

Local Law Report 2019



NYC Fleet

NYC DCAS
Citywide Administrative Services

Notice of All Electric School Bus Commitment

The following report was prepared in compliance with Local Law 28 of 2018, which mandates a feasibility study of fueling school buses with biodiesel blends. Since this study was commissioned, there have been significant inroads into the availability of electric school buses, which unlike biofuels emit no tailpipe emissions. All electric school buses will eliminate pollution associated with tailpipe emissions from the buses that lead to respiratory illnesses that disproportionately impacts children and seniors.

The environmental benefits of all electric school buses greatly outpace buses that use combustible biogenic fuels. As a result, Mayor Bill de Blasio announced in April 2021 that the City will transition to all electric school buses by 2035.

To date, the NYC Department of Education has placed its first two EV school buses and chargers in operation, and is conducting an assessment of their maintenance, charging, and operational reliability. The mayor committed \$30 million dollars to expand this initiative with 75 electric school buses added in the next two years.

Expanding the electric school bus fleet program is our focus and we look forward to working with you on this exciting transition.

Local Law 28: Report on Feasibility of Biodiesel Use in School Buses

Executive Summary

Local Law 28 of 2018 calls for the Department of Citywide Administrative Services (DCAS) and the Department of Education to conduct a feasibility study of using biodiesel in the City's school buses. Biodiesel use reduces both harmful tailpipe emissions and greenhouse gas emissions (GHG) from bus and truck fleets. It is also a renewable fuel as opposed to a fossil fuel and can be sourced domestically.

Based on the City fleet's extensive experience with biodiesel, biodiesel blends of 5 to 20% can be used with existing DOE school bus fleet stock. The main challenge is fuel availability. Summary results of our review are below:

- **Fleet Compatibility:** NYC Fleet has used biodiesel blends of 5% (B5) to 20% (B20) on City fleet trucks for over ten years including in accordance with Local Law 73 of 2013. The City fleet includes most of the makes and models of trucks used by school bus companies, and school bus companies in other jurisdictions nationally employ biofuels. As per the National Biodiesel Board, most vehicle manufacturers endorse up to B20 use without warranty concerns. The existing diesel buses contracted by the DOE should be able to use biodiesel blends of 5 to 20% without upgrade or replacement.
- **Use in Underground Storage Tanks:** Federal EPA, State DEC, and FDNY, within NYC, regulate the use of underground fueling tanks (USTs) for transport fueling. As per the EPA, biodiesel blends up to B20 do not require additional compatibility requirements. Companies using biodiesel blends must report this in required NY State Petroleum Bulk Storage reports and there are tank maintenance best practices to follow when using biodiesel. In NYC, FDNY must also permit the use of biodiesel blends. NYC operates 110 diesel fuel tanks for fleet and all employ B20 without issue or additional infrastructure costs. While many school bus companies in NYC fuel off-site, for those that do have on-site USTs, school bus companies would need to check their dispensing equipment to

ensure biodiesel compatibility. Older dispensing units could have compatibility issues. Most of the vendor owned fueling sites are in NYC and would require FDNY approval for B20 use.

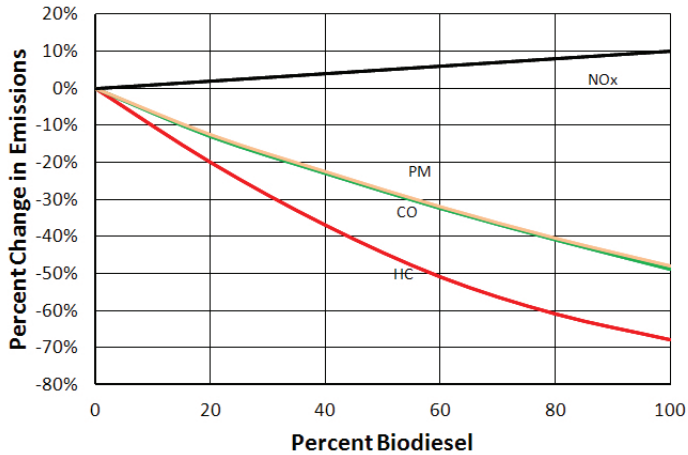
- **Diesel Fueling by School Bus Companies:** A survey of DOE school bus contractors found that nearly half had in-house fuel tank capacity. The remainder rely on retail fueling. For school bus companies that operate in-house fueling, there are available fuel companies that deliver biodiesel blends and a program could be developed, consistent with DOE bus contracts, to introduce biodiesel blends. DOE contracts would need to be changed to enable an initiative in this area and/or an incentive program established to encourage voluntary adoption. DCAS currently pays from 2 to 5% more for biodiesel blends of B5 and B20 respectively. DCAS did a review of retail sites and there is no retail biodiesel availability in this region and no current way to support biodiesel use among companies that depend on retail fueling.
- **State-wide Retail Legislation:** The most effective way to implement biodiesel across the NYC School Bus Fleet would be for the state to enact legislation mandating retail sale of biodiesel blends. Minnesota has adopted this legislation successfully. The benefits of course would extend to all trucking fleets operating in the state in addition to school bus fleets.

