



**Report to the Oregon
Legislature
August 2010**

Biofuels Impact Study



Executive Summary

Oregon has abundant human and natural capital that can contribute significantly to the State's energy future. Our biomass resources have the potential to contribute to future energy needs while encouraging job creation and economic opportunities in rural Oregon.

The Governor and the Oregon State Legislature have made significant commitments and investments towards realizing the full potential that bioenergy has for Oregon. Oregon has led the nation with policies that promote the use of biomass for fuel and energy production. State agencies, non-profits and the private sector are working hard to deliver this commitment of job creation, energy savings, and energy independence for Oregon businesses and residents.

This is the first periodic report issued to the Legislature that assesses the impact of the State's biofuel program. The report includes a summary of current incentives and policies that support biofuels, statistics about jobs at Oregon's bioenergy facilities, and a description of the status of the bioenergy and biofuels industries in Oregon.

More data is necessary to truly evaluate the impacts of Oregon's bioenergy incentives to the health of the bioenergy industry and the creation of jobs. Several state agencies are working to collect some of these data, which will provide a clearer picture of the industry at the time of our next report to the Legislature.



Biomass heating facility at the Harney Hospital in Burns, OR

Overview

This report considers the impact and opportunity of Oregon's current bioenergy programs. The report consists of three main sections. The first part summarizes results of surveys and specific data collection related to the production and use of biofuel in Oregon. This section includes a specific discussion of the required criteria for the impact study provided in ORS 469.785 and the history of key legislation that has guided State efforts to date.

The second section provides a snapshot of Oregon's current bioenergy industry. Like other industries, Oregon's bioenergy industry has faced significant challenges due to the most recent recession. This section reflects the current information that the Oregon Department of Energy (Department) has related to biofuels production and use in the state.

The final section of this report outlines the Department's current efforts and plans for future program analysis. The Department is working closely with stakeholders and state agencies to conduct an up-to-date analysis and report those findings to the Legislature. Future reports will build upon this initial assessment and provide further analysis of the program.

The term **biofuel** is used broadly in this report and includes liquid, solid, and gaseous fuels derived from biomass. The term **bioenergy** describes the use of biofuels in our transportation system, as a source of heat and process energy for our buildings and industry, and as a fuel to generate renewable energy.

Background

In 2007 the Legislature passed House Bill 2210 (HB 2210). The bill provides requirements and incentives for the production and use of biofuels in Oregon. It established a renewable fuel standard, authorized tax credits for the production and collection of biomass used for biofuel production, authorized tax credits for consumers of certain biofuels, restricted certain transportation fuel additives, directed state agencies to purchase flex fuel vehicles and biofuel, amended the energy facility siting statute, and excluded certain on-farm uses.

Various state agencies are involved in implementing aspects of this and other related legislation. The Oregon Department of Agriculture is responsible for implementing the renewable fuel standard and is required to study and monitor ethanol and biodiesel production, use, and sales in Oregon. The Oregon Department of Revenue was responsible for administering the Biomass Producer or Collector Tax Credit program for tax years 2007, 2008, and 2009. The Oregon Department of Energy (Department) has administrative responsibility for the program for tax years 2010 and beyond.

HB 2210 requires the department to conduct an impact study of the biofuels program. The study must include the following criteria with respect to the biofuel sector in Oregon:

- Jobs created;
- Average wage rates for those jobs;
- The provision of health care and other benefits;
- The extent to which workforce training opportunities are being provided to employees;
- The number of acres of biofuel feedstock planted;
- The number of gallons of biofuel blended fuel produced and consumed in the state;
- The cost of fuel with biofuel blends and how that compares with the cost of petroleum fuel;
- Environmental impacts such as reductions in greenhouse gas emissions and other toxic air pollution;
- The impact of biofuel feedstock production on the price of commodity crops and the cost of food staples; and
- The extent to which Oregon producers import biofuel or biofuel feedstock from outside the state.

Key Legislation

2007

House Bill 2210 established the renewable fuel standard, provided tax credits for the production and use of biofuel, and included other provisions related to transportation fuels.

Senate Bill 838 created Oregon's Renewable Portfolio Standard, requiring a percentage of electricity sold to retail customers to be from certain renewable sources.

2008

Senate Bill 1079 provides exemptions for specific limited applications of biofuel such as aircraft, watercraft, and snowmobiles.

2009

House Bill 2078 created a certification requirement for biomass producer or collector tax credits. It allows the Department to determine: additional criteria used to determine the amount of tax credits certified; additional characteristics of biomass; and the minimum discount value for the transfer of these tax credits.

House Bill 2186 authorized the Environmental Quality Commission (EQC) to adopt a low carbon fuel standard for transportation fuels. Oregon's standard would reduce the average amount of greenhouse gas emissions per unit of fuel energy by 10 percent from 2010 to 2020.

House Bill 3497 exempts premium-unleaded gasoline from the ethanol mandate.

House Bill 3463 immediately activated the renewable fuel standard to blend diesel with a minimum of 2% by volume biodiesel.

Biofuels Impact Study

To begin analyzing the State's bioenergy programs, the Department is working with a broad spectrum of stakeholders. During the first half of 2008, the Department conducted mail surveys of biofuel and bioenergy facilities in Oregon. Surveys were sent to over 100 known biofuel and bioenergy facilities. Phone interviews were conducted with selected facilities to verify information. Responses were recorded for over 80% of the facilities identified. Facilities included woody biomass co-generation facilities, lumber mills utilizing wood for energy, anaerobic digester facilities installed at wastewater treatment facilities and farms, solid fuel manufacturers and liquid biofuel producers.

The survey asked for information on annual energy or fuel production as well as the amount and type of biomass utilized by the facility. The survey also requested information on the number of jobs and the provision of health care, workforce training, and other benefits. A sample survey form is included in Appendix A.

Summary of Findings

Jobs Created

- The Department cannot determine the number of jobs created in the Oregon Bioenergy Industry at this time due to the difficulty in tracking job creation in this industry.
- The difficulties include the industry use of multiple methods to report employment data; lack of formal categorization of green jobs; lack of standard occupational classifications related to these jobs; and lack of industry classification specific to bioenergy.
- The department is currently working with the Oregon Employment Department and stakeholders to gather additional information on job creation.
- Job creation in this industry can likely be attributed to the Renewable Fuel Standard, the Renewable Portfolio Standard, and the Business Energy Tax Credit. An analysis of job creation associated with the Renewable Portfolio Standard and the Business Energy Tax Credit is currently underway.

