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Representing New York's Heating Fuels Industry

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The New York State Energy Coalition (NYSEC) is a trade association representing the independent retail and wholesale heating fuels and energy marketers in New York City and Nassau and Suffolk counties of New York State – comprising 70% of the state's home heating oil market by volume. NYSEC members live and work in the neighborhoods they serve and are committed to improving the fuel products and appliances for their customers and their communities.

NYSEC would like to comment on the Transportation, Economic Development and Environmental Conservation (TED) Bill, Section WW – Making NY Buildings More Sustainable, specifically, the phase-out of fossil fuel heating equipment in New Construction and at End-of-Useful Life.

NYSEC supports the phasing-out of fossil fuels for thermal space heating and replacing petroleum diesel with biodiesel and renewable diesel – together known as biomass-based-diesel. These are non-fossil replacement fuels for petroleum diesel that provide carbon reductions of 80% CO₂e versus the fuels they would replace and at little to no cost to the consumer. Technological advances have led to the production of 100% non-fossil fuel heating equipment manufacturing, thus, allow a low carbon pathway for the current 1.3 million New York homes that use heating oil. They simply need to switch fuels to biomass-based diesel and reduce the carbon emissions of their heating systems in alignment with the state's carbon reduction goals.

The Home Heating Liquid Fuel Industry Supports the Phase-Out of Heating Oil and Replacing it with Biodiesel and Renewable Diesel

NYSEC has embraced the carbon reduction goals implemented by New York State and advocating for the phasing-out petroleum diesel (heating oil) for home heating and replacing it with biodiesel and renewable diesel – together known as bio-mass-based diesel.

Based upon U.S. Environmental Protection Agency and U.S. Department of Energy's Argonne National Lab, using biodiesel and renewable diesel in place of petroleum diesel for home heating will save 73% on average carbon reductions, and even up to 80% and beyond as new advances in production technology are employed. These fuels are made from used cooking oil, animal fats, brown (sewer) grease, and agricultural byproducts or co-products.

Emissions Improvements of Biodiesel versus Low Sulfur (LS) and Ultra Low Sulfur (ULS) Heating Oil^{1, 2, 3, 4, 5}

Average Change	PAH	PM	CO	NO _x	SO ₂	CO ₂
Percent	-90 to -95%	- 86%	Similar to -15%	Similar to -25%	- 98% (LS) Similar (ULS)	-73%

Note: PAH-Polycyclic Aromatic Hydrocarbons; PM-Particulate Matter; CO-Carbon Monoxide; NO_x-Nitrogen Oxides; SO₂-Sulfur Dioxide; CO₂-Carbon Dioxide

NYSEC supports increasing the current state law that requires the usage of a 20% biodiesel blend in home heating oil to a 50% biomass-based diesel blend by 2035 and a 100% replacement of petroleum diesel with biomass-based diesel by 2050. These actions would ultimately eliminate the use of 1 billion gallons of heating oil and reduce 8.59 million metric tons of carbon emissions, without the need for costly consumer equipment changes.

It should be noted that Connecticut (CT) and Rhode Island (RI) currently have laws for biomass-based diesel blending. Connecticut has a 50% blend requirement by 2035 and Rhode Island is 50% by 2030.

Phase out of fossil fuel equipment new construction (building code changes) and Prohibiting the replacement of fossil fuel heating equipment at end of life

NYSEC urges the state to recognize the technological advances in home heating equipment, for there will be 100% biodiesel UL-rated appliances being manufactured beginning in 2023.

Since 2000, the heating oil industry has been working to find clean alternatives to petroleum diesel for home heating. Through the National Oilheat Research Alliance (NORA), which was authorized by U.S. Congress in 2000, the heating oil industry in partnership with the National Biodiesel Board, now known as the Clean Fuels Alliance America, has been researching and advocating for improvements in the efficiency of equipment and providing a cleaner liquid fuel.

These entities have invested tens of millions of dollars for research, development, and educational outreach that has led to the phasing out of petroleum diesel and the use of biodiesel at levels ranging from B5 to B100 (100% biodiesel), as well as other renewable fuels currently in development.

