National Biodiesel Board
605 Clark Ave.
PO Box 104898
Jefferson City, MO 65110-4898
(800) 841-5849 *phone*
(573) 635-7913 *fax*

National Biodiesel Board
1331 Pennsylvania Ave., NW
Suite 505
Washington, DC 20004
(202) 737-8801 *phone*
www.biodiesel.org

September 13, 2019

Dear U.S. House Committee on Energy and Commerce,

The National Biodiesel Board (NBB) appreciates the opportunity to inform the development of comprehensive climate legislation. We look forward to working with you and your staff to provide input on key considerations for U.S. climate policy.

1. **What are the key policy, regulatory, and market considerations that should inform the development of comprehensive climate legislation? Please provide specifics.**

The success of the Renewable Fuel Standard (RFS) program should be continued as it is essential for increasing production and use of clean, renewable fuels in the United States. In addition to helping reduce greenhouse gas emissions, EPA's RFS regulations have enhanced our nation's energy security while also supporting U.S. farmers.

The biomass-based diesel (BBD) industry has been a success story of the RFS. BBD production has repeatedly surpassed required volumes and currently comprises more than 90% of annual advanced biofuel use. Assisted in its development by the market incentive from both the biomass-based diesel volume and the advanced biofuel volume, the biomass-based diesel industry has grown to support more than 65,600 jobs throughout its supply chain.

Importantly, BBD provides for significant greenhouse gas (GHG) reductions when compared to petroleum diesel. By definition, BBD must lower GHG emissions by at least 50 percent. And much of the BBD on the market today significantly exceeds that minimum requirement.

Overall, BBD use in the U.S. has achieved more than 25 million tons in annual GHG reductions by displacing fossil petroleum. The U.S. biodiesel industry is poised to achieve more than 35 million tons of annual GHG reductions by 2022 if federal policy properly incentivizes the use of existing feedstocks and existing installed production capacity. If policy stalls, so will the potential GHG reductions that the biodiesel industry is ready to deliver. The RFS is key to offering consumers the option of purchasing low-carbon fuels. Without effective policies in place to incentivize petroleum distributors to offer renewable fuels, consumers simply won't have the option to reduce GHG emissions from transportation.

2. **Please describe any innovative concepts for climate policy design, including both sector-specific and economywide measures, that you believe the Committee should consider.**

The biodiesel industry that exists today is the result of innovation that began almost three decades ago. Farmers realized protein demand was growing and crops such as soybeans could meet the demand. In the process of harvesting the protein demanded for the food supply, the oil harvested exceeded the capacity to consume it as food or livestock feed. As a result, a new innovation was needed for the excess oil. That is where biodiesel developed.

Biodiesel is a renewable, clean-burning diesel replacement, made from an increasingly diverse mix of resources such as recycled cooking oil, soybean oil and animal fats, that can be used in existing diesel

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engines without modification. Biodiesel has several benefits when compared to petroleum-based diesel fuel. Biodiesel reduces lifecycle greenhouse gases by as much as 85 percent; lowers diesel particulate matter by 47 percent; reduces hydrocarbon emissions by 67 percent; and in so doing reduces smog and ozone formation for healthier air.

Other innovations supporting biodiesel production can be found in the development of technology and agricultural practices that are continuing to improve crop yields. As just one example, U.S. soybean growers have almost doubled crop harvest since 1980 while decreasing land use, energy usage, and GHG emissions. Similarly, U.S. corn yields have grown dramatically over the past 20 years. Yields of both crops and others are poised to grow further thanks to continued technological developments, such as new crop strains that offer enhanced disease protection, drought resistance, and resistance to insects.

