



Climate Change and Health Considerations ***An EPA Perspective***

Presentation to **Climate and Health Workshop for the SE Region**

Kenneth Mitchell, Ph.D.
Special Assistant to the Director
Air, Pesticides, and Toxics Management Division
U.S. Environmental Protection Agency
Atlanta, GA

February 13, 2012



The Climate is Changing....

- **Scientists know with virtual certainty that:**
 - Human activities are changing the composition of Earth's atmosphere
 - The atmospheric buildup of CO₂ and other greenhouse gases is largely the result of human activities such as the burning of fossil fuels
 - An “unequivocal” warming trend of about 1.0 to 1.7°F occurred from 1906-2005
 - The major greenhouse gases emitted by human activities remain in the atmosphere for periods ranging from decades to centuries
 - It is therefore virtually certain that atmospheric concentrations of greenhouse gases will continue to rise over the next few decades
 - Increasing greenhouse gas concentrations tend to warm the planet



The past is no longer a good predictor of the future



Climate Change and EPA's Mission

- Outcomes EPA is working to attain (e.g., clean air, safe drinking water) are sensitive to changes in climate
- Until now, EPA has been able to assume “stationarity” of climate
 - Climate is relatively stable and future climate will mirror past climate
- But the past is no longer a good predictor of the future
- Climate change is posing new challenges.
 - **making it more difficult for EPA to attain its goals**
 - making it more difficult to develop sustainable communities
- **EPA must adapt and it must anticipate and plan for future changes in climate**



Taking Action on Climate Change



“[C]limate change will affect other parts of our core mission... and we must include those considerations in our future plans.”

*EPA Administrator Lisa Jackson
January 2010*



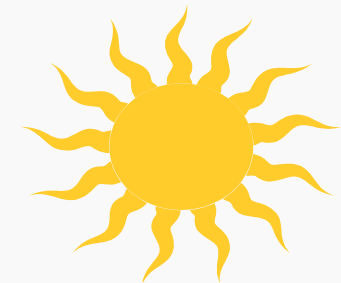
Endangerment Finding

- **On December 7, 2009, the Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:**
 - **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases — carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆) — in the atmosphere threaten the public health and welfare of current and future generations.
 - **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.



Health Considerations of the Endangerment Finding

- **The key effects that support EPA's determination that current and future concentrations of greenhouse gases endanger public health include:**
 - **Temperature** : There is evidence that the number of extremely hot days is already increasing. Severe heat waves are projected to intensify, which can increase heat-related mortality and sickness. Fewer deaths from exposure to extreme cold is a possible benefit of moderate temperature increases. Recent evidence suggests, however, that the net impact on mortality is more likely to be a danger because heat is already the leading cause of weather-related deaths in the United States.

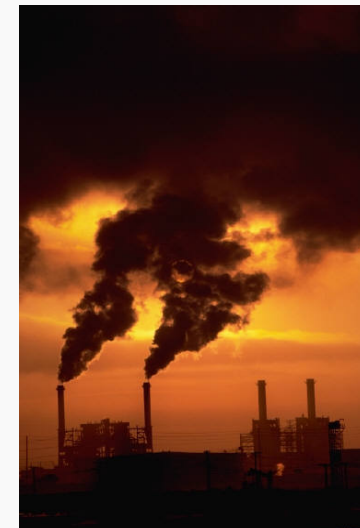


Heat-related mortality & morbidity



Health Considerations of the Endangerment Finding

- **Air Quality:** Climate change is expected to worsen regional ground-level ozone pollution. Exposure to ground-level ozone has been linked to respiratory health problems ranging from decreased lung function and aggravated asthma to increased emergency department visits, hospital admissions, and even premature death. The impact on particulate matter remains less certain.



Changes in air quality



Health Considerations of the Endangerment Finding

- **Climate-Sensitive Diseases and Aeroallergens**
 - Potential ranges of certain diseases affected by temperature and precipitation changes, including tick-borne diseases and food and water-borne pathogens, are expected to increase.
 - Climate change could impact the production, distribution, dispersion and allergenicity of aeroallergens and the growth and distribution of weeds, grasses, and trees that produce them. These changes in aeroallergens and subsequent human exposures could affect the prevalence and severity of allergy symptoms.



Infectious Diseases



Pollen



Health Considerations of the Endangerment Finding

- **Extreme Events**
 - Storm impacts are likely to be more severe, especially along the Gulf and Atlantic coasts. Heavy rainfall events are expected to increase, increasing the risk of flooding, greater runoff and erosion, and thus the potential for adverse water quality effects. These projected trends can increase the number of people at risk from suffering disease and injury due to floods, storms, droughts and fires.





