

Case Study:

Arlington County's Implementation and Operational Experience with B20 Biodiesel



What Is Biodiesel?

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- A high purity fuel made from 100% refined soybean oil
- Can be used in existing diesel fuel infrastructure
- ASTM D6751 is the specification for B100
- Neat (B100) is 100% biodiesel
- B100 is designated an alternative fuel by DOE and DOT
- Unlike ULTRA-LOW SULFUR DIESEL (ULSD) biodiesel does not require an additive for lubricating the engine fuel injectors or pumps.
- Biodiesel does not require expensive modifications to engines and refueling facilities
- Biodiesel is made from a renewable resource and is domestically produced



Profile: Arlington County, Virginia



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- 27 square miles
- Across the Potomac River from the Washington Monument
- Diversified municipal fleet containing 1,164 vehicles:
 - Gas 527 Regular unleaded powered vehicles
 - B20: 365 Biodiesel powered vehicles of which 138 are School Buses
 - E85: 78 Ethanol powered vehicles
 - CNG: 22 Compressed Natural Gas powered ART Buses
 - LPG: 6 Liquid Propane Gas powered vehicles
 - Hybrid: 42 Hybrid powered vehicles



“B20 fuels every diesel powered vehicle”



Background: Arlington County, Virginia



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FY 2004 Fuel Dispensed:

- B20: 602,079 gallons
 - Neat (B100) = 120,415 gallons
 - Equivalent to taking 280 vehicles off the road (ATV's)
- Gas: 526,979 gallons
- E85: 26,935 gallons
- LPG: 897 equivalent gallons
- CNG: 70,218 equivalent gallons



B20, Getting Started: A Call to Action



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- Late 1999 ...
- An Early Morning Plume of Exhaust Above the School Bus Parking Lot ...
- A Fire Truck, A Corner, and Soot Covered Citizens ...
- A Call to the County Board
- Full Board Support

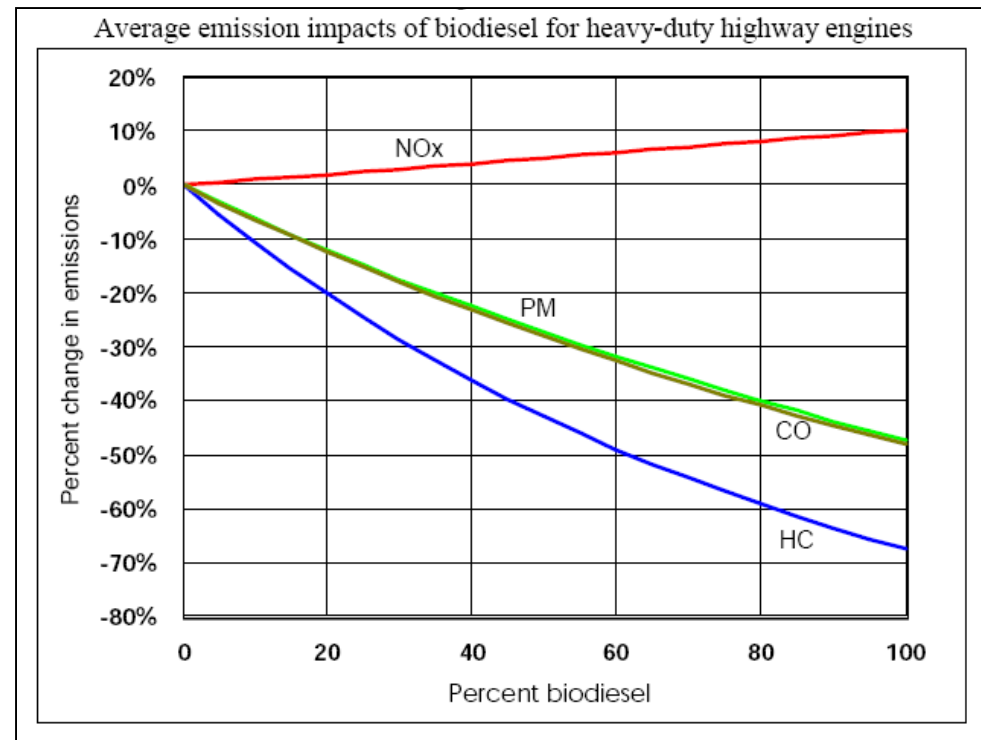


Characteristics of Biodiesel



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- Fuel detergent
- Higher lubricity
- Cleaner burning for all but NOx
- B20 produces significantly less visible exhaust



Source: EPA



Biodiesel Cost



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- 2004, rule of thumb:

1¢ per % of biodiesel

Example: B20 (20% B100 and 80% diesel)
costs 20¢ more per gallon

- 2005, new tax incentives (for both taxable and nontaxable markets) may narrow or reverse this difference



