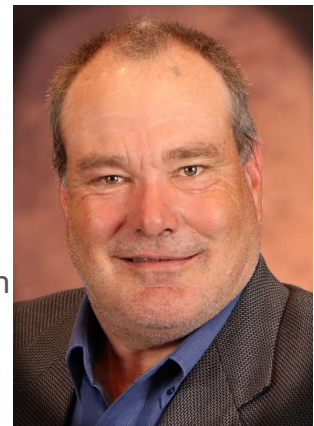


THE NATIONAL BIO DIESEL FOUNDATION

Winter 2021 Newsletter

Moving Forward - Message From the Chairman

I am excited to assume the chairmanship duties of the National Biodiesel Foundation. I became involved with the biodiesel industry nearly 20 years ago as a farmer-director on the Nebraska Soybean Board. It has been a wonderful experience to watch biodiesel grow from a fledgling industry to producing nearly three billion gallons a year. The industry has faced many challenges along the way, and the National Biodiesel Foundation is here as a support structure to provide education and disseminate information to help overcome these challenges. Under the leadership of the previous chairman, Jeff Lynn, the Foundation's accomplishments have been many including:



- Led Congressional staffers on educational tours to provide firsthand knowledge of the importance of the biodiesel industry and its tremendous impact on the economy. These tours highlighted all aspects of the industry, including soybean farms, rendering facilities, biodiesel plants, distributors, and end users.
- Funded important sustainability work that helped to reduce biodiesel indirect greenhouse gas emissions up to 50%. NBF continues to work to address sustainability issues to help achieve the goal of net-zero carbon.
- Secured \$1.5 million in EPA funding for B100 fleet demonstrations using Optimus technology.
- Supported education workshops that trained hundreds of fleet managers and their mechanics about biodiesel and higher blends.

In 2021, we hope to resume our research and educational activities postponed due to COVID-19. The Sustainability Workshop is scheduled for later in the year. The meeting's goal is to identify biodiesel sustainability priorities and research goals. We have also started to plan virtual and in-person Congressional biodiesel tours. Work will continue on the 2020 EPA DERA grants demonstrating B100 and the Optimus Technologies' Vector System. Our grant programs to university students and our partnership with NBB's Next Generation Scientists for Biodiesel continues to be a success.

We thank everyone who has entrusted us with donations that has allowed us to educate, research and work with the industry. This work would not be possible without your support.

Mark Caspers, Board Chairman

Research

Advancing Indirect Land Use Change Modeling Supports Biodiesel

In 2020 the National Biodiesel Foundation (NBF), with the support of the Illinois Corn Growers Association, awarded a \$30,000 grant to Dr. Farzad Taheripour at Purdue University to continue the study of biofuel policy induced indirect land use change (ILUC) emissions using the Global Trade Analysis Project (GTAP) model. The model allows the analysis of policy impacts while considering all the substitutions and exchanges that occur in the global economy. This modeling framework helps researchers and regulators more accurately predict the intensity of ILUC which may occur from increased demand for any commodity, not just biofuel.

The NBF funding enabled researchers at Purdue University to integrate the most recent economic, trade, agricultural, and energy data into their modeling framework. Keeping the model updated while continually expanding its functionality is a monumental task. This research is not just theoretical, it has real world consequences. In 2015, California used the GTAP model to determine ILUC penalties for crop-based biofuels in the Low Carbon Fuel Standard (LCFS). At that time, GTAP was using economic data from 2004 and had limited functionality. Today, researchers continually update the database which now has significantly more functionality.

In a recent publication, Dr. Taheripour estimated a soybean oil ILUC penalty of 17.5 g CO₂e/mj, down 12 grams from CARB's current penalty of 29.5 g CO₂e/mj. An additional publication estimated the impact of US biodiesel production on rates of deforestation in Indonesia and Malaysia; it found that less than 2% of land extensification could be attributed to US biofuel policy.

By October 2020, NBB's state regulatory affairs program and environmental science program had presented these updated results to stakeholders at a Low Carbon Fuels Standard Workshop.

2021 Sustainability Workshop – An Interview with NBB's Director of Environmental Science

Since 2014, NBF has hosted a Sustainability Workshop bringing together technical and policy experts to identify research and funding priorities. NBF spoke with Matt Herman, NBB Director of Environmental Science and consultant to NBF, about what to expect at the 2021 workshop.



Matt Herman Speaking in Berlin

NBF: Matt, thank you for speaking with us. What is on the horizon for the workshop that was postponed in 2020?

