

CENTRAL NEW YORK AND CLIMATE CHANGE

US CLIMATE CHANGE SCIENCE PROGRAM STAKEHOLDER LISTENING SESSION

Wednesday, October 15, 2008 · 2:00 – 5:00 p.m.

SUNY College of Environmental Science and Forestry, Syracuse, NY

CNY'S RESPONSE TO GLOBAL ENERGY AND CLIMATE CHANGE: IS IT SUSTAINABLE?

AGENDA IN ACTION

Thursday, October 16, 2008 · 11:30 a.m. – 1:30 p.m.

Oncenter Complex, Syracuse, NY

INTRODUCTION

US Climate Change Science Program Stakeholder Listening Session

On October 15, 2008, the US Climate Change Science Program (CCSP) convened a listening session targeting a variety of individuals representing a wide variety of perspectives and backgrounds, including academia; local, state, and tribal governments; resource managers; the non-profit sector; and business and industry (a participant list is available in Appendix A). The purpose of the roundtable was for CCSP to hear from a variety of stakeholders about their interests and activities, informational needs, and expectations for and ideas about future directions for climate research, observations, decision support, and communication in Central New York and the United States.

During the discussion, three main questions were used to guide the discussion:

1. What major climate-related challenges or questions are you currently facing?
2. How can the science and information needed to support your decisions and discussions be better provided?
3. What are the roles and responsibilities of the federal government in climate science and information provision?

During the roundtable, we used additional, more specific questions to prompt participants to discuss these topics in further detail (see Appendix B for the meeting agenda). The points raised during the discussion were recorded on large wall charts so that participants could review, revise, and expand upon their answers. Part I of this report attempts to draw out and summarize the themes that arose throughout the discussion. However, the questions and issues covered here represent only a sample of those that Central New Yorkers might expect to face in the coming years – there are many additional issues that were not covered in depth because of both time limitations and the need for continuing and broader discussions with the various academic, business, and non-profit sectors across the Central New York region.

Additional information about the various listening sessions being convened by the CCSP is available from <http://www.climatescience.gov/Library/stratoptions/listening-sessions.php>.

CNY's Response to Global Energy and Climate Change: Is It Sustainable? Agenda in Action

The SUNY College of Environmental Science and Forestry recently held a seminar series on “CNY’s Response to Global Energy and Climate Change: Is It Sustainable?” meant to “engage [people] in the greening efforts of several CNY communities that are responding to global energy supply alternatives and regional climate change challenges.” On October 16, 2008, the series wrapped up with a seminar entitled “Agenda in Action” that was meant to focus on “leadership and strategies for moving forward action agendas for climate change mitigation and adaptation appropriate for the CNY region.” During this seminar, several representatives from Central New York governmental, academic, and business institutions gave brief presentations about efforts to address the scientific and societal challenges of climate change (see Appendix C for the meeting agenda and list of presenters). Notes from the presentations and discussion at this seminar are included in Part II of this report.

Additional information about the seminar series convened by SUNY College of Environmental Science and Forestry is available from <http://www.esf.edu/outreach/pd/2008/climate/>.

PART I

US CLIMATE CHANGE SCIENCE PROGRAM STAKEHOLDER LISTENING SESSION

The sections below summarize discussion under each of the main topics discussed during the listening session. This report does not represent a consensus of participants, but rather an overview of the discussion.

What major climate-related challenges or questions are you currently facing?

General comments

For those trying to act locally, information about the impacts of climate change isn’t available because models and predictions aren’t at the regional / fine scales that are needed to analyze the impacts of climate change on areas of interest (e.g., drinking water supplies, primary productivity, weather patterns, etc.). Going from a global circulation model (GCM) to a region specific model is difficult, thus developing methodology and technology (e.g., downscaling techniques) to use the results of GCMs at local scales is imperative. As these methods and technologies are developed, it is important to document their implementation so that these early case studies can inform additional downscaling activities.

In order for the general public to call on their elected officials to include climate change as a factor in decisions and for local officials to take up climate change as a part of their decisions, both better communication and more information is required. This information should help the public and decision makers better understand the range of possible impacts and challenges they may face as a result of climate change. The way in which the information is provided must be something that the general public can digest and should illustrate several locally-relevant scenarios of what might occur as a result of climate change and where various decisions / policies will lead. For example, the incidence of natural disasters and related emergencies (e.g.,

local floods) is an important factor in zoning decisions, so discussion might focus on the reliability of floodplain maps under changing climate; another consideration might be patterns of invasive species movement and the potential effects on local infrastructure and ecosystems (e.g., zebra mussels in canals and water treatment pipes).

