



Case Study

Client

Technology Developer

Project Number

22113

Team Member

Tad Dritz, P.E.

Validation of Direct Air Capture Process

Summary of Client and Challenge They Faced

An early-stage direct air capture (DAC) technology developer sought to validate and benchmark the economics of their solution. Removing carbon dioxide from the atmosphere is vital for stabilizing the climate; however, only the most cost-effective solutions will attract investors and reach scale. For this reason, the company sought outside help to validate their technology and business model before their next fundraising round.

Our Approach to the Solution

LEC Partners (LEC) experts worked with senior executives at the company to develop and refine a comprehensive techno-economic analysis (TEA) that clearly expressed the value of their DAC technology.

Our team started by analyzing the technical basis for the company's DAC technology, examining articles, pilot and simulation results, and engineering drawings/documents. Based on this technical analysis, the existing economic model was thoroughly reviewed, including supporting material that was used for key inputs to the model.



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Working directly with executives, the LEC team implemented improvements to the economic model and associated TEA, creating a more detailed and accurate model. The performance of a proposed carbon dioxide sequestration facility was extrapolated from pilot results. Capital investment and operating costs were estimated based on a combination of key equipment manufacturing costs, quotes, and industry standard installation factors.

Client Results and Benefits

Through collaboration with LEC experts, the technology developer was able to validate the potential for a commercial scale facility to capture and sequester carbon dioxide. By improving their technical and economic models, LEC helped the company support its claims that CO₂ could be cost-effectively removed from the atmosphere at scale, enabling executives to clearly articulate the potential of their technology to investors.