

Michigan Wood Energy Team

Lansing Meeting, 10 January 2018

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Maine Energy Systems*



Three messages

1. The need for marketplace education won't end soon.

Three messages

1. The need for marketplace education won't end soon.
2. Collective will is essential for reasonable industry growth.

These are the right sorts of people to have in agreement...

- Educators
- Transportation specialists
- Energy resource developers
- Boiler inspectors
- Environmental/climate specialists
- Labor/employment representatives
- Pellet manufacturers
- Pellet distributors
- Heating equipment distributors

Three messages

1. The need for marketplace education won't end soon.
2. Collective will is essential for reasonable industry growth.
3. **Attention to quality in the marketplace is critically important.**

Innovation



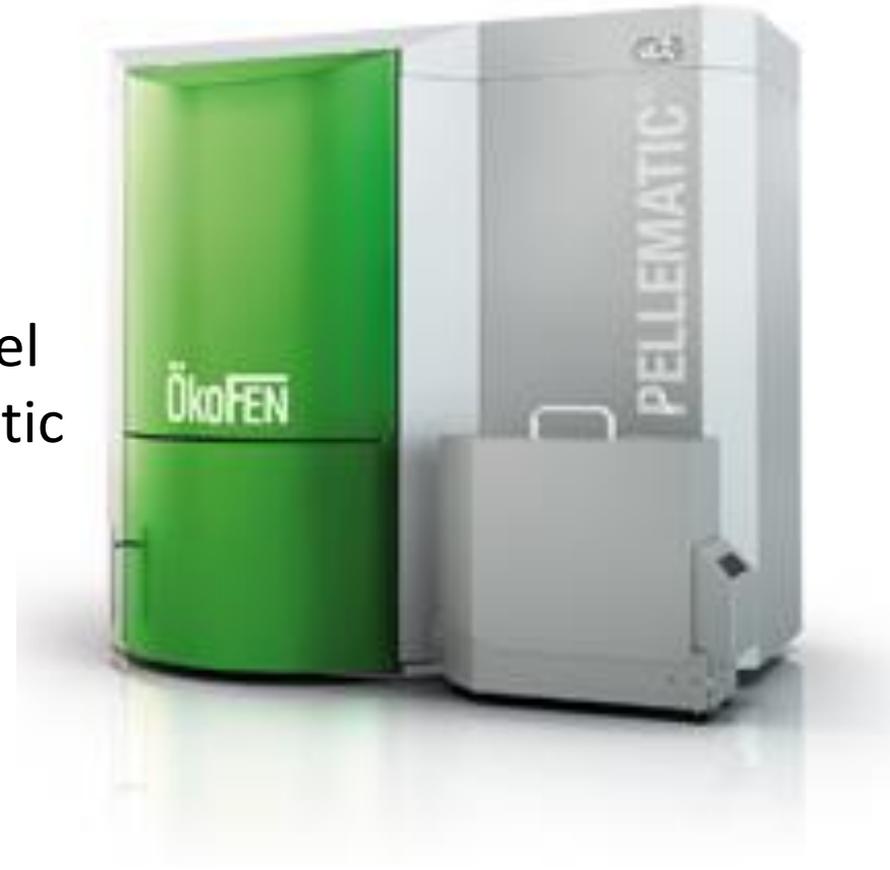
2007

- ~80% efficiency (HHV)
- ~40lb fuel consumption between burner cleanings (shutdown)
- Ash removal interval ~ 2 weeks
- Heat exchanger cleaning, manual



2009

- ~85-87% efficiency (HHV)
- No burner cleanings required
- Ash removal interval, 2 tons of fuel
- Heat exchanger cleaning, automatic



Storage units



Condensing technology

- ~91-92% efficiency (HHV)
- No burner cleanings required
- Ash removal interval, 2 tons of fuel
- Heat exchanger cleaning, automatic



Economical, bag-filled boiler

- ~85-87% efficiency (HHV)
- No burner cleanings required
- Ash removal, manual
- Heat exchanger cleaning, easy
- Serves bag pellet market



