

OIL AND ENERGY ONLINE: Biodiesel is King in California

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According to new data gathered from the Low Carbon Fuel Standard (LCFS) program run by the California Air Resources Board, biodiesel and renewable diesel fuel deliver the state's biggest reduction in transportation-related sources of greenhouse gas (GHG) emissions.

In 2018, California's use of biodiesel and renewable diesel fuels eliminated 4.3 million tons of carbon dioxide (CO₂), exceeding the reductions delivered by ethanol. Since the LCFS program began in 2011, biodiesel and renewable diesel fuel have eliminated more than 18 million tons of CO₂.

"The pairing of biofuels with new-generation diesel engines is, hands down, one of the most effective – and underrated – ways to reduce greenhouse gas emissions from heavy-duty transportation sources," said Allen Schaeffer, executive director of the Diesel Technology Forum. "Even though battery electric technologies dominate the headlines, electric cars and trucks in California resulted in only 1.2 million tons of CO₂ reductions in 2018 – one third of the emissions reductions delivered by diesel biofuels."

The newest-generation diesel engines incorporate the latest emissions control technologies, providing near-zero emission performance even when running on fossil-based diesel fuel. When paired with biodiesel or renewable diesel fuels, these clean diesel engines are capable of delivering immediate clean air and GHG reductions.

The California Air Resources Board and the U.S. Environmental Protection Agency categorize biodiesel and renewable diesel fuel as advanced biofuels, capable of reducing greenhouse gas emissions by at least 50 percent, compared to their fossil-based equivalents. Whereas ethanol (alcohol) is the primary ingredient used to reduce the carbon content of gasoline, bio-based diesel fuels (waste vegetable oils and animal fats) are used on the diesel side of the LCFS ledger. Biodiesel is often blended with ultra-low-sulfur diesel fuel (ULSD) in blends such as B20 (20 percent biodiesel / 80 percent ULSD) to reduce GHGs and is widely supported by automakers and engine manufacturers. Renewable diesel fuel is a bio-based drop-in replacement for fossil-based diesel fuel and can also be used in blends with biodiesel or ULSD. Using biodiesel or renewable diesel in new or existing diesel engines can reduce GHG emissions by 50 to 85 percent without requiring any investments in new fueling infrastructure or vehicle technologies.

"These new, advanced fuels offer state and city leaders new opportunities to put existing and readily available equipment to work, and still deliver on clean air and climate goals," said Schaeffer. "It's exactly the type of innovation demonstrated by companies developing advanced diesel fuels that underscore why it is so important to remain technology-neutral when states and cities institute these kinds of goals and standards. If it weren't for these advanced diesel fuels in the Low Carbon Fuel Standard, California would not have achieved its 2020 climate goals in 2018. Had California depended only on emerging, alternative technologies to deliver on these goals, the state would still be waiting."

Unlike other alternative fuels, biodiesel fuels do not require expensive new fueling infrastructure or proof of concept to achieve these dramatic carbon reductions today. Both new and existing vehicles may use these fuels and leverage all the investments of existing fueling infrastructure to achieve these amazing results.

Many cities in California — Oakland, San Francisco, Sacramento, San Diego and others — now exclusively use renewable diesel fuel in city-owned heavy-duty trucks, buses and equipment. These cities are reaping the cost savings and emission reductions delivered by combining new-generation diesel engines with renewable diesel fuel. For example: the San Francisco Metropolitan Transportation Agency removed more than 10,000 tons of CO₂ in a single year, just by using renewable diesel fuel in 632 transit

buses. More locations in California continue to offer this fuel, making it increasingly more available to truckers and fleet drivers.

Jeremy Baines, vice president of North American sales for Neste, the world's largest producer of renewable diesel fuel, said, "This study from CARB is a welcome confirmation of what we already knew: biodiesel and renewable diesel are ready to make an immediate contribution to the reduction of California's carbon footprint. With transportation currently the leading cause of carbon emissions, it is the most conspicuous starting point for change. As this study demonstrates, diesel operators can reduce their lifecycle greenhouse gas emissions tomorrow, simply by switching to biomass-based diesel. At Neste, we believe so strongly in renewable diesel as a long-term solution, we have made significant investments to nearly double our production capacity by 2022."

Renewable Energy Group (REG) is North America's largest producer of biodiesel. REG CEO Cynthia J. Warner said, "At REG, we are committed to delivering high quality biodiesel, renewable diesel and REG Ultra Clean™ Diesel that California consumers want. Our low carbon, readily available fuels provide practical, simple and very beneficial GHG reduction results."

Looking beyond California, biodiesel also provides a domestically produced, renewable, clean and cost-effective fuel solution for customers and fleets nationwide to substantially lower their carbon footprint and GHG emissions. Don Scott, Director of Sustainability for the National Biodiesel Board, commented, "As a whole, biomass-based diesel reduces well over 20 million metric tons of CO₂ nationwide annually, while still allowing fleets to utilize their existing and new diesel vehicles without modification. That truly represents a win-win, for the transportation sector, and for the environment."