposal will affect them economically because the SEBREFEA panel will have already convened and finished its work. That does not seem fair to the many small businesses that will have to live with this decision. Ozark Hardwood Products (OFIP) manufactures wood pellets in Seymour, Missouri.

I am going to address the questions EPA provided in three sections (Industry Profile, Costs/Market/Economics, and Emissions/Technology). I am also attaching the Pellet Fuels Institute's (PFI) standards documents which PFI has worked on for many years. Gil Woods of the EPA has sat in on many conference calls recently helping the PFI craft the pellet standards to EPA's satisfaction. I hope EPA will use the PFI standards as the basis for EPA's desire to have a pellet fuel standard in the NSPS, but will allow the PFI to administer the program.

### **Section 1 - Industry Profile**

The pellet industry has existed for decades and the industry has grown tremendously in the last 30 years. However, most pellet plants are small, relying on sawmill residues for feedstock. As of 2009, 110 American and Canadian wood pellet plants were in operation or about to become operational and had varying production capacities. Pellet manufacturing directly employs approximately 2,300 people in the U.S. and supports thousands of industry-related jobs in fields such as transportation and logging. Of these 110 mills, nearly all are located in rural areas where they are a major economic center for the county they are in. The vast majority of these pellet mills manufacturer less than 100,000 tons per year and employ less than 50 people per mill, nearly all are small businesses.

In 2008, total North American installed capacity was 4.2 million metric tons. The U.S. installed capacity was set to reach 6.2 million tons in 2009, but not all announced pellet mills were built. Also, very few (if any) pellet mills are currently running at capacity. Ozark is running at less than fifty percent capacity (70,000 tons per year). Over 80% of U.S. pellets in 2008 were consumed/burned domestically. The remaining pellets were exported to Europe. That being said, the last few years have been extremely difficult for the pellet industry. The production of pellets is extraordinarily down and many mills have ceased operations.

### **Section 2 - Costs/Market/Economics**

The costs to manufacture pellets over the last few years have increased with raw material costs.

The increased demand for raw materials to other markets that are either subsidized or can pay more for the raw material have put pressure on pellet plants to either match the price or obtain another source of raw material. This happened at Ozark Hardwood Products. With the decrease in the traditional raw materials we could obtain for our plant we had to add costly equipment to process the new streams of raw materials we were not prepared to use previously. We had to spend over \$1.5 million on a debarker and chipper just to stay in business. After we installed the debarker and chipper we increased our employment to 22 people and created over 100 indirect jobs for the forest industry. Since the market and economic times have taken a turn for the worse we have had to lay off 12 employees and the indirect labor number has dropped to under 20 people. OHP hoped that the market would continue to be strong and demand for pellets at the retail level would remain the same, but that has not happened and is again threatened with the NSPS restricting the types of pellets and the stoves that can burn them. With the new PFI standards on pellets we have also had to purchase onsite testing equipment to ensure that our pellets meet the new regulations. This has been an expense of over \$50,000 and does not include the employee that we need to hire or have trained to operate the equipment. Economic times are extremely tough right now and there is no incentive for people to purchase wood pellets, this has put a huge burden on wood pellet plants and forced numerous mills, including ours, to stop production or close until the market either changes or they are forced to cease their business operations. NSPS can make these problems worse if it restricts the types of pellets and appliances that burn them.

### **Section 3 - Emissions/Technology**

Pellets are the cleanest form of biomass fuel. The pelletizing process makes pellets that are uniform in size, shape, moisture, density and energy content. That being said, it is difficult and, in some cases, uneconomical to make pellets better than what they are. The feedstock determines the characteristics of the pellet. Pellet manufacturers can have as few as five sources of feedstock and as many as forty. Each batch of feedstock that a pellet mill receives varies as well.

In order to fully understand the pellet industry one has to understand how pellets are made. Pellet manufacturers take biomass materials and refine them into pellets that are uniform in size, shape, moisture, density and energy content. Pellets go through a full range of manufacturing processes which can involve debarking, chipping, drying, and hammer milling. Basically, pellets are produced by putting biomass through a hammer mill which reduces the particle size yielding a uniform sized biomass fiber. Next step in the process is drying the biomass to a moisture level that can be pelletized. The biomass is then fed through a pellet mill where it is forced through a die producing a pellet to the required specifications. The high pressure of the press causes the temperature of the wood to significantly increase, and the natural lignin in the wood binds the pellet together as it cools. Because the wood fibers are broken down by the hammer mill, there is little to no difference in the finished pellets between different wood types. This gets to the heart of the standards for wood pellets.

The PFI Standards Committee has been meeting weekly to address the standards program components that need to be bolstered or amended to address EPA's concern and necessities. Based on feedback from the EPA, PFI membership and the industry, the PFI Standards Committee has updated the current program documents. The major change to the PFI standards is the addition of third party verification. EPA raised this issue with the PFI and it has been addressed. The structure of the draft versions of the program documents has been approved by the PFI Board of Directors and continues to be analyzed and edited. I have attached the PFI

Residential/Commercial Densified Fuel QA/QC Handbook and the PFI North American Certification of Residential/Commercial Densified Fuel Manual. These documents are the basis of the PFI pellet standards and should be utilized by EPA for the NSPS revision, but still administered by the PFI. Gil Woods has indicated several times that the new PFI pellet fuel standards are near acceptable to EPA and would rather the PFI administer the program. PFI is confident that we as an industry, with third party verification, can and should administer the standards program.

Another issue that has been raised is that the Best Demonstrated Technology (BDT) for pellet stoves is based on flawed data. Emissions' testing on pellet stoves has been done with softwood, super premium pellets out of the Pacific Northwest. Using these pellets discounts/discourages/dismisses hardwood pellets in the Midwest and Northeast. 1% ash pellets are readily available to most of the country and should be used to determine BDT since it is the most readily available and the most frequently used. Most of the BDT data for pellet stoves is based on pellets that are .5% ash or lower. If the current BDT data is used to determine pellet stoves BDT, most of the pellets manufactured in the U.S., especially those using hardwoods in the Midwest, East, and Southeast, will not be certified to be used in pellet stoves. This will negatively impact the pellet production in these areas and could result in the closing of pellet mills.

If the NSPS harms the pellet stove industry and only a few lines of pellet appliances are available after this revision, the wood pellet industry will be detrimentally impacted. With over 80% of the U.S. pellet industry in the residential bag market for use in pellet stoves we can certainly see pellet mills closing if pellet stove manufacturers are forced to bring their emissions so low that only certain pellets can be used. That is where some of the NSPS "options" for pellet stoves are being considered. The pellet industry hopes that the decisions by the EPA do not result in the closings of pellet mills due to the NSPS restricting the types of pellets that can be burned and making pellet appliances, which are already the cleanest burning biomass appliances in the market, further reduce their already low emissions. More attention should be given to the higher emission appliances where greater emission reductions can be achieved economically than by forcing pellet appliance manufacturers to invest in technology that will result in negligible emission reductions.

## **Comment 9 – Jim Buckley**

As one of the too few Small Entity Representatives (SERs) representing the masonry fireplace industry, I merely want to summarize what my colleagues and I have already said.

Attached are the Comments I originally submitted at the first SER meeting on 6/29/10. I still stand behind them. If I have anything to add as a result of the last few weeks it would be to emphasize that there are no masonry fireplace manufacturers - only manufacturers of components such as dampers, firebrick, clay flues, mortar, brick and block. This disconnect is very obvious when we try to complete the "Questions for Small Entity Representatives (SERs)" sent out on August 18, 2010. Most of the questions are "not applicable" to any of us. I attach my efforts so you can see my point.

Fellow SERs, Chip Clark, BIA, representing the larger masonry industry submitted many good ideas and Jeff Buczkiewicz, MCAA, rounded up a number of mason contractors to give Gil Wood their ideas in a telephone conference on August 18.

Bob Rucker, Janet Whitacre Kaboth, Ann Engh, Johnathan Walters and Dick Brandt, who are not official SERs but who each own companies that manufacture clay flue liners, firebrick or refractory mortar, have submitted well considered comments. Even though they sent in their comments directly, I attach them here just in case they need to be submitted by an SER in order to be included in the official record.

So, as I see it, addressed from different perspectives with lots of different reasons, our recommendations can be condensed to two:

**1) Exempt one-of-a-kind custom masonry fireplaces from New Source Performance Standard (NSPS) Regulation.** Not many custom masonry fireplaces are built, they are inherently clean-burning, typically used only occasional and just are not much of an emissions problem. And, because there are no masonry fireplace manufacturers, regulating one-of-a-kind custom built on site masonry fireplaces would be logistically difficult.

**2) Try the new EPA Voluntary Wood-Burning Fireplace Program.** Local areas that feel they must regulate fireplaces have a solution. They can regulate fireplaces by using the EPA Voluntary Wood-Burning Fireplace Program. So far, only a few fireplaces (mostly manufactured metal fireplaces) have been tested and EPA qualified, but none have been approved by any major air quality management district. Working with local regulators to try to make this program work would give the EPA a good idea of the difficulties, marginal effectiveness and real costs of regulating custom, built on site, masonry fireplaces.

### **Comments Presented at the Pre-Panel Outreach Meeting with small Entity Representatives (SERs) June 29, 2010**

#### **by Jim Buckley, representing clay flue liner manufacturers**

The more than 50,000 masonry fireplaces built last year were typically built by small contractors - often just a skilled mason and a helper. Few residential mason contractors have more than ten employees. In fact, with few exceptions, the home-building industry, as a whole, is made up of small mostly family-owned businesses. Contractors are often required to be licensed and insured but the building codes regulate the way a fireplace or home is built.

Brick, mortar, concrete, lumber and other building materials are sold through other typically small family-owned businesses.

Even the manufacturers of masonry fireplace components - firebrick, clay flue liners and dampers - are all very small businesses, employing less than a fifty people - more often less than twenty people. They do not design or regulate the construction of masonry fireplaces. They do not have inhouse test labs or legal departments.

Thirty-five years ago when the EPA began regulating stove emissions, masonry fireplaces were judged to be "inherently clean-burning" and exempted from regulation. That still makes sense to us.

Fireplaces use a renewable fuel (wood) and can save energy by heating a room instead of heating the whole house - usually with fossil fuels.

Most masonry fireplaces are used for space heating, ambiance and when there is a power outage - in other words, only occasionally.

Fireplaces are part of our cultural heritage and while they do pollute a little, so does driving to the grocery store.

As the letter of invitation from Ms. Lucinda Power states, the EPA is charged with a "commitment to minimize the burden of its regulations on small entities." The PowerPoint presentation Ms. Power attached to her letter makes the claim that cleaning up fireplace emissions will have "very large benefits" while the costs might vary but will be manageable, inferring from the example provided, maybe raising the price of a masonry fireplace by about 25%.

We in the masonry industry would like to question that assessment. How were these "benefits" determined? They seem exaggerated to us. What are the underlying assumptions? We think the proposed regulations would eliminate traditional masonry fireplaces - put many small contractors in the residential masonry business, most of their suppliers and the manufacturers of firebrick, clay flues and dampers out of business. And make a noticeable dent in brick and block sales. That doesn't seem manageable or acceptable at all. It would be very disruptive to the masonry industry and the home-building industry - akin to regulating carpenters, plumbers and electricians to the point that only manufactured homes could be built.

At the very least, since our industry of many small family-owned contractors isn't even aware of the proposed regulations, we think the EPA must take much more time to understand the industry and maybe find a way to build the regulations into the existing building and energy codes.

Making the existing EPA Voluntary Fireplace Program work is a way to regulate fireplace emissions right now where it's perceived to be important in some areas in the West. Even with the Voluntary Program masonry fireplaces have been all but eliminated in places like Denver and the Bay Area which, incidentally, would be good areas to study the real costs and benefits of regulating fireplace emissions.

We conclude that at this time including fireplaces in the NSPS regulations is not a good idea. It would put several hundred thousand people out of work and destroy an entire segment of the masonry industry without, we think, much noticeable benefit.

### **Questions for Small Entity Representatives (SERs)**

#### ***Revision of New Source Performance Standards for New Residential Wood Heaters and Additional NSPS(s) for Other Residential Solid Biomass Combustion Devices***

**Additional information from the SERs will help inform EPA analyses of potential options.**

**Answers in Red attempted by Jim Buckley who is an ex-mason promoting Rumford fireplaces but, as an SER is working to represent the masonry fireplace industry as a whole.**

#### **Industry Profile**

- How many manufacturers are there for each of the product categories?

[e.g., wood stoves, pellet stoves, other solid biomass stoves, masonry heaters, manufactured fireplaces, site-built fireplaces, fireplace inserts, outdoor stoves, indoor and outdoor hydronic heaters and boilers and forced air furnaces, coal burning stoves, cook stoves, single-burn-rate products, pellet fuels, etc.]

**There are no manufacturers of site-built masonry fireplaces in the sense that there are manufacturers of stoves or manufactured fireplaces. There are manufacturers of firebrick, clay flues, mortar, dampers, brick, block and concrete - none of which design or manufacture fireplaces.**

- How many technically different products or model lines does each manufacture produce?

**As many as there are fireplaces - perhaps 50,000 last year - if you understand the "manufacturer" to be individual masons who build one-of-a-kind masonry fireplaces.**

- What is the market share in the U.S. for each technically different product from each manufacturer?

**Collectively about 5%**

- How many products on the EPA and/or WA certified lists are no longer manufactured? Do these tend to be higher emitting products and/or less marketable products?

**None.**

- How many manufacturers are small businesses [per product categories]?

**All of them.**

- How many manufactures are members of HPBA? BIA? MCAA? MHA? MHOP? PFI?

**Just a handful whether you mean masons or firebrick, clay flue, mortar, damper, brick, block and concrete manufacturers and some of those would belong to NCMA or PCA.**

- How many foreign competitors are there [per product categories]?

**Virtually none yet quite a few masons are recent immigrants from Russia, Ireland, and Latin America.**

- What is the best estimate of the percentage of new manufactured wood-burning fireplaces versus new site-built fireplaces?

**90% to 95%**

- Do you have in-house testing capability? If so, under what circumstances, if any, would you use an outside lab? If you don't have in-house testing capability, at what NSPS level would you consider adding that capability, and what are the projected costs? Please be specific about cost elements.

**No in-house testing capability.**

#### **Costs/Market/Economics**

- What are current and projected shipments per product category?

- The industry ships enough flues, firebrick, dampers, etc to build 50,000 fireplaces nationally. Here we are shifting to one company's perspective. I represent the industry or at least the Clay Flue Lining Inst. so will answer for the whole masonry industry rather than as one exmason contractor.
- What are average shipments per model line?  
The industry doesn't think in terms of model lines.
- What are current and projected revenues per product category?
- N/A
- What percentage of total company revenues are the revenues per product category?
- N/A
- How many products do you have per category? What business decisions drive how many models are offered? What is the range of percentages of sales per model versus total sales per category? How would a more stringent or more inclusive NSPS affect your offerings? Will your offerings change depending on how stringent the NSPS may be? If so, can you explain at what NSPS levels your offerings are expected to change?
- NSPS regulation of masonry fireplaces may have a devastating impact on the sale of firebrick, clay flues, mortar, dampers, brick, block and concrete and the manufactures have no more control over that than a saw mill might control the construction of homes.
- What is the average lifetime of a product line before you feel you need to make cosmetic changes? How often do you make changes that require recertification? How often do you make changes only to reduce emissions and/or improvements in efficiency?
- Virtually never.
- What percent of revenues do you spend on raw materials, labor, energy, other production costs, R&D, safety compliance testing, emission compliance testing, marketing, aesthetics and design, service, warranty claims, or other costs (please specify)? Please give percentages for each.
- Raw materials, labor, energy are high. The other categories don't seem to apply since we do not manufacture fireplaces - just the components to build them.
- What are typical costs to develop new models? How much of this cost is for new and improved features? How much is for product performance/durability? How much is for safety? How much is for efficiency improvements? How much is for emission reductions?
- N/A We don't manufacture masonry fireplaces - just the components.
- If you have products qualified under the EPA voluntary programs for fireplaces or hydronic heaters? If so, what costs did you incur per model line to develop those units? Would these costs decrease with future units? What are the number of units in the model line?
- N/A
- How did the 1988 wood stove standards affect the number of manufacturers in the wood stove marketplace? How many exited the business, compared to the number previously in business. How did this affect the number of models offered by each manufacturer? Explain the other economic effects of the 1988 NSPS.
- We have no idea.
- What would be the effect of NSPS on voluntary programs? What are the advantages and disadvantages of continuing the voluntary programs on certain product categories?
- To the extent that we understand the new EPA voluntary wood-burning fireplace program, we'd like to try it. So far only a few manufactured fireplaces have been tested and become EPA "qualified" and none of those have been approved by any major local air quality management district. Though fraught with problems in regulating custom, built on site, one of a kind masonry fireplaces, we'd like to see it work somewhere before rushing headlong into a national mandated NSPS program.

- How would an NSPS affect the effectiveness of the voluntary programs?
- Probably kill it - along with the industry.
- Please comment on the accuracy of the emissions inventory listed in slide #4 of the June SER presentation.
- We have no idea if the figures are accurate but, if they are, it would appear that masonry fireplaces are responsible for about 5% of the 51,132 tons attributed to fireplaces - about 2,556 tons or about one tenth of a percent of the total problem - a minuscule amount to justify putting a whole industry out of business.
- How would regulation of manufacturer-built fireplaces alone affect the stick-built market?
- If only manufactured fireplaces were regulated and "stick-built" or custom masonry fireplaces built on site were exempted, probably the number of masonry fireplaces built would not be affected. When in 1997 manufactured fireplace emissions were regulated in Washington state but "one-of-a-kind masonry fireplaces" were exempted, the number of masonry fireplaces built continued to decline at about the same rate as they did nationally.
- How would a trade association design masonry fireplace designs and avoid antitrust concerns and competition concerns? Who would pay for testing these designs at test labs? How would these designs get incorporated into national model building code, and how long would this take (or can this happen without building code approval)?
- The masonry trade associations will not and cannot design fireplaces and act like manufacturers. Trade associations in the past ten years have spent only a few thousand dollars to test some generic ideas to help with code and ASTM standards development.
- What is the cost to renew a certification under the NSPS? Please provide cost elements (e.g., testing, transportation to test lab to view test, cost of appliance, etc.)
- N/A
- What licensing or partnership agreements are typical for manufacture or sale or branding of new products?
- N/A
- What are the average price to manufacture and the price range per product category?
- N/A - we can only talk about the price of flue liners, firebrick, dampers, brick, block and mortar all of which have remained about the same for the past few years in this slow economy.
- What can you say about the costs to produce lower emitting units compared to the costs to produce higher emitting units?
- N/A - Can't imagine who would do it. No one produces low or high-emitting units. The question presumes a different industry and a different way to build fireplaces. It's like asking a tire manufacturer how much it would cost to design an electric car.
- What is the price elasticity of demand for various product categories? [i.e., how does price affect customer demand]
- N/A - In general masonry fireplaces cost anywhere from about the same as a manufactured fireplace to much more than a typical manufactured fireplace. This is usually driven by the productivity of the mason contractor and the level of design detail. A stone fireplace in a remote location will cost much more than a simple brick or stucco fireplace in a development of ten homes all with similar fireplaces.
- What is the price elasticity of supply for various product categories? [i.e., how does price affect manufacturer supply]
- Price is a major reason why builders have switched to manufactured fireplaces in production homes.
- What are the market drivers for those of your typical substitute competitors [e.g., gas-fired stoves, electric stoves, etc.]?



- N/A - those are not typical substitute competitors for masonry fireplaces. Some customers prefer gas logs but they are installed in masonry fireplaces so cost an additional amount.
- What are your typical “markups” and returns on investment?
- Manufacturers of most components like brick, block and mortar, as well as their distributors and dealers, have low margins. Building materials are basically commodities.
- How do markups vary for different distribution channels, e.g., direct sales, internet, wholesalers, retailers, contractors, homebuilders, public?
- The components to build masonry fireplaces are typically distributed and sold through independent masonry materials dealers. Because they are heavy and inexpensive, the freight is relatively high which favors local American made materials and not internet sales or direct sales in which the shipping in small quantities may be ten times the cost per pound as in full truck loads.
- What local, regional or international market factors and key drivers are important?
- It's all local except that when the number of companies diminishes, the remaining companies tend to have a wider market.
- What are typical costs for installation, maintenance, and warranty claims per product?
- Installation - or using the basic components and materials to build a fireplace - is where most of the skill and cost are. Skilled labor to build a fireplace might be three or four or even ten times as high as the cost of all the materials. Mason contractors must build to the building code, are typically licensed and subject to other business regulations. Manufacturers guarantee the product they make meets the required ASTM standards and masons typically guarantee their work. There is very little maintenance required.
- What are typical product lifetimes and warranties?
- Masonry fireplaces can last 100 years or more. Few masons are around after that but usually will warranty their work.
- What percentages of sales are for replacements of similar or different product categories?
- Usually a masonry fireplace is built as part of the house and lasts as long as the house. There would not be the occasion for a "similar or different" product unless a new house was built or remodeled or a room added.
- What are the estimated impacts (costs, otherwise) for masons to comply with an NSPS for site-built fireplaces?
- We are trying to figure that out and so far don't really have any idea. It would seem unwieldy and very expensive to require that every fireplace be tested for emissions. What if it didn't pass but there is was 80,000 pounds of stone in the middle of a completed house? So far only a handful of "systems" that struggle to assume some of the attributes of manufacturers have done any testing as all. Even if they are successful, two sizes of a Rumford-style fireplace or a couple of Isokern models do not take the place of 50,000 one-of-a-kind, built on site, custom masonry fireplaces. At best they would just be manufactured fireplaces albeit made with more masonry and less metal components. Even if this is the future of our industry, we are not there yet and the transformation from an industry of small independent family owned businesses into a few national scale masonry fireplace manufactures is a long way off and probably not even desirable. It seems akin to requiring all homes to be manufactured rather than be custom built on site.

