

Efficiency and PM criteria in Change-out & Incentive Programs

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Alliance for Green Heat

EPA Wood Smoke Workshop

Nashville, TN

March 2018





- ✓ 501c3 nonprofit funded by foundations & grants
- ✓ A national voice for wood heat consumers
- ✓ Work for more incentives for the cleanest & most efficient advanced biomass heaters
- ✓ Host technology design competitions to explore automated, “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.

Online Stove Change-out Resource Center

- [Consumer Tips](#)
 - [10 Best Practices](#)
 - [Analysis of Change-outs](#)
 - [List of Programs](#)
 - [Recommendations for States](#)
 - [Sample Documents](#)
 - [Recommended Videos](#)
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- [Details at: http://www.forgreenheat.org/changeout/](http://www.forgreenheat.org/changeout/)



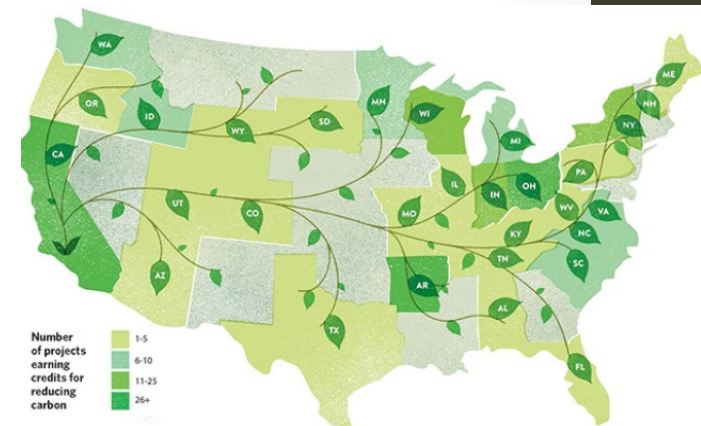
35 change-out programs in 2017

Yellow stars: change-out program; Red circles: incentive programs



Power of State & Local Programs

- People in this room have A LOT of leverage to advance the movement for cleaner and more efficient stoves.
- By giving higher rebates and incentives to cleaner, higher efficiency stoves, you are benefiting consumers, improving air quality faster and supporting those companies investing in cleaner, higher efficiency stoves.
- Collectively, you can help drive standards nationally, like California often does with many standards



Programs need to recognize the 2 gram an hour limit

- Congress, the EPA or Trump may provide “relief” to the stove industry, delaying or weakening the NSPS. Your states and programs don’t have to.
- When 3 – 5 programs insist on requiring stoves to be 2 or 3 grams an hour – that moves the market and sends a powerful signal to manufacturers. And it helps clean up the air faster.
- Pellet stoves can be held to one gram an hour or rewarded with higher rebate.