Biodiesel Emissions

As per the US Department of Energy, biodiesel use can reduce harmful air quality emissions from trucking. Twenty percent biodiesel (B20) can reduce 20% of hydrocarbons, and 12% of particulate matter and carbon monoxide. There can be a slight, 0% to 2%, increase in NOx. However, this possible NOx impact can be mitigated through use of selective catalytic reduction systems, which are required by Federal and local law, and other measures such as additives.

Biodiesel (B20) use can also lead to 15% reduction in greenhouse gasses. Biodiesel use can enhance emissions reductions achieved from use of diesel particulate filters and more efficient engines. Biodiesel is also a domestic and renewable alternative to fossil fuel use. NYC has mandated biodiesel use in City fleet units and all public and private buildings for heating oil.

Average Emissions Impact of Biodiesel for Heavy-duty Highway Engines

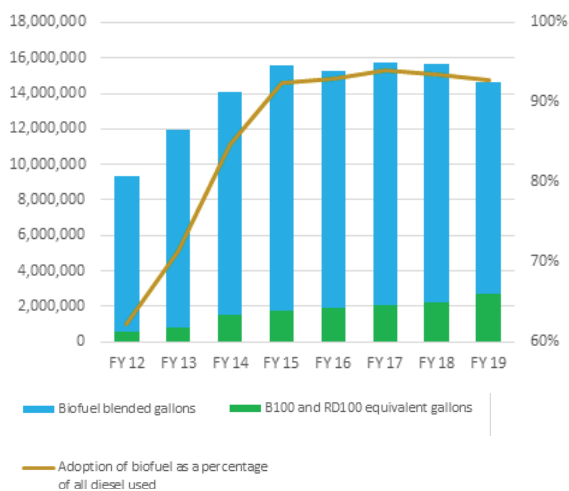


Reproduced from US DOE, https://afdc.energy.gov/vehicles/diesels_emissions.html

Fleet compatibility with biodiesel blends

The NYC Fleet has been using biodiesel blends of 5% to 20% for on and off-road vehicles from all agencies for over 8 years and at NYC Parks since 2005. NYC uses biodiesel with every type of make, model, and age of equipment. The fuel has been fully compatible with the trucks and without major implementation or maintenance concerns. From 2012 to 2015, NYC Fleet greatly expanded B20 use from B5 use. See chart below.

NYC Fleet: Increase in Biodiesel Use in Trucks



The National Biodiesel Board (NBB) publishes a list of manufacturers who endorse up to B20 use with their products. The list is attached to this report. This covers most truck and diesel equipment manufacturers. NBB also reports on school bus companies and agencies that employ biodiesel throughout the country. An NBB publication on biodiesel use and school busses is also attached.

As of 2019, DOE vendors used 5,675 diesel fleet pieces as part of the school bus fleet of 10,557 total units. The most common diesel makes are listed below. Models ages cross 20 years. We expect that biodiesel use, 5% to 20% blends, can be used with this full fleet. It is a best practice to introduce biodiesel use gradually, starting with B5 in the warm weather months and then moving to either B10 or B20 after at least one year of B5 use. In the cold weather months, B5 should be employed. NYC Fleet has made a transition to some winter B20 use but this is after many years of biodiesel implementation. NYC Fleet also uses D1 winter blends for most B20 winter use. D1 blends increase the fuel costs.

