



Preparing the United States for the Impacts of Climate Change

**Presentation to
Metcalf Institute Workshop**

**Alex Barron, Ph.D.
Deputy Associate Administrator
Office of the Administrator / Office of Policy
U.S. Environmental Protection Agency**

May 2015



Why Does Climate Change Matter?

- Many of the outcomes EPA, in partnership with communities, is trying to attain (*e.g.*, clean air, safe drinking water, economic growth) are sensitive to changes in climate.
- Until now, EPA has been able to assume climate is relatively stable and future climate will mirror past climate.

But the past is no longer a good predictor of the future.

- ➔ • **EPA must adapt.**
 - It must anticipate and plan for future changes in climate.



Examples of the Importance of Climate Adaptation for EPA's Mission

- **Water:**
 - ✓ Increased risk of sewer overflows and wastewater bypasses
 - ✓ Integrity of coastal water infrastructure systems could be put at increased risk
 - ✓ Saltwater intrusion in surface water and ground water, placing increased demands on drinking water treatment
 - ✓ Increased pollutant loads to water bodies could increase annual POTW treatment costs
- **Air:**
 - ✓ Increased tropospheric ozone pollution in certain regions could make it more difficult to attain NAAQS for ozone in many areas with existing ozone problems
- **Clean-up of Contaminated Sites and Waste Management:**
 - ✓ Increased risk of contaminate release from EPA sites due to increasing heavy precipitation events, increasing risk of floods, and sea level rise
- **EPA Facilities and Operations:**
 - ✓ Increased risks to EPA facilities in coastal or flood-prone areas



Mainstreaming adaptation planning at EPA

Climate adaptation planning must be “mainstreamed” into EPA’s programs, policies, rules, and operations to ensure they remain effective under future climatic conditions.



Leadership by the Federal Government



THE PRESIDENT'S CLIMATE ACTION PLAN

Executive Office of the President

June 2013



President's *Climate Action Plan*

- **Section 1: Cuts carbon pollution in America**
- **Section 2: Prepares the United States for the impacts of climate change**
- **Section 3: Lead international efforts to address global climate change**



**Executive Order 13653:
“Preparing the United States for the Impacts of
Climate Change”**

November 1, 2013



Key Mechanisms to Support Adaptation

- Support climate-resilient investments in communities across the country (by modernizing Federal programs)
- Provide states, tribes, and local communities with the information, data, tools, and training they need to increase resilience and prepare for climate change.
- **Federal agency planning for climate change related risk: Every federal department & agency required to produce a climate adaptation plan.**

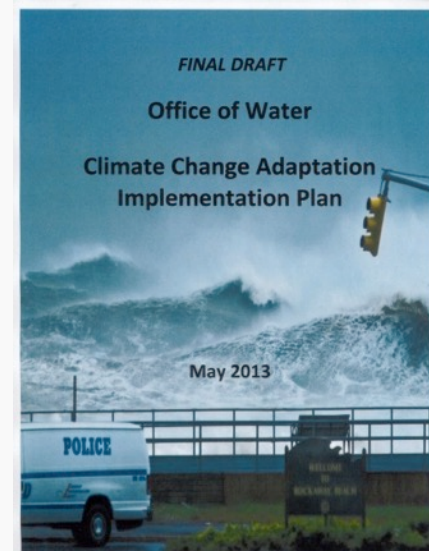
EPA Has Developed Climate Change Adaptation Plans

Agency-wide *Climate Change Adaptation Plan*



<http://epa.gov/climatechange/pdfs/EPA-climate-change-adaptation-plan-final-for-public-comment-2-7-13.pdf>

Program & Regional Office *Implementation Plans*



<http://epa.gov/climatechange/impacts-adaptation/fed-programs/EPA-impl-plans.html>



White House Task Force on Climate Preparedness and Resilience: Recommended Actions

- Task Force established by Executive Order 13653.
- 26 governors, mayors, tribal leaders and county officials tasked with advising the federal government on how to help communities become more climate-resilient.
- November 17, 2014: Task Force released a 49-page report with 35 key recommendations.
- On the same day, the White House released a climate resilience toolkit
 - ✓ addresses how climate change affects coastal flooding, food access, health, transportation, water, and ecosystems.
 - ✓ available at toolkit.climategov



