

# Heating North American Homes with Wood Pellets

John Ackerly  
President,  
Alliance for Green Heat

Wood Pellet Association of Canada  
Ottawa  
September 20, 2017



**ALLIANCE**  
FOR GREEN HEAT  
low carbon, renewable and local



# ALLIANCE FOR GREEN HEAT

low carbon, renewable and local

- ✓ 501c3 nonprofit funded by foundations & grants
- ✓ A national voice for wood heat consumers
- ✓ Work for more incentives for the cleanest & most efficient biomass heaters
- ✓ Push for more transparency from manufacturers and the EPA.
- ✓ Sponsor of 2018 Wood Stove Design Challenge
- ✓ Integrate stoves & boilers into renewable energy movement and energy audit community



# Advocate for pellet appliances, not cordwood

- ❖ Cordwood has given residential biomass a bad name, and is holding back pellet appliances from becoming a top tier renewable.

A pellet stove that emits 1.5 grams per hour in the lab will perform similarly in a home; but a cord wood appliance that hits 1.5 gr/hr can easily hit 5 gr/hr an hour or more for a good part of its burn cycle.



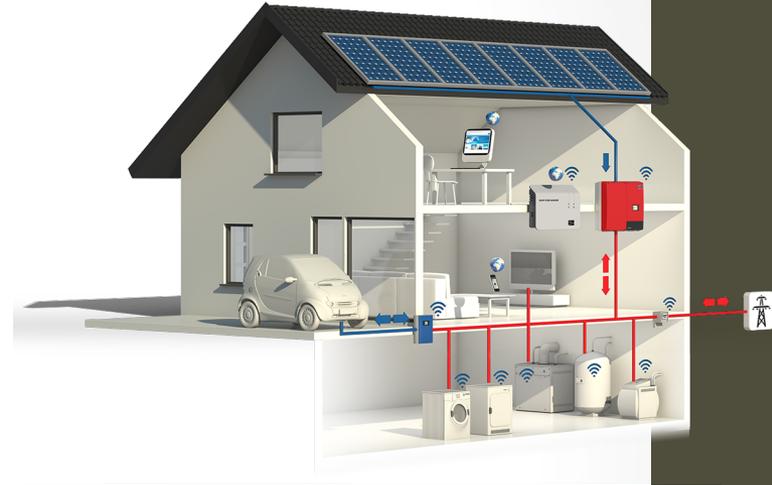
# Stoves help form public opinion about all biomass

- ❖ Promotion of modern, clean residential biomass systems is good for public support of larger biomass systems and conversion from biomass to electricity.
- ❖ People think they know about residential wood and pellet heating, but concepts are usually very outmoded.
- ❖ If people see more images of modern residential stoves, they understand that the sector is not stagnant, but innovative and cleaner



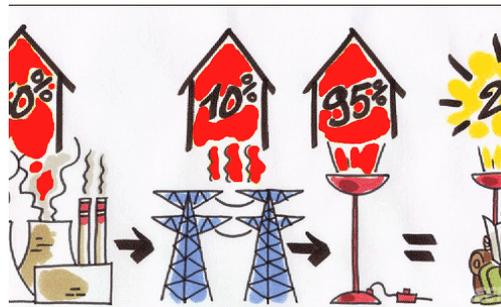
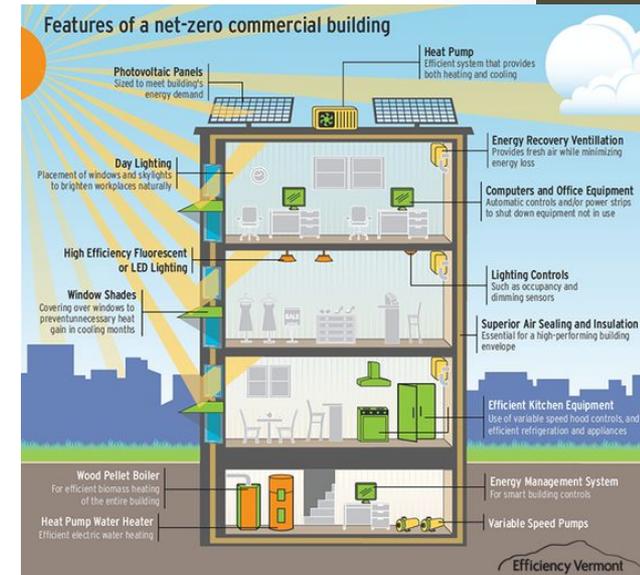
# Align with other renewables

- ❖ Align and network with solar, geothermal, and the energy efficiency community, rather than consolidating the biomass community.
- ❖ Pellet heat is a perfect complement to heat pumps, solar PV and is one of best ways for a home to go 100% renewable.
- ❖ Electrifying heating at this stage will likely be too expensive in short term and not best use of electricity.



# Be part of net zero movement

- ❖ Net zero is gaining traction in many policy and renewable circles and is a strength we should not ignore.
- ❖ Wood pellets are not universally accepted in the net zero community and the next few years are vital to establish our place there.