NYC School Buses: 5675
Most common makes:
International
Bluebird
Ford
Chevy
GMC
Freightliner

Biodiesel meets a separate ASTM specification from petroleum diesel. Biodiesel meets specification D6751 while conventional diesel meets ASTM spec D975. As per the EPA, use of biodiesel blends up to B20 does not require additional compatibility requirements for underground storage tanks (USTs). The EPA requirements are attached to this report. Use of any biodiesel blend above B20 would require additional engineering certification. NY State DEC does require operators of USTs to report use of biodiesel in Petroleum Bulk Storage (PBS) submissions. The required form is attached to this report.

Local jurisdictions, such as the New York City Fire Department, may impose additional requirements. The FDNY must also permit fuel site use including B20 use.

While there are no additional EPA tank requirements for up to B20 use, school bus operators may operate older fuel infrastructure including older fuel dispensing equipment. The dispensing equipment is above ground and separate from the tank. This equipment could require upgrading to B20 compatibility, which is available for common dispensing brands such as Gasboy. This could be an addition cost item for a biodiesel program. A dispenser upgrade could cost from \$10,000 to 15,000, depending on technical requirements.

Cost of Biodiesel

Biodiesel is most commonly sourced from soy products. Regular diesel and biodiesel prices are commodity prices with changes reported daily by services such as OPIS and Argus. Biodiesel pricing can vary from fossil fuel pricing since it can be dependent on pricing for soy and other farm products and is governed by separate regulatory requirements including the Federal Renewable Fuel Standard (RFS) and biodiesel tax credits that may be in place at the Federal or State level.

In the marketplace, biodiesel can be more or less expensive than regular ultra-low sulfur diesel (ULSD). For a point in time, for the week of September 9, 2019, the City fuel costs are listed below. During this sample week, biodiesel was 2% to 5% more expensive or 5 to 12 cents for B5 and B20 respectively. The City fuel costs for this week are attached.

#2 ULSD: \$2.0622/gal

#2 B5: \$2.1100/gal

#2B 20: \$2.1702/gal

Diesel Fueling by School Bus Companies

DOE completed a survey of contracted fleets. A summary of this survey is attached. Of the vendors surveyed, a little less than half operated their own fueling sites. The rest relied on commercial retail fueling. Most of the in-house fueling sites are located in NYC and would require FDNY permitting for B20 use.

Working with its fuel services vendor, WEX, DCAS completed a review of biodiesel availability in the retail market in NY State. The report is attached. There is no

available biodiesel sold at retail in this region of the state. The lack of retail fueling availability removes the capacity for school bus companies that rely on retail to obtain biodiesel. It also limits sources for the companies with their own infrastructure.

NYC operates its own internal fuel tanks. These tanks are only eligible for use by City owned assets and were not designed to accommodate the size of Level C and D school busses which are a majority of the diesel school bus units. The City does have vendors that supply biodiesel blends to in-house tanks. There are a limited number of suppliers however, which could impact any program to expand biodiesel deliveries to tanks operated directly by school bus companies.

Statewide Biodiesel Legislation for Transportation

As discussed, the main hurdle to biodiesel adoption for the City school busses is the availability in the retail marketplace. Retail fueling must be regulated at the state-wide level. The State of Minnesota has in fact implemented legislation that requires twenty percent biodiesel (B20) be sold in the warm weather months for all retail and commercial diesel fuel sales in the state. The law then requires B5 during the colder months since biodiesel can have warmer cloud-point and gelling temperatures. The law covers all public and private diesel vehicles and equipment.

This type of legislation in NY would solve the issue of biodiesel supply for the school bus program. This legislation would also have state-wide environmental benefit across all diesel truck and diesel off-road equipment emissions and would help further grow and develop the biodiesel and biofuels industry in NY and nationally. References and more information about the Minnesota program are below.

The Minnesota law: <https://www.revisor.mn.gov/statutes/cite/239.77/pdf>

MN Legislative Summary: <https://www.house.leg.state.mn.us/hrd/pubs/ss/ssbiofuel.pdf>

MN Department of Agriculture Annual Report on Biodiesel, 2018: <https://www.leg.state.mn.us/docs/2018/mandated/180214.pdf>

Introduced by

Council Members Rosenthal, Richards, Constantinides, Koo, Rose, Kallos and Menchaca.

