



Forest Biomass Initiative

Context

The Department of Natural Resources' forest biomass initiative is occurring against a backdrop of existing state and federal policy direction:

- The Federal Energy Independence and Security Act of 2007 emphasizes biomass as a fuel feedstock.
- Some state energy policy statements emphasize grid-based power with a limited role for biomass.
- Reducing greenhouse gas emissions and increasing energy security for Washington State means focusing on transportation.
- Adoption and revision of state and federal renewable fuel and portfolio standards will affect the market for Washington's biomass energy products.
- Other federal, state, and local policy drivers will influence the markets for biomass from Washington's forest lands. These include policy related to rural economic development, forest management, climate change, and revenue production from state trust lands.

DNR's Biomass Initiative

In 2009 the Washington State Legislature passed HB 2165, authorizing the Washington State Department of Natural Resources (DNR) to implement forest biomass-to-energy pilot projects.

Washington's forests have an abundant, renewable supply of woody biomass. Using some of this material for liquid transportation fuel, heating, and electrical power generation will play an important role in Washington's emerging green economy and help to address climate change. Removing biomass from forests in ecologically sustainable ways can provide income for forest landowners while improving forest health, creating jobs in rural parts of the state, and reducing wildfire risk and greenhouse gas emissions.

Developing a forest biomass project involves numerous challenges. Some relate to supply availability, consistency and sustainability; others, product market development and incentives; others, technological challenges or capital availability; and still others, conforming elements of public policy. Yet, few organizations exist that can convene independent biomass partners and provide a one-stop venue for assistance with resolving the challenges of project development.

The goal of the biomass initiative is to fill a void in convening people to forge public-private partnerships among forest biomass suppliers, biomass purchasers, energy producers, communities and state agencies to utilize biomass materials for renewable energy generation.

Implementation

In summer 2009, the DNR issued an invitation to submit letters of interest for those wanting to partner in the implementation of biomass pilot projects. Over 30 letters of interest were submitted. These have been evaluated by an advisory committee comprised of diverse expertise in the technology, research, conservation, forest industry and biomass energy fields.

Project activities proposed by potential partners included:

- Co-producing electricity, bio-oil, and "syngas" at one integrated facility using pyrolysis technology.
- Heating systems for public facilities including schools.
- Mobile production of bio-oil and bio-char using "fast pyrolysis" technology.
- Pellet or "bio-brick" production for heating applications.

- Combined heat and power systems for existing forest products manufacturing facilities.
- Production of electricity for sale to utilities with renewable energy requirements.
- Demonstration of in-forest biomass handling systems to increase access or decrease transportation costs.

Pilot Selection

In January 2010, four projects were selected to move forward in the first phase of biomass-to-energy projects in the state. The Department of Natural Resources supports innovative and emerging biomass harvesting and processing technologies that can contribute to the bio-fuel industry. Additionally, the Department sees biomass as playing a key supporting role to other energy needs in the state: grid-power and on-site residential and industrial heating. The following are brief descriptions of the biomass projects that have been selected:

- **Parametrix.** *Region:* South Central.
Parametrix plans to develop a transportable system that uses fast pyrolysis technology to rapidly convert forest biomass to liquid fuels and bio-char. The project seeks to demonstrate the commercial viability of this conversion technology and its products. It is estimated that the demonstration project, located at SDS Lumber, in Bingen, Washington, will be completed in 18-24 months, with the commercial facility operating in an additional 12-18 months. Partners include Renewable Oil International (ROI), Organix, Inc., and SDS Lumber.
- **Borgford Bioenergy, LLC.** *Region:* Northeast.
The Kulzer BioEnergy Park in Stevens County will be a state of the art energy production facility with its main outputs being electricity (9.4 MW), bio-oil (2,000 gal/day), syngas (14,000 lbs./day), and bio-char. By-products of heat and steam will be captured for use in the facility. The long term goal is to establish 10 facilities of this kind in the Northwest to speed up forest fuel reduction efforts.
- **Atlas Pellets.** *Region:* North Central.
In Phase 1, Atlas Pellets proposes to purchase, install, and operate off-the-shelf debarkers, grinders and chippers to produce pellets from forest biomass. This equipment will help Atlas Pellets to greatly expand the resource base (sawdust from lumber mills) on which it is presently operating its Omak pellet mill. An expanded mill will be a major link in a local woody biomass to energy development change that will include local, public, and private forest owners, a local custom forest restoration and harvest operation, Atlas Pellets, and local consumers.
- **Nippon Paper.** *Region:* North Olympic Peninsula.
Nippon will replace an existing biomass boiler at its paper mill in Port Angeles, Washington. The replacement boiler will have increased capacity, operating temperature, and operating pressure to supply a turbine-generator unit. The 6.0 MW output of excess power will be sold to a utility with renewable energy requirements. The project is expected to help preserve hundreds of Clallam County jobs that depend on the long term financial viability of NPI Port Angeles Mill.

Next Steps

Throughout the course of the review process, it became evident that in order to sustainably contribute to Washington's emerging biomass-to-energy industry, several issues would need to be addressed. First, legal issues related to contracting authority of the agency need to be resolved. Second, it's widely recognized that a comprehensive evaluation of biomass supply and accessibility is necessary.

- *2010 Request Legislation.* The agency is seeking to amend the valuable materials statute (RCW 79.15) so that instead of having to auction each timber sales' woody biomass waste, or forest health treatment, on a sale-by-sale basis, DNR will be authorized to provide contracts (5-year, with up to 3 renewals) or leases for long-term biomass supply. (SB 6236; HB 2481).
- *Biomass Supply and Accessibility Study.* The Department is committed to integrating sustainability into all of our activities. This requires that we account for the ways in which our activities affect Washington's people, environment, and economy (i.e. triple bottom line accounting). A state-wide investment-grade supply and accessibility study would be useful to ensure that biomass-to-energy projects are moving forward sustainably. We are currently pursuing funding to initiate this process and hope to have a final report by 2011.
- The 2009 legislation requires a report to the legislature in December 2010 on the progress and any results of our pilot projects.