#### Emissions/Technology

EPA is interested in all additional emissions and efficiency data that the SERs may have that they have not already supplied and that they believe would be useful. The following would be especially useful:

- Data that show comparisons between Method 5G and 5H
- N/A

- Data that show comparisons of EPA Method 28 OWHH, EN 303-05, and CSA B415.1
- N/A
- Data that show comparisons of emissions and efficiencies with various levels of heat storage
- N/A
- Data that show initial and long term emission and efficiency results for different technologies, e.g., performance over time of catalytic and noncatalytic wood stoves and pellet stoves
- N/A
- Data that show emissions at different burn rates, frequency of operation at different burn rates, quantity of fuel burned, and technologies/techniques to avoid operation at lower burn rates with typical lower efficiencies [per product categories]
- N/A
- Data that show collateral benefits of reductions of other criteria pollutants, toxic pollutants [e.g., B(a)P, dioxin], greenhouse gases, and black carbon as PM emissions are reduced and as efficiencies are increased
- N/A
- Data that show comparisons of emissions for different fuel quality or loading characteristics [e.g., ash content, ash fusion point, moisture, size, species, fuel density, load density, etc.]
- N/A
- Data that show effects of different types/quality of wood pellets and other biomass pellets.
- N/A
- Data that show emissions/efficiency of coal stoves, cookstoves, etc.
- N/A
- Data that shows the variability of test results – both in lab variability and lab-to-lab variability.
- N/A
- The only testing the masonry industry as has done has been in the effort to develop and verify the ASTM E2558 fireplace testing standard. A few of us have heard of Method 5G and 5H and have some passing knowledge from the literature and from the test lab technicians about pellets, different burn rates, etc. but we have no real knowledge or experience with any of the above. Two or three masonry "systems" privately and somewhat secretly tested to the 1997 Washington fireplace emissions standard but then masonry fireplace were exempted so there was no follow through.

#### Labels, Hangtags, and Educational Materials

EPA is interested in ideas that would make these materials easier for the consumer to understand and those ideas that would help respond to the interests of manufacturers, retailers, and consumers. A particularly challenging task is how to foster a common look and feel and brand for "EPA-certified" but also distinguish among different appliances and different emission levels, heat outputs, efficiencies, etc. EPA consider this to be an open slate on how the necessary information is displayed and conveyed to the consumers and States that depend upon this information.

- What suggestions do the SERs have on how to improve the requirements for labels, hangtags, owner's manuals, and certification list?
- We have no experience with labels and hangtags. Some of us participate in various training and certification programs usually by donating money to the schools and unions that do the training.
- What suggestions do the SERs have for improving our BurnWise website ([www.epa.gov/burnwise](http://www.epa.gov/burnwise)) and associated outreach materials?
- We think it's pretty good. We could help spread the word by getting notices in our masonry

materials yards where firebrick, dampers and other fireplace components are sold. Being exposed to the materials would probably help our counter sales staff too.

- How can the hangtags be made more appealing?
- Why does it matter? Seems the point is to be noticeable. And they are removed after the sale/ installation/ construction, aren't they?
- How can we get the BurnWise messaging more successfully received by consumers?
- In the case of masonry fireplaces, tell customers about the program maybe by providing a Burn Wise pamphlet with every masonry fireplace.

## Comment 10 – Frank Moore

HPBA will respond to Industry Profile questions. With the help of manufacturers from the Outdoor Hydronic Heater Caucus of HPBA, I will comment with specifics from our company and will add comments supplied by competitor companies.

Hardy Mfg. is a family owned company since 1976 that has approximately 100 employees in Sales and Manufacturing with over 500 nationwide dealers. Our future business is dependant on providing consumers an affordable, durable, efficient and clean wood burning appliance. The GOAL is to balance these requirements so a consumer can get a good return on their investment. My fear is Best Demonstrated Technology may not be appropriately durable, too complicated to operate and with such a high initial cost that consumers will return to fossil fuels and not utilize America's abundance of renewable carbon neutral energy. Before this industry is regulated completely out of existence, we ask that we be given a chance see if the Phase 2 requirements will be affordable and durable to consumers. We feel a 90% reduction in emissions is a giant step for this industry in the last 3 years when it takes some of us that long to get a new product to market after it passes the emission tests. Solar and Electric automobiles may be Best Demonstrated Technology but I do not feel banning the use of gasoline and diesel powered automobiles would meet any cost/benefit ratio.

Hardy Mfg. built its own testing facility with the help of an EPA certified test lab using the same test monitoring equipment. Our results have been comparable to other EPA certified labs when testing the same device. The cost of one battery of tests as required by EPA 28 OHH test protocol can be as much as \$25,000 and take one week of round the clock testing. Because of this, we only use certified labs to certify our unit that we feel very confident will pass the emission requirements. Daily R&D testing is a must because of the stringent requirements of Phase 2. Our estimate for building our own test facility is as follows: 1. building - \$40,000 2. Testing Equipment - \$50,000 3. Operations (wood mgmt., personnel, expenses) annually- \$150,000.

### Emissions/Technology

- A. Data for comparison of Cordwood as per ASTM 2618 and crib wood as per EPA 28OHH just recently showed similar results. We have not tested to the burn rates of CSA B415.1 but have projected results to be some lower since the ultra low burn rate required by 28OHH is not such an issue. As a manufacturer, we will instruct the consumer to never use their heater when the demand is lower than 40% of the rating. This is a requirement of the test protocol that did not take into consideration the new gasification technology that precludes the use of these appliances when the demand is low. We have not tested to the European test method E303-5 since their emission does not use the dilution tunnel method and their dust collection is taken at stack temperature and only at 100% burn ratings. This may be the reason that as of today NO European appliance has passed the EPA 28 OHH test method. Why our regulators are so enamored with this technology is a mystery to me. What happened to "Buy American"? Heat Storage is a method of reducing emission catch by not having to operate at low burn rates. It also adds significant cost to a hot water heating installation and requires building space that some home owners are not willing to give up.
- B. Test lab variability. We have tested two cordwood burners and one pellet burner at certified labs versus our own test lab and the particulate catch has been very close but the efficiency result comparisons have been major issues.

### Labels, Hangtags, and Educational Materials

Hang tags should be GREEN. Heat outputs and efficiencies should be a common thread among all wood heating appliances. Emissions and Efficiency should be the goal of the new NSPS. The Burnwise website is filled with

negative information about Outdoor Hydronic Heaters. It would be fair to inform the public just how much the manufacturers have been trying to clean up their industry in the last few years instead of proliferating fear. It is obvious these articles were written by people with an agenda to harm the future of our industry. The Burnwise web site could inform the public that the improved efficiency on new gen wood burners would be worth a change out program.

My major problem with The NSPS on Hydronic Heaters is the new limits being looked at for 2014. The passing grade keeps moving with no regard for benefits to consumers. Phase 1 was a 70% reduction in emissions. Phase 2 is a 90% reduction in emissions. Why in good conscience would we require the consumer buy a 95% reduction in emission appliance, when the cost to produce these extremely clean appliances would not justify the purchase. If a consumer can not get a good return on their investment they will not buy these costly units and they will just keep repairing their old units and never take them out of circulation. It seems we need to give the consumer an incentive to remove the old units and replace them with an affordable clean unit.

## Comment 11 - Brian Klipfel

Based on the Aug. 10<sup>th</sup>, 2010 document “Questions for Small Entity Representatives” as well as the Power Point “Wood Heaters NSPS SBAR Panel Presentation 8-11-2010”, I would like to take this opportunity to make a few comments on the proposed NSPS concerning masonry heaters:

1. I build approximately 12 masonry heaters every year. I build several different heat exchange designs, but the firebox is standard. The firebox is designed based on MHA associate research for the cleanest overall performance. Changes to the firebox or heat exchange can most likely be made based on future testing results without dramatically affecting the heater’s appearance, labor, or materials.
2. A basic hand built masonry heater costs from \$15-25,000. Materials typically cost 50% of the heater price. Labor is about 40%. Design and marketing are both about 5%.
3. I do not currently have any in house testing for my masonry heaters. I am currently working on a CONDAR test station in my shop to start in house emissions testing. I am hoping to ensure that if I need to test a masonry heater design in an EPA accredited lab, I can be confident of the results before the accredited testing begins. I estimate the changes to my shop and masonry heater installation will cost about \$10,000. The CONDAR test unit with calibration gases will cost an additional \$10-15,000. I estimate the cost of in house testing will increase my heater pricing ~5%.
4. The cost of testing a heater design in an EPA accredited lab will be ~\$10,000 for the heater construction and an additional \$10,000 for the testing. I estimate this would also increase my heater price 5-10%.
5. If a third party verification of the on site design is required, I would estimate an additional 5-10% on the cost of the masonry heater.
6. I am very concerned about the 7.5g/hour limit. This is counterintuitive to why a masonry heater burns so cleanly- heaters burn at high temperatures and high burn rates. Decreasing the firebox and load size or reducing the burn rate will reduce the heaters effectiveness and simplicity. The owner will have to burn smaller loads more frequently.
7. The popularity of masonry heaters is increasing, especially among “green” building enthusiasts. New homes built for near zero net energy are my largest market currently. A well designed home for a family can be heated with 40-50lbs of wood a day or about 2-3 cords a season. The steady low-grade heat output of a masonry heater is ideal for these applications.
8. Heaters are built with locally available materials. They require no external power for clean combustion. Heaters have a very long functional life. Heaters have a twenty plus year life span, requiring little maintenance (just a yearly chimney inspection and ash clean up). Any skilled mason can learn to build a masonry heater.
9. I am also concerned that exempting heaters from the NSPS will effectively also destroy the masonry heater industry. Many air sheds now require EPA Certified Stoves only. Without a pathway to approval,

masonry heaters will eventually become impossible to install even though exempt. I would welcome a NSPS standard that allows heaters to be built to a tested standard and field verified. That test standard needs to take the heater's unique performance and function to re-evaluate the 7.5g/hr limit. Again, I believe it would be better to look at the 24 hour output cycle of devices or to interpret emissions based on g/mega-joule

## Comment 12 – Dean Lehman

The size of the coal stove industry makes regulating almost economically impossible. If you were to take all the manufacturers that produce only coal stoves and add them all together you would not get to 500 employees. We are talking very small companies without the capital behind them to be able to afford this kind of testing and equipment. It was estimated that when the EPA regulated wood stoves in 1989 that 60 to 70% of the woodstove manufacturers went out of business. The ones that survived were the large companies. The problem with the coal stove industry is it is such a small segment that there are no large companies producing only coal stove so it could almost eliminate the industry.

Of the manufacturers that produce only coal stoves, there are none that I am aware of that have their own lab in house. I am aware of several manufacturers that produce a line of coal stoves along with many different fuel line appliances that do not have in house labs, one that is building one, and one very large company that does have one. Will these few companies use their labs for their coal stove lines? That will remain to be seen. Their lab space will have to be allocated to other fuel lines that will now come under the NSPS and that account for much more of their sales. For most, their coal stove portion of sales is the smallest segment they produce.

My company, Hitzer Inc, one of the leading manufacturers producing only coal stoves, does not have an in house lab. We have 20 full time and 3 part time employees. We produce 12 different model lines and average less than 2400 units per year. That averages around 200 units per model line per year. Taking the average estimated cost of wood stove emissions testing of around \$20,000 per model including travel, lodging, and other expenses associated with company engineers, it's very hard to justify for 200 units per year. That does not include countless hours and thousands of dollars of R&D. With no in house lab to know if you are even close, you then take the \$20,000 dollar gamble on the emissions test.

It is impossible to place a real cost on the emissions test simply because there is no test procedure. We did manage, with the help of the HPBA and Intertek, an attempt at some very initial testing on some West Virginia bituminous coal. With the help of the lab techs and engineers at Intertek we were able to determine that the wood stove test procedure will not work. We were unable to get any numbers. With no workable test procedure in place there is no way for the test labs to quote costs for the tests.

Another problem with coming up with a test procedure is the variability of the coal itself. All the different coal varies so much in how they burn. A stove tuned to burn Pennsylvania anthracite will have a real problem burning West Virginia, Alaska, or just about any other states bituminous coal. Even a stove tuned to burn bituminous coal will have a problem with the sub bituminous, and lignite.

The USA has vast amounts of coal. I have heard us referred to as the Saudi Arabia of coal. It would be a shame to not be able to use the domestic fuel for home heating and have to rely on foreign oil instead. We are always better off to keep our money here instead of sending it overseas.

It is the mandate of this panel to determine the impact of new rules on small entities. It is my opinion that it would have a devastating effect on the coal stove industry. At a time like now when our country and economy are struggling is not the time to saddle small businesses with more regulations that have the potential to force them out of business or make it very hard for them to function. It would not only effect stove manufacturers but also have a domino effect on small businesses that support them. It would also effect federal, state, and local governments as they loose tax revenues and more people join unemployment lines. All this for a segment of the home heating appliance industry that even the EPA in their presentation said doesn't even register on the list of



the national inventory of PM 2.5 emissions. In other words we can completely clean up all the coal stoves to zero emissions and not produce a measurable benefit. That really brings the cost to benefit ratio in perspective.

## Comment 13 – Tim Seaton

### TIMOTHY SEATON/TIMELY CONSTRUCTION BIO:

I am a third generation masonry contractor originally from Oregon and for the last fifteen years from Washington. I live within the economic sphere of the Portland, Oregon metroplex across the Columbia River in southwest Washington. I hold a Bachelor of Science degree from Oregon State University in Civil Engineering and a Master of Arts degree in an unrelated field. I am employed by the masonry construction company I started twenty years ago. Before that I worked as a sole proprietor in masonry construction and for a family firm beginning at the age of five.

I started Timely Construction, Inc. ([www.timelyconstruction.com](http://www.timelyconstruction.com)) in 1990 to engage in the fields of residential and commercial masonry and ceramic tile construction. We are licensed in the states of Washington, Oregon and Idaho and have working arrangements with firms in other states including California and Alaska.

We entered the field of masonry heater construction in the early 1990's due to an interest in building one for personal use. Gaining expertise in the field, we did installation subcontracting for other firms including Maine Wood Heat Co. (the source of our original training), Moberg Fireplaces, Inc. and others. We have installed most of the masonry heater products available in the North American market and are currently acting as installers/dealers for Maine Wood Heat's Albicore masonry heaters, masonry cookstoves, and Le Panyol bakeovens; for the Swedish Gabriel Cronspisen masonry heaters (kakelugns); for the Finnish Tulikivi masonry heaters and masonry cookstoves and bakeovens; for the Moberg Fireplaces, Inc. masonry heaters and Rumford fireplaces; for the New England Hearth and Soapstone Helios masonry heater, and for the Empire Masonry Heater Envirotech products. We install other masonry heater products as well as custom masonry heaters and bakeovens as required. We were until recently the manufacturers of the Envirotech masonry heaters. In addition we do consulting work and occasional installations of Rumford masonry fireplaces. Our revenues are typically more than 90% masonry heater and wood-fired bakeoven related.

I am currently serving as the chair of the Hearth, Patio and Barbecue Association's (HPBA's) Masonry Heater Caucus, and as the President of the Alliance of Masonry Heater and Oven Professionals (AMHOP; [www.masonryheaters.org](http://www.masonryheaters.org)), a trade group representing the masonry heater industry by business membership. AMHOP members currently produce about 80% of the masonry heaters sold in North America in a given year. I have also been involved for several years in the efforts to establish industry technical standards through the ASTM process, currently serving as the Masonry Heater Task Group secretary. We are just finishing the first North American masonry heater emissions test standard with EPA.

### ANALYSIS OF EPA PRESENTED MATERIALS SUBMITTED TO DATE

Frost and Sullivan; Project: Market Research and Report on North American Residential Wood Heaters, Fireplaces, and Hearth Heating Products Market (P.O. # PO1-IMP403-F&S), 4/26/2010

- Perhaps not germane, but in the interest of truth, the statement of masonry heater efficiency on page 17 states, "Well-designed masonry heaters can be very efficient, generally reaching efficiencies up to 90 percent." A caveat should be added here, to which many working in both my industry and in the regulatory realm seem to be unaware and should attend: the European hearth and testing industries report hearth appliance efficiency differently than their counterparts in North America. Without going into the technical details, the same appliance will be accounted a significantly higher efficiency in Europe than in North America. The highest masonry heater efficiency I have seen in a third party accredited North American lab testing report so far is 65%<sup>1</sup>. This is not surprising as we are still working to

create an appropriate masonry heater efficiency testing protocol and North American labs have not been measuring and reporting efficiencies since early experimental days back in the early 1990's.

The 65% number would have been about 72% in Europe<sup>2</sup>. Austrian design protocols routinely design heaters with efficiencies well into the 90% range by their accounting (EN 15544, 90% European≈80% North American). The highest efficiency for a heater sold in North America for which I have enough lab data to make the conversion is about 85% (European)/72% (North American)<sup>3</sup>.

- “Masonry heaters are mostly used in the Northeast region of the United States and the East region of Canada” (page 46) is misleading; significant markets exist in the upper Midwest and especially in the Pacific Northwest, as well as growing markets in Alaska and Western Canada although populations there are lower.

- “In addition, because the units not covered by the current New Source Performance Standards (NSPS) produce a little more than one-third of the total air emissions from residential solid-fuel burning, setting emissions standards for currently exempt appliances, such as fireplaces, hydronic central heating systems, *masonry heaters* (italics mine), and other solid biomass-based stoves, can help to significantly improve air quality” (page 51) is in fact not factual in regard to masonry heaters.

Masonry heater technology has already been refined over several centuries and is already extremely low in emissions. “(In) fact ..... these units are arguably the cleanest-burning appliances in the market. Well-designed masonry heaters can potentially generate more heat and, more importantly, produce less pollution than any other wood-burning or other solid biomass-based appliance” (page 17). The best industry estimate is that fewer than 25,000 exist in all of North America<sup>4</sup>, and given their extremely low market share there is little total benefit to be had in air quality improvement by any form of masonry heater regulation. If the entire industry were to be eliminated no measurable change in air quality would result. So far we haven't been able to build enough of them to do more than make a few customers very happy.

- Frost and Sullivan fail to mention the character of masonry heater production and producers. They all qualify as small businesses, most are in fact tiny. The Finnish firm Tulikivi manufactures and imports about half of the U.S. masonry heater units installed yearly through its network of installing distributors. In the last year for which I have data, North America represented less than three percent of their sales<sup>5</sup>. The second largest producer, the Canadian firm Temp-Cast, manufactures and exports a significant percentage of the remainder as internal core components only to U.S. dealer/installers and homeowners. I believe the U.S. represents the majority of their sales. There are no other masonry heater manufacturers anywhere near the size of even these firms. The remainder of the industry is dozens of small producers and installers who produce only a few units, most of which are very custom and individually designed. Emissions regulation to the extent EPA proposes will certainly wipe out this entire component of the industry if not the larger producers as well (see following).

Interestingly, as a fifty year veteran of the masonry industry, I have watched the “graying” of that trade and the increasing difficulty of successfully recruiting, motivating and training young masons. I have only observed one facet of the trade where the opposite is true, younger individuals breaking down the doors and trying to find a way to learn. That is in masonry heaters. Do you really want to risk closing that door?

Wood: Revision of Subpart AAA Residential Wood Heaters & Additional New Source Performance Standards (NSPS), June 29, 2010

- “Overview of Proposals under Consideration (page 17)”:

My company as well as many others in the masonry heater industry supplement our business by also building wood burning masonry ovens<sup>6</sup> and cookstoves<sup>7</sup>, sometimes independently, sometimes as adjuncts to masonry heater projects (the masonry cook stove is a traditional European product with a cast iron top similar in function to traditional North American iron cookstoves but made of masonry and very different internally). Both of these products can form a significant portion of income (I would be surprised if there were even ten U.S. businesses existing entirely on masonry heater income; there may not be any).