Getting Started: The Arlington Implementation Team



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- Arlington's Team:

Team Member	Role
Senior Advocate	Liaison to drivers, mechanics, and other parties in the organization, who can communicate the benefits and rationale for utilizing biodiesel and is credible enough to set reasonable expectations for its adoption.
Purchasing Manager	Individual who can locate, negotiate, and coordinate with biodiesel suppliers.
Maintenance Manager	Liaison to mechanics, keeping them abreast of the status of the project. Verify with engine manufactures that engines running on the blend of biodiesel selected will be covered.
Parts Department Manager	Ensure that additional fuel filters are available at cutover.
Fuel Manager	Coordinate fuel tank cleaning prior to arrival of first biodiesel delivery and ensure that biodiesel dispensers have adequate filtering.



Preparation: Arlington's Implementation Checklist for Biodiesel



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- Check with all engine manufacturers
- Stock up on vehicle fuel filters
- Clean storage tanks
- Install external filter on the dispensers and/or change to filter of ≤ 1 micron



Preparation: Get Your Front Line People Ready



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- **General Education**

- Educate the drivers and operators on the benefits of B20
- Explain what to expect if their vehicle's fuel filter is plugging up
- Educate your mechanics on what to expect



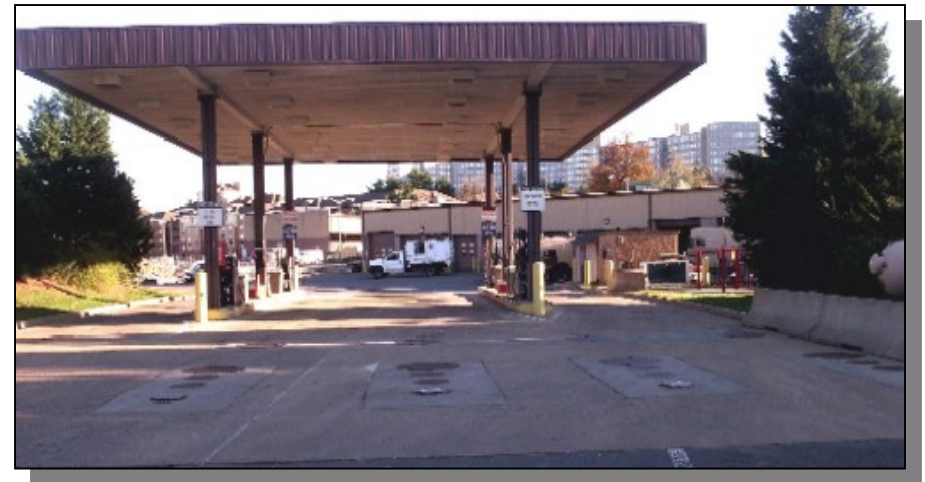
Preparation: Infrastructure Changes



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- No Infrastructure changes!
 - Add and/or use ≤ 1 micron dispenser filters
- Arlington on B20:

“The beauty of B20 is that it requires no changes to infrastructure or vehicles. It is the easiest renewable fuel to implement.”



- Arlington Stores B20 at two sites in a 30,000 gallon underground tank and a 24,000 gallon underground tank
- B20 is received in full tanker truck loads

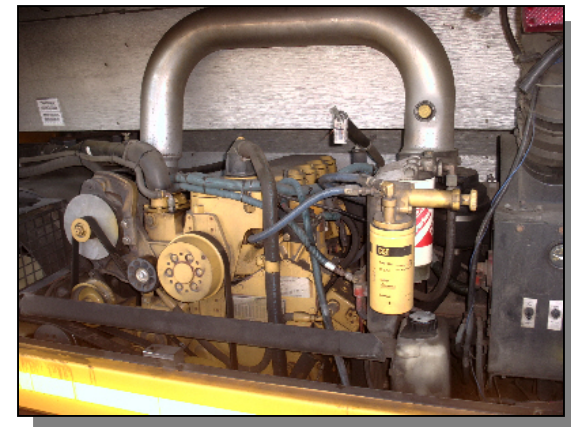


Arlington's Operational Experience



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- Initial fuel filter usage less than expected:
 - Clean that tank!
 - Long term, Arlington may extend fuel filter change interval
- Drivers report no degradation in performance
 - Highway driving may reveal a difference
- Mechanics report no maintenance problems attributable to B20
- Cold weather: no problems – supplier adds Arctic Flow



Arlington's B20 Conclusions



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- Soot covered citizen problem: Gone
- Early morning diesel plume: Gone
- Infrastructure changes: None
- Engine changes: None
- Drivability problems: None
- Mechanical problems: None
- Cold weather problems: None
- Cost: Reasonable
- Implementation: Easy
- Advice: Do It!



For More Information Call:



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