



SUNY Conversations in the Disciplines:
**The Feasibility of a New York State
Energy Conservation/
Global Warming Consortium**
held at SUNY-ESF on September 19, 2003

Summary Report compiled by Richard C. Smardon
Director, Randolph G. Pack Environmental Institute

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Conversations-in-the-Disciplines
Feasibility of an Energy Conservation/Global Warming Consortium
Summary prepared by Richard C. Smardon, Ph.D. Director
Randolph G. Pack Environmental Institute, SUNY/ESF

You have been invited to this event because of your interest/activity in energy conservation, global gas reduction and/or climate change/atmosphere research. The key hypothesis: is it feasible or desirable to establish a statewide energy policy and science research consortium? Specific objectives of such a consortium could include:

- To support an energy conservation and global gas reduction policy research network;
- To support energy curriculum development for NYS schools;
- Act as an independent resource for energy policy review focused on self-sufficiency; and
- Complement existing energy extension activities, especially linkages to industry, institutions, college campuses and households.

Thirty-two individuals (appendix 2) were signed up for this Forum held on September 19th in Nifkin Lounge at the SUNY College of Environmental Science and Forestry in Syracuse, New York. As can be seen from the attached agenda (appendix 1), most of the day was spent in some nine discussion groups, which faithfully followed the agenda. Major sponsors were the SUNY Conversations-in-the-Disciplines program, Clean Air-Cool Planet, and the Randolph G. Pack Environmental Institute with meeting assistance from the SUNY/ESF Outreach Office. Campus sponsors include SUNY College of Environmental Science and Forestry, Syracuse University and SUNY Oswego. The moderator/facilitators and recorders of each of these groups are listed below:

Review of Organizing Research Activity

- Regional Climate Modeling and Environmental Efforts
Facilitator: Dr. Ted Dibble, SUNY/ESF; Aileen Guzman, recorder
- 2) Greenhouse Gas Reduction/Energy Conservation Strategies
Facilitator: Dr. Charles Hall, SUNY/ESF; James Walsh, recorder
- 2) Energy Policy Research: Alternatives, Incentives and Administration
Facilitator: Dr. Harry Lambright, SU; Sherry Chow, recorder

Global Warming/Energy Curriculum

Middle School/High School

Facilitator: Dr. Allen Drew, SUNY/ESF; Sherry Chow, recorder

- Undergraduate Programs
Facilitator: Dr. Rodger Hinrichs, SUNY Oswego; Aileen Guzman, recorder

- Community-related Programs
Facilitator: Ned Reynolds, Clean Air-Green Planet; James Walsh, recorder

Energy Extension/Institutional Practice

- Agency Programs
Facilitator: Dr. Harry Lambright, SU; Sherry Chow, recorder
- University Programs
Facilitator: Dr. Roger Hinrichs, SUNY Oswego; Aileen Guzman, recorder
- NGO Programs
Facilitator: Ned Reynolds, Clean Air-Green Planet; James Walsh, recorder

Opening Statement: SUNY Conversations-in-the-Disciplines: The Feasibility of a NYS Energy Conservation/Global Warming Consortium by Cornelius Murphy, President, SUNY College of Environmental Science and Forestry

Good Morning, I am very pleased that you could join us today for a SUNY Conversation in the Disciplines Event covering “The Feasibility for a New York State Energy Conservation/Global Warming Consortium.”

As most of us are aware, the “U.S. is Running out of Energy.”

- Natural gas is currently in scarce supply.
- Crude oil production is winding down.
- The last nuclear power plant was ordered in July of 1973.

At the time of the first energy crisis in 1974, President Richard Nixon put forth Project Energy Independence to end American reliance on foreign oil. However, the initiative was not followed, as the spigot was opened by the oil cartel. At that time, the U.S. was importing 6 million bbl of crude oil and petroleum products and, by 1980, that number had increased by ~10%. President Carter signed the Energy Security Act into law in June of 1980, which was to “encourage the production of 2 million bbl per day of synthetic fuels by 1992. However, that never happened. Oil already trades at an excessive price at greater than \$30 a bbl, and 53% of America’s daily consumption of oil and petroleum products come from foreign sources compared to 35% in 1973

Nearly 20% of all U.S. energy is now generated with natural gas and 88% of all new generating plants built in the last decade use natural gas as a fuel and yet the production of natural gas has remained stagnant at 19 trillion cu.ft. per year.