Although neither of these products is designed or used for residential heating, both are apparently to be included in this NSPS and potentially regulated by the EPA for emissions. We in the masonry heater industry are uncertain whether we will be able to command the resources to successfully go through NSPS for the masonry heater products. No one in the industry to my knowledge is able to devote resources to building a pathway to masonry wood oven and cook stove regulation. These products will apparently thus become non-buildable and that income, and the opportunity to serve those customers, lost. Those customers will certainly be cooking their food with other products having an emissions footprint somewhere! Tulikivi has told me they sold two masonry cookstoves in the U.S. this last year. We built one non-Tulikivi the year before, and will install one Tulikivi this year (probably one of the two sold last year). I suspect that no year has seen more than five such cookstoves built in all the U.S. Why is it necessary to destroy this source or income?

The resurgence and interest in the superior quality of the use of traditional wood fired ovens has resulted in several companies marketing products, some imported from Europe and some manufactured in the U.S. We formed AMHOP to also serve this industry but immediately were forced to turn all our efforts to the masonry heater NSPS. Only the masonry heater builders who also do bakeoven installations have any awareness of impending regulation, the rest and majority of this industry have no awareness they may be included. There are only small businesses in this industry.

- “Masonry Heater Example Options” (page 33)
- “*Industry* (italics mine) request for EPA to initiate voluntary program” is not factual. In fact, the proposal mentioned for a voluntary compliance agreement was made by the head of one testing lab with the knowledgeable support of only a few others. It is not an industry proposal. No one in either the HPBA staff or we in AMHOP participated in its preparation or were aware of its existence prior to its submittal to EPA. I have not been able to find anyone in the masonry heater trade association which paid for it who was aware of exactly what the proposal and its emissions target levels would mean. It was sold instead as the only solution to the regulatory problem which would be acceptable to EPA. All of us, and EPA, were working for a voluntary compliance program. This was not it.

**In fact regulation in the manner suggested, and to the levels suggested, will virtually certainly eliminate the U.S. masonry heater industry.** I do not say that lightly or flippantly. I say that as one who has spent the last few years devoting myself at my own and my company’s expense to trying to prepare for regulation.

- To adequately respond to the suggested masonry heater emissions levels the background of masonry heater testing must be addressed:
  - a. Europe has been testing masonry heater emissions for a long time; however, their marker for wood smoke regulation is the gas carbon monoxide whereas both Canada and the U.S. elected to regulate wood smoke based on particulate emissions. Virtually no research has been done to correlate the two for masonry heaters. While

the European testing measures what is usually translated “dust”, the collection method is significantly different and no European testing data can so far be used to statistically evaluate masonry heater performance to U.S. regulatory particulate emissions targets.

b. Masonry heaters have been exempt from NSPS regulation until now. Initial testing development was begun in the late 1980’s; in 1991 and 1992 the EPA audited a series of five tests of masonry heaters in actual home use; this became the basis for the masonry heater emissions numbers in their AP428 and other documentation. This first research showed just how cleanly masonry heaters were performing; the particulate emissions numbers were more similar to pellet stove performance than wood stove performance<sup>9</sup>.

c. In 2007 I was one of a small group in the masonry heater industry who prepared a white paper for EPA summarizing all known accredited lab particulate emissions testing data on North American masonry heaters<sup>10</sup>. I was tasked with keeping an archive of this data for that effort and for the ASTM standard setting process which has been working alongside. I do not know of the existence of any such data to which I have not had at least partial access. The archive I maintain on North American testing data is to my knowledge the most complete in existence as several companies have shared proprietary data specifically for our efforts with the ASTM and NSPS processes.

d. The states of Colorado and Washington as well as some air quality jurisdictions in California have passed mandatory masonry heater testing and approval regulations apart from the EPA. Colorado created its own masonry heater testing method in its air quality Regulation 4. The state of Washington created a fireplace testing method within its building code, WA 51-50-32100. Masonry heaters have been tested in North America primarily to gain access to these markets, and the data which is available is for the most part from this testing.

e. All masonry heater regulation and testing done so far has been based on determining the particulate emissions factor, i.e. the grams of particulates emitted per the kilogram of wood burned. Some early testing also reported efficiency numbers, but there was no uniform standard for determination. The same early testing sometimes reported “average daily grams per hour”, an attempt to give a number to compare a masonry heater, which is typically fired only once or twice a day, with other appliances like wood and pellet stoves which are burned continuously and so regulated.. Likewise there has been no uniform standard for determining “average daily grams per hour.”

f. Colorado set its limit at 6 g/kg, Washington the same as fireplaces at 7.3 g/kg. These have been the only regulatory targets for masonry heater builders, and only for those wishing to sell in these markets. In this way Colorado has approved products by six masonry heater producers, Washington about eight (they have not kept records of previous approvals until recently). In the early years one test was accepted for both states; however this is no longer possible. In recent years only Tulikivi has been able and willing to finance testing and approval of new masonry heater products in these states. Other masonry heater producers have been effectively put out of business there unless they had one of the previously approved products.

g. The Colorado test fires the masonry heater with three large loadings in a row, beyond the recommended maximum of every producer for which I have been able to compare the data. The Colorado masonry heater test results are therefore not for the masonry heater operating under normal operating conditions, but being over fired.

h. The Washington test was written for fireplaces; although it defines masonry heaters,

it specifically denies them as fireplaces. There is therefore technically no statutory way to test a masonry heater for Washington. Nevertheless, one testing lab has been testing to it lacking any other alternative. However, the test specifies fuel loads under the recommended minimum for masonry heaters for which I have data. The Washington masonry heater test results are therefore not for the masonry heater operating under normal conditions, but being under fired.

i. The test methods have significant uncertainty; exactly how much is itself uncertain and until recently one lab had done virtually all the testing. Similar testing done under a “round robin” program for fireplaces in five different labs revealed a 40% variation in reported numbers for the same product.

I have reviewed all this to make clear that the existing testing data is very limited in scope and deficient in other ways. **In the regulatory scheme suggested, the regulatory target is not only changed, but three different regulatory targets are created instead.** Using the existing data gathered for a different purpose to evaluate where things would stand under the new rules is difficult.

However, combining data from all sources available to me, I have charted where all masonry heater models tested so far would stand (see Figure 1). **WARNING! Data is combined from both European (efficiency) and North American testing and may not be from the same testing runs, or from tests run to the same standards.** Some data was reported incidentally (cf. efficiency numbers in tests for emission factors) and may not be as reliable as the data the test was actually after.

• I can make the following conclusions reasonably confidently:

a. This is as clear a picture of the state of the industry in regards to particulate emissions as can be made with existing data.

**b. A disproportionate amount of the existing testing data is for one company’s products.**

**c. There is no existing masonry heater model being sold today in the U.S. which could certainly or would be sold under this proposal.** Even the third generation Tulikivi units designed and tested over the last two years to meet Europe’s most stringent requirements appear to come only just at these limits, but with the uncertainty in test numbers and the existing EPA wood stove penalties if retesting showed a higher number, they would not be sold. I could find no unit which has testing data adequate to allow its sale.

**d. Because the regulatory targets have been changed, virtually all masonry heaters will require retesting even if the target levels are raised.** The old tests were run to reach an emissions factor in g/kg. That number is no longer to be used in regulation. An efficiency test standard will need to be finished and tests run which look at the quantities in the new regulation. It is possible that enough raw testing data might remain in existence for some units to recalibrate to these standards, but I could find no such units which were anywhere near the required emission limits. The newer units which might qualify will need to be tested at least for efficiency.

**e. The new ASTM test method created to standardize testing and remedy existing deficiencies has only been tested on three units and that not in final form.** Until further testing is done, it is impossible to know how the numbers resulting from the new standard will correlate to these old testing data.

**f. Regulatory emission limits set on a product must be based on data acquired in the manner in which the product will be tested. If the data are not so acquired and the limits set anyway, the limits are in fact arbitrary.** The

particulate emission consensus testing standard for masonry heaters is only now being completed. It is premature to talk about limits to this level.

## EXPECTED IMPACT OF THE PROPOSED REGULATIONS ON MASONRY HEATER BUSINESSES

Individual masonry heater business production is difficult to gauge:

- There are only small businesses in the masonry heater industry. The largest is Tulikivi with just under five hundred employees. The next largest has fewer than twenty employees and no other masonry heater related business is nearly that large.
- I would estimate there are fewer than 20 U.S. businesses with revenues more than 75% masonry heater generated.
- I would estimate there are fewer than 100 U.S. businesses generating any masonry heater revenue at all, certainly fewer than 200.
- Beyond the two largest producers, actual production per masonry heater business averages under well under ten units per year.
- Many of the masonry heater related businesses also generate revenue with other products directly threatened by this NSPS, including masonry cook stoves and wood fired masonry ovens as previously mentioned.
- Many masonry heater businesses install products manufactured by other masonry heater businesses (example: installing a manufactured core with custom foundation, masonry veneer, and/or chimney). The installing masonry heater businesses are therefore dependent on the health of the manufacturer/suppliers. Both the manufacturer and the installer may count the same unit as a sale, clouding the production numbers of units sold.
- By number and by location, the vast majority of masonry heater businesses have never had to deal with emissions regulation at all. It has only been an issue for businesses operating in Washington, Colorado, and California, and those manufacturers wishing to sell into these states. These are a small minority of those businesses participating in the industry.

I maintain relationships with most of the major masonry heater producers and many of the smaller ones. The following companies are among those with whom my company does business and with whose personnel/owners I have enjoyed relationships for many years. I state the following with their permission and at their request; I am acquainted enough with their operations to verify the veracity of their comments:

- Large Producer: Tulikivi

Company Location: Finland

U.S. Market Position: First

Tulikivi sells internationally but their primary market is Europe. To the best of my knowledge the U.S. at no point has represented as much as three percent of their sales. They are the fourth largest stone company in Europe and masonry heaters represent only a portion of their business. They have made major investments in the North American market, including an abbreviated attempt to manufacture here from a quarry in Virginia. Due to European emission regulation, they have gone through three generations of product in the last 25 years, the most recent being in the last two years. They have independently given their market information to Gil Wood of EPA. Tulikivi has commissioned the vast majority of existing U.S. masonry heater testing on their designs and products, including tests on four products this spring for Washington and Colorado approval.

Tulikivi has no current units having testing indicating they could be sold in the U.S.

under the proposed EPA regulation and at the proposed limits.

- Medium Producer: Temp-Cast

Company Location: Canada

U.S. Market Position: Second

Temp-Cast manufactures and markets a core system to which the purchaser adds his own foundation, masonry veneer, and chimney. Their product has been refined, but the original testing for which they have gained regulatory approval in every jurisdiction now requiring it was done in 1992. Their products do not meet the proposed regulatory limits and could not be sold in the U.S. as soon as the proposed regulation went into effect.

I have been asked to submit to you the following statement dated July 12, 2010:

“We have reviewed our potential expenses for Research & Development in order to meet the proposed new emissions regulations for 2 grams per hour daily emissions, a burning average rate of 7.5 grams per hour and .13 grams per mega joule (.32 lbs per million BTU). We see no feasible way to meet the expected costs without creating an extreme financial burden on our company, which would likely result in causing us to cease operations entirely.”

- Small Producer: New England Hearth and Soapstone

Company Location: Connecticut

U.S. Market Position: low

The company's owner, Rod Zander, has built a market niche for a small masonry heater producer in producing one-of-a-kind individually designed and custom units for middle and high end customers. His projects often exceed the Frost and Sullivan market analysis upper end prices. His yearly production is typical of small producers, well under twenty units installed even in the best of years.

He is not typical in that he has imported his design technology from Austria, the country with the most stringent emissions regulation in Europe. The Austrian masonry heater industry (under the trade association Kachelöfenverband to which New England Hearth and Soapstone belongs) created a masonry heater calculation/design method with guaranteed emissions performance so that its members did not have to have their units tested but instead could verify emissions by proving design conformance within a mathematical model. The approach became the European standard EN 15544. Units in Europe designed and certified to EN 15544 do not require testing; their emissions performance is guaranteed within the Austrian and European Union limits.

In an attempt to reach a broader market and at great investment cost, New England Hearth and Soapstone recently developed and tested the first U.S. product meeting EN 15544, the Helios. This unit won a 2010 *Hearth and Home* magazine Vesta finalist award for product innovation, the only masonry heater so far reaching this level of attainment. At the time of its testing, it generated the lowest particulate emissions factor of any appliance type yet tested in the U.S.<sup>11</sup>

Based on the recent testing, under the proposed EPA regulation limits the Helios would not be sellable in the U.S.<sup>12</sup>

The method EN 15544, though it produces the cleanest burning units in Europe, has not been verified for particulate emissions to U.S. standards. EPA has expressed interest but has not committed to approving nor provided a pathway for such verification; estimated costs to do so from two accredited labs are in the range of \$250,000 to \$500,000 assuming EPA would allow it. Neither NEHS nor anyone else in the masonry heater industry has the funding.

NEHS estimates attempting to amortize its existing research and development costs and to create products meeting the proposed regulation would add 60% to the current average



cost of its average installation, assuming the number of sales remained the same. This would certainly not be the case. NEHS ability to participate in whatever masonry heater market survives the proposed regulation is extremely doubtful, even though it represents the state of the art in masonry heater design.

- Timely Construction, Inc.

(Envirotech Masonry Heaters, Pacific Soapstone Creations, dba)

Company Location: Washington (state)

U.S. Market Position: low

Empire Masonry Heaters

Company Location: New York (state)

U.S. Market Position: low

We have been and are a stable and influential masonry heater builder; one of the established smaller firms and one of the few doing almost exclusively masonry heater business. How does the prospect of a radically changed masonry heater regulation find us?

- o The increasing cost of government at all levels is an especially galling factor because it has increased rather than decreased with the rest of the economy. Even while our sales have severely fallen, we have to pay more just to be able to do what we have been doing. The efforts to deal with the long regulatory process by having me available for standards meetings and regulatory meetings and matters, mostly NSPS related, have been running around \$10,000 per year not counting the lost production of me not at my business.

- o Some four years ago, TCI acquired the Envirotech, a tested and established masonry heater product. The classic Envirotech is not sellable under the proposed EPA regulation and limits<sup>14</sup>. This investment threatens to be lost and unrecoverable.

- o This year, TCI developed and tested a new product, the Envirotech Econ. The Envirotech Econ is not sellable under the proposed EPA regulation and limits<sup>15</sup>. This investment threatens to be lost and unrecoverable.

It had become apparent that TCI lacked the resources to engage in manufacturing on current terms. TCI has transferred the entire Envirotech line to another masonry heater firm, Empire Masonry Heaters of New York and will no longer act as manufacturer. This firm has many advantages in manufacturing, but under the proposed EPA regulation and limits, Empire would have no products sellable in the U.S.

Given the cost of developing masonry heater products under the existing testing requirements of Washington and Colorado, TCI has gone out of the masonry heater manufacturing business already. We are refocusing on using our existing expertise to install whatever masonry heater products survive, if any. Given the costs of meeting the new masonry heater requirements, Empire Masonry Heaters participation is problematic.

## CONCLUSIONS

The proposed EPA regulatory level leaves the current masonry heater industry uncertain of a single sellable unit. It threatens to eliminate other products providing supplemental revenue. At the current level of masonry heater regulation here in the West, my company has been unable to maintain a manufacturing business, despite every effort to work within existing regulatory testing and approval requirements. The masonry heater market is just not large enough to support the product testing and development costs. Consider:

- Frost and Sullivan find that U.S. masonry heater production is 730 units at \$6.6 million gross sales, or about \$9040 per masonry heater. Assuming a typical product, that means there is

only at very best about \$900 net income per unit to the seller. I would estimate that the cost of bringing a new masonry heater to the market under the proposed rules is about \$250,000. Even if all the business net income is devoted to paying this off (it cannot be), the break even point will be some 280 unit sales down the road. Only a handful of U.S. masonry heater designs have ever sold that many and it has taken decades to do so.

- But a company cannot survive in the long term with just one unit to sell; wood stove companies estimate it takes four models offered just to stay afloat. So we are talking of \$1 million investment and some 1120 units sold. Given the current market, this means there will be room for only one or perhaps two masonry heater producers.

- **But the current market is moot with masonry heater regulation.** The 730 units sold annually have been, in vast majority, unregulated units as masonry heater regulation only has existed in three states, and these not the largest masonry heater market. The added costs of regulation can only decrease the annual sales level below the current 730 units. The added costs to the proposed level which will require **every** masonry heater to be at least retested and more likely redesigned and retested will certainly drive the number of units sold down even further.

- My company has been one of the better capitalized of the small producers. We were able to acquire a tested and established masonry heater design/product. Even under state regulation we have not been large enough to remain manufacturing on our own. The largest North American producer Temp-Cast does not think it will survive the proposed regulation. The chances of survival of smaller producers not so advantageously placed are correspondingly miniscule.

- The largest producer Tulikivi appears to be the only likely survivor , and this only assuming that the units they can afford to develop for their large European and international markets can be certified and sold here at minimal additional costs. Serious redesign and testing beyond a minimal U.S. retesting budget will be difficult to amortize over the small U.S. market (which will likely be getting smaller)

- There is as yet no assurance that the EPA proposed limits are even attainable by existing technology. So far there is no finished test method by which to measure, and even assuming that the existing data from other methods is valid, no European unit meeting the current European standards has yet been shown to attain the levels EPA is proposing.

For those of us out here, whose livelihoods and businesses are at stake, the game process is very different. I am not paid to make each phone call, compose each document, fly to each meeting. I or my business pays. I can lose everything. My job, my retirement, the welfare of those who depend on my business is on the line.

I ask you to keep that in mind.

Respectfully,

Timothy N. Seaton

Timely Construction, Inc.

Camas, Washington

July 13, 2010

FOOTNOTES

1) Barnett, Stockton G., OMNI Environmental Services, Inc., “Summary Report of the In-Home Emissions and Efficiency Performance of Five Commercially Available Masonry Heaters”, Lab Test Report, May 22, 1992, revised June 1, 1993. The Royal Crown kakelugn was reported at 65% efficiency.

2) Houck, James E., OMNI Environmental Services, Inc., “Efficiency”, Powerpoint Presentation, March 18, 2009.

3) OMNI- Test Laboratories, Inc., Tulikivi Valkia and Silo Lab Test Report, July 2008, extract.

Compared with submitted extract from Tulikivi for European test results.

4) Masonry Heater Association of North America, unpublished survey results, circa 2004, found between 15,000 and 20,000 units installed in North America. This is the only such work of which I know and I have been unable to obtain a hard copy.

5) Jeremy Johnson, Tulikivi U.S. administrator, phone conversation, May 2010. 2008 (?) worldwide sales about 15,000 units, North America some 350. Compare 2007, Finland 5000 units, Estonia 400 units.

6) Typical masonry wood fired oven, Le Panyol French oven core through Maine Wood Heat Co., Inc., construction by Timely Construction, Inc. and others.

7) Typical masonry cook stove; design and metal component, Maine Wood Heat Co., Inc., construction by Timely Construction, Inc.

8) U.S. Environmental Protection Agency, "Emission Factors from Residential Wood Combustion", 1992, Chapter 1-10, "Wood Stoves". This document, referred to as AP-42, gives the average of masonry heater emissions as 2.9 g/kg.

9) Barnett, Stockton G., *ibid*, p.11. "Comparatively, the average PM emissions were somewhat higher than emissions from certified pellet stoves (1.7 g/kg) ..... and considerably lower than EPA 1990 –certified Phase II noncatalytic woodstoves (AP-42 value of 7.0 g/kg)."

10) Ferguson, Robert, "A Report on the Particulate Emissions Performance of Masonry Heaters- Definition, Data, Analysis and Recommendations", Masonry Heater Caucus, Hearth, Patio and Barbecue Association, February 13, 2008.

11) At testing at Myren Consulting, Inc. this year the Helios reached 0.3807 g/kg emissions factor. Since then a Finnish product tested for Maine Wood Heat Co., Inc., reached 0.339 g/kg at Myren. However, both these test results are irrelevant as the EPA proposes to regulate by g/hr and g/MJ requiring retesting.

12) The Helios burned at 9.7 g/hr during its combustion cycle, more than the EPA's proposed maximum of 7.5 g/hr.

13) The Envirotech was first produced in the early 1990's as a manufactured masonry heater core system. It was based on an existing design developed by its parent company and built brick by brick. This company built some 1000 masonry heaters as well as selling some 300 of the Envirotech core systems before going out of business. The Envirotech is the most tested of all North American masonry heaters, being tested at least five times by three different labs and to at least five different lab testing protocols. It has been an integral part of the research in U.S. masonry heater particulate emission standards. Prior to the heater testing of the NEHS Helios this year, it was the lowest emitting masonry heater ever tested to U.S. standards. At testing at Myren Consulting, Inc. in 2007, the Envirotech grundofen had an average emissions factor of 0.82 g/kg which translated to 0.07 g/MJ.

14) The Envirotech burned at 8.3 and 9.3 g/hr during its combustion cycles, both over EPA's proposed 7.5 g/hr limit.

15) The Envirotech Econ was tested to an emissions factor. The final numbers are not in but efficiency testing will be required to obtain numbers to compare with EPA limits. At this point there is no way to no if compliance is possible without further large expense.