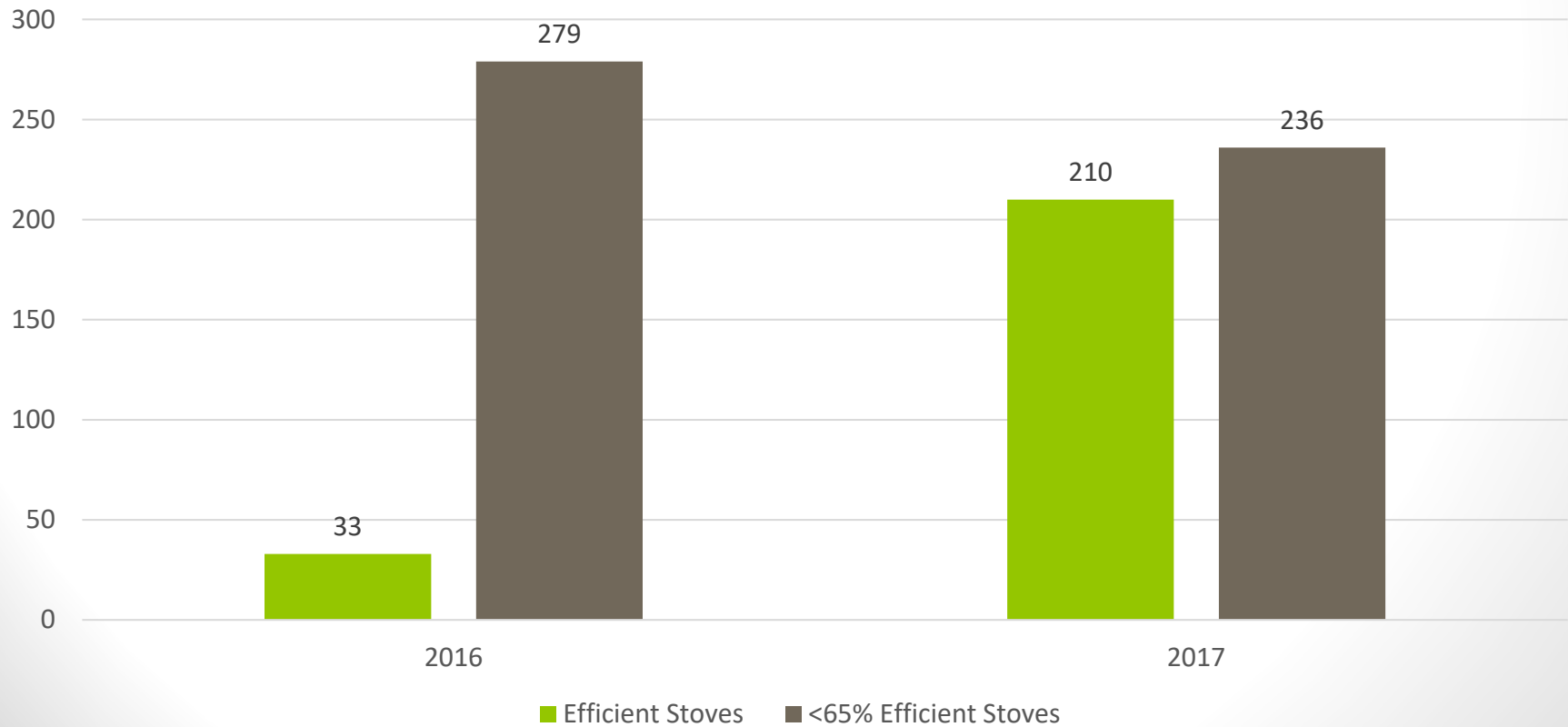


Efficiency motivates consumers

- The 2015 NSPS requires testing a reporting efficiency – *for the first time*.
- Efficiency motivates consumers to change out stoves far more than PM, but we have not leveraged this enough.
- AGH calls on **all** incentive and change out programs to add efficiency criteria by giving an extra \$50 - \$250 for high efficiency stoves (with actual efficiencies listed on the EPA list).
- High efficiency means
 1. Greater consumer satisfaction
 2. Less wood burned = less pollution

Efficiency Adder Effectiveness in. In 2017, MA educated consumers about actual efficiency and gave \$250 more for stoves over 65% efficiency.

Efficient Stove Use 2016 vs. 2017



Efficiencies

- 135 stove models, or 25% of all stoves, now have actual, listed efficiencies.
- Pellet stoves have widest range.
- Hybrids are cleanest on average.
- Only one (NY) program prevents public funding going to the least efficient stoves, even for low-income households!
- AGH thanks NY, MA, MD & OR for using efficiency criteria

Average verified efficiencies:

- **Wood stoves (82) = 73%**
- hybrids (6) = 79%
- catalytic (17) = 78%
- non-catalytic (59) = 71%
- **Pellet stoves (39) = 73%**

Efficiency ranges:

- **Wood stoves = 60-84%**
- hybrids = 76-82%
- catalytic = 63-84%
- non-catalytic = 60-76%
- **Pellet stoves = 58-87%**