An interdisciplinary, systems approach is necessary to understand how the system changes and responds to climate change (e.g., shifts in range of invasive species / pests). To support this approach, data collection, ongoing monitoring, and maintenance of data records are essential and there must be incentives to implement and sustain these activities. The collected information can then inform and be incorporated into models that better show impacts on the systems decision makers are most interested in; however, data collection and monitoring should never be eliminated in favor of a model-only approach.

While the call for better data and better models is important, the limits of science / data / modeling must also be clearly articulated. The public / decision makers need to understand that decisions have to be flexible, but current decision making structures often can't handle dealing with the levels or types of uncertainty currently manifested in data and models. Additional attention is needed to better characterize how decisions can be made under uncertainty. Narrowing the uncertainty gap is important; analysis of past model results may be helpful in characterizing uncertainty and performance of models.

Life cycle assessments of materials are needed so that the potential impacts of these materials on ecosystems and on activities related to certain climate or greenhouse gas commitments can be considered as a part of the decision making process.

More information is needed to support decisions about when to make capital investments in adaptation measures. This includes information about costs and what particular sectors or stakeholders stand to gain and lose by choosing or rejecting specific actions and investments.

Most of the energy that drives the climate system comes from the tropics, but data and records for these regions are sparse, as most paleoclimate data comes from high latitudes.

Additional approaches are needed to study the pace and impacts of adaptation. For example, adaptation activities are likely to occur piecemeal, so work is needed to understand how and when individuals decide to implement adaptation options; additional work is needed to identify and quantify the potential and unintended impacts of adaptation strategies. Understanding how behaviors change in the future and how changes to new technology will occur will be an important part of defining emissions scenarios used by the Intergovernmental Panel on Climate Change (IPCC) in their reports.

Sector-specific examples

Local and regional planning: "Place-making professionals" and the organizations that structure communities must be involved in planning for the impacts of and responses to climate change, and science and policy need to be better connected within the context of local and regional design and planning. Questions that need attention include: (a) what does it mean to have more

compact cities (direct and indirect consequences for the environment and for climate); (b) what does it mean to build strong urban – agricultural connections; and (c) how can the interconnections of agriculture and urban farms to larger landscape processes be better modeled. At a sub-local scale, university and business officials need resources that will help them to understand the environmental impacts of their campus (or other large infrastructure) on local / regional / global scales and connect this to their planning. At a national scale, the US Department of Housing and Urban Development (HUD) is not included as a part of the CCSP, although HUD plays an important role in shaping communities.

Carbon markets: There is currently no visible cost for emitting CO₂, thus an important question is how to begin including viable price of carbon in decision making processes that are at time horizons likely to include the opening and operation of carbon markets. A better economic signal for carbon is needed.

Agriculture: Since plants and ecosystems respond to thresholds (e.g., frost, day length), understanding how these thresholds are influenced by or interact with climate variability will be very important (e.g., freeze damage to plants, southern limit of maple syrup production). Climate change mitigation could also be used as an incentive for / benefit of local food networking: farmers who sell produce locally reduce emissions associated with getting that food from farm to table.

Ecosystem management: Decisions about how to manage ecosystems and the products and services they provide will need to take climate into account although climate models are currently not at scales sufficient to inform these local to regional scale decisions. Specific examples include:

Forestry: Changes in the structure of northern forests as a result of climate change and other environmental change will have significant impacts on the carbon cycle.

Management of these forests must consider the role of these forests in the carbon cycle (e.g., potential carbon storage capacity of these ecosystems), how carbon markets might impact the requirements or desires for managing forests in a particular way, and the potential pathways for how these carbon markets might develop. For example, a better understanding of how forestry practices can enhance carbon sequestration could translate to changes in urban forestry practices as well as changes to state and national strategies.

Oceans and Great Lakes: We need to better understand the effects of climate change on marine and Great Lakes fisheries (e.g., links between climate and lobster die-off in Long Island Sound). The recent Great Lakes water levels study (Lake Ontario – St. Lawrence River) didn't include climate in the models and decision making process (even though climate was included in the task statement), and overall Great Lakes management activities aren't doing a good job of looking at climate change as a part of ecosystem-based management.