**Comment 14 – Charles Clark**

I am writing on behalf of masons and masonry fireplace component manufacturers in regard to the above referenced standard. As background, I have been an active participant in the development of standards and building code provisions for masonry fireplaces for more than 12 years and a registered architect and professional engineer for a combined total of 29 years.

**Masons and fireplace component manufacturers urge EPA to consider the following substantiated claims regarding new site-built masonry fireplaces:**

*1. Going forward, the emissions from new site-built masonry fireplaces should be about 108 tons of PM2.5 annually - significantly less than the 51,132 tons estimated by EPA from all types of fireplaces. This represents 50,000 site-built masonry fireplaces built annually and 0.0044% or 0.000044 x 2,449,000 tons of PM2.5 emissions produced annually.*

- Existing fireplaces in older existing homes account for the vast majority of fireplace use in the U.S. According to NAHB, in 2006 there were 55 million homes in the U.S. that had at least one fireplace. Using the typical 1.17 factor to account for homes that have more than one fireplace results in 1.17 x 55 million = 64 million fireplaces. New fireplace construction accounts for a small percentage of fireplace use.
- In 2005, at the height of housing construction, of the approximately 820,000 fireplaces built in new homes (HPBA), only 80,000 (9.8%) are estimated to be site-built masonry fireplaces (only 35,000 in the down-economy of 2009).
- But, based on the HPBA data, site-built masonry fireplaces are further delineated as follows: 31.78% are not used; 58.80% are aesthetic (where 33.8% burn wood and 25% burn wax-fiber firelogs); and 9.42% are used for heating. Based on a worst-case scenario of 11.3 g/kg of emissions for burning wood, each of these fireplaces will produce emissions as noted in the following table:

<b>Fireplace Use</b>	<b>Emissions per Year per Fireplace</b>
Not Used	0 g/year
Aesthetic (burn wood)	0.069 cords of wood/year x 1.23 tons/cord x 907.2 kg/ton x 11.3 g/kg = 870 g/year
Aesthetic (burn wax-fiber logs)	16 firelogs/year x 4.74 lb/firelog x 2.205 kg/lb x 21.2 g/kg = 3550 g/year
Heating	0.656 cord of wood/year x 1.23 tons/cord x 907.2 kg/ton x 11.3 g/kg = 8270 g/year

- Multiplying the emissions per fireplace by the number of fireplaces used in that manner in the U.S. results in the following table:

<b>Fireplace Use</b>	<b>Number Built per Year</b>	<b>Emissions per Fireplace</b>	<b>Emissions per Year</b>
Not used	80,000 x 0.3178 = 25,424	0 g/yr	0
Aesthetic burning wood	80,000 x 0.338 = 27,040	870 g/yr	23,500 kg/yr
Aesthetic burning wax-fiber logs	80,000 x 0.25 = 20,000	3550 g/yr	71,000 kg/yr
Heating	80,000 x 0.0942 = 7,536	8270 g/yr	62,300 kg/yr
<b>TOTAL</b>	<b>80,000</b>		<b>156,800 kg/yr x 0.001102 tons/kg = 173 tons/yr</b>

- 173 tons per year is based on construction in the robust 2005 market. If the 2009 market is considered, then this becomes  $(35,000/80,000) \times 173 \text{ tons/yr} = 75.6 \text{ tons/yr}$ . Based on current economic conditions and no other changes, we estimate that 50,000 site-built masonry fireplaces will be built annually going forward which would equate to  $(50,000/80,000) \times 173 \text{ tons/yr} = 108 \text{ tons/yr}$ . This represents 0.0044% or 0.000044 x 2,449,000 tons/yr.

***2. Imposing further restrictions on new site-built masonry fireplaces will have little to no impact in areas where air quality is an issue.***

Fireplace use occurs more frequently in winter. In the western U.S., peak PM levels occur in the winter. Most of these areas have already imposed limitations on masonry site-built fireplaces by either banning their construction or use, or imposing no-burn periods. Imposing further restrictions on fireplaces in these areas would not affect the air quality. In the eastern U.S., peak PM levels often occur in August when fireplaces are not used. Limiting fireplace construction in these areas will have little if any impact on these local air sheds.

The following is a short list of some jurisdictions which have imposed limitations on site-built masonry fireplaces. Note that these locations are all in the western U.S.:

Denver-Boulder Metro Area, CO  
 Jackson, WY  
 Phoenix, AZ  
 Sacramento, CA  
 San Francisco, CA  
 Tahoe, NV  
 Sonoma, CA

***3. Imposing ISO certification on new site-built masonry fireplaces is extremely expensive and would be difficult, if not impossible, to administrate.***

- Unlike pre-fabricated fireplaces, there are not a limited number “models” of site-built masonry fireplaces. Each site-built masonry fireplace design is unique from every other fireplace.
- Unlike pre-fabricated fireplaces, periodic verification of a site-built masonry fireplace “model” would not be possible since each is different.
- Unlike pre-fabricated fireplaces, each site-built masonry fireplace design would have to be tested and certified after it was built which would likely increase the cost of each unit by \$3,000 to \$5,000. This represents an increase of up to 60% of the cost of an installed unit.

***4. Residential masons, the primary constructor of new site-built masonry fireplaces and the vast-majority of which are small family-owned businesses, will be severely affected by a reduction in the number of units constructed and many are projected to be forced out of business.***

EPA agreed to meet with large groups of masons to hear their concerns. Groups that represent masons such as the Masonry Contractors Association of America (MCAA) and the International Masonry Institute (IMI) should be able to assist with the logistics of planning such a meeting.

While few statistics exist regarding masons, based on what we know, we estimate the following:

- According to a BIA survey, there were 140,000 masons, both residential and non-residential, in the U.S. in 2008.
- Most residential masonry subcontractors, especially those that construct masonry site-built fireplaces, are small with 2-3 person crews or family-owned businesses. The vast majority would qualify as small businesses.
- High skill level required. The level of skill required of a mason to construct a masonry site-built fireplace is high. In fact, a fireplace is considered by many to be the most complicated masonry element a mason constructs.
- In areas where fireplace construction is already limited, reducing the number of fireplaces constructed will not significantly affect a mason's income.
- In areas where fireplace construction has not been limited and where fireplaces are accepted and commonly used, fireplace construction may very well represent a significant portion of a skilled mason's income.
- Depending on local rates, whether other brickwork is involved in a project and how elaborate a fireplace design is, a mason crew skilled in constructing masonry site-built fireplaces can command between \$5,000 to \$40,000 per unit which can represent a significant portion of their income.
- Most current homebuyers are affluent and want masonry site-built fireplaces. Residential construction in the vast majority of U.S. markets is only a fraction of what it was a few years ago and the vast majority of 2010 homebuyers are projected to be affluent. In markets where fireplaces are common, these buyers desire masonry fireplaces. For example, in the greater Atlanta area, single family home starts for 2010 are estimated at less than 10% of 2006 levels and are slated for construction in very affluent areas. These homes are likely to have one or more masonry site-built fireplaces in each. Outlawing their construction will have a significant impact on the masonry market in the greater Atlanta area.

***5. Manufacturers and distributors of fireplace components, some of which are small businesses, will be negatively impacted or forced out-of-business by forcing masonry site-built fireplaces to be included in the NSPS.***

- Most or all masonry fireplace component manufacturers could be put out of business. All manufacturers of masonry site-built fireplace components are located in the U.S. The majority are considered small businesses as defined by the U.S. Small Business Administration. For component manufacturers that make dampers, clay flue lining and refractory mortars, the particular component they make represents a majority of their business and will be significantly impacted. For some manufacturers of firebrick, more than a super-majority (>66%) of their business comes from this product and will be severely impacted.
- Brick distributors will be impacted. Most brick distributors sell masonry site-built fireplace kits. Houses that include a masonry site-built fireplace are more likely to include brick as cladding and in other elements such as steps, etc.
- Brick manufacturers will sell less brick. Houses that include masonry site-built fireplaces are more likely to include brick elsewhere.

**Masons and fireplace component manufacturers strongly urge EPA to take the following steps:**

***1. EPA should exempt site-built masonry fireplaces from the current NSPS.***

- The impact of new site-built masonry fireplaces on air quality is insignificant.
- Imposing further restrictions on site-built masonry fireplaces will have little to no impact in areas where air quality is an issue.

- Instituting an ISO certification process for site-built masonry fireplaces is extremely expensive and very difficult, if not impossible.
- Masons, the primary constructor of site-built masonry fireplaces and the vast-majority of which are small family-owned businesses, will be severely affected by a reduction in the number of units constructed and many may be forced out of business.
- Manufacturers and distributors of fireplace components, some of which are small businesses, will be negatively impacted or forced out-of-business by forcing masonry site-built fireplaces to be included in the NSPS.

***2. EPA should endorse and promote the Voluntary Fireplace Program (VFP) and give it sufficient time, at least two (2) years, to demonstrate its effectiveness.***

- EPA has not indicated that it has not been sufficient.
- VFP initial results have shown promise.
- VFP needs more time to demonstrate that it can be effective. The VFP was only extended to include masonry site-built fireplaces as of July 4, 2009.
- EPA needs to support the VFP. To date, EPA has not been an advocate of the program to local jurisdictions concerned with air quality. Thus local jurisdictions have been reluctant to adopt the program and industry has been reluctant to fund testing of fireplace models.

***3. EPA should meet with large groups of masons to hear their concerns.***

- Masonry Contractors Association of America (MCAA)
- International Masonry Institute (IMI)

***4. EPA should engage in the existing, appropriate forums which impact the construction of fireplaces such as within ASTM and the building codes.***

- EPA has not had active representation on ASTM standards on masonry fireplaces. ASTM representation must be balanced. Representation by industry and manufacturers cannot exceed 50%.
- EPA has not had active representation regarding masonry fireplaces in the building code. While EPA representation is active on the energy portion of the building code, they have not been active in regard to masonry fireplace provisions. Both the International Building Code and the International Residential Code have specific provisions for masonry site-built fireplaces.

## Comment 15 – John Crouch

I am providing these comments to the SBREFA panel, on behalf of the organization I represent, the Hearth, Patio & Barbecue Association (HPBA), and our members, the many small manufacturers, retailers, and service companies whose livelihoods are involved in the manufacturing, marketing and servicing of residential heating appliances.

We appreciate the opportunity to comment on the material that EPA has provided to the SERs, and to provide background on the industry that will bear the burden of this NSPS review.

**We are concerned that the materials provided to the SERs never included a full set of regulatory options and analysis. When we reviewed the EPA guidance on this process, (See, EPA-OPEI, *Final Guidance for EPA Rulewriters: Regulatory Flexibility Act as Amended by the Small Business and Regulatory Enforcement Fairness Act*, at 63-64 (subchapter 5.7.7) and 5.8.3 (subchapter 5.8.3) Nov. 2006, <http://www.epa.gov/sbrefa/documents/rfaguidance11-00-06.pdf>) we anticipated that the SERs would see a presentation with enough information to fully “...judge the likely impact of the rulemaking”.**

We appreciate that EPA has set extremely aggressive internal deadlines for this review, but we believe that all of the SERs would be able to provide the Small Business Advisory Panel (SBAR) much more specific responses had they been able to see the specific regulatory targets. Much of this process seems to be an information gathering process for EPA rather than an opportunity for small business to provide specific feedback to specific options. Moreover, this process often seems to be an informal and extended section 114 information request. If this sector is truly significant to EPA, then it may merit more traditional data-gathering and analysis. We think the interests of small entities would be well served by an opportunity to respond to specific emission targets for each sector, and we hope that the SERs will be afforded that opportunity prior to the NSPS proposal.

We have encouraged SERs, both HPBA members and non-members, to assist EPA in its information gathering process; and we recognize the challenge of gathering information for this small sector, made up of many very small businesses. We hope the panel will use the input from this SBREFA process to review carefully the issue of national significance of many of the minor product categories. Many of these product types sell a majority of their units in only a single region of our country, as was made clear in the oral meeting. Of the smaller categories, only masonry heaters can be found throughout the U.S. in similar numbers. Cook stoves, coal stoves, and wood furnaces tend to be very regional in their usage pattern. We recognize the value of a review of the current NSPS for wood heaters, and understand the clear intention to add some other types of solid fuel appliances, but we will raise the issue of national significance throughout these comments wherever we think it is warranted.

We have divided our comments into several sections as follows:

- A. Introduction, including some of the history of this entire category
- B. Our response to the specific questions from EPA
- C. Important generic issues for the panel to consider
- D. Special issues related to wood burning fireplaces
- E. Conclusions

### **A. Introduction**

To understand the potential impact of revisions to the Residential Wood Heater NSPS for the small businesses involved, we believe that it is educational to briefly review the history of this category and the process that led to



the first promulgation. The affected businesses are comprehensive and include the producing, marketing and servicing of residential solid-fuel fired appliances and who make up a remarkably small segment of the U.S. economy.

Our trade association traces our roots back to 1980, following the second oil embargo, when two earlier groups combined to form the Wood Heating Alliance (WHA). At that time, the late 1970's and early 1980's, there was a massive and sudden demand for wood stoves. These early wood heaters were 'air-tight' in that they were often designed to operate with very little combustion air and smolder for long periods of time. While consumers were pleased with the high heat transfer efficiency of these early products, the regulatory community, especially in the western states, became alarmed at the rate of emissions. Oregon adopted legislation in 1983 that required all new wood stoves sold as of July 1, 1986, to be certified to an emission test that that state had created. Colorado followed this lead with a slightly different regulation that would require a separate certification program.

The WHA worked with these first two states to regulate wood stoves and was involved with EPA in the first NSPS for Residential Wood Heaters, which was a regulatory negotiation (reg-neg). At the time of the first NSPS there were still hundreds of small companies in this industry and several ran multiple small factories around the country. The promulgation of the first NSPS, coupled with the end of the energy crisis, resulted in the demise of most of these small businesses. (Note: See article circulated to the Panel and SERs on August 19, 2010, *There's a Freight Train Coming*, *Hearth and Home Magazine*, December 2009)

The disastrous impact of the first NSPS on wood stove companies is of great concern to many of the SERs who make products that have not been previously covered by the NSPS. The impact on small businesses of the first rulemaking indicates that these companies have a legitimate concern.

Following the completion of the reg-neg and recognizing that the potential impact of any NSPS focused on area sources depends on product-turnover; HPBA piloted a program of "Great Stove Changeouts" in Southern Oregon and in the greater Seattle area. In the Seattle changeout we partnered with the Puget Sound Air Control Agency, the regional office of EPA, and the local American Lung Association (ALA) chapter. In the following twenty years of changeout programs, HPBA has initiated and participated with many local, state, and tribal air agencies, as well as with EPA-OAQPS. At various times OAQPS has estimated that the total number of old residential wood stoves or wood stove inserts in the U.S. is between 9 and 16 million units.

HPBA played a crucial role in several whole town changeouts, predicated on the successful reduction of fine particulate matter (PM) on a smaller scale. The 1988-90 changeout in Crested Butte, Colorado in partnership with the Colorado Department of Health was credited by the state with a 59.5% reduction in fine PM in the years following the program. In a partnership with EPA, the State of Montana, and Lincoln County, Montana, a second whole town changeout took place from 2005-07 in Libby, Montana. The result of the Libby effort was a substantial reduction in both outdoor and indoor PM levels. Both HPBA and EPA have worked closely together to foster changeouts in any state, locality, or tribe interested in reducing particulate levels.

In the last five years, HPBA has worked with OAQPS to help create two voluntary programs (outdoor hydronic heaters and fireplaces) to address solid fuel burning residential equipment. In order to understand why these programs were developed, it is useful to review the history of NSPS and some of the issues that were important at that time.

The original NSPS-listed source category was "residential wood heaters," which was deliberately chosen to exclude fireplaces, which are not heaters. Beyond that, the reg-neg committee focused narrowly on wood stoves (and some pellet appliances) and deliberately exempted other subcategories of residential wood heaters for various reasons (e.g., the lack of test methods for them, lack of similarity in operation to air-starved woodstoves).

Many of the of the product categories being considered in this review are appliances that were deliberately left out of the NSPS.<sup>1</sup>

The 1988 NSPS established two phases, and different emission targets for the two different types of emission control technologies. The first phase, which became mandatory at the manufacturing level in 1988, was almost identical to the required Oregon Phase II. In 1990, Phase II of the NSPS became mandatory for manufacturers, and was established at 7.5 grams/hour for non-catalytic heaters and 4.1 grams/hour for catalytic heaters. The NSPS contained a one year 'exemption' for small manufacturers. HPBA is unaware of any small manufacturer that was able to make sufficient changes in that year to continue operations at the end of that grace period.

Washington State decided to adopt a more challenging emission standard, although they did not wish to establish their own certification program. Consequently, Washington State adopted a standard requiring that only non-catalytic stoves having certificates from EPA of 4.5 grams/hour or less and catalytic stoves having 2.2 grams/hour or less could be sold in the state after 1995. Since Washington State was a major market for EPA stoves, and the home of several manufacturers, these numbers have become the de facto standard for new appliances nationwide.

As a result of the original decision to only regulate woodstoves (and some pellet appliances), the industry evolved into two groups of companies, those that predominantly manufacturer products covered by the current NSPS, and those that primarily make products *not* covered by the NSPS. This distinction creates a tremendous difference in the ability these two groups have to respond to the emission target levels suggested in this NSPS revision.

One of the principle distinctions between the two groups is the presence of a functioning in-house emission testing laboratory for the purposes of R&D. Leaving the Canadian and European companies outside this analysis for a moment, there are less than a dozen U.S. companies with an active internal emissions laboratory, and five of these companies are focused exclusively on outdoor residential hydronic heaters. Only a handful of U.S. companies focused on indoor, NSPS-qualified heaters, have maintained operating emission laboratories, and three of these companies are not small entities.

The bulk of small companies that represent the products covered by this NSPS review lack their own testing/certification laboratory for several reasons: 1) Some have been able to afford and arrange for certification testing by third-party consultants; 2) some had an emission testing laboratory early in the previous process, but now have switched to outside consultants since they need only to update their existing certifications; or 3) some never had, or needed, an in-house emission testing laboratory since they have focused on appliances not covered by the current NSPS.

As the SERs will attest, the costs of developing an in-house lab are substantial. Companies need the personnel to operate it, the space in which to operate it effectively (especially given the time frames that are proposed), and the equipment needed to run emissions testing. Solid fuel hearth product manufacturers are under considerable financial stress due to the downturn in home sales and remodeling and the overall downturn in consumer spending for large ticket items. Based on the industry's experience following the first NSPS, HPBA believes that many small entities that are new to this process may need to invest more than they can afford on an in-house testing laboratory before actually developing any new product lines.

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<sup>1</sup> The state of Oregon had already created a test method for wood stoves, and had initiated a state certification program four years prior to the NSPS, which generated the data upon which Best Demonstrated Technology (BDT) was determined for wood stoves in the NSPS. Without that state program, EPA would have been unable to promulgate the NSPS at that time for lack of test methodology and data.

## **B. HPBA's Response to EPA's Specific Questions**

The information EPA has presented to the SERs are a series of questions, grouped into three categories:

- 1) Industry Profile
- 2) Costs/Market/Economics
- 3) Emissions/Technology

HPBA has suggested to other SERs that, while they are free to respond to any of the questions EPA raises, HPBA will focus our comments on the Industry Profile section and the SERs should address the Costs/Market/Economics section. HPBA believes that most of the questions in the third section, Emissions/Technology, are extremely technical in nature and beyond the scope of the SBREFA process.

All of the products covered by this NSPS review have seen a marked variation in sales volumes over the last ten years. There have been several surges in consumer demand during this period that have all been related to factors beyond the control of any company in this category, principally sharp run-ups in the cost of home heating because of increases in the cost of fossil fuels.

In the three years of 2000, 2005 and 2008, all of the wood heater categories that could be retrofitted into existing homes saw sharp and temporary increases in demand. In each instance, the subsequent year was the virtual opposite, i.e., demand collapsed. Knowledge of this volatility in demand is vital to understanding the ability of small entities to cope with dramatically increased R&D costs, such as those a revised NSPS might impose. When reviewing cost information and projected R&D costs, it is typical to assume modest annual changes in demand. However, this industry can experience demand increases of 100% or more, often followed the next year by equally large decreases. Obviously, larger businesses can better cope with this tumultuous market behavior than can small entities, especially if their product lines are more diverse and the fluctuating demand is category or segment specific. It affects all manufacturers when the demand fluctuations hit multiple product offerings.

In the case of products (such as fireplaces) that are installed principally in new homes, the dire situation in the new home market is well known. Following more than a decade of relatively consistent growth, the new home market has collapsed. This has been especially challenging for small companies that are attempting to create new products to meet the EPA voluntary fireplace targets.