Matt Herman: Unfortunately, due to COVID-19, we were unable to host a sustainability workshop last year. The good news is, we will be hosting it in 2021 in conjunction with NBB's long-running Biodiesel Technical Workshop. We hope to retain the multi-day, technically oriented style of the conference.

Will the workshop be open to the public or an invite-only event?

While the event will continue to be invite-only, the first day will be open to a much larger audience with representatives from other fuels, feedstock producers, and end-users there to present their research and goals for sustainable mobility. On the second and third days, participants will move into focused tracks. We expect the wider influence on the first day to set the stage and benefit the process of the subsequent days.

What are the expected outcomes of the workshop? How will the information be used?

The workshop goal will always be to drive research priorities that support the evaluation of the environmental attributes of biofuels and more sustainable transport. I hope that opening the first day to a wider audience will lead to a more informed research agenda. There is significant confluence between energy, agricultural, food, and consumer goods markets. This is all changing rapidly. The better we understand the market dynamics driving the energy transition, the better informed our research priorities can be going forward.

Will there still be a role for student researchers, specifically the Next Generation Scientists for Biodiesel?

Yes, we always welcome students. We value that students can experience real-world debate and increase their understanding about alternative transportation fuels. This exposure may influence research priorities and expose students to real-world technical challenges often absent from classroom discussion.

What role might the Foundation have in sustainability research going forward?

The Foundation has always been a strong supporter of the research agenda. I hope that will continue under the new Environmental Science Program as our research focus widens. The program will continue to conduct work on legacy topics like indirect land use change which remains an incredibly important issue. But we want to broaden the research agenda. The workshop will bring together sustainability professionals from different commodity groups, allowing us to collectively assess the research needed to support more holistic incentives targeted at enhanced grower sustainability. Without collaboration it will be difficult to craft policy to reward growers for building soil organic carbon. The rate at which soil builds carbon is dependent upon several factors, including crop rotation. This means, working in corn or soy silos (pardon the pun) may make it impossible to develop methodologies to adequately reward farmers for sustainable practices, farmers who are often growing corn *and* soy.

Looking at the bigger picture of climate change, we have an opportunity to reframe the message about the timing of carbon emissions. People often think of emissions as a one-time event, but the single most important fact about climate change is that the heating potential of emissions is cumulative. Today's emissions will heat the planet for the next 100 years. Conversely, if we avoid an emission today, we avoid the heating potential over the next 100 years. It is critically important that policymakers and researchers reflect the near-term potential of biodiesel, renewable diesel, and bioenergy to reduce emissions today and avoid 100 years of heat trapping gases.

What is your vision for related workshops throughout the year?

In addition to shifting to an annual workshop, it is my hope that NBB and NBF can host smaller, more frequent sustainability meetings throughout the year. While the annual workshop is a time to discuss ongoing research, often several market-oriented sustainability questions can be addressed between events. These smaller meetings can bring together engaged, sustainability-minded fuel and feedstock producers.

Workshop reports from previous years are available on NBF's website:

[2018 Sustainability Workshop Report](#)

[2016 Indirect Land Use Change and Sustainability Workshop Details](#)

Outreach and Education

Foundation Fundraises for New York City Fire Department (FDNY)

Joining Forces When the Unexpected

Struck. When Covid-19 struck, first responders in New York City faced a looming public health crisis and logistical challenges for those working 24/7. NBB and NBF have had a long partnership with the City of New York. NYC uses biodiesel in all their fleets including the FDNY. “When Covid-19 hit New York and our partners at the FDNY, we knew we wanted to find a way to help them,” says Tom Verry, NBF Executive Director. “Many of New York City’s fleets, including FDNY, host biodiesel tours at their facilities and speak to our educational tour participants throughout the year.” NBF joined the National Biodiesel Board, NY Corn & Soybean Board, SYNLawn, and other stakeholders to raise \$63,000 to provide 3,500 quality meals and 750 snack packs that were sourced from local NYC restaurants. These meals were ordered and delivered by the FDNY Incident Management Team to those most in need including EMS Stations, emergency dispatchers, Office of the Chief Medical Examiners personnel, FEMA’s Disaster Morticians, and sometimes to those who just needed a good meal and a pat on the back.



FDNY Meal Delivery Team

To learn more about biodiesel use in New York City, [visit the NBF website](#).

B100 Projects Provide Improved Air Quality to Residents

The Foundation received two Diesel Emissions Reduction Act (DERA) grants this past October from the Environmental Protection Agency. The projects provide B100 capability to public utility fleets in the District of Columbia (DC) and the cities of Ames and Des Moines, Iowa. NBF teamed with Renewable Energy Group (REG) and Optimus Technologies to provide public outreach, training, and equipment.