Electricity production: Thousands of miles of electricity and gas delivery systems are exposed to the elements and companies need predictions of what the climate might look at medium-range time scales (e.g., 2050) in order to better design delivery systems and plan the installation and

maintenance of infrastructure. For areas of the United States that don't have good geological options for carbon capture and storage, alternative methods of carbon sequestration need to be examined.

Technology: Technology developments to respond to climate change and related issues (e.g., greenhouse gas reduction) are few compared to technological responses to ozone depletion. Important questions include: (a) what are the potential substitutes for fossil fuels; (b) what are the benefits and impacts of these substitutes; and (c) what are the environmental impacts of using coal vs. non-fossil fuels (including analysis of secondary & tertiary impacts, life cycles, and how well current policies perform). Academics don't have access to all the information they need while industry has a lot of information within fairly narrow boundaries; need to get industry representatives and industry information into the process of technology development and assessment. Additionally, secondary and tertiary impacts of new technologies need to be considered.

Economics: Little work has been done to evaluate the environmental impacts of tax policies. However, these policies have enormous implications for shaping the decisions that people make, thus understanding how tax policies translate into actions that impact the environment and climate is an important line of study. Often the tools to factor climate into economic decisions are not (yet) available, but this does not mean that climate should be ignored.

Identifying important decision makers, stakeholders, and partners

All levels of government (local, regional, state, national, and international partnerships or treaty organizations), corporations (e.g., oil companies, auto manufacturers), and NGOs all play an important role in decision making and often rely on the IPCC reports as the first line of information. However, these reports need more robust sections related to adaptation and mitigation technology.

The younger generations will ultimately have to deal with the results of past and present decisions about emissions, mitigation, and adaptation and should be considered (and involved, to the extent possible) in discussions and decisions.

Decisions are generally not based on moral imperatives but on economics. Therefore, economists need to be involved in evaluating options and consequences (failure to adapt, system change, etc.). However, traditional economics is not sufficient to deal with the questions being asked and new tools are needed. For example, valuation of ecosystem goods and services is important in factoring environmental impacts into decision making, but there are multiple methods and little agreement on how to accomplish this valuation. The insurance sector also offers a potential source of ways of thinking about the subject of long-term valuation.

People who can take an "entrepreneurial" perspective are needed to answer questions such as how to implement case studies and small projects, fill niche needs, and leverage opportunities.

How can the science and information needed to support your decisions and discussions be better provided?

Information needs

There is often a basic lack of scientific understanding of climate change and climate change impacts that contributes to hesitancy to take action.

The public ultimately supplies the political will necessary for elected officials to impose changes. Thus calls from the public to incorporate climate into decision making and to include longer time horizons will be necessary to change the business of decision making. Some changes can be accomplished with little input or pressure from the community and can be enacted quickly (e.g., building codes).

Compelling illustrations of pros and cons, (e.g., narratives that include local examples of the impacts of climate change and answer the question “what’s in it for me?”) and public outreach at the local / regional levels are necessary in order to achieve greater public awareness and build the political will necessary to enact changes by personalization.

There is no “one size fits all” method of information delivery – there are multiple audiences, each with different information needs. Therefore, an entire range of communication tools is needed and it may be useful to consider ways to connect scientists with communication specialists or journalists, to minimize the use of jargon or other technical terms, and to help in presenting and explaining research findings and implications in ways that are more relevant and accessible to various user groups. Some examples of successful delivery mechanisms include *An Inconvenient Truth* (a good job of mass marketing) and the Rocky Mountain Institute community handbook.

There are several sources from which people get information, each of which provides information differently and which may be more or less trusted by specific individuals – it is important to understand how these types of information are used by individuals to make decisions and take action (e.g., psychological and behavioral aspects of information delivery and acceptance).

People often waste resources and energy in landscaping because they choose plants that are not well-suited to the particular environment; similar examples of unnecessary resource and energy waste can be cited in other fields. Information that will help people understand the impacts of their decisions on waste and energy consumption and that will direct them to more efficient options would be useful.

