

Modeling the Biomass Supply Chain

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The NARA biomass-to-biojet project anticipates that the largest fraction of biomass supply for processing will come from timber harvest residues. Thus, to understand the potential for this and other biofuels opportunities, both today and in the future, we need a means of projecting timber harvests across a “biomass-shed” and estimating the costs of concentrating and transporting the associated residual biomass to processing facilities. We have adapted a spatial model of the markets for saw and veneer logs in western Oregon and Washington for this purpose. Given information about the location of biomass processing facilities and scenarios about future conditions in the wood products industry, the model estimates: (i) the location and volumes of timber harvest and residual biomass generation over time, (ii) the flows of logs from woods to mills and of biomass to processing locations, and (iii) the costs of supplying various levels of biomass to processing facilities, i.e., biomass supply curves. We illustrate our approach and results for potential biomass processing locations in both Washington and Oregon. As other parts of the NARA project related to the supply chain complete their research, we will incorporate their findings on costs, yields and biomass quality requirements into the model as a means of integrating the biomass supply portion of the project and to provide a decision tool for investment and management analysis.