



# CLIMATE CHANGE

## AT THE DEPARTMENT OF WATER RESOURCES

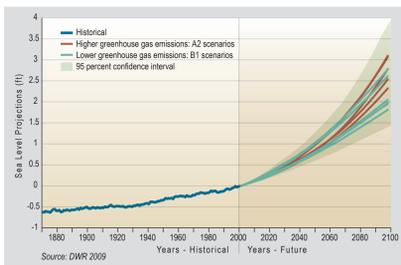
Climate change is already affecting California's water resources. Warmer temperatures, different patterns of precipitation and runoff, and rising sea levels increasingly affect the ability to manage water supplies and other natural resources. Adapting California's water management systems in response to climate change presents one of the most significant challenges for the 21st century.

In the course of the past five years, the California Department of Water Resources (DWR) has achieved a leadership role in both the mitigation of greenhouse gas (GHG) emissions and in positioning California to adapt to changes happening now and in the future.

### Data Collection - Decision Making

Determining the impacts of climate change on the varying regions of the state requires that data about our environment be collected and analyzed in a consistent and comprehensive way. Improved data collection and a robust monitoring network will help identify trends, provide for better real-time system management, and help modify adaptation strategies going forward.

Developing more focused research on sea level rise and other variables can also help narrow the range of uncertainty in climate changes. In cooperation with numerous State and federal agencies, DWR is convening a panel of the National Research Council (NRC) to evaluate sea level rise issues and their impacts to California's coast, including estimation of a range of likely amounts of sea level rise in 2030, 2050, and 2100. The study is expected to kick off by September 2010 and conclude by June 2012.



Sea Level at Golden Gate

### Sustainability

On Earth Day 2009, DWR adopted its first Sustainability Policy, forming the foundation of DWR's many "greening" activities. The policy articulates the goals and directions being taken to be a sustainability leader within State government and the California water community, better stewards of the environment, and to provide cost savings to the State taxpayers through reduced operating costs. An additional goal is to provide healthier work environments for staff and visitors.

DWR is the first State agency to participate in Sacramento Municipal Utility District's (SMUD) Carbon Offsets program. On Earth Day 2010, DWR announced its new partnership with SMUD, to offset the CO<sub>2</sub> emissions produced by natural gas consumption during its business operations.

DWR also participates in SMUD's Commercial Greenergy Program, whereby SMUD matches DWR's facility electricity needs with purchases from renewable resources for use on the SMUD power system. SMUD also commits to matching 40 percent of its revenue received from DWR with investments in new sources of renewable power generation.



DWR-SMUD Partnership

### Regional Strategies

California lies within multiple climate zones, and thus each region of the state will experience unique impacts from climate change. Adaptation strategies must therefore be regionally appropriate. Integrated Regional Water Management (IRWM) provides a critical framework for actions to address the uncertainties presented by climate change, as well as other risks to California's water future. Water conservation reduces not only water demand but energy demand as well, which in turn can lead to reductions in GHG emissions.

DWR has incorporated climate change into the guidelines and proposal solicitation packages (PSPs) for the IRWM grant program. The guidelines address both adaptation to the effects of climate change and consideration of GHG emissions when selecting project alternatives. The Department has also developed an IRWM/Climate Change Clearinghouse of guidance documents to help IRWM applicants meet these new grant requirements. The IRWM Guidelines, PSPs, and Clearinghouse are available on the DWR website.



IRWM and Climate Change

### Statewide Strategies

California's current water resource infrastructure is already strained to meet competing objectives, for water supply, flood control, ecosystem health, water quality, hydropower, and recreation. The current system of reservoirs, canals, floodplains, and levees must be modified and managed differently for greater flexibility during exacerbated droughts and floods. Flood systems must also be enhanced to accommodate higher variability of flood flow magnitude and frequency. Resolution of long-standing issues related to water management, ecosystems, water quality, and public safety in the Sacramento-San Joaquin Delta must also be addressed.



DWR's Central Valley Flood Protection Plan, due by 2012, will explicitly consider climate change impacts to flood management. Key aspects will include ascertaining existing problems and expected future challenges, developing a checklist of climate change considerations, an inventory of related climate change projects and programs, and a new emphasis on environmental stewardship.

Central Valley Flood Protection Plan

### Climate Change and CEQA

In June 2009, DWR established a CEQA Climate Change Committee to review all climate change analyses in DWR environmental documents. Through these reviews the committee has developed environmental analysis methodologies and reference materials for use by Department staff and consultants. These guidance documents provide a consistent approach to conducting project specific environmental analyses for CEQA compliance documents, biological assessments, permit applications, and other environmental needs.

The Committee is now developing a programmatic approach—in the form of a Climate Action Plan—to address climate change across all DWR programs and projects, to comply with the CEQA Guideline Amendments recently adopted by the Natural Resources Agency. The Climate Action Plan will also help document Departmental compliance with AB32; set greenhouse gas reduction targets and reduction strategies; streamline environmental review; and demonstrate DWR's commitment to environmental stewardship, sustainability, and climate change mitigation and adaptation.



California Environmental Quality Act

### State Water Project Power Policy

The electricity needed to operate the State Water Project (SWP) comes from DWR's own and jointly developed hydroelectric facilities, and power purchases. SWP's emissions-free hydrogeneration is a renewable energy resource, making up an estimated 40 percent of the SWP's energy portfolio.

DWR is fully committed to reducing the emissions associated with SWP power purchases to meet California's Greenhouse Gas (GHG) reduction targets. Programs include replacing SWP's coal fired energy with cleaner resources (reducing CO<sub>2</sub>e emissions by 1 million tonnes annually by mid-2013), increasing the energy efficiency of SWP hydroelectric equipment (avoiding 50 thousand tonnes CO<sub>2</sub>e annually by 2010), and publicly reporting and verifying SWP annual emissions reductions.



SWP California Aqueduct