Average Wage Rates for Those Jobs

- Survey respondents indicated the average wage rates for positions reported are \$23 per hour, or approximately \$47,000 annually.
- According to the Oregon Employment Department:
 - Average annual forestry and logging salaries are \$42,954,
 - Average annual crop production salaries are \$23,314, and
 - Average annual salaries for agriculture and forestry support activities are \$22,221.

- The 2008 Oregon Employment Department's Greening of the Workforce Report found that on average, green jobs tend to pay better than their "non-green" average, and tend to pay above the state's average wage for all occupations.

The Provision of Health Care and Other Benefits

- Most employers surveyed reported providing employees access to group health insurance and retirement accounts.

The Extent to Which Workforce Training Opportunities are being Provided to Employees

- One employer surveyed provides continuing education benefits of up to \$1,500 per year.
- All employers reported providing required safety training and providing opportunities to learn more advanced skills on the job.

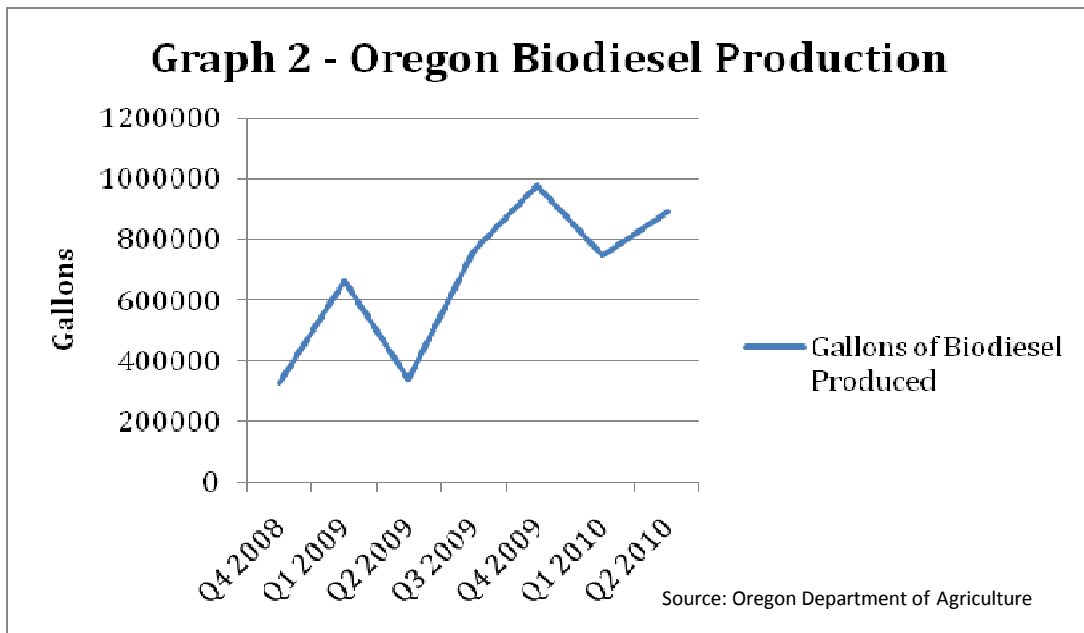
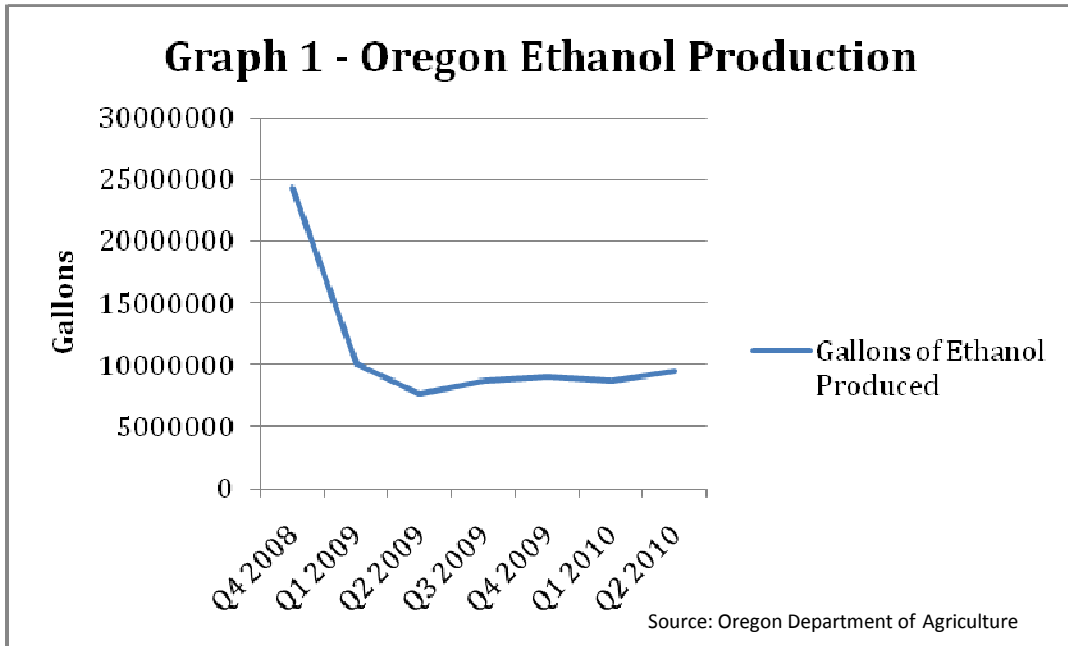
The Number of Acres of Biofuel Feedstock Planted

- It is difficult to determine the acres of biofuel feedstock planted due to the variety of crops planted and the difficulty in determining the percentage of those crops dedicated to biofuels production. The USDA reports that in 2010, over 6,500 acres of canola was planted in Oregon.
- Biofuel feedstock includes oils seeds such as canola, camelina, and soybean. Biofuel feedstocks also include hybrid poplar, sorghum, and other dedicated crops.
- The USDA National Agriculture Statistics Service tracks acreage of several crops that are used for biofuels in Oregon. However, these crops are also used for other purposes, such as edible oils and livestock feed. Statistics are unavailable on the percentage of biofuel crops in Oregon that are used for biofuels versus other purposes.
- Most of the bioenergy feedstock produced and consumed in Oregon is either woody biomass or waste oil and grease, rather than dedicated biofuel crops. A demonstration-scale facility is currently under construction in Boardman, Oregon, and will use hybrid poplar as the primary feedstock.