We clearly are facing an energy crisis and this is being complicated by the lack of “vision” of the Federal government. This is clearly a national security issue and an enormous environmental issue. The clear answer is a renewed focus on energy conservation and a shift to renewable sources of energy.

Fortunately, we have an increased vision on the part of Governor Pataki with the execution of Executive Order 111 and the PSC hearings on the Renewable Portfolio Standards. We have New York State Energy Research and Development Authority (NYSERDA), which is funding and encouraging conservation practices and the application of renewable energy technology, and the New York Power Authority (NYPA), which already provides a high percentage of their power from renewable sources.

Currently, solar power provides 0.7% of all U.S. energy consumption, but it has the potential of supplying as much as 20% of our energy as envisioned by President Carter and others and, with the cost of photovoltaics moving from \$8 per watt to \$1.5 per watt - we are moving in the right direction. The Biomass Research and Development Technical Advisory Committee has set the biomass utilization for power to 5% of the electric and heat demand by 2030. There is also a glimmer of hope in President Bush's proposal to spend \$1.2 billion to develop hydrogen-powered cars. Each of these initiatives is important and SUNY/ESF is actively engaged in research or demonstration in these areas with our partners NYSERDA, NYPA and Congressman Walsh.

Let's briefly look at the other side of the equation associated with the excessive use of petroleum feedstocks for the generation of heat and power. There is an evolving consensus that the emission of greenhouse gases from the consumption of petroleum feedstocks and coal has and will continue to change our planet's climate. CO₂ concentrations have risen from about 280 ppm in pre-industrial times to approximately 380 ppm today. Similar increases have been observed for CH₄, N₂O and Halocarbons. Over this same period of time, the average global-mean temperature near the earth's surface has increased approximately 0.7°C.

The Intergovernmental Panel on Climate Change has suggested that the global mean temperature is expected to rise between 1.1°C and 6.4°C from 1990 to 2100. Corresponding sea level increases are projected to be in the range of 16 to 120 cm. We can expect high-temperature and high-precipitation extremes throughout the U.S.

The costs associated with changes in agriculture, increased storm damage, flooding, loss and changes in vegetation, will be enormous on a human scale, economic scale and environmental scale. The projected cost of a 50-cm sea-level rise by 2100 could cause \$20 billion to \$150 billion in damage to coastal property alone. When we aggregate worldwide economic impacts, we are talking of costs in the range of trillions of dollars. It is incomprehensible to me why we are not moving more rapidly to a renewable energy portfolio.

We at ESF are very pleased to:

- have initiated energy conservation through our Green Campus Initiative;
- be working with NYSERDA and NYPA to install a 250 kW Molten Carbonate Fuel Cell under the NYSERDA CHP program;
- be working with NYSERDA and our NYS legislators to install a 15 kW photovoltaic field;
- integrate 13 GEM electric vehicles into use by University Police, Physical Plant staff, etc.;

- house the SUNY Center for Sustainable and Renewable Energy;
- work with NYPA, NYSERDA, a local industry and a site developer to develop a 10 MW Biomass cogeneration facility.

We as an institution strongly believe that we have to move quickly down the path of conservation and to shift toward renewable sources. By taking this journey, we will save valuable financial resources, secure our national security, prevent an environmental catastrophe, and create a whole new industry with its own economic benefits.

It is my hope that your dialogue today will move us further down the road toward a sustainable future. We clearly need education, research and alternative energy demonstrations on our respective campuses to help move both policy and practice. Thank you.