Central Element of EPA's Efforts: Building Adaptive Capacity

EPA is mainstreaming climate adaptation planning by:

- Building and strengthening the “adaptive capacity” of its staff and its partners in the states, tribes, and local communities
- Supporting their efforts to integrate climate adaptation into the work they do by:
 - ✓ **Training**: increasing awareness of ways climate change may affect their ability to implement effective programs
 - ✓ **Financial incentives**: supporting climate-resilient investments in communities across the country
 - ✓ **Tools**: providing necessary data, information and tools

 **Empowering communities through partnerships!**



Training...

**... to increase awareness and understanding
of the importance of climate adaptation**



- Released by EPA on May 6, 2015
- Helps local government officials prepare for the impacts climate change may have on the services they provide to their communities.
- Includes examples of effective resilience strategies that have been successfully implemented in several cities and towns across the nation.
- Provides information and resources to help local government officials get started with adaptation planning in their own communities.

www.epa.gov/localadaptationtraining

Supporting Climate-Resilient Investments

- State Revolving Loan Funds: EPA's National Water Program is recognizing and encouraging consideration of climate change in the management of Clean Water and Drinking Water State Revolving Loan Funds. **(Commitment in the President's *Climate Action Plan*.)**
- Brownfield Grants: The EPA Office of Solid Waste and Emergency Response is requiring brownfield grant recipients to take potential changing climate conditions into consideration when evaluating cleanup alternatives. **(Commitment in the President's *Climate Action Plan*.)**
- EPA Region 2: Working with stakeholders to build climate resiliency into Hurricane Sandy recovery activities.
- EPA Region 5: Integrating consideration of climate impacts and adaptation into Great Lakes Restoration Initiative-funded projects.



Decision Support Tools and Resources

EPA has been producing data, information, and tools
that are already available
to inform adaptive management decisions.

Federal Portals for Data and Tools

U.S. Climate Resilience Toolkit: <http://toolkit.climate.gov/>

U.S. Climate Data Portal: <http://data.gov/climate>

National Stormwater Calculator and Climate Assessment Tool Package

- Released January 30, 2014
- Commitment in President's *Climate Action Plan*
- Estimates the annual amount of stormwater runoff from a specific location
- Includes projected climate impacts:
 - ✓ changes in seasonal precipitation levels
 - ✓ effects of more frequent high-intensity storms
 - ✓ changes in evaporation rates

<http://www.epa.gov/nrmrl/wswrd/wq/models/swc/>



Adaptation is Smart Government

Climate adaptation helps ensure that investments (*e.g.*, water infrastructure) made with scarce taxpayer dollars are effective even as the climate changes.





Potential Impacts of Climate Change on U.S. Regional Air Quality

(EPA report released April 17, 2009)

Fundamentally: Is climate change something we have to pay attention to going forward?

