Name: Peter Romero

Project Title: Electrochemical Reduction of Carbon Dioxide

Project Abstract:
Carbon dioxide is a major contributor to global warming and climate change. As a result, there is much research into different techniques to sequester, and even utilize, carbon dioxide from its many sources (i.e. combustion reactions, manufacturing, etc.). The objective of this project is to assess the economic feasibility of electrochemical reduction of CO$_2$ via solid oxide electrolyzer cells (SOECs). This work will be done by approximating thermodynamic energy constraints and estimating operating costs, capital costs, and potential financial incentives.

Project Deliverables:
• Develop pricing models for accurate financial feasibility of SOFCs and similar fuel cell technology
• Approximate performance and efficiency of SOEC
• Determine large-scale feasibility of electrochemical reduction of CO$_2$