

ORD Climate Research: Overview and Context

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Presentation Overview



- Climate Action Plan and Executive Order
 - Administration's strategic direction
- Purpose and scope of ORD's climate research
 - EPA's strategic direction
- Climate research and sustainability
 - ORD's strategic direction
- Potential future issues and directions

President's Climate Action Plan – Research Responsibilities



- **Cut Carbon Pollution in America**
 - Why to cut: climate sensitivity to GHGs – NOAA, NASA, NSF, DOE (Science)
 - How to cut: carbon mitigation technologies – DOE (Fossil Energy), DOT
- **Prepare the United States for the Impacts of Climate Change**
 - Adaptation to impacts of climate change – EPA, USDA, DOI, DOT,
- **Lead International Efforts to Combat Global Climate Change and Prepare for its Impacts**
 - Focus on State Dept, but science interaction roles for most other agencies, including EPA

Purpose and scope of ORD's climate research



- ORD's mission is to provide the scientific and technical information to fulfill EPA's mission
 - This means ensuring EPA is able to fulfill its mission even as the climate is changing
 - Immediate need is therefore to conduct research to support adaptation of EPA's programs to climate change as required by the Climate Adaptation Plan
- Research scope focuses on adaptation, measurement methods, and impacts of climate and mitigation

ORD Climate-related Budget

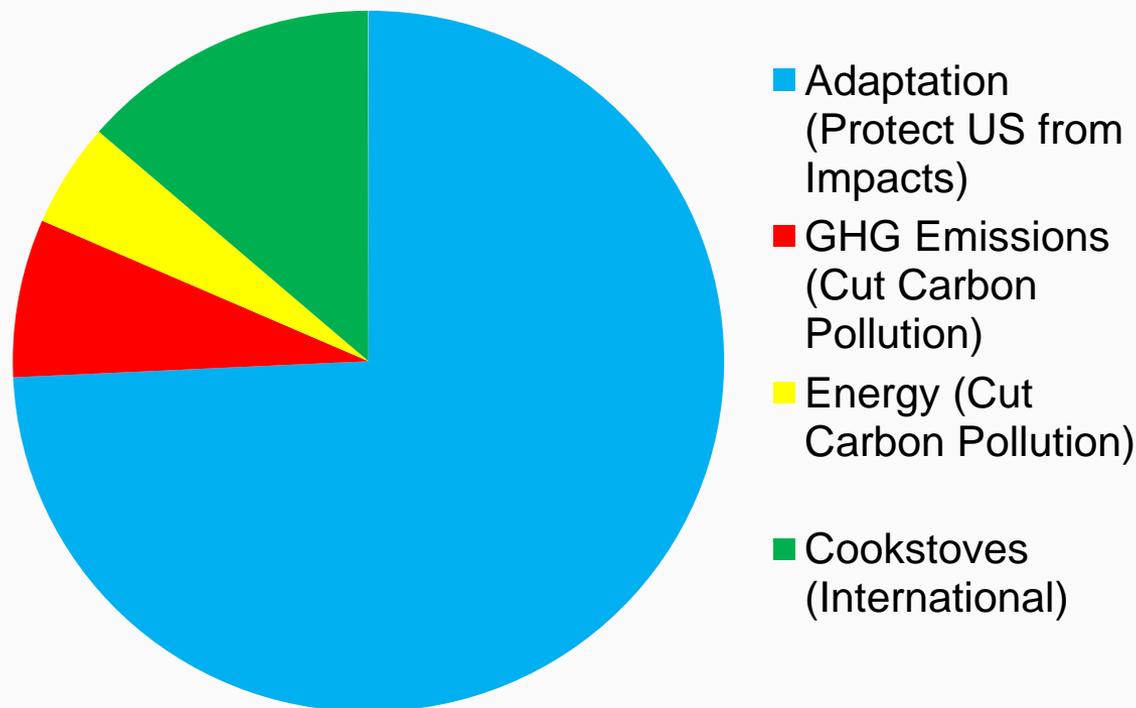


FY13 ORD Extramural Funds to Major Climate/Energy Topics

Extramural funds for work that directly addresses climate change or “indirectly” addresses climate change as an environmental stressor

\$12.3M in total extramural funding for in-house program and STAR (\$4.7M)

29 FTE in ACE/Global Change



Climate research and sustainability



- Climate change is perhaps the most concrete example of a sustainability issue
- The ORD sustainability focus provides a solid base for our climate research
- This foundation incorporates
 - Systems orientation
 - Understanding of life cycle impacts
 - Community-based decision context
- Climate-related research is thus embedded throughout our programs

Interactions with partners to identify research needs



- ORD has a range of discussions with Program and Regional Offices to understand their climate research needs
 - From annual AA-level meetings to quarterly DAA-level discussions through weekly staff-level coordination
- Partner issues tend to be near term and focused, but reflect the need to understand climate impacts
 - Climate impacts are therefore incorporated as an additional, but strengthening, stressor

Employing full range of ORD capabilities



- Climate change impacts full scope of environmental research; ORD therefore uses all its tools to develop information
- Climate-related research is conducted across the National Programs and in all Laboratories and Centers
- Near-term needs addressed using internal expertise; longer-term and new areas addressed through the STAR program

Expanding EPA's capabilities



- STAR program's capacity to address emerging issues by engaging a broad range of national scientific experts is critical to EPA's capabilities
- STAR research results have been crucial to major EPA actions
- Current and upcoming RFAs address questions in both the short and the long term integrating a range of scientific expertise
- RFAs developed in close collaboration with Program and Regional Offices as well as with internal experts to ensure relevance

Partnering



- Broad scope of climate impacts and responses requires expanded interactions with other organizations
- Work closely through Federal coordinating committees (under CENRS)
 - SGCR, SWAQ, AQRS
- Focused efforts with other agencies
 - DOE, DOI, HHS, NASA, USDA
 - Partnering on cookstoves illustrates value of EPA capabilities (testing method evaluation; health impacts via STAR) and collaborations

Looking ahead



- Recognize the importance of substantial adaptation at city and state level, illustrating need to better understand community-based decision making
- Evolving EPA regulatory programs will increase need for information on technology cost, performance, and impacts
- Growing need to understand impacts on oceans (including ocean acidification) and other ecosystems; value and importance of ecosystem service
- Exploring the scenario landscape: what poses the greatest risks to human and ecological health, given climate change complexity and interconnected systems?

Need for further discussion



- Changing regulatory environment implies increasing need for technology evaluation and impacts – what is the appropriate balance across the portfolio?
- Long-term nature of climate change requires looking ahead – how far ahead is too far?
- Entirely different issues are emerging, such as geoengineering – what is EPA's role?



Appendix

Recent STAR RFAs Related to Climate



- 2013: Indoor Air and Climate Change (now open, closing January 2014)
- 2013: Science for Sustainable and Healthy Tribes (awards in spring 2014 – SHC)
- 2012: Measurements and Modeling for Quantifying Air Quality and Climatic Impacts of Residential Biomass or Coal Combustion for Cooking, Heating, and Lighting (awards in early 2014)
- 2012: Anthropogenic Influences on Organic Aerosol Formation and Regional Climate Implications
- 2011: Extreme Event Impacts on Air Quality and Water Quality with a Changing Global Climate (joint funding with SSWR)
- 2011: Source Attribution of Radiative Forcing in Chemical Transport Models
- 2010: Black Carbon's Role in Global-to-Local Scale Climate and Air Quality