### **Industry Profile**

#### **1. How many manufacturers are there for each of the product categories?**

**[e.g., wood stoves, pellet stoves, other solid biomass stoves, masonry heaters, manufactured fireplaces, site-built fireplaces, fireplace inserts, outdoor stoves, indoor and outdoor hydronic heaters and boilers and forced air furnaces, coal burning stoves, cook stoves, single-burn-rate products, pellet fuels, etc.]**

The number of manufacturers per category is sometimes difficult to pin down, as companies enter or leave portions of the industry according to market conditions, sometimes with little warning. Determining the wood stove/inserts portion is relatively straightforward, since the NSPS mandates that a valid certificate, issued by OECA, must be in the hands of the manufacturer (or importer) prior to production or importation. The situations for most of the other categories, which fall outside the mandatory NSPS, are much more fluid.

#### **Wood Stoves**

When the original NSPS was promulgated, there were believed to be between 200 and 400 small manufacturers of relatively simple "air-tight" wood stoves. Shortly following promulgation the number collapsed to

approximately 60 manufacturers, and has been further reduced to 34 manufacturers, and/or importers, of EPA certified wood heaters.

As will be discussed, our trade association has never distinguished among manufacturers and importers on the basis of whether they are U.S. or foreign owned. Instead, HPBA has always recognized U.S. operated manufacturers, and agents who import all of their product line, as manufacturers. In fact, some of the first products to qualify for the first NSPS were woodstoves from companies from New Zealand, and many of lowest emission stoves are currently manufactured in Canada.

In gathering statistics of units shipped each year, HPBA has relied on manufacturers to delineate between the various categories of EPA-listed wood heaters, e.g., free standing heaters, inserts, and zero clearance. The definition of free standing wood heaters is obvious. "Inserts" refers to wood heaters, as defined by the NSPS that are *inserted* into an existing fireplace. "Zero clearance" refers to wood heaters that are clad with protective insulation and may be built into a wall. Some companies who hold EPA certification will build all three; others build just one or two of the types of products. It is very common to certify a wood heater with the EPA that has, as an option, a pedestal. Without the pedestal, the product can be used as an insert, and with the pedestal, the product is a free standing wood stove. Some model lines consist of a single EPA certified appliance, and some model lines can include as many as four certified units. Some certified units will be sold with two different brand names as part of two separate model lines. Within the industry, product and model line profiles vary greatly.

EPA certified wood heaters typically use two major channels of distribution: mass market merchants and specialty retailers. Products made for mass merchants tend to be lighter weight in construction, and, given the lower margins and the purchasing power of the mass merchants, often have lower multiples of manufacturer costs to retail prices. These types of stores typically focus on cash and carry sales, and do not maintain control over the quality of installation. Specialty hearth retailers are instrumental in the distribution of EPA wood stoves and have been especially active in promoting changeouts and the subsequent destruction of old stoves. EPA stoves that move to consumers through this distribution channel typically have a higher multiple of manufactured costs to retailer's price, but are often installed by a certified technician. Specialty retailers will also often light the first fire with the consumer, and make certain that they understand the operational difference between their new EPA certified stove and their old stove so as to maximize efficient operation and minimize emissions.

### **Pellet Stoves**

Pellet-fueled heaters and multi-fuel pellet heaters may or may not need to be certified due to technical issues in the original NSPS. This lack of certification creates a relatively low barrier for entry and effectively means that the number of small companies in this sub-category can fluctuate greatly. We believe there are at least 27 companies selling pellet stoves/inserts lines in the U.S. market at this time. The size of these lines varies from companies with one unique system to companies with several separate combustion systems.

Multi-fuel heaters typically refer to units that may burn wood pellets, field corn, barley, or other naturally pelletized fuels, such as cherry pits, etc. They may be either room heaters or furnaces. The R&D considerations related to the combustion of corn are additional to the R&D issues related to wood pellets, and can be quite significant, as corn is more difficult to burn without clinkers than wood pellets. This is why not all wood pellet stoves can burn corn or other non-wood fuels.

Pellet or multi-fuel heater manufacturers who have yet to emission certify one of their units, but who will need to do so to comply with the revised NSPS, are especially at risk in this process. There is a suggestion at the conclusion of the memo for EPA, *Pellet Stove Cost Impact*, August 11, 2010 that R&D costs for emissions:

“...apply whether there is an NSPS or not, as manufacturers routinely update their model lines or develop new model lines to meet consumer demand for new features, improved appearance, and improved performance. Therefore, it is difficult to attach the entire R&D cost to the costs associated with meeting a certain emission limit, assuming that the rate at which a model line is developed remains the same as it would in the absence of an NSPS limit that forces redesign.”

This statement is much more accurate for larger manufacturers, than for smaller entities, who often do not update their model lines very often. Furthermore, it misunderstands the significant difference between preparing a pellet unit to pass the fire safety testing and the much more difficult challenge of preparing that unit to pass a specific emission limit. The smaller companies that currently have more than one combustion system will have to test and certify each combustion system, or discontinue some models. While the list prices for safety testing range from \$6,500 to \$9,000, the actual “as completed” testing of a recent certified pellet stove for Hearthstone was \$17,500, a cost equivalent to the units emission testing. The actual laboratory costs for emissions testing are incurred after a great deal of R&D costs to prepare the unit for emission testing.

Small entities who have never certified a pellet stove, but only have safety tested their products are in for a major shock as they face laboratory costs that are at least as great as safety testing, and *after* they have spent a considerable amount on the in-house preparation to ensure that the unit will meet the requirements at the lab.

### **Hydronic Heaters**

This is a relatively new category of wood heater that has evolved rapidly in the last decade. Hydronic heaters (HH) are located outside a building and heat water, which is then piped to a heat exchanger in the furnace ductwork, or to radiant piping in the floor. They sometimes are referred to as “outdoor wood boilers” (although they are not technically “boilers” since the products are not pressurized systems). These units are especially useful for rural households who have their own wood supply and heat other buildings in addition to their home. There are less than 15 manufacturers in the U.S. all but one of whom are small entities, and who sell from ~9,000/year to ~15,000/year, for an average over the last five tumultuous years of 11,500 units per year. (The barriers to entry in this category are minimal, and companies are constantly entering and exiting this category.) There has been a suggestion from a non-industry source that 67,000 of these units are sold each year, but HPBA is not aware of any actual data to support, or refute, that assertion.

Hydronic heaters are large and sell in a range of \$5,000 to \$35,000 depending on the size, with the most popular sizes averaging approximately \$7,500. These units typically cost \$2,000 or more to install. So far, the impact of the EPA’s Phase II voluntary hydronic heater program on the price of a new, low-emission hydronic heater seems to imply an increase of at least \$2,500, although it is very important to note that no company has met the Phase II target with a large unit (over 200,000 Btu’s).

The key issue for these small entities is the incremental price increase, as identified during the oral comments by an SER who specializes in this category. Will consumers be willing to pay 33% *more* for the improved emissions of these new units? By comparison, if new, low emission automobiles had cost 33% more when first introduced wouldn’t we have expected consumers to have begun maintaining their polluting old cars for a much longer period?

Several years ago hydronic heater manufacturers initiated an ASTM task force and created an ASTM test method for these units, given that the EPA’s method for fueling and testing wood stoves was inappropriate for these units. As noted above, EPA created a voluntary program for hydronic heaters several years ago. That program uses a test method similar to the ASTM method, with the important difference that the EPA method requires the use of

crib fuel for batch-loaded models, while the ASTM method uses cordwood.<sup>2</sup> Currently, 19 models are qualified under the Phase II standards in the hydronic heater voluntary program. A number of eastern states have adopted, or are in the process of adopting, regulatory programs (including changeouts) for these appliances.

As indicated, these new hydronic heaters are substantially more expensive than previous models. If EPA moves to establish an emission target for this category that goes *beyond* the target set by the voluntary Phase II program it will be extremely difficult for these small entities to make the additional investments to meet a new and lower goal. All of these companies need several years of sales to recoup this initial investment, before they embark on new targets. It is useful to remember that the companies that made woodstoves in the 1980's had the benefit of the Oregon program for several years prior to the key Phase II deadline of the original NSPS.

There is also a related, but separate product category, the indoor hydronic heater. Several companies have been established to import this type of technology from Europe, including one SER representative who has already been successful. The European approach to this type of product often involves heat storage tanks of water, which enables a relatively small firebox appliance to burn rapidly and cleanly, and then store the heat in its thermal mass until needed to keep the residence warm. This process is not unlike the concept used by masonry heaters.

The measurement of emissions in North America and Europe has evolved some important differences that have made it extremely difficult to ascertain any equivalency between the two methods. EPA has just recently begun some technical work in this area of method comparison, but it is unclear to HBPA that this work will be completed in time to apply to this review.

### **Wood Fired Forced Air Furnaces**

This product is typically installed inside a home, often in a basement, co-located with an existing fossil fuel furnace. They were not included in the 1988 NSPS and have been unregulated since. Low energy prices in the 1990's have caused this category to shrink considerably. Today, the five-year averages of sales for all manufacturers of these products are between 30,000 and 35,000 per year. The sales of these appliances have always been regional and today the eight Great Lake states (including New York and Pennsylvania) account for 60% of these sales. The Midwest states of Nebraska, Iowa, Kansas, and Missouri account for an additional 22%. There are at least seven wood furnace manufacturers in the U.S. and all but one of them are small businesses. (There are several companies that make pellet furnaces, but these appliances are so similar to pellet stoves that they are part of that category.)

Furnaces are characterized by fireboxes that are generally much larger than wood heaters, and by the need to respond to thermostatically controlled heat demand very quickly. It has been clear for many years that simply applying the NSPS fueling and test method to these appliances would effectively eliminate them. This type of product is very popular in eastern Canada and Environment Canada along with the Canadian Standards Association (CSA) is working with small companies to create a consensus test method. The resulting method, included in CSA B415.1-10, has only just begun to be utilized by the EPA accredited laboratories. There has been no effort yet to circulate a furnace among laboratories and see what the inter-lab precision might be for this new method.

A few years ago, a small business in Eastern Canada managed to design a small firebox furnace that was able to be certified to the EPA target, which raises the question: *could the EPA method for wood stoves but used for furnaces?* The company that designed this small EPA-certified furnace had to use the CSA B415.1-10 standard to develop its next generation of furnaces, which needed to have larger fireboxes. Applying the current EPA test

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<sup>2</sup> The crib fuel specified is a predictable loading of oak 4x4 lumber pieces at prescribed moisture, and the cordwood method uses split oak firewood, of a prescribed moisture level.

standard to fireboxes bigger than 3.0 cubic feet was impossible given the abnormally low minimum burn rates. The CSA B415.1-10 standard, however, enabled this company to create a clean-burning furnace with a 4.7 cubic-foot firebox. This experience has demonstrated to all furnace manufacturers that the CSA B415.1-10 standard is the only appropriate method for assessing the emissions of large wood furnaces.

### **Masonry Heaters**

Masonry heaters are extremely popular in Europe and Scandinavia. Many Americans have experienced the radiant heat comfort of a masonry heater and sought out builders of these products in the U.S. These heaters typically have a relatively small firebox and a long smoke path through a high temperature masonry core before exiting the stack. The user typically builds a very intense, hot fire, which burns quickly and transfers the heat from the exhaust to the special core of high temperature masonry material which then radiates the heat slowly into the dwelling. These products tend to be highly individualized by installing dealers or builders, who typically purchase their masonry cores from small manufactures. There is one large manufacturer in the world, based in Finland that exports to the U.S.

Although the number of these heaters installed each year is relatively small, fewer than 1,000/ year, they are installed in virtually every state in the U.S. (including Hawaii), and are more evenly distributed than several of the categories EPA is currently contemplating for inclusion in a revised NSPS. One of the SERs is a specialist in this category, and HPBA will defer to him for more specific comments.

### **Coal Stoves and Cook Stoves**

Both of these products tend to be manufactured by very small companies (with the exception of one large entity which began with coal but now focuses on wood pellet heaters), often with regional distribution in the U.S. Both products have unique characteristics based on their traditional usage patterns, and neither product type can be effectively tested by the wood heater test method. Coal varies dramatically in its characteristics, from extremely high quality anthracite, which is almost pure carbon and relatively easy to burn, to highly varied bituminous grades which tend to have very high levels of volatile gases when burning.

There is more variation in coal composition than in tree species so that even if a heater could be “tuned” with an air system to burn bituminous coal it would almost certainly not obtain the same results with anthracite coal, and vice versa. HPBA and the coal stove manufacturers believe that EPA has considerably more work to do in this area before they can propose a test method for coal stoves, and it is well beyond the scope of these small entities to provide a method for EPA. There is no test method, no data set on the emissions from these units and no emissions reduction technology demonstrated for these appliances.

Cook stoves are another category currently exempt from coverage in the current NSPS. EPA has been working with the small manufacturers of wood cook stoves to tighten up the existing definition, with a view toward continuing their exempt status in the revised NSPS. HPBA commends these efforts by EPA to mitigate the potential impact of the rule on this handful of small, rural, small business, and their traditional customers. In addition to being highly regional to the Midwest (principally the Amish, and some Mennonite communities), there are less than 1,000 units sold per year.

There are active and knowledgeable SERs in both the coal stove, and cook stoves category, and HBPA defers to their comments.

## **2. How many technically different products or model lines does each manufacture produce?**

Many small manufacturers in the solid fuel category produce just one or two different products. Wood stoves alone or wood stoves and pellet stoves are typical product lines for several companies. There are, however, some

notable exceptions, including some of the SERs, such as American Energy Systems and U.S. Stove Company, who manufacture a variety of product types. There are a number of small companies that specialize in only one type of product: e.g. uncertified pellet stoves, cook stoves, coal stoves, outdoor hydronic heaters, wood furnaces, or indoor wood boilers.

The range of technically different products per small manufacture goes from one to five.

### **3. What is the market share in the U.S. for each technically different product from each manufacturer?**

This question is extremely difficult to answer and even the best informed answer will be extremely qualitative at best. In wood stoves, as defined by the NSPS, there are over a hundred specific products, grouped into a variety of model lines. Even the market share of particular companies is difficult to assess and virtually impossible to quantify for specific model lines. In the case of wood stoves, it is unlikely that any specific product has more than a 5-10% share. For pellet stoves, it is possible that a few models from each of a few separate companies together account for more than 40% of the new units. However, pellet stove sales are extremely volatile doubling or instead halving from year-to-year annually based in part on consumer perception of near term energy costs. This factor further obscures any assumptions about market share. In both woodstoves, and pellet stoves, there are significant manufacturers who are small entities but are foreign owned or located.

### **4. How many products on the EPA and/or WA certified lists are no longer manufactured? Do these tend to be higher emitting products and/or less marketable products?**

The EPA list of certified stoves includes every appliance that has been certified under that program. Hundreds of appliances that have not been manufactured for many years are currently on this list. Additionally, some of the early certificates that were held by companies failed to survive after the first NSPS was promulgated. Many certificates are for products made by companies that have been merged with, and/or purchased by other entities. In some cases, there is one example of a single unit that has been slightly modified and recertified four times over the last 20 years, and was listed separately each time. In other examples companies changed addresses and the same units they produce were listed more than once, i.e. to each address. Specifically, this happened in the merger of Aladdin Hearth Products, Heatilator Inc. and Harman Stove Company, into a single entity under the corporate umbrella of Hearth and Home Technologies. The result of these mergers was that the EPA list had a list of over 60 appliances when there were only 14 models that are actually in production.

HPBA spent a good bit of time earlier this year addressing this issue with our members. The product of this effort was a data base provided to EPA that showed that there are currently 147 appliances on the certification list that are in production: 110 are non-catalytic wood stoves; 15 are catalytic wood stoves; and 22 are EPA-certified pellet stoves.

### **5. How many manufacturers are small businesses [per product categories]?**

As has been indicated, many of the product categories overlap, especially in the case of woodstoves and pellet stoves. In those two categories, only a few are not small businesses. We believe there are at least 60 small businesses in this overall category, of which approximately 32 are involved in wood stoves, with the balance focused on pellet stoves, outdoor hydronic heaters, warm-air furnaces, coal stoves, Cookstoves, factory built fireplaces, masonry heaters and masonry modular fireplaces.

With the exception of a few large manufacturers, virtually all of the companies in the hearth industry meet the definition of small business.



## **6. How many manufactures are members of HPBA? BIA? MCAA? MHA? MHOP? PFI?**

Most of the appliance manufacturers in the hearth industry are members of HBPA. There are several (less than 10) non-members in the outdoor and/or indoor hydronic heater category combined. There are also several small coal appliance and cook stove appliance manufacturers, and at least two wood furnace companies who are not members of HPBA. We are aware of only one company in the woodstove category (Heat Tech, Gridley, Ca.) that is not a member of HPBA.

Additionally, HPBA has over 200 companies who self-identify as being part of the overall hearth category. These include companies that make critical components, such as chimney venting products or floor protection pads, OEM suppliers and tool set manufacturers.

The Pellet Fuels Institute (PFI) has 57 pellet fuel manufacturer members and 52 suppliers. The two Masonry Heater organizations have (with some overlap) approximately 160 members. Many are heater builders, and several are very small manufacturers who make proprietary heater cores for dealer and their own use.

## **7. How many foreign competitors are there [per product categories]?**

This information is very difficult for HPBA to track. Furthermore, it begs the question of: what does the phrase “foreign competitors” mean? In the wood stove category, the Jøtul Company, of Portland, Maine, has been a leading provider of wood stoves in the U.S. for almost forty years. Jøtul’s products are generally assembled in Maine, with parts that come from Norway. Their R&D for the U.S. market is located in Maine, and they are responsible for many EPA-certified models. There may be as much value added in the U.S. by Jøtul as other domestically owned U.S. companies that import cast parts and other components from China.

Another excellent example of this integration is Hearthstone of Stowe, Vermont. They are technically a foreign owned company, although they have been making and selling wood stoves since their founding by two Americans in 1978. Hearthstone was one of the many companies that suffered under the first NSPS, but were fortunate enough to be purchased by one of their suppliers. Hearthstone continues to import cast iron parts from their parent company in Spain, and is preparing to export pellet stoves to Spain this year. They currently maintain 14 units with EPA certification.

The U.S. wood stove market has also always had a number of important Canadian companies.

Foreign competition has recently increased dramatically in the pellet stove category. Sometimes these foreign companies will establish wholly-owned distribution subsidiaries in the U.S., but in many cases these products are imported by small American owned- businesses, which may face the cost of EPA certification on their own.

As stated earlier, EPA is actively involved in a bilateral discussion with Swedish authorities on the subject of emission method equivalency for the testing of wood boilers. Should that discussion be successful, it is clear that the small entities in the categories of hydronic heaters and forced air furnaces will face substantially increased foreign competition.

Obviously, small entities are at a disadvantage to foreign competitors who always have their home market on which to rely should they not be able to meet an emission target on a particular deadline or, *at a price consumers are willing to pay for the product*. Small entities in the U.S. must meet every EPA target deadline, and must deliver product that is reasonably close to previous prices, and with similar warranties.

## **8. What is the best estimate of the percentage of new manufactured wood-burning fireplaces versus new site-built fireplaces?**

The number of wood-burning fireplaces in new construction has dropped over the last 15 years, in favor of gas fireplaces. Over the period of 1998-2008, our manufacturers reported that shipments of new, factory built fireplaces have averaged 66% gas appliances vs. 33% wood appliances. The number of wood factory built fireplaces has dropped from an average of 600,000/year in 1999-2001 to 100,000/year at the end of this decade. This change reflects both the drop in new home construction and the rapid shift to gas fireplaces in the new homes that are being built.

Of these wood fireplaces it is clear from anecdotal information that in some markets a meaningful percentage of these units were installed in new homes with aftermarket gas logs and sold by the homebuilder as a gas fireplace.

The South Coast Air Quality Management District conducted an informal survey of actual new subdivisions in 2008 during the preparation of their wood burning regulation and found this to be the case in a majority of subdivisions visited by their enforcement teams. As a result of that finding, they adopted into their final rule the concept of equivalency for a gas log equipped wood fireplace with a gas fireplace. Similar practices by builders are reported in homebuilding markets across the south, including Phoenix, Dallas, Houston, and Atlanta. HPBA is not able to definitively track this practice since it takes place in the local market and our data is derived from units shipped, not installed. This practice clearly moderates the significance of these new, wood-burning fireplaces.

An extremely important point to remember when considering the impact of wood fireplace emissions is the products usage patterns. As documented in the information on fireplaces supplied to EPA from a literature review performed by Dr. James Houck, when surveyed for emission inventory purposes many homeowners report that their fireplace is not used at all. Specifically, an average of 32% are not used and an additional 59% are used for decorative purposes only (burning .069 cords of wood per year). Dr. Houck found that by averaging all the local and state surveys of wood usage that of the households that report using their fireplaces for heating the average wood consumption was only 0.656 cords per year.

Some of this information is covered in these comments in a special section on fireplaces.

HPBA cannot speak to the number of new masonry fireplaces installed each year but does believe that some portion of those units also receive a gas log when constructed and are effectively used as a gas fireplace. (The growth of remote controls in gas logs has heavily influenced the trend towards initially installing gas logs in new wood fireplaces, which effectively make that product a gas fireplace). We defer to the SER from the Brick Industry Institute (BIA) for estimates of the number of new masonry fireplaces installed each year.