Specific Breakout Session Summaries follow:

Regional Climate Modeling and Environmental Effects

Dr. Ted Dibble, SUNY/ESF facilitator, plus Joseph Yavitt, Cornell University; Hank Mullins from SU and Shu Hua Lin, SUNY/ESF

The group first covered their own research interests:

Shu Hu Lin from SUNY/ESF is interested in wood properties in tropical zones using the Holbrit Classification System. Specific research utilizes ecological data from Puerto Rico.

Hank Mullins from Syracuse University's Earth Science Department has a background in Oceanography but has been examining climate change data in the Finger Lakes Region and Ireland since the 1970's. The approach is to study past climate data to see what the future will hold, e.g. there was a warm interval 5000 years ago and the last 100 years of data shows more warming and more precipitation in the Finger Lakes region. The five warmest years were in the 1990's and the 20th Century snowfall has doubled. His specific interest is in abrupt climate change comparing pre-historic and historic data in Ireland to the Finger Lakes Region.

Joseph Yavitt of Cornell University is a biologist by training and examines methane production and consumption in wetlands in northern boreal regions. One can understand methane fluxes in the past by examining organism genetic indicators, temperature and methane concentrations through correlation of present day methane vs. temperature data. This is done via methanogen study culturing and examining the genetics of organisms. He is also interested in diversity and maintenance of diversity in tropical forests, especially global warming effects such as drier conditions in Central American forests in the last decade and relationships with limestone bedrock beneath such forests.

Ted Dibble, SUNY/ESF's chemistry faculty is interested in the breakdown of chemicals in the air, ozone, etc. over a regional area, especially detailed chemical composition, how it decomposes and what the data indicators are.

Discussion:

There was a question as to whether CO₂ concentrations are causing local warming trends. Mullins is convinced because of time records through ice cores causing values of 300 - 310, 380 ppm carbon today which is unprecedented. There was a general concern about feedbacks or effects from warming trends that we do not understand. There was an argument made that changes occur in steps.

Potential Mutual Interests for Research:

- Systems science approach - not just a traditional scientist approach but a holistic and multi-disciplinary approach. This does not exist at the moment. Breakdown barriers which the state should do. Set-up colleges or schools that have systems science approaches. There are enormous problems towards this, and, especially with specialists.
- Funding sources - should they lead or should they follow the researchers to fund important climate research? This is a critical barrier. There is a bias towards science education.
- Work with climatologist at Colgate and other NY institutions.
- Look for colleagues within NYS to work with on various issues. Need contacts, especially from SUNY.
- Not so many people do Climate Modeling. We need people with expertise and not so much the research facility.
- Go to a climate office where you can ask people to project regional climate trends.
- Projection is better than prediction.
- Work or strengthen existing programs.
- Train people in a multi-disciplinary approach and related curriculum changes.

Greenhouse Gas Reduction and Energy Conservation Strategies

Dr. Charles Hall, facilitator with T. Kubicki, O. Clubb, P. Lundberg, K. Kellogg, Ned Reynolds, A. Talgo, D. Brown, D. Adams, A. Drew, T. Volk, R. Hinrichs

Each member of the group reviewed their own interests:

Thomas Kubicki from SUNY/Oswego is interested in student literacy in regard to energy conservation and consumption especially at the High School level.

Ollie Clubb is an environmental activist and co-founder of the Global Warming Action Network in Central New York and specializes in local organizing and moving people to action.

Paul Lundberg of Skidmore College works with the physical plant on energy design of buildings and also energy conservation education.

Karen Kellogg of Skidmore College works with students to engage energy conservation and climate change. She is also involved with regional conferences on the same subject.

Ned Reynolds is a regional representative of Clean Air - Cool Planet out of Portsmouth, NH. He specializes in partnering with universities to support local activities, provide information, and technical referrals to move toward Greenhouse Gas reduction strategies.

