
The University of Connecticut Climate Action Plan:

Guiding the Path toward Carbon Neutrality



*Storrs Campus
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Section 6: Adaptation



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Adaptation

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Cover Photo: University of Connecticut President, Susan Herbst, reaffirms UConn's commitment to the Climate Action Plan, by endorsing the addition of this Climate Change Adaptation Section to the Climate Action Plan. From left to right: Mike Willig, Director of The Center for Environmental Science and Engineering; Greg Anderson, Ecology and Evolutionary Biology Distinguished Faculty Emeritus; Skylar Marinoff, EcoHusky Vice President; Tim Brogan, EcoHusky Advertising Director; Kathy Segerson, Economics Faculty; Susan Herbst, University of Connecticut President; Gene Likens, Distinguished Visiting Faculty and Environmental Advisor to the President; Mark Boyer, Political Science Department Head; Dan Esty, Connecticut Department of Energy and Environmental Protection Commissioner; Rich Miller, Office of Environmental Policy Director; George Rawitscher, Physics Faculty Emeritus.

Introduction

Climate change adaptation, described by the United Nations as, “Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities,” has become an important component of international climate change response over the past decade. Previously, most concerted efforts, including UConn’s, for climate change response have focused on strategies for climate change “Mitigation”- defined as reduction of overall atmospheric concentrations of the gases responsible for global warming effects. Lack of international agreement and action on reduction strategies, and continued rising CO2 levels, are increasingly driving attention to strategies that instead are intended to reduce the vulnerability of human and natural systems to climate change effects. These activities constitute the heart of what is considered climate change “Adaptation.”

Adaptation strategies consist of two major components- Impact Assessment and Adaptive Response. UConn is well positioned to take a leadership role in both areas, and the core of this Climate Change Adaptation portion of UConn’s 2010 Climate Action Plan relies on existing efforts, expertise, and institutions to provide the base of the plan. Adaptation is by its nature an interdisciplinary effort, requiring the expertise of many players, and it makes sense to expand the focus of previous education, research and outreach goals to develop the long-term plan.

Impact Assessment and Monitoring

Successful Adaptation programs, at their heart, rely on climate science to identify potential changes to ecosystems, including watersheds and food resources, human and animal health impacts, economic risks and opportunities, and infrastructure vulnerabilities. In our plan, we increase our commitment to focus on these critical areas of research already being performed by UConn investigators, and to encourage expansion of the scope of information relevant to the topic of climate change impacts.

To create the plan, UConn faculty and staff experts from many fields, including, Ecology and Evolutionary Biology, Natural Resources, Geography, Economics, Social Sciences, Humanities, Marine Sciences, Extension, Mathematics, Engineering, Environmental & Energy Law, Geology, Public Health, and other disciplines that contribute to sustainability at UConn, met with community representatives for a discussion of potential regional impacts and consequences of climate change, and ways in which the University could assist with adaptive response. The task force discussed the role of continued monitoring, and the need for refinement of projection models, better economic assessment, and coordinated outreach to surrounding communities. All members felt that UConn’s most important role in impact assessment would be making useful and relevant information available and understandable to the general public and policy-makers, permitting best practices to be identified at all levels of public decision.

Adaptive Response

Climate change models for Connecticut show changing temperature and precipitation profiles and sea level rise, all of which are projected to contribute to challenges that may strain limited state resources

for response. Thus, understanding the factors that potentially affect land use decisions and resource allocation will be crucial for homeowners, developers, city planners, farmers, economic strategists, conservationists, policy analysts, utility companies, and health and disaster officials. The task force for creating UConn's Adaptation plan focused on the kinds of climate change adaptation services that would be needed by the greater community and the University's existing programs and activities that were already providing these kinds of services. The recommended action items propose ways to expand, enhance and coordinate existing activities and programs, and suggest institutional structures that could be modified or expanded to improve UConn's role in adaptive response.

