

Project Information Form

Project Title	Life Cycle Assessment of Biofuel Production from Microalgae: Cooperating Resources Constraints and Evaluating Impacts from Co-products
University	University of California, Davis
Principal Investigator	Yizhen Zhang
Contact Information	Email: yyzhang@ucdavis.edu
Funding Source(s) and Amounts Provided (by each agency or organization)	National Center for Sustainable Transportation
Total Project Cost	\$ 15,000
Agency ID or Contract Number	
Start and End Dates	Dec 2016 – Oct 2017
Brief Description of Research Project	This research will focus on life cycle assessment (LCA) of biofuel production systems. Specifically, LCA of biofuel production from algae. The first chapter of this research builds an LCA model that characterizes greenhouse gas (GHG) emissions, energy consumption, water consumption, and land use of algal fuels produced under different technologies or pathways. The second chapter conducts a spatial analysis to investigate resource (land, water, nutrients, carbon, and sunlight) availability for largescale algae cultivation and oil conversion in California. The third chapter aims to improve LCA methodologies in terms of co-product allocation strategies and to make recommendations on co-product handling methods with the least environmental impact. The research goal is to understand biofuels from not only a technical perspective of the system, but also a life cycle environmental performance perspective to help guide development and policy of new biofuels.
Describe Implementation of Research Outcomes (or why not implemented) (Attach Any Photos)	



National Center for Sustainable Transportation

Impacts/Benefits of Implementation (actual, not anticipated)	
Web Links <ul style="list-style-type: none">• Reports• Project website	https://ncst.ucdavis.edu/research/dissertation/