Oilheating, Bioheating and NORA

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President
National Oilheat Research Alliance

The Heating Oil Industry is Changing

- Two Major Developments
  - Clean Low Sulfur Fuel is on the March
    - 2000 ppm to 500 ppm to 15 ppm
      - New York is already 15 ppm as are many of the smaller markets
  - Biodiesel is Moving into the Product
    - 5 Percent is Approved
    - The Industry is Moving towards 20

State Movement to Low and Ultra Low Sulfur

State	Sulfur
Connecticut Contact: Chris Herb, CEMA chris@ctema.com Updated June 25, 2014	Previous: 2,000-3,000 PPM July 1, 2014: 500 PPM July 1, 2018: 15 PPM
Delaware Contact: Peter Horrigan petegwyn@aol.com Updated March 20, 2014	Current (New Castle County Only): 10,000 PPM Current (State): 3,000 PPM July 1, 2016: 15 PPM
District of Columbia Contact: Peter Horrigan petegwyn@aol.com Updated July 7, 2014	Current: 10,000 PPM Proposed (6/20/14): July 1, 2016: 500 PPM July 1, 2018: 15 PPM
Maine Contact: Jamie Py, MEMA Jamie@MaineEnergyMarketers.com Updated March 20, 2014	Current: 3,000-5,000 PPM July 1, 2016: 50 PPM Jan. 1, 2018: 15 PPM
Maryland Contact: Peter Horrigan petegwyn@aol.com Updated July 7, 2014	Current: None PROPOSED (6/27/14): July 1, 2014: 2,000 PPM July 1, 2015: 500 PPM
Massachusetts Contact: Michael Ferrante, MEMA mferrante@massoilheat.org Updated June 27, 2014	Previous: 3,000 PPM July 1, 2014: 500 PPM July 1, 2018: 15 PPM
New Hampshire Contact: Bob Scully, OHCNH RJSculley@nhoilheat.com Updated March 19, 2014	Current: 4,000 PPM (No other requirements)
New Jersey Contact: Eric DeGesero, FMANJ edegesero@fmanj.org Updated March 20, 2014	Previous: 2,000-3,000 PPM July 1, 2014: 500 PPM July 1, 2016: 15 PPM
New York State Contact: Tom Peters, ESPA tpeters@espa.net Updated March 20, 2014	Previous: 2,500-5,000 July 1, 2012: 15 PPM* *Per New York State law signed on 7/20/2010. Prior to that the sulfur limit was 2,000 PPM.
New York City Contact: John Maniscalco nyoilheating@nyc.rr.com Updated March 20, 2014	Same as New York State
Pennsylvania Contact: John Kulik jpvlku@aol.com Updated March 20, 2014	Current: 2,000-5,000 PPM* July 1, 2016: 500 PPM *varies by in-state region.

Rhode Island **Julie Gill, OHIRI** **julie@ohi.necoxmail.com** **Updated June 16, 2014**	**Previous: 5,000 PPM** **July 1, 2014: 500 PPM** **July 1, 2018: 15 PPM**
Vermont **Matt Cota, VFDA** **matt@vermontfuel.com** **Updated June 16, 2014**	**Previous: 20,000 PPM** **July 1, 2014: 500 PPM** **July , 2018: 15 PPM**

Why is Low Sulfur Important

- “NORA’s support was critical to enabling this program to move forward and clearly demonstrates the oilheat industry’s commitment to making sure that their customers will be able to move toward a cleaner, more efficient and greener America," Arthur Marin of NESCAUM

- “Reducing sulfur in heating oil is a major accomplishment and will provide important public health and environmental benefits in the Northeast and Mid-Atlantic region,” said Anna Garcia, Executive Director of MANE-VU.

Consumer Benefits

- Higher Efficiency of 1-2 percent
- Less Maintenance Needed, Quicker Tune-Ups
- Empowers Next Generation of High Efficiency Small Equipment with Lower Cost Materials.

