THE HEATING OIL INDUSTRY:

A Commitment to Reducing Carbon Emissions with a Cleaner, Renewable Fuel

Bioheat® is the Pathway to Net-Zero

The heating oil industry, which serves over 20 million customers across the country, is resolved to be a willing and contributing partner in reducing the use of carbon-based fuels, helping the United States mitigate the impact of climate change, and assisting state governments in achieving established benchmarks to meet aggressive greenhouse gas (GHG) reduction goals.

To that end, on September 16, 2019 the heating oil industry unanimously agreed to accelerate the use of higher blends of clean, renewable biofuel (also known as biodiesel and the registered mark Bioheat®) in heating oil through the following resolution:

> *"Be it resolved that the heating oil industry will reduce its greenhouse gas emissions (GHG), based on 1990 levels, by 15 percent by 2023; 40 percent by 2030; and net-zero by 2050.*
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> *Be it further resolved that industry groups participating in and present for this summit, including the New England Fuel Institute, the various state associations, and the National Oilheat Research Alliance, will work together to do all that is necessary to achieve these goals."*[1]

Research conducted by the National Oilheat Research Alliance (NORA) indicates the industry can achieve a 40% reduction in GHG emissions by 2030 with a 50% (B50) blend of biofuel. By doing so, the industry can meet the emission reduction goals set by the 2015 Paris Agreement and pave the way for net-zero emissions by 2050.

Biofuels are defined by the U.S. Environmental Protection Agency (EPA) under the federal Renewable Fuel Standard (RFS) program as fuels produced from qualifying renewable biomass that when blended with petroleum products such as heating oil and diesel fuel achieve at least a 50% reduction in GHG emissions. According to the EPA, biofuels can reduce particulate emissions by as much as 47% and carbon emissions by up to 86%.

Biofuel is a gallon-for-gallon substitute for petroleum-based fuels used for space heating and transportation. Biofuel is a nontoxic, biodegradable, renewable fuel, produced from a variety of so-called "feedstocks" including agricultural by-products and coproducts, such as used cooking oil, animal fats, inedible corn oil, soybean oil, and canola oil. These products are refined into extremely high-quality, clean-burning, renewable liquid fuels that meet rigorous standards set by the American Society of Testing and Materials.[2]

Bioheat® is an economical, environmentally-sustainable choice for millions of homeowners, many living in the Northeast which is one of the nation's coldest regions. The fuel blend is fit-for-use in any oil-fired heating system and requires no significant modifications to existing equipment. Heating oil retailers across the country are currently blending biodiesel with ultra-low sulfur content heating oil at percentages ranging from 5% (B5) up to 20% (B20).

[1]New England Fuel Institute HEAT Show, Providence, RI, September 16, 2019
[2]National Biodiesel Board, https://mybioheat.com

Heating Oil Industry Overview

For more than 75 years, the industry in 22 states has provided and continues to provide a reliable, safe, and economical liquid fuel energy source for homes and businesses. Additionally, the industry installs and maintains high-efficiency heating and hot water systems to its entire customer base and has a proven track record of unsurpassed service to customers on a 24-hour, seven-day-per-week schedule.

Currently, the home comfort industry in the United States:

- Is comprised of 9,000 independent businesses employing more than 50,000 people
- Serves more than 8.5 million homes and 20 million customers
- Delivers 7 billion gallons of heating fuel annually

Bioheat® and NORA—The National Oilheat Research Alliance

Accelerating the use of biodiesel blends in heating oil has been a goal of the industry for 20 years and that effort has been spearheaded by the National Oilheat Research Alliance (NORA).

In 2000, the United States Congress enacted TITLE VII—The National Oilheat Research Alliance Act (NORA) that recognized heating oil as an "important commodity" and "an efficient and economical energy source for commercial and residential space and hot water heating." NORA conducts ongoing research and development on liquid heating fuels and heating equipment, offers business education and technical training, implements consumer education programs on energy efficiency and new technologies, and offers equipment rebates to heating oil consumers.

NORA's primary objectives include:

- Expanding the use of renewable "biofuels blends" in heating oil and the universal adoption of Bioheat®
- Reducing fuel consumption in homes and businesses
- Improving heating equipment efficiencies
- Lowering emissions from heating fuel

NORA is also required to provide regular progress reports to the U.S. Congress. To assist NORA in continuing its important work, the U.S. Congress and the President approved a ten-year reauthorization for NORA in December 2018 under the Agriculture Improvement Act.

The Heating Oil Industry Is a Partner in **Lessening the Impact of Climate Change**

The heating oil industry acknowledges and supports the worldwide movement to limit fossil fuel use and seek renewable sources for heating and transportation fuels as a pathway for reducing carbon dioxide and related greenhouse gas emissions.

