

Development of a National Wood Chip Heating Fuel Standard



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Innovative Natural Resource Solutions LLC



- ▶ Founded in 1994
- ▶ Offices in New Hampshire and Maine
- ▶ Focus at the intersection of forest industry, energy and economic development
- ▶ Services include:
 - consulting in renewable energy with a biomass focus
 - advocacy
 - forest management and protection
 - forest certification and sustainability
- ▶ Clients from the private, non-profit and government sectors
- ▶ Conducted work in all regions of North America
- ▶ www.inrslc.com

Partners

- ▶ Biomass Energy Resource Center, a program of the Vermont Energy Investment Corporation – **project lead**



- ▶ American Society of Agricultural and Biological Engineers
 - ANSI certified



- ▶ Biomass Thermal Energy Council



Funding

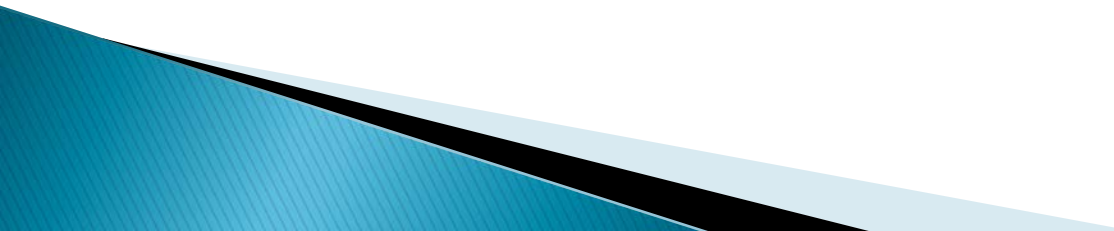
- ▶ USDA Forest Service, Wood Education and Resource Center



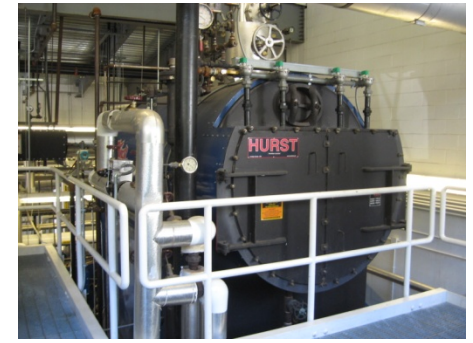
Thank you!

- ▶ Contributions from project partners
- ▶ In-kind donations from many, including advisory committee

Some Context

- ▶ Large scale biomass heating/CHP with wood chips represents significant growth opportunity
 - ▶ For biomass heating/CHP to become mainstream energy choice, must be clean and efficient, with high reliability and consistent, predictable performance
 - ▶ In short, must provide experience similar to fossil fuels!
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**Boiler engineered to tight
fuel specification x**



**Fuel that consistently meets
that specification =**



**Consistently and predictably
high boiler combustion
efficiency/performance**



So What's the Problem?

- ▶ **No widely adopted, fully recognized wood chip fuel standard in market today**
- ▶ **Every other major heating fuel, except wood chips, subject to unambiguous fuel standards certified by recognized agency**
 - Heating oil
 - Propane
 - Natural gas
 - Pellets (PFI, ENPlus, ISO)
- ▶ **Failure to act could lead to regulators (e.g. EPA) taking matters into their own hands**
- ▶ **Strong industry-wide stakeholder process – consensus standard!**
 - Boiler manufacturers
 - Supply chain intermediaries
 - Fuel processors and suppliers
 - Air quality regulators

What's Driving Need for Solution?

- ▶ Increased regulation
 - Boiler MACT
 - New Source Performance Standards
 - New particulate non-attainment thresholds
- ▶ Greater awareness of particulate issues from wood fuels, especially among state regulators
- ▶ Fossil heating fuels against which wood competes are getting cleaner (e.g. ULS #2 heating oil, Bioheat blends)
- ▶ Public expectation that wood fuels must be as clean as possible (backlash from OWBs)
- ▶ Public health officials increasingly taking dim view of wood
- ▶ Sophisticated consumers of fuel insisting on verifiable standard

Put simply.....

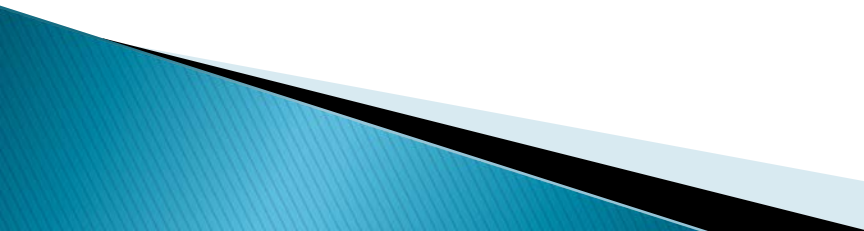
- ▶ The industry has a long history of touting “these boilers can burn anything” – this perpetuates the market perception of wood heating as the *wild west*.
- ▶ If we are going to go mainstream and displace fossil fuels in a meaningful way, we must send a clear message that **consistent, predictable fuel quality yields consistent and predictable system performance, efficiency, and emissions.**

How do we label wood chip fuels today? – no standard terminology!

