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FACT SHEET: What Climate Change Means for California and the Southwest



Today, the Obama Administration released the third U.S. National Climate Assessment – the most comprehensive scientific assessment ever generated of climate change and its impacts across every region of America and major sectors of the U.S. economy. The findings in this National Climate Assessment underscore the need for urgent action to combat the threats from climate change, protect American citizens and communities today, and build a sustainable future for our kids and grandkids.

The National Climate Assessment is a key deliverable of President Obama’s Climate Action Plan to cut carbon pollution, prepare America’s communities for climate-change impacts, and lead international efforts to address this global challenge. Importantly, the plan acknowledges that even as we act to reduce the greenhouse-gas pollution that is driving climate change, we must also empower the Nation’s states, communities, businesses, and decision makers with the information they need prepare for climate impacts already underway.

The Obama Administration has already taken a number of steps to deliver on that commitment to states, regions, and communities across America. In the past year alone, these efforts have included: establishing a Task Force of State, Local, and Tribal Leaders on Climate Preparedness and Resilience to advise the Administration on how the Federal Government can respond to the needs of communities nationwide that are dealing with the impacts of climate change; launching a Climate Data Initiative to bring together extensive open government data with strong commitments from the private and philanthropic sectors to develop planning and resilience tools for communities; and establishing seven new “climate hubs” across the country to help farmers and ranchers adapt their operations to a changing climate.

CALIFORNIA is part of the National Climate Assessment’s U.S. Southwest Region. The regional phenomena identified by the Assessment may not occur in every state that is part of a particular region. According to the third U.S. National Climate Assessment Highlights report:

The Southwest region is “the hottest and driest region in the U.S., where the availability of water has defined its landscapes, history of human settlement, and modern economy. Climate changes pose challenges for an already parched region that is expected to get hotter and, in its southern half, significantly drier.

Increased heat and changes to rain and snowpack will send ripple effects throughout the region, affecting 56 million people – a population expected to increase to 94 million by 2050 – and its critical agriculture sector. Severe and sustained drought will stress water sources, already over-utilized in many areas, forcing increasing competition among farmers, energy producers, urban dwellers, and ecosystems for the region’s most precious resource.” (NCA Highlights, p. 78)

Regional Findings of the Third U.S. National Climate Assessment: SOUTHWEST

- “Snowpack and streamflow amounts are projected to decline in parts of the Southwest, decreasing surface water supply reliability for cities, agriculture, and ecosystems.
- The Southwest produces more than half of the nation’s high-value specialty crops, which are irrigation-dependent and particularly vulnerable to extremes of moisture, cold, and heat. Reduced yields from increasing temperatures and increasing competition for scarce water supplies will displace jobs in some rural communities.
- Increased warming, drought, and insect outbreaks, all caused by or linked to climate change, have increased wildfires and impacts to people and ecosystems in the Southwest. Fire models project more wildfire and increased risks to communities across extensive areas.
- Flooding and erosion in coastal areas are already occurring even at existing sea levels and damaging some California coastal areas during storms and extreme high tides. Sea level rise is projected to increase as Earth continues to warm, resulting in major damage as wind-driven waves ride upon higher seas and reach farther inland.
- Projected regional temperature increases, combined with the way cities amplify heat, will pose increased threats and costs to public health in southwestern cities, which are home to more than 90% of the region’s population. Disruptions to urban electricity and water supplies will exacerbate these health problems.” (NCA, Ch. 20: Southwest)

Selected Findings and Information from the Third U.S. National Climate Assessment Relevant to CALIFORNIA

