



**General Administration**  
STATE OF WASHINGTON

# **Biodiesel Use by Washington State Agencies**

**January through June 2011**

*Published September 2011*

**Contacts:**

**Jane Rushford**, Acting Director, General Administration, (360) 902-7203

**Phil Grigg**, Assistant Director, Services Division, General Administration (360) 407-9388

# **Biodiesel Use by Washington State Agencies**

January through June 2011

## **REPORT HIGHLIGHTS**

State agencies continue to make progress toward meeting their biodiesel use mandates during the first six months of 2011.

- Washington State Ferries (WSF), by far the state's largest consumer of diesel fuel, almost doubled its biodiesel purchases during this six-month period due to in-line blended fuel becoming available at the second of WSF's three fueling sites. Purchases increased to 226,250 gallons, up from 119,530 gallons purchased in the previous six-month period, as B5 became the standard fuel for 14 of 20 vessels.
- Biodiesel purchased by state agencies other than WSF increased from 9.9 percent to 12.0 percent of total diesel purchased in the first half of 2011, and totaled 172,149 gallons.
- A major hurdle to increasing biodiesel use was removed with the implementation of a new state bulk fuel contract. The Department of General Administration (GA) completed a year-long process that resulted in a contract that requires all contractors to provide biodiesel in any percentage from B1 to B100. The contract, which took effect on May 21, 2011, is a key tool in resolving biodiesel availability issues the state has experienced, especially in eastern Washington.
- Washington State Department of Transportation (WSDOT) continued to increase blend levels at selected fueling sites in Western Washington. For the period, 12 sites averaged more than 25 percent biodiesel, with four of these sites averaging 30 to 35 percent biodiesel, as compared to total diesel volume purchased. Due to biodiesel becoming available late in the period under the new fuel contract, 11 sites in eastern Washington averaged between 6 and 10 percent biodiesel for the period.
- All testing and reports continued to show no significant quality or performance 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 agencies are required to use a minimum of 20 percent biodiesel by total volume for operating diesel-powered vehicles and construction equipment. Legislation establishing this mandate, effective June 1, 2009, was enacted in 2006 and is codified in RCW 43.19.642.

Due to serious infrastructure and budgetary constraints, the Legislature adjusted the 20 percent biodiesel requirement for the state ferry system in the 2009 and 2010 transportation budgets. The revised mandate states that, for the 2009-11 biennium, all fuel purchased at the Harbor Island truck terminal in Seattle, one of WSF's three fueling sites, must be a minimum of 5 percent biodiesel so long as the price does not exceed the price of diesel by more than 5 percent.

GA is charged with compiling agency biodiesel usage data and reporting findings and recommendations to the Governor and the Legislature on a biannual basis. To more effectively fulfill this requirement, GA collaborated with key state agency stakeholders in preparing this report, incorporating their broader input, especially with respect to their areas of expertise and involvement.

# Biodiesel Use by Washington State Agencies

January through June 2011

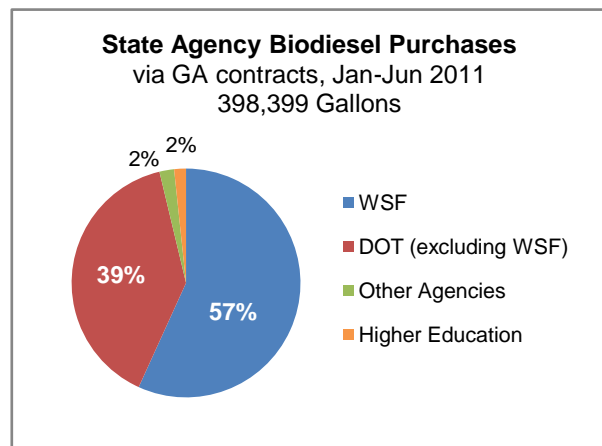
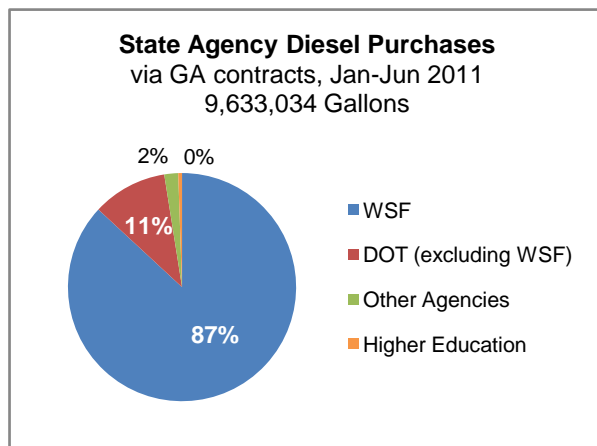
This report covers the period of January 1 through June 30, 2011 and focuses on bulk fuel purchased through state fuel delivery contracts. The use of the term “biodiesel” in this report means pure biodiesel (B100) unless otherwise designated.

