

# GLOBAL CLIMATE CHANGE AND CALIFORNIA

In Support of the *2005 Integrated Energy Policy Report*

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**STAFF FINAL PAPER**

## DISCLAIMER

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their GHG emissions, pledging to reduce emission levels to five percent below 1990 levels by 2012.<sup>5</sup>

In its December 2004 Report to the Congress, the National Commission on Energy recommended that the United States establish a mandatory, economy-wide trading system to curb the nation's increasing GHG emissions, and that the United States should join efforts with other countries to reduce global GHG emissions.<sup>6</sup>

The Intergovernmental Panel on Climate Change (IPCC), an international scientific body which periodically assesses the state of the climate change science, found in 2000 that "there is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities."<sup>7</sup>

In May 2001, President George W. Bush asked the National Academy of Science (NAS) to assess the veracity of the IPCC findings. According to the NAS, the IPCC assessment "accurately reflects the current thinking of the scientific community on this issue." In addition, the NAS reported that "GHG are accumulating in Earth's atmosphere as a result of human activities, causing surface air temperatures and subsurface ocean temperatures to rise. Temperatures are, in fact, rising."<sup>8</sup>

A 2004 study by a team of leading California scientists, *Climate Change in California: Choosing Our Future*, predicts substantial increases in temperatures in both the summer and winter months as a result of climate change.<sup>9</sup> Using scenarios of lower and higher future emissions, and state-of-the-art climate models, the authors report significant changes in California's natural resources could result, including:

- Rising sea levels along the California coastline, especially in San Francisco and the San Joaquin Delta.
- Extreme-heat conditions, such as heat waves and very high temperatures, which will last longer and become more commonplace.
- An increase in heat-related human deaths, infectious diseases and a higher risk of respiratory problems caused by deteriorating air quality.
- Reduced snow pack and stream flow in the Sierra Nevada Mountains, affecting winter recreation and water supplies.
- Rising temperatures that can affect California agriculture, causing variations in crop quality and yield.
- Changes in the distribution of vegetation from projected increases in temperature and high fire risk.

These changes in California's climate and ecosystems are occurring at a time when the state's population is projected to grow from 34 million people to 59 million by the year 2040. Population growth and the demand for vital natural resources will compound the effects of climate change on water resources, human health and the environment.

## Purpose of the Paper

This paper builds upon prior work carried out in numerous public forums, including the *2003 Integrated Energy Policy Report (Energy Report)*, the *2004 Energy Report Update*, the California Climate Action Registry, the California Public Utilities Commission (CPUC) decisions related to climate change, and the California Energy Commission's (Energy Commission) Climate Change Advisory Committee. The paper also highlights coordinated efforts by state government agencies to address global climate change through the Joint Agency Climate Team in California, the West Coast Governors' Global Warming Initiative, and the Regional GHG Initiative in the Northeastern and Mid-Atlantic states.

This paper provides background and context to guide the formulation of policy options for reducing GHG emissions in California. Following a summary of state legislation on global climate change, the paper discusses the science of climate change, the impacts of climate change on California, emerging trends in GHG emissions, existing state policies and programs, options for addressing climate change, and recommended next steps.

## Legislative Background

In 1988, the California Legislature first recognized the potential adverse effects of climate change when it enacted a state law [AB 4420 (Sher), Chapter 1506, Statutes of 1988] directing the Energy Commission to assess the impacts of climate change on energy supply and demand as well as the state's economy, environment, agriculture, and water supplies. The law also directed the Energy Commission to identify potential GHG reducing strategies. In response, the Energy Commission published "*Global Climate Change: Potential Impacts and Policy Recommendations*" in December, 1991.

Since then, numerous statutes have been enacted that have shaped California's climate change policies and programs. In 2004, the Legislature enacted budget control language which gave authority to the Secretary for Environmental Protection to coordinate greenhouse gas emission reductions and climate change activity in state government. (SB 1107, Chapter 230, Statutes of 2004)