### **C. Important generic issues for the SBREFA Panel to consider**

HPBA highlights below several important generic issues that merit consideration by the panel as they consider the potential impact of this NSPS revision on small business entities. As was stated orally at the August 25, 2010 meeting, many procedural or technical difficulties in complying with potential new NSPS requirements can be adequately addressed by larger entities, because they have greater financial resources. Small entities, which are in the majority of those affected by this rulemaking, are substantially more vulnerable to these compliance issues.

#### **1. Inherent variability in measuring emissions of small wood-burning units, and the resultant lack of precision in test methods**

Firewood is a naturally occurring fuel, which makes it much more variable than manufactured fuels such as gasoline. Consequently, SBREFA panel members need to be mindful that while reviewing the input from SERs,

testing the emissions from these small wood burners is an inherently difficult task. The core methods used for NSPS certification were developed in the 1980's, building upon pioneering work by the State of Oregon, which developed the first wood stove certification program. The core fueling method relies on the use of "cribs" of standardized Douglas fir 2x4s and 4x4's lumber, as opposed to randomly selected pieces of cordwood. Thus, the NSPS emissions test was never designed to be predictive of field performance, but rather was always understood to be reasonably useful for benchmarking the relative performance of wood stove technologies, i.e., for discriminating between woodstoves that reflected BDT and those that did not.

In the more than 20 years since the promulgation of the NSPS, there has been no scientifically rigorous investigation of the variability inherent in the NSPS test method, despite the fact that more than 700 wood stove model lines have been certified. EPA has conducted a multi-year proficiency test program for accredited laboratories, which has generated a large data base of data that would inform such an analysis. Moreover, EPA has never determined the inter-laboratory precision of the method, although the agency committed to do that by July 1, 1990, in the background information document first version of the final NSPS.<sup>3</sup>

The fact that certification test results are a poor predictor of performance in the field coupled with the inherent variability in the certification test methods, and the lack of a rigorous assessment of that variability has important implications for this rulemaking proceeding. Simply put, if the variability in the certification test scores makes it impossible to discriminate meaningfully between an appliance with a 2 g/hr weighted average emission rate and one with a 4 g/hr emission rate, then there would be no basis for lowering the standards, and imposing costs on either large or small entities to replace model lines that were certified at 4 g/hr. Moreover, even if it were possible to discriminate meaningfully between appliances with these emission rates, based on certification test scores, there would be no point in doing so if these differences did not implicate significant differences in real world performance in the field. Both of these issues need to be addressed in this process. Even if these more general issues can be adequately resolved, the variability inherent in the underlying method, together with the absence of a sound analysis of test method precision by the agency, puts small entities at substantial risk because they typically lack the ability to pay for the additional certification testing necessary to overcome a first round of testing which produces non-passing results which the entity believes are misleading. This risk is true not only for all of the methods involved in wood stove testing, but even more so for the newer, less proven methods created for other related products, such as hydronic heaters, and wood furnaces. It is worth noting, that these are appliance categories where small manufacturers predominate.

The NSPS provision of the Clean Air Act, section 111, requires EPA to set an NSPS at a level "which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any non-air quality health and environmental impacts and energy requirements) the Administrator determines has been adequately demonstrated." This means that, in establishing an NSPS originally or revising it, EPA must set the stringency of the NSPS at a level that is achievable without imposing unreasonably high direct costs or unreasonably costly side effects. It is now long-established that the emissions test methodology underlying a numerical emission standard is an integral part of that standard itself, and as determinative of stringency as the numerical standard itself. In the wood-burning context, this is especially true, as described above. Consequently, in order to tighten the current NSPS or expand coverage to new subcategories of residential heating appliances, EPA must determine the level of variability inherent in the applicable test methodology and set the numerical standard at a level that takes that variability into account so as to assure achievability without unreasonable costs. Moreover, EPA also must evaluate the market impact of whatever level of stringency it is planning to adopt and adjust it to avoid unreasonable impacts, including the disruption in overall competition that could occur by putting small entities at a competitive

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<sup>3</sup> *Residential Woodheaters – Background Information for New Standards*; EPA-OAQPS, November 1987, p 3-84, 3-85

disadvantage. Unfortunately, past is prologue here: it is well-known that the current NSPS caused a massive contraction in the number of manufacturers and marketers of wood stoves, as described above.

## 2. Impact of the revised NSPS on changeouts

As discussed in the introduction, HPBA has worked diligently for 20 years to encourage the replacement or removal of older, pre-NSPS wood heaters. This process has accelerated with the partnership and leadership of the Voluntary and Innovative Programs group at OAQPS. Discounts and incentives from our industry have been combined with resources from local offset programs and Supplemental Environmental Programs (SEPs) to encourage the removal and destruction of older units that predate the original NSPS. Staffs of EPA, HPBA, the states and tribes are working together in seeking opportunities to encourage the removal and destruction of old wood stoves. With the advent of the voluntary program for hydronic heaters, we are beginning to see changeout programs discussed for those units, notably in Vermont and Fairbanks, Alaska.

In virtually every changeout program in which HPBA has been involved over the last 20 years, the cost of an EPA-certified stove has been a key factor in determining the effectiveness of the program. When consumers contemplate the replacement of an old stove, they naturally take into account the commonplace reality that their old stove *still heats*. Consumers may appreciate the enhanced appearance of the new stoves, their increased efficiency and reduced emissions, but the fundamental conundrum for them is that the old unit is *not* broken, and the new units require a substantial outlay of household resources. Thus, the reality that changeout programs generally face is that the price level at which a consumer is willing to buy the new stove and abandon the still-serviceable old stove is less than the normal market price of the new stove and sometimes even less than the cost of producing the new stove. Consequently, some form of subsidy is generally necessary in order to have even a minimally effective changeout program.

Certainly the cost of producing a wood stove has increased for many reasons over the last 20 to 30 years, but prominent among these cost issues have been the R&D costs especially related to emission testing. Generally, as wood stoves become more expensive, it has become increasingly difficult to put together an effective changeout program because it takes larger subsidies or other incentives to persuade consumers to give up their still-serviceable stove and replace it with a stove for which they have to pay money. Thus, there is a direct relationship between the burdens that the NSPS program imposes on new appliances and the efficacy of changeout programs. The more EPA tightens the current NSPS for subject model lines and the more model lines the EPA adds to the NSPS, the more EPA is adding to the cost of production prices and the subsidization necessary to changeout the old stoves.

Credible estimates of the number of pre-NSPS wood stoves in use in the United States range between 9 and 16 *million*, and collectively their particulate emissions levels above the levels of substitute new wood-burning equipment are substantial. Recall that the AP-42 values for controlled (NSPS) woodstoves are 19.6 lbs/dry ton. The AP-42 emission rates for uncontrolled wood stoves are 30.6 lbs/dry ton.<sup>4</sup>

HPBA member manufacturers who respond to our quarterly survey report that in 2009 they shipped 141,747 EPA certified woodstoves (down from 193,593 in 2008) and 46,127 pellet stoves (down from 141,208 in 2008). It is simple to understand that, even if almost all of these units became replacements for the pre-NSPS stoves (which is not the case), the process of replacing those older units with new NSPS-certified stoves, or pellet heaters, is very lengthy. Changeout programs, however, are vital for reducing the atmospheric loading of particulate matter attributable to the pre-NSPS wood stoves. Thus, there is a direct but inverse relationship between the emission

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<sup>4</sup> AP-42 Emission Factors, Vol.1, CH 1.10 Residential Woodstoves, <http://www.epa.gov/ttnchie1/ap42/ch01/final/c01s10.pdf>

It is also important to remember that the NSPS units use ~ 33% less wood.

reductions that might be achieved by tightening and expanding the current NSPS and the emission reductions that might be achieved through market-driven (glacial) turnover and organized changeout programs. Broadly speaking, the more EPA strives for the former, the more it may sacrifice the latter, because of the realities of the marketplace.

Under section 111 of the Clean Air Act, quoted in part above, EPA must take this dynamic into account in deciding first whether a subcategory of residential heating appliances warrant a national-scale NSPS at all. Under section 111, EPA may newly regulate a subcategory of emitting equipment only if it first determines that newly constructed pieces of such equipment in the future will cause or contribute “significantly to air pollution which may reasonably be anticipated to endanger public health or welfare.” Whether a subcategory would be “significant” requires an examination of the likely incidence of such future equipment temporally and spatially, the levels of emissions from the equipment, the efficacy of currently demonstrated control technology to reduce those emissions, the likelihood that state and local authorities could and would adequately regulate the emissions from a health and welfare standpoint absent a national-scale NSPS, and the societal costs of setting an NSPS for the subcategory. Here, it may well be that a subcategory of residential heating equipment is not “significant” within the meaning of section 111 in part because the added cost of compliance would so drive up market prices so as to suppress natural turnover in equipment and the efficacy of organized changeout programs. EPA must take into account the dynamic of NSPS stringency suppressing changeouts when it determines BDT. The potential for compromising the efficacy of changeout programs is a cost that bears on whether the technology really is the best choice for society. HPBA urges EPA to give careful consideration to this dynamic and to avoid compromising the efficacy of such proven programs.

### **3. Certification procedural issues and laboratory “log jams”**

The current NSPS regulates one subcategory of residential wood heaters (wood stoves) and partially regulates pellet heaters. EPA is contemplating a massive coverage expansion to the NSPS by regulating a number of additional subcategories of heaters, and also potentially regulating fireplaces, which are used largely if not exclusively for aesthetic enjoyment and for heating. We applaud EPA for endorsing the concept of using independent third-party laboratories to take over some of the audit process when these laboratories hold their safety inspections, which will change the burden of follow up for the certified products. Even with this approach, however, it is obvious that there will be significant laboratory capacity problems, in light of the number of appliance categories that will be subject to the revised NSPS. In short, there will certainly be a log jam problem at the laboratories.

This refers to a massive number of new products that must be certified before they can be built, arriving at the few EPA accredited laboratories in a very short time. This issue must be taken into account in specifying effective dates for each of the new standards. If several categories have the same Phase II deadline, as postulated in the SBAR Panel Presentation (EPA, August 11, 2010), then there may be a severe log jam. Moreover, this is an especially acute problem for small entities who simply cannot afford to wait significant periods of time to get the regulatory approvals required to bring new model lines to the marketplace. In this highly seasonal business a small entity that cannot make a product in time for the selling season, due to a laboratory log jam, may not survive until the next season.

The certification process currently in use under the NSPS was developed through the reg-neg process, and represents a compromise worked out more than 20 years ago to reflect the situation that existed at that point in time. Many of the details of the certification procedures are less useful or necessary after 22 years of operating this program than they may have been originally. In order to accommodate the dramatic increase in models that may need to be certified under a revised NSPS, it is imperative that EPA’s OECA review some of their basic processes, especially as they relate to small businesses.

Currently, when one of the EPA-accredited testing laboratories submits a test report, the submittal must be in writing, as OECA is unable to receive electronic information. OECA then enters this information into a Lotus Notes® spreadsheet, at which time it can be reviewed and evaluated. Once OECA staff is prepared to issue a certificate of certification, good for five years, there is an additional delay as each package is passed through the OECA chain of command prior to being issued in final form. This process is anachronistic and cumbersome, and appears to serve only to delay the process. As an example of the value of this process, within the last 60 days a small entity was issued a certificate with an expiration date that was exactly the same as the date of issue. (Clearly, in this case, the list of signatories failed to provide much quality assurance.) It was several weeks before EPA was able to rectify this mistake, during which the small business was unable to make and ship this model.

Small entities believe that OECA has committed minimal resources to the certification program, yet EPA proposes to bring into the program many more small entities (many of whom have yet to learn this process) and many more model lines into the program. Many small entities are as concerned with the potential for increased delay and uncertainty of the OECA-managed certification process as they are with the actual challenges of getting their models ready for the testing laboratory.

HPBA appreciates that OAQPS is sensitive to some of these issues, particularly to follow-up and enforcement issues. HPBA anticipates that the EPA will begin taking steps soon to address these issues, *prior* to the issuance of the final rule. Many small entities are concerned that the handful of large entities will find the resources to overcome procedural delays and distractions, while small entities will not be able to keep up. If EPA does bring more subcategories requiring certification testing into an NSPS that has been substantially expanded, HPBA would urge the agency to marshal the necessary resources to establish a fully efficient and responsive certification process that will help, and not hinder, industry.

#### **D. Wood Burning Fireplaces**

HPBA has special concerns about the decision to include wood burning fireplaces in the NSPS review. Fireplaces are not heaters. Their purpose and use patterns are very different than heater products such as wood stoves, furnaces, boilers, masonry heaters and pellet stoves. While they are included in about half of new homes, they are often primarily decorative, and the vast majority of factory built fireplaces burn only gas.

Low emission wood burning fireplaces are in the very early stages of their development, having only recently been included in a voluntary program that was finalized as recently as July 2009. HPBA believes strongly that low emission wood fireplaces should be afforded a period for new product development as were low emission wood heaters before the imposition of a regulatory program. Mandatory woodstove regulations were first enacted by Oregon in 1983 (with certification beginning in 1986), and the key phase of the Federal NSPS (Phase II) became mandatory in 1990.

The following information was prepared by Dr. James Houck, and HPBA has already shared this information with EPA at a special meeting on this subject in January of 2010, at our offices in Arlington, Virginia.<sup>5</sup>

Based on a comprehensive review of surveys by the Census Bureau, the National Association of Homebuilders, and local air agency surveys, HPBA has concluded the following with regard to fireplaces:

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<sup>5</sup> Total Projected Emissions from New Fireplaces 2016: Houck, Clark; Omni Environmental Services February 3, 2010.

1. Approximately 51% of new homes constructed have one (or more) fireplaces; approximately 49% have no fireplace.
2. Of the new homes with fireplaces, approximately 65% are gas fireplaces and 35% are wood-burning fireplaces. (This does not include gas log sets installed in wood-burning a fireplace that effectively increases the percentage of gas fireplaces—see discussion above).
3. Of the wood-burning fireplaces installed in new homes, approximately 32% are reported by homeowner surveys to be “not used,” 9% are used for “heating,” and ~59% are used for “aesthetics”.
4. Fireplaces used for heating use an average of 0.656 cords (1600 lb.) of wood per year.
5. Fireplaces used for aesthetic purposes use an average of 0.069 cords (170 lb.) of wood per year.

In assessing the impact of a mandatory emission standard for wood fireplaces it is important to keep in mind that the market for new homes has collapsed, and is recovering *very slowly*. HPBA has provided EPA with three different projections of housing starts over the next five years, based on current levels and historically based recovery patterns, and concluded last January, that a reasonable projection is approximately 691,000 housing starts per year, averaged over six years (2011-2016). (Subsequent events during this year imply that the new home market is not recovering as quickly as previously anticipated further reducing any justification for imposing an NSPS process on fireplaces.)

Using that estimate, the total *cumulative* wood fireplace sales over those five years is estimated at approximately 792,000 units. Using the use pattern breakdown, this results in a total of approximately 69,000 fireplaces used for heating, 428,000 fireplaces used for aesthetics, and 232,000 fireplaces *not used* over the six year period. (Under the most optimistic estimate of projected housing starts, these values might double.)

Projected particulate emissions for new fireplaces in 2016, based on the average of all three project housing start estimates is 1565 tons for baseline fireplaces and 777 tons if all fireplaces meet the EPA Voluntary Program Phase II limit (5.1 g/kg). This is a very small contribution to national atmospheric loadings in comparison to other forms of comparable combustion equipment such as biomass-burning industrial boilers.

If the trend to gas fireplaces continues or accelerates over time, which could occur with the increase in cost to wood fireplaces caused by the addition of emission control technology, the particulate emission estimates decrease. If the percentage of new fireplaces that use gas increases from the current 65% level to 75% the baseline fireplace emissions would drop to 909 tons and the use of the voluntary program’s Phase II value would drop to 466 tons. It is also important to note that virtually all of the air sheds, that violate the current 24 hour standard for PM 2.5 and many of the areas “at risk” of violating a new NAAQS should the standard be revised, already have limits on the installation of new wood fireplaces.

If housing starts trend to the most probable recovery estimate (represented by the third of the three estimating methodologies), these values are even lower. All in all, it does not seem possible on the basis of existing data to conclude rationally that wood-burning fireplace units have the national “significance” required for their regulation under section 111.

There are eight models that currently attain the EPA’s Phase II voluntary fireplace standard. Their prices range from approximately double the current price of a wood burning factory built fireplace, to one unit that is more

than 10 times the price of a basic fireplace and chimney. Sales of these new products have been modest due to the housing market and to EPA's lack of promotion and advocacy to state/local/tribal air agencies regarding the benefits of these products. This advocacy, part of the EPA's voluntary fireplace program commitment, was anticipated by the manufacturers who made substantial investment in cooperatively developing the test method and fueling protocol *at no cost to EPA*, and then individually invested in the development of new products.

HPBA believes very strongly that allowing the Voluntary Fireplace Program to continue and allowing companies to develop new products to meet these targets will be the best outcome for this category of products. The Voluntary Fireplace Program has just begun to show the results of five years of industry time and investment, and these companies deserve some time to recoup their investments. Given the unusually slow new home market, the presence of the voluntary program, and the decision by many local communities to ban wood burning fireplaces in favor of gas, a decision to include wood fireplaces in the *next review* of the NSPS will have no significant consequences for the environment, especially in sensitive air sheds.

#### **D. Conclusions**

HPBA respectfully urges EPA to devote the time and resources necessary to undertake a more rigorous and systemic process of data-gathering and evaluation than it appears to have undertaken to date, by focusing on the two key parameters of section 111, significance, and BDT. Moreover, HPBA urges that once EPA has developed its regulatory options and impact analyses, it re-activate the SBREFA process. This would allow the SERs to have a more meaningful opportunity for commentary and analysis than they have had in this SBREFA round. Giving the SERs a second SBREFA to more clearly inform the agency of the real world consequences of its NSPS options would enable the SBREFA Panel to give the Administrator a better-informed set of recommendations. HPBA stands ready to help in any way it can. The industry that supplies residential solid-fuel fired heating appliances to U.S. homes is made up largely of small businesses, and the impacts on those small businesses of a revised NSPS could be damaging, as well as EPA's to own efforts to change out pre-NSPS wood stoves. HPBA calls on EPA to be especially careful and attentive in circumstances like this where small businesses predominate.





# NSPS Review and Comments

~~Detailed Confidential Business Material  
Included~~



September 10, 2010

*"Keeping America Warm Since 1869"*

### **Looking to survive the oncoming train that is the NSPS...**

As stated before and repeated intentionally to press upon you the gravity of your actions, the small business world that we live in, with United States Stove Company being a long standing member, must be given adequate time to finance this tremendous economic undertaking. The financial burden documented by us, other manufacturers and independent labs range development cost from \$250,000 to \$750,000 per model for simple, low technology designs. As we venture into the more advanced Engineering models that number climbs and so does the time it takes for a return on that investment. This return affords further development and funds for continued investment.

This NSPS cost will have a tremendous impact on our bottom line and continues to stress our productivity and efficiency. Naturally, as a small business we always watch our expenses. As a family owned company in a small town, we are also very conscious of our role within the community. Weighing economic decisions with moral choices will forever be a delicate balancing act. For United States Stove Company, we've seen families grow with our company and are proud to say we have seen several generations come through our doors. Today, we have three team members that have celebrated over 50 years of loyal service. We would hate to see our own commitment and loyalty to our families be jeopardized with just an unknowing or uncaring stroke of a pen.

We currently have 35 different models in potentially seven categories that are affected in the proposed NSPS. Of that number, 28 models were not included in the original NSPS and 16 of those do not have datasets, approved test methods or are in the very early stages of developing test protocols. There are 15 that are categorized as Warm Air Furnaces, of which BDT has not been established. Another 9 involve coal and who knows where that is going. With no data, no test protocol and other major categories absorbing the funds, the coal burning units are left on the back burner with few opportunities or companies able to afford their ongoing development.

As a cornerstone of the industry, we've attempted to lead by example and started certifying pellet stoves years ago. With the help of third party labs, we engineered and recently patented a new high efficiency pellet unit that is geared to be the "next generation" of pellet stove technology. However, innovation and research does come with a substantial cost. Therefore, faced with the complicated future of dealing with multiple categories and the moral judgment of developing cleaner, greener products, we made the decision to "bite the bullet" and break ground on our own test facility. This will eventually allow us to develop BDT, improve our own research and get to market a bit quicker. This investment however does come at a great expense. Land, building, equipment and personnel is estimated to be over \$750,000 over the next six months (See Table 3). That's before the first model is certified.

These are tough time, facing tough issues that demand reasonable compromise and understanding. The goal is to provide cleaner burning products, at affordable prices. Plus reduce the use of petroleum dependent energy sources. This makes the solution clear. We just need "A LITTLE TIME" with reasonable expectations. We're not talking decades or another twenty years. A few categories are well defined with BDT determined. Others however are not and as an industry we will develop. Given enough time, our American Small Business and industry will survive and spur job creation. Pressured into unrealistic expectations, businesses will surely slow, forcing industry and employment contraction.