A LOCAL LAW

To amend the administrative code of the city of New York, in relation to the use of biodiesel fuel in school buses

Be it enacted by the Council as follows:

Section 1. The section heading of section 24-163.9, as amended by local law number 38 for the year 2015, is amended to read as follows:

§ 24-163.9 Retrofitting [of and], age limitations [on] and fuel use of diesel fuel-powered school buses.

§ 2. Section 24-163.9 of the administrative code of the city of New York is amended by adding a new subdivision k to read as follows:

k. (i) Diesel fuel-powered school buses shall be powered by fuel that is ultra low sulfur diesel fuel.

(ii) The chancellor of the New York city department of education and the commissioner of citywide administrative services shall conduct a study to determine the feasibility of utilizing at least five percent biodiesel (B5) and up to twenty percent biodiesel (B20) by volume in city contracted diesel fuel-powered buses used for pupil and school transportation. The study shall include a review of the types and models of buses that are used pursuant to existing school bus contracts and their compatibility with biodiesel blends; the mode of fueling by school bus contractors including in-house, retail or fuel truck; supply availability of biodiesel for each mode of fueling for the use of biodiesel in school buses; and other relevant issues including barriers, opportunities,

and regulatory requirements related to the use of biodiesel in buses used pursuant to school bus contracts. No later than June 30, 2019, the chancellor of the department of education and the commissioner of citywide administrative services shall submit a report to the mayor and the speaker of the council detailing the findings of this study with recommendations relating to the use of biodiesel blends of at least five percent (B5) and up to twenty percent (B20) by volume in city contracted diesel fuel-powered buses used for pupil and school transportation.

§ 3. This local law takes effect immediately.

**THE CITY OF NEW YORK,
OFFICE OF THE CITY CLERK, s.s.:**

I hereby certify that the foregoing is a true copy of a local law of The City of New York, passed by the Council on December 19, 2017 and approved by the Mayor on January 8, 2018.

MICHAEL M. McSWEENEY,
City Clerk, Clerk of the Council.

CERTIFICATION OF CORPORATION COUNSEL

I hereby certify that the form of the enclosed local law (Local Law No. 28 of 2018, Council Int. No. 880-A of 2015) to be filed with the Secretary of State contains the correct text of the local law passed by the New York City Council and approved by the Mayor.

STEPHEN LOUIS, Acting Corporation Counsel.

NYC DOE Vendor Fuel Site Survey

Vendor	Fueling Station	Location (Address)	Type of Fuel (Gas, Diesel, or Both)	Capacity (Gallons)	Total Routes
All American	Yes	11-08 30th Ave, LIC, NY, 11102	Diesel	3,000	140
All County Bus, LLC	Yes	67 Fernbrook St, Yonkers, NY, 10705	Diesel	2,500	39
B & F Skilled	No				24
Careful Bus	Yes	5015 Bay Parkway, Brooklyn, NY, 11230	Diesel	4,000	98
Boro Transit, Consolidated, SNT	Yes	5381 Kings Highway, Bklyn, NY 154 Sheffield Avenue, Bklyn, NY 660 Zerega Avenue, Bklyn, NY	Diesel	8,000	1,025
Children Trans	No				9
Don Thomas Sch Age	No				105
Allied, Empire Charter Service, Empire State Bus	Yes	148 Snediker Avenue	Diesel	1,000	101
First Steps	No				144
G.V.C	No				107
Happy Child	No				85
Hoyt	No				134
IC BUS	No				66
Jofaz, Third Avenue, Y & M Transit	Yes	1 Coffey Street, NY, 11231 6093 Strickland Avenue 2037 Eastern Pkwy, Brooklyn, NY	Diesel	4,000	560
L & M, Quality Bus	Yes	612 Wortman Ave, Brooklyn, NY	Diesel	12,000	208
Leesel Transportation	No				258

