

Emerging Technologies and Emerging Opportunities for Sustainable Management of Western Forests

Michael Andreu, Kristiina Vogt, Kevin Hodgson, Ragnhildur Sigurdardottir, Dan Vogt, Dave Edlund, Claude Duss

The sustainable management of western forests is becoming increasingly difficult in the face of intense summer forest fires, large insect outbreaks, and limited silvicultural options due to the loss of markets for lower quality, small diameter wood. The ability to utilize lower quality, small diameter wood has diminished over the past two decades as a direct result of the closure of pulp and saw mills throughout the region. Frequently, blame is laid for these closures on the increased regulatory environment associated with wildlife habitat protection policies, and the subsequent loss of a steady supply of raw material. Other researchers claim that the phenomenon of western mill closure is a function of a glut of raw material available both domestically and abroad. Our research has changed the focus from finding a *cause* for this shift in demand for western wood products to finding *alternative uses* for these resources. We are looking at integrating small scale, mobile, wood biomass chemical conversion to liquid fuel systems with emerging technologies in the renewable-energy sector (Hydrogen fuel cells). The economic feasibility has traditionally not favored such chemical conversion systems, but policy shifts associated with green credit markets and other incentive based programs can shift the market dynamics in favor of such a system. Such a system would potentially provide a needed economic boost to rural economies once dependent on timber revenues by providing jobs in the logging sector, as well as in the production of wood-based methanol. Such a system would likely not be subject to the market fluctuations associated with excess raw material on the market, because the harvested wood would be coming from silvicultural operations normally considered pre-commercial. The added value is both in the production of energy from a negatively valued product as well as a silvicultural option that promotes a fire safe and vigorous forest, leading to sustainable forest management.