Innovations for using the excess oils have come and gone. Partially hydrogenated soybean oil was one innovation that enabled greater vegetable oil use by changing the physical consistency of the oil so that it could be incorporated into more manufactured food items and displace saturated fats like lard, tallow, and palm oil. But health concerns related to trans fats in partially hydrogenated oils have resulted in a reversal of those markets. However, biomass-based diesel remains ready to use the surplus oil resulting from the domestic production of soy protein meal. No other single use for vegetable oil has the potential to consume that volume of oil. And perhaps more importantly, no other use for that oil can displace imported petroleum and achieve significant GHG benefits.

As global population and standards of living continue to rise, growing protein demand will result in an increasing glut of soybean oil and other byproducts of protein production, such as animal fats and used cooking oil. This is a major reason why the biodiesel industry should continue to grow -- as an outlet for inedible food byproducts. There are numerous other innovations waiting to expand and diversify the biodiesel industry if policies include biomass-based diesel as a carbon-reducing strategy. The marketplace today favors petroleum because distribution profits entrenched companies operating at very large scale.

Policy intervention is necessary to allow modest-sized biodiesel production to compete in the very mature market for liquid fuels. This is true for biodiesel made from existing byproducts and it is even more true for biodiesel created from new innovations. Untapped feedstocks for biomass-based diesel include trap grease or brown grease harvested from sanitary sewer systems. It is feasible to bring this product to market with existing technology. However, the cost of this technology is not yet competitive with low petroleum prices. Likewise, there are several new crops in development that could increase the availability of feedstocks while delivering environmental benefits and ecosystem services. For instance, several varieties of winter cover crops are being developed that can protect the soil and sequester nutrients during seasons when crop land is currently fallow. The incentive to harvest additional biodiesel feedstocks could generate the revenue necessary for farmers to implement these types of conservation practices.

These are just a few examples of innovation at our doorstep. The technology currently exists to commercially implement many of these strategies. The biggest obstacle is a petroleum market that is inaccessible to small and modest size companies. If the economic benefit of reducing emissions was

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factored into that marketplace, we could displace significantly more petroleum and create carbon reductions that would not be generated in any other fashion.

3. **If you work in, advise, or are familiar with sectors that are particularly challenging to decarbonize, have you identified any effective (and scalable) solutions that should be included in comprehensive climate legislation?**

Biodiesel has the capability to reduce carbon and GHG emissions from the heavy-duty diesel and aviation sectors where electrification likely cannot. The ability of BBD to be used in any diesel engine without modification according to manufacturers' recommendations offers an easy and cost-effective way to reduce carbon emissions in existing diesel vehicles.

As the transportation industry continues to evolve, and diverse solutions emerge to reduce carbon emissions, one thing remains the same – work still needs to get done, and multiple studies show that diesel engines and liquid fuel will continue to be needed for a variety of specific uses. Diesel powers the heavy-duty trucks, trains, vessels, and aircraft essential to our economy. Diesel also powers agriculture and construction equipment vital to providing human necessities. Diesel powers most equipment needed for public safety such as ambulances, firetrucks, the military, snow removal, and emergency backup for electrical generation. The reliability and dense energy storage capacity of liquid fuel simply cannot be replaced for many vital sectors. We expect that numerous strategies can reduce the total volume of liquid fuel consumed for transportation and space heating. However, we will need liquid fuel for certain purposes for at least several decades.

Biomass-based diesel is a powerful tool for reducing GHG emissions, because it provides an energy alternative that allows some portion of fossil fuel to remain permanently and safely stored underground. It is also a powerful tool, because it displaces liquid fossil fuels that would not be displaced by any other strategy. The following graphs illustrates how biomass-based diesel complements other carbon reducing strategies proposed by EPA. The first chart shows the GHG reductions intended through EPA's implementation of the Heavy-Duty Transportation rule. By 2027, EPA intended this rule to cumulatively reduce nearly a billion tons of carbon dioxide equivalent. These reductions are projected to be achieved largely through the reduction of fuel use. The second chart shows how the biodiesel industry intends to reduce emissions by continually growing the annual consumption of biodiesel in the United States. The third chart shows how much more cumulative emission reductions can be achieved by implementing biodiesel alongside other strategies in parallel.