Carbon Neutrality

On the surface, the diverse range of activities associated with climate change Adaptation may not appear to contribute to the stated target of carbon neutrality by 2050. However, experts in the Adaptation field assert that no sustainability program will be successful in the coming decades unless the effects of high CO₂ levels are considered. For example, efforts to build carbon sinks through reforestation will need to consider how tree growth is affected by changing climate patterns; strategies to strengthen regional economies will need to account for vulnerabilities; and efforts to sustainably manage stormwater runoff will need to plan for changing rainfall patterns. These impacts will be critical to future revisions of the existing mitigation strategies in UConn's 2010 Climate Action Plan and augmentations to governmental, institutional and corporate plans for emissions reduction and offsets.

Action Items

The following are UConn's recommended Climate Change Adaptation action items. These recommendations would leverage, support, and augment existing programs and strategies, providing a secure framework for University leadership in this important area.

1. Based on the breadth of research into climate change and sea level rise by UConn's departments, centers and institutes, and the strength of the University's working relationships with government agencies and non-governmental organizations (NGOs), expand research into topics that will advance the assessment of climate impacts, such as:
 - a. Environmental effects on animals, fisheries & wildlife, plants, forests, biodiversity, wetlands, watersheds and coastal regions,
 - b. Economic effects on agriculture, industry, government, recreation & tourism, and employment,
 - c. Risks and socio-economic impacts to human health, infrastructure and property, and
 - d. Improved sophistication of models and geospatial visualization tools for predicting and delineating impacts and supporting adaptation decisions.



2. Build public-private partnerships and seize opportunities by expanding research into climate mitigation and adaptation technologies and best practices that can stimulate economic growth in Connecticut and promote UConn's expertise, including:

- a. Clean, sustainable energy and fuels
- b. Smart building and smart grid systems
- c. Fisheries and aquaculture
- d. Habitat restoration
- e. Low impact development
- f. Climate-resistance in ecosystems and agriculture



3. Communicate and translate research findings and share expertise for public use, especially through our Extension programs, in order to ensure sound policy-making that enables communities to plan for, and adapt to, climate change through well-informed:

- a. Land use, coastal zone and open space management policies and regulations
- b. Wildlife, fisheries and habitat management and conservation
- c. Utility and infrastructure improvements
- d. Agricultural and soil and water conservation practices
- e. Emergency planning and response
- f. Public health services

4. Create an institutional structure to foster integration and collaboration across all facets of the University's mission related to the environment, including research, undergraduate and graduate education, outreach, and student life. Build on and integrate existing units, such as the Center for Environmental Sciences & Engineering (CESE) and Sea Grant Program. Further develop services aimed at climate change mitigation and adaptation, as initiated by UConn's Climate Resource Exchange (CRE):

- a. Web-based library of educational tools
- b. UConn speakers' bureau for presentations
- c. Community network for information exchange among local officials
- d. Connections to UConn student internships for Connecticut towns and businesses
- e. Multi-media information hub that would utilize social media such as Facebook, LinkedIn and Twitter
- f. Informational conferences, seminars, workshops and webinars
- g. K-12, higher education and lifelong learning education modules on climate change, adaptation and sustainability



Full house for Law School/Sea Grant Climate Adaptation conference in February 2012

5. Work with departments, centers and institutes, and NGOs involved in state and local economic analysis and budget and financial administration to develop:
 - a. Financial and environmental risk-management guidelines for decision-makers and policy-makers pertinent to climate adaptation,
 - b. Insurance and financial services for valuing resources and funding climate risks and adaptation measures,
 - c. Plans for encouraging more sustainable models for economic growth of local businesses and community-supported agriculture, and
 - d. Strategies for increasing regional economic security, including incentives for conservation-based social and behavioral change.



6. Involve multiple stakeholders from the University community, including faculty, staff, students, officials and volunteers from surrounding towns and community-based organizations, in events like the inaugural 2012 CIMA event – *Climate Impact, Mitigation and Adaptation: A Reflection on Our Future*.