Arnie Talgo is a Senior Policy Analyst with Public and Governmental Affairs, New York State Power Authority and is involved with energy conservation, energy utilization, combined heat and power, alternative energy production and electric power transmission. He is especially interested in developing partnerships to develop more efficient use of energy. He mentions several interesting projects such as, the SUNY/ESF fuel cell project, biomass - fed fuel cells to replace coal fired power plants for NYC or Buffalo schools, and NYPA installed fuel cells at sewage treatment plants and NYC Central Park.

Don Brown is Executive Director of the Pennsylvania Consortium for Interdisciplinary Environmental Policy, which has a statewide program on Climate Change, and Energy. He is especially concerned with working with educators in developing energy education, plus global warming awareness and associated ethical discourse.

Don Adams is from SUNY/Plattsburg's Environmental Science program. He has been doing Greenhouse Gas research for 20 years and more recently focusing on climate change work. Recent work includes assessing green hydropower in Brazil, work in Kenya on climate change and utilizing Minoa-East Syracuse wetlands for processing sewage while monitoring methane production.

Allan Drew of SUNY/ESF, Natural Resources and Forestry focuses on tropical ecology and forest ecology and is working with both undergraduates and graduate students in raising awareness regarding climate change.

Tim Volk, SUNY/ESF, Forest and Natural Resources Management has been working on biomass energy in Africa and Northeastern US through use of alternative energy crops and their byproducts. He is developing an energy conservation curriculum for 9-10 graders.

Rodger Hinrichs of SUNY/Oswego, Physics, has done energy curriculum work in Kenya and New York. He is also heading up a new center on wind energy research.

Charles Hall, SUNY/ESF, Environmental and Forest Biology has been working on energy efficiency, modeling and energy utilization assessment.

Discussion focused around the general notion of energy efficiency, utilization of alternative energy sources, paradoxes and where do we go from here?

Common Themes/Ideas/Questions:

- 1) Put together a similar Energy Consortium that includes students;
- 2) Develop energy course similar to SUNY/Oswego model at other campuses;
- 3) Assess efficiency and value of fuel stocks;
- 4) Energy Intensity statistics should be updated;
- 5) Integrate social and biophysical sciences;
- 6) Bring science to the streets; and
- 7) Create more Partnerships.

Energy Policy Research: Alternatives, Incentives and Implementation.

Dr. Harry Lambright, SU; plus Lawrence McGlinn, SUNY/New Paltz; Tom Bourgeois, Pace University Energy Project; Jason Babbie, NYPIRG; John Smiggeski, New Wind Energy; Rachel May, SU Office of Environment and Society; and Richard Smardon, SUNY/ESF

Specific interests of the group members included:

Harry Lambright: He has experience with federal and international case studies, e.g. how cities such as Chicago and Toronto have dealt with climate change. Other experiences include the NASA project - the ozone story from the 1970's to 2000 and how science and policy can be integrated to have an influence on climate. He also is interested in the Great Lakes Region to combine economists and environmentalists working together. He was also an organizer for the 1997 Conference "Adirondacks and Beyond" which addressed acid precipitation, ozone and toxic trace pollutants and where policy needs to be twenty years from now.

John Smiggeski is interested in wind energy development and marketing.

Lawrence McGlinn is involved with studying energy siting issues and community NIMBY reactions.

Tom Bourgeois from Pace University's Energy Project is involved with energy project - cogeneration siting issues, interconnection issues, renewable energy portfolio development, demand reduction, utility tariff issues, NYPSC rulemaking and general efficiency.

Rachel May is interested in interdisciplinary policy research between SU and ESF.

Richard Smardon is interested in statewide energy policy, greenhouse gas reduction policy agendas and outreach. He was the organizer of the 1997 Conference "Adirondacks and Beyond: Understanding Air Quality and Ecosystem Relationships".

Jason Babbie is interested in building support for a statewide carbon cap and community science/policy outreach effort.

Discussion: The first focus was where energy/greenhouse gas policy research was occurring. The list includes Cornell for economics and natural resources policy, Syracuse University and SUNY/ESF for general policy and science research as well as the Rockefeller Institute at SUNY/Albany and SUNY/Buffalo in scattered locations. Pace University's Energy Project has the strongest and most focused work.