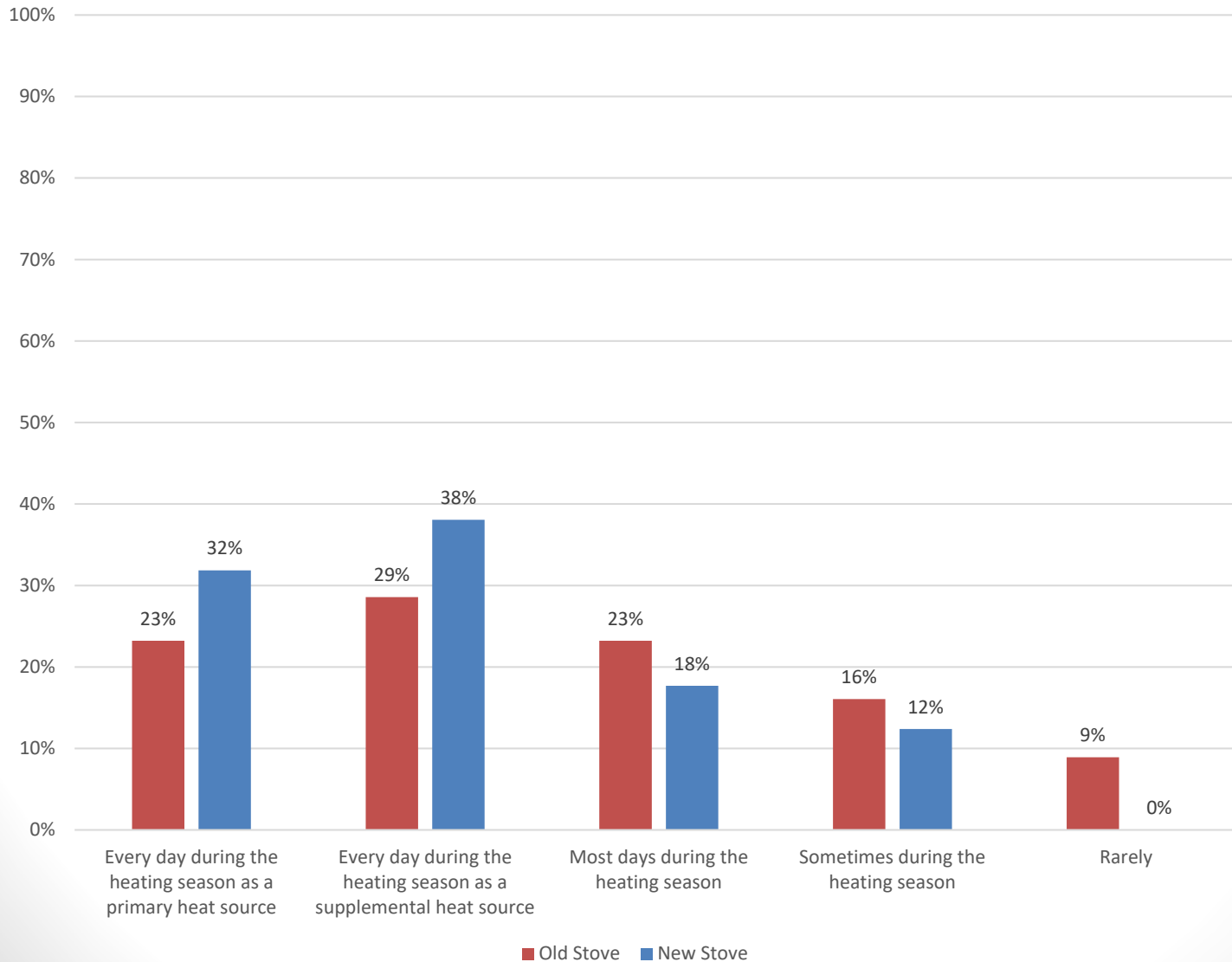
Average emissions (g/hr):

- **Wood stoves = 2.6**
- hybrids = 0.8
- catalytic = 1.5
- non-catalytic = 3.1
- **Pellet stoves = 1.3**