Vendor	Fueling Station	Location (Address)	Type of Fuel (Gas, Diesel, or Both)	Capacity (Gallons)	Total Routes
Bobbys, Grandpas, Little Lisa, Little Linda, Little Richie, Logan Bus, Logan Trans, Lorinda, Lorissa Bus	Yes	1310 Oakpoint Avenue Bronx NY 10474 1616 Stillwell Avenue Bronx NY 10461 432 Zerega Avenue Bronx NY 10473 97-14 Atlantic Avenue Ozone Park NY 11416 145-40 155th Street Jamaica NY 11434	Diesel	4,000	1,579
Marcan	No				193
Montauk Student Transport, LLC	Yes	399 Exterior St, Bronx, NY	Both	4,000 for Diesel & 4,000 for Gas	21
New Dawn	Yes	2352 East 69th Street, Brooklyn, NY, 11234	Diesel	4,000	166
Phillip	No				27
Pioneer	Yes	2890 ARTHUR KILL ROAD, Staten Island, NY	Diesel	4,000- SI 10,000- BX	694
Pride Transportation Service Inc.	No				60
MV	No				16
Reliant	No				893
Selby	No				2
Thomas Buses	No				71
Twenty First Avenue	No				126
Van Trans	Yes	632 South Bedford Road, MT. Kisco, NY, 10507	LSD/Gas	10,000/4,000	130
	Yes	80 Logan Street, Bridgeport, CT, 06607	LSD	10,000	
	Yes	75 Commercial Street, Plainview, NY, 11803	LSD/Gas	12,000/10,000	
	Yes	190 South FehrWay, Bayshore, NY, 11706	LSD/Gas	12,000/6,000	
	Yes	35 Brookyn Road, Hempsted, NY, 11550	LSD	12,000	
Vinny's Bus	No				38

OEM Support Summary January 2019

OEMs Supporting B100	OEMs Supporting B20	OEMs Supporting B5
CNH (Most models; some variation in new models w/ aftertreatment)	Arctic Cat (2006)	Audi (Allow up to B20 in IL and MN)
Deutz AG (2012)	Buhler (2007)	BMW
Fairbanks Morse (2007)	Caterpillar (All model years)	Detroit Diesel (DD13, DD15, DD16 and MBE900 / 4000 engine models)
	Fiat Chrysler (FCA) – Ram (2007) & Jeep (2013)	Hustler Turf Equipment
	Cummins (2002)	Mercedes-Benz (For blends over B5, see MB brochure)
	Daimler Trucks - Including: (2012)	Mitsubishi Fuso *
	- Detroit Diesel (Series 60 engines only)	Nissan (B10)*
	- Freightliner / " Custom Chassis (models with Cummins engines)	Volkswagen (Allow up to B20 in IL and MN)
	- Thomas Built Buses	
	- Western Star (w/ Cummins engines)	* = Actively Researching B20
	Ferris (2011)	
	Ford (2011) – 2019 Ford Transit Connect (B30)	
	GMC & Chevrolet (2011 all; SEO since 2007)	
	HDT USA Motorcycles (2008)	
	Hino Trucks (2011)	Biodiesel Position Not Yet Announced:
	Navistar - International / MaxxForce (2007)	
	IC Bus (2007)	JCB
	Isuzu Commercial Trucks (2011)	Mahindra
	Jaguar / Land Rover (2016)	Mazda CX-5
	John Deere (2004) – up to B100 w/o DPF	Porsche
	Kubota (2006)	Toyota
	Mack (EPA 2007 & EPA 2010 models)	

OEMs Supporting B100	OEMs Supporting B20	OEMs Supporting B5
	McCormick Tractors (2014 and forward)	
	Monaco RV (2007)	
	PACCAR - Including: (All model years)	For More Information, Visit:
	- Kenworth (All model years)	http://biodiesel.org/using-biodiesel/oeminformation
	- Peterbilt (All model years)	
	Perkins (2008)	Or Contact:
	Tomcar (2008)	Jennifer Weaver
	Toro (2008; SEO kits for <2008)	OEM Market Development Manager
	Volvo Trucks (EPA 2010 models)	For the National Biodiesel Board
	Workhorse (2007)	T: (734) 904-3822
	Yanmar (2011)	E: Jennifer_Weaver@me.com

- Dates indicated in () above describe when the OEM first approved B20 or higher biodiesel blends
- **The vast majority of OEMs support B20 in the GVW Class 5-8 vehicles that account for over 90% of on-road diesel fuel use.** The biodiesel component must meet ASTM D6751, and the B20 blends must meet ASTM D7467 specifications. Many OEMs also recommend the use of a BQ-9000 supplier.
- Credited to National Biodiesel Board

What is a biofuel?