This same R&D has led to the two largest home liquid heating appliance equipment manufacturers, Beckett Corporation and Carlin Corporation, to begin manufacturing 100% biodiesel Underwriters Laboratories (UL)-rated components in January of 2023. In the past month, all the home heating equipment manufacturers have agreed to do the same.

So as the state examines the policies of the International Code Council and International Building Codes for updating New York's building codes, NYSEC hopes the state will take into consideration the technological advances in equipment for home heating use. These advances and the use of 100% biodiesel and renewable biodiesel allows for current and new homeowners to have a choice of low carbon fuels for home heating while helping the state achieve its carbon reduction goals.

¹ Macor, A., Pavanello, P., Performance and Emissions of Biodiesel in a Boiler for Residential Heating, *Energy*, vol. 34, 2009.C

² Krishna, C.R., Biodiesel Blends in Space Heating Equipment, Brookhaven National Laboratory, 2001.

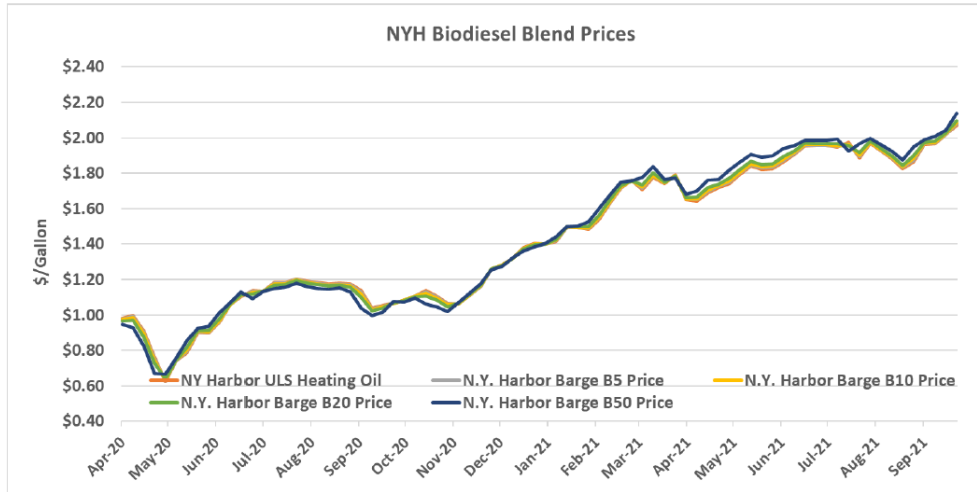
³ USDA/DOE 1998, Life Cycle Inventory of Biodiesel and Petroleum Diesel for Use in an Urban Bus.

⁴ Lee, S. Win, He, I., Heritage, T., Young B., Laboratory Investigations on the Cold Temperature Combustion and Emissions Performance of Biofuels Blends, 2003.

⁵ https://www.edf.org/sites/default/files/10071_EDF_BottomBarrel_Ch3.pdf at 5. Studies cited showed PM reduction proportional to biodiesel content (e.g., 20% reduction for B20 blend, 50% reduction for B50 blend). To be conservative, NBB estimates the PM reduction from using B100 would be approximately 86%

Biodiesel is a No Cost Increase Alternative for Current Home Heating Oil Consumers

At the New York State Winter Fuels Outlook Meeting on October 28, 2021, NYSERDA showed the chart below (excerpted from the NYSERDA PowerPoint Presentation) which depicts its tracking of biodiesel pricing. The Authority's data shows that biodiesel prices track those of diesel fuel, thus proving biodiesel to be an economic and affordable fuel for current heating oil customers. NYSERDA's Weekly Heating Fuels Report and Dashboard tracks retail pricing and an examination of historical data also shows no discernable price differential in the areas of the state where biodiesel is required versus where it is not.⁶



- > After accounting for the value of the associated RIN (D4) and the biodiesel tax credit, biodiesel prices are competitive with ultra-low sulfur heating oil, with just slightly higher prices.
 - B5 +\$0.01/gal
 - B20 +\$0.03/gal
 - B50 +\$0.07/gal
- > B100 biodiesel prices are affected by the price of soybeans as the primary feedstock as well as the value of the D4 RIN

7

Health Benefits of Using Biodiesel Confirmed in Trinity Consulting Study

Reducing criteria pollutants is more than just an abstract number or percentage -- substantial reductions in criteria pollutants, especially particulate matter (PM), yields important and quantifiable public health benefits.

