Charge questions and responses for Air, Climate and Energy

Charge Question: How are the ORD research programs progressing in the first year of implementation (in ACE)?

- **An effective articulation of the grand vision for Air Climate and Energy**
- **Large number of projects – an ambitious agenda; projects going in the right direction; many are long term projects so difficult to give a short term assessment, but generally going in the right direction**
- **Research ,*as written*, appeared to be disjoint between the over-arching vision and descriptions of individual projects, however, nitrogen cycle case study was a compelling, well described example of how projects fit together**

Are the research activities planned for FY 13 and future years appropriate for answering the science questions in the Strategic Research Action Plan?

- Panel felt that it need more information – this information is available, but is beyond the scope of the time period available for this review
- Extensive experience of ACE group in integrating air quality and climate, so ACE is building on a strong base for integration, although energy may be more problematic

How are ORD programs contributing to sustainability through their research plans and activities? What advice does the SAB and BOSC have for each research program about advancing sustainability in future research?

- More social and behavioral science research is needed, particularly with a focus on sustainability (two legs of 3 legged stool) – this implies more projects, including some flagship projects; more staff, including both junior (post-doc) and senior researchers
- Systems science
- Sustainability for EPA doing its own activities

As we consider science for the future, while budgets continue to shrink, how should ORD balance its commitments in the Strategic Research Action Plan with the need to advance science on emerging issues?

- **Need balance between short and long term and identify strategic partners**

How do we bring together research on biofuels, oil and gas measurement methods, combustion related pollutant effects and modeling/decision support tools into a coherent whole to address the environmental effects of energy production and use?

- Focus on biofuels is a legacy; need to take a broader look. Fracking may become a center-piece in the coming year – ACE plans to be involved;
- Unpredictability of funding is a key issue
- Look at consequential impacts
- Communication a key issue
- Risk of catastrophic events such as failure of corn crop
- Entire energy budget is 4 million – focus is environmental impacts of energy production and use

Based on the presentation of five integrated topics, what advice can the SAB and BOSC provide to help ORD succeed in integrating research across the ORD programs? How can different approaches to integration help us achieve our research goals?

- There has been a substantial commitment of resources
- Presentation of Nitrogen was an excellent case study – role of SAB?
- Integration needs to be broader than ORD

How can ORD's initial innovation activities be improved to ensure continued and long term benefits for EPA? Are there useful experiences and lessons from other research organizations about managing innovation? What guidance can the SAB and BOSC provide for ORD in developing metrics that would be most effective in assessing the success of our innovation efforts?

- Innovation can include innovation in policy strategies, e.g. market based systems; EPA can be a driver of innovation, and use its leverage in regulation and in public information; research could be done, for example on various types of GHG trading schemes
- Story-telling can be a metric; proposal pressure can be a metric
- Clarified statement had more to do with what fraction of the projects meet their stated objectives