CLIMATE CHANGE


**PRINCIPAL RESEARCHERS**

**Cynthia Rosenzweig**
Columbia University
**Art DeGaetano**
Cornell University
**William Solecki**
Hunter College


**CONTACT INFORMATION**

For more information on this project, go to:
www.nyserda.org/programs/environment/emep/
or contact Amanda Stevens at:
ads@nyserda.org

PROJECT NUMBER 10851

**KEYWORDS**

- Adaptation
- Climate change
- Energy infrastructure
- Mitigation
- Public health
- Water resources

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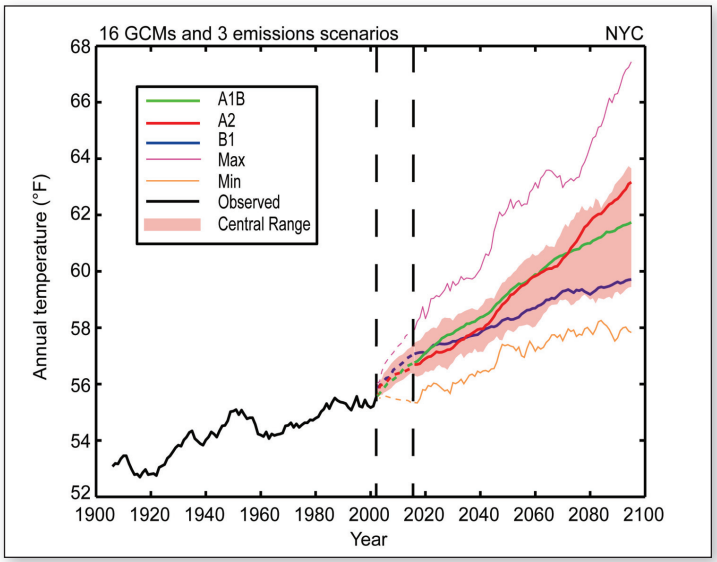
# Integrated Assessment for Effective Climate Change Adaptation Strategies in New York State

## PROJECT FOCUS

This project will provide New York State with state-specific climate data, information detailing its vulnerability to the effects of climate change, and potential adaptation strategies to reduce those vulnerabilities. The climate data will include information on rising sea levels, increasing temperatures, and changing weather patterns. The project will draw upon both local experience and scientific knowledge by involving numerous stakeholders in eight sectors: agriculture, communication, ecosystems, energy, ocean coastal zones, public health, transportation, and water resources. In addition to a general assessment of each sector, case studies will be developed that will give specific examples of the general concepts. Themes of science-policy linkages, equity and environmental justice, and economics will be discussed throughout the document and brought into the case study analysis.

## CONTEXT

As a result of an accumulation of greenhouse gases in the atmosphere, temperatures are rising and climatic patterns are changing. As scientific evidence supporting climate change continues to grow, the international debate surrounding this issue has progressed from arguments over whether climate change exists to urgent discussions about what should be done. Unfortunately, there is no easy solution to the climate change problem. A combination of local, national, and international actions and policies is needed.

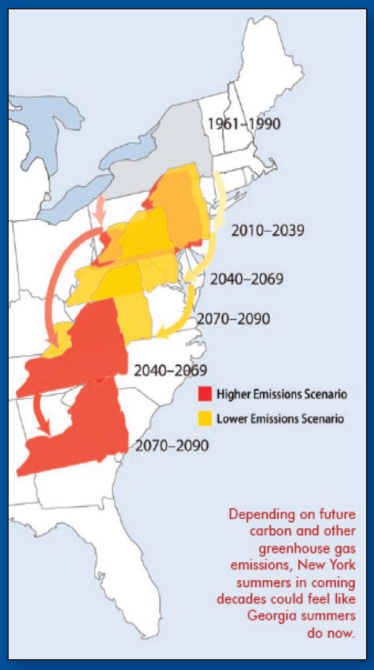



Observed and future projections for temperature in New York City. Source: Center for Climate Systems Research.

Generally, there are two responses to climate change: mitigation and adaptation. Mitigation refers to methods that can reduce emissions of greenhouse gases—the underlying cause of climate change. Adaptation refers to adjusting current practices and policies for the future to account for the effects of climate change, which are already being felt. When planning for climate change, mitigation and adaptation responses should be considered simultaneously.

