

IGERT Project 2009

Biomass sourcing for a wood fired cogeneration plant in the Yakama Nation

Lead Instructor

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Project Background

The Yakama Nation is a “timber tribe” that is strongly linked to their forest resources, both as stewards of the land and for economic gain. The Yakama own a sawmill in White Swan, WA that currently uses a inefficient fuel oil boiler to heat their kilns.

Yakama Forest products along with Yakama Power are interested in learning about the economic and environmental consequences of building a cogeneration (combined heat and electricity) plant adjacent to the sawmill.

Project Statement

The IGERT Team will assess all the available biomass sources surrounding the proposed cogeneration plant, concentrating on agricultural, urban, and forest sources. The team will perform a geospatial assessment of transportation cost and biomass supply, and biomass cost, and integrate the assessment to produce supply curves. In addition, the team will perform a thermochemical analysis of the different feedstocks, integrating literature values and measurements from local sources.

Project Schedule Outline and Preliminary Work-Flow

Winter 2009: Development of Transportation Network and Initial Cost and Supply Estimates; Thermochemical Measurements and Research

IGERT Cohort 1 split into two teams, one concentrating on developing the geospatial assessment of feedstocks, and the other concentrating on the thermochemical analysis. The quarter was devoted to data gathering, quality assessment, and thermogravimetric analysis and bomb calorimetry.

Spring 2009: Integration of Geospatial Assessment and Supply Curve Creation, Integration of Thermochemical Analyses

The geospatial assessment team focused on integrating the data sources of feedstock quantities and costs into the transportation model with supply curves for all sources as the final product. The thermochemical analysis team finished measurements and integrate the results into a final tool.

Map of the Yakama Nation

