

Protecting California's Economy, Communities and Environment from Global Warming

Global warming is already affecting California, and will continue to do so for decades to come. A successful comprehensive climate and energy bill will invest significant new revenue in protecting communities and local economies across America by creating jobs that protect wildlife and landscapes from the effects of global warming. The American Clean Energy and Security Act takes a critical first step, however, given the scale and duration of the threat, more funding will be needed.

Critical Issues for California:

- Decreasing water availability
- Damage to the local economy
- Increasing temperatures
- Changing precipitation patterns

Is Global Warming Affecting Natural Resources in California?

Yes. California is warming. Since mid-century, temperatures across the state have **risen approximately 1.5°F,¹ and are expected to rise an additional 5°F by 2060.²** These changes are significant, and the impacts are already being felt.

Across the US, more than 80% of plant and animal species studied are shifting their ranges in reaction to less than 1°F of warming in the last century.³ The Intergovernmental Panel on Climate Change predicts warming could result in **up to 30% of known species becoming extinct**, and the disappearance of more than one-fifth of the world's ecosystems.⁴

California is receiving less snow throughout the fall and winter, which in turn is less water in the spring and even less water available in critical late summer months for agriculture, forest fire prevention, and ecosystem health.

The Colorado River, a critical water source for much of the state, receives around 85% of its annual runoff from high elevation winter snow pack. This link, in combination with rising temperatures and precipitation change, has led to estimates showing **a decrease of 36% in water storage behind dams, and up to a 56% reduction in hydropower between 2010 and 2039.⁵**

Along coastal California, rising seas will become a critical issue. **By 2050, seas could rise by 11 to 18 inches, with predictions showing sea-level rise by as much as 55 inches by 2100.⁶**

Natural Resources Adaptation Funding Will:

- Create and protect jobs
- Preserve treasured landscapes
- Revive the rural economy
- Provide clean air and water for future generations



Protecting California's natural areas, such as the Ansel Adams Wilderness— and the valuable services they provide – from the effects of global warming will safeguard communities across the state.

What is at Stake?

Changes brought on by global warming are disrupting the balance of natural resources and having significant impacts on communities and businesses across the state.

- **Water Availability:** Already scarce, the competition for stable access and availability to water across the West and California is becoming more heated. In the Sierra Nevada Mountains, average spring snowpack has already decreased by around 10% in the last century, resulting in water loss equivalent to what more than 750,000 families would use in one year.⁷ Agriculture and residential needs, for example, will be increasingly in competition, especially in late summer, just as agriculture production is at its highest. California could experience a \$3 billion loss in agriculture revenues due to climate change in 2050 alone.⁸
- **Forest Fires:** Decreased snowmelt is also complicating the region's ability to manage many uncharacteristic forest fires, which have severe social, economic, and ecological effects. Wildfire frequency is expected to increase between 58 - 128% by 2085.⁹
- **Local Businesses – Outdoor Recreation:** California's outdoor recreation industry is dependent on healthy ecosystems. Businesses that support fishing, rafting, and camping are being threatened by the effects of global warming, in turn threatening the stability of California's \$46 billion outdoor recreation economy.¹⁰ A significant part of the state's agriculture economy and tourism industry, California represents over 90% of the U.S.' wine production, with an economic impact of over \$45 billion annually. Premium winegrape production area could decline by up to 81% by the late 21st century due to rising temperatures and decreasing precipitation.¹¹
- **Quality of Life:** The economic arguments for investing in natural resource protection are compelling, but do not tell the whole story. The true value of California's wildlands is priceless. From Joshua Tree National Park to the Giant Sequoia groves, once these threatened places are gone they are impossible to replace. Our children and grandchildren are counting on us to protect these uniquely American landscapes, and the opportunity to enjoy them, from the effects of global warming.

Economy at Risk:

\$46 Billion

Annual contribution of outdoor recreation to the state's economy

Protecting Natural Resources, Creating Jobs

Restoring ecosystem health helps ensure species have the best possible chance to adapt to the effects of global warming. Ecosystem adaptation projects, such as establishing wildlife corridors for animals migrating in search of needed habitat, are critical to the survival of many species and will create long-term American jobs. **Investing now in natural resources is the most cost-effective way to protect our treasured landscapes and the clean water, clean air and jobs they provide.**



Land management agencies need additional resources to protect iconic species like the Joshua Tree in a warming world.

