



Washington State Department of  
**Enterprise Services**

# **Biodiesel Use by Washington State Agencies**

**January through June 2014**

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## **REPORT HIGHLIGHTS**

- During the first six months of 2014, total biodiesel purchases by state agencies under state fuel contracts was just over 580,000 gallons, an increase of seven percent over the previous six months. These purchases put state agencies on track to top 1 million gallons in biodiesel purchases for the second year in a row.
- Washington State Ferries (WSF) is the state's largest consumer of diesel fuel. WSF purchased 373,303 gallons of biodiesel during the first six months of 2014, the most ever purchased for a six-month period. Overall, WSF reached an average of 4.4 percent biodiesel for the period, with fuel containing five percent biodiesel (B5) the standard fuel throughout the fleet.
- Biodiesel purchased by state agencies other than WSF totaled 207,396 gallons during the first six months of 2014, the most ever purchased for a six-month period due primarily to higher overall fuel purchases. Biodiesel made up 12 percent of the diesel fuel purchased, on par with the previous six-month period.
- The Washington State Department of Transportation (WSDOT) is the state's second largest purchaser of diesel fuel. Biodiesel made up almost 16 percent of total diesel fuel purchased in Western Washington and 11 percent in Eastern Washington. This was the first time Eastern Washington purchases topped 10 percent biodiesel for a six-month period. Statewide, WSDOT averaged 13 percent biodiesel, on par with the previous period.
- Testing continued to show no significant fuel quality issues related to biodiesel use by state agencies.

## **BACKGROUND**

As a part of the state's efforts to reduce its dependence on foreign oil, reduce emissions, and stimulate local production and use of biodiesel, state law has mandated state agencies to use biodiesel fuels to operate diesel-powered vessels, vehicles, and construction equipment since 2009. Under current law, WSF is to use a minimum of 5 percent biodiesel in all vessels as long as the price of B5 does not exceed the price of diesel by 5 percent or more. All other state agencies are to use a minimum of 20 percent biodiesel by total volume to operate diesel vessels, vehicles, and construction equipment.

State law (RCW 43.19.646) requires the Department of Enterprise Services (DES) to compile and analyze the use of biodiesel fuel by state agencies and report its findings and recommendations to the Governor and Legislature in an electronic format every six months. DES collaborates with key state agency stakeholders to prepare the report.

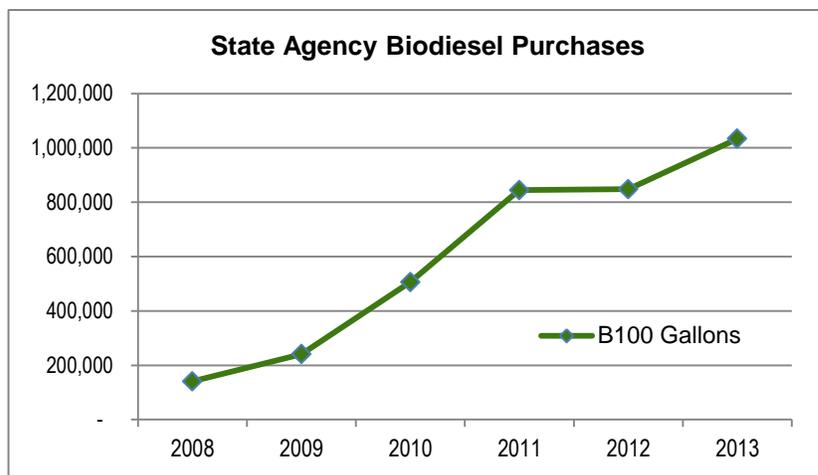
## Biodiesel Use by Washington State Agencies January through June 2014

This report covers January 1 through June 30, 2014, and focuses on bulk fuel purchased through state fuel delivery contracts. The term “biodiesel” means pure biodiesel (B100) unless clearly indicated otherwise. Biodiesel blends are specified by the capital letter “B” followed by the value representing the volume percentage of biodiesel, such as B5 and B20. Therefore B5 contains 5 percent biodiesel. In tables and charts, biodiesel is expressed in B100 gallons.

