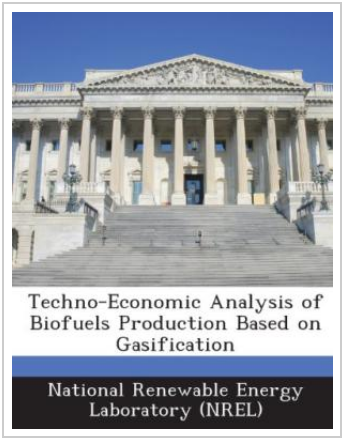

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Techno-Economic Analysis of Biofuels Production Based on Gasification

By National Renewable Energy Laboratory (NREL)

Bibliogov, United States, 2012. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****.This study compares capital and production costs of two biomass-to-liquid production plants based on gasification. The first biorefinery scenario is an oxygen-fed, low-temperature (870?C), non-slagging, fluidized bed gasifier. The second scenario is an oxygen-fed, high-temperature (1,300?C), slagging, entrained flow gasifier. Both are followed by catalytic Fischer-Tropsch synthesis and hydroprocessing to naphtha-range (gasoline blend stock) and distillate-range (diesel blend stock) liquid fractions. Process modeling software (Aspen Plus) is utilized to organize the mass and energy streams and cost estimation software is used to generate equipment costs. Economic analysis is performed to estimate the capital investment and operating costs. Results show that the total capital investment required for nth plant scenarios is $610 million and $500 million for high-temperature and low-temperature scenarios, respectively. Product value (PV) for the high-temperature and low-temperature scenarios is estimated to be $4.30 and $4.80 per gallon of gasoline equivalent (GGE), respectively, based on a feedstock cost of $75 per dry short ton. Sensitivity analysis is also performed on process and economic parameters. This analysis shows that total capital investment and feedstock cost are among the...

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