The Number of Gallons of Biofuel Blended Fuel Produced and Consumed in the State

- Oregon Department of Agriculture maintains records of the amount of ethanol and biodiesel produced in the state.
- Appendix B includes a copy of the Oregon Department of Agriculture Biodiesel and Ethanol Production Facilities Production and Sales Report.
- Graph 1 and Graph 2 indicate the amount of ethanol and biodiesel produced in Oregon.
- There was a reduction in the amount of ethanol produced in Oregon due to difficult market conditions for ethanol during late 2008 and 2009 and the closure of production facilities in the state.
- There are facilities in Oregon that are beginning to produce cellulosic ethanol.
- Oregon retail gasoline is required to be blended with approximately 10% ethanol. This requirement needed to be met by September 2007. In 2008, the U.S. Energy Information Administration reports that over 2.7 million barrels of ethanol was consumed in Oregon. Chart 4, below, reports the amount of gasoline and ethanol consumed in Oregon.

- In 2009, HB 3463 required that all diesel sold in Oregon contain at least 2% biodiesel. It is too early to determine the amount of biodiesel that was consumed in the state. Currently, the state does not have the data collection systems in place to track biofuel imports or use.



The Cost of Fuel with Biofuel Blends and How that Compares with the Cost of Petroleum Fuel

- Ethanol has 76,000 average British Thermal Units (BTU) of energy per gallon. Gasoline has 115,000 average BTU's per gallon.
- Blended with 10% ethanol, motor fuels will have approximately 3.3% less energy content.
- In 2008, the National Renewable Energy Lab found that Ethanol blending in the U.S. is keeping retail gasoline prices about 17 cents per gallon lower than they would be with no ethanol. This includes the federal ethanol subsidies.
- The U.S. Environmental Protection Agency reports that the energy content of un-blended gasoline can vary as much as 2% from season to season due to blending requirements.

Environmental Impacts such as Reductions in Greenhouse Gas Emissions and other Toxic Air Pollution

- Reductions in greenhouse gas emissions may result from blending ethanol with gasoline, biodiesel with petroleum diesel and by offsetting natural gas or propane with woody biomass fuels. Electricity generated from biomass fuels also reduces greenhouse gas emissions.
- The Oregon Department of Environmental Quality with assistance from the Oregon Department of Transportation, Oregon Department of Agriculture, and the Oregon Department of Energy are currently developing a state low carbon fuel standard authorized by the 2009 legislature. This effort will include developing detailed estimates and modeling of the greenhouse gas emissions associated with various fuel types. Results of this effort are expected in 2011.
- Fuels blended with ethanol or biodiesel reduce certain air pollutants.
- The use of biomass for electric or thermal energy production can also reduce certain air pollutants. Modern bioenergy plant designs include sophisticated pollution reduction technologies and are designed to meet strict emission standards.

The Impact of Biofuel Feedstock Production on the Price of Commodity Crops and the Cost of Food Staples

- There is ongoing, worldwide research to assess the impact of biofuel production on commodity crop prices and food security.
- The Food and Agriculture Policy Research Institute provides analysis of agricultural and biofuel markets and policies for Congress and other decision makers. The 2008 US Baseline Briefing Book, published by the institute, found that increasing prices of grain, oil seeds and other commodity crops increases crop revenues for farmers, reduces the cost of certain government programs, increases feed costs and contributes to higher consumer food prices.
- The World Bank released a report in 2010 on the commodity price spike of 2006/08. One of the findings of this report states:

“We conclude that a stronger link between energy and non-energy commodity prices is likely to have been the dominant influence on developments in commodity, and especially food, markets,” the authors wrote in their introductory remarks....We also conclude that the effect of biofuels on food prices has not been as large as originally thought, but that the use of commodities by investment funds may have been partly responsible for the 2007/08 spike [in food prices].”
- The price of energy has a larger impact on consumer prices than the price of food. The prices of food and other constituents in the Consumer Price Index (CPI) are complex and

due to a variety of market factors. Increasing energy prices place a higher upward pressure on the CPI than food prices.

The Extent to Which Oregon Producers Import Biofuel or Biofuel Feedstock from Outside the State

- Oregon ethanol producers rely primarily on out of state feedstock for their production. Alternatively, biodiesel producers utilize primarily Oregon based feedstocks for their production.
- It is difficult to determine the exact amount of biofuel that is imported or exported in the state. Market prices and individual facility production levels and inventory will fluctuate throughout the year. These fluctuations will dictate market sales and prices.
- Based on current in-state production levels of approximately 36 million gallons of ethanol, over 90 million gallons would need to be imported from out of state.
- The state does not have the information systems or authority to track specific biofuel imports.



Canola is a source of oil seed used to produce biodiesel.

Oregon Bioenergy Industry

Oregon's bioenergy industry is a diverse and growing industry. The industry provides jobs in the rural areas of our state in addition to metropolitan areas. The industry consists of well-established companies as well as new technologies and market entrants. Table 1 summarizes the current bioenergy facilities in Oregon. This information was gathered using surveys administered by the Oregon Department of Energy.

Table 1: Summary of Oregon Bioenergy Facilities

Type of Facility	Number of Facilities	Annual Production	Biomass Utilized
Woody Biomass – Electric generating stations, steam plants, and co-generation facilities	>45	Electric Capacity of 238 MW plus unknown steam use for process and heat energy	>3.4 million tons of forest slash, mill residuals, pulping liquor, urban wood and yard debris
Pellet Manufacturers	9	Capacity of approximately 550,000 tons of pellets	802,000 tons of sawdust and wood residuals
Ethanol & Biodiesel	9	Approx. 36 million gallons of ethanol and over 4 million gallons of biodiesel	Current feedstock include corn, agricultural wastes, canola, and yellow grease
Biogas (anaerobic digestion, not including wastewater treatment)	3	Approx. 1.8 MW	>17 million gallons of manure and other wastes
Biomass Heating – (schools, public buildings, other facilities)	>5	Heat for buildings	Approx. 400 tons of wood chips or pellets
Landfill Gas	>4	>14 MW	Methane collection from landfill

The table above provides a summary of known facilities in the state. In addition to these facilities, there are others that are small in scale and production or are not included in the data set. There are also a number of facilities in the planning or construction phase. Table 2 contains a summary of planned facilities in Oregon.