Forced hot air furnace

- ~85-87% efficiency (HHV)
- No burner cleanings required
- Ash removal, manual or automatic
- Heat exchanger cleaning, automatic
- Serves bag pellet market



Pellematic_e-max

Combined heat and power

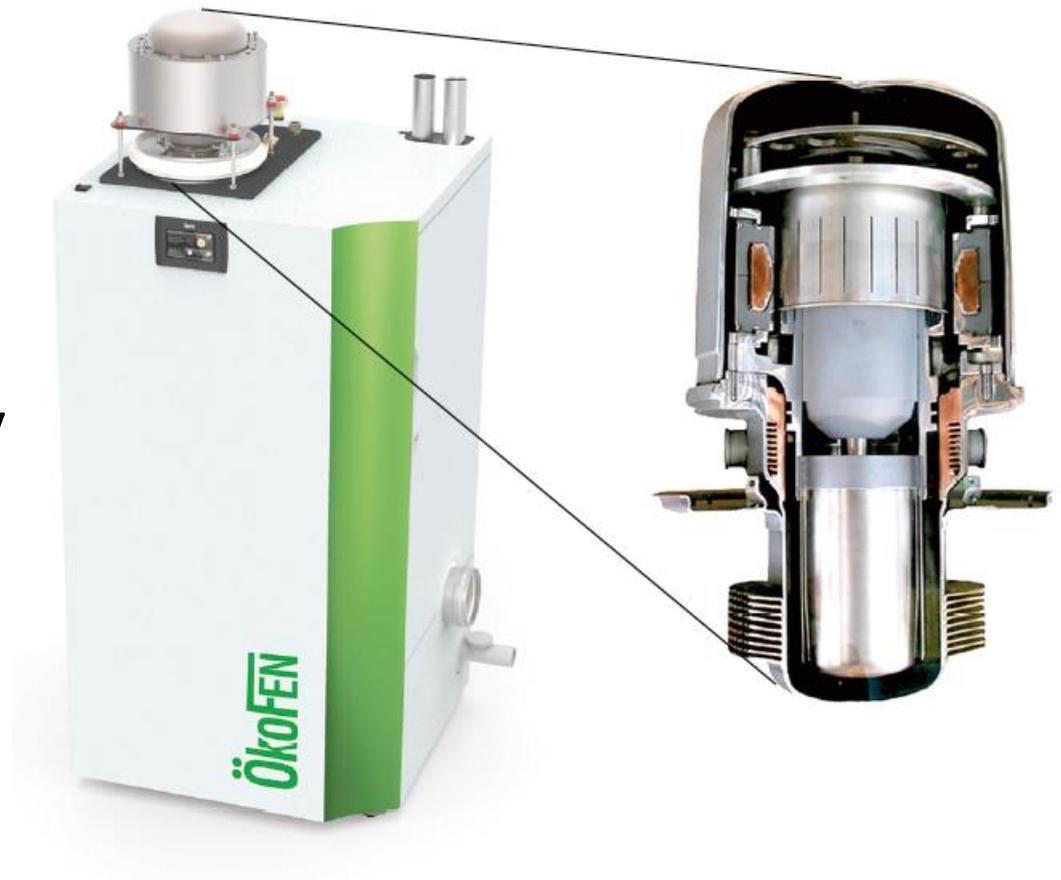
- $\leq 60\text{kW}$ (205,000BTU) thermal output
- $\leq 5\text{kW}$ electrical energy output



Condens-e

Combined heat and power

- $\leq 15\text{kW}$ (51,000BTU) thermal output
- $\geq 1\text{kW}$ electrical energy output



