



BIODIESEL CAN HELP NEW YORK ACHIEVE ITS CLEAN ENERGY GOALS

Environmental Solutions

B10 10% Biodiesel eliminates 100 million gallons of heating oil, the equivalent of making 102,000 homes carbon neutral.

B20 20% blend produces a 14.6% reduction in CO₂ emissions and better GHG performance than natural gas (NESCAUM).

B50 50% biodiesel use eliminates 500 million gallons of heating oil and 4.29 million metric tons of carbon.

B100 100% biodiesel use eliminates 1 billion gallons of heating oil and 8.59 million metric tons of carbon.

EMISSIONS IMPROVEMENTS: BIODIESEL VS LOW SULFUR (LS) AND ULTRA LOW SULFUR (ULS) HEATING OIL

AVG. 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

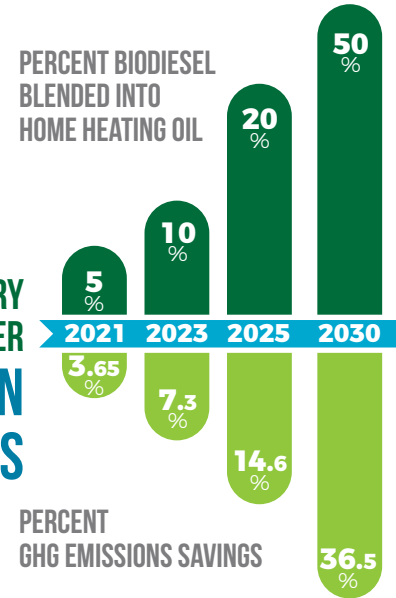
 **5M B20**

93% of the 14.3 million diesel gallons used by NYC vehicles in 2020 contain biodiesel blends. 100% of NYC sanitation vehicles run on biodiesel blends, using 5 million gallons of B20 per year.

 **17.8M B5**

From 2013-2020, NYC municipal buildings used 222.9 million gallons of Bioheat® fuel. In 2020, NYC schools used 17.8 million gallons of Bioheat® fuel. More than 75% of all no.2 heating oil used by NYC municipal buildings is blended with Bioheat® fuel.

HEATING INDUSTRY PROPOSAL TO LOWER CARBON EMISSIONS




CURRENT LAWS

New York State law requires increasing biodiesel blends in home heating oil:
5% by July 1, 2022
10% by July 1, 2025
20% by July 1, 2030.




Economic Solutions

\$4B  Home heating oil is a \$4 billion industry

753  NYS home heating oil retail businesses

8,609  full time jobs

1.6M  NYS households and businesses rely on oil heat, using more than 1 billion gallons of heating oil annually

New York State offers a tax credit of \$0.06-\$0.20 per gallon for biodiesel blends between B6 and B20. The credit expires in 2023.

Sources: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates; U.S. Energy Information Administration, State Profile and Energy Estimates, Sept. 2021; "Leading the Way Toward a Zero-Carbon Future," NEFI, 2019; New York City Department of Citywide Administrative Services, Update for the National Biodiesel Board; NYC Fleet, Dec. 2020; U.S. Environmental Protection Agency, Greenhouse Gas Equivalencies Calculator, <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>; Macor, A., Pavanello, P., Performance and Emissions of Biodiesel in a Boiler for Residential Heating, Energy, vol. 34, 2009; Krishna, C.R., Biodiesel Blends in Space Heating Equipment, Brookhaven National Laboratory, 2001; USDA/DOE 1998, Life Cycle Inventory of Biodiesel and Petroleum Diesel for Use in an Urban Bus; Lee, S. Win, He, I., Heritage, T., Young B., Laboratory Investigations on the Cold Temperature Combustion and Emissions Performance of Biofuels Blends, 2003; https://www.edf.org/sites/default/files/10071_EDF_Bottom-Barrel_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, Clean Fuels estimates the PM reduction from using B100 would be approximately 86%.