The production of renewable motor fuels from lignocellulosic biomass is a key part of the U.S. strategy to ease dependence on imported oil and reduce greenhouse gas emissions. For this strategy to be environmentally and economically sound, biomass resource and conversion technology developments must be coordinated so that cost-competitive biofuels can be produced using sustainable, low-cost, and diverse feedstocks. This presentation summarizes a case study of an integrated process to produce petroleum refinery blendstocks via fast pyrolysis and catalytic hydrotreatment using several commercially-relevant feedstocks, including softwoods, hardwoods, herbaceous materials, and blends. The results presented here show that feedstock choice has a significant impact on multiple conversion metrics, including bio-oil yield and composition, hydrotreating yield, H₂ consumption during hydrodeoxygenation, selectivity to fuel products, and biomass carbon-to-fuel efficiency.

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