

Project Title

Production of Renewable Diesel, Sustainable Aviation Fuel, Gasoline, and Marine Fuel from Lignocellulosic Biomass at Dramatically Improved Yield, Efficiency, and Cost.

Project Summary

The applicant, Comstock Inc. (“Comstock”), has a proven biorefining process that exploits the divergent natural attributes of discrete lignocellulosic biomass components to form a mixture of water soluble, water insoluble hydrophilic, and hydrophobic derivatives, from which Comstock fractionates and produces two biointermediates. Each biointermediate is isolated and free of the inhibitory and other contaminants that have frustrated prior attempts at broadly commercializing cellulosic fuels technologies.

Comstock proposes to build a pre-pilot scale system to demonstrate a unique new pathway to convert its biointermediates from forestry residues and other forms of lignocellulosic biomass into renewable diesel, sustainable aviation fuel, gasoline, and marine fuel at dramatically improved yield, efficiency, and cost. Comstock’s proposed pre-pilot scale system will validate best-in-class renewable fuel yields exceeding 80 gallons per dry ton (on a gasoline gallon equivalent basis), carbon efficiencies exceeding 40%, and a minimum fuel selling price of less than \$2.65 per GGE, with lifecycle emissions reductions exceeding 80% over petroleum.

Comstock has assembled a remarkable team of collaborators to support project execution. Each offers unique expertise that has not yet been leveraged in combination, including Haldor Topsoe Holding A/S (a global leader in catalyst manufacturing), Marathon Petroleum Company LP (operator of America’s largest refining system), Novozymes A/S (a global leader in sustainable biological solutions), Xylome Corporation (bioconversion), RenFuel K2B AB (catalysis), Emerging Fuels Technology Inc. (hydrotreating), University of Nevada Reno (operations), University of Minnesota Duluth, Natural Resources Research Institute (feedstock), and State University of New York College, Environmental Science and Forestry (feedstock).

By providing the proposed validation, Comstock and its team will enable an extremely valuable new “soil to oil” ecosystem based on a massive, widely available, highly scalable, and rapidly replenishable new sustainable feedstock source that is capable of squarely addressing the goals and objectives of the FOA by neutralizing more than 40% of U.S. mobility emissions – including for the difficult to decarbonize long haul trucking and aviation sectors, while creating high-quality jobs, invigorating America’s rural communities, and making a material contribution to achieving the Biden Administration’s objective of delivering net-zero emissions by 2050.

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