

Carbon Dioxide Sequestration from Flue gas using Algae

CHALLENGE

The objective of this study is to design a suitable pilot microalgae reactor system that not just separates carbon dioxide but also produces valuable products.

PARTNER

Office of Energy Initiatives, City of Hamilton



Office of Energy Initiatives, City of Hamilton is responsible for meeting Corporate Energy Targets including energy reduction and minimizing greenhouse gas emissions.

TEAM

- Tom Chessman, Office of Energy Initiatives, City of Hamilton
- Dr. Vladimir Mahalec, Professor, Associate Director of Graduate Programs – W Booth SEPT, McMaster University
- Akshit Bagga, M. Eng. Engineering Design with specialization in Processes and Production systems

MILESTONES & OUTCOME

- Simulation of a photobioreactor
- Achieve maximum algae productivity and maximum carbon dioxide capture
- Produce animal feed as the final product

VALUE

The study intends to generate various alternatives and compare them on the grounds of process capability, economical feasibility and carbon footprint so that a recommendation can be made to the City to aid in their decision-making process.

NEXT STEPS

- Algae Product Market Study
- Meeting product regulations
- Pilot Plant

STUDENT REFLECTION

- Generation and comparison of various design alternatives
- Selecting best design alternative for the customer

