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December 4, 2020

Comments from The National Biodiesel Board
on the
Alternative Energy Portfolio Standard
Submitted to
Department of Energy Resources
100 Cambridge Street, Suite 1020
Boston, MA 02114
Attention: Samantha Meserve

The National Biodiesel Board (NBB) offers the following comments to the Massachusetts Department of Energy Resources (MA DOER) on 225 CMR 16:00 – Alternative Energy Portfolio Standard (APS), the related Daymark Energy Advisors Report and a series of questions issued to APS stakeholders by MA DOER.

The National Biodiesel Board represents the biodiesel, renewable diesel and renewable jet fuel industries. NBB members play an important role in state and national programs aimed at reducing carbon emissions, displacing petroleum, improving public health and protecting the environment. Many NBB members are members of environmental organizations and are supportive of state and local initiatives to achieve a sustainable energy future.

NBB commends the MA DOER for allowing stakeholders to participate in the rulemaking process for APS Program in achieving the Commonwealth's climate goals. We believe that stakeholder involvement will enable MA DOER to chart a path forward to successfully meet our environmental goals.

The heating oil industry in Massachusetts is proactively working toward reducing the carbon intensity of its products. NBB and the Massachusetts heating oil industry have established the goal, as set forth in the "Providence Resolution"¹ adopted in 2019 jointly by state heating oil organizations across the Northeast, of achieving a 40% reduction in greenhouse gas emissions with a 50% biodiesel blend by 2030, and net-zero emissions with a 100% biodiesel heating fuel. The bottom line is that renewable, low carbon liquid fuels will play a key role in the future of home heating.

NBB's comments will discuss the eligible feedstocks within the APS Program, the 2008 Clean Energy Biofuels Act mandate, and the supply, affordability and seamless transition biodiesel affords to current heating oil consumers. We offer these remarks in support of the Massachusetts Energy Marketers Association (MEMA), the MA state trade association representing all sectors of the heating oil industry including retail distributors of heating oil,

¹ <https://nefi.com/news-publications/recent-news/heating-oil-industry-commits-net-zero-emissions-2050/>

renewable liquid biofuel, and propane; wholesale suppliers of heating oil and biofuel with large fuel storage and distribution operations statewide; and producers of B100 – 100% liquid biofuel.

Please note the terminology in these comments refers to biodiesel and Bioheat® fuel and these are terms for an APS eligible liquid biofuel.

What is Biodiesel? As renewable, low carbon replacements for petroleum diesel fuel and heating oil, biodiesel and renewable diesel are made from used cooking oil, animal fats, brown (sewer) grease, and agricultural byproducts or co-products. These biofuels reduce lifecycle greenhouse gases on average 73% - 80%. In addition to significantly lowering greenhouse gas emissions, biodiesel can also significantly reduce harmful criteria pollutant created from the combustion of petroleum. These are pollutants that have been shown to lead to chronic health effects, especially in urban communities.

Emissions Improvements of Biodiesel versus Low Sulfur (LS) and Ultra Low Sulfur (ULS) Heating Oil^{2, 3, 4, 5, 6}

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

Feedstocks used to produce U.S. biodiesel have become increasingly diversified, with waste products making up an increasing volume of feedstock used to produce fuel. One of the chief reasons is biodiesel offers an especially effective and efficient outlet for recycling fat-based waste streams. While waste fats and oils can be treated in wastewater treatment plants, it is far more expensive and this process yields far fewer GHG savings, if any at all. Furthermore, by processing excess agricultural co-products such as soybean oil into high quality biodiesel, the industry is not only able to provide a lower carbon fuel, but we help facilitate lower protein costs by providing an additional revenue source for the production of soybean meal. Thus, with biodiesel production and use, there is no food-for-fuel issue. Currently federal law, rules, and regulations prohibit the use of palm oil in biodiesel production, helping further reduce deforestation. We are pleased to note that domestically-produced biodiesel meets all federal standards. In fact, US produced soybeans are so sustainable, they are approved under stringent, EU RED II Compliance scheme⁷.

As a drop-in fuel, Bioheat® provides immediacy in reducing greenhouse gas emissions and has been effective in states that have biodiesel blending requirements for space heating - New York and Rhode Island, as well as in Massachusetts with the APS. The same translates to those states with low carbon transportation policies.

² Macor, A., Pavanello, P., Performance and Emissions of Biodiesel in a Boiler for Residential Heating, *Energy*, vol. 34, 2009.C

³ Krishna, C.R., Biodiesel Blends in Space Heating Equipment, Brookhaven National Laboratory, 2001.

⁴ USDA/DOE 1998, Life Cycle Inventory of Biodiesel and Petroleum Diesel for Use in an Urban Bus.

