

FOR IMMEDIATE RELEASE

May 6, 2014

## FACT SHEET: What Climate Change Means for Minnesota and the Midwest



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.

**MINNESOTA** is part of the U.S. National Climate Assessment U.S. Midwest 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 Midwest’s agricultural lands, forests, Great Lakes, industrial activities, and cities are all vulnerable to climate variability and climate change. Climate change will tend to amplify existing risks climate poses to people, ecosystems, and infrastructure. Direct effects will include increased heat stress, flooding, drought, and late spring freezes. Climate change also alters pests and disease prevalence, competition from non-native or opportunistic native species, ecosystem disturbances, land-use change, landscape fragmentation, atmospheric and watershed pollutants, and economic shocks such as crop failures, reduced yields, or toxic blooms of algae due to extreme weather events. These added stresses, together with the direct effects of climate change, are projected to alter ecosystem and socioeconomic patterns and processes in ways that most people in the region would consider detrimental.

Most of the Midwest's population lives in urban environments. Climate change may intensify other stresses on urban dwellers and vegetation, including increased atmospheric pollution, heat island effects, a highly variable water cycle, and frequent exposure to new pests and diseases. Further, many of the cities have aging infrastructure and are particularly vulnerable to climate change related flooding and life-threatening heat waves. The increase in heavy downpours has contributed to the discharge of untreated sewage due to excess water in combined sewage-overflow systems in a number of cities in the Midwest." (NCA Highlights, p.74)

### **Regional Findings of the Third U.S. National Climate Assessment: MIDWEST**

- "In the next few decades, longer growing seasons and rising carbon dioxide levels will increase yields of some crops, though those benefits will be progressively offset by extreme weather events. Though adaptation options can reduce some of the detrimental effects, in the long term, the combined stresses associated with climate change are expected to decrease agricultural productivity.
- The composition of the region's forests is expected to change as rising temperatures drive habitats for many tree species northward. The role of the region's forests as a net absorber of carbon is at risk from disruptions to forest ecosystems, in part due to climate change.
- Increased heat wave intensity and frequency, increased humidity, degraded air quality, and reduced water quality will increase public health risks.
- The Midwest has a highly energy-intensive economy with per capita emissions of greenhouse gases more than 20% higher than the national average. The region also has a large and increasingly utilized potential to reduce emissions that cause climate change.
- Extreme rainfall events and flooding have increased during the last century, and these trends are expected to continue, causing erosion, declining water quality, and negative impacts on transportation, agriculture, human health, and infrastructure.
- Climate change will exacerbate a range of risks to the Great Lakes, including changes in the range and distribution of certain fish species, increased invasive species and harmful blooms of algae, and declining beach health. Ice cover declines will lengthen the commercial navigation season." (NCA, Ch. 18: Midwest)

### **Selected Findings and Information from the Third U.S. National Climate Assessment Relevant to MINNESOTA**

- **Climate:** "The rate of warming in the Midwest has markedly accelerated over the past few decades. Between 1900 and 2010, the average Midwest air temperature increased by more than 1.5°F. Since 1991, the amount of rain falling in very heavy precipitation events has been significantly above average." (NCA, Ch. 18: Midwest, Ch. 2: Our Changing Climate)
- **Flooding:** "Large-scale flooding can also occur due to extreme precipitation in the absence of snowmelt (for example, Rush Creek and the Root River, Minnesota, in August 2007 and

multiple rivers in southern Minnesota in September 2010). These warm-season events are projected to increase in magnitude. Such events tend to be more regional and less likely to cover as large an area as those that occur in spring, in part because soil water storage capacity is typically much greater during the summer.” (NCA, Ch. 18: Midwest)

- **Agriculture:** “The Midwest growing season lengthened by almost two weeks since 1950, due in large part to earlier occurrence of the last spring freeze. This trend is expected to continue, though the potential agricultural consequences are complex and vary by crop. Future crop yields will be more strongly influenced by anomalous weather events than by changes in average temperature or annual precipitation. Springtime cold air outbreaks (at least two consecutive days during which the daily average surface air temperature is below 95% of the simulated average wintertime surface air temperature) are projected to continue to occur throughout this century. As a result, increased productivity of some crops due to higher temperatures, longer growing seasons, and elevated CO2 concentrations could be offset by increased freeze damage.” (NCA, Ch. 18: Midwest)
- **Forests:** “Among the varied ecosystems of the region, forest systems are particularly vulnerable to multiple stresses. The habitat ranges of many iconic tree species such as paper birch, quaking aspen, balsam fir, and black spruce are projected to decline substantially across the northern Midwest as they shift northward, while species that are common farther south, including several oaks and pines, expand their ranges northward into the region.” (NCA, Ch. 18: Midwest)
- **Tribes:** “Observed and future impacts from climate change threaten Native Peoples’ access to traditional foods such as fish, game, and wild and cultivated crops, which have provided sustenance as well as cultural, economic, medicinal, and community health for generations.” (NCA, Ch. 12: Indigenous Peoples)
- **Infrastructure:** “Water infrastructure for flood control, navigation, and other purposes is susceptible to climate change impacts and other forces because the designs are based upon historical patterns of precipitation and streamflow, which are no longer appropriate guides.” (NCA, Ch. 18: Midwest)

---

### **Examples of Efforts Underway in MINNESOTA to Address Climate Change**

In MINNESOTA, 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.

- Chairwoman Karen Diver (Fond du Lac Band of Lake Superior Chippewa, MN) serves on the President's State, Local and Tribal Leaders Task Force for Climate Preparedness. Chairwoman Diver has led a number of mitigation and adaptation initiatives to boost solar power usage and energy efficiency following Fond du Lac's ratification of the Kyoto Protocol in 2007.

### **Cutting Carbon Pollution in MINNESOTA:**

In 2012, major facilities in Minnesota emitted more than 42 million metric tons of carbon pollution – that's equal to the yearly pollution from almost 9 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 Minnesota, 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 Minnesota, renewable energy generation from wind, solar, and geothermal sources increased more than 80 percent. Since 2009, the Administration has supported tens of thousands of renewable energy projects throughout the country, including 261 in Minnesota, generating enough energy to power more than 130,000 homes and helping Minnesota meet its own goal of generating 25 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 state of Minnesota committed to reducing energy intensity 20 percent by 2020 in 22 million square feet of public buildings. Aeon and the Minneapolis Public Housing Authority, Multifamily Residential Partners, have committed to reduce energy intensity 20 percent in 10 years in a combined 7.2 million square feet of buildings.

*For more information about the third U.S. National Climate Assessment, please visit [www.globalchange.gov](http://www.globalchange.gov) or contact [engagement@usgcrp.gov](mailto:engagement@usgcrp.gov).*