DPW Refuse Vehicle with Optimus Technology and NBB Wrap

The DC project was designed in collaboration with the Department of Public Works (DPW) and DC Water. It supports the purchase of 24 short-haul utility replacement vehicles equipped with SCR (Selective Catalytic Reduction) technology operating on 100 percent biodiesel. Under DERA guidelines, the new vehicles are replacing older, less efficient vehicles, lacking NOx and PM reduction technologies. The improved air quality of the new vehicles will benefit residents and workers across the entire District.

“We are grateful for our relationship with organizations - like the National Biodiesel Foundation - that recognize the importance of protecting the environment,” said Ryan Frasier, DC DPW Associate Fleet Administrator. “This grant will help us to more sustainably fulfill DPW’s mission of keeping DC streets clean while also supporting Mayor Bowser’s environmental goals.”

Tim Fitzgerald, DC Water Director of Fleet Management, says, “The thought leaders here in the District of Columbia at DC Water welcome this award and are working hard with partners to increase the diesel emissions reductions in our area. This is a good legacy and a great way to help ensure the future we leave for our children. Thank you partners.”



DC Water B100 Fleet Vehicle

The District DERA award of \$1,277,134 offsets total project costs of \$5,115,018.

The second NBF DERA grant is in partnership with the Iowa Department of Transportation (Iowa DOT). The grant helps with the purchase of two (2) new replacement multi-purpose Class 8 snowplows equipped with the SCR technology. The new snowplows will service major routes linking communities and businesses including terminal and distribution routes, airports, and UPS and FedEx hubs.



Iowa DOT Plow Refueling

This work supports existing community conservation efforts in Ames and Des Moines, which are dedicated to becoming more sustainable. A technical training will be given to technicians and managers on the Optimus B100 Vector Technology.

The Iowa project is expected to result in annual emissions reductions of NO_x, PM_{2.5}, HC; CO; and CO₂; and reduce conventional diesel use by 97.6%.

Both the Iowa and DC projects will run through September 2023.

Student Scientist Wins \$2,000 Sustainability Grant



Steve Howell and Kayla Kittrick

“I believe in a sustainable world without waste.” These words are from Kayla Kittrick, recipient of NBF’s 2020 *Beth Callabota Sustainable Education Grant*. Kittrick is working towards a Master of Science in Public Health at National University of Maine and an Associate Degree in Science in Biotechnology at Southern Maine Community College. She also co-chairs the Next Generation Scientists for Biodiesel, a professional organization.

But for those who recognize that biodiesel sustainability is dependent on public support, it is Kittrick’s day-job that truly sets her apart as a biodiesel champion. Kittrick is the Outreach Coordinator at Maine Standard Biofuels, a biodiesel producer, where she has worked since 2018. Rodger Strickland, Director of Business Development at the refinery said about her contributions, “Kayla has been a tireless proponent of our company’s campaign to stay in front of our community. She directs all our outreach efforts and has presented the benefits of biodiesel countless times to Universities and schools throughout the Greater Portland area. Last year, Kayla helped organized the company’s first community open house and panel discussion. We hosted over 50 attendees consisting of a healthy mix of private businesses, state entities and community stakeholders. This event directly resulted in Maine Standard Biofuels’ first biodiesel fueling contracts with the State of Maine. “

Awarded every two years, the grant honors scientist Beth Calabotta for her dedication to biodiesel sustainability. “NBF started this grant to continue Beth’s work and build on the idea that adopting innovative technologies and diversifying markets will produce environmental benefits that can be documented through research and data,” said Tom Verry, NBF Executive Director. “Beth was an integral part of the Foundation, and we believe she would be delighted to know Kayla received the 2020 grant.”



Kayla at Maine Standard Biofuels

Biodiesel Training Events Reach Hundreds of Fleets and Technicians

Last June, NBF co-hosted a B100 Workshop in collaboration with multiple Clean Cities Coalitions, REG, and Optimus Technologies. The purpose of the workshop was to introduce fleets and decision-makers across the country to the use of B100. More than 300 participants learned about topics that included Biodiesel 101,

understanding the Optimus Technologies' Vector B100 system, and where to apply for grant funding. Two case studies – in Washington DC and Ames, Iowa – were featured.



B100 Fleet Workshop in D.C.

Sources of funding discussed were EPA DERA grants, USDA Higher Blends Infrastructure Incentive Program (HBIIIP), DOE grants, Volkswagen State Settlement funds, and state programs such as the Minnesota Agriculture Grant.