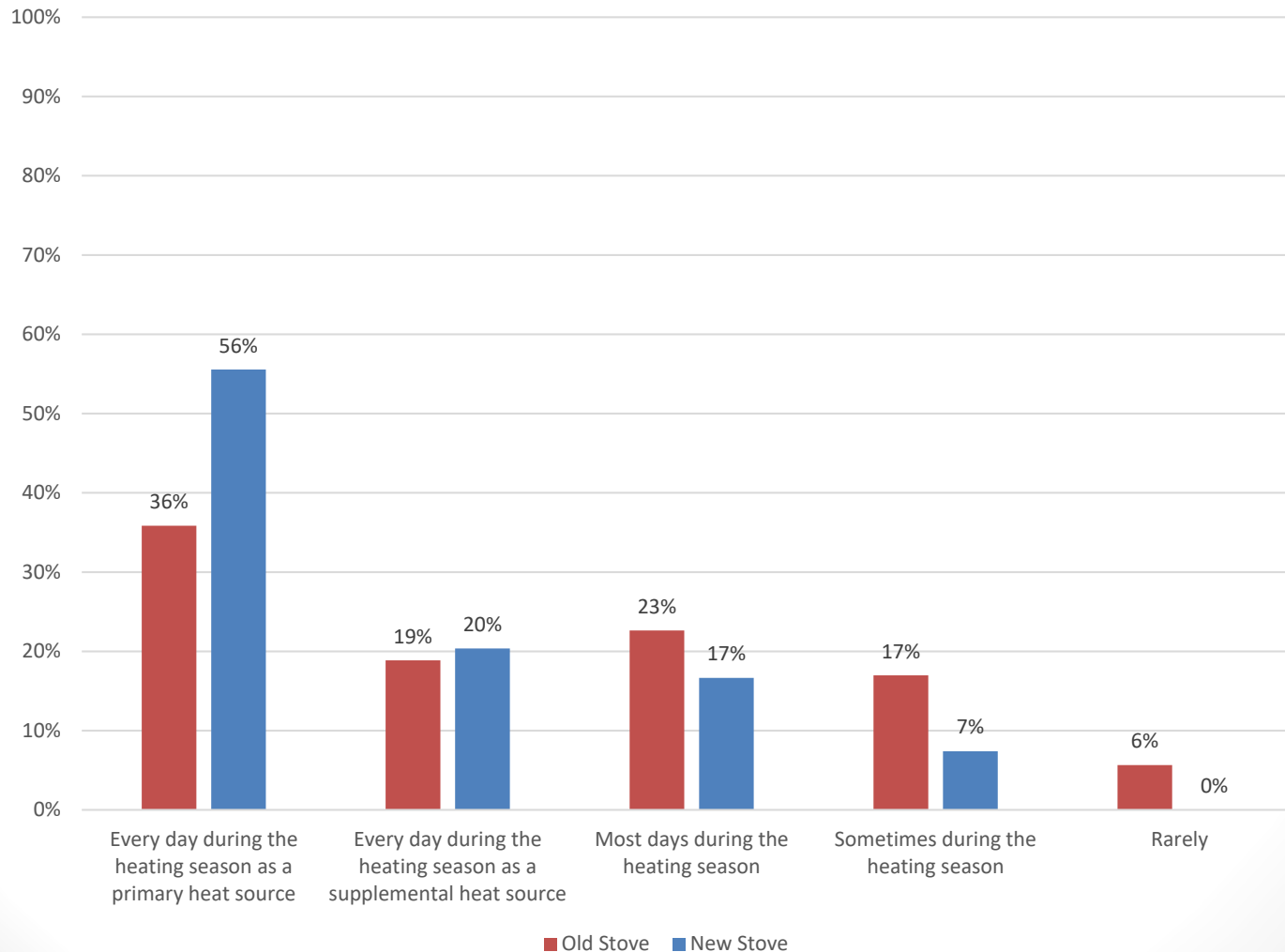
(verified efficiency stoves only)

Mass. Survey Results

Old Stove Use vs. New Stove Use (Standard Customer)



Old Stove Use vs. New Stove Use (Low/Moderate Income Customers)



November 10 – 14, 2018
National Mall in Wash. DC



NEXT GENERATION
Woodstove
DesignChallenge

Two Competition Categories:

- Automated stoves
- Thermoelectric stoves



Lead sponsor:

- previous Challenges has been NYSERDA.
- this year its the DOE.