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Chart 1. Heavy-Duty Transportation Rule Intended GHG Reductions

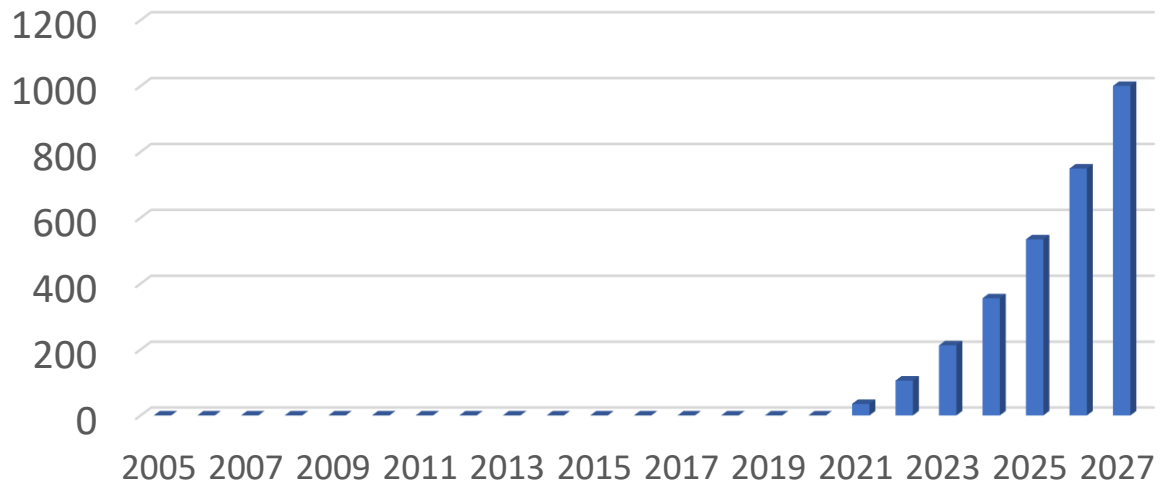
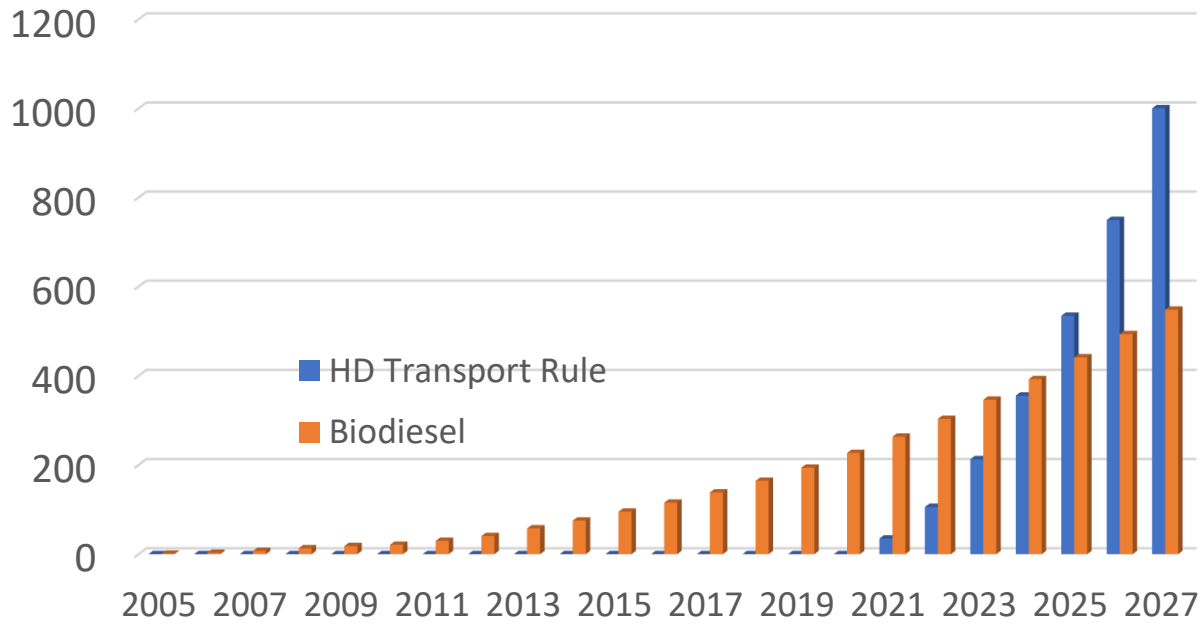