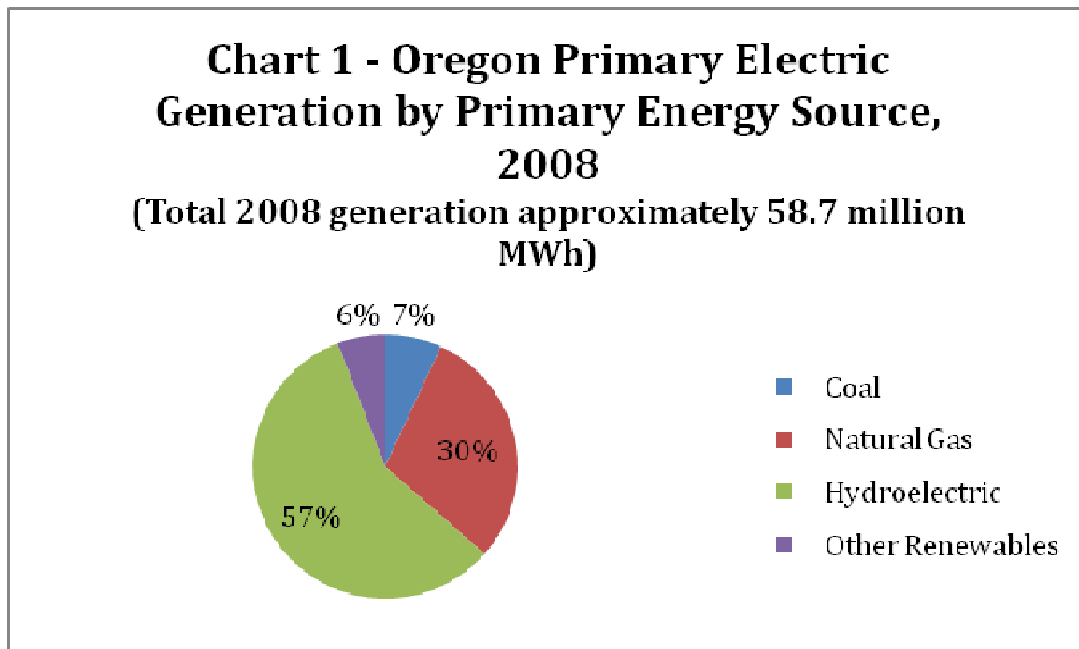
Table 2: Overview of Planned Oregon Bioenergy Facilities

Type of Facility	Number of Facilities	Annual Production	Biomass Utilized
Woody Biomass – Electric generating stations, steam plants, and co-generation facilities	~12	Electric Capacity of over 150 MW plus unknown steam use for process and heat	>1 million tons of forest slash, mill residuals, pulping liquor, urban wood and yard debris
Pellet Manufacturers	2-3	Capacity of over 100,000 tons of pellets	100,000 tons of sawdust and wood residuals
Ethanol & Biodiesel	2-3	Approx. 30,000 million gallons of ethanol and over 4 million gallons of biodiesel	Current feedstock include corn, agricultural wastes, canola, and yellow grease
Biogas (anaerobic digestion, not including wastewater treatment)	6	>6 MWh	>1 million gallons of manure and other wastes
Biomass Heating – (schools, public buildings, other facilities)	~8	Heat for buildings	Approx. 1,200 tons of wood chips or pellets

These numbers are estimates based on projects that have begun construction or permitting, have applied for state incentives or have expressed an interest in moving forward. These estimates will change as new projects will emerge and current projects may be postponed.

Oregon's Use of Bioenergy

Biomass has long been a significant contributor to the state's energy mix. The majority of biomass energy is used by industry, primarily the forest products industry. The use of biomass is growing as a fuel for electric generation, a feedstock for liquid fuel production, and a source of advanced thermal energy for our building stock. The following charts provide an overview of Oregon's Bioenergy use.



Source: U.S. Energy Information Administration

Chart 1 provides the major sources of in-state electric generation.

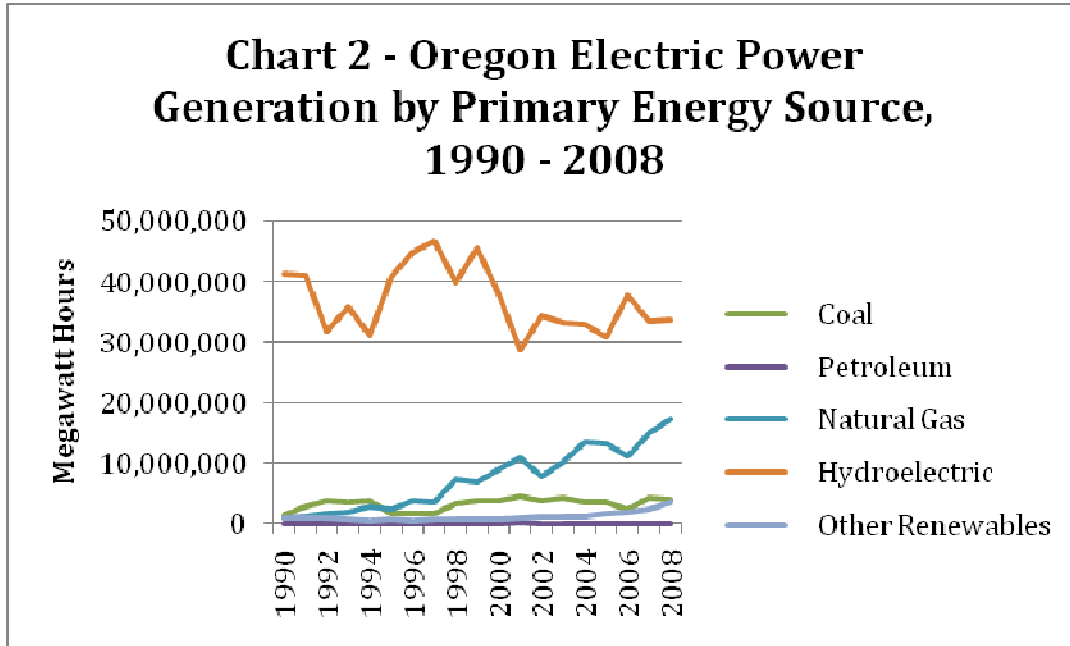


Chart 2 provides trends of major in-state electric generation sources. Source: U.S. Energy Information Administration