## STATE BIODIESEL USE

From January 1 to June 30, 2011, state agencies and institutions of higher education purchased 9.6 million gallons of diesel fuel through state fuel contracts. This included a total of 398,399 gallons of biodiesel, an increase of 40 percent from the 285,076 gallons purchased in the last six months of 2010.

Purchases by the state ferry system made up 87 percent of all diesel and 57 percent of the biodiesel purchased during the period. Total biodiesel use by state ferries increased 90 percent, as a B5 biodiesel blend became the standard fuel for 14 vessels in the fleet. Biodiesel purchases by state agencies for use in vehicles and equipment increased four percent over the previous six months, primarily due to biodiesel blends becoming available at WSDOT fueling stations in eastern Washington starting in late May.

Biodiesel purchases by institutions of higher education are included in the data. However, since the institutions are not required to use the state fuel contract, this report does not fully capture all fuel they may have purchased from other distributors.



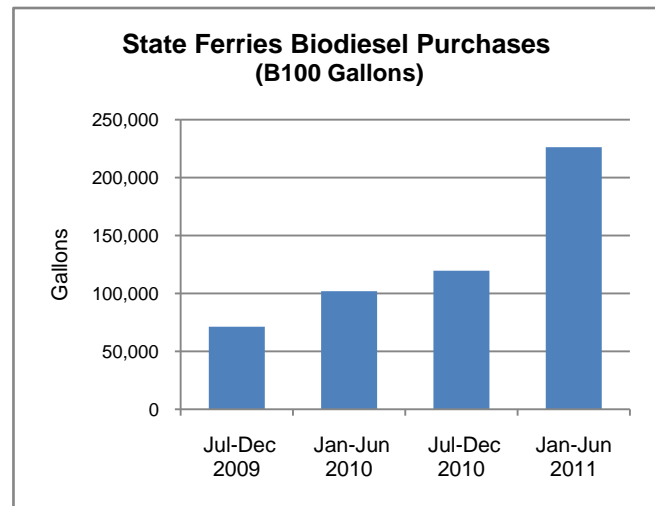
## WASHINGTON STATE FERRIES (WSF) BIODIESEL USE

- WSF exceeded its current biodiesel use minimum mandate during this six-month period with purchases of 226,250 gallons of biodiesel. This is a 90 percent increase from the 119,130 gallons purchased in the last six months of 2010.
- This increase was made possible by the installation of an in-line biodiesel blending system brought on line by Whole Energy. This new blending infrastructure allowed WSF to begin using B5 for ferries operating and fueling out of Anacortes in January 2011. This facility is one of three locations where WSF receives fuel, and accounts for 40 percent of the total fuel used by WSF.

## Biodiesel Use by Washington State Agencies

January through June 2011

- WSF continued to use in-line blended B5 biodiesel for all vessels fueling by truck from the Harbor Island truck facility in Seattle. This facility accounts for about 25 percent of the total fuel used by WSF.
- The capital improvement project to make in-line blended biodiesel available at the Seattle fuel pier is underway and expected to be operational during the fall of 2011. Once it is completed, WSF will have full access to biodiesel at all three of its fueling locations.