Chart 2: Comparing Renewable Fuel Standard BBD Volumes and Heavy-Duty Transportation Rule



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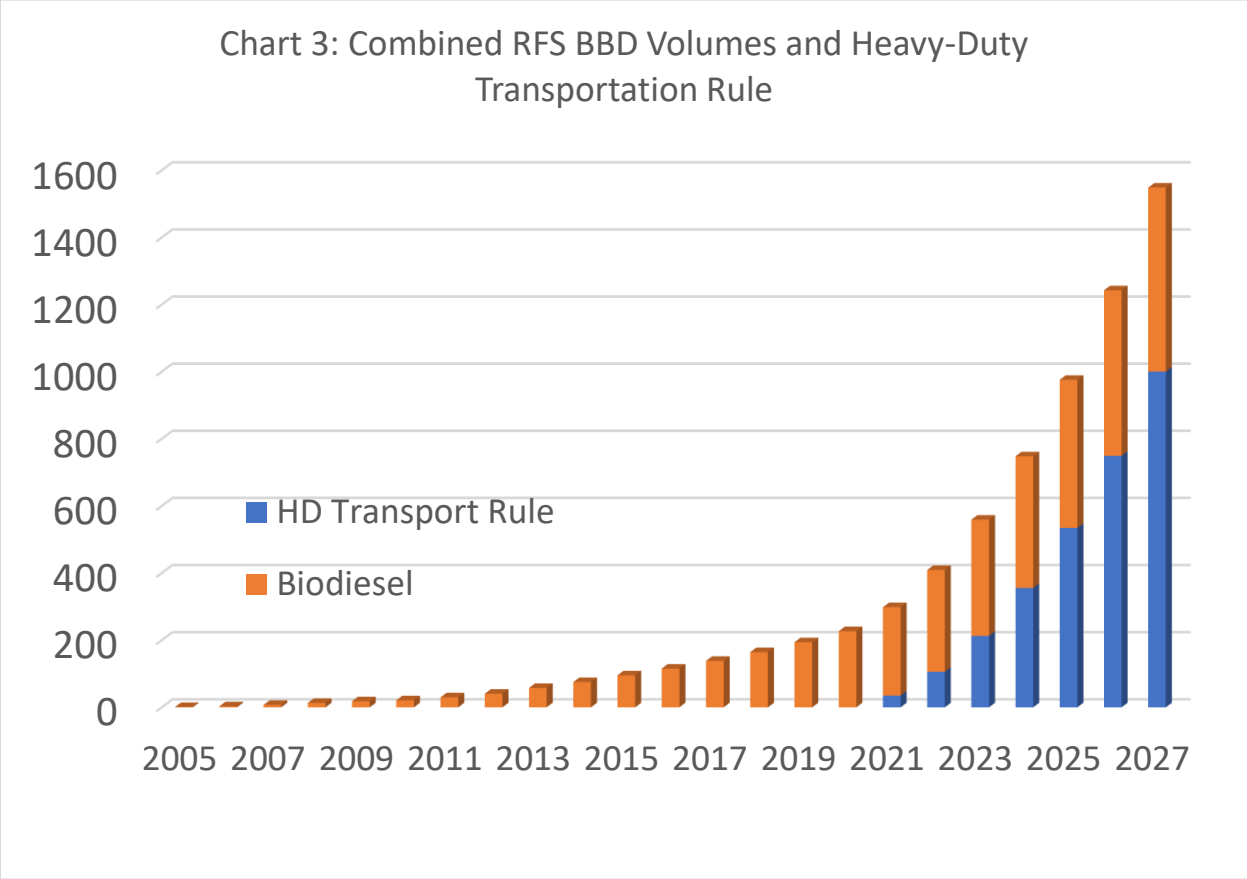