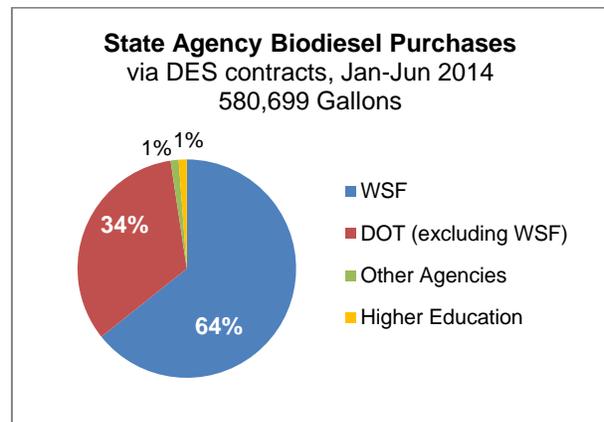
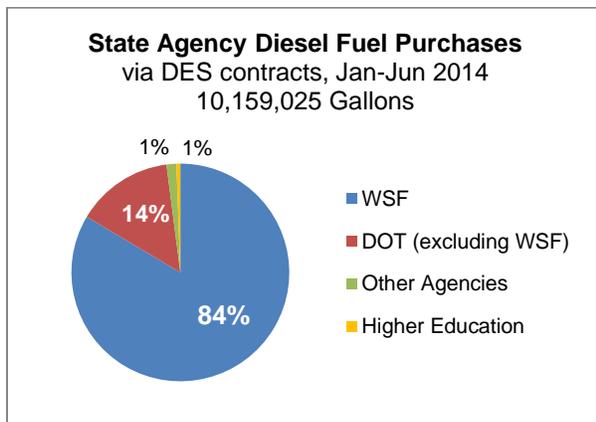
### STATE BIODIESEL PURCHASES

State agencies are required to purchase bulk fuel through the state fuel contracts which cover gasoline, heating oil, and diesel fuel (including biodiesel). The contracts are also used by many higher education institutions, cities, counties, school districts, and transit systems.

From January 1 through June 30, 2014, state agencies and higher education institutions purchased 10.2 million gallons of diesel fuel through state fuel contracts, including about 580,000 gallons of biodiesel, a 35,000-gallon increase from the previous six-month period. These purchases put state agencies on track to top 1 million gallons in biodiesel purchases for the second year in a row.



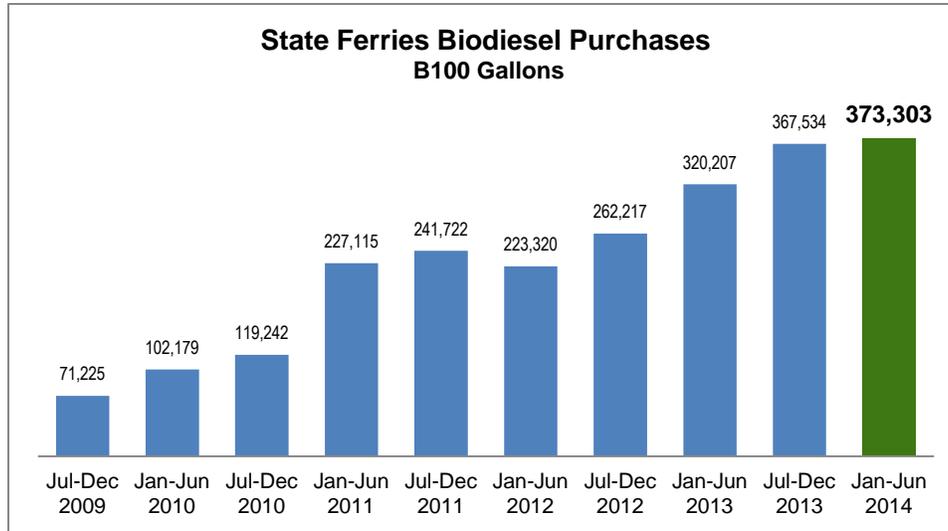
During this period, WSF purchases made up 84 percent of all diesel fuel and 64 percent of the biodiesel purchased. Purchases made by state agencies other than WSF for diesel-powered vehicles and equipment made up 16 percent of total fuel purchased and 36 percent of the biodiesel purchased on state contracts.



