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FACT SHEET: What Climate Change Means for Arizona 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.

ARIZONA 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 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 ARIZONA

- **Agriculture:** "Agriculture, a mainstay of the regional and national economies, faces uncertainty and change. The Southwest produces more than half of the nation's high-value specialty crops, including certain vegetables, fruits, and nuts. The severity of future impacts will depend upon the complex interaction of pests, water supply, reduced chilling periods, and more rapid changes in the seasonal timing of crop development due to projected warming and extreme events." (NCA, Ch. 20: Southwest)
- **Water:** "Streamflow totals in the Sacramento-San Joaquin, the Colorado, the Rio Grande, and in the Great Basin were 5% to 37% lower between 2001 and 2010 than the 20th century average flows. 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." (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:** “Fire contributes to upslope shifting of vegetation, spread of invasive plants after extensive and intense fire, and conversion of forests to woodland or grassland. Historical and projected climate change makes two-fifths (40%) of the region vulnerable to these shifts of major vegetation types or biomes; notably threatened are the conifer forests of southern California and sky islands of Arizona.” (NCA, Ch. 20: Southwest)
- **Tribes:** “Changes in long-term average temperature and precipitation have produced changes in the physical and hydrologic environment, making the Navajo Nation more susceptible to drought impacts, and some springs and shallow water wells on the Navajo Nation have gone dry. Southwest tribes have observed damage to their agriculture and livestock, the loss of springs and medicinal and culturally important plants and animals, and impacts on drinking water supplies.” (NCA Chapter 12: Indigenous Peoples)
- **Adaptation:** “Prescribed burning, mechanical thinning, and retention of large trees can help some southwestern forest ecosystems adapt to climate change. These adaptation measures also reduce emissions of the gases that cause climate change because long-term storage of carbon in large trees can outweigh short-term emissions from prescribed burning”. (NCA, Ch. 20: Southwest)

Examples of Efforts Underway in ARIZONA to Address Climate Change

In **ARIZONA**, 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.

Cutting Carbon Pollution in Arizona:

In 2012, power plants and major industrial facilities in Arizona emitted almost 60 million metric tons of carbon pollution – that’s equal to the yearly pollution from more than 12 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 Arizona, 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 Arizona, renewable energy generation from wind, solar, and geothermal sources increased by nearly a factor of twenty-five. Since 2009, the Administration has supported tens of thousands of renewable energy projects throughout the country, including 11,990 in Arizona, generating enough energy to power more than 160,000 homes and helping Arizona meet its own goal of generating 15 percent of its electricity from renewable energy sources by 2025.
- ***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.
 - President Obama established the toughest fuel economy standards for passenger vehicles in U.S. history. These standards will double the fuel efficiency of our cars and trucks by 2025, saving the average driver more than \$8,000 over the lifetime of a 2025 vehicle and cutting carbon pollution.
 - Since October 2009, the Department of Energy and the Department of Housing and Urban Development have jointly completed energy upgrades nearly two million homes across the country, saving many families more than \$400 on their heating and cooling bills in the first year alone.
 - As part of the President’s Better Buildings Challenge, the Dysart Unified School District in Arizona committed to reducing energy intensity 20 percent by 2020 in 25 schools totaling 3 million square feet.

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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