

Dioxide Materials proposes to partner with the National Renewable Energy Laboratory, Algix, and the Arizona Center for Algal Technology and Innovation to establish a first-in-class system for the sequestration of point source CO₂ emissions. The project, entitled “Improved Microalgal Carbon Utilization Efficiency via CO₂ Electro-conversion to Formate and Microalgal Sequestration” will integrate core competencies from all partners, including electrolyzer manufacturing, microalgal strain engineering, algal mass cultivation, biomass upgrading, and TEA/LCA. This team will develop a conversion process demonstrating the capture of point source CO₂ emissions via a CO₂ to formate electrolyzer, high carbon utilization efficiency cultivation of microalgae on formate, and downstream product development from generated algal biomass to non-isocyanate polyurethane and bioplastics. Successful implementation of the proposed project offers dramatic economic and sustainability benefits relative to conventional CO₂ capture and conversion technologies, notably including increased carbon transfer and utilization efficiencies.