

ACE Strategic Plan Review

Overview

- Strong
- Linked well to EPA Strategic Plan and priorities
- Scope terrifically broad: Air + Climate + Energy

Charge Qs 2a-b:

Feedback on Research Directions

- 1. Declare Success on Greenhouse Gases and Chart old Future Successes
 - *We recommend crafting a bold statement of what EPA can do to forge a better future. A compelling introduction might begin by reporting on the enormous potential success of the new greenhouse gas regulations for energy utilities; while the Climate Action Plan is mentioned, the transformational nature of EPA's new role in greenhouse gas emissions should be declared as an example of how the new vision and strategic plan can compel major advances for air, climate, and energy in the United States and the for the globe..*

- 2. Include a Conceptual Framework Linking Program Elements:
 - a) 3 elements of the program (air, climate, and energy),
 - b) the 3 research objectives (assess impacts, prevent and reduce emissions, and adapt/mitigate),
 - c) the 5 research topics, and
 - d) their short- and long-term aims

Earth Systems



Air

Ambient Air Quality
Pollutant Deposition

Climate

Changes in:
Temperature · Extremes
Precipitation · Sea Level

Exposures to and Effects on:

Ecosystems · Watersheds
Human Health and Communities

Responses

Mitigation
Prevention
Adaptation

Social Factors

Population · Public Health · Economy
Technology · Transportation · Behavior
Water/Food Supply · Land Use Change

Responses

Mitigation
Prevention
Adaptation

Energy

Emissions of Air
Pollutants
and Other Environmental
Stressors

Human Systems

ACE Objectives & Research Topics



ACE Objectives

Objective 1:
Assess Impacts

Objective 2:
Prevent / Reduce
Emissions

Objective 3:
Prepare for
Changes



ACE Research Topics for Partner Needs

Climate Impacts
Mitigation and
Adaptation

Emissions and
Measurements

Modeling and
Decision Support
Tools

NAAQS and
Multipollutant

Sustainable
Energy
Evaluation

3. Clarify Relative Priorities: Budget Distribution and Agency Interactions.

- Scope large
- Investments skewed
 - Traditional focus on criteria pollutants
 - Other agencies do a lot on climate and energy
- Clarify budget allocations and how they may change under St. Plan
- Identify agency interactions
 - Mitigation may be special opportunity

4. Elaborate and/or expand the research to be conducted on mitigation.

- Currently fuzzy
- Clarify tractable objectives and research
- Can be turned into metrics for evaluation

5. Focus the distributed monitoring of air quality on quality data collection and distribution to citizens.

- Two extremes:
 - accurate and precise regulatory-quality data from a limited number of sites,
 - ubiquitous citizen-science generated data of uneven overall accuracy and precision
- Recommend:
 - ACE work with and motivate entrepreneurs for the development of extensive high quality data that are available to civil society in real time and potentially available for use for regulatory purposes.

6. Consider Explicit Focus and Analysis of Agricultural Sources and other Land Use Contributions

- Across all 5 research topics
- Consider effects of fertilization, livestock production, cultivation on ammonia, N₂O, methane

7. Provide more specific targets for the short-term research aims

ACE Topic	Near-Term Targeted Research Aim	Long-Term Mission Driven Research Aim
Climate Impacts, Mitigation, and Adaptation (CIMA)	Address climate change impacts on air and water quality, and human / ecosystem health	Develop sustainable climate adaptation and mitigation approaches
Emissions and Measurements (EM)	Develop and evaluate regulatory methods for source and ambient air monitoring	Change the paradigm for air pollution monitoring
Modeling & Decision Support Tools (MDST)	Develop and evaluate local, regional, and hemispheric air quality modeling tools	Develop and evaluate models to integrate multimedia processes and systems
NAAQS and Multipollutant (NMP)	Inform NAAQS Reviews	Develop approaches to interpret multipollutant exposures and the resulting human and ecological effects of air pollutant mixtures
Sustainable Energy Evaluation (SEE)	Evaluate environmental impacts of energy technology	Inform policies protecting human and ecosystem health in an evolving energy landscape

Charge Question 2c: Integration

- 8. Consider specifying projects that will integrate ACE with other programs.
 - Current plan identifies opportunities, but not projects with products and metrics

Charge Q. 3: Does the SAB/BOSC have suggestions regarding how ACE should target its efforts to understand, model, and convey the potential environmental impacts of possible energy choices?

- 9. Consider Incorporating Energy Efficiency/Conservation Research.
 - The document avoids the topic of energy efficiency and energy conservation, even though energy use represents the single largest source of pollutants, and one of the most achievable sources of progress can be gained through reducing energy use through increased efficiency.

10. Consider Incorporating Analysis of Energy Scenarios and Pathways.

- One of the most valuable contributions of the ACE program could be an analysis of the ecological and lifecycle impacts of a number of possible energy scenarios (e.g. large scale deployment of centralized solar or wind) and pathways for the future. This type of research could be conducted in collaboration with DOI, DOE, industry, and other institutions