

Control Number: 2638-1532

Applicant: Marquis, Inc.

PI: Dr. Jennifer Aurandt-Pilgrim

Title: CARBON REFINING: CORN ETHANOL 2.0

Partners: LanzaTech, Inc.

Objectives

Marquis will host, commission, and operate a LanzaTech skid-mounted gas fermentation pilot plant at our Hennepin, IL biorefinery, sourcing CO₂ from our operations and low CI H₂ to produce low CI ethanol at >70% GHG emissions relative to petroleum-based alternatives. This collaboration can lower the CI and increase ethanol yield by 50% without additional land and/or fertilizers of 1G ethanol biorefineries.

The engineering data, operating experience, and product samples produced in this project are needed to reduce the technical risk of integrating gas fermentation into an operational biorefinery. The output will attract investment that will accelerate next scale implementation.

Marquis sees carbon capture and transformation (CCT) as the future of the U.S. corn ethanol industry and with new incentives in the Inflation Reduction Act, we are ready to move toward deployment. For Marquis, ethanol is a building block molecule. The ethanol made from our fermentation CO₂ will be used for chemical products, which are projected to become the leading oil and gas demand driver in the coming decades. Improving the overall CI of our biorefinery will allow us to use the 1G ethanol in sustainable aviation fuel (SAF) – outside this project we have a memorandum of understanding to build a LanzaJet SAF facility.