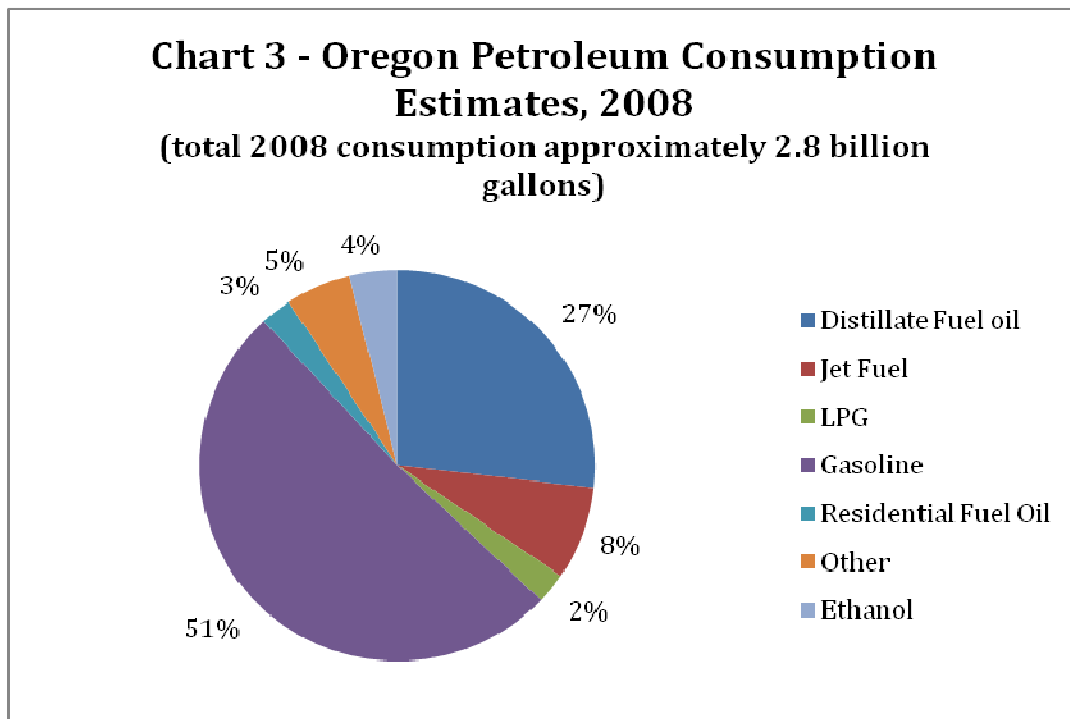


Chart 3 provides a breakdown of petroleum consumption in Oregon. Source: U.S. Energy Information Administration

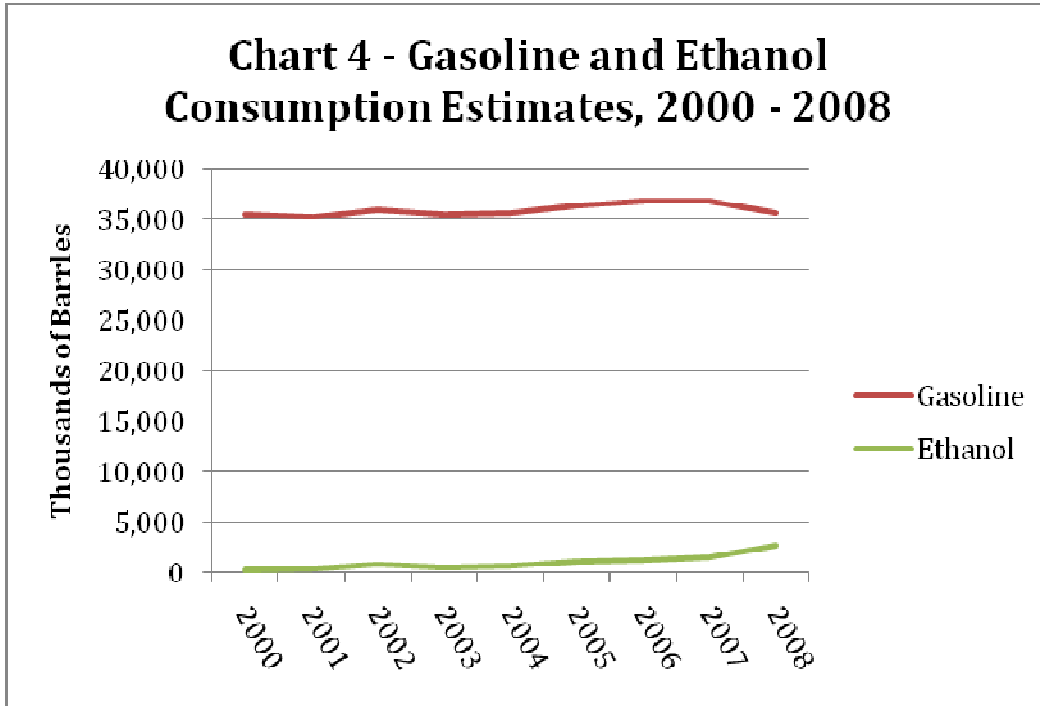


Chart 4 provides trends of consumption estimates for gasoline and ethanol.