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### WASHINGTON STATE FERRIES (WSF) BIODIESEL USE

- WSF purchased 373,303 gallons of biodiesel during this six-month period. This is a 1.5 percent increase over the 367,534 gallons purchased during the last six months of 2013 and a 17 percent increase from the same period in 2013. The increase is due to the completion of the in-line blending infrastructure at the Harbor Island dock facility in Seattle, which in March 2013 allowed fuel containing 5 percent biodiesel (B5) to become the standard fuel for the entire fleet.



- WSF’s progress using biodiesel has occurred in stages, corresponding with the availability of in-line blended B5 fuel.
  - WSF began using in-line blended B5 for all vessels fueled by truck from the Harbor Island truck facility in Seattle in August 2009. This facility accounts for about 25 percent of the total fuel used by the state ferry system.
  - WSF has used in-line blended B5 for all vessels fueled by truck from Anacortes since January 2011. This facility accounts for about 40 percent of the total fuel used.
  - The capital improvement project to build the infrastructure for in-line blending of biodiesel at the Seattle Harbor Island dock facility was completed in late February 2013. Ferries fueling at the dock facility began using B5 on March 1, 2013. This facility accounts for about 35 percent of the total fuel used.
- Overall, WSF reached an average of 4.4 percent biodiesel for the period, up from 4.1 percent for the previous period.
- The average price paid for diesel fuel during the period was \$3.07 per gallon; the average price paid for B5 was \$3.16 per gallon, a differential of 2.8 percent.
- WSF had no biodiesel-related quality or performance issues during the period.

## Biodiesel Use by Washington State Agencies

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### Washington State Ferries Biodiesel Use: January 2009 to June 2014

Time Period	Diesel Gallons	Biodiesel Gallons	Total Gallons	Biodiesel %
Jan. - June 2014	8,114,966	373,303	8,488,269	4.4%
July - Dec. 2013	8,545,061	367,534	8,912,595	4.1%
Jan. - June 2013	8,156,700	320,207	8,476,907	3.8%
July - Dec. 2012	8,466,258	262,217	8,728,475	3.0%
Jan. - June 2012	8,283,480	223,320	8,506,800	2.6%
July - Dec. 2011	8,672,324	241,722	8,914,046	2.7%
Jan. - June 2011	8,435,352	227,115	8,662,467	2.6%
July - Dec. 2010	8,455,444	119,242	8,574,686	1.4%
Jan. - June 2010	8,459,772	102,179	8,561,951	1.2%
July - Dec. 2009	8,463,791	71,225	8,535,016	0.8%
Jan. - June 2009	8,269,302	30,714	8,300,016	0.4%

### LAND SECTOR USE

State agency purchases of biodiesel for use in vehicles and equipment totaled 207,396 gallons in the first six months of 2014, an increase of 29,000 gallons over the previous six-month period. Overall state agency biodiesel purchases held steady at 12.4 percent of total diesel fuel purchased under the state fuel contract as overall fuel purchased increased by 232,000 gallons.

In the land sector, WSDOT is the largest single purchaser of diesel fuel. During this reporting period, WSDOT purchased 1.47 million gallons of diesel fuel, accounting for 88 percent of all diesel fuel and 94 percent of all biodiesel purchased by state agencies under the state fuel contract. WSDOT maintains a comprehensive statewide network of fueling stations that serves the majority of the state's diesel-powered equipment and vehicles. Of the nine other agencies purchasing diesel fuel under the state contract, only three purchased more than 15,000 gallons of bulk diesel fuel during the period:

- Department of Corrections,
- Department of Fish and Wildlife, and
- Department of Natural Resources.

