Hot Topics in Cord Wood Stoves

National Firewood Workshop
Keedysville, MD
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President, Alliance for Green Heat
✓ 501c3 nonprofit funded by foundations & grants
✓ A national voice for wood heat consumers
✓ Work for more incentives for the cleanest & most efficient biomass heaters
✓ Call on government to provide R&D funding for ultra-clean “next generation” stoves
✓ Push for more transparency from manufacturers and EPA about testing and efficiencies.
✓ Integrate stoves into work of energy auditors and home energy professionals.
Percentage of Homes Heated by Wood

Source: U.S. Census Bureau
2012 American Community Survey
reddit.com/user/ismaster99/
Rise of Residential Wood Heat per Capita in U.S.

Highest per capita primary wood heat households per state

- Gillam county, OR 40%
- Pendleton, WV 39%
- Lincoln county, MT 39%
- Lewis county, NY 26%
- Grafton county, NH 17%
- Piscataquis, ME 16%
- Garrett county, MD 12%
- Kemper County, MS 10%
Enter the EPA

- Stoves have to hit 2 or 2.5 grams an hour by 2020. Currently at 4.5 g/hr.
- Test protocols changing from crib wood to cord wood.
- Industry trade group suing the EPA to prevent the 2020 standards from taking effect.

**BUT ....**

- Warm winters and cheap oil & gas are bigger threats to industry.
- Automation and cheap oil & gas helping keep stove production costs down.
- Recession of 2008-09 saw shift in consumer trends to buying higher percentage of stoves from big box retailers at very affordable prices. Up to half of wood and pellet stoves in US cost $1,500 or less.
How will technology change to meet 2020 emission standards?

• Many manufacturers going back to catalytic stoves. Hitting 2 grams an hour is not difficult with a catalyst.

• Hybrid stoves may become more popular because even if cat fails or not engaged, secondary air tubes keep emissions down.

• Manufacturers starting to make more single burn rate stoves, using bi-metallic coils.

• Automated stoves using sensors can be tested as “single burn rate” stoves.
New EPA regulations bringing many positive changes

- Disclosure of efficiencies will result in higher efficiencies, helping consumers save more $, especially with pellet stoves.
- Disclosure of real BTU output, putting end to decades of misleading/false advertising
- Requiring all stove to be certified
- Ending sales of worst outdoor boilers
- Spurring innovation that can help strengthen industry and protect it from the anti-wood burning movement
Dangers of new EPA rules

• If stove prices rise, more people will rely on old, uncertified ones, and not upgrade to new, cleaner ones.
• New loopholes will emerge, and industry will side-step rules.
• Stoves may become smaller and more finicky, leading to dissatisfied consumers and less displacement of fossil fuel.
• New rules lead to more cat stoves, which won’t be used well.
• New rules leads to consolidation of industry, restricting consumer choice and possibly leading to lower quality stoves.
• Higher testing and certification costs reduces innovation.
• EPA creates rules that it doesn’t have resources to implement, enforce, or even interpret.
Testing & Innovation

- Technology is lowering cost of testing and R&D in many ways
- Today, a $1,000 Testo digital, real time meters allows innovators to quickly and easily assess whether design changes improve performance or not.
- Optimum combustion results in about 13% oxygen in the stack and CO between 100 – 800.
- Testos were developed for German chimney sweeps who test stoves and furnaces every 2 years, just as many US states require cars to be emission tested.
Cheap vs. Expensive Stoves

• There is little, if any correlation between grams per hour, efficiency and price of a stove. Englander 30-NC cost $1,200 and is 1.4 grams an hour, and possibly most popular stove in the US.
• Up to half of stove in the US are bought at big box stores for around $1,500.
• Some are among cleanest and most efficient available.
• Englander puts out a 79% efficient pellet stove.
• Pleasant Hearth pellet stove, $1,200 from Home Depot is cleanest stove on market at 0.28g/h. One test, we got 167 ppm CO. Harman, Quad and Enviro were averaging between 800 – 1,700.
• All meet the 2020 EPA emission standards.
Public opinion and anti-wood burning regulations