Source: U.S. Energy Information Administration

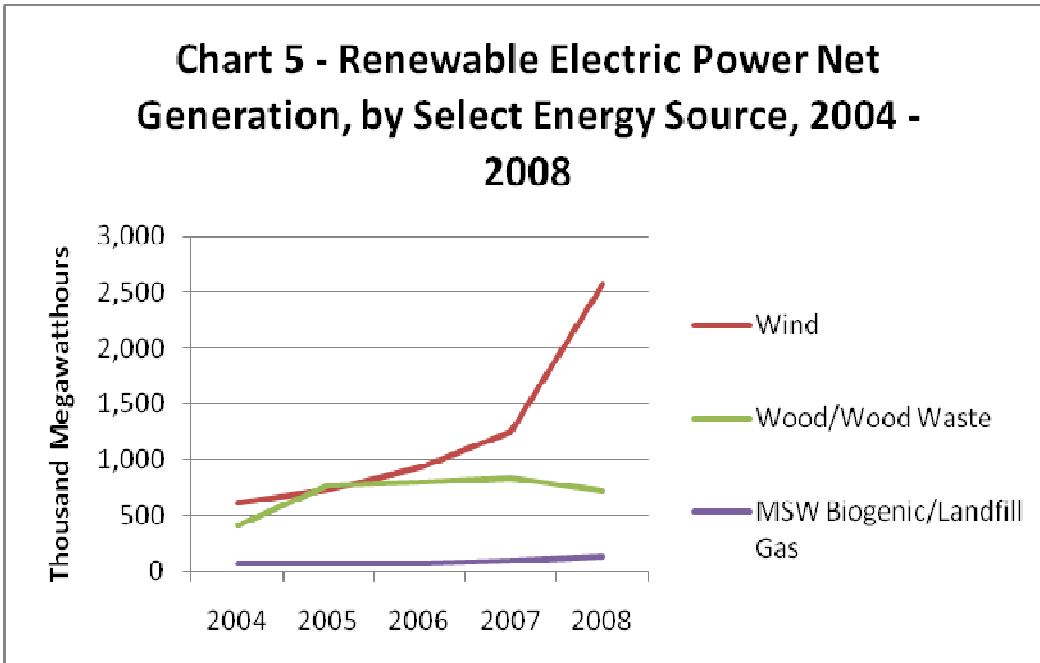
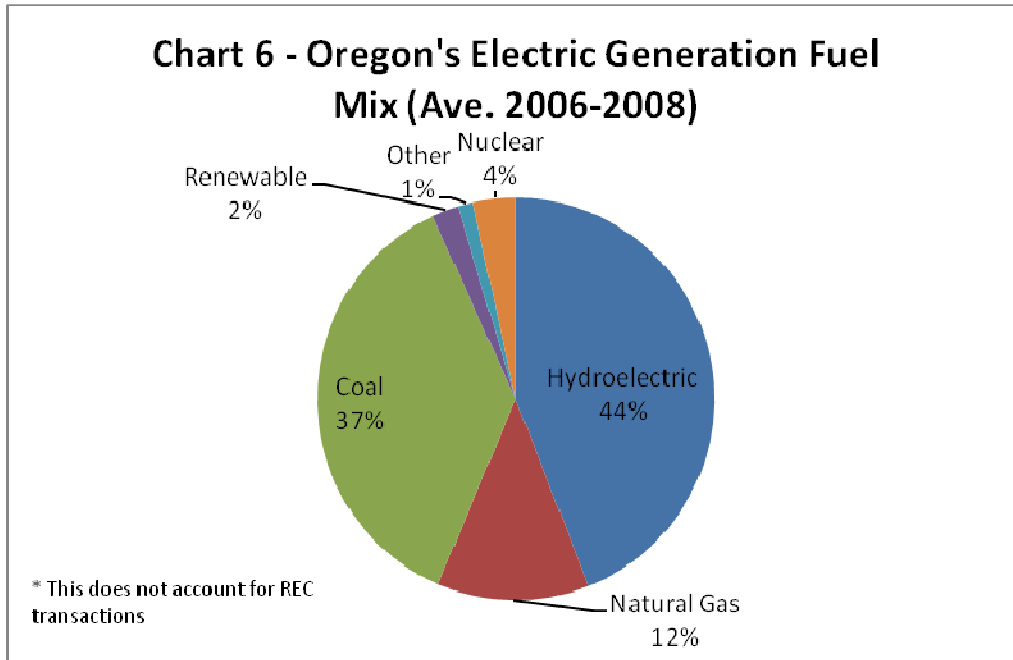


Chart 5 provides select energy generation by source over time.

Source: U.S. Energy Information Administration



Source: Oregon Department of Energy

Chart 6 provides a three year average of Oregon’s electric fuel sources by sales.

Oregon’s Bioenergy Incentives

The bioenergy industry in Oregon has been supported by a number of policies and incentives. The renewable portfolio standards in Oregon and elsewhere in the western interconnect have prompted development of bioenergy facilities and the renewable fuel standard has opened the petroleum dominated transportation fuel market to biofuels.

Federal tax credits, grants, stimulus dollars, and production incentives complement the state’s bioenergy incentives and mandates. While federal policies are in flux and policy decisions in the near future will affect development, these incentives and policies remain a significant driver.

Research, technical, and business assistance programs at the state level also help develop the industry. Continued government support for these services can fill a gap in private sector services and lower the barriers to entry that exist for this market.

Oregon incentives have assisted in project development. Following is a summary of key incentive programs:

Business Energy Tax Credit

The Business Energy Tax Credit provides credits to eligible bioenergy facilities. Eligible facilities include combined heat and power facilities, biomass energy facilities, biofuel producers, and biomass infrastructure investments.

Since 2004, the state has issued over \$113 million in business energy tax credits for biofuel and bioenergy projects. The state continues to provide support for bioenergy project development in Oregon. There are currently over \$150 million in eligible costs that have been pre-certified for a tax credit, but have not yet been issued a final certificate.

Biomass Producer or Collector Tax Credit

Biomass that is used as fuel or turned into fuel may be eligible for a tax credit. Credits are issued to eligible producers or collectors on a per unit basis. To date the majority of tax credits have been claimed for woody biomass delivered to existing bioenergy facilities. This tax credit is transferable and has helped to achieve biomass collection that may not be conducted without the incentive. This is especially true for forest slash that otherwise may have been open burned or left in the woods. The department is currently working with the Oregon Department of Revenue to analyze the utilization of this program

Biofuel Consumer Tax Credit

Oregon residents that use biofuel blends (B99 or E85) or purchase certain solid biofuels are eligible to claim a tax credit. The tax credit is limited to \$200 per year, is not transferable, and cannot be carried forward to future years.