NBF expects to host more B100 workshops in the coming months. To learn more, see a [short video](#) on the fleet presentation and the Optimus

Vector Technology.

In July last year, the Foundation supported a second training event. Dozens of fleet technicians and industry members attended a two-day training hosted by the Greater Washington Region Clean Cities Coalition with a grant from NBF. Led by National Biodiesel Board fuel expert, Steve Howell, the training offered two 1.5-hour online sessions. Mr. Howell is chairman of the ASTM Biodiesel Task Force and an ASTM Fellow. He has conducted 50 technician training sessions over the past 10 years. Participating technicians were provided information to help answer customer questions on biodiesel, the latest on biodiesel fuel quality data and performance, and impacts on particulate matter (PM) traps and NOx after-treatment systems. Following the training, technicians received a NBB Certificate of Completion. A video of each training session is available on the [NBF website](#).

Technician and fleet trainings are an important part of NBF's mission to accomplish outreach, education, and research to advance biodiesel.

Sustainable Biodiesel Tours Planned for 2021

2021 will be another year of firsts for the Foundation. Covid-19 has given us the opportunity to bring our ***Sustainable Biodiesel: Improving the Environment & Economy Tours*** to Congressional staffers virtually. Plans include educating staffers with an introduction to biodiesel followed by videos from biodiesel plants and farms. The virtual tour will be based on our prior success with in-person tours in New York City, New York and Sacramento, California.

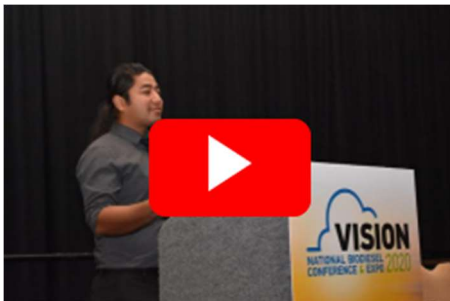
In late 2021, we will return to in-person tours in Washington, DC and New York City. The NYC tour will stop at the NYC Fire Department, Westmore Fuels Bioheat blending terminal, and the American GreenFuels biodiesel plant in Connecticut. As with the virtual tours, staffers, representing multiple key congressional offices, will learn how fueling with biodiesel benefits the largest and most high-profile municipal fleet program in the US and see how biodiesel is produced.



Congressional Tour of FDNY Fleet Facility

None of these tours would be possible without our generous sponsors. Thank you, Ag Processing, Inc, HERO BX, Incobrasa Industries, Kolmar Americas, Mid-America Biofuels, Minnesota Soybean Processors, National Biodiesel Board, RBF Port Neches, REG, Western Dubuque Biodiesel, and Western Iowa Energy. [Read more.](#)

Foundation Helps Students Achieve Biodiesel Research Goals



Zenith Tandukar speaking at the National Biodiesel Conference & Expo

Experts say that 70-85 percent of people are in their current positions thanks to networking. To secure talented young professionals in our industry, they need opportunities to share research and network at biodiesel industry events. Funds raised in the Foundation's Giving Tuesday campaign provide scholarships to members of [Next Generation Scientists for Biodiesel](#) to offset their expenses to attend the annual National Biodiesel Conference. This includes individuals such as Zenith Tandukar, who presented at the 2020

National Biodiesel Conference. His feedstock research at the University of Minnesota could benefit soybean farmers and assist the biodiesel industry to move forward. Thank you to the many donors who contributed during the Giving Tuesday campaign.

Fundraising Auction – Give Big & Support Biodiesel

Looking for that perfect conversation piece to hang in your office? Ever thought of having a one-of-a-kind vacation at Yellowstone National Park? Well, look no further than our auction during the National Biodiesel Conference. Use the virtual platform

to bid on a piece of history such as the autographed Star Wars Legend commemorative poster or signed Charles Schulz Peanuts print. This event is our only fundraiser for the year. All proceeds support research projects. To bid, [register](#) (required) on the Handbid website or download the Handbid app from the Apple [iTunes App Store](#) or the [Google Play store](#) **The auction is open from Jan.14 at 12:00 noon CT to Jan. 21 at 3:30 pm CT.**



Jeff Lynn, owner Shick Shack BBQ and auction item

Last year, the Foundation's auction raised \$26,000 to support essential research and education for the biodiesel industry. We are grateful to everyone who sponsored, purchased items and/or made donations.

Thank You to All Our NBF Contributors

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Our mission is to accomplish outreach, education, research and demonstration activities for the advancement of biodiesel and its co-products to improve rural economic development, national security, air quality and the environment. Find out more and donate at www.biodieselfoundation.org. NBF is a 501(c) 3 non-profit.