A biofuel is a transportation fuel derived from plants or other renewable biological resources. The most widely used biofuels are ethanol produced from corn and biodiesel produced from soybean oil and other feedstocks. Researchers and companies are actively developing new biofuels and new feedstocks for ethanol and biodiesel.

Ethanol is a substitute for gasoline; biodiesel is a substitute for diesel fuel. In contrast, gasoline and diesel are referred to as “fossil fuels” because they are derived from nonrenewable petroleum. A biofuel-blended fuel is a fossil fuel mixed with biofuel.

What is a biofuel use mandate?

A biofuel use mandate is a law that requires transportation fuel suppliers and retailers to sell biofuel-blended fuel. As the result of Minnesota’s biofuel mandates, in general all motorists who fuel up in Minnesota purchase biofuel-blended fuel. Regular gasoline and diesel are not typically available at gas stations.

How do the biofuel use mandates work?

Minnesota has two biofuel use mandates—one for gasoline and another for diesel fuel. Both laws require fuel blenders to incorporate a specific amount of biofuel into each gallon of transportation fuel sold in the state, with certain exceptions.

What is the requirement for gasoline?

Prior to July 1, 2013, state law required a 10 percent blend of ethanol in nearly every gallon of gasoline. This blend of 10 percent ethanol and 90 percent gasoline is commonly referred to as “E10.” As the result of a law enacted during the 2013 legislative

session, fuel sellers have the option of selling either E10 or gasoline blended with 10 percent biobutanol, cellulosic ethanol, or any other biofuel approved by the U.S. Environmental Protection Agency (EPA) as a gasoline substitute.

By law, the E10 option could change if the EPA authorizes additional ethanol blends. Fuel sellers who choose the ethanol option will be required to sell E15, E20, or any other blend approved by the EPA for use in all light-duty vehicles. However, if the EPA allows the use of new ethanol blends only in certain vehicles, the law’s ethanol option will remain at E10. For example, the EPA has approved E15. However, Minnesota’s ethanol mandate did not increase correspondingly because the EPA authorized E15 use only in model-year 2001 and newer light-duty vehicles.

What is the requirement for diesel?

The biodiesel mandate law requires a 20 percent blend of biodiesel (“B20”) in most diesel fuel sold in Minnesota during the warm-weather period of April 15 through the end of September. October through March, the mandate level reverts to B5 due to concerns about B20’s performance in cold weather. During the spring transition from B5 to B20 each April, the minimum content level is temporarily B10 in order to provide time for fuel sellers to transition their diesel inventory to B20.

The law authorizes the executive branch to suspend the use mandate for a limited period of time if there is not enough biodiesel fuel available or if the wholesale price of biodiesel is so high relative to diesel fuel that the mandate would cause economic hardship for gas stations and other diesel fuel sellers who may lose business to competitors located outside of the state.

What exemptions exist?

The legislature granted exemptions from the use mandates for certain vehicles, equipment, and fuels. The exemptions reflect stakeholder concerns about the suitability of biofuel-blended fuels for their vehicles and other gasoline- or diesel-powered equipment. For a list of exemptions, see the table below.

Biofuel Mandates, Implementation Dates, and Exemptions

	Diesel	Gasoline
Mandate Level	Minimum of 20 percent biodiesel per gallon April 15 through September 30, 5 percent October 1 through March 31, and 10 percent April 1 to April 14	Option of (1) the highest ethanol blend approved by the U.S. EPA for all vehicles, or (2) 10 percent of another EPA-approved biofuel
Initial Implementation	2005*	2003**
Exemptions	Number 1 diesel fuel; Number 2 diesel used by or for nuclear plants, trains, off-road mining and logging equipment, generator manufacturers, Coast Guard boats, and certain boats subject to Coast Guard inspection	Gasoline used by or for aircraft, resorts, marinas, houseboat companies, recreational vehicle manufacturers, riparian landowners, motor sport racing events, collector vehicles, off-road vehicles, motorcycles, boats, snowmobiles, and small engines

* The legislature increased the biodiesel mandate level over time, beginning with B2 in 2005, B5 in 2009, B10 in 2014, and B20 in 2018. As required by law, the B10 and B20 levels took effect only after executive branch officials certified that certain statutory conditions had been met.