4. If your organization has adopted carbon pollution reduction goals, how have those goals – or your plans to meet those goals – evolved over the last decade?

Over the last decade the biodiesel industry has increased the confidence with which we proclaim genuine GHG reductions. The biofuels industry in general has weathered extreme scrutiny over lifecycle analysis with multipliers for indirect effects that have not yet been applied to other industries or competing transportation energy alternatives. Biomass-based diesel is inherently carbon neutral when made from renewable fats and oils. However, the lifecycle analysis for biodiesel production takes into account the fossil fuels used in the conversion and transport of biodiesel feedstocks and products. This yields a net lifecycle reduction of 85 percent compared to petroleum fuel. As sector-wide strategies are implemented to remove fossil fuel emissions from the electrical grid, natural gas supplies, and transportation fuel; these changes will automatically transform the biodiesel lifecycle toward 100 percent carbon neutrality. With clear policies focused on the implementation of renewable energy, the biodiesel industry could become carbon neutral.

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5. **If applicable, what actions has your organization already taken, or do you plan to take, to reduce carbon pollution?**

NBB has asked EPA to maintain the current structure of the RFS program and set annual volumes that increase the production and consumption of clean renewable fuels. Modeling demonstrates that an increase in biomass-based diesel will lead to a continued and growing reduction in carbon emissions. NBB has been advocating for both legislative and regulatory actions to support incentivized growth in the biodiesel industry including increasing the volumes for biomass-based diesel under the Renewable Fuel Standard (RFS) program, renewing the biodiesel tax incentive, and properly accounting for the small refinery exemptions.

6. **What have been the challenges or barriers to making meaningful carbon pollution reductions, and how have you responded to those challenges or barriers?**

The biodiesel industry continues to rely on the Renewable Fuel Standard (RFS) program to incentivize growth. Biodiesel and renewable diesel can be used in any existing diesel engine without special equipment for blending or dispensing. Producers therefore rely on a positive signal and support from federal programs to continue opening the transportation market to higher volumes.

The industry's growth over the past decade-and-a-half was supported by successful policies such as the biodiesel tax incentive and the Renewable Fuel Standard. However, instability in those federal policies is forcing businesses to reduce investments and shutter production facilities.

Uncertainty has been the largest challenge to making meaningful carbon pollution reductions. Producers need clear signals from the Federal Government in order to continue producing BBD and reduce carbon pollution. Recent uncertainty for the industry has been seen in EPA’s proposal to flatline the BBD volume in the Renewable Fuel Standard Program’s Proposed Volume Standards for 2020, and the Biomass-Based Diesel Volume for 2021 despite capacity to produce higher volumes. Additional uncertainty comes from the lapsed biodiesel tax incentive.

NBB continues to provide information to EPA to demonstrate the net GHG reductions that would be gained by increasing the BBD volumes under the RFS.

7. **How can the Federal Government assist you in reducing carbon pollution?**

The Federal Government can assist the industry in the short term by providing growth in the biomass-based diesel market for 2020 and 2021 and properly accounting for the small refinery exemptions handed out over the past few years and going forward, which undermine the growth and ability for BBD to reduce carbon pollution.

