



Techno-Economic Analysis of Biomass Fast Pyrolysis to Transportation Fuels

By -

BiblioGov. Paperback. Condition: New. This item is printed on demand. 76 pages. Dimensions: 9.7in. x 7.4in. x 0.2in. This study develops techno-economic models for assessment of the conversion of biomass to valuable fuel products via fast pyrolysis and bio-oil upgrading. The upgrading process produces a mixture of naphtha-range (gasoline blend stock) and diesel-range (diesel blend stock) products. This study analyzes the economics of two scenarios: onsite hydrogen production by reforming bio-oil, and hydrogen purchase from an outside source. The study results for an nth plant indicate that petroleum fractions in the naphtha distillation range and in the diesel distillation range are produced from corn stover at a product value of 3.09gal (0.82liter) with onsite hydrogen production or 2.11gal (0.56liter) with hydrogen purchase. These values correspond to a 0.83gal (0.21liter) cost to produce the bio-oil. Based on these nth plant numbers, product value for a pioneer hydrogen-producing plant is about 6.55gal (1.73liter) and for a pioneer hydrogen-purchasing plant is about 3.41gal (0.92liter). Sensitivity analysis identifies fuel yield as a key variable for the hydrogen-production scenario. Biomass cost is important for both scenarios. Changing feedstock cost from 50-100 per short ton changes the...

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