Staged systems



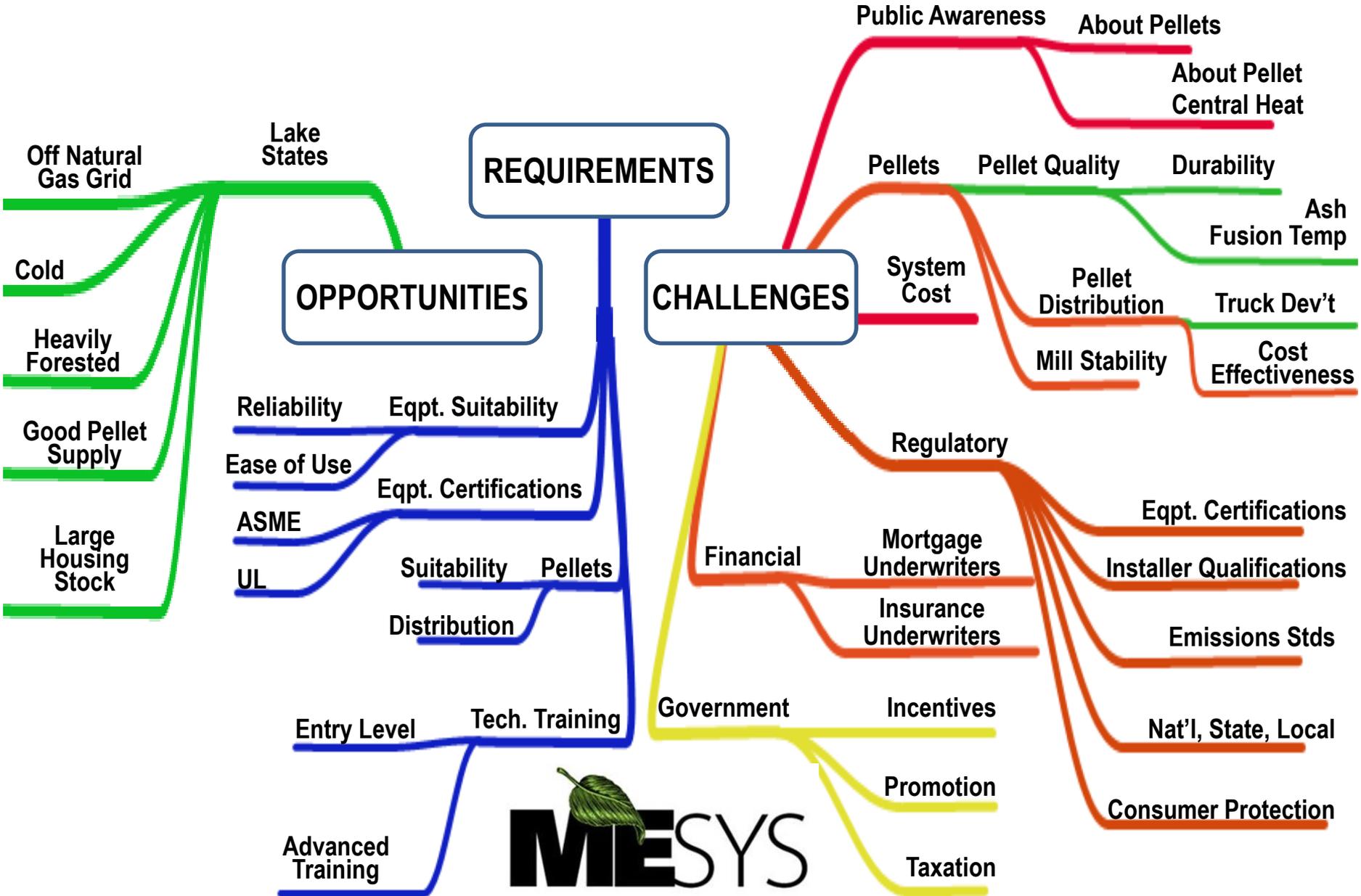
Energy box



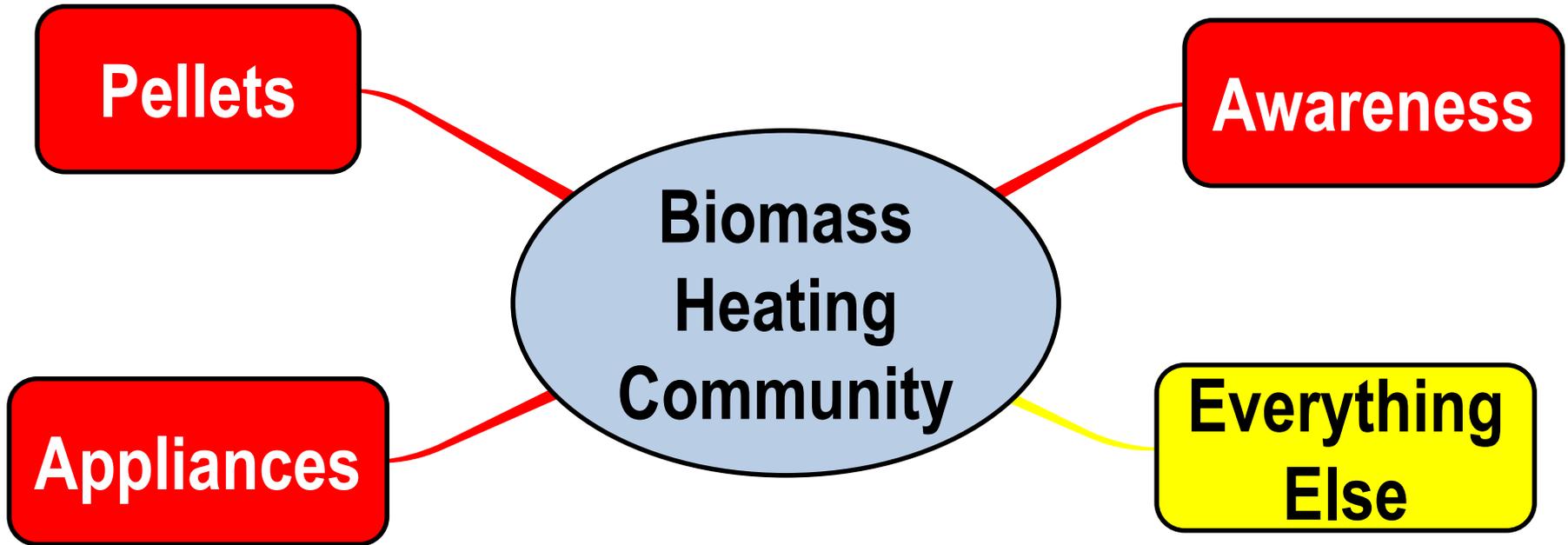
Why support biomass as a renewable energy source?

1. It is locally produced, creating and sustaining jobs in your region.
2. It has significant carbon neutrality helping meet carbon reduction goals.
3. It helps retain all of the heating fuel money spent for the regional economy.

Mindmap for Austrian Presentation



The whole (abridged) puzzle



Community values:

- **Economic:** many jobs across the spectrum
- **Environmental:** the best renewable energy resource for reduced life cycle carbon emissions