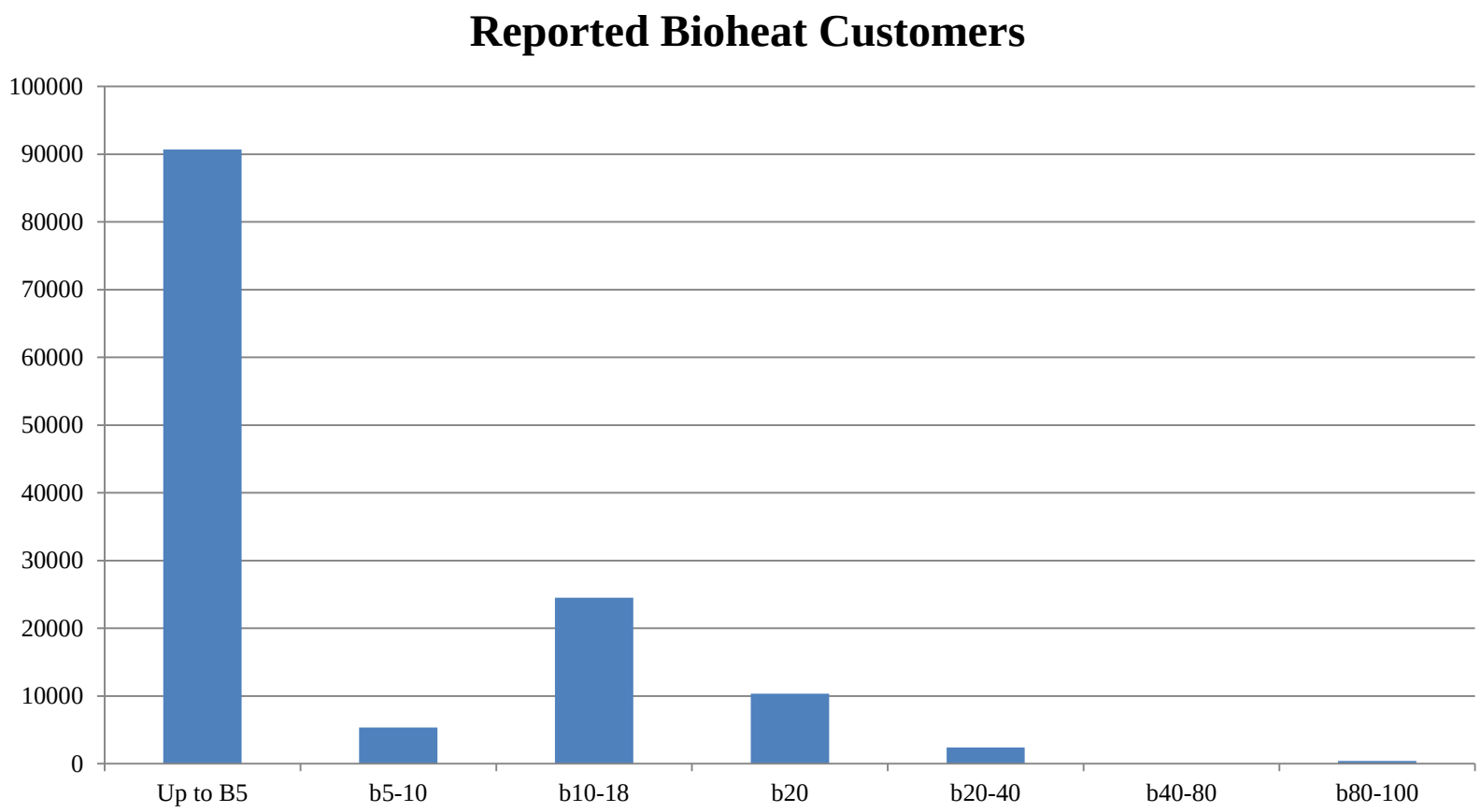
Biodiesel and Biofuels

- Moving to a Renewable, Low Carbon Fuel
  - Industry is close to 5 percent biodiesel
  - Dealers Aggressively Moving to Adopt the New Fuel

NORA Research Review

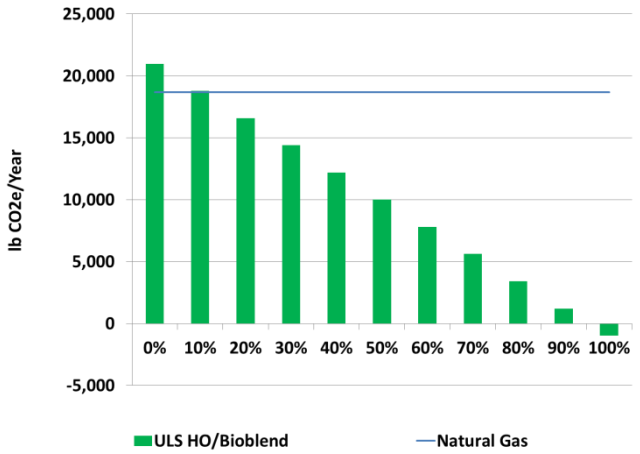
- Fuel Quality
- Biofuels/Blends/GHGs
- High Efficiency Appliances
- Hydronic System Efficiency
- Advanced Burners
- Control Concepts
- What works and what doesn't?