Please take note with the following questions and comments that should help explain our strongest concerns.





September 10, 2010

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**Have you fully considered R & D Cost for companies facing multiple categories?**

Many manufacturers, ourselves included, have multiple categories that are facing regulation which will greatly exacerbate problems on all fronts, including how we address the market in the interim, financial wherewithal, adequate personnel and last, but certainly not least, our own profitability. Your latest examples of NSPS cost, submitted to us on August 18, 2010, list "Wood Stove Certification:\$10,000 . Referenced by John Dupree of EPA. While that may be the emission testing cost, no product is finished until Safety Testing is performed and that's another \$10,000, plus

In the last NSPS, the limited affected categories resulted in many exemptions. Still, there was a two year Phase II period that covered wood stoves only. Now, with an all inclusive attempt, the allowable time must be extended to accommodate the expansion. When compiling the numbers and rendering a decision, please consider all cost and impact.

As a mid level player in this hearth game and years of experience with new product development, we have a firm grasp as to our hard cost and timetable in getting items to market. Considering design, prototype, testing "Testing Approval", tooling jigs, laser/punch setup, production, marketing support, point of purchase material, etc., etc. you can see a lot of costly elements. Add in training and education of new design and/or technology the cost associated with each item and amount of time runs in excess of \$300,000 over an 8 to 12 month schedule. That is for one new product in one category that is not overly complicated. As we get into more innovative products, the amount of time and cost can substantially increase. This NSPS is attempting to group several categories at one time. As a small business attempting to grow and reduce market volatility, we've built our brand on expansion and diversification. We "DO NOT" only build wood stoves (See Figures 1 and 2). Our market expansion and product selection covers Warm Air Furnaces that burn both wood and coal, Coal Stoves, Single burn rate stoves, Pellet stove and Multi-fuel stoves; all in the NSPS proposal. In order to have all categories covered, most of which have not been included before under the same timetable, will force the R&D costs to elevate above available cash flow.

This chart illustrates our current lineup with 28 affected models considered in the NSPS.

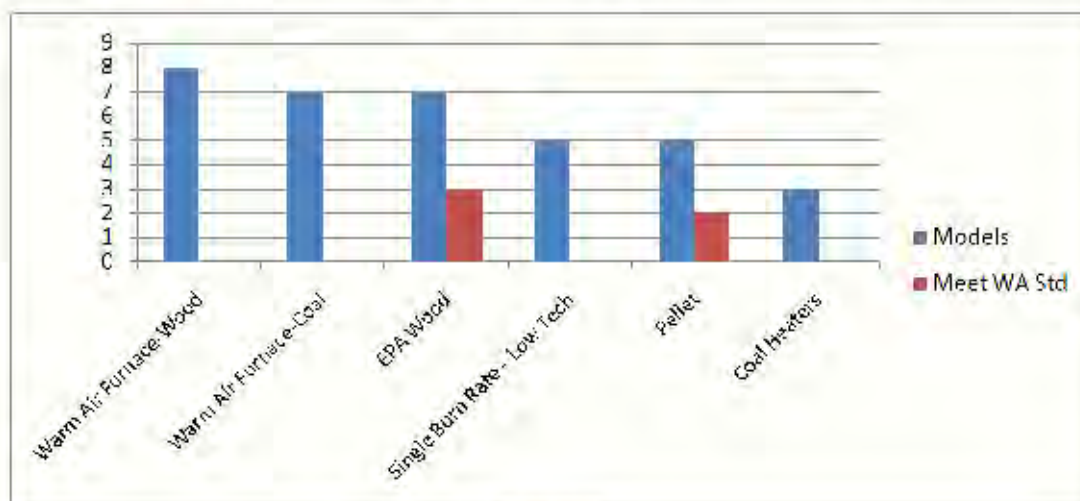


Figure 1



September 10, 2010

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When looking at the categories, it is good to know that some are very regional and may not pose significance in the national picture. One such category is the Warm Air Furnaces (wood or coal) that were born in the Great Lakes region and through the years these states have continued to lead in their use. As the largest manufacturer of this category, we're best suited to offering data to this fact. Below, you will see our estimates for total market size, retail pricing and our share of the pie. Because of the huge spike we experienced in 2008 energy prices. Steel prices and transportation cost resulted in a huge price swing. Since that time, you see the average prices continue to moderate but shipments have reduced significantly. Since 2008, shipments are down 32% and below 2005 levels.

**Confidential Business Information deleted**

Estimated Warm Air Furnace Sales by Shipments

	2004	2005	2006	2007	2008 **	2009	2010
Shipments	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
avg. retail *	\$ 935.82	\$ 1,050.89	\$ 1,118.62	\$ 1,106.39	\$ 1,397.47	\$ 1,358.66	\$ 1,358.50
Low Retail Model ***	\$ 721.32	\$ 836.39	\$ 904.12	\$ 891.89	\$ 1,182.97	\$ 1,144.16	\$ 1,144.00
High Retail Model ***	\$ 1,436.32	\$ 1,551.39	\$ 1,619.12	\$ 1,606.89	\$ 1,897.97	\$ 1,859.16	\$ 1,859.00
US Stove Percent of Market	48.7%	51.7%	53.4%	54.7%	60.9%	64.0%	66.3%

\* Average retail of most popular sizes. Approximately 100,000 btu's rated to heat 2000 to 3000 sq.ft.

\*\* Elevated steel prices and shipping cost saw a spike in cost of goods.

\*\*\* Most popular model in category

Table 1	8.8%	OH
	8.0%	WI
	7.8%	MI
	7.7%	PA
	7.3%	MN
	6.7%	NE
	6.6%	NY
	6.4%	IL
	6.4%	IN
	6.3%	MO
	4.9%	IA
	4.4%	KS
	3.7%	WV
	3.5%	KY
	3.3%	MD
	91.8%	Total

Since 2004, table 1 illustrates our shipments of Warm Air Furnaces by states. With the top fifteen states represented





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As indicated in the above chart, we cannot see where the Warm Air Furnace category is significant enough from an air quality standpoint to justify an immediate national-scale NSPS. However, the data does illustrate regional significance and one that United States Stove Company is prepared to better. We've committed to developing BDT for furnaces and are investing in their future with our own test facility. We simply ask that we're given a reasonable level and time to develop. Before a hard number is given, allow us to test and build a dataset so that a competent determination can be made. As we've stated before, a furnace test protocol was just recently given a consensus and even that has some questions. Logs vs. cribs?

When looking at the Coal Category, many similarities are seen with the Warm Air Furnace. Little to no data is available and a test protocol somewhere in development. This category will also offer the same argument of regional use and should be allowed time to develop data and BDT.

Also, from the "Draft Cost Analyses", received last week under the General Observations, we question the first comment, "There is no apparent relationship between the retail price and the emissions performance." This is totally wrong in our market. We have low technology single burn rate stoves, "EPA Exempt", that seem to be forgotten. How do you expect to add technology like secondary combustion, stainless steel tubes, catalytic combustors, welded channels for preheated combustion air, etc, without adding to the final cost? As a manufacturer that is forced by our retail partners to control cost, we are fully aware of the impacts at retail. We see many products forced to leave this country and produced cheaper overseas. You admit this phenomenon with the Hydronic heaters and the large impact it has had on retail pricing.

#### **Have you considered the economic landscape we're facing?**

Somehow, with everything that is going on with this NSPS, our company and all others are still addressing our normal day-to-day activities. We're looking into our crystal balls and weighing our direction on projections. These decisions could be based on sound economic data, a best guess or most likely a little of both. These decisions are a little like rolling the dice and sometimes pay off. Other times you roll craps. We've seen many in this industry over extend themselves. In good times a few bad rolls hurt your bankroll a little. In tough times like today, mistakes are magnified and can lead to disastrous results. Cash flow is weakened and spending is a cautious undertaking. So have you considered how this challenging economy will provide the resources to accommodate the financial burden of this NSPS? By most accounting experts, this deep recession will see a very slow recovery. Following a very down year in 2009 (See HPBA Data Report Figures 4 & 5) and sales shaping up for 2010 to be down double digits, when do the funds materialize?

#### **What BDT do you consider for the Warm Air Furnace Category?**

It has been mentioned several times that the EPA is interested in European technology. The verdict is still out on that opinion because of their cost and testing methodology. However, it is clear you cannot compare Hydronic technology to Warm Air. Warm air furnace duct temperatures greatly impact product design by limiting the nominal heat output an appliance may reach. This causes cycling the combustion process regularly. With Hydronic and the ability to store energy, this need is greatly reduced and allows the combustion cycle to stay in the "sweet spot". The difference in design and operation associated with





September 10, 2010

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energy storage is confirmed in the NYSERDA report. The EPA website list results from the report stating, "Short cycling is a direct contributor to improper combustion and it's strongly recommended a storage median be used to improve efficiencies and emissions". Warm air furnaces do not have the luxury of storing unused warm air. The intended operation of a Warm Air furnace is expected to "short cycle", when demand or safety requires it. While Warm Air furnace combustion is closer to a wood stove, the larger firebox presents challenges with respect to the wood stove testing and emission limits. A recently released test protocol looks to take these elements into considerations. One is the Minimum Burn Rate expressed as a percentage of the appliance's High burn rate, with a cutoff set at 35%. Another is basing emissions on btu's. Both of which will help establish data and a benchmark for where we are today. We have units being tested to establish that those very fact. This will only cover wood or other Bio mass fuels.

**What do we do with our Coal Burning Warm Air Furnaces?**

What coal testing is being considered? What emission limits? What coal? will not continue with the many coal scenarios as it is a paper in itself. But understand, most manufacturers that produce coal burning appliances also have other involved categories.

**What effect does the economy have on the NSPS?**

During tough times the customer will tighten their belt and find ways to survive. Just like small businesses, the strong and well managed will survive and grow. During the last few years with the difficult economy forcing these effects, we've seen a push towards repair rather than replace. Cars are being overhauled and parts replaced. Advance Auto has seen their stock almost double in the last twelve months. Autozone has seen their stock go from \$135 to \$210, in the same period. Why, uncertainty in the economy, loss of jobs and unsure of what tomorrow brings.

We're seeing the same thing in our industry. Mr. Joe Stove Owner is keeping what he has and repairing. In our markets, our products are more function than decorative and are often used as a primary heat source. When money is tight, our phones lines light up and the other end ask what alternative we can provide to save them money. When faced with \$1,000 new stove or \$100 in repair parts, what wins? (See Figure 6)

**The need for longer transitional periods...**

In order for us to help reduce particulate emissions, improve efficiencies and create jobs (or save jobs) we must be given time to finance and develop products. Given just two categories, we are currently working on 10 wood stoves and 8 warm air furnaces that will take years to complete. The financing of these a one will clear your piggy bank. Add in your intended coal stoves and pellet appliances and you start to see the European influence. That is, our books will start to mimic the Greek Economy.

I repeat, it is both our strong desire and stated intention to work with the EPA and develop a NSPS. We simply ask that we're given time to adequately finance and develop products so not to jeopardize jobs and impede business growth. United States Stove Company is willing to participate in any additional meetings, following the completion of the panel process, to continue discussions and provide more economic data.





September 10, 2010

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**Cost/Market Economics** – From questionnaire presented on August 19

What are current shipments per product category? See Table 1 – [CBI](#)

What are average shipments per model line? See Table 1 – [CBI](#)

What are current revenues per product category? See Table 2 – [CBI](#)

What percentage of total company revenues are per product category? See Table 2 – [CBI](#)

How many products do you have per category? See Table 1 – [CBI](#)

How would a more stringent or inclusive NSPS affect your offerings? Due to our complicated situation with multiple affected categories, we will make decisions on a priority bases and economic impact. What products or categories give us the best bang for our buck? Some products and or categories will need to be delayed until both time and funding are available.

Will your offerings change depending on the how stringent the NSPS may be? They could be for sure. We will need to address products and categories systematically and review all options. Outsourcing, even though expensive, may be a consideration. Again, it comes down to timing, cost and ROI.

What is the average lifetime of a product line before you feel the need to make cosmetic changes? This is primarily based on the retail market. Often price has the biggest impact on the life cycle. We're pressured by our customers to control cost.

How often are products changed that require recertification? This depends on the category and product. Some products will be affected by market trends or competition, e.g. adding value with an ash pan or new door design.

What percentage of revenues do you spend on raw materials, labor, energy, R&D, testing, marketing warranty and all other cost? See Table 5 – [CBI](#)

Please comment on the accuracy of the emissions inventory listed in slide 4.

What is the cost to renew a certification under the existing NSPS? Recertification requires retesting and that is another \$10,000 plus incidentals. (estimated to cost \$10,000 - \$12,500)

What are the average cost to manufacturer and the price range per category? See Table 2 – [CBI](#)

Compare the cost of lower emitting products verses higher emitting products. When looking at Table 2, you see two categories of wood burning products. The EPA product and the Exempt Single Burn Rate will provide an excellent comparison of the cost difference. We estimate on average another \$100 is added to the cost to manufacture a lower emitting product. This will raise the retail price approximately \$300.





September 10, 2010

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**Cost/Market Economics (Continued)** – From questionnaire presented on August 18.

What is the price elasticity of supply for various products? A tentative energy in itself is very elastic. When competing against the ease of a thermostat and basically set it and forget it. The driving force is the cost of that convenience. When sweat equity is added to the equation, e.g. cutting, splitting and stacking fuel, some return is built in. Still, once the ROI moves beyond two years we experience marginal growth. After three years the market simply stops.

What are typical markups and ROI? See Tables 2 & 3 - **CB1**

How do markups vary for different channels of distribution? In our case, the rule of thumb is (selling cost x 2) is the expected retail. For major retailers like Lowes, HD and TSC their retail is closer to (selling cost x 1.5)

What are the typical costs for installation, maintenance and warranty claims per product? See Table 6 - **CB**

What are typical lifetime and warranties per product category? Our products are all backed by a five year limited warranty. That covers items we produce, like fireboxes. Electrical and other purchased components like cast iron and glass have 1-3 year warranties. As for the life expectancy, that's like asking how long your car will last. Depending on the user and maintenance, we've seen our products last decades. Then again, we've seen failures after a few months.

How did the NSPS of 1988 affect our company? The limited resources available and BDT in its early stages, we experienced many setbacks. The catalytic technology and maintenance was not widely accepted by the general public. Their understanding and behavior with the operation of a new wood stove was often looked upon as "damn them revenueers"! For twenty years we've burned wood and now someone is going to tell us how to do it". Dealing with the retail customer on a daily basis you expect anything. When one appliance has been in use for 20 plus years and is replaced with a new, better technology model problems are always directed towards the "defective new unit" and manufacturer. Many times once the cat was plugged, it was simply removed. Never to be used again.





September 10, 2010

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United States Stove Company Sales History by NSPS Affected Categories

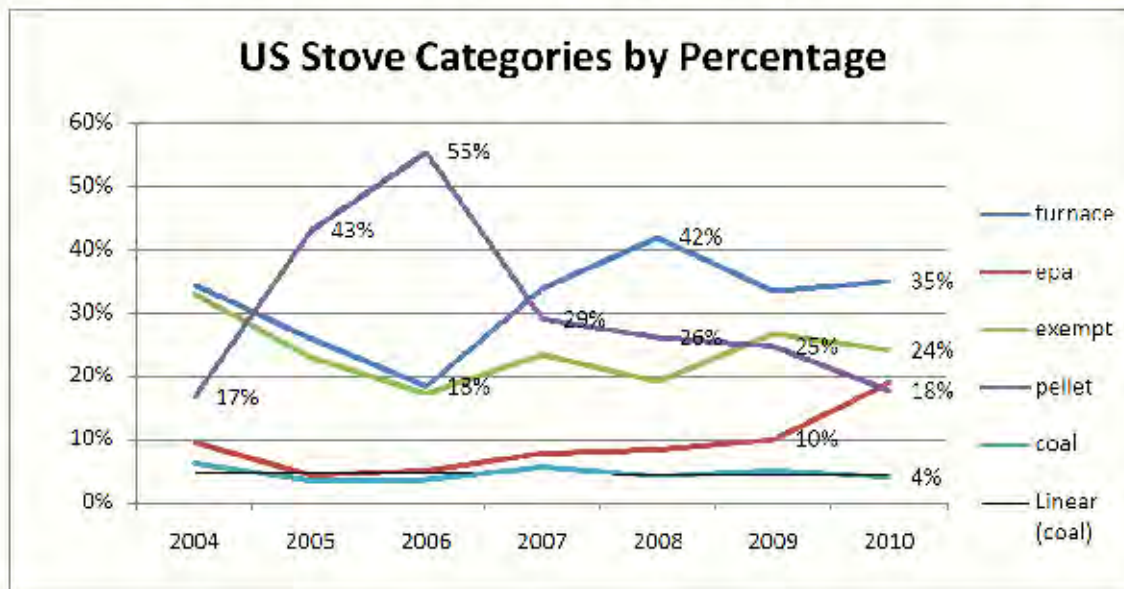


Figure 2

United States Stove Company Sales History

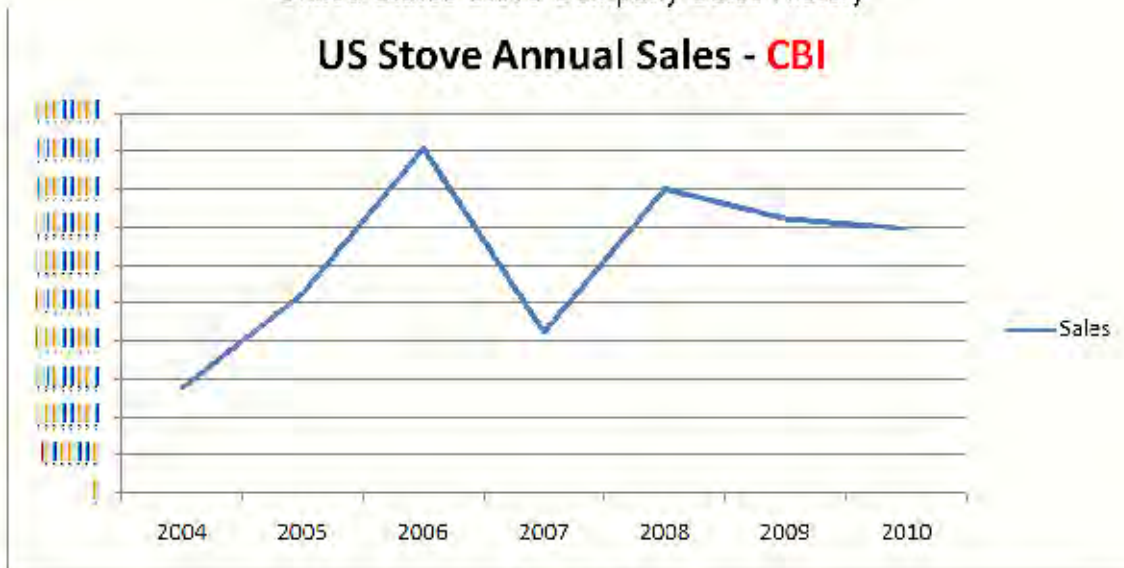


Figure 3



September 10, 2010

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**HPBA Data Reports**  
 Wood and Pellet Category History

2004		2005		2006	
Wood LPA	74,834	Wood LPA	48,114	Wood LPA	100,588
	AVG. \$798		AVG. \$807		AVG. \$804
	60,522,026		78,651,400		82,208,166
Pellet	51,251	Pellet	99,861	Pellet	107,344
	AVG. \$1212		AVG. \$1570		AVG. \$1550
	67,382,075		136,774,507		144,953,614
2007		2008		2009	
Wood LPA	74,710	Wood LPA	127,124	Wood LPA	90,928
	AVG. \$804		AVG. \$874		AVG. \$865
	63,777,402		111,006,033		82,095,063
Pellet	42,442	Pellet	118,401	Pellet	85,608
	AVG. \$1577		AVG. \$1266		AVG. \$1456
	66,936,138		119,929,151		51,852,780
2010 PROJECTED					
Wood LPA	70,742				
	AVG. \$1091				
	67,005,055				
Pellet	19,584				
	AVG. \$2618				
	51,852,780				

Note downward sales from '08 to '09 range from -25% to -65% with Wood and Pellet Categories

Figure 4

HPBA Data Reports - Wood and Pellet Category

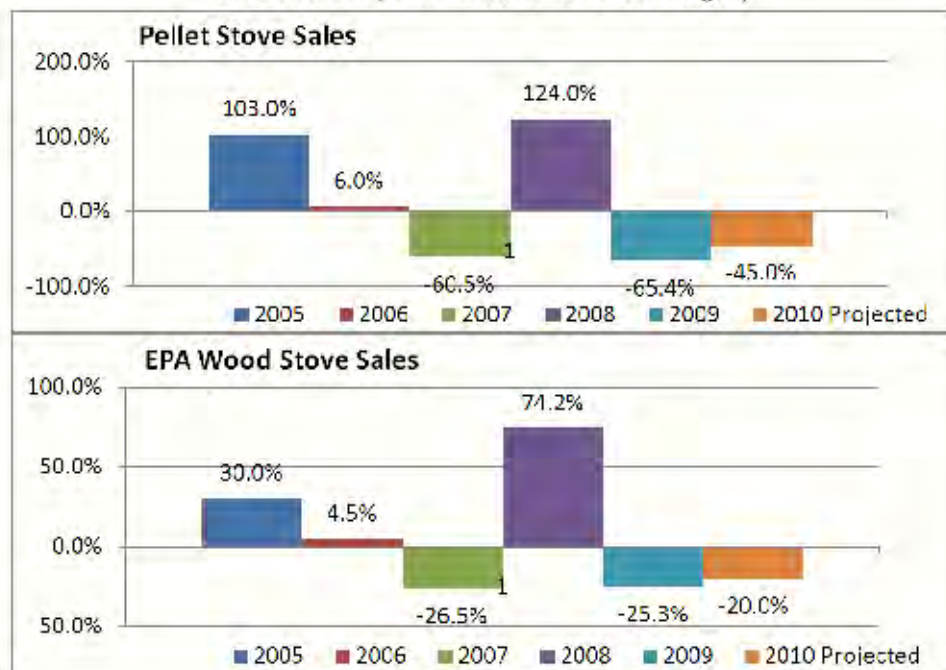


Figure 5





September 10, 2010

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United States Stove Company Sales History  
 Comparison - Repair Parts vs. Unit Sales



Figure 6

The cyclical environment over the last seven years illustrates two "bumps" that greatly affected unit sales. The first in 2005/2006 was the indirect result of Hurricane Katrina forcing higher energy prices. Again, this happened in 2008 when oil hit a record high, nearing \$150. The major dip in 2007 caused pain to several companies. Many companies were faced with inventory and cash flow problems that resulted in closings or acquisitions. The sudden rise in oil prices the following year helped clear the inventory pipeline and strengthen the demand for alternative energy.