- The five percent price differential limitation placed on WSF in the state Transportation Budget has not been a factor. The daily average difference between petroleum diesel and a B5 biodiesel blend during the period was below the 5 percent threshold.
- WSF had no biodiesel-related quality or performance issues during the period.

### Washington State Ferries Biodiesel Use: July 2009 to June 2011

Time Period	Diesel Gallons	Biodiesel Gallons	Total Gallons	Biodiesel %
Jan-Jun 2011	8,371,217	226,250	8,597,467	2.6%
Jul-Dec 2010	8,455,444	119,530	8,574,974	1.4%
Jan-Jun 2010	8,460,112	101,840	8,561,952	1.2%
Jul-Dec 2009	8,463,792	71,224	8,535,016	0.8%

## LAND SECTOR USE

State agency purchases of biodiesel for use in vehicles and equipment increased from 165,546 gallons in the last six months of 2010 to 172,149 gallons in the first six months of 2011. On a percentage basis, overall state agency biodiesel purchases increased from 9.9 percent to 12.0 percent of total diesel purchased.

WSDOT is the largest single purchaser of diesel in the land sector under the state fuel contract. During this reporting period, WSDOT accounted for 81 percent of all diesel and 91 percent of all biodiesel purchased by state agencies to include institutions of higher education under the state fuel contract. On a percentage basis, WSDOT biodiesel accounted for 13.3 percent of total diesel fuel purchased, an increase from 11.1 percent in the previous six-month period. State agency biodiesel purchases in eastern Washington continued to be challenging during the period, as biodiesel was not readily or consistently available in the area prior to the implementation of the new fuel contract in late May.

## Biodiesel Use by Washington State Agencies

January through June 2011

WSDOT maintains a comprehensive, statewide network of fueling stations that serves the majority of the state’s diesel-powered equipment and vehicles. Only six other agencies purchased more than 1,000 gallons of bulk diesel fuel under the state contract during the period, with the Department of Corrections the largest purchaser in this group. With respect to biodiesel purchases, the Department of Natural Resources led this group, averaging 14.4 percent biodiesel.

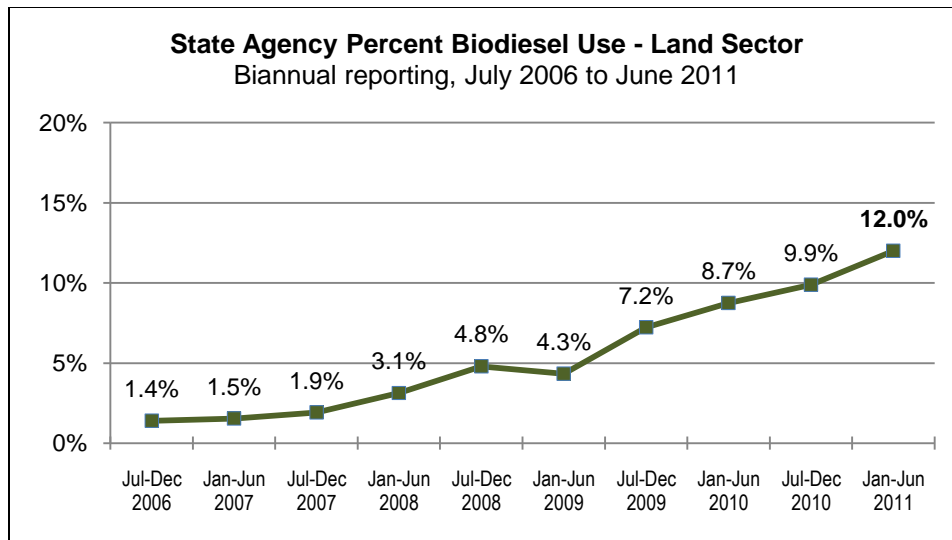
Among the 10 higher education institutions purchasing off the state contract this period, the University of Washington led the way with biodiesel making up 17.2 percent of the diesel fuel it purchased.