⁵ Lee, S. Win, He, I., Heritage, T., Young B., Laboratory Investigations on the Cold Temperature Combustion and Emissions Performance of Biofuels Blends, 2003.

⁶ 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%

⁷ <https://ussec.org/european-union-recognizes-ssap-red/>

Heating oil is currently being delivered in Massachusetts at blends as high as 50% (B50). This blend level has not required modifications to the heating system, nor has it resulted in increased costs to the consumer versus traditional heating oil. This field experience shows that biodiesel is a solution to GHG reduction strategies and is a seamless transition for heating oil customers.

The Transition to Renewable Liquid Fuel: Bioheat®. Through the efforts of 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, has a laudable track record of accomplishments to improve the efficiency of equipment and provide a cleaner liquid fuel. NORA is funded by a government sanctioned “check-off” program by which \$0.002 is collected at the wholesale level on every gallon of heating oil sold in the U.S.; and NBB has contributed millions of dollars for research & development, and educational outreach. This partnership resulted in the development of Bioheat® fuel – ultra-low sulfur heating oil blended with renewable biofuel at levels ranging from B5 to B100.

Because of NORA’s continued leadership and guidance from the NBB, the heating oil industry has proactively pursued all legislative and regulatory opportunities to transition to renewable fuel blends in the Northeast. The industry has supported the enactment of biofuel mandates for heating oil in New York City (B5 increasing to B20 in 2034), Rhode Island (B5), for diesel fuel in Pennsylvania (B2), and the 2008 Clean Energy Biofuels Act in Massachusetts that was never implemented by MA DOER.

Recommendations for Improving the APS Program & Response to Specific MA DOER Stakeholder Questions

The NBB comments and recommendations will focus on the two following areas:

1. Expanding the feedstock eligibility within the APS in 2022 to include soy-based biofuel and other feedstocks designated as advanced biofuels under the federal Renewable Fuel Standard (RFS).
2. Fully implementing the 2008 Clean Energy Biofuels Act for both heating oil and on-road diesel fuel by July 1, 2022.

Expand “Eligible Feedstock” Definition for Consistency with Federal RFS. As previously stated, renewable liquid biofuel is fit-for-use today in every home in Massachusetts using heating oil. Kearney Consulting found that “the liquid heating fuel industry has the renewable fuel product today to drive immediate carbon reductions faster than alternative electric or gas options.”⁸

To further strengthen the move towards a “low carbon future”⁹ for Massachusetts, MA DOER should expand the feedstock eligibility within the APS in 2022 to include the feedstocks

⁸ Roadmap to Success: Achieving a Net-Zero Future by 2050, Kearney Consulting & NEFI, October 2020

⁹ Daymark Energy Advisors, Alternative Energy Portfolio Standard Review, October 30, 2020

designated for advanced biofuels in the federal RFS (i.e., the feedstocks identified in Table 1, 40 C.F.R. §80.1426 for advanced biofuels, such as soy-derived biomass-based diesel and other qualified feedstocks).

MA DOER already relies on the RFS for the definition of Eligible Liquid Biofuel Supplier List in 225 CMR 16:00 and should endeavor to adopt the following RFS definition for feedstocks. Other states, like New York, use the federal RFS definition.

NBB recommends that to further enhance the sustainability criteria of the APS, MA DOER should not only require that the eligible biofuel be produced from feedstocks listed on Table 1, 40 C.F.R § 80.1426, MA DOER should also require that fuel sold into the Commonwealth also generate RINs¹⁰ under the federal program.

This additional requirement would not be a burden to well intentioned producers who would already be generating a RIN as a normal course of business. However, a requirement to generate a RIN, or at least be registered with EPA, would make it more difficult for sell unsustainable product to be sold into the Commonwealth.

Thus, we recommend the following language for defining an eligible feedstock:

"Feedstock" shall mean soybean oil, canola oil, oil from annual cover crops, algal oil, biogenic waste oils, fats, and greases, camelina sativa oil, distillers corn oil, distillers sorghum oil, and commingled distillers corn and sorghum oil, provided that the commissioner may, by rules and regulations, modify the definition of feedstock based on EPA's potential future modifications of Table 1 of 40 C.F.R § 80.1426¹¹, and which has generated a RIN in compliance with the federal RFS program.

Expanding Eligible Feedstock Achieves GHG Savings. In establishing the RFS, the U.S. EPA determined that biodiesel, along with other advanced biofuels, reduce emissions by at least 50%. ¹²

Since EPA's original analysis in 2010, several subsequent studies have been conducted on biodiesel. The most recent, conducted in 2018 by Argonne National Laboratory, the federal leader on the life cycle emission from transportation fuels found that "Relative to the conventional petroleum diesel, soy biodiesel could achieve 76% reduction in GHG emissions without considering induced land use change (ILUC), or 66-72% reduction in overall GHG emissions when various ILUC cases were considered."¹³

¹⁰ Renewable Identification Number (RIN), 40 CFR 80.1401.