The health benefits of using biodiesel in place of petroleum heating oil has been studied by Trinity Consulting. Trinity studied census tract areas and the surrounding 5-mile radius, so these results are granular and neighborhood specific. The Trinity Study shows the use of biodiesel in space heating reduces cancer rates by 85% in surrounding areas, as well as providing dramatic reductions in cases of asthma, premature deaths and lost workdays.

Since biodiesel is a drop-in fuel for home heating, these public health benefits begin accruing immediately upon the use of biodiesel in place of petroleum heating fuel. This means the asthma attacks, premature deaths avoided, and work loss days can be reduced every year starting today and for the next 10, 20, 30 or more years it will take the state to deploy deep electrification in this sector. For poor and disadvantaged communities that are heavily reliant on petroleum heating fuels, switching to biodiesel can provide substantial improvements in the health of those communities.

⁶ <https://www.nyserdera.ny.gov/About/Publications/EA-Reports-and-Studies/Weekly-Heating-Fuels-Report>

⁷ NYSERDA New York State Winter Fuels Outlook Meeting on October 29, 2020: FINAL-WinterFuels2020-Master Slide Deck.pdf

Four communities in New York State were studied: The Bronx, Albany and Buffalo for space heating, and the Port of New York / New Jersey for transportation.

The Bronx (New York) Sotomayor housing development

- Reduction in cancer burden by 20 cases (85% less)
- 16 premature deaths avoided
- 10,848 less asthma attacks
- 2,304 less lost workdays
- 11,889 less restricted activity days
- Equates to a valuation of about \$137M in avoided costs.

Albany (New York)

- Reduced cancer burden by 2 cases (85% less)
- 2 premature deaths avoided
- 65 asthma attacks avoided
- 15 less lost workdays
- 87 less restricted activity days
- Equates to avoided health care costs of \$1.23 million

Buffalo [New York]

- Reduced cancer burden by 29 cases (85% less)
- 8 premature deaths avoided
- 2,901 asthmas attacks avoided
- 1,214 less lost workdays
- 7,206 less restricted activity days
- Equates to avoided health care costs of \$67.54 million

Port Elizabeth – Port of New York / New Jersey

- Reduced cancer burden by 2,516 cases (86% less)
- 116 premature deaths avoided
- 74,862 asthmas attacks avoided
- 33,296 less lost workdays
- 193,804 less restricted activity days
- Equates to avoided health care costs of \$985.74 million

Note: Trinity Consulting is a multi-national firm with 69 offices across the U.S., Canada, United Kingdom, Ireland, Australia and China, and over 40 years of expertise in air dispersion modeling and health risk assessments. The Trinity Study, commissioned in 2020, completed in 2021 and updated in 2022, quantified the local community health benefits of switching from petroleum diesel or distillate to 100% biodiesel in 28 sites across 21 states in the U.S., with a focus on the transportation sector and space heating sector.

Conclusion

The heating oil industry has been leading a transition to renewable fuel blends for thermal heat in the Northeast. This includes New York City (the first to transition), and the states of New York, Connecticut, Massachusetts, Rhode Island, and Vermont.

These efforts have resulted in the state and the city of New York enacting liquid renewable fuel requirements for home heating as a method of immediately reducing the carbon emissions of heating

appliances with the recent state law (Chapter 750 of L.2021) requiring a 20% blend of Bioheating fuel. The City of New York's law (Local Law 119-2016) also embraced a 20% blend level and have transitioned their fleet to biodiesel and renewable diesel.

NYSEC believes the state should apply all pathways to decarbonization the thermal heat sector, by allowing home heating consumers to have their choice of low carbon emitting fuels versus given the only option to install an electric heat pump.

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