Major discussions focused on:

- 1) The need to break down climate change impacts on
 - a) markets;
 - b) innovation;
 - c) job creation;
 - d) economic impact especially technologies;
 - e) health modeling and impact on environment; and
 - f) all of the above from a regional/state level to local level.
- 2) To assess regional approaches such as CO₂ trading from the Northeast region to 2005, and possibly a larger region to see what the complexities are.
- 3) To look at Cities for Climate Protection and other innovative action programs to see how they are doing and why they are working.
- 4) Tie energy to national security issues, e.g. distributed power generation or combining power technologies for reliability enhancement.
- 5.) To look at public acceptance/perception of institutional arrangement programs such as the carbon cap, CO₂ trading or renewable energy portfolios.

Middle School/High School Curriculum

Dr. Allan Drew, SUNY/ESF facilitator with Richard Smardon SUNY/ESF and Ned Raynolds, Clean Air-Cool Planet

Discussion: The members of the group discussed the effectiveness of different education experiences to reach the age level of middle school and high school students. Examples discussed included:

- 1) Solar powered vehicle project,
- 2) BOCES fuel cell project,
- 3) Photo voltaic conversion project tied to broader ecology,
- 4) ESF in the High School through introduction of global ecosystems from college to HS model, and
- 5) Science Fairs at this level with an energy focus.

There was general discussion of the need for integration of content into earth science, physics, biology and social science courses in a spiraled or embedded way. So, in summary the needs are:

- 1) Survey to identify resources/energy curriculum needs;
- 2) Spiraled curriculum design embedded into earth science, chemistry, physics, biology, social science;
- 3) Demonstration projects generated via Science Fair or other means to engage students plus students clubs, e.g. KAP or ECO;
- 4) Vocational technology curriculum for job generation; and
- 5) Community service projects via joint HS/College program.

Undergraduate/Graduate College Curriculum

Facilitator: Dr. Rodger Hinrichs, SUNY/Oswego with Thomas Kubicki, SUNY/Oswego; Tom Bourgeois, Pace University; Lawrence McGlinn, SUNY/New Paltz; Ted Dibble, SUNY/ESF; Don Brown, Pennsylvania Consortium; Karen Kellogg, Skidmore; and Henry Mullins, Syracuse University

Members of this group shared their own perspectives and experiences - then focused on major curricular issues.

Thomas Kubicki, SUNY/Oswego: He focused on a literacy program for energy system manufacturing – we need a systems approach. He encourages engagement with a lab-based and interactive energy curriculum.

Henry Mullins: Teaches oceanography and graduate level GC Geologic Record course. We need to develop a curriculum in Environmental Science and Policy.

Karen Kellogg at Skidmore College: Addresses climate change in her courses. Would be interested in a grant for increasing climate change studies - especially climate change chemistry. We need research projects to promote research on climate change and emissions auditing on campus. She is also engaged in community service work in Saratoga.

Lawrence McGlinn states that geochemical environmental science at SUNY/New Paltz is technical and not policy oriented. There are courses on physical geography, general geography and global issues.

Don Brown reports that the Pennsylvania Consortium Climate and Energy project which are universities mostly working on greening campuses rather than curriculum development. Three out of 47 colleges have an interdisciplinary approach with sharing of knowledge/curriculum.

Tom Bourgeois reports there is an active program at Pace University with a legal internship program where the students are engaged in such issues as renewable energy, carbon trading, USDOE siting issues. Tom agrees with the need for an interdisciplinary approach but would emphasize energy markets and trading,

environmental law, energy program policies and its effects including deregulation.

Jim Heffernan, Vice President for Student Affairs at SUNY/ESF reported on the Green campus initiative, which focuses on energy conservation and greenhouse gas reduction measures and other issues.

A more general discussion ensued over what level of "energy literacy" was needed for college students? Whether they should be energy majors and whether adequate support means such as textbooks and web sites existed or what activities should be utilized. Also, whether such courses should be interdisciplinary vs. mix of physical and social science.