Of the total allowance value generated from an energy and climate bill, at least 5% should be invested in protecting communities and local economies across America by protecting natural resources from the effects of global warming. This funding will allow California's wildlife and land management agencies, as well as the Land and Water Conservation Fund and the Forest Legacy Program, to ramp up important conservation projects.

This dedicated funding will allow scientists, engineers, construction crews, and others to be employed across California:

- Repairing damaged watersheds to ensure clean water for communities by removing impediments and deteriorating structures, restoring eroding river banks, and repairing in-stream habitat.
- Acquiring land and establishing migration corridors to increase species' survival as climates change.
- Monitoring wildlife, habitat, and local climate and developing appropriate adaptation responses.
- Restoring native landscapes to increase resiliency in a warming world by removing unnecessary roads and barriers, constructing buffer strips along river corridors, and removing invasive species.

This work will protect and create American jobs—providing new skills and income to workers and their families across the state and revitalize rural economies.



Restoring river habitats protects ecosystems, jobs, and drinking water

Investing in Solutions for Families, Businesses and the Planet

The risks to California and the nation from global warming are significant—and require an extensive and sustained commitment to reducing heat-trapping pollution, protecting our natural resources, and the communities that rely on them. A cap-and-invest system that reduces pollution and auctions emission allowances will provide billions of dollars for combating the climate crisis.

Revenues from a cap-and-invest system must be directed to three primary solutions:

- **Invest at least 5% of the total allowance value generated in annual dedicated funding for natural resource protection** in order to create jobs while increasing resiliency across landscapes, protecting important natural services and safeguarding communities.
- **Offset increased energy costs for at-risk consumers** by allocating a percentage of allowance auction revenues to consumers through existing mechanisms.¹²
- **Invest in areas such as clean energy choices, job training, and business assistance**, which will aid businesses and communities in transitioning to a clean energy economy, while creating jobs and reducing heat-trapping pollution.

California and the country need your support for reducing carbon pollution and protecting communities by safeguarding our natural resources.

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¹ NOAA National Climatic Data Center. 2009. "U.S. Climate at a Glance – Statewide." Available from: <http://www.ncdc.noaa.gov/oa/climate/research/cag3/state.html>

² The University of Washington and The Nature Conservancy. 2009. Climate Wizard. Available from: <http://www.climatewizard.org/index.html>

³ Sagarin, Raphael. 2002. "Historical Studies of Species' Responses to Climate Change." In: *Wildlife Responses to Climate Change: North American Case Studies*. Ed: Terry L. Root and Stephen H. Schneider. Island Press. Washington, DC.

⁴ Intergovernmental Panel on Climate Change. 2007. "Summary for Policy Makers." In: *Climate Change 2007: Impacts, Adaptation and Vulnerability: Working Group II Contribution to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Pg 792.

⁵ University of Colorado. 2005. "Colorado River Basin Climate. Paleo, Present, Future." Prepared for the Association of California Water Agencies and the Colorado River Water Users Association Conference. Available from: http://wwa.colorado.edu/colorado_river/docs/Colorado_River_Basin_Climate.pdf pg. 38

⁶ State of California Climate Action Team. 2009. Pg. 1.10.

⁷ Department of Water Resources. 2008. "Managing an Uncertain Future. Climate Change Adaptation Strategies for California's Water." State of California. Available from: <http://www.water.ca.gov/climatechange/docs/ClimateChangeWhitePaper.pdf>

⁸ State of California Climate Action Team. 2009. Pg. 2.7

⁹ State of California Climate Action Team. 2009. Pg. 1.14

¹⁰ Outdoor Industry Association. 2007.

¹¹ White, M. A. et al. 2006. "Extreme heat reduces and shifts United States premium wine production in the 21st century." Proceedings of the National Academy of Sciences. 103 (30): 11217-11222. Available from: <http://www.pnas.org/content/103/30/11217.full.pdf+html>

¹² Stone, Chad and Hannah Shaw. 2009. "Extending "Climate Rebates" to Include Middle-Income Consumers." *Center on Budget and Policy Priorities*.