### State Agency Biodiesel Use (Land Sector): January to June 2011

Agency	Diesel Gallons	Biodiesel Gallons	Total Gallons	Biodiesel %
WSDOT	1,021,083	157,269	1,178,352	13.3%
Other Agencies	189,220	8,235	197,455	4.2%
Higher Education	51,514	6,645	58,159	11.4%
<b>Total</b>	<b>1,261,817</b>	<b>172,149</b>	<b>1,433,966</b>	<b>12.0%</b>

Note: Data only represents fuel purchased under GA fuel contracts.

On a percentage basis, overall state agency biodiesel purchases have steadily increased over the last several six-month periods.



# **Biodiesel Use by Washington State Agencies**

January through June 2011

## **DETAILS ON WSDOT PURCHASES AND USE**

- WSDOT increased its total purchases of biodiesel during the period, primarily during the last six weeks when the new fuel contract was in effect and the summer season had begun.
- In western Washington, 47 of WSDOT's 53 fueling sites continued to offer biodiesel blends, with B20 the standard fuel at many sites. During May and June, 16 sites received deliveries of biodiesel blends above 20 percent, including two sites receiving B50 and two sites receiving B60. For the period, 12 sites averaged more than 25 percent biodiesel with four of these sites averaging 30 to 35 percent biodiesel as compared to total diesel volume purchased.
- In eastern Washington, biodiesel availability continued to be limited until the new fuel contract took effect. By the end of the period, WSDOT had 46 fueling sites in eastern Washington with biodiesel fuel. After the new contract went into effect, 15 sites received deliveries of B20 and 10 sites received B10. For the period, 11 sites averaged between six and 10 percent biodiesel as compared to total diesel volume purchased.
- Until the new state contract took effect, WSDOT continued its separate contract with a fuel distributor to supply biodiesel to four of the fueling stations in its North Central region, the one region of the state where there had been no vendor through the state fuel contract.
- WSDOT's growing experience with biodiesel blends continues to demonstrate the need for site-specific planning to implement the state's biodiesel mandate. For example, in remote, cold, low-utilization sites such as its Shuksan fueling station, use of biodiesel is not advised due to gelling concerns and fuel degradation associated with low turnover. WSDOT is using a strategy in western Washington to reach the 20 percent biodiesel mandate by using higher blends at sites where climate, storage conditions and use patterns do not present significant storage and performance concerns. WSDOT plans to use the same strategy to achieve the 20 percent mandate statewide.
- WSDOT testing of various biodiesel blends – ranging from B40 to B90 – has demonstrated that: 1) cold weather can have an impact and it is important to regulate biodiesel concentration accordingly; 2) tank and filter maintenance is critical in maintaining fuel quality; and 3) fuel turnover schedules need to be considered to maintain fuel quality and prevent tank contamination.
- WSDOT employed best practices for introducing and increasing biodiesel use during the period and had no biodiesel-related quality or performance issues.

When all diesel fuel purchased by WSDOT is considered, WSDOT reached a statewide average of 11.5 percent during the first six months of 2011, purchasing 170,384 biodiesel gallons. This includes fuel purchased on the state contract as well as the WSDOT contract to supply its North Central region. Though the total amount of biodiesel purchased in western Washington increased by 5,000 gallons from the previous period, the percent of biodiesel purchased by WSDOT declined slightly from 20.1 percent to 18.7 percent as the extended winter caused more demand for diesel at sites using snowplows and dump trucks for snow removal.