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy

BIOENERGY TECHNOLOGIES OFFICE

Automated Stoves: the future of clean wood heating

- Eliminates operator error. Allows “load and leave”
- Sensors control primary and secondary air, so the operator does not have to.
- These stoves may not excel in the lab – but they are designed to excel in homes, which is the goal.
- We want to commend these companies for undertaking the R&D to bring automated stoves to market: MF Fire (booth 519), Hwam, Aduro, Rika, Quadrafire, SBI (booth 2000), Luuma & VcV.





**Any product that needs a
manual to work is broken.**

Elon Musk

Automated & cordwood tested stoves need your support

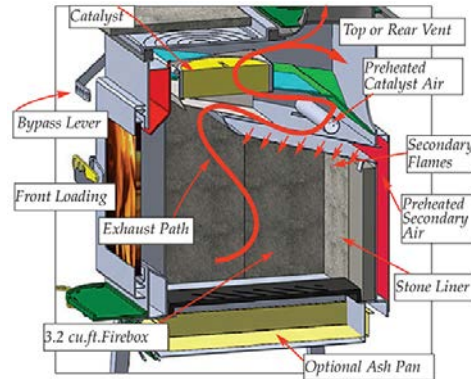
- Change out and incentive programs need to recognize and give higher rebates for automated stoves. Mass. is the first to do so.
- Even an \$50 or \$100 rebates will help educate people about the option and drive sales.
- Another “wood” stove that deserves support and recognition is the 509 Fabrications pressed log stove. It uses a densified log – a big pellet – runs like a wood stove, but emissions and efficiency like a good pellet stove.
- Stoves tested with cordwood meeting 2020 standards also need support, recognition and higher rebates



What to see on showroom floor



Value wood stoves
Englander (Booth 1800)



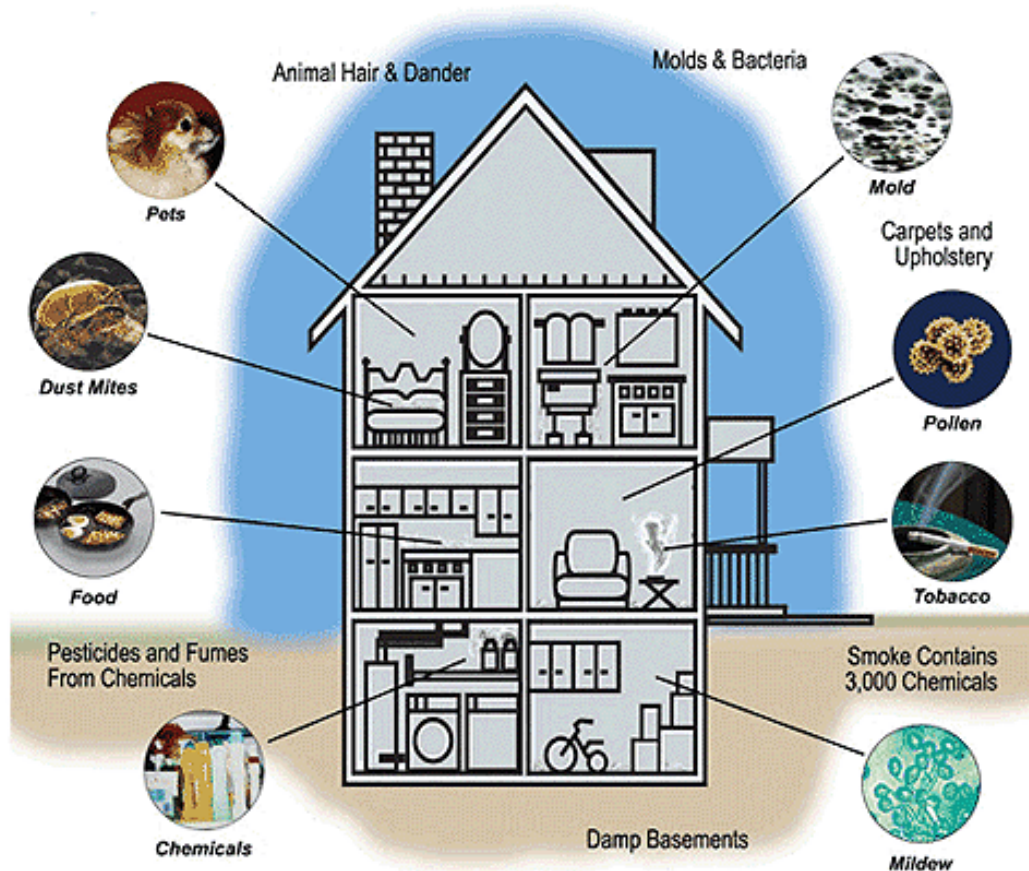
Hybrid stoves: Lopi,
(Booth 908)