Challenges discussed included:

- Should there be majors in energy or integrate into General Education?
- Do you separate energy from climate changes?
- The energy literature is overwhelming - how does one find the best materials?
- Should energy/climate change education begin at the undergraduate level?
- How do you encourage energy/climate change teaching with the faculty?
- You need dedicated programs to sustain the effort - need resources and faculty - and need it at an earlier student age.

The group recommended future efforts:

- 3) Systems approach to climate change;
- 4) Need for textbook or resources with reference material;
- 5) Need for readers to read chapters/articles plus editor for such a book;
- 6) Teaching approach(es) on the subject;
- 7) Form consortium from different subject areas who want to teach this as a cross-college effort;
- 8) Encourage sharing of interdisciplinary curricula;
- 9) Need model interdisciplinary course on climate change;
- 10) Encourage GHG inventory process for colleges;
- 11) Need university events on climate change; and
- 12) Need website where people can ask questions, learn the latest developments and improve curricula with examples being:
 - 13) Northeast environmental group or listserv exchange
 - 14) Energy central-policy network
 - 15) Cool Air - Green Planet listserv group
 - 16) Second Nature website/SD

Community Related Programs

Facilitator: Ned Reynolds, Cool Air-Green Planet with Ollie Clubb, GWAM; Jason Babbie, NYPIRG; Arnie Talgo, NYPA; John Smiggeski, Community Energy; and Paul Lundberg, Skidmore College

Participants first addressed their own communication and outreach issues and then focused on common issues.

Jason Babbie from NYPIRG is concerned with communicating greenhouse gas reduction policy impacts to a statewide audience.

Arnie Talgo from NY Power Authority is concerned with fuel sources for power plants, power plant siting and the general NYMBY or not-my-problem issues.

John Smiggeski of Community Energy has the opposite problem of convincing people that new renewable energy alternatives are worth paying a premium price for - a green marketing issue.

Paul Lundberg of Skidmore College is engaged in student outreach to get them to either change their behavior or support green campus initiatives.

Likewise, Ollie Clubb of GWAM is engaged in getting local communities like Syracuse to change their behavior and/or support energy conservation or climate change initiatives. He suggests starting with small steps to get the community moving - use of media to get the story out, and use of success stories to motivate citizens.

Questions/Comments and Discussion Items include:

- 3) What is Outreach and how do you do it?
- 4) Basic behavioral quantity: we are all responsible for energy problems - but are unable to accept individual change - NYS power bills breakdown % of power sources feedback.
- 5) One person's outreach may be another person's bane - e.g. shut down fossil fuel plants - where will replacement energy come from? Different messages work with different audiences.
- 6) Alternative energy sources like wind farms: what causes acceptance and what causes resistance?
- 7) The common association with many is that sustainability and efficiency saves money on a long run basis.
- 8) Coordinate outreach/education with entertainment.

Editors note: There is a key link here with understanding the perception of all the intended community audiences above - then one can target the communication message.

Energy Extension/Institutional Practice

Agency Programs Facilitator: Dr. Harry Lambright, SU with Paul Lundberg, Skidmore College; Arnie Talgo, NY Power Authority; and Ira Rubenstein, Environmental Business Association of NYS

The group started with the question: Who has energy/climate change programs? and why do they work and why not? It was acknowledged that the important players are the NYS Power Authority, NYS Energy Research and Development Authority, NYS Department of Environmental Conservation, the Governor's Office, Economic Development and NYPC - all of which have different roles.

NYSERDA, especially, has important multiple roles for implementing research and development programs, operational activities and market development. NYSERDA has "Energy Smart Communities" for the energy efficiency area and "Industries of the Future" as a state level program. NYSERDA encourages market development through development of renewables, awareness of the technology and how it functions. The agency also looks at market obstacles, especially the interaction of policies and possible hidden disincentives. There is a guidebook of NYSERDA programs plus market assessment of distributed energy/heating potential, prioritization of market assessment and a clearinghouse for new technology. They pride themselves on the numerous partnerships that have resulted.