Scientific assessments

The IPCC assessments on a whole have done a good job of defining the terms and collecting the science, but there is still room for improvement. From a decision maker’s perspective, even greater simplicity of language needed in summaries; perhaps statements could to be written

along with journalists to get vocabulary right (e.g., anthropogenic vs. man-made). Better explanations of quantitative vs. qualitative data and evaluations of past models are also needed.

The information in assessments has been provided well for scientists, but very poorly for local planners, the public, etc. This contributes to difficulties in getting people to understand why climate should be on their radar and what impacts climate change might have on their interests. Climate change information needs to be integrated into sources that people are already familiar with and have access to, rather than swamping people with new materials.

One question that needs to be addressed is why there should be a national assessment in addition to the work included in IPCC. National and regional assessments are important because they focus primarily on the US, use more local / regional data, and create local products that people are more likely to relate to.

The Stern Report did a good job of explaining the relationship between climate change and economic considerations. Although it still used a lot of jargon, it did a relatively good job of speaking to the economic issues that are not brought out elsewhere.

Examples of early responders

The Europeans seem to be further ahead in recognizing and responding to the challenges of climate change and thus studying the policies adopted and outcomes realized in Europe could help inform action in the United States.

Identifying approaches and responses

Being able to identify “no regrets approaches” to responding to climate change (i.e., what can be adopted today that will provide economic and environmental benefits regardless of whether climate change occurs as predicted) would provide communities with the first steps along a pathway toward action while reducing the risks of being “wrong” about climate change.

Connecting to and drawing on experience from other fields

The integrated pest management community is well-established within states and has national meetings, but as of yet there are few links between the IPM community and those working on climate change issues.

The Cooperative Extension Service (Agriculture) and National Sea Grant Program (NOAA) already have extension agents in place and would be a faster way to move information out to stakeholders. These extension agents need a pipeline of information that comes to them which they can in turn distribute. Climate change education should be a major part of an extension agent’s portfolio and not just an “extra” piece that is piled on top of existing duties.

Engineering experts, including those from fields such as materials engineering, will be essential partners in developing technologies to mitigate and adapt to climate change. Engaging these engineers through existing venues (e.g., annual engineering expo in Central New York) and by

offering educational opportunities that can be used for professional development requirements (e.g., continuing education units) will likely be more successful than trying to begin a new venture.

The public health sector (e.g., Centers for Disease Control) can likely provide important lessons about communicating scientific information. Also, the links between climate change and public health must be more clearly articulated.

It is important to establish communication and interact with those from “place-making” fields (e.g., landscape architecture, urban planning, environmental design) and with the government representatives who are responsible for community development (e.g., mayors, county executives, zoning and planning boards).

What are the roles and responsibilities of the federal government in climate science and information provision?

Roles of the federal government

Accepting that climate change is a consequence of how our societies have done business, the federal government can provide incentives to change behaviors. This is especially important if there are substantial up-front costs associated with these changes; such incentives are also necessary to motivate action to avoid future costs of not taking action.

We are entering a new era of better regional climate models, statistical downscaling approaches, and other methods for better understanding the regional impacts of climate change. The time is right for the government to sponsor a new state-of-the-art assessment via USGCRP / CCSP or another process. This assessment process should be national in scope and provide results at a regional to local level and should be a “rolling” process (similar to that of the IPCC or the World Health Organization) that is configured to constantly assess and update its work (with periodic reports out), rather than planning for only one assessment at a time.

Universal standards are needed so that federal agencies’ methods for incorporating climate change information into their decision making and for reducing their impacts on climate are equivalent regardless of agency. The agencies can then require the local and state governments they fund to adhere to the same standards and to cooperate and coordinate with other partners, similar to the approach taken in setting speed limits on interstate highways. An example can also be found in work being done in Europe pursuant to Agenda 21. Each level of government is required to adhere to the same kinds of standards and each year puts out an annual report showing how they are moving toward measurable standards. This reporting tactic provides an annual case study that can be easily passed along.

The Council on Environmental Quality (CEQ) could provide leadership by offering guidance about how Environmental Impact Statements required under the National Environmental Policy Act might incorporate climate considerations and how such assessments could be used for planning.

An office such as CCSP could assemble case studies from across the nation that illustrate how local /regional governments, NGOs, or other entities have addressed climate change as a part of their decision making processes and help to disseminate these case studies.