- Public opinion in much of the country not leaning toward wood burning. No trend to include cordwood in renewable energy incentive programs, except with change outs of old stoves.
- Wood pellet movement is helping public opinion, especially in areas that produce and use them.
- Anti-wood burning groups growing and making headway in populated areas.
- Outdoor wood boilers galvanized anti-smoke activists, giving all wood burning a harder time.
Myths & Facts

1. Myth: Wood burning is being banned more and more
   
   **Fact:** Outright bans are exceedingly rare. Even in almost all major cities, including San Francisco, you can still install EPA certified cord wood stoves. Montreal has tighter restrictions than any US city. One county in WA state does not allow anyone to use an uncertified stove. Otherwise, using certified and uncertified stoves is allowed virtually everywhere.

2. Myth: wood smoke is worse than tobacco smoke
   
   **Fact:** No one should doubt that wood smoke is bad for you, but science is far from clear on whether tobacco, diesel, or even coal smoke is worse, if you breathed them in equal amounts.

3. Myth: Stove raises indoor smoke by 70%, according to the EPA
   
   **Fact:** Stoves that have good draft can result in very little wood smoke in the home. But if there is a persistent smell of woodsmoke, it is a health concern. Indoor air quality from stoves is a serious issue, but even the EPA can’t point to the study backing the 70% figure that is on their website.
Options to reduce wood smoke

- Reduce number of wood stoves
- Reduce number of uncertified wood stoves
- Move from wood to pellet stoves
- Ensure that fuel is seasoned – like compressed bricks
Role of Firewood...

- Fire wood plays huge role in public perceptions about wood heating and difficulties for states, counties and towns to reduce wood smoke.
- We are seeing more jurisdictions clamp down on both certified and uncertified stoves, because so many homeowners use unseasoned wood.
- Some change out programs only doing old stove to pellet or gas stove, and are not allowing wood to wood change outs.
- Problems:
  - Homeowners don’t buy early enough or stack & store properly
  - Homeowners don’t run stoves well, usually not giving stove enough air during key times.
  - Many retailers claim wood is seasoned when its not.
  - No label or certification for seasoned wood, like many countries have.
Potential of Firewood Associations

• A national or regional firewood association could establish best practices to improve delivery of full cords of dry wood.

• A state could require firewood dealers to document moisture content of firewood on sales receipt.

• A Yelp type website that rates firewood dealers and promotes the honest reliable ones.

• AFPDA provides this, mostly for packaged firewood
National Firewood Association

- A professional network for firewood dealers, but no formal consumer assurance of seasoned wood.
- NFA could be vehicle for program to require labeling of moisture content in state or area.
- Based in Duluth, MN
- www.nationalfirewoodassociation.org
Fairbanks disclosure program

• Fairbanks Alaska starting to require firewood dealers to disclose moisture content.
• Helps consumers get what they order and what they pay for.
Mandatory programs

• San Francisco Bay Area: Firewood suppliers are required to appropriately label their wood as “seasoned” or “unseasoned.”
Australia- successful model

- The Firewood Association of Australia (FAA) enables suppliers to comply with the Voluntary Code of Practice.
- The Australian Government provided a $500,000 one time grant to the FAA.
- The grant assisted the FAA to increase its numbers of certified members, and to conduct community awareness activities.
- FAA members are issued with a membership logo which identifies them as being "Sustainable Firewood Suppliers".
European model: deliveries on pallets
Volume & moisture content are more consistent
Firewood in energy audits

✓ Inspect fuel storage to see if wood is split, stacked and covered. Splitting and stacking is essential; covering is best.

✓ Inspect wood to check if it is seasoned. Ideal is to test with moisture meter and show homeowner. Make sure you split wood and know how to use your meter.
Include Wood Stoves in Energy Audit and Weatherization Programs

✓ Weatherization programs should prioritize wood stoves in rural, low-income homes.
✓ Gaskets, glass and firebrick should be inspected and repaired, when necessary.
✓ Evidence of smoke (and CO) leaking into home should be remedied.
✓ Unsafe stove installation should be remedied.
✓ Firewood storage inspected and tested for moisture content.
Thank you!

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