The Governor's office is important because of the proposed cap or quota to lower carbon and GHG emissions. What is missing is a revised state energy plan and more specific programs. Some states have GHG or carbon caps. New England and the eastern Canada Provinces have set CO₂ goals and monitoring. Maine made carbon caps legal, and Massachusetts and Oregon have caps. Some ten states, plus Pennsylvania and California are bypassing Washington with GHG control in cooperation with the EU? In general the more states that can aggregate as a region - the bigger the economic outcome. NESCOM, NYS and five different agencies are involved. Thus, there is some rivalry and competition on who should lead. There is a need for a uniform regional registry for the states to use.

There was a discussion of supporters of such a registry plus evolution time lines for new energy technologies What is missing?

The group proposed a short term and long term vision to attack the issues stated above. There is a need to integrate economic and environmental issues. Coordination is needed and one idea is to coordinate, at the Governor's Office, a body that coordinates all/various policies. It is felt this is needed at the local level as well. The NYS energy plan is a good model to work from. An executive order for interagency strategic planning could be done to accomplish updates to the energy plan. New Jersey created indicators, which were assessed within each agency. Then there is the EU model for sustainable planning. There is no final climate change GHG action task force paper yet. There is interest in exempting renewables for tariffs.

There is agreement that action is shifting to the states and NE region but more concentrated effort among the states is needed.

University Programs

Facilitator: Dr. Rodger Hinrichs, SUNY Oswego; with Lawrence McGlenn, SUNY New Paltz; John Smiggeski, New Wind Energy; Thomas Kubicki, SUNY Oswego; Rachel May, Syracuse University; Joseph Yavitt, Cornell University; Allan Drew, SUNY/ESF; Colleen Garrity, SUNY Geneseo; Donald Adams, SUNY Plattsburg; and Karen Kellogg, Skidmore College

The group shared experiences with University-based outreach programs. There has been some progress on recycling programs and energy savings. Some campuses such as Skidmore and SUNY/ESF have "green campus initiatives". Some key ideas evolved from this discussion:

- 20 The school administration level has to be involved (and) university facility leaders need to be energy friendly. Faculty, students, facility and dean's offices have to work together for integrated management system.
- 21 In many places there is a green dormitory or building that becomes a model for the rest of the campus and is also a "living laboratory". This allows students to evaluate the "ecological foot print". This is being done at SUNY/ESF where there is an energy audit done on a given project area each spring and there are personal energy budgets formats available on the Internet.
- 22 Another need is to keep interest alive or salient in any ongoing energy conservation/GHG reduction effort. Ideas for this individual interaction of students with community groups or K-12 energy savings programs; having motivational speakers come onto campuses, have an annual conference/meeting of partnership of faculty and students, and student centered research projects, etc.
- 23 Have a resource such as Cool Air-Green Planet with support system for such efforts or to be able to share what is happening at other campuses.

NGO Programs

Facilitator: Ned Raynolds, Clean Air - Cool Planet with Ollie Clubb, GWAN and Richard Smardon, SUNY/ESF

There was a good discussion of regional vs. local NGO programs and activities. It was generally agreed the mission is the same; to raise awareness and gain practical results through action. Generally agreed upon practices are:

- 3) Networking - local, regional to national to gain information about resources and effective program ideas. There is need for a cross-referencing system to keep track of local action programs. We discussed whether aggregate memberships from local to national NGOs were needed but could not resolve this.

- 4) NGO entrepreneurialship training and support is needed so small or local groups do not have to "reinvent the wheel" in organizational action each time.
- 5) Communications research especially on behavioral change is needed and new values related to such changes.
- 6) Effectiveness assessment of Climate Change Action Plans are needed, e.g. who is registered with Cities for Climate Protection?, who was successful and why? Required disclosures of energy expenditures goes with this.
- 7) Lastly, research on effective local action causing policy shift or change is badly needed.

