

**Public Service Commission of Wisconsin
& the Statewide Energy Efficiency and Renewables Administration**

Environmental and Economic Research and Development Program

Summary

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Climate Change in Wisconsin

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Project Summary

Wisconsin's geographical setting gives rise to a rich set of climatic conditions that help shape our state's environmental, social and economic resources. In the coming decades, we can anticipate that these influences on state resources will be affected in both expected and unexpected ways as our climate changes. Understanding and assessing these climate changes requires (i) expertise in previous climate changes, (ii) understanding of global climate projections – including their uncertainty, and (iii) understanding how these global projections relate to regional scale variables that are relevant for policy analysts and policy makers.

A first step in assessing the influence of climate change on Wisconsin's environment and economy involves *developing projections of climatic variables that are relevant to specific impacts in Wisconsin*. Unfortunately, the global climate models (GCMs) that produce projections of future climate have poor spatial resolution (the entire State of Wisconsin could be represented by as little as two grid points), and suffer major deficiencies in their ability to simulate non-standard climatic variables [such as extreme precipitation (hydrology, flooding, human health), snow fall and duration (wildlife management, tourism), freezing rain (energy infrastructure, forestry), etc.]. The disconnect between the information produced by GCMs and the information that is needed in specific impacts assessments is a major stumbling block for making climate change assessments relevant for policy analysts and policy makers.

Motivated by the needs of the impacts and policy communities for obtaining relevant climatic information for assessing climate changes in Wisconsin, this project included three major objectives:

1. Develop regional-scale, daily precipitation, and minimum and maximum temperature projections for Wisconsin for the 21st century
2. Calculate a set of non-standard climate variables needed by impacts and policy communities, using model output variables (including daily data from objective 1) and observations
3. Design a web-based repository for present-day climatic conditions and future climate projections that will be utilized by impacts scientists, policy analysts and makers, and the citizens of Wisconsin

Through the duration of the proposed work, the climate scientists worked closely with impact scientists, policy analysts, and policy makers through their involvement with the Wisconsin Initiative on Climate Change Impacts (WICCI). Climate Working Group website:

<http://ccr.aos.wisc.edu/cwg/>

Project Team

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