

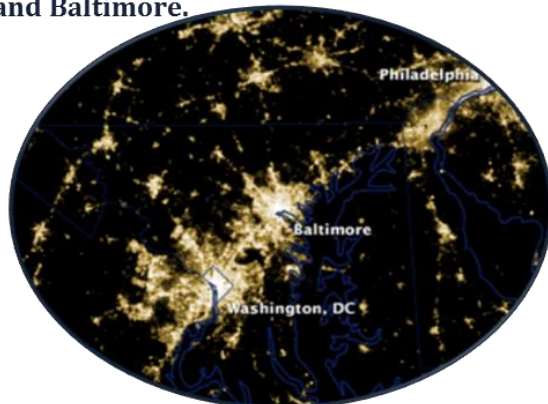
Severe Weather & Critical Infrastructure Resilience: Preparing Washington D.C.

Center for Clean Air Policy (CCAP)
District Department of Environment (DDOE)
District Office of Planning (OP)
April 2013

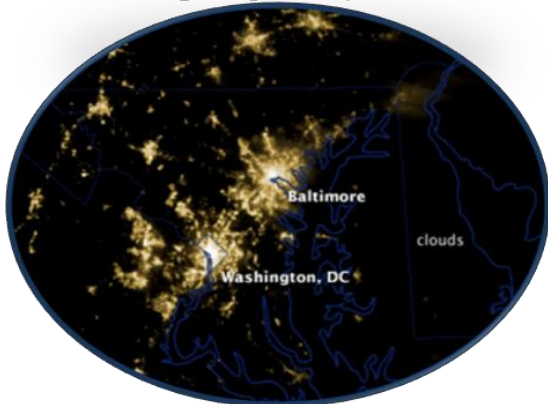
Executive Summary

In the wake of Hurricane Sandy, the June 2012 derecho, recent record heat and blizzards, we are seeing longer-lasting disruptions to the power grid, transportation networks and business operations that have led to tragic loss of life and significant economic losses.

Images courtesy of NASA's Earth Observatory showing the impacts of the "derecho" that had intense lightening, rain, and hurricane force winds causing power outages across Washington, DC and Baltimore.



"Before" image, captured June, 28, 2012.



"After" image, captured June, 29, 2012.

What passes for "normal" weather appears to be changing for the worse – and we need to be ready for the weather both in the current climate as well as the future. With this in mind, the District is initiating a climate change adaptation assessment to examine current and projected risks from severe weather and to develop a resilience plan to enhance the District's economy and quality of life.

On March 14, the **Center for Clean Air Policy (CCAP)**, the **District Department of Environment (DDOE)**, and the **District Office of Planning (OP)**, held a workshop to gather stakeholder input to help shape future resilience efforts to ensure they reflect stakeholder knowledge, experience and priorities.

Workshop goals:

- Share expert information
 - Problems & Solutions
- Understand stakeholder priorities and concerns
- Identify collaboration opportunities
 - Public-public and public-private
 - Short-term efforts with multiple benefits
- Document potential next steps
 - Research, workshops, capacity building, outreach, policy, action.

Opening Remarks

Keith Anderson (Director, [DDOE](#)) Keith Anderson noted recent severe weather events in the District and explained that the Sustainable DC plan addresses both greenhouse gas (GHG) emission reduction as well as climate change adaptation.

Harriet Tregoning (Director, [OP](#)) emphasized that resilience measures can go beyond preparing for and recovering from disasters, but can bolster the economy and enhance quality of life the District.

Steve Winkelman (Adaptation Director, [CCAP](#)), described CCAP's vision of resilience: when the next superstorm or heat wave comes, we will still be able to turn on the lights, get to work and do our jobs, and enjoy life.

Participants:

Government

DC Homeland Security and Emergency Management Agency
DC Office of Planning (OP)
Department of Consumer and Regulatory Affairs (DCRA)
District Department of the Environment (DDOE)
District Department of Transportation (DDOT)
District of Columbia Housing Authority
Federal Emergency Management Agency (FEMA)
General Services Administration (GSA)
Metropolitan Washington Council of Governments (MWCOG)
National Aeronautic and Space Administration (NASA)
National Capital Planning Commission (NCPC)
National Climatic Data Center (NCDC)
National Oceanic and Atmospheric Administration (NOAA)
US Environmental Protection Agency (EPA)
Washington Metropolitan Area Transit Authority (WMATA)

Industry

Akridge
Apartment and Office Building Association (AOBA)
Boston Properties Inc
DC Water
Downtown Business Improvement District (BID)
Entergy
Greater Washington Board of Trade
NoMa Business Improvement District (NoMa BID)
Pepco Holdings, Inc.
Renaissance Reinsurance
Vornado

University and NGO

CCAP
CH2M Hill
Georgetown Law
Udvardy Consultants
University of Maryland

Weather- and Climate-related Risks in DC

Deke Arndt (Chief, Climate Monitoring Branch, [National Climatic Data Center](#)) presented on historic and projected climate and weather trends in the DC region. The key risks facing the District are Big Heat, Big Rain and Sea Level Rise. **Laurens Van der Tak**, (Vice President, [CH2M Hill](#)) discussed a case study on storm sewer infrastructure planning with climate change risk in nearby Alexandria, Virginia.

Overview DC Resilience Efforts

Brendan Shane (Chief, Office of Policy & Sustainability, [DDOE](#)) noted that DC's GHG emissions declined 12% since 2006 while population increased by 8% and jobs by 40,000. He discussed climate adaptation elements of [Sustainable DC](#) and announced upcoming climate risk analyses. **Frederick Goldsmith** (Critical Infrastructure Specialist, [Homeland Security and Emergency Management Agency](#))

discussed how the District's severe weather leads to power outages and flooding, and remarked that climate change will only make those worse.

Best Resilience Practices, Part 1: Electricity:

Brent Dorsey, Director, Corporate Environmental Programs, [Entergy](#) discussed how Gulf Coast-based Entergy is responding to the business case for climate preparedness out of economic self-interest and as a community leader.

Best Resilience Practices, Part 2: Insurance:

Stephen Weinstein, Senior VP, [RenaissanceRe](#) discussed how RenRe makes billion dollar decisions informed by climate science and taps best practices in hazard mitigation to prepare.

Best Resilience Practices, Part 3: Visualizing Solutions & Measuring Benefits:

Steve Winkelman shared photos of resilience measures including infrared imagery of a green roof and elevated subway grates and provided examples of how planning ahead saves money.

Next Steps: Participants recommended the following:

- Economic analyses of climate impacts and resilience scenarios
- "What If" flooding analysis
- Vulnerability studies on sea level rise, severe weather and urban heat
- Inventory of DC resilience efforts
- Green infrastructure analyses
- Metro grate extensions to prevent flooding
- Improve transportation choices
- Protect cultural resources
- Undergrounding power lines.

Download the workshop report:

<http://www.ccap.org/weatheringclimate.html>

For more information: Please contact **Steve Winkelman**, Director Adaptation and Transportation Programs (swinkelman@ccap.org) or **Shana Udvardy**, Climate Adaptation Policy Analyst (sudvardy@ccap.org) with CCAP and **Daniel J. Barry**, Senior Climate Policy Analyst, DDOE (daniel.barry@dc.gov). We are thankful to the **Surdna Foundation** for their support.

