

Insights: Publications

Life Cycle Assessment of Gasoline and Diesel Produced via Fast Pyrolysis and Hydroprocessing

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Pyrolysis of biomass followed by hydroprocessing may provide infrastructure-compatible transportation fuels. In this work, a life cycle assessment (LCA) of the production of gasoline and diesel from forest residues via fast pyrolysis and hydroprocessing, from production of the feedstock to end use of the fuel in a vehicle, is performed. The fast pyrolysis and subsequent hydrotreating and hydrocracking processes are based on a Pacific Northwest National Laboratory design report. Stages other than biofuels conversion, including forest residue production and harvesting, preprocessing, feedstock transportation, fuel distribution, and vehicle operation, are based on previous work. Probability distribution functions are assumed for parameters involved in the pyrolysis process for Monte Carlo uncertainty analysis.