The industry's trade associations, particularly at the state level, have a laudable record of working cooperatively with lawmakers and regulators on passage of laws and regulations to improve the environment. For example, heating oil industry leaders have been actively involved in passage of the 2019 Climate Leadership and Community Protection Act in New York, the Global Warming Solutions Act of 2008 in Massachusetts; An Act Concerning Connecticut Global Warming Solutions of 2008; the passage of biofuel mandates in New York, Pennsylvania, and Rhode Island; the passage of regulations in Massachusetts that incentivize the use of biofuel blends in heating oil; and the unified passage of laws and regulations across the Northeast to implement cleaner, ultra-low sulfur heating oil standards.

And in a 2015 report to the U.S. Congress, NORA demonstrated the industry's commitment to expanding the use of biofuel and its impact on lowering GHG emissions. The report stated that "Biodiesel blends at 20% (B20) with ultra-low sulfur heating oil (ULSHO) are lower in Greenhouse Gas Emissions (GHG) than natural gas when evaluated over 100 years, while blends of 2% (B2) or more are lower in GHG than natural gas when evaluated over twenty years."[3]

Bioheat®: A Clean, Renewable, and Immediate Solution

The heating oil industry is demonstrating that through the expanding use of clean, renewable Bioheat®, significant reductions in greenhouse gas emissions are being achieved. Replacing conventional heating oil with percentage blends of liquid biofuel is the most expedient and cost-effective path to aggressive carbon-emission reductions.

- In the New York metropolitan area, where a B5 biofuel blend mandate is in place, biofuel has cut heating oil use by 35 million gallons annually. And in 2025, the mandate level rises to B10 enabling the area to eliminate 70 million gallons of heating oil annually.
- In Massachusetts, under the state's Alternative Energy Portfolio Standard (APS), biofuel blends have reduced heating oil use by 35 million gallons over a two-year period beginning in January 2018, and the state's Department of Energy Resources (MA DOER) says the APS contributes to "the Commonwealth's clean energy goals by increasing energy efficiency and reducing the need for conventional fossil fuel-based power generation."[4]

Furthermore, MA DOER states, "Alternative fuels, such as biofuels, assist in transition to cleaner heating and transportation. Increasing the amount of biofuel used in place of oil in existing equipment will reduce emissions and cost for consumers."[5]

In the Northeast region of the United States alone, where heating oil has significant market share, the region-wide use of B50 can reduce CO2 emissions by 18.5 million metric tons[6]. And the movement to expand the use of biofuel in other Northeast states such as Connecticut and Vermont with mandates and incentive programs is already underway.

[3]Developing a Renewable Option for the Home Heating Sector, National Oilheat Research Alliance, May 2015
[4]Massachusetts Department of Energy Resources, https://www.mass.gov/about-doer
[5]Massachusetts Comprehensive Energy Plan, Massachusetts Department of Energy Resources, December 12, 2018
[6]New England Fuel Institute: Leading the Way Toward a Zero-Carbon Future, May 2019

Bioheat®: A Better and Less-Expensive Alternative to Electric Heat Pumps

In virtually every state in the Northeast, policy makers have implemented programs to encourage homeowners to convert from heating oil to electric air-source heat pumps to help reduce emissions. However, data collected from the Massachusetts Clean Energy Center (MACEC)[7] indicates that heat pumps are expensive to install, and when installed are primarily used as a supplemental heat source.

The Massachusetts data revealed that:

- The median cost to install an electric air-source heat pump is $21,572 even with an average equipment rebate of $2,520 from MACEC
- 92.8% of the MACEC electric air-source heat pump installations were only used for supplemental heating purposes

Further research indicates that policy-driven electrification, through switching residential heating to electric heat pumps, will "increase the average residential household energy-related costs by approximately 38% to 46%."[8]

Additionally, extensive winter testing of electric heat pumps indicates the units have significant performance challenges in cold weather because their coefficient of performance (COP) is impaired.

Moving forward, renewable Bioheat® is clearly a better pathway for heating oil customers. Bioheat® is readily available, already in widespread use, requires no significant modifications to a heating system, does not significantly increase energy costs to homeowners, and is a liquid fuel that can dramatically reduce carbon emissions.

A Proven Strategy for Contributing to Climate Change Goals

The September 2019 resolution by the heating oil industry is a monumental step in uniting this vital energy sector to combat climate change and make significant contributions to the national effort.

"The resolution of a B50 blend of biofuel in heating oil by 2030 is not an end goal, but rather a step on the journey to a wholly sustainable future for the heating oil industry," said John Huber, President of the National Oilheat Research Alliance.

He added, "Developing a totally renewable heating oil is attainable and following more research and development in the coming years, we will be within reach of a fully renewable fuel that's readily available to homeowners and businesses who have relied on heating oil for decades."

[7]Case Study: Massachusetts Air Source Heat Pump Installations – 2014–2019, Diversified Energy Specialists, November 19, 2019
[8]Future Fuel—Biodiesel and Advanced Biofuels for Residential Heating, Richard Sweeter, ICM, January/February 2019