Roles of individual federal agencies

Agencies fund research and (sometimes) outreach necessary to get the results out to the taxpayers. The research findings and information need to get to the local level, but it is not clear if individual agencies should be the ones to provide this push or if there should be specific points of outflow, perhaps through certain portions of the United States Geological Survey (USGS) or extension services (e.g., Cooperative Extension, Sea Grant).

The National Phenology Network, sponsored by USGS, is one potentially useful tool for collecting and disseminating information about how climate change affects plants and animals by tracking phenology (e.g., date of bud burst, egg hatching, etc.).

There should be a federal government clearinghouse for developing information needed for carbon accounting and energy intensity. One potential home for such activities would be within the Department of Energy (DOE), which already maintains tables for energy intensities (although these are out of date and need to be updated) and which could sponsor life cycle analyses of energy sources that would support consumer choices about energy. An additional option could be sponsoring a “life cycle decathlon” similar to the solar decathlon sponsored by the Environmental Protection Agency (EPA).

Agencies at the federal level (and coordinating offices and programs such as CCSP and CEQ) can assist in prioritizing the steps that could be taken at local / regional level and might provide some financial or other incentives to pursue those options.

Roles of state and local government

The California Climate Act has required all state agencies to include climate as a part of planning. Using the state-wide mandate as leverage, the requirement to include climate in planning processes can then be pushed down to the local level.

Partnerships with non-government entities

Partnerships with and support from a wide variety of individuals and groups (e.g., NGOs, grassroots groups and individual citizens, etc.) are essential.

The Urban Land Institute is a trusted organization in the planning sector. Reaching out to ULI and Metropolitan Development Agencies is one way that the government may be able to engage the broader community in disseminating information about climate change and planning.

Working across disciplines and sectors

Understanding the impacts of climate change and evaluating response options requires interdisciplinary efforts. There needs to be a mechanism to help bring groups together across these boundaries to examine questions such as how interactions between climate, agriculture, and urban planning might affect food supply or to learn from other sectors about how to reduce energy intensity.

There are many equity issues in terms of costs and impacts that are in need of further study. Understanding how different regions and sectors might be affected (including international impacts) will be important in efforts to build partnerships.

Constant vigilance is needed to depoliticize climate change across levels of government and sectors and to increase and maintain credibility and trust.

The United States doesn't usually look beyond its borders to study how other parts of the world are implementing particular policies. However, the United States as a whole is behind most of the developed world on climate change and other countries are moving forward with implementing plans to reduce greenhouse gases or change fuel sources (e.g., biofuels in Brazil, nuclear power in France, etc.). At the local, state, and regional level, there are several examples of innovative approaches that could serve as case studies and examples for future work, including local regional planning efforts in Portland (Oregon), King County (Washington), and Tompkins County (New York); California's activities under its Global Warming Solutions Act; and the Northeast Regional Greenhouse Gas Initiative. An early example of case studies can be found in the following:

Albler, Ronald and AAG Global Change and Local Places Research Group (eds.). 2003. *Global Change and Local Places: Estimating, Understanding and reducing Greenhouse Gases*. Cambridge University Press, 270 pp.

Partnerships must bring government, industry, and academia together. Creating an assessment process that draws on the strengths of these sectors would likely provide a more rigorous assessment that is better targeted to the needs of stakeholders. In addition, working across these sectors could help inform development of a "summary for policy makers" that is more useful for a variety of users.

PART II
CNY'S RESPONSE TO GLOBAL ENERGY AND CLIMATE CHANGE: IS IT
SUSTAINABLE?
AGENDA IN ACTION

The sections below summarize the presentations made by the speakers and the main points of the subsequent discussion.

Joe Barry, Sustainability Consultant, City of Syracuse

Maintaining quality of life is a key factor in considering various climate change response options for the City and its residents. Syracuse is currently recognized as one of the most sustainable cities in the United States and would like to be able translate its commitment to sustainability into market penetration and workforce development for the Central New York area. While Syracuse would like to be able to join the Chicago Climate Exchange (CCX), it needs to be able to measure and verify its greenhouse gas emissions. There is also the possibility that additional greenhouse gas markets are still to come (e.g., for nitrogen).

