Techno-economic Analysis:
“Biorenewable Technologies for Production of Transportation Fuels”

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Abstract:
This past decade has seen a dramatic increase in the production of biomass-based transportation fuels (biofuels). First generation biorefineries converted simple sugars to ethanol, which could be marketed as a 10% gasoline blend (E10) or 85% blend (E85). Second generation biorefineries employ a variety of feedstock to produce liquid fuels suitable for a large number of applications. This presentation will discuss techno-economic comparison of various biofuel production pathways. The first part of this presentation will compare previous studies of biofuel technologies using common assumptions for feedstock cost, biorefinery capacity, and biofuel energy content. The second portion will discuss two approaches for reducing the production cost of biofuels: determining an optimal plant size, and establishing a distributed processing scenario. Finally, we discuss a techno-economic analysis of the fast pyrolysis and upgrading pathway for production of biofuels. This analysis was part of a collaborative project comparing the biochemical, gasification, and pyrolysis platforms using a common basis for biorefinery capacity, feedstock composition and cost, and profitability analysis. Results suggest that biofuels via fast pyrolysis and upgrading could be produced at a competitive price compared to other renewable transportation fuel alternatives.