## Biodiesel Use by Washington State Agencies

January through June 2011

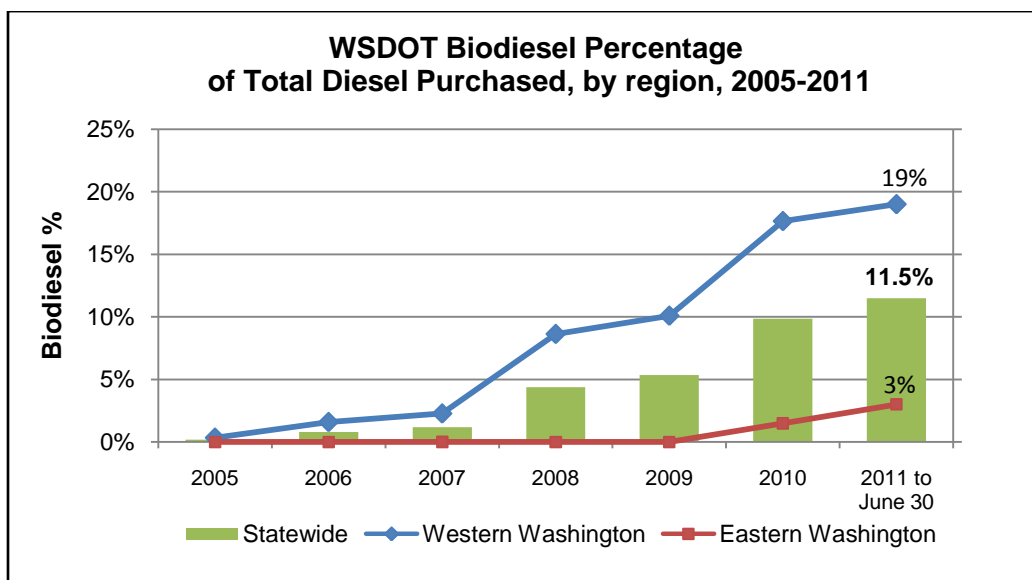
Eastern Washington purchases averaged 3.2 percent biodiesel for the first six months of 2011. This is a significant increase from the 1.9 percent average from the last six months of 2010.

### WSDOT Biodiesel Purchases by Region: January to June 2011

Region	Diesel Gallons	Biodiesel Gallons	Total Gallons	Biodiesel %
Westside	645,506	148,737	794,243	18.7%
Eastside	664,999	21,647	686,646	3.2%
<b>Statewide Total</b>	<b>1,310,505</b>	<b>170,384</b>	<b>1,480,889</b>	<b>11.5%</b>

Note: Includes purchases using “Best Buy” methodology in area not served by GA fuel contract.

On a percentage basis, overall biodiesel purchases by WSDOT have steadily increased in western Washington over the last several years. The lack of biodiesel availability from contractors serving eastern Washington has limited WSDOT’s efforts to meet the use mandate statewide.



## FUEL QUALITY

Washington State Department of Agriculture (WSDA) continues to monitor the quality of diesel and biodiesel used by state agencies as part of the state’s overall Motor Fuel Quality Program.

Due to budget constraints, WSDA reduced the amount of testing during this six-month period. Only three diesel and four biodiesel fuel samples were submitted to the contract laboratory for analysis for compliance with ASTM quality standards. Two samples, both taken at retail outlets, were found out of compliance. One sample did not meet a flash point requirement. Another sample did not meet oxidation stability and carbon residue requirements. WSDA sampled one WSDOT location and found that the fuel met specifications.

No fuel quality issues were reported to WSDA by state agencies during the reporting period.

## Biodiesel Use by Washington State Agencies

January through June 2011

During the period, WSDA reviewed and redesigned its sampling plan and the laboratory testing program. The new plan will provide for surveillance across the state in a systematic manner and increase monitoring during seasonal change periods. The laboratory test panels have been modified to include lower cost surveillance tests that evaluate critical characteristics as well as more detailed tests to evaluate a wider range of characteristics. WSDA will continue to coordinate with WSDOT on testing strategies and timing as WSDOT moves to increased use and higher blends of biodiesel. The new design will enable the program to continue to monitor the quality of fuel on a reduced budget.

In June, WSDA participated in two conferences held by GA with users of the new state fuel contract. WSDA extended an offer to work with state agencies and other contract users to monitor the quality of biodiesel used in their fleets, educate agencies on proper handling, and address any quality issues that arise.