Proud Member of:

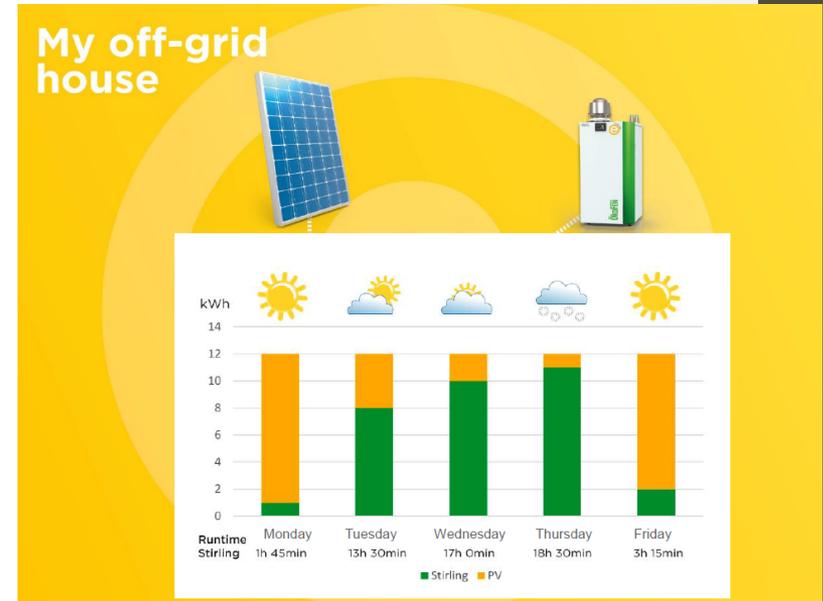
Canadian  
Home Builders'  
Association



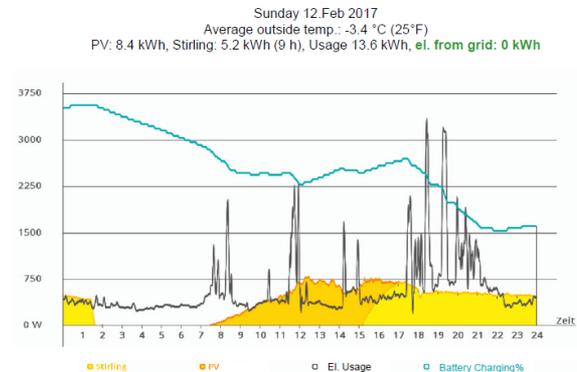
**Net Zero Energy  
Housing Council**

# Smart homes manage multiple energy sources

- ❖ Heat pumps and pellet stoves can turn on and off at different times of day depending on electricity pricing.
- ❖ Okofen now has a residential CHP unit for on or off-grid applications and designed to work with or without a solar PV system.
- ❖ Add in a battery storage system and it gets even more interesting.
- ❖ Maine Energy Systems is now importing them for North America.

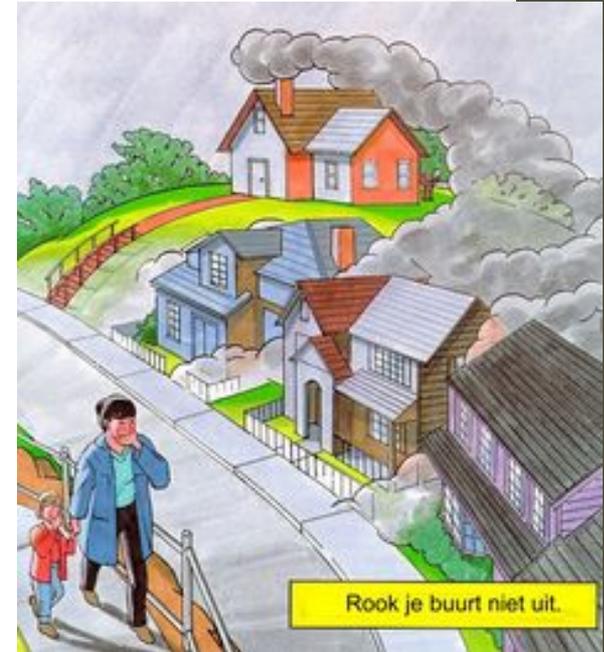


Pilot Installation in Lembach, Upper Austria  
2500 sqft, 4.4 kWp PV, 9.6 kWh battery, Pellematic Condens\_e



# Pellet stoves and boilers are the solution

- ❖ Pellet stoves and boilers, not wood stove change out programs, will move us forward.
- ❖ In places like Montreal and many communities in BC that experience high levels of wintertime wood smoke PM, pellet stoves should be prioritized.
- ❖ Ongoing pellet stove incentive programs can lead first time buyers toward pellet stoves who otherwise may buy a wood stove.



pscleanair.org  
Puget Sound Clean Air Agency



Air Quality

Priorities

Business

**I'M SO OVER YOU!**

**YOU'RE DIRTY! ...AND THE  
NEIGHBORS HATE YOU!**

**AIR.**  
ON THE  
SAFESIDE

Wood Stove Replacement Program

# National, Provincial or city level incentives

- ❖ Pellet stoves and boilers deserve incentives like solar and they are very cost effective!
- ❖ A \$500 rebate or tax credit gives pellet stoves a real boost and creates long term demand for pellets
- ❖ Whereas incentives for solar PV, electric vehicles, etc. help wealthier families, rural middle income families who do not have access to natural gas deserve incentives for technology more relevant to them.