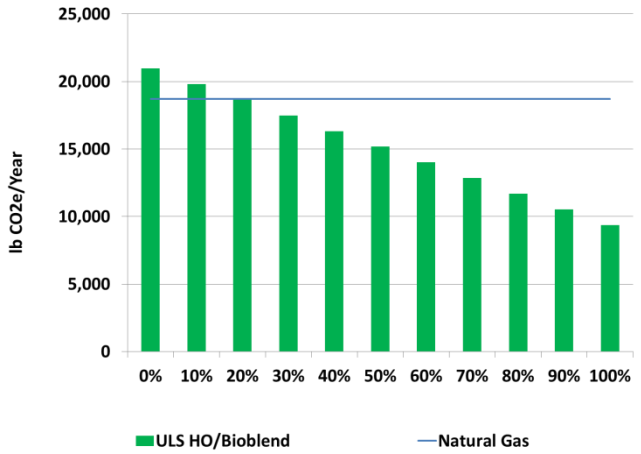
Use of Biodiesel by Known Distributors



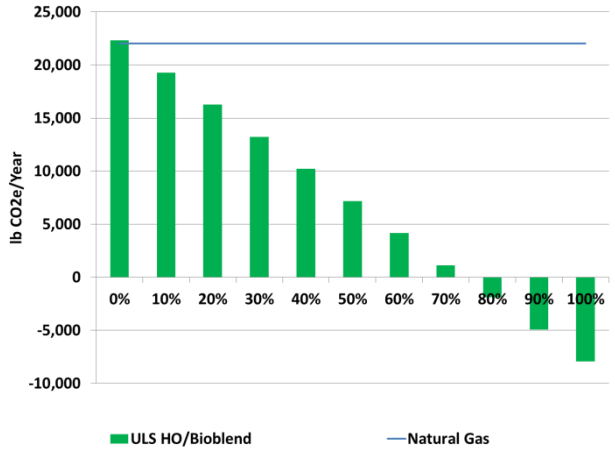
Biofuel Blends and GHGs

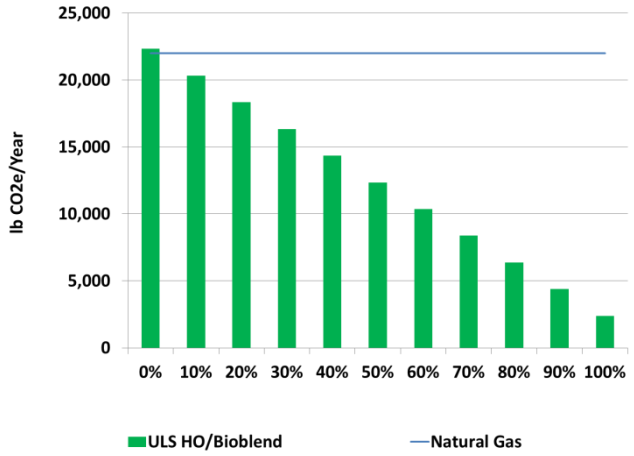
100 Year Atmospheric Lifetime





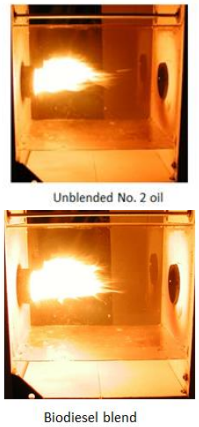
20 Year Atmospheric Lifetime





Biofuels

- Supported the development of key technical data which led to the B-5 fuel standard.
- Additional work is now underway to raise the formal approval level to B-20



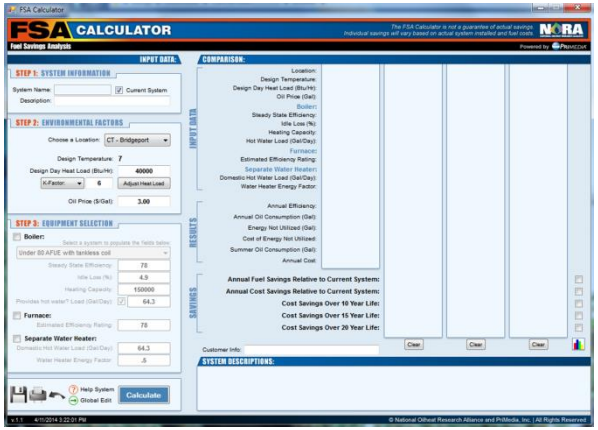
What Else is Happening

- Efficiency is the Game
  - Heating Oil Consumption in Gallons ½ of 2003,
  - Some of that is Attrition, Use of Bulk Fuels, but Most of it is Conservation

High Efficiency Appliances

Hydronic System Efficiency

BNL completed a study of integrated hydronic systems which showed that the replacement of old systems with modern systems can achieve savings far greater than AFUE alone would show. This provides a case for justifying new equipment installation. A general estimate of 25% savings has been shown and field verified.



Research Objectives

- Tools and Training to Evaluate Existing Equipment
- Improve Overall Reliability
  - TPV
- Next Generation of Equipment
  - Heat Pump
- Electronics, Controls, Thermostats ??

Training for the Industry

- Holistic Approach to the Whole House
- Better Understanding of Efficiency
- Evaluating Retrofit Options, and Improvements

Energy Efficiency

- New Program Area
- Doing a Survey of State Programs Now
- Ideas
  - Distribute Smart Thermostats
  - Train and Distribute Electronic Combustion Analyzers
  - Equipment Rebates

Thank You

- Questions