An additional way in which the Federal Government can assist the industry in reducing carbon pollution is by renewing the biodiesel tax incentive. The U.S. biodiesel market grew from about 100 million gallons in 2005, when the tax incentive was first implemented, to more than 2.6 billion gallons in 2018. The biodiesel tax incentive was last renewed in February 2018, but retroactively only for 2017; the credit lapsed as soon as it was renewed. While the biodiesel blenders tax incentive has applied in each year

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from 2010–2016, it has only been in effect at the start of the calendar year in 2011, 2013 and 2016, while other years it has been applied retroactively. In the years where the credit has been in effect at the start of the year, the industry has achieved tremendous growth.

The simple way to reduce carbon pollution is to produce more BBD. Any assistance in providing certainty in the market will increase production volumes leading to an increased reduction in carbon pollution.

8. Are there any additional comments or feedback you would like to add?

In developing comprehensive climate legislation, we oppose the inclusion of any fuel pathway that involves fuels created through co-processing with petroleum. Co-processed fuels do not provide the same GHG reduction benefits as fuels produced in standalone facilities. Because the complex petroleum refining process makes it difficult to determine renewable fuel content based on inputs alone, refiners may overestimate the renewable content of fuels created through co-processing.

When EPA promulgated the initial RFS regulations in 2010, significant effort was expended to quantify the lifecycle greenhouse gas emissions of eligible renewable fuels, including the impacts of indirect land use change (ILUC). The econometric modeling done to quantify those emissions included everything that could be considered "feedstock switching." The modeling performed by EPA quantified how the users of fats and oils might react to an increase in price or a decrease in availability of those feedstocks. That modeling also quantified how global production of fats and oils might increase due to these same market signals, as well as how production of other commodities and global land management practices might change.

EPA concluded that biodiesel and renewable diesel from soy oil or waste oil will meet the 50% GHG threshold for biomass-based diesel compared to the 2005 petroleum diesel baseline. EPA concluded that the steady-state GHG reduction of biodiesel was 85 percent without any growth in the market, and that the GHG reduction remained greater than 50 percent even after including indirect emissions from land use change that might occur as market-mediated impacts of expanding biodiesel volumes. EPA's conclusion from 2010 has been upheld repeatedly in later studies with improved analytical methods for quantifying the lifecycle emissions of producing biodiesel.

We ask that the Committee consider the analysis published in 2017 by Argonne National Laboratory, USDA, and Purdue University as the most comprehensive study of biodiesel emissions ever completed. Taking advantage of more than a decade of work on this topic and incorporating new data, it continues to find significant GHG emissions reductions even when factoring in potential feedstock switching. Moreover, studies have specifically considered the deforestation and peat oxidation in Indonesia and Malaysia associated with palm oil production.

The most recent work addressing the impacts of palm oil was authored by Wallace Tyner and Farzad Taheripour at Purdue University in June 2019. The Purdue study examines the elasticity of substitution between vegetable oils to ensure that the elasticity used in the authors' modeling is supported by the best available data. In addition to confirming that current and past analyses have used the appropriate elasticity of substitution, the Purdue study goes on to test the results of a hypothetically larger elasticity factor. While significant focus has been placed on the substitution between soy and palm oil, the

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Purdue study shows that emissions decrease if all the fats and oils trading in the global market are analyzed in a real-world scenario relative to analyzing only the two vegetable oils. This hypothetical decrease happens even when an elasticity of substitution is used that is higher than the substitution suggested by actual data. Using the correct elasticity of substitution between fats and oils, the Purdue study finds an ILUC impact of 17.5 g/MJ associated with a 500-million-gallon increase in biodiesel. 17.5 g/MJ is 40 percent lower than the ILUC impact adopted by CARB in 2015.

Again, the National Biodiesel Board appreciates the opportunity to provide this input for consideration for U.S. climate policy. We look forward to working with you as you continue to develop comprehensive climate legislation.

Sincerely,

Kurt A. Kovarik

Kurt Kovarik
Vice President, Federal Affairs
National Biodiesel Board (NBB)