Automated stoves: MF Fire
(Booth 519)



Indoor air strategies



PM air filters



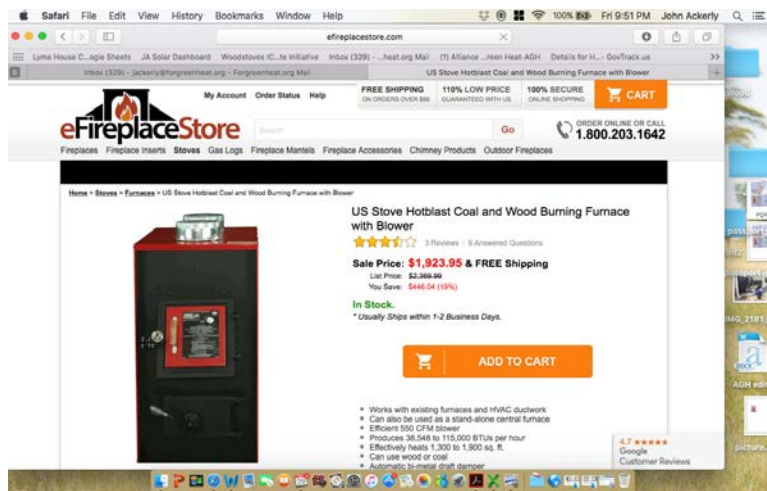
PM monitors

LIHEAP and WAP replace stoves that are a “Health and Safety hazard”

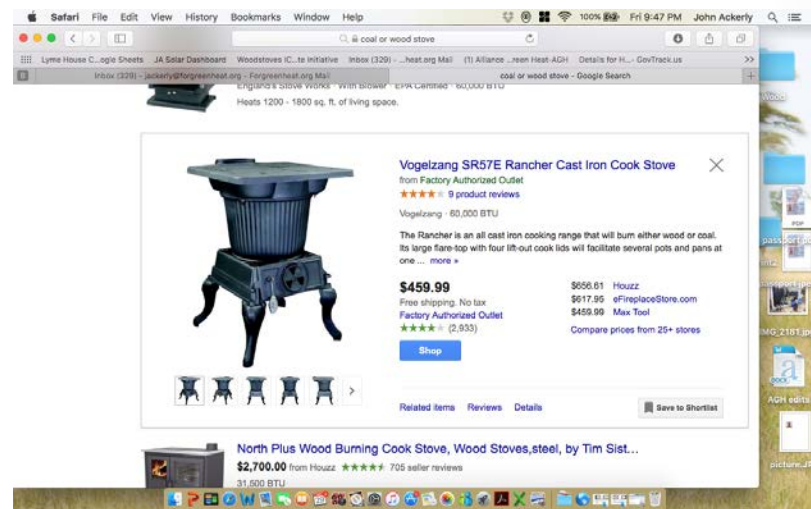
- ✓ No UL listing?
 - ✓ Cracked firebox?
 - ✓ Insufficient clearances?
 - ✓ All of the above?
-
- ✓ Low income homes using an old stove as a primary or heating unit should be eligible for assistance to get a new, clean, high efficiency stove



Misleading ad of the month



US Stove Sept. 29, 2017



Vogelzang, May, 22, 2017

Thank you!

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