** The legislature required E10 use statewide in 2003. From 1997 to 2003, the law effectively required E7.7 statewide.

For more information: For mandate compliance information, contact the Minnesota Department of Commerce, Weights and Measures Division, at 651-215-5821. For more detail on the mandates, see the following reports from the Minnesota Department of Agriculture: Legislative Report on Ethanol – Review of E20 (January 2011) and Report to the Legislature - Annual Report on Biodiesel (January 2018). For legislative issues, contact legislative analyst Colbey Sullivan at 651-296-5047.

BIODIESEL

a better choice for children, and for buses

Your business is getting children to school to learn. We urge you to learn here about a way to get them to school in a more environmentally friendly, energy secure way that also benefits your buses' engines - by using biodiesel blends. The most common, B20, is a blend of 20 percent pure biodiesel and 80 percent conventional diesel.

School buses are one of the largest mass transit fleets in the United States, but moreover transport our most precious commodity daily. Every school day, some 440,000 yellow school buses transport more than 24 million children to and from schools and school-related activities. The vast majority of school buses are powered by diesel engines.

Pollution has health implications for everyone, especially children. The use of B20 - and lower blends - can reduce that threat. Because B20 works in any diesel engine with no modifications, B20 offers schools a transparent, cost-competitive option for an immediate solution to air quality concerns. As a result, several thousand school buses in the US are running on blends of biodiesel and reporting success.

B20 offers similar power to diesel fuel. One of the major advantages of B20 is the fact that it can be used in existing engines and fuel injection equipment with little impact to operating performance.

WHAT IS BIODIESEL?

Biodiesel is a domestic, renewable fuel for diesel engines derived from natural oils like soybean oil, which meets the stringent specifications of ASTM D 6751. Biodiesel can be made from a variety of vegetable oils or animal fats. In its pure form, biodiesel is designated B100. It's important to know that raw vegetable oils and cooking oils are NOT biodiesel and could harm your engine, so be sure to only use biodiesel meeting D 6751.

A Biodiesel blend is a blend of biodiesel fuel meeting ASTM D 6751 with petroleum-based diesel fuel, designated BXX, where XX represents the volume percentage of biodiesel fuel in the blend.

WHAT SCHOOL FLEETS ARE USING BIODIESEL BLENDS?

Hundreds of US school fleets are running on B20 to B2; here are examples:

The Medford School District has used a blend of 20 percent biodiesel and 80 percent petroleum in half of its 40 school buses since 1997. "It's been absolutely fantastic," said Joe Biluck, Jr., director of operations and technology for the district. "We've had no down time as a result of this fuel. We've seen no drop in miles per gallon, which means the engines aren't working any harder."

St. Johns Public Schools was the first Michigan school district to switch its entire bus fleet over to B20 (20 percent biodiesel/80 percent diesel). Wayne Hettler, Garage Foreman & Head Mechanic, tracked statistics like the time the buses idle, the miles per hour they drive, oil analysis, and the mileage the buses get. He noticed a cost savings on the extended intervals between oil changes. He noted his Internationals and Mercedes went 12,000-15,000 miles between oil changes and the Cummins about 8,000-10,000. His GM and Mitsubishi vehicles continued to get oil changes on a regular basis as they were the service vehicles and didn't generate a lot of miles over a long time.

WHAT PERFORMANCE CAN I EXPECT?

B20 and lower blends can help fulfill environmental and energy security needs without sacrificing operating performance.

Horsepower, Fuel Economy, Range and Carrying Capacity

- In more than 50 million on-road miles and countless off-road applications, B20 shows similar fuel consumption, horsepower, range, and carrying capacity as conventional diesel fuel. Pure biodiesel has much higher cetane number than most US based petrodiesel. With the higher cetane of a B20 blend, users experience better starting, smoother operation, and a quieter operation than petrodiesel alone.

Lubricity Improvements

- Starting in 2006, all on-road diesel fuel had to have 15 parts per million (ppm) sulfur or less. When refiners remove sulfur, they also remove the component of the fuel that imparts fuel lubricity. Almost all of the ULSD today contains a lubricity additive to counteract the negative impact of removing sulfur. Biodiesel has a significant amount of natural lubricity, and adding biodiesel in levels as low as 1% can improve lubricity up to 65%. With blends like B5 or B20, there is no need to add lubricity additives.