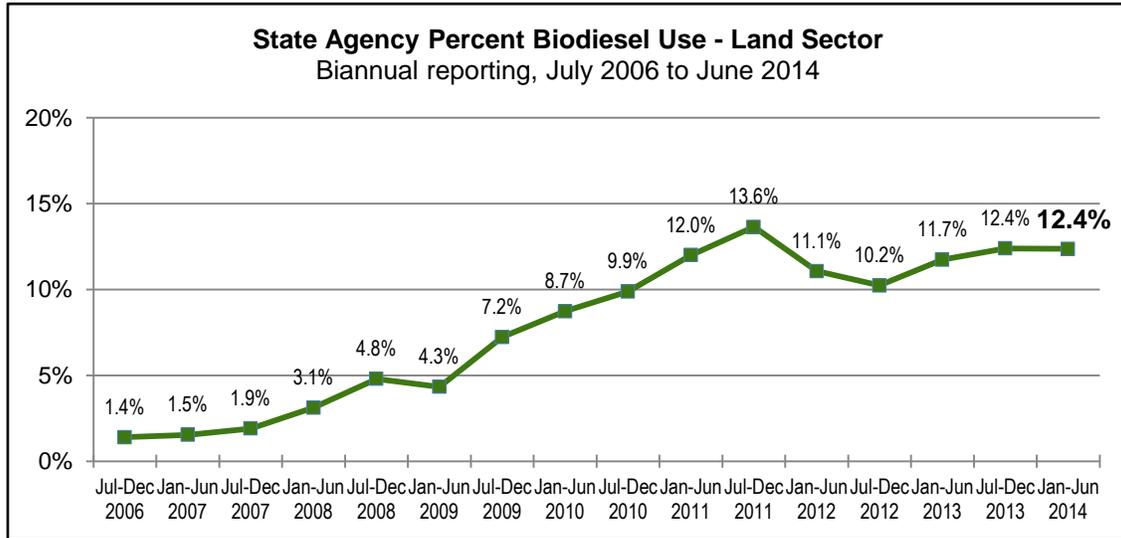
Among the 13 higher education institutions purchasing diesel fuel off the state contract, the University of Washington was the largest purchaser, accounting for 62 percent of the fuel purchased for vehicles and equipment and all of the biodiesel.

### State Agency Biodiesel Purchases (Land Sector): January to June 2014

Agency	Diesel Gallons	Biodiesel Gallons	Total Gallons	Biodiesel %
WSDOT	1,269,095	194,044	1,463,139	13.3%
Other Agencies	142,383	6,412	148,795	4.3%
Higher Education	51,882	6,940	58,822	11.8%
<b>Total</b>	<b>1,463,360</b>	<b>207,396</b>	<b>1,670,756</b>	<b>12.4%</b>

## Biodiesel Use by Washington State Agencies January through June 2014

On a percentage basis, biodiesel purchases by state agencies for use in vehicles and equipment has significantly increased since 2006 and averaged above 10 percent for the last seven reporting periods. The lack of available biodiesel in Eastern Washington limited efforts to use biodiesel fuels prior to 2011.



### DETAILS ON WSDOT PURCHASES AND USE

- Overall, WSDOT’s total biodiesel purchased and total fuel purchased were both up 18 percent from the previous six months. As a result, biodiesel compared to the total diesel volume remained essentially unchanged at 13.3 percent.
  - WSDOT had 45 fuel sites with biodiesel fuel available in Western Washington. Fuel deliveries during this reporting period were similar to the previous period: 87 percent of fuel deliveries were B20, 1 percent were B15, 9 percent were B10, and the remaining were B5. Biodiesel made up 16 percent of total diesel fuel purchased in Western Washington, on par with the previous period.
  - WSDOT had 53 fuel sites with biodiesel fuel available in Eastern Washington. From January through March, 6 percent of deliveries were B20, 38 percent were B10, 45 percent were between B5 and B10, 6 percent were B5 and 5 percent were B3. From April through June, all deliveries were B20, with the exception of one delivery of B12, as the weather became warmer. Overall, biodiesel made up 11 percent of total diesel fuel purchased in Eastern Washington during the period, up from 9 percent from the previous six months.