Health Considerations of the Endangerment Finding

- **Vulnerable Populations and Environmental Justice**

- Certain parts of the population may be especially vulnerable to climate impacts, including the poor, the elderly, those already in poor health, the disabled, those living alone, and/or indigenous populations dependent on one or a few resources
- Environmental justice issues are clearly raised through examples such as warmer temperatures in urban areas having a more direct impact on those without air-conditioning





Climate Adaptation Must be “Mainstreamed” into EPA’s Programs, Policies, Rules, and Operations

**Adaptation is critical if EPA, and the communities
it serves, are to attain desired environmental,
human health, and economic outcomes**

Federal Interagency Climate Change Adaptation Task Force

Executive Order
13514 (Oct. 2009)

- ❑ Recommendations for national strategy
- ❑ Integrate resilience and adaptive capacity
- ❑ Equip communities with information for local adaptation policies

Building Resilient, Healthy, and Prosperous Communities



THE WHITE HOUSE COUNCIL ON ENVIRONMENTAL QUALITY

*Progress Report of the Interagency
Climate Change Adaptation Task
Force: Recommended Actions in
Support of a National Climate
Change Adaptation Strategy*

October 5, 2010



October 2010: Initial report to the President:

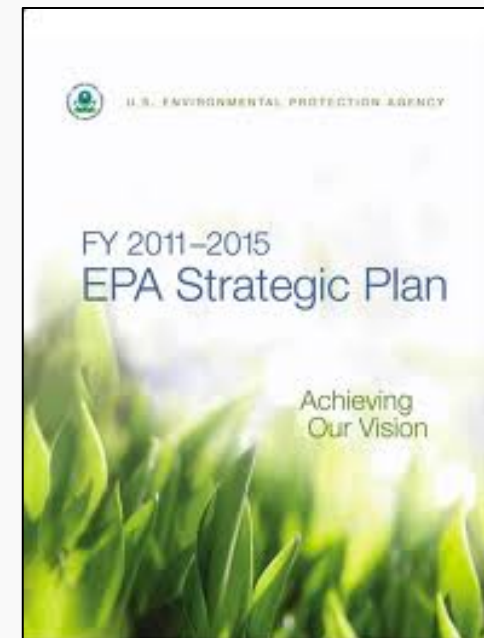
- ✓ 5 major recommendations
- ✓ Recommendation #1: **Each Federal Agency should develop a Climate Change Adaptation Plan**

<http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation>



What is EPA doing on adaptation?

- **2011-2015 Strategic Plan**
 - *The Agency must incorporate the anticipated, unprecedented changes in climate into its programs and rules, drawing on the critical information and tools provided by EPA researchers, to continue to fulfill statutory, regulatory, and programmatic requirements.*

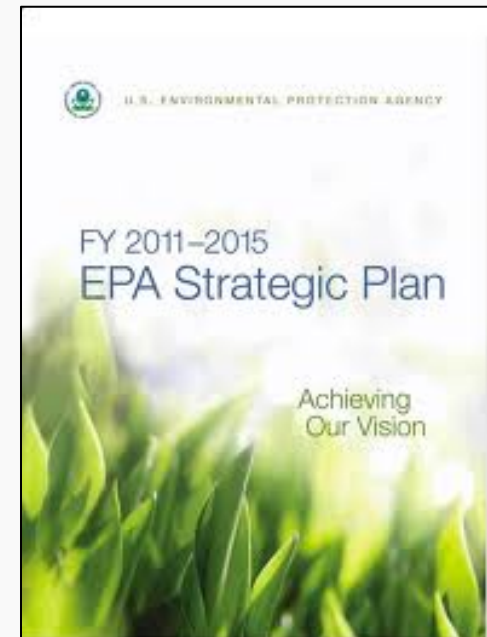




What is EPA doing on adaptation?

- **Strategic Measures (by 2015):**

- *Integrate climate change science trend and scenario information into five major scientific models and/or decision-support tools*
- *Account for climate change by integrating climate change science trend and scenario information into five rule-making processes*
- *Build resilience to climate change by integrating considerations of climate change impacts and adaptive measures into five major grant, loan, contract, or technical assistance programs*





What is EPA doing on adaptation?

- **EPA Policy Statement on Climate Change Adaptation (June 2, 2011)**
 - *EPA shall develop and implement a Climate Change Adaptation Plan to integrate climate adaptation into the Agency's programs, policies, rules and operations.*



What is EPA doing on adaptation?

- **Cross-EPA Work Group on Climate Change Adaptation Planning**
 - **Charge:** To develop and implement a Climate Change Adaptation Plan for EPA
 - **Goal:** Final by Spring 2012





Questions?

Dr. Ken Mitchell
404-562-9065
mitchell.ken@epa.gov