Safety and Storage

- Biodiesel is much safer than petrodiesel with a flash point of over 200 degrees versus about 125 degrees Fahrenheit for regular No. 2 diesel. Adding biodiesel to diesel fuel increases the flash point, making it safer than diesel fuel alone. Like all fuels, biodiesel blends have a shelf life. The National Biodiesel Board recommends biodiesel blends be used within 6 months.



COMPATIBILITY OF B20 WITH ENGINE COMPONENTS

B20 has been used in a variety of engines and equipment for many years without issues related to materials compatibility. Impacts of higher blends of biodiesel than B20 have not been well studied, which is a factor why B20 and lower blends are recommended as a drop-in replacement for petrodiesel. While it may not be recommended, if a user does wish to use blends higher than B20, there may be adverse impacts on hoses and gaskets on older engines, as well as other precautions to take into account. See the NBB web site for further details at www.biodiesel.org, then "Fact Sheets."

BIODIESEL IN COLD WEATHER

Cold weather can gel any diesel fuel, including biodiesel. Users of B20 will usually experience an increase of the cold flow properties (cold filter plugging point, cloud point, pour point) of approximately 2 to 10° Fahrenheit. Precautions employed for petroleum diesel are needed for fueling with 20 percent blends.

Your fuel supplier should be familiar with these precautions and deliver a biodiesel blend that will work for your climate and time of year—just as they do with petrodiesel. B20 blends from quality suppliers have been used in the frigid weather in Minnesota, Iowa, and Michigan for years with no cold weather problems. Visit www.biodiesel.org/cold for more.

THE BIODIESEL STANDARD (ASTM D 6751)

ASTM fuel standards are the minimum accepted values for properties of the fuel to provide adequate customer satisfaction and protection. Meeting the biodiesel standard ASTM D 6751 prior to blending helps ensure the biodiesel blend you receive will perform well in your engines.

Purchase fuel only from a reputable source, such as companies that are certified under the BQ-9000 biodiesel quality program. You can be confident that a company who has gone through the rigorous audit and qualifications of the BQ-9000 program will supply biodiesel meeting ASTM D 6751.

ENGINE WARRANTIES

Most major engine companies have stated formally that the use of blends up to B20 will not void their parts and workmanship warranties. However, some engine makers only recommend the use of up to B5 and some fully support the use of B100. If there are engine problems caused by a fuel - whether that fuel is petrodiesel fuel or a biodiesel blend - these problems are not related to the materials or workmanship of the engine and are therefore the responsibility of the fuel supplier and not the engine manufacturer.

FUEL FILTERS AND CLEANSING EFFECTS

Biodiesel has excellent cleansing properties. In some cases the use of petrodiesel, especially No. 2 petrodiesel, leaves a deposit in the bottom of fuel lines, tanks, and delivery systems over time. The use of biodiesel can dissolve this sediment and result in the need to change filters more frequently when first using biodiesel until the whole system has been cleansed of the deposits.

The impacts of this cleansing effect are less with biodiesel blends like B20, as users indicate initial filter clogging due to this cleaning effect with B20 in only about 2% of the engines. When first starting with a blend like B20, be sure to monitor your fuel filters and have an extra fuel filter on hand just in case.

BIODIESEL USAGE CHECKLIST

- ✓ Ensure your fuel supplier buys only biodiesel meeting the ASTM specification for pure biodiesel (ASTM D 6751) before blending with petrodiesel.
- ✓ Check fuel filters on the vehicles and in the delivery system frequently upon initial biodiesel use, and change them as necessary.
- ✓ Be aware of biodiesel's cold weather properties and make sure your fuel supplier has taken appropriate precautions in cold weather.
- ✓ Use biodiesel blends within six months.

HELPFUL LINKS

- Fleet Managers' Guide: biodiesel.org/buyingbiodiesel/guide/guide_fleetmanagers.shtm
- Fuel Fact Sheet: biodiesel.org/pdf_files/fuelfactsheets/bdusage.PDF
- OEM Warranties: biodiesel.org/resources/fuelfactsheets/standards_and_warranties.shtm
- BQ-9000 Quality Assurance Program and Participating Companies: bq-9000.org/
- NREL Storage and Handling Guidelines: nrel.gov/vehiclesandfuels/npbf/pdfs/40555.pdf



NYC Fleet

NYC DCAS
Citywide Administrative Services