American Recovery and Reinvestment Act / State Energy Program

Oregon has chosen to direct a significant portion of our federal stimulus dollars allocation for bioenergy projects. Many of these projects involve upgrading old heating equipment at schools, hospitals, and other public facilities, to biomass heating equipment. In addition, Oregon recently selected several larger-scale bioenergy facilities to receive federal stimulus dollars, including anaerobic digester projects and woody biomass cogeneration projects.

Status of the Industry

The condition and outlook for Oregon's bioenergy industry is mixed at the time of this report. The industry has grown significantly over the past few years, but the economic recession, fuel and electricity price volatility, uncertainty of certain federal incentives, and other factors such as mild winters, have created a difficult climate for many bioenergy companies.

There are a number of facilities currently under construction in the state and others that are planning to break ground before the end of the year. It will take a few years for the results of the state's investment in bioenergy to be fully realized. The State's policies and incentives have been instrumental in bringing new bioenergy firms to the state.

Future Analysis

There are many efforts involving various state agencies and stakeholders to collect data that may be used in future reports. These efforts vary from developing studies and strategies for growing green jobs in the state, reviewing best practices for bioenergy projects, and understanding the impact of biomass production and collection.

The department will use these efforts to build upon the foundation of this report. Subsequent reports will include detailed analysis of projects, job creation, biomass availability and supply chains, and an analysis of critical policies on the state and federal level that affect the industry. Future reports will also include recommendations and opportunities to promote future bioenergy opportunities.



Tillamook Biogas Facility, Tillamook, OR

References:

- Oregon Employment Department. (2010). Oregon Covered Employment and Wages. Retrieved from <http://www.qualityinfo.org/olmisj/CEP?action=industry&indtype=N&areacode=01000000&indcode=50A110000000>
- Oregon Employment Department. (2009). *The Greening of Oregon's Workforce: Jobs, Wages, and Training*. <http://www.qualityinfo.org/pubs/green/greening.pdf>
- National Renewable Energy Lab. Advanced Vehicles and Fuels Research. (2010) <http://www.nrel.gov/vehiclesandfuels/>
- U.S. Environmental Protection Agency. (2007). *Fuel Economy Impact Analysis of RFG*. <http://www.epa.gov/OTAQ/rfgecon.htm>
- U.S. Department of Energy. (2010). *Flexible Fuel Vehicle Emissions*. http://www.afdc.energy.gov/afdc/vehicles/flexible_fuel_emissions.html
- John Baffes, Tassos Haniotis, The World Bank. (2010). Placing the 2006/08 Commodity Price Boom into Perspective. http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2010/07/21/000158349_20100721110120/Rendered/PDF/WPS5371.pdf
- The Food and Agriculture Policy Research Institute. (2009). *US Baseline Briefing Book*. http://www.fapri.missouri.edu/outreach/publications/2009/FAPRI_MU_Report_01_09.pdf
- Oregon Department of Energy. (2008). *Survey of Bioenergy Facilities*. Available from Oregon Department of Energy.
- Oregon Department of Energy. (2010). *Oregon Utilities Fuel Report*. Available from Oregon Department of Energy.
- U.S. Energy Information Administration. (2008). *Oregon Renewable Energy Profile*. Retrieved from http://www.eia.gov/cneaf/solar.renewables/page/state_profiles/oregon.html

Appendix A – Oregon Bioenergy Facility Survey

PLEASE EDIT COMPANY, CONTACT, OR PHONE NUMBER IF INCORRECT

WOODY BIOMASS ENERGY FACILITY SURVEY - CALENDAR YEAR 2007 The Oregon Department of Energy is directed (House Bill 2210) to conduct an impact study of all Oregon Biomass Energy facilities and maintain a Biomass Energy Use Inventory.				
TYPE OF ENERGY GENERATED (SELECT ONE): HEAT ___ ELECTRIC ___ BOTH (HEAT & ELECTRIC) ___				
FEEDSTOCK (COMPLETE ALL THAT APPLY)	QUANTITY & UNIT (BDT, GT, LB, ETC.)	PRIMARY FEEDSTOCK SUPPLIER		
FOREST				
▪ HOGGED FUEL				
▪ MERCHANT SLASH				
▪ STEWARDSHIP THINNING				
URBAN WOOD				
SAWMILL RESIDUE				
SPENT PULPING LIQUOR				
OTHER (TYPE)				
OTHER (TYPE)				
EQUIPMENT (COMPLETE ALL THAT APPLY)	CAPACITY (QUANTITY & UNIT)	OPERATING HRS/YR	PRODUCED ENERGY (QUANTITY & UNIT)	YEAR CONSTRUCTED
BOILER (LB/HR, PSI)				
TURBINE (LB/HR, PSI)				
GENERATOR (MW)				
OTHER (TYPE)				
OTHER (TYPE)				
EXCESS THERMAL SOLD(UNIT/HR)				
EXCESS ELECTRIC SOLD(UNIT/HR)				

PLEASE COMPLETE THE FOLLOWING QUESTIONS:

1. CONSTRUCTION OR CAPACITY EXPANSION IN 2007? YES _____ NO _____

BIOMASS IMPACT

2. AVERAGE COST OF BIOMASS PRODUCTION (PER GAL)? _____

BIOMASS EMPLOYMENT (ONLY BIOMASS BOILER PLANT AND/OR POWER GENERATION OPERATIONS)

3. NUMBER OF EMPLOYEES: _____

4. AVERAGE WAGE RATE FOR THE BIOMASS JOBS: _____

BIOMASS EMPLOYEE BENEFITS (SELECT ALL THAT APPLY)

5. HEALTH ___ RETIREMENT ___ EDUCATION ___ OTHER (WRITE -IN) _____

6. WORKFORCE BIOGAS TRAINING PROVIDED (YES (ENTER THE HOURS PER EMPLOYEE) OR NO)

YES: AVERAGE ANNUAL HOURS PER EMPLOYEE _____ (HR/YR) NO _____

7. _____ INITIAL TO DIRECT THE OREGON DEPARTMENT OF ENERGY TO KEEP THIS INFORMATION AS CONFIDENTIAL.

