

## Accepted Manuscript

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PII: S0960-8524(16)31691-1  
DOI: <http://dx.doi.org/10.1016/j.biortech.2016.12.032>  
Reference: BITE 17408

To appear in: *Bioresource Technology*

Received Date: 26 October 2016  
Revised Date: 7 December 2016  
Accepted Date: 8 December 2016

Please cite this article as: Bann, S.J., Malina, R., Staples, M.D., Suresh, P., Pearlson, M., Tyner, W.E., Hileman, J.I., Barrett, S., The costs of production of alternative jet fuel: a harmonized stochastic assessment, *Bioresource Technology* (2016), doi: <http://dx.doi.org/10.1016/j.biortech.2016.12.032>

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**The costs of production of alternative jet fuel: a harmonized stochastic assessment**

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**Abstract:** This study quantifies and compares the costs of production for six alternative jet fuel pathways using consistent financial and technical assumptions. Uncertainty was propagated through the analysis using Monte Carlo simulations. The six processes assessed were HEFA, advanced fermentation, Fischer-Tropsch, aqueous phase processing, hydrothermal liquefaction, and fast pyrolysis. The results indicate that none of the six processes would be profitable in the absence of government incentives, with HEFA using yellow grease, HEFA using tallow, and FT revealing the lowest mean jet fuel prices at \$0.91/liter (\$0.66/liter-\$1.24/liter), \$1.06/liter (\$0.79/liter-\$1.42/liter), and \$1.15/liter (\$0.95/liter-\$1.39/liter), respectively. This study also quantifies plant performance in the United States with a Renewable Fuel Standard policy analysis. Results indicate that some pathways could achieve positive NPV with relatively high likelihood under existing policy supports, with HEFA and FPH revealing the highest probability of positive NPV at 94.9% and 99.7%, respectively, in the best-case scenario.

**Keywords:** Alternative jet fuel; techno-economic analysis; Monte-Carlo simulation; United States alternative fuel policy; Renewable Fuel Standard

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