LEC PARTNERS

Case Study

Client
International Manufacturer

Project Number
21026

Team Members
Terry Mazanec, Glenn Farris, John Forcier, Stefan Unnasch, and Madhu Anand

Evaluation of De-carbonizing LNG Value Chain

Summary of Client and Challenge They Faced

An international manufacturer and chemical producer sought to evaluate the economics of de-carbonizing their liquid natural gas (LNG) value chain by replacing fossil natural gas with renewable natural gas (RNG). To develop a complete picture of the RNG market, they needed an understanding of the economics of RNG projects from various biomass sources via anaerobic digestion (AD). This required characterizing typical AD feedstocks, suitable technologies to produce biogas, and the development of an economic model for RNG production.

Our Approach to the Solution

Led by an expert with decades of experience in anaerobic digestion, the LEC Partners (LEC) team assessed the availability of various feedstocks in the region of interest with particular attention to their suitability for RNG production via AD. Our team then developed a hands-on economic model of the conversion of these feeds to biogas and the purification of RNG. The model allowed the manufacturer to evaluate the impact of different feeds, locations, regulatory scenarios, and incentives on the overall investment and payback. Savings in greenhouse gas production were also included as part of the model.

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Client Results and Benefits

The LEC review of feed availability alerted the manufacturer to the feeds that provide the best payback and are available in useful quantities in the most favorable locations. The economic model provided by LEC continues to be used by the manufacturer to assess AD facilities across the U.S. using any type of feed mixture to produce RNG. With the economic model, they can more readily compare investment in RNG facilities with other business opportunities. The model also gives the manufacturer an estimate of the result of RNG investments on their carbon footprint, allowing the company to include economic and environmental impact as part of their decision-making process.