**WSDOT Biodiesel Purchases by Region: January 01 to June 30, 2014**

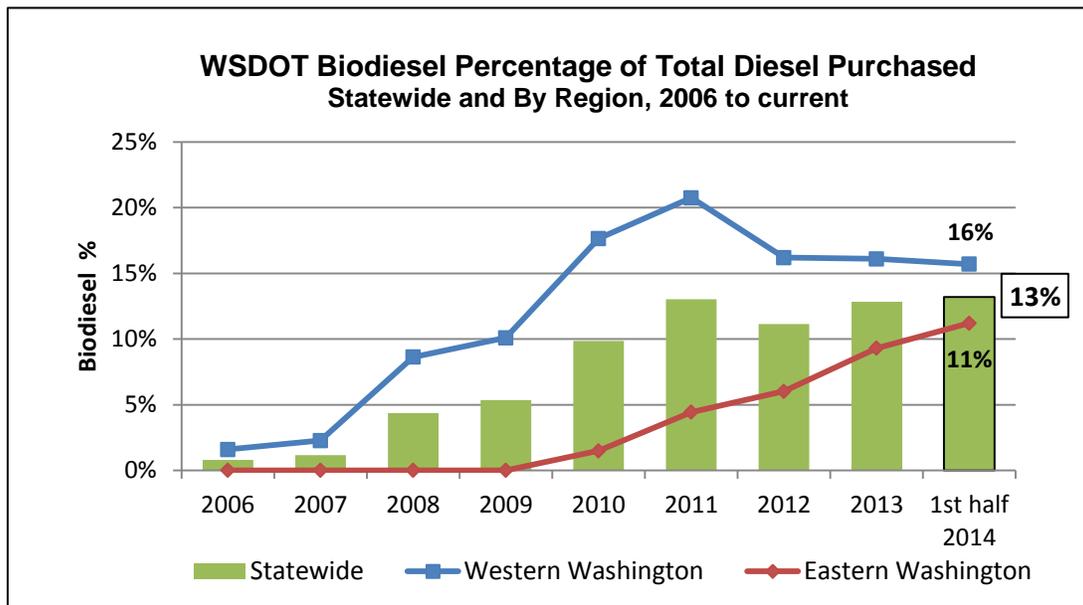
Region	Diesel Gallons	Biodiesel Gallons	Total Gallons	Biodiesel %
Westside	562,207	104,506	666,713	15.7%
Eastside	706,888	89,538	796,426	11.2%
<b>Statewide Total</b>	<b>1,269,095</b>	<b>194,044</b>	<b>1,463,139</b>	<b>13.3%</b>

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- WSDOT continued its suspension of purchases of biodiesel blends higher than B20. The suspension began in May 2012 after a review of EPA regulations, newly published guidance, and biodiesel handling guidelines on materials compatibility. The department determined that its diesel fuel tanks must be replaced to meet certification requirements to store biodiesel blends above B20. Replacing tanks is dependent on funding.
- WSDOT's experience with biodiesel fuels and testing biodiesel blends up to B90 has demonstrated the importance of: (1) managing biodiesel concentration based on climate and conditions; and (2) limiting biodiesel at sites with low fuel turn-over. Currently, WSDOT has 11 sites that are not feasible for biodiesel use because they are in areas that experience cold winter temperatures and have low fuel turn-over (no fuel use for periods of four to six months or longer). WSDOT is working with fuel additive manufacturers to address fuel storage longevity and cold weather operability issues.
- WSDOT continued to employ best practices for using biodiesel. Operational issues included: (1) Replacing fuel dispenser filters at twice the previous rate; (2) Using a more porous filter to minimize filter failure; and (3) Cleaning tanks at a higher frequency. WSDOT continues to experience higher rates of fuel injector and filter failure which may be attributable to biodiesel use.

On a percentage basis, WSDOT biodiesel purchases have averaged above 15 percent for more than four years in Western Washington and topped 10 percent for the first time in Eastern Washington. Prior to May 2012, some sites in Western Washington provided biodiesel blends of up to B40. The lack of biodiesel availability from contractors serving Eastern Washington limited WSDOT's efforts to use biodiesel fuels in that region before 2011.



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## **FUEL QUALITY**

The Washington State Department of Agriculture (WSDA) monitors the quality of diesel and biodiesel used by state agencies as part of the state's Motor Fuel Quality Program. During this reporting period, WSDA submitted 115 diesel and biodiesel blend fuel samples to a contract laboratory to test compliance with American Society for Testing and Materials (ASTM) quality standards. Samples were obtained from biodiesel producers, retail outlets and WSDOT fueling sites.

Test results continued to show problems with meeting flash point specifications. Of the 34 samples that did not meet ASTM specifications, 26 samples (75%) failed to meet flash point specifications. Flash point is a safety and handling specification and failures do not affect engine performance. Flash point deficiencies are often caused by contamination with small amounts of gasoline usually attributed to the tank management of transport trucks. WSDA met with industry representatives on March 19 to discuss the continued high failure rates for flash point. The representatives discussed common causes, outlined changes to tanker truck management and assistance provided to retailers with potential storage tank problems.

