

Forest Biomass Calculator



WASHINGTON STATE DEPARTMENT OF
Natural Resources
Peter Goldmark - Commissioner of Public Lands



Photo: by Rachael Jamison/DNR

The “Washington Forest Biomass Assessment” was completed in March 2012 by the University of Washington with TSS Consultants. The study examines the sustainable volume of residual forest biomass that can be collected from Washington’s working forests. It is the first of its kind in the nation and will help ensure that Washington’s forest biomass-to-energy sector moves forward sustainably and at a supply appropriate scale.

Because the supply study is a ‘snapshot’ in time, the study team was asked to develop a tool that could, based on the modeling done in the study, predict biomass availability over time, at specific locations across the state and at certain haul distances and price points. The calculator is intended to serve as a tool for those interested in siting biomass facilities in Washington State: a first step in determining the appropriate scale and location for a proposed facility.

The calculator can be found on-line:

<http://wabiomass.cfr.washington.edu/>

Who should use the calculator?

The calculator is available to the public. The tool was designed to help businesses interested in siting a residual forest biomass facility in Washington State ensure that there is sufficient and sustainable supply of feedstock to support their plans. A sustainable biomass facility will be scaled appropriately to the supply available in a facility’s supply region and will be located in an area that does not negatively impact other users of the material. The Biomass Calculator will provide information to help ensure appropriate scale and location.

What does the calculator show?

The Washington State Biomass Calculator was designed to allow users to access the same data and analytical tools that supported the Washington State Biomass Supply Assessment. A User’s Manual was developed to provide the necessary explanation and instruction to ensure the most effective use of the tool. It can be found here:

http://www.dnr.wa.gov/Publications/em_biomass_calculator_users_manual_1_0_1.pdf

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The Biomass Calculator reports three biomass numbers: scattered biomass, roadside biomass, and market biomass:

Scattered Biomass

Scattered biomass is residual harvested biomass: the volume that is left scattered in the woods as a by-product of having been broken off or tops and limbs cut when commercial logs were yarded to the landing. Scattered biomass does not include pre-existing biomass (woody materials and shrubs that are on the site prior to timber harvest and that will remain on the site after the timber harvest and biomass collection are complete).

Roadside Biomass

Roadside biomass is residual potential market biomass + residual market biomass; the portion that is not loaded due to operability constraints (equipment cannot be brought in), other factors such as landowner preferences (the landowner does not want to sell their biomass), it's too dirty, or it's left since it wouldn't be enough to fill a truck.

Market Biomass

Market biomass is biomass the volume that is available to be brought to market.

The tool also reports residual value: the value of the market biomass at the given price, after all costs of getting the biomass to a facility have been taken into account. This can be considered the landowner profit for selling biomass. It is often economically viable to send biomass to multiple facilities, so biomass is always routed to the facility that maximizes residual value.

Using the Calculator

User-defined inputs are entered on a series of tabs. Tabs are ordered sequentially from left to right. The user may move forward or backward to change inputs by clicking on the *Next* and *Back* buttons. Each time the user moves from one tab to the next, options that are no longer feasible, are eliminated. Results are calculated when the users click on the *Run* button on the *Results* tab.

The user will input the following factors into the calculator to inform the final result:

Harvest Model

The user can choose from Conservative, Moderate, Aggressive and Forest Health Treatment harvest scenarios over the course of different 10-year timeframes.



Geography

The user can define the geographic region of inquiry by selecting among entire state, county, SVA, timbershed, watershed, or facility.

Facilities

The user can define the facilities (existing, proposed, hypothetical) in the geographic region selected on a previous tab. This will allow volumes available for each facility.

Costs and Prices

The user can select for the cost of the biomass to bring to the facility and the price received at the gate.

Trucking Restrictions

The user can choose to apply a "Trucking Restriction," indicating the maximum haul time, to the query if it is known that will be an inhibiting factor.

Run

Finally, the user is asked to "Run" the query. This provides the volume and value of the market forest biomass available given the parameters selected.