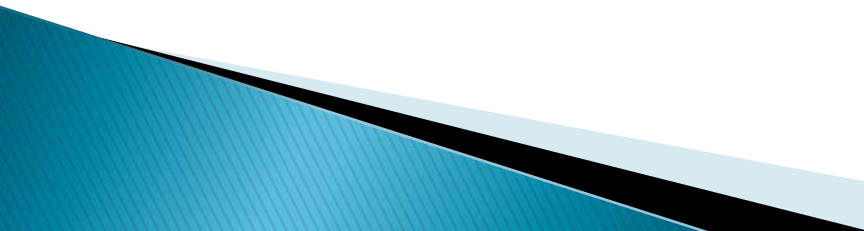
- ▶ “Whole tree chips”
- ▶ “Screened chips”
- ▶ “Bole chips”
- ▶ “Microchips”
- ▶ “Semi-dry chips”
- ▶ “Precision dry chips”
- ▶ “Refined dry chips”
- ▶ “Hog fuel”
- ▶ “Grindings”
- ▶ “Dirty chips”
- ▶ “Clean chips”



Fuel quality standard should address:

- ▶ Chip size: length, width, depth
 - ▶ Chip moisture content
 - ▶ Chip energy content/density
 - ▶ Acceptable % overs and unders, fines
 - ▶ Non-wood contaminants
 - ▶ Species
 - ▶ Terminology used to describe different quality fuels
 - ▶ Other factors
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What is the Solution?

- ▶ Develop a standard with broad stakeholder involvement
 - ▶ Certify by recognized agency (ASABE) consistent with ANSI procedures
 - ▶ Major education and outreach program to promote adoption of standard in marketplace
 - Boiler manufacturers
 - Supply chain intermediaries
 - Fuel producers/processors
 - Consumers
 - ▶ Continually refine standard based on feedback from industry, consumers
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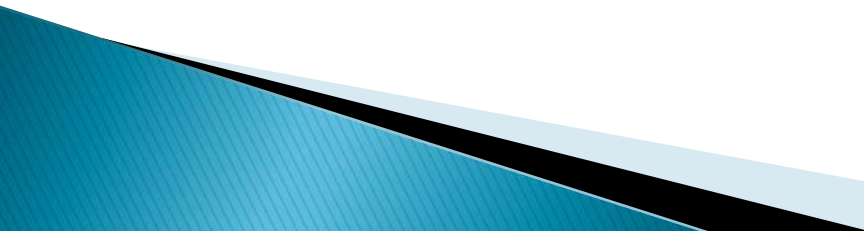
Process/Timeline – Two Years

Task	By When?
Form stakeholder advisory committee – interested?	Q2/16
Review prior work: ISO, EN, ONorm, other	Q3/16
Draft standard	Q3–4/16
Engage ASABE/ANSI to generate feedback on draft	Q1–2/17
Publish as ANSI standard	Q3/17
Nationwide education/outreach, including User Guide	Q3/17 – Q1/18
Final report to USDA Forest Service	Q2/18

Letters of Support

- ▶ ASABE, MI
 - ▶ Bioenergy Project Partners, NY
 - ▶ BTEC, DC
 - ▶ Forest Concepts, WA
 - ▶ INRS, NH and ME
 - ▶ Resource Systems Grp, VT
 - ▶ NH Dept. of Env. Services
 - ▶ OR Dept. of Forestry
 - ▶ TARM Biomass, NH
 - ▶ Viessmann Manufacturing, RI
 - ▶ WV University
 - ▶ Wisewood, WA
 - ▶ AFS Energy Systems, PA
 - ▶ All. for Green Heat, MD
 - ▶ Better World Energy/Messersmith, MI
 - ▶ Caluwe Biomass Heating Solutions, MA
 - ▶ NY Bioenergy Assn
 - ▶ MT Dept. of Natural Resources/Forestry Div.
 - ▶ Vermeer Corp., IA
 - ▶ WI State Energy Office
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Are you a stakeholder?

- ▶ Boiler manufacturer?
 - ▶ Chipping equipment manufacturer?
 - ▶ Fuel processor?
 - Chip mill
 - Logging contractor
 - Primary wood product residue producer
 - ▶ Supply chain intermediary
 - Brokering fuel
 - Trucking
 - Secondary processing
 - ▶ Air quality regulator?
 - ▶ Combustion engineer?
 - ▶ Consumer?
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Contact Us!

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Thank you