The repair parts numbers are typically a lagging indicator of unit sales. Naturally, when unit sales are up, fewer repair parts are required. While 2009 was a down year and numbers indicate anywhere from 20% to 30% down, our repair parts sales were up over the phenomenal 2008. Following the jump of 2008, we see a steady climb in repair parts sales with current YTD numbers showing a 15% increase over the record last year. This shows that with uncertainty in energy prices, conflicts in the Middle East that could cause oil prices to spike and the worst economy in decades, we're seeing the working population repairing units before buying new. This would indicate another down year in unit sales and confirmed with the latest HPBA 2<sup>nd</sup> quarter numbers -10% to -44%.



September 10, 2010

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Table 1 Estimated Unit Sales for 2010- **Confidential Business Information**

		Emissions	State of WA Approved	Clean Burn Technology	2010* Annual Sales
<b>Wood Stove - EPA</b>					
APS1100B	Plate Steel	5.8	-	non-cat	000
2009	Plate Steel	3.79	yes	non-cat	000
2015	Plate Steel	5.7	-	non-cat	000
7500	Plate Steel	3.06	yes	non-cat	000
3000	Plate Steel	3.7	yes	non-cat	000
3500	Cast Iron	3.6	yes	non-cat	000
3700	Cast Iron	6.0	-	non-cat	000
<b>Pellet Stove - Currently Exempt</b>					
2400	Window Unit	n/a	-	pellet	000
5500	Free Standing	1.5	yes	pellet	000
5510	Free Standing	1.5	yes	pellet	000
5824	Free Standing	n/a	-	pellet	000
<b>Bio-Mass Stove - Pellet, Corn - Currently Exempt</b>					
6041	Free Standing	1.6	yes	pellet	000
6041i	Insert	1.6	yes	pellet	000
6500	Furnace	n/a	-	pellet	000
<b>Wood Stove - Single Burn Rate - Currently Exempt</b>					
1261	Cast Iron - Camo Stove	n/a	-	-	000
2421	Cast Iron - Camo stove	n/a	-	-	000
2007	Plate Steel	n/a	-	-	000
32941	Cabinet Circulator	n/a	-	-	000
30025	Cabinet Circulator	n/a	-	-	000
<b>Warm Air Furnace - Wood - Currently Exempt</b>					
1300	Indoor Model	n/a	-	-	000
1400	Indoor Model	n/a	-	-	000
1500	Indoor Model	n/a	-	-	000
1600FF	Outdoor Model	n/a	-	-	000
1602	Indoor Model	n/a	-	-	000
1802	Indoor Model	n/a	-	-	000
24A	Indoor Model	n/a	-	-	000
30A	Indoor Model	n/a	-	-	000
<b>Warm Air Furnace - Coal - Currently Exempt (Estimated at 10% of Wood Models)</b>					
Same firebox as wood model but grate system and liners allow coal use					
1300	Indoor Model	n/a	-	-	000
1500	Indoor Model	n/a	-	-	000
1600FF	Outdoor Model	n/a	-	-	000
1602	Indoor Model	n/a	-	-	000
1802	Indoor Model	n/a	-	-	000
24A	Indoor Model	n/a	-	-	000
30A	Indoor Model	n/a	-	-	000
<b>Coal Stove - Currently Exempt</b>					
1809	Cast Iron - Pot Belly	n/a	-	-	000
62827	Cabinet Circulator	n/a	-	-	000
30AC	Cabinet Circulator	n/a	-	-	000





September 10, 2010

"Keeping America Warm Since 1869"

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**Table 2**

**US Stove Sales History by Category**

	2004	2005	2006	2007	2008	2009	2010*
<b>Warm Air Furnace - Wood &amp; Coal</b>							
(\$ in 000)	10,400	10,200	10,200	10,200	10,200	10,200	10,200
(\$ in 000)	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Furnace %</b>	35%	26%	18%	34%	42%	34%	35%
<b>EPA Wood Model</b>							
(\$ in 000)	1,000	1,000	1,000	1,000	1,000	1,000	1,000
(\$ in 000)	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>EPA Stove %</b>	10%	4%	5%	8%	8%	10%	17%
<b>Exempt Wood - Single Burn Rate</b>							
(\$ in 000)	1,000	1,000	1,000	1,000	1,000	1,000	1,000
(\$ in 000)	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Exempt %</b>	33%	23%	17%	24%	19%	27%	25%
<b>Pellet and Bio-Mass</b>							
(\$ in 000)	1,000	1,000	1,000	1,000	1,000	1,000	1,000
(\$ in 000)	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Pellet/Bio-Mass %</b>	17%	43%	55%	29%	26%	25%	19%
<b>Coal Stoves</b>							
(\$ in 000)	1,000	1,000	1,000	1,000	1,000	1,000	1,000
(\$ in 000)	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Coal %</b>	0%	3%	4%	0%	4%	5%	4%

**Confidential Business Information**

**Table 3**

**Financial Statement - Estimated for 2010**

Net Sales	22,000,000
Gross Profit	5,400,000
Percent of Sales	24.4%
SGA Expense	3,400,000
Percent of Sales	15.1%
EBITD	2,000,000
Interest Expense	1,000,000
Depreciation and Amortization	1,100,000
Earnings before Taxes	2,100,000
Income Tax	500,000
Net Earnings	1,600,000
Percent of Sales	4.6%



September 10, 2010

*"Keeping America Warm Since 1869"*

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**Table 4**

**Capital Investment for construction of new on-site test facility**

Land, Building	\$	350,000
Furniture	\$	11,400
Phones, Network	\$	32,160
Computers, server, software	\$	26,750
Lab Equipment	\$	75,000
Training on equipment	\$	7,500
Salaries	\$	300,000
<b>Total Expense</b>	<b>\$</b>	<b>802,810</b>

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**Table 5**

**Percent of revenues from estimated 2010 projected revenues**

Materials	49.5%	1,000,000
Labor	7.3%	150,000
Variable Overhead	18.2%	370,000
Warranty	2.4%	50,000
Marketing	2.5%	50,000
Freight	2.9%	60,000
Commissions	5.3%	110,000
Travel, Shows, Misc	3.1%	60,000
Sales Cost	3.4%	70,000
R & D - Engineering	3.8%	80,000
Administration	1.6%	30,000

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September 10, 2010

*"Keeping America Warm Since 1869"*

**Table 6**  
**Estimated average cost per product category**

<b>Warm Air Furnace - Wood &amp; Coal</b>		
Installation Cost	\$	2,500
Maintenance Cost - Annual	\$	125
Warranty Cost - estimated	\$	150
<b>EPA Wood Model</b>		
Installation Cost	\$	1,250
Maintenance Cost - Annual	\$	50
Warranty Cost - estimated	\$	90
<b>Exempt Wood - Single Burn Rate</b>		
Installation Cost	\$	1,250
Maintenance Cost - Annual	\$	65
Warranty Cost - estimated	\$	60
<b>Pellet and Bio-Mass</b>		
Installation Cost	\$	750
Maintenance Cost - Annual	\$	50
Warranty Cost - estimated	\$	225
<b>Coal Stoves</b>		
Installation Cost	\$	1,250
Maintenance Cost - Annual	\$	75
Warranty Cost - estimated	\$	80

## **Comment 17—Steve Vogelzang**

Vogelzang International Corporation is a long time manufacturer of both “EPA certified” and “non-affected facilities” also known as “exempt stoves”.

Exempt stoves may be more accurately described as single burn rate stoves. That is, they are designed and built to allow for the very minimal adjustment of combustion air. These stoves are designed, tested, and built to have a very high air to fuel ratio. The ratio is typically in the 35:1 range. They are required by EPA method 28A to burn at a minimum rate of 5 kilograms of fuel per hour. All “exempt” stoves manufactured by Vogelzang International have been tested to the standard set forth by an accredited EPA laboratory.

The result of a stove built to the standard listed above, is one that burns constantly at a very hot temperature. By design the stove is not allowed to be dampened down to a level which will allow the fire to smolder. A hot fire produces very low emissions. This defines the Vogelzang ‘exempt’ experience.

In meeting the requirements set forth by the standard, these stoves have proven to be clean burning appliances.

The modern “exempt stove” is essentially in design very similar to a non catalytic stove, less the secondary burn system and air control. The need for the fore mentioned parts is supplanted by the high burn rate design.

These modern “exempt stoves” are frequently mistaken for earlier generation stoves that are responsible for the high level of emissions that have been targeted in change out programs. The stoves targeting in the change out programs are typically older stoves that were built before the first NSPS. These older stoves were designed and built so that they could be operated at a low rate of burn resulting in high emission levels.

It is very important that modern “exempt” stoves are not lumped in and viewed as one with older non-compliance stoves.

Exempt stoves fill a critical market niche. On account of their design, they are much less costly to build than a certified stove. This makes them extremely attractive to lower income customers who may find more expensive certified stoves out of their financial reach.

Vogelzang International Corporation sells its stoves at a national level. The typical market channels are through home centers and national hardware chains. Since all shipments flow through our customer’s regional distribution centers or direct ship to the retail location, it is very easy to track the geographic destination of stove sales. Additional customer knowledge is gleaned through customer service and warranty programs.

Based upon this knowledge, we know that the vast majority of Vogelzang sales of both “certified” and “exempt” appliances occur in the South East and Midwest states. Less than one percent of sales occur in the states of CA, OR, ID, MT, UT, AZ, NV, and CO. Similarly, less than two percent of sales occur in the North East states. Sales of “exempt” appliances in Washington State are none.

When considering total sales by Vogelzang International, exempt stove sales account for approximately 30 percent of shipments.



The typical consumer for an “exempt” appliance is a person of lower income and living in a rural area. These consumers are drawn to “exempt” stoves by the low cost of ownership. For many of these consumers, the ability to procure a low cost wood stove appliance is critical to providing the basic need of warmth to their dwelling. More expensive “certified” stoves in many cases are beyond affordability. An entry level “exempt” stove may be purchased for less than \$250.00. The cost of an entry level “certified” stove is typically twice the amount. Some “certified” stoves exceed \$2,500 in purchase cost.

Fortunately, for those in low income bracket, wood, itself is the most widely accessible and lowest cost of renewable energy that is readily available. This is particularly true in rural areas where low cost wood is frequently abundant.

According to the USDA figures in 2002, 14.2 percent of the rural population was classified as poor. This accounts for 7.5 million people. Furthermore, one out of every four rural African Americans, Hispanics, and Native Americans lives in poverty. Many of these people live on incomes at less than one half of the poverty line.

Rural living often presents the additional problem of sourcing an affordable source of heat. Options of low cost fuels such as natural gas are often not available as pipeline networks often bypass rural areas. Other more expensive fuels such as heating oil, propane, or electricity may be available, but often are not a financially viable option for those in poverty or of low income.

According to current US Department of Energy calculations, wood is one of the most cost effective sources of heat. The fuel price for a million Btu of wood is \$9.09. (Undoubtedly, this number is drastically lower for those who harvest their own cordwood). This compares to 19.08 for fuel oil, 23.07 for propane, 23.73 for kerosene, and 32.55 for electricity.

The price stability of wood fulfills a critical need to those who are in poverty. Solid fuel is domestic, low cost, and often may be harvested free of cost. It has much less price volatility than inorganic fuels that are often subject to wild price fluctuations on account of global political and weather related events.

Not only does the use of solid fuel bring great economic benefit to those impoverished, it allows them too equally and actively participate in the stewardship gained by using renewable energy.

Critical to using solid fuel is the ability to afford a wood burning appliance. If a person living in poverty is unable to afford a heating appliance, he/she is essentially locked out from accessing the low cost energy that a solid fuel burning appliance can deliver.

The focus of Vogelzang International is to provide clean burning and affordable wood burning appliances to those who can least afford them. It is our duty to represent them in the marketplace and by default, matters of regulatory nature involving wood burning appliances. It is our desire to continue to provide that segment with clean and low cost heating appliances.

We stand ready to work with the EPA to accomplish this mutual goal. It is our firm belief that separate standards and tests should be created for “both” exempt and certified stoves. To force one standard and test procedure on two stoves of substantially different design and operation would be unfortunate. For it is not the design of stove that matters, what matters are the emission levels. To eliminate exempt style stoves would bring severe economic hardship to both manufacturers and consumers alike.

The continuation/updating of a single rate burn standard will bring economic benefit to both manufacturers and consumers alike. It will also bring new innovation and the inclusion of European style single rate burn technology.

We are confident that through design adjustments or through redesigns, new and cleaner exempt/single rate burn appliances may be created.

Together we need to work to create an emission level for both certified and single rate burn appliances that is clean, reasonable, and attainable.

## **APPENDIX B-2**

**Written Comments the SBAR Panel Received from Non-SERs**

**(Requested to be submitted as official comments  
by Jim Buckley, SER Representing Clay Flue Manufacturers)**

July 13, 2010

United States Environmental Protection Agency  
1200 Pennsylvania Avenue NW  
Mail Code 1806A  
Washington, DC 20460

ATTN: Ms. Lucinda Power

Ms. Power:

Our membership, from many states, is comprised of manufacturers of component parts for site built masonry fireplaces. Products manufactured by our member companies include clay flue lining, metal components, firebrick, various mortars and etc. Our customers are nationwide businesses that distribute masonry material and their customers are masons and businesses that build masonry fireplaces.

The companies involved in the manufacturing and distribution, as outlined above, represent thousands of jobs both union and non-union, hourly and salaried. All of these businesses meet the criteria for small business entities.

I am writing to advise that exclusion of site built masonry fireplaces in the NSPS (New Source Performance Standards) will effectively devastate and eliminate our businesses including elimination of thousands of jobs.

Government regulation on emissions for site built masonry fireplaces will increase the cost to the level that they are no longer affordable thus the devastation of our industry.

Have you considered the following?

Is the cost/benefit impact on including masonry fireplaces in the NSPS worth it? Has an economic study been completed considering the vast loss of jobs?

There is currently no entity that can effectively be responsible for a government regulated compliance regarding emissions. Have you considered a plan to do so, at what cost and how it would be paid for. Is the benefit gained worth the economic devastation?

We manufacture to ASTM (American Society for Testing Materials) standards and our products also comply with national building codes. Has EPA worked with this area of government or industry standards for the purpose of regulation?

Have you considered continuation of the VFP (Volunteer Fireplace Program) as a possible solution?

There appears to be a vast discrepancy regarding emissions from masonry fireplaces. Industry sources provide numbers which are far different than EPA statistics. Have these numbers been thoroughly studied?

Our industry is already severely depressed (by approximately 1/3) due to the economic downturn with many manufacturers simply limping along. Further government regulation of any kind on the finished market will devastate any chances for future survival.

We strongly recommend the following course of action by EPA:

- **Exempt site built masonry fireplaces from the NSPS at this time.**
- **Continue to pursue the VFP (Voluntary Fireplace Program)**
- **Start a dialogue with the building codes and standards process.**
- **Further meet and share concerns with industry groups, ie masons, distribution, architects, home builders.**
- **Please study very carefully information as provided by our SER (Small Business Entity Representative) Charles Clark and Jim Buckley, as well as from HPBA representatives.**

Information contained here may be shared with anyone interested. Please respond to the above address.

Sincerely,



Robert A. Rucker – President

(716) 667-2321

[robertarucker@verizon.net](mailto:robertarucker@verizon.net)

From: todd mcclave <mcclave.todd@gmail.com>  
To: Lucinda Power/DC/USEPA/US@EPA  
Cc: Jim Buckley <buckley@rumford.com>, bob rucker <RobertARucker@verizon.net>, Chip Clark <cclark@bia.org>, Colby De  
<tylermc.clave@gmail.com>, manufacturing@nam.org  
Date: 07/13/2010 09:36 AM  
Subject: EPA Proposal regarding masonry fireplaces

July 13, 2010

Ms. Lucinda P. Power

1200 Pennsylvania Ave. N.W.

Room 644OH Ariel Rios North Building, Mail Code 1806 A

Washington D.C. 20460

I am writing regarding the EPA proposal to include masonry fireplaces in the NSPS. Superior Clay Corporation is a manufacturer of clay flue lines. Our flue liners are purchased by mason contractors along with mortar, brick, cement block, sand, dampers, firebrick and other materials used in the construction of a masonry fireplace. The mason then builds the fireplace on site following the prescriptive rules of the building codes and or the design of an architect or other designer. Our responsibility is to manufacture the flue liners to an ASTM Standard and provide them to the mason. Since masonry fireplaces have for many years been built in accordance with building codes and ASTM Standards we believe that these are the organizations that EPA should work with to regulate the industry.

We are not a fireplace manufacturer per se. In the traditional masonry fireplace industry there is no one company that would fit that description. If the EPA required that one entity had to be responsible for the manufacture, testing and installation of a masonry fireplace the result would be that masonry fireplaces would be effectively banned or only a few very expensive models would be built. Masons, the primary constructor of site-built masonry fireplaces and the vast-majority of which are small family-owned businesses, will be severely affected by a reduction in the number of units constructed and many may be forced out of business. Manufacturers and distributors of fireplace components like us, which are small businesses, will be negatively impacted or forced out-of-business by forcing masonry site-built fireplaces to be included in the NSPS.

If masonry fireplaces are required to meet the standards of NSPS and our company is forced out of business, the direct loss will be approximately 100 jobs at Superior Clay, many of them high paid United Steel Workers Union jobs. Throughout the industry the job loss will be as many as several thousand high paying jobs. A large part of the jobs lost will be masons, many of whom are not aware of the impending regulations. EPA should open dialog with these masons so that their voices may be heard.

Imposing ISO certification on site-built masonry fireplaces is extremely expensive and would be difficult, if not impossible, to administrate since unlike pre-fabricated fireplaces, there are not a limited number of "models" of site-built masonry fireplaces. If each site-built masonry fireplace were tested and certified after it was built, the cost of each unit would likely increase by \$3,000 to \$5,000. This represents an increase of up to 60% of the cost of an installed unit.

Given the facts that many of the masonry fireplaces are never used, used only a few times, used only a few times per year, or used with gas logs, it seems a high price to pay for a small return in improvement of air quality. We believe controls such as "No Burn Days" use of catalytic devices, etcetera could accomplish the desired air quality improvement without the devastating job losses. The masonry fireplace industry believes that emissions from new site-built masonry fireplaces are between 173 and 76 tons of PM<sub>2.5</sub> emissions annually. This represents between 0.0071% and 0.0031% or  $0.000071 \times 2,449,000$  tons and  $0.0031 \times 2,449,000$  tons - significantly less than estimated by EPA. We request that EPA carefully study the cost/benefit impact of including masonry fireplace in the NSPS. We recommend EPA exempt site-built masonry fireplaces from the current NSPS. EPA should endorse and promote the Voluntary Fireplace Program (VFP) and give it sufficient time to demonstrate its effectiveness. We believe that imposing further restrictions on site-built masonry fireplaces will have little to no impact in areas where air quality is an issue since most areas with local air quality issues have already imposed limitations on masonry site-built fireplaces by either banning their construction or use or by imposing no-burn periods.

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