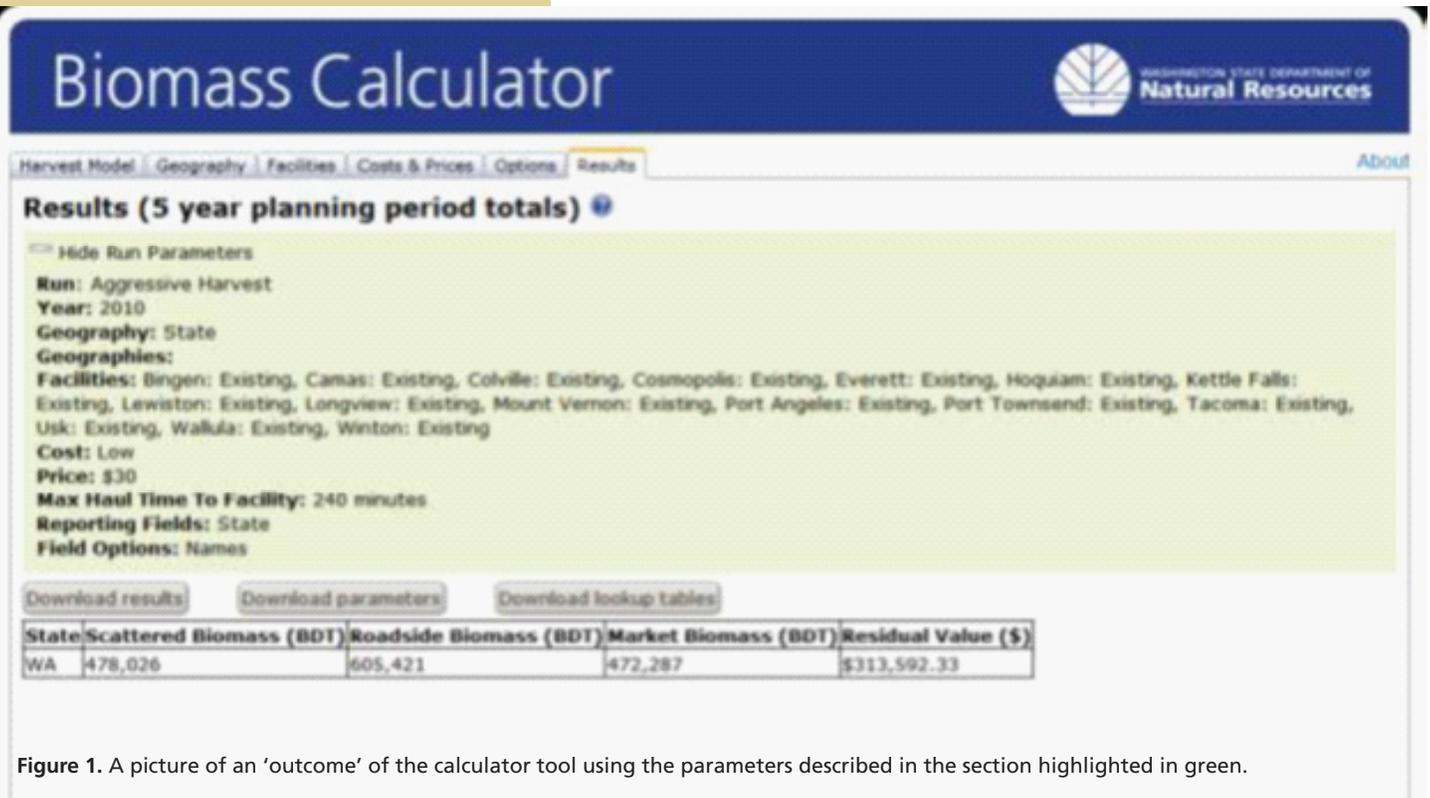


Figure 1. A picture of an 'outcome' of the calculator tool using the parameters described in the section highlighted in green.