

**ALGAE CULTIVATION FROM FLUE GAS
WITH HIGH CO₂ UTILIZATION EFFICIENCY**

Global Algae Innovations Inc.

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This project will increase the efficiency and productivity in algal carbon capture and utilization from flue gas to produce advanced biofuels and protein meal. The project builds on the numerous breakthrough technologies developed in prior Global Algae Innovations projects to demonstrate all process steps needed for economically viable algal carbon capture and utilization. Successful completion of this project will achieve BETOs overall algal systems R&D performance goal:

“By 2022, demonstrate technologies to produce sustainable algal biofuel intermediate feedstocks that perform reliably in conversion processes to yield renewable diesel, jet, and gasoline fuels in support of the Office’s \$3/gasoline gallon equivalent (GGE) advanced biofuels goal.”

In addition, the improved carbon capture and utilization efficiency will reduce the cost of capturing carbon dioxide from flue gas to \$20/ton and demonstrate that an 85% reduction the greenhouse gas can be attained for algae biofuels compared to fossil fuels.

TSD Management Associates joins Global Algae Innovations on the team. The team includes multidisciplinary personnel who provide expertise across the full breadth of algae production including strain development, advanced algal cultivation, open raceway contamination control, carbon dioxide capture from flue gas, harvesting, dewatering, extraction, techno-economic analysis and life cycle analysis.

The project will be performed at the Kauai Algae Farm in Lihue, Hawaii and Global Algae Innovations laboratory facilities, also located in Lihue, Hawaii. The Kauai has 8-wetted acres of advanced algae production ponds and all carbon dioxide for cultivation is supplied from the adjacent power plant flue gas. This is the only open raceway facility in the world that uses carbon dioxide captured from flue gas as the only source of carbon for algae cultivation. During this project, the carbon dioxide capture system will be improved through addition of a higher efficiency absorber and improved cultivation control algorithms will be developed to increase the carbon dioxide utilization. In addition, a new algae strain library will be used to increase the carbon dioxide utilization and productivity. This strain library was built by Global Algae Innovations through recent targeted collection and isolation of new algae strains in Hawaii and on the US mainland.