

Sustainable Energy and Climate Change Impacts: Integrated Assessment and Modeling

Sustainable development in the face of environmental and climate change is one of the highest-stake societal issues currently on policy and research agendas, domestically and internationally. The climate and environmental change issues are extreme in their requirements for an integrated view of multiple processes and knowledge from multiple domains to understand key processes and assess the potential effects of future technological advances, and political and economical decisions. Policy choices dealing with climate change are of major importance to the economic health of the Great Lakes region and the nation. It is the goal of this cluster to integrate and extend existing capabilities at the University of Michigan to make it a significant player in Integrated Assessment modeling of climate change.

Two faculty hires will help to bring together and stimulate the multi-disciplinary university community to develop a framework and tools for conducting effects-based assessments that integrate across natural and human resources over multiple geographic scales and that address major environmental problems, especially those throughout North America. The hire in AOSS will focus on activities in modeling and integrated assessment of climate change impacts for engineered designs of past, recent and future management practices on regional and country scales, with an emphasis on issues relevant to the U.S. and its energy choices and sustainable development. The hire in SNRE will focus on the impacts of climate change, potential adaptation responses, and potential interactions between adaptation and mitigation of climate change. Expectations are that in a few years the new faculty members, in collaboration with the senior faculty, will form a basis for the delivery of risk assessment, strategies for developing preferred portfolios of technologies, institutions, and processes for adaptive management, and policy responses. In general these would enhance and support the Graham Institute and Phoenix Energy Institute efforts to conduct integrated assessments of multiple environmental issues at diverse scales.