¹¹ Title 40, Code of Federal Regulations, U.S. Environmental Protection Agency

¹² Biodiesel: The Northeast's Carbon Solution, National Biodiesel Board

¹³ Biosource Technology, Argonne National Laboratory, Life Cycle Energy and Greenhouse Gas Emission Effects of Biodiesel in the United States with Indirect Land Use Impacts, 2018

Expanding feedstock eligibility in the APS program will also help ensure that supplies of liquid biofuel are sufficient to meet the needs of the program and reduce petroleum with the immediacy that is being recommended by IPCC¹⁴. NBB has many members who participate in the California Low Carbon Fuel Standard and that policy initiative attracted biodiesel producers and supply to the West Coast. The development of additional East Coast state policies will send market signals that will attract biodiesel back into the New England market in abundance.

Today's national market for biodiesel has reached 2.8 billion gallons with more than 3 billion gallons of domestic production capacity online today. Capacity of planned U.S. expansions will grow to 6 billion gallons by 2030. Domestic biodiesel is produced using various feedstocks designated as advanced biofuels under the federal RFS, as referenced above. These feedstocks include used cooking oil, animal fats, inedible corn oil, soybean oil, and canola.

Implement the Massachusetts 2008 Clean Energy Biofuels Law. In 2008, Massachusetts became one of the first states to implement a biofuels mandate that would have required B-5 blends for all heating and transportation diesel fuels. The mandate was suspended in 2009 just a day before it was to be implemented because, according to DOER, the mandate "was not feasible on the basis of unreasonable cost..." After eleven years of study and analysis, NBB believes now is the time for this suspension to be lifted and that a B-5 mandate be implemented effective July 1, 2022. Biofuel is an available drop-in fuel that will create immediate and beneficial greenhouse gas reductions with little, if any, additional costs. A statewide mandate would ensure that every gallon of diesel fuel delivered in the Commonwealth will have a renewable component that will reduce carbon emissions immediately in the heating and transportation sectors.

Since 2010, the biodiesel market has matured to a production capacity of approximately 300 million gallons to today's market of close to 3 billion gallons.¹⁵ As for price, data from the New York State Energy & Research Authority (NYSERDA) shows no substantial change in the retail price of heating oil in regions of the state that require biodiesel blending requirements and those that do not.^{16,17}

Further, at the New York State Winter Fuels Outlook Meeting on October 29, 2020, NYSERDA showed the chart below which depicts their tracking of biodiesel pricing. Their 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.

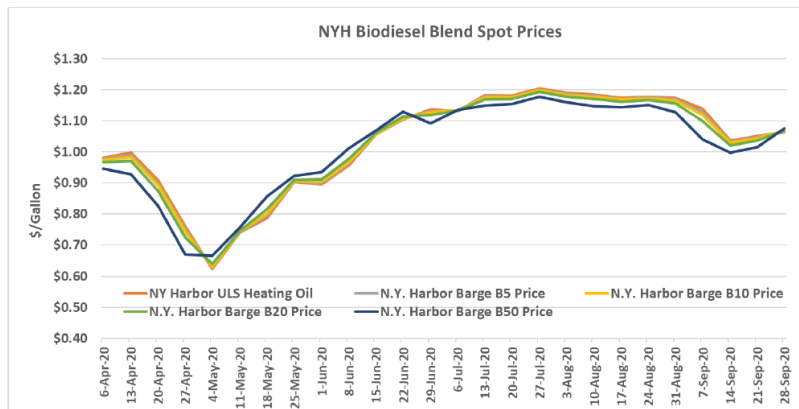
¹⁴ Intergovernmental Panel on Climate Change, the United Nations body for assessing the science related to climate change.

¹⁵ <https://www.biodiesel.org/production/production-statistics>

¹⁶ <https://www.nyserdan.gov/About/Publications/EA-Reports-and-Studies/Weekly-Heating-Fuels-Report>

¹⁷ <https://www.nyserdan.gov/researchers-and-policymakers/energy-prices/home-heating-oil/average-home-heating-oil-prices>

Biodiesel



- > 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.
- > B100 biodiesel prices are affected by the price of soybeans as the primary feedstock as well as the value of the D4 RIN

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Conclusion. The National Biodiesel Board makes these recommendations with the goal of enhancing the APS program to further the Commonwealth of Massachusetts' ability to achieve its climate change goals.

Thank you for the opportunity to provide comments on the Massachusetts Alternative Energy Portfolio Standard program.

Sincerely,

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Director of State Governmental Affairs