This project proceeds from the acknowledgement that the unique combination of ecosystems and human population in New York will not be immune to the impacts of climate change, and local communities and the State as a whole therefore will need to plan for and adapt to these effects. Currently, however, there is uncertainty about the climate science and links between the many natural and socioeconomic factors contributing to New York State's vulnerability. Furthermore, there is little cohesive information about community needs and values, the costs associated with impacts and adaptive measures, and available resources for adaptation. This project aims to reduce these uncertainties and information gaps, assess the threats posed to New York, provide information to facilitate the development of relevant and practical policies for adapting to climate change, and identify needs for additional research.

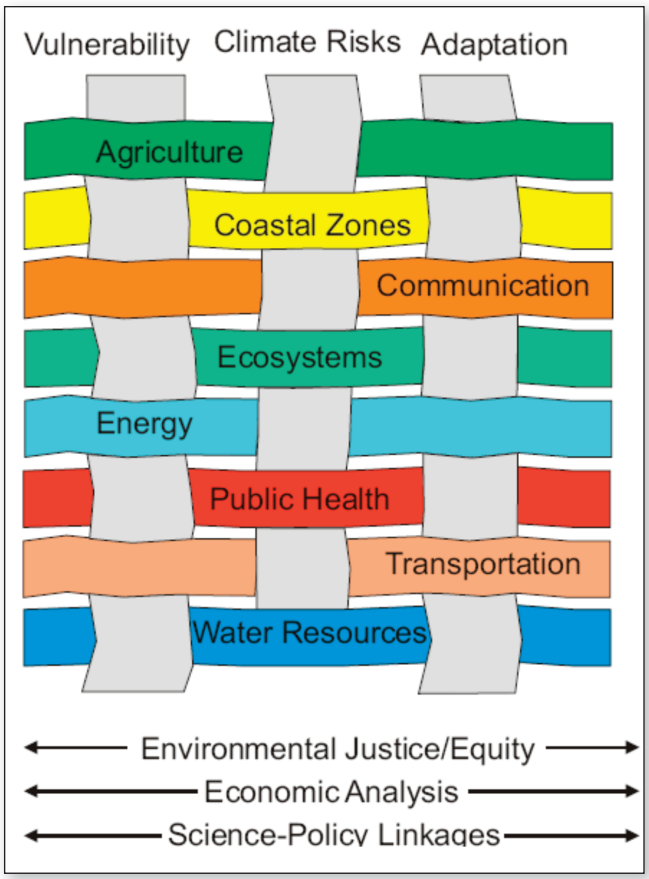
A companion project funded by NYSERDA, *Development of New York State Greenhouse Gas Abatement Cost Curves*, is assessing the greenhouse-gas mitigation options available to New York.




Source: "Confronting Climate Change in the U.S. Northeast: Science, Impacts, and Solutions," A report of the Northeast Climate Impacts Assessment (NECIA), July 2007.

## METHODOLOGY

Input from individuals and organizations embedded within each sector will be key to this project. The first task will be to identify those relevant stakeholders. Subsequently, the researchers will work with the stakeholders to identify present and future vulnerabilities in their sector associated with climate change. This information will lead to a statewide vulnerability assessment. Stakeholder-identified needs will also contribute to the development of an outline of current and future adaptation needs for New York State.




Source: Center for Climate Systems Research.

Based on the assessment of vulnerabilities and adaptation potential, the project will produce a comprehensive climate change analysis for New York State that will, for each sector, address current and projected impacts, identify potential adaptation measures, and include economic, equity, and science-policy analyses. Out of this analysis, the researchers will develop a generalized set of guidelines for a flexible, yet prioritized, response to climate change. The guidelines will facilitate the development of science-based adaptation strategies within each sector.

In order to integrate the methodological tasks with the pertinent sectors and stakeholders, researchers will identify high-priority vulnerabilities in each sector for in-depth case studies. These case studies will identify links among vulnerabilities, climate risks, and adaptation strategies, as well as among different sectors. The studies also will demonstrate specific monitoring needs. By targeting areas that experience specific climate impacts under current conditions, the case studies will help identify potential adaptation strategies, even with uncertainties in future climate change projections.

## PROJECT IMPLICATIONS

New York State will feel negative and positive impacts from climate change. A better understanding of these risks will allow for the formulation of responses to these impacts. This project will be a first step in helping New York State adapt to climate change by assessing in detail the state's vulnerabilities and identifying potential adaptation strategies tailored specifically to its needs. By focusing on several key sectors that are vital to New York's economic and environmental health, this project will inform the development of adaptive policy measures across a wide range of fields. The project will also identify data gaps where further research is needed. The results of this project will be informative and relevant to anyone in New York State who is concerned with the implications of a changing climate, and it can also serve as an example for other states in creating climate change adaptation assessments.

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