SURVEY QUESTIONS PLEASE CONTACT: ALEXA SARTWELL, RENEWABLE RESEARCH SPECIALIST
(503.378.4040, LONG DISTANCE 1.800.221.8035)

PLEASE REVISE COMPANY, CONTACT, OR PHONE NUMBER IF INCORRECT

 BIOGAS ENERGY FACILITY SURVEY - CALENDAR YEAR 2007 				
The Oregon Department of Energy is directed (House Bill 2210) to conduct an impact study of all Oregon Biogas Energy facilities and maintain a Biogas Energy Use Inventory.				
TYPE OF FACILITY (SELECT ONE): DAIRY _____ LANDFILL _____ WASTEWATER _____				
TYPE OF ENERGY GENERATED (SELECT ONE): HEAT _____ ELECTRIC _____ BOTH (HEAT & ELECTRIC) _____				
ANNUAL CAPACITY (COMPLETE ONE)				
NUMBER OF CATTLE _____ LANDFILL DEPOSIT(TONS) _____ WASTEWATER (GAL) _____				
EQUIPMENT (COMPLETE ALL THAT APPLY)	CAPACITY (QUANTITY & UNIT)	2007 OPERATING HRS/YR	PRODUCED ENERGY (QUANTITY & UNIT)	YEAR CONSTRUCTED
DIGESTER (LB/HR, PSI)				
GENERATOR (MW)				
OTHER (TYPE)				
OTHER (TYPE)				
EXCESS METHANE GAS SOLD(UNIT/HR)				
EXCESS ELECTRIC SOLD(UNIT/HR)				

PLEASE COMPLETE THE FOLLOWING QUESTIONS:

1. CONSTRUCTION OR CAPACITY EXPANSION IN 2007? YES _____ NO _____

BIOGAS IMPACT

2. AVERAGE COST OF BIOGAS PRODUCTION (PER GAL/YR)? _____

BIOGAS RELATED EMPLOYMENT (ONLY)

3. NUMBER OF EMPLOYEES: _____

4. AVERAGE WAGE RATE FOR THE *BIOGAS* JOBS: _____

BIOGAS EMPLOYEE BENEFITS (SELECT ALL THAT APPLY)

5. HEALTH _____ RETIREMENT _____ EDUCATION _____ OTHER (WRITE -IN) _____

6. WORKFORCE *BIOGAS* TRAINING PROVIDED (**YES** (ENTER THE HOURS PER EMPLOYEE) OR **NO**)

YES: AVERAGE ANNUAL HOURS PER EMPLOYEE _____ (HR/YR), **NO** _____

7. _____ **INITIAL TO DIRECT THE OREGON DEPARTMENT OF ENERGY TO KEEP THIS INFORMATION AS CONFIDENTIAL.**

SURVEY QUESTIONS PLEASE CONTACT: ALEXA SARTWELL, RENEWABLE RESEARCH SPECIALIST (503.378.4040, LONG DISTANCE 1.800.221.8035)

PLEASE REVISE COMPANY, CONTACT PERSON, PHONE NUMBER IF INCORRECT

BIOFUEL ENERGY FACILITY SURVEY - CALENDAR YEAR 2007 The Oregon Department of Energy is directed (House Bill 2210) to conduct an impact study of all Oregon Biofuel facilities and maintain a Biofuel Use Inventory.			
TYPE OF ENERGY GENERATED (SELECT ONE): BIODIESEL ___ ETHANOL ___ CELLULOSIC ETHANOL ___ FACILITY PRODUCTION CAPACITY: _____ DATE OPERATIONAL: _____			
FEEDSTOCK (COMPLETE ALL THAT APPLY)	STATE OR COUNTRY OF ORIGIN	PRIMARY FEEDSTOCK SUPPLIER	QUANTITY & UNIT
BIOWASTE OIL			
ANIMAL TALLOW			
GRAINS			
CORN			
SOY			
CANOLA			
CORN STOVER			
SWITCH GRASS			
WOOD CHIPS			
WHEAT STRAW			
GRASS			
OTHER (TYPE):			
<u>TOTAL BIOFUEL PRODUCTION</u> (QUANTITY & UNIT)	<u>TOTAL SOLD IN OREGON</u> (QUANTITY & UNIT)	<u>TOTAL EXPORTED</u> (QUANTITY & UNIT)	

PLEASE COMPLETE THE FOLLOWING QUESTIONS:

1. CONSTRUCTION OR CAPACITY EXPANSION IN 2007? YES _____ NO _____

BIOFUEL IMPACT

2. AVERAGE COST OF BIOFUEL PRODUCTION (PER GAL)? _____

BIOFUEL RELATED EMPLOYMENT (ONLY)

3. NUMBER OF EMPLOYEES: _____

4. AVERAGE WAGE RATE FOR BIOFUEL JOBS: _____

BIOFUEL EMPLOYEE BENEFITS (SELECT ALL THAT APPLY)

5. HEALTH ___ RETIREMENT ___ EDUCATION ___ OTHER (WRITE -IN) _____

6. WORKFORCE BIOFUEL TRAINING PROVIDED (**YES** (ENTER THE HOURS PER EMPLOYEE) OR **NO**)

▪ **YES:** AVERAGE ANNUAL HOURS PER EMPLOYEE _____ (HR/YR), **NO** _____

7. _____ **INITIAL TO DIRECT THE OREGON DEPARTMENT OF ENERGY TO KEEP THIS INFORMATION AS CONFIDENTIAL.**

SURVEY QUESTIONS PLEASE CONTACT: ALEXA SARTWELL, RENEWABLE RESEARCH SPECIALIST
(503.378.4040, LONG DISTANCE 1.800.221.8035)

Appendix B – Oregon Department of Agriculture Biofuel Report

ETHANOL PRODUCTION AND SALES REPORT

Quarter _____ Year _____

Quarterly ethanol production:

Gallons produced in Month 1 _____

Gallons produced in Month 2 _____

Gallons produced in Month 3 _____

Total gallons of ethanol produced = _____

Quarterly ethanol sales:

Gallons sold in Month 1 _____

Gallons sold in Month 2 _____

Gallons sold in Month 3 _____

Total gallons of ethanol sales in Oregon _____

Please email completed forms to spage@oda.state.or.us or mail forms to:

Stephanie Page, Renewable Energy Specialist
Oregon Department of Agriculture
635 Capitol St NE
Salem, OR 97301-2532