# Give incentives based on efficiency

- ❖ With pellet stoves, efficiency is vital. Stoves range from 60 to 85% HHV.
- ❖ Efficiency has to be 3<sup>rd</sup> party reported in HHV, like on the list of EPA certified stoves.
- ❖ 4 US programs now use efficiency in stove incentive or change-out programs:
  - ❖ NY: 70% minimum efficiency on EPA list
  - ❖ MA: higher rebate for stoves above 65% efficiency on EPA list
  - ❖ MD: double rebate for stoves with EPA listed efficiency
  - ❖ OR: higher rebates for stoves with EPA listed efficiency



# Increased efficiency

- Boiler efficiencies have risen *dramatically!*
- **2014:** Avg. Wood boiler = 63%  
Avg. Pellet boiler = 74%  
Highest efficiency = 82%  
Total qualified = 40 units
- **2016 :** Avg of wood and pellet: >80%
  - Highest efficiency = 90% (Evoworld P50, below)
  - Total certified = 131 units



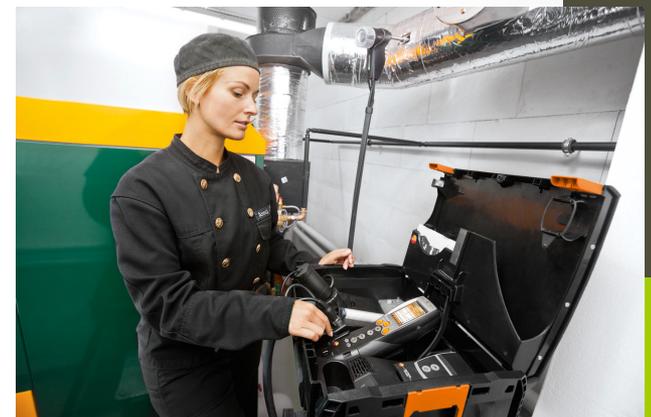
# Policy is vital

- ❖ Policy goals exist for renewables in the electricity and liquid fuel supply.
- ❖ Policy goal for heating could be 5% of homes heat with pellets by 2025.
- ❖ Carbon tax that includes all fossil fuels, including heating fuels. If carbon in electricity supply is taxed but not in heating supply, it creates all sorts of imbalances, favoring some technologies and not others.



# 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.
- ❖ Audits lead to stove replacements and upgrades
- ❖ Unsafe stove installation should be remedied.
- ❖ Firewood storage inspected and tested for moisture content.



# HPBAC should be a natural ally

- ❖ WPAC has more responsibility and opportunity to position itself as the champion of wood pellets as a low carbon fuel as HPBAC spends its government affairs budget on natural gas.
- ❖ May be pellet stove manufacturers who will partner with WPAC.

The image displays two side-by-side screenshots of the Facebook profile for the Hearth, Patio & Barbecue Association of Canada (HPBAC). The browser tabs at the top indicate the user is logged into Facebook.com.

**Left Screenshot:** Shows the HPBAC profile page. The profile picture is a logo with the text "HPBAC Hearth, Patio & Barbecue Association of Canada PROTECT • PROMOTE • EDUCATE". The cover photo features a street scene in Vancouver with the text "Vancouver families can't afford an expensive ban on natural gas" and a red banner at the bottom with the hashtag "#NoGasBan". The page navigation menu on the left includes: Home, About, Events, Photos, Videos, Community, Reviews, and Posts.

**Right Screenshot:** Shows a post shared by "Save My Natural Gas" on July 21. The post features a photo of a street scene with a tram and a building with a green dome. The text on the photo reads "natural gas. good for our communities." The HPBAC profile picture is visible in the top left of the post area.

# 2018 Wood Stove Design Challenge

- ❖ Focus on automation and electricity generation
- ❖ National Mall, Nov. 9 – 14, 2018
- ❖ 20 teams already registered!
- ❖ AGH offering \$10,000 grants to registered teams



- **Goals**

- ❖ show the public, regulators and policymakers that stove technology is not stagnant and has exciting, high tech opportunities.
- ❖ Create positive media stories about wood and pellet heating
- ❖ Engage universities and help young engineers get jobs in stove industry

# Thank you!

John Ackerly

jackerly@forgreenheat.org

(301) 204-9562

[www.forgreenheat.org](http://www.forgreenheat.org)

Takoma Park, Maryland



**ALLIANCE**  
**FOR GREEN HEAT**  
low carbon, renewable and local