- **Agriculture:** “California produces about 95% of U.S. apricots, almonds, artichokes, figs, kiwis, raisins, olives, cling peaches, dried plums, persimmons, pistachios, olives, and walnuts, in addition to other high-value crops. Drought and extreme weather affect the market value of fruits and vegetables more than other crops because they have high water content and because sales depend on good visual appearance. The combination of a longer frost-free season, less frequent cold air outbreaks, and more frequent heat waves accelerates crop ripening and maturity, reduces yields of corn, tree fruit, and wine grapes, stresses livestock, and increases agricultural water consumption. This combination of climate changes is projected to continue and intensify, possibly requiring a northward shift in crop production, displacing existing growers and affecting farming communities.” (NCA, Ch. 20: Southwest)
- **Water:** “Projections of further reduction of late-winter and spring snowpack and subsequent reductions in runoff and soil moisture pose increased risks to the water supplies needed to maintain the Southwest’s cities, agriculture, and ecosystems. An increase in winter flood hazard risk in rivers is projected due to increases in flows of atmospheric moisture into California’s coastal ranges and the Sierra Nevada. These “atmospheric rivers” have contributed to the largest floods in California history.” (NCA, Ch. 20: Southwest)
- **Coastal:** “Projected increases in extreme coastal flooding as a result of sea level rise will

increase human vulnerability to coastal flooding events. Currently, 260,000 people in California are at risk from what is considered a once-in-100-7 year flood. With a sea level rise of about three feet (in the range of projections for this century) and at current population densities, 420,000 people would be at risk from the same kind of 100-year flood event, based on existing exposure levels. Highly vulnerable populations – people less able to prepare, respond, or recover from natural disaster due to age, race, or income – make up approximately 18% of the at-risk population.” (NCA, Ch. 20: Southwest)

- **Health:** “Exposure to excessive heat can also aggravate existing human health conditions, like for those who suffer from respiratory or heart disease. Increased temperatures can reduce air quality, because atmospheric chemical reactions proceed faster in warmer conditions. The outcome is that heat waves are often accompanied by increased ground-level ozone, which can cause respiratory distress. Increased temperatures and longer warm seasons will also lead to shifts in the distribution of disease-transmitting mosquitoes.” (NCA, Ch. 20: Southwest)
- **Ecosystems:** “Climate changes will increase stress on the region’s rich diversity of plant and animal species. Widespread tree death and fires, which already have caused billions of dollars in economic losses, are projected to increase, forcing wholesale changes to forest types, landscapes, and the communities that depend on them. Numerous fire models project more wildfire as climate change continues. Models project a doubling of burned area in the southern Rockies, and up to a 74% increase in burned area in California, with northern California potentially experiencing a doubling under a high emissions scenario toward the end of the century.” (NCA, Ch. 20: Southwest)
- **Tribes:** “The Southwest’s 182 federally recognized tribes and communities in its U.S.-Mexico border region share particularly high vulnerabilities to climate changes such as high temperatures, drought, and severe storms. Tribes may face loss of traditional foods, medicines, and water supplies due to declining snowpack, increasing temperatures, and increasing drought. Historic land settlements and high rates of poverty – more than double that of the general U.S. population – constrain tribes’ abilities to respond effectively to climate challenges.” (NCA, Ch. 20: Southwest)
- **Adaptation:** “The California state government, through its Ocean and Coastal Resources Adaptation Strategy, along with local governments, is using new sea level mapping and information about social vulnerability to undertake coastal adaptation planning. NOAA has created an interactive map showing areas that would be affected by sea level rise.” (NCA, Ch. 20: Southwest)

Examples of Efforts Underway in CALIFORNIA to Address Climate Change

In CALIFORNIA, many efforts are already underway to mitigate and respond to the impacts of climate change, including:

Preparing Communities for the Consequences of Climate Change:

Many important preparedness, resilience, and adaptation efforts are already being led by local, state, and regional entities across the country. Mechanisms being used by local governments to

prepare for climate change include: land-use planning; provisions to protect infrastructure and ecosystems; regulations related to the design and construction of buildings, road, and bridges; and preparation for emergency response and recovery. These local adaptation planning and actions are unfolding in municipalities of different sizes, and regional agencies and regional aggregations of governments are also taking actions. And States have also become important actors in efforts related to climate change.