Ed Bogucz, Syracuse Center of Excellence

Central New York needs to cultivate a “green innovation ecosystem” that fosters growth in innovation, economy, and quality of life. In an essay for Envision 2028 (published in the Syracuse Post-Standard), Bogucz forwarded the goal of a green revolution in products and services that contributes to increasing economic, social, and environmental health. Currently, Syracuse is #1 in the United States and #2 in the world for indoor environmental quality and through projects at the Syracuse Center of Excellence and elsewhere in the region, researchers and practitioners are embarking on a variety of efforts, including LEED certification for homes, Healthy Buildings National Conference, Healthy Offices Project, the Tully Willow Project for alternative energy, and more.

Laurie Dietz, Metro Development Association of Syracuse and Central New York, Inc.

Syracuse is #17 on the “Green Guide” list of top US environmental leader cities and has also been recognized by Grist, MSNBC, and Environmental Protection Agency for its work in environmental and climate protection. There is a huge opportunity waiting for those willing to step into the “green economy” as these markets are expected to experience significant growth in the near future. The MDA and others have formed the Central New York Upstate Regional Alliance for Green Technology, a consortium among 12 counties across upstate NY, that uses the concepts of “New York’s Creative Core” and “Green Team” to promote the region’s green technology (e.g., indoor environmental quality, biomass and renewable fuels, fuel cells, materials engineering). This is contributing to 15% of the job growth across the Central New York region. Task forces are dedicated to working on public policy, workforce development, business development, community outreach, marketing, and research and development. The Regional Alliance also supports local / existing industry growth through grants, competitions, and workforce development and has been benchmarked against other communities, such as Eugene, OR, Fort Collins, CO, Grand Rapids, MI, Sacramento, CA, and Pittsburgh, PA.

William Emm, Onondaga Community College

Environmental stewardship + social equity + economic health = sustainability. Onondaga Community College participates in the Campus Climate Commitment, has a sustainability task force, and runs a Sustainability Institute that students can participate in regardless of their major. OCC is using the Clear Air Cool Planet Campus Carbon Calculator v 5.0 to calculate its greenhouse gas emissions and is currently asking itself “what do the results mean and what do we do now?” OCC has implemented ways to reduce the campus’ carbon footprint, including integrating “climate neutrality” into thinking about decisions, installing composting sites on campus, collaborating with the local bus system to offer free public transportation 24 hours a day 7 days a week to all students, and offering online classes that reduce student travel.

Sue Miller, Onondaga Lake Improvement Project

The Syracuse Metro Wastewater Treatment Plant has recently installed facilities to cogenerate electricity using a waste stream of methane and will begin production once permits have been cleared. The water treatment sector deals with “grey infrastructure” – cement and other infrastructure that collects and delivers storm and sewer water to the water treatment facility. Beginning in 1998, the County undertook 30+ projects to address wastewater treatment issues (to be completed over 15 years). While milestones have been met, expenses continue to rise and it became necessary to take a “time-out” in order to examine alternatives to the grey infrastructure. Thus, greening in this sector requires maximizing the resources already in the ground as well as adding new technologies that will capture stormwater runoff and reduce the load during peak times. Examples of this include porous pavement, bioretention and vegetation infiltration, and “green streets” that integrate grey and green infrastructure.

Tom Rhoades, Onondaga County Resource Recovery Agency

Both waste minimization and recycling can be used to mitigate climate change and are important considerations in greenhouse gas reduction strategies (the infrastructure is already in place). OCRRA plans to reduce its own greenhouse gas emissions as a part of a larger effort to reduce emissions from the Central New York region through a campaign to reduce consumption, recycle what is used, and initiate more waste to energy production. Setting goals such as reducing emissions by 10% over a 5 year period (rather than by 2% a year) allows for “bumps in the road” that might cause reductions to take place more slowly or more quickly.

Questions and Discussion

“Fugitive emissions” from leaks and non-carbon greenhouse gases are currently not well accounted for.

The city of Syracuse is looking into whether and how to develop a municipal power system that would form the basis of a “smart grid” that would allow people to plug in electric cars and add energy to or take energy from the grid.

There is a long history of distrust between counties (and other parties) and time is required to establish lines of communication and build relationships before it is possible to establish and move forward with partnerships that draw from around Central New York.

Things are better in Syracuse than in some other areas that have suffered from a loss of manufacturing jobs – while there have been vast reductions in the manufacturing workforce, high tech jobs are increasing and there are training programs in place to help people take advantage of these opportunities.