### STATE FUEL CONTRACTING

- **Contract Award:** GA completed the process for rebidding the state's land bulk fuel delivery contract that provides biodiesel to state and political subdivision customers. The contract was awarded in mid-April and took effect on May 21, 2011. During the year-long development of the contract, GA hosted a biodiesel manufacturers' forum to gain industry input on technical and market factors. This resulted in a better understanding of the supply chain and provided an opportunity to promote legislative in-state feedstock goals. The contract has an initial term of one year, but may be extended by mutual agreement for up to 10 years. The contract made several significant changes related to biodiesel, including:
  - Revised the specifications for biodiesel fuel to match new and updated specifications adopted by ASTM International, the recognized international standards organization.
  - Eliminated feedstock restrictions. Biodiesel can be made from any feedstock as long as it meets the ASTM specifications.
  - Removed or reduced specifications on production and blending processes.
  - Improved reporting requirements and guidance to agencies regarding biodiesel usage requirements.
  - Requires all contractors to provide biodiesel in any percentage from B1 to B100.
  - Provides an updated daily pricing reference.

The new contract covers all regions of the state and encompasses 16 contracts with five contractors. The transition to the new contract occurred with no significant problems. It will be important to monitor the implementation of the contract during its first year. The contract promises to be a valuable tool for increasing state agency use of biodiesel.

- **Contract Amendments and Extensions:** The marine refueling services contract has been extended through April 25, 2012. The Seattle Harbor fuel dock contract was extended through June 30, 2012.



# **Biodiesel Use by Washington State Agencies**

January through June 2011

## **RELATED ACTIVITIES**

- **Industry Meetings:** WSDA convened a meeting with biodiesel producers and petroleum industry representatives on June 15, 2011, and provided information on activities related to increasing biodiesel use in Washington. Topics included the latest data on state agency use of biodiesel; a recap of 2011 legislative activities and initiatives, including activity related to updating the State Energy Strategy and plans for updating fuel tax data systems; an overview of the major biodiesel-related provisions of the new state fuel contract; and WSDA's plans for motor fuel quality testing for the next fiscal year.

Also involved in the meeting were representatives from GA, WSDOT, and the departments of Commerce and Licensing. This was a continuation of the effort WSDA began last year to advance the biodiesel industry by providing updates on state biofuels-related activities and the motor fuel quality program and encouraging dialogue among interested parties.

## **OTHER FACTORS AFFECTING BIODIESEL USE AND AVAILABILITY**

Previous reports on state agency use of biodiesel have included information on other factors affecting biodiesel use and availability. With the advent of the new fuel contract, the influence of these factors on biodiesel availability for state agencies has diminished.

On the national level, biodiesel production is at record levels with the extension of the federal biodiesel tax credit and minimum volumes required under the federal renewable fuels program (RFS2). Regionally, biodiesel use is increasing. Effective April 1, 2011, all diesel fuel sold in Oregon must contain a minimum of five percent (up from two percent) by volume biodiesel, except fuel sold for railroad locomotives, marine engines and home heating applications.

Legislation to amend Washington's renewable fuel standard (RFS) was considered during the 2011 session, but did not pass either house. This lack of a fully functional state RFS is affecting biodiesel availability in the state generally, but has less of an impact on availability for state agencies due to the state fuel contracts.

## **RECOMMENDATIONS/ACTION ITEMS**

- Continue efforts to increase biodiesel use by state agencies.
  - Ensure successful implementation of biodiesel blending infrastructure upgrades that will allow WSF to fuel with biodiesel throughout its fleet.
  - Monitor and promote use of the new statewide bulk fuel delivery contract.
- Continue to encourage and assist state fleet managers to meet biodiesel use and reporting requirements, including supporting efforts to identify best practices for cold weather biodiesel purchasing and long-term storage.

## **Biodiesel Use by Washington State Agencies**

January through June 2011

- Continue to encourage vehicle manufacturers to recommend use of higher blends of biodiesel. Because of new emissions standards, most manufacturers are recommending no more than B5.
- Continue fuel quality monitoring to ensure standards are met. Work with agencies, biodiesel producers and fuel contractors to address cold weather performance concerns.

### **CONTRIBUTORS**

Contributors to this report include:

- Department of Agriculture, Mary Beth Lang, (360) 902-1812
- Department of Commerce, Peter Moulton, (360) 725-3116
- Department of General Administration, Steve Krueger, (360) 407-9400
- Department of Transportation, Greg Hansen, (360) 705-7862
- Washington State Ferries, Paul Brodeur, (206) 515-3863