WSDA issued 22 notices of correction and issued two civil penalties to businesses for selling motor fuel that did not meet specifications. During this period, the program stopped sale at one location for water in a diesel storage tank and three locations for water in gasoline storage tanks.

Overall, WSDA did not identify any significant quality issues with biodiesel fuels during this reporting period.

## **STATE CONTRACTING**

- The DES's four fuel contracts serve a wide array of functions and customers. The state's Bulk Fuel contract (#00311), which started in May 2011, is now in its fourth year. The contract covers all regions of the state and encompasses 16 contracts with five contractors. Provisions of the state bulk fuel contract related to biodiesel include:
  - Biodiesel can be made from any feedstock so long as it meets ASTM specifications.
  - Contractors must provide biodiesel fuel in any percentage from B1 to B100.
  - Contractors must provide state agencies with biodiesel made from at least 51 percent in-state feedstock and/or biodiesel produced in-state.
- DES's ongoing work with the two remaining #00311 contractors to make B5 Rack available and to provide statewide continuity for the supply of biodiesel was on hold this period.
- There was considerable work during this period on state marine fuel delivery contracts that serve Washington State Ferries (WSF):
  - #01108 (Seattle Dock Facility): This contract is expiring and DES is working with WSF to negotiate a new sole source contract with Maxum Petroleum Company. The new contract is to be in place no later than September 30, 2014 and is expected to continue to include a B5 fuel and may include provisions for purchasing fuels that contain up to 20 percent biodiesel.

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- #02207 (Marine Refueling Services - Truck Delivery): Preparatory work continued to amend this contract to provide for pricing and delivery of B10 for a pilot project planned to start in the spring of 2015.
- #07613 (Keller Ferry): This new contract was awarded January 20, 2014 to Connell Oil Inc. for a one-year term. The contract provides both diesel and biodiesel fuel.
- Two contracts, the Bulk Fuel and the Seattle Dock Facility, require contractors to provide biodiesel that is at least 51 percent in-state sourced. To determine compliance with this contract provision, DES reviews invoices or bills of lading provided by fuel contractors to document the date, quantity, and source of biodiesel purchases. DES plans to review compliance for all of 2014 at the end of the next reporting period. This period, Sequential Pacific Biodiesel joined General Biodiesel, Imperium Renewables, and TransMessis Columbia Plateau as qualified in-state sourced biodiesel producers.

### **OTHER ACTIVITIES RELATED TO BIODIESEL USE BY STATE AGENCIES**

- **Extent Practicable Rule:** The interagency Alternative Fuels and Vehicles Technical Advisory Group (comprised of the 12 agencies and four educational institutions that collectively represent more than 98 percent of state fuel use) had quarterly meetings in February and May 2014 to continue its work to guide implementation of the Extent Practicable Rule, adopted in May 2013 by the Department of Commerce (WAC 194-28). The rule states that, unless otherwise limited by law, it is considered practicable for state agencies to use a minimum of 20 percent biodiesel on an annualized basis when purchasing fuel through the state procurement system. Agencies are to make good faith efforts to buy a minimum of B20 when purchasing fuel from retail outlets. Most of the group's work this period focused on electric vehicles versus biodiesel.

### **RECOMMENDATIONS/ACTION ITEMS**

- Determine necessary actions to increase the percentage of biodiesel used by WSF at one or more fueling locations within the cost limitation set by the Legislature. Continue preparatory work and planning for pilot test with two vessels in 2015.
- Explore adding the 51 percent in-state sourced biodiesel requirement to the Marine Refueling Services contract.
- Use the Alternative Fuels and Vehicles Technical Advisory Group to integrate efforts to increase the percentage of biodiesel used by state agencies with the larger effort related to agency use of alternative fuels and vehicles.
- Monitor changes in the biodiesel and fuel markets and work to provide competitively-priced biodiesel fuel products, such as B5 Rack, that keep current with agency needs and the marketplace.
- Continue fuel quality monitoring to ensure standards are met.
- Reduce the frequency of this report to once a year.

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