APPENDIX A
PARTICIPANT LIST
US CLIMATE CHANGE SCIENCE PROGRAM STAKEHOLDER LISTENING SESSION

Dale Baker, New York Sea Grant
April Baptiste, Syracuse University (SU)
Greg Boyer, Great Lakes Research Consortium and SUNY College of Environmental Science
and Forestry (SUNY-ESF) Department of Chemistry
Emanuel Carter, SUNY-ESF Department of Landscape Architecture
Emily Cloyd, US Climate Change Science Program (CCSP)
David Coburn, Onondaga County Office of Environment
David Driesen, SU College of Law
John Felleman, SUNY-ESF Department of Environmental Studies
Joseph Kwasnik, National Grid
Kevin Lair, SU School of Architecture
Steve Lloyd, SU ECM-Sustainability Division
Tanya Maslak, CCSP
Cornelius Murphy, SUNY-ESF President
David Newman, SUNY-ESF Department of Forestry and Natural Resources Management
Sarah Pallo, SUNY-ESF Office of Outreach
Mary Reidy, National Grid
Chris Scholz, SU Department of Biology
Richard Smardon, SUNY-ESF Department of Environmental Studies
Chuck Spuches, SUNY-ESF Office of Outreach
Jack Stevens, US Forest Service
Lawrence Tanner, LeMoyne Center for the Study of Environmental Change
David Wolfe, Cornell University Department of Horticulture

APPENDIX B
AGENDA
US CLIMATE CHANGE SCIENCE PROGRAM STAKEHOLDER LISTENING SESSION

SUNY College of Environmental Science and Forestry · Syracuse, NY
Baker Laboratory, Room 408 · October 15, 2008 · 2:00 – 5:00 p.m.

The purpose of this listening session is for CCSP to hear from a variety of stakeholders about their interests and activities, informational needs, and expectations for and ideas about future directions for federal climate research, observations, decision support, and communication in the United States.

We will discuss three major questions during the session. The additional questions listed under each topic are meant to provide participants with additional items they may wish to address as a part of the discussion, but are not meant to limit the conversation.

- 2:00 Welcome and Introduction to CCSP
- 2:15 What major climate-related challenges or questions are you currently facing?
- What discussions or decisions are you currently involved in that include climate?
 - What discussions or decisions are you currently involved in that could include climate – but don't yet do so?
- 3:15 How can the science and information needed to support your decisions and discussions be better provided?
- What data and other climate change information formats are most appropriate for the decisions you need to make? Are the data and information currently available in these formats?
 - Are scientific assessments related to climate change (e.g., IPCC reports, CCSP Synthesis and Assessment Products) useful to you?
 - How can the climate science sector draw on the findings and practices of other fields and sectors to provide more relevant and useful information? Which fields are currently not well linked to climate science but could have valuable information to share?
- 4:15 What are the roles and responsibilities of the federal government in climate science and information provision?
- What should be the roles and responsibilities of individual agencies?
 - What should be the roles and responsibilities of a central interagency coordinating entity like CCSP?
 - How do these federal roles and responsibilities relate to those of local / state / tribal governments? Business, industry, and trade associations? Academia and extension offices? Grass-roots groups, community organizers, and individual citizens?
- 5:00 Adjourn

APPENDIX C
AGENDA AND SPEAKER LIST
CNY'S RESPONSE TO GLOBAL ENERGY AND CLIMATE CHANGE: IS IT
SUSTAINABLE?
AGENDA IN ACTION

Thursday, October 16, 2008 · 11:30 am - 1:30 pm
Oncenter Complex, Syracuse, NY (Meeting Rooms 4 - 6)

Program Chair: Richard Smardon, Ph.D., Professor, Environmental Studies, SUNY-ESF

Moderator: Dave Eichorn, Meteorologist, News Channel 9

11:15 Registration and Light Lunch

11:45 Panelist Presentations

1:00 Discussion and Q & A

1:30 Program End

Panelists:

- Joe Barry, Sustainability Consultant, City of Syracuse
- Ed Bogucz, Executive Director, Syracuse Center of Excellence
- Lori Dietz, Assistant to the President, Metropolitan Development Association
- William Emm, Chief Financial Officer, Onondaga Community College
- Sue Miller, Deputy Director, Lake Improvement Project, Onondaga County
- Thomas Rhoads, Executive Director, Onondaga County Resource Recovery Agency