Biomass community building



Bulk Delivery

Pellets

Biomass Heating Community

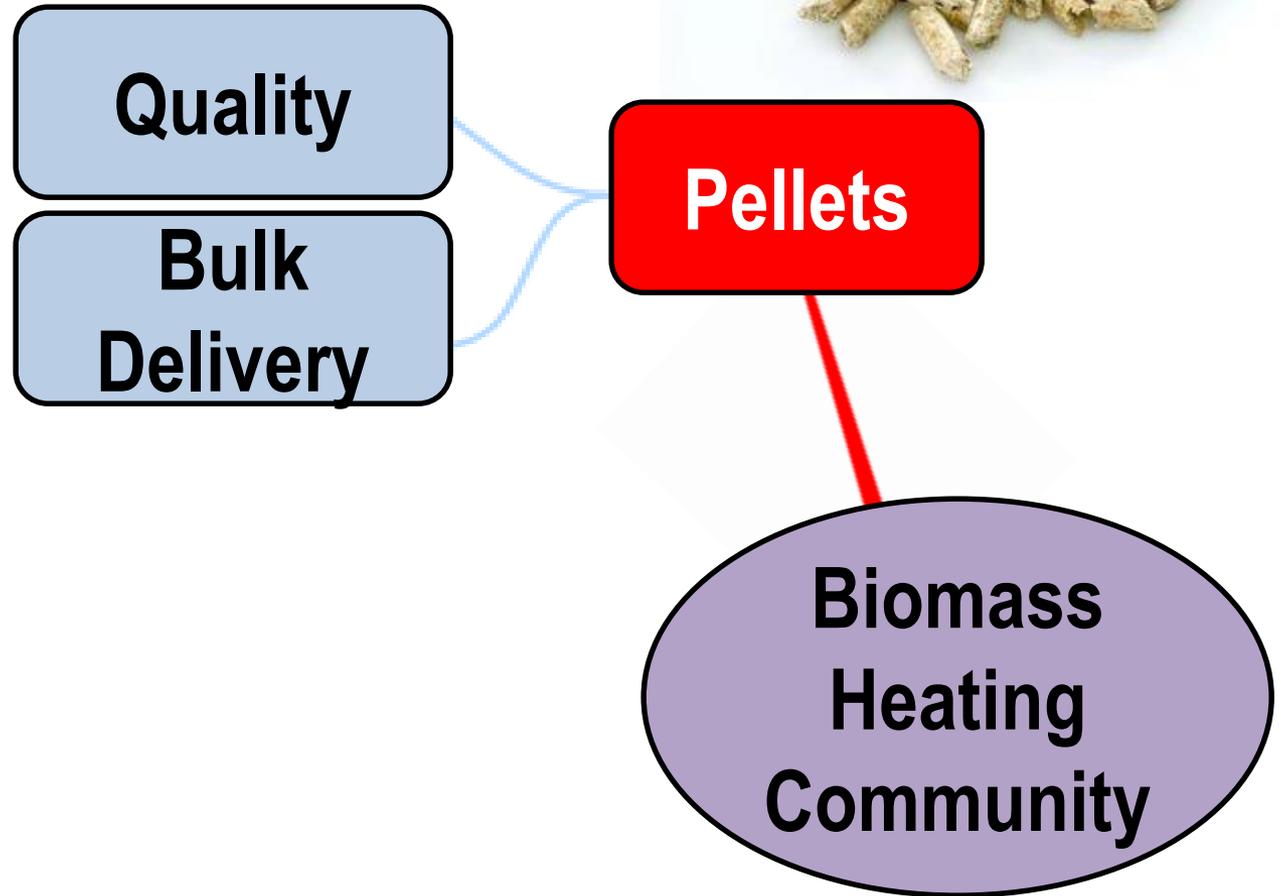


Community values:

- **Economic:** delivery jobs
- **Environmental:** reduced life cycle carbon



Biomass community building



Reliable boilers



Boilers



Appliances

**Biomass
Heating
Community**

Community values:

- **Economic:** fabrication, sales, installation jobs
- **Environmental:** reduced life cycle carbon

Reliable furnaces



Boilers

Furnaces

Appliances

Biomass
Heating
Community



Community values:

- **Economic:** fabrication, installation, sales jobs
- **Environmental:** reduced life cycle carbon, reduced electricity consumption

Public awareness



Awareness

**Equipment
Attributes**

**Environmental
Impacts**

**Biomass
Heating
Community**



Everything else



**Biomass
Heating
Community**

**Everything
Else**

**Financial
Institutions**

**Insurance
Industry**

**Competing
Industries**

**Regulating
Agencies**



Policy issues

CHALLENGES

Regulatory

- Equipment Certifications
- Installer Qualifications
- Emissions Standards
- National, State, Local Standards

Financial

- Banking Underwriters
- Insurance Underwriters

Governmental

Incentives

Promotion

Taxation

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Lansing Meeting

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Thank you for your attention