- Governor Jerry Brown serves on the President's State, Local and Tribal Leaders Task Force for Climate Preparedness and Resilience and Preparedness. California is taking important steps to reduce the emissions that cause climate change, while also working to safeguard California's people, economy, infrastructure, and natural environment from climate risks. California investments in climate science have supported the development of policies and market mechanisms for reducing greenhouse gas emissions, spurring technological innovation, and creating more resilient and prosperous communities
- Supervisor Salud Carbajal (Santa Barbara County, CA) serves on the President's State, Local and Tribal Leaders Task Force for Climate Preparedness and Resilience. Supervisor Carbajal has promoted environmental stewardship and sustainability by advocating for technologies that convert waste to energy, investing in alternative energy, and implementing sustainability and climate action plans to cut greenhouse gas emissions – in addition, Santa Barbara County's innovative residential energy efficiency financing program, emPower SBC has attracted support from DOE and ARRA.
- Mayor Eric Garcetti (Los Angeles, CA) serves on the President's State, Local and Tribal Leaders Task Force for Climate Preparedness. He was also recently elected to the global steering committee of C40. Mayor Garcetti's goals for LA include to increase energy efficiency by 15%, reduce imported water by 50%, and increase renewables to 33% including through expanding the solar feed in tariff to 600MW. Recent USC and UCLA research commissioned by the City of LA have helped identify vulnerabilities due to sea level rise, increased extreme heat days and fire season, and drought - Garcetti's Sustainable City Plan will integrate climate action along seismic preparedness plans, including joint strategies to prepare for the realities of climate change and future earthquakes.
- Mayor Kevin Johnson (Sacramento, CA) serves on the President's State, Local and Tribal Leaders Task Force for Climate Preparedness and Resilience. As a chairman of the Resilient Communities for America campaign, Mayor Johnson has led Sacramento in adopting significant innovations in food and fuel sustainability, including goals to purchase 20% of its food locally and using food waste to power the city's waste disposal fleet.
- The U.S. Department of Agriculture's Southwest Regional "Climate Hub" is located in Las Cruces, New Mexico, with a sub-hub located in Davis, California. The Hub is designed to deliver science-based knowledge, practical information, and program support for farmers, ranchers, landowners, and resource managers to support informed on-the-ground decision-making related to climate change.

Cutting Carbon Pollution in CALIFORNIA:

In 2012, power plants and major industrial facilities in California emitted almost 115 million metric tons of carbon pollution – that’s equal to the yearly pollution from more than 20 million cars. Through the Climate Action Plan and state initiatives, there are many efforts already underway to mitigate and respond to the impacts of climate change in California, including:

- ***Investing in Clean Energy:*** Since President Obama took office, the U.S. increased solar-electricity generation by more than ten-fold and tripled electricity production from wind power. In California, renewable energy generation from wind, solar, and geothermal sources increased by more than 40 percent. Since 2009, the Administration has supported tens of thousands of renewable energy projects throughout the country, including 42,800 in California, generating enough energy to power more than 900,000 homes and helping California meet its own goal of generating 33 percent of its electricity from renewable energy sources by 2020.
- ***Improving Efficiency:*** Using less energy to power our homes, businesses and vehicles is critical to building a clean and secure energy future. President Obama has made essential investments in research and development for energy efficiency advances, and set new standards to make the things we use every day – from cars to microwaves – more efficient.
 - As part of the President’s Better Buildings Challenge, the cities of Los Angeles, Sacramento, San Buenaventura committed to reducing energy intensity in their city-owned buildings 20 percent by 2020, covering 30 million square feet in L.A., 12 million square feet in Sacramento, and 560 thousand square feet in San Buenaventura. Placer County committed 5 million square feet of city buildings to the same goal. University of California-Irvine reduced its energy intensity 8.8 percent by 2012 in 7 million square feet of building space. Multifamily Residential Partners, San Antonio Housing Authority, Satellite Affordable Housing Associates, and Tenderloin Neighborhood Development Corporation committed to reducing energy intensity 20 percent in 10 years in a combined 4 million square feet of buildings throughout California.

For more information about the third U.S. National Climate Assessment, please visit www.globalchange.gov or contact engagement@usgcrp.gov.

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