Answer: Yes

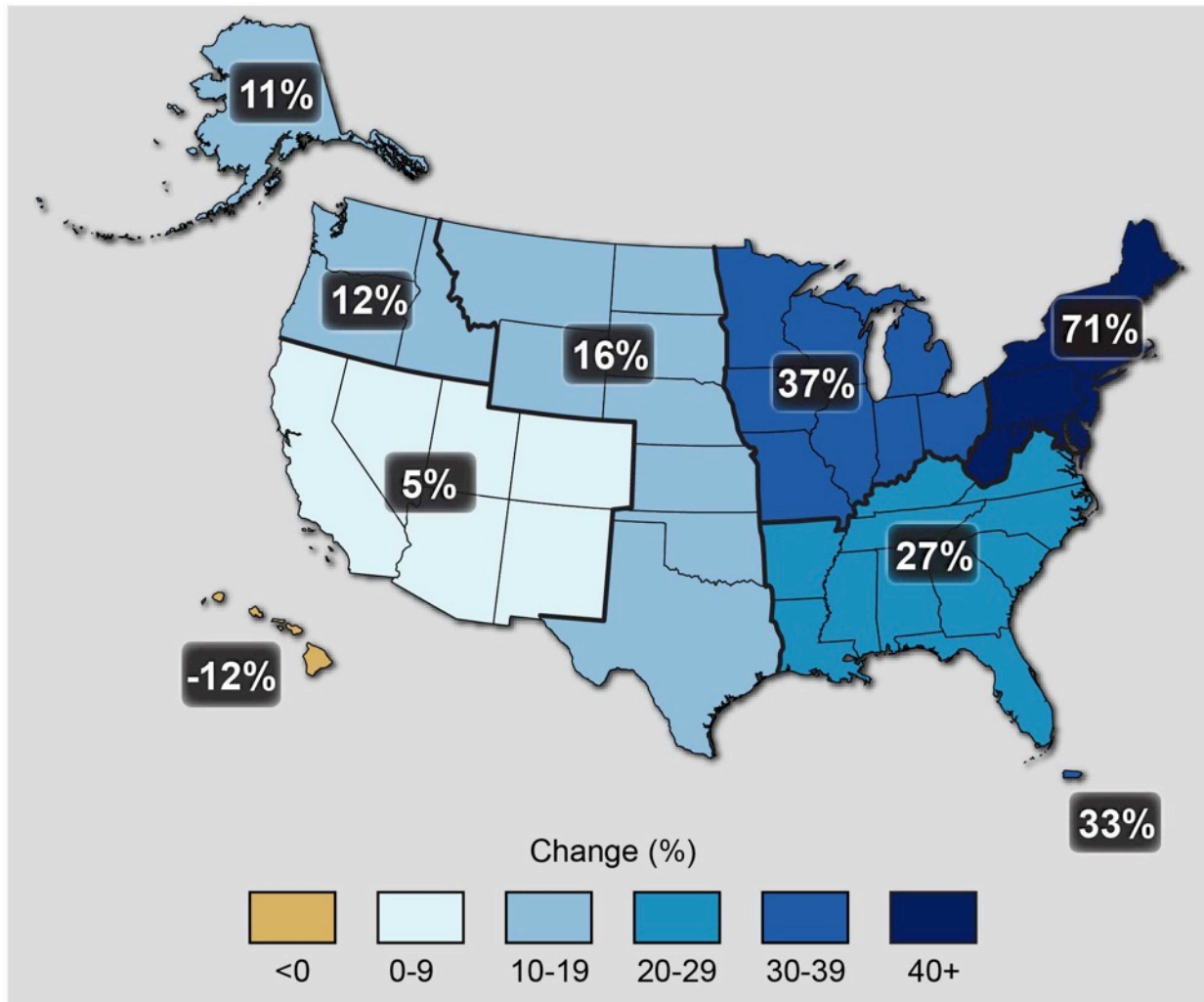
Climate change should be considered by air quality managers as they develop air pollution control strategies. Climate change has the potential to produce significant increases in ground-level ozone in many regions.

USA: Combined sewer overflows



**1.2 trillion gal of sewage & stormwater a year
discharged during combined sewer overflows
– would keep Niagara Falls roaring for 18 days**

Observed Changes in Heavy Precipitation: 1958-2011





Combined Sewer Overflow in the Great Lakes Region (EPA report released February 2008)

- Issue: There are 182 combined sewer systems in the Great Lakes Region. Billions of dollars are being spent redesigning and rebuilding these systems.
- Does climate change matter to the redesign of combined sewer systems in the Great Lakes Region?
- If combined sewer systems are designed to meet the EPA's CSO Control Policy design standard of 4 events per year, but fail to plan for climate change:
 - ✓ climate change may result in failure to meet the standard
 - ✓ **there could be an average of 237 events per year above the control policy's objectives across 182 communities**
- Communities must transform the way they plan for the future and design combined sewer systems.

The Risks are Manageable

1. Climate change will affect future performance of many CSSs in the Great Lakes Region.
2. Calculations of system size should not be based on current hydrology and historic precipitation data.
3. A *policy* decision must be made about additional investments to build in a margin of safety.
4. **The risks posed by climate change to CSSs are manageable.**

<http://cfpub.epa.gov/ncea/global/recordisplay.cfm?deid=188306>