KEYNOTE ADDRESS: How do you Design, Build and Maintain an E-Consortium by Dr. Donald Brown, Director, PCIEP

The breakout sessions were followed by a keynote address by Dr. Donald Brown, Director of the Pennsylvania Consortium for Interdisciplinary Environmental Policy (PCIEP).

His presentation focused on how the Pennsylvania Consortium (PCIEP) got the policy makers together with university and environmental groups to develop such a consortium. Cooperation amongst members of the Consortium allowed development of programs to:

- 2) Identify what members are doing
- 3) Discussion of important issues, and
- 4) Funding research that fills energy policy needs.

Dr. Brown reminded us that state agencies consist of engineers and lawyers and not necessarily people with environmental policy backgrounds. The mission is to get universities to engage in policy relevant research. Early steps included pulling ongoing work off their respective web sites. Now there are 45 institutions that are members of the consortium plus the Department of Environmental Protection and the Department of Conservation of Natural Resources. There is a Memorandum of Understanding which all members were required to sign plus a Director, Board of Governors and an Executive Board to manage the consortium. Don admits he borrowed the organization of the consortium from New York's Great Lakes Research Consortium.

The Program Areas of PCIEP that are energy related are:

- 1.) Greening Colleges and Universities to encourage university campuses to develop "green" practices. So far:
 - 33 schools purchase wind power
 - 18 schools are participating in recycling programs
 - 2 have created sustainable farms on campus
 - 2 have created "world class" global warming programs
 - 1 school has made sustainable development as a essential school mission plus developed a masters in SD
 - a number of schools created outstanding green practice programs.

- 2) Sustainable Pennsylvania - is now preparing the first set of sustainable development indicators for the state.
- 3) Climate and Energy Program has prepared the first GHG inventory for the state.
- 4) The Global Warming Greening Program within the Consortium
 - Conducts policy relevant global warming research
 - Expands commitment to sustainable energy utilization
 - Works toward one global warming course at each school, and
 - One campus-wide change event each year.

The keys to success of the Consortium, according to Don Brown are: 1) having government at the table addressing environmental policy with a greening focus, 2) being a collaborative effort between government and universities, 3) have a champion for the Consortium within the government and, 4) funds generated go back to the universities.

Don Brown made it a moral imperative that universities should be involved with climate and energy policy research. According to him, the best we can do for 2100 would be 550 ppm CO₂. Bracketing the uncertainties - the most optimistic assumptions (2 C at low end) is reduction from 6 gigatons of CO₂ emissions to 3 gigatons by 2100, when it is predicted to go to 20 gigatons by that time. Therefore, in Don Brown's view, the universities MUST get involved. He notes that all universities in New Jersey have adopted GHG emission goals and have worked toward these goals. A number of schools in New England have been very active including Tufts University who is a leader in the area.

Summary and Wrap Up:

R.C. Smardon (SUNY/ESF) and Ira Rubenstein (EBA of NYS) facilitated a discussion to wrap up the days' events. It seems we do have a viable agenda of potential research and action with some areas stronger than others at this stage with who is present. There are potential linkages to state agencies and other organizations active with energy conservation and GHG programs. Don Brown, of the PCIEP has given us a strong mandate why we should move ahead. R.C. Smardon reminds us that Consortium building takes a lot of commitment and work as we have seen with the New York Great Lakes Research Consortium and the fiscal times are tough with the public sector right now.

However, there seems to be commitment to forge ahead given the action of our present group - so we will do that. The plan is to revise this summary into an action policy for creating a statewide Energy/GHG Science and Policy Research Consortium modeled after the Pennsylvania Consortium. Such a consortium could include mandatory commitments, optional commitments and benefits:

Mandatory commitments of being a member of the Consortium could include:

- 17) Engagement of faculty in interdisciplinary alternative energy /climate change science and policy research;
- 18) An energy/emissions campus reduction including specific targets for alternative energy use and emission reductions;
- 19) Some sort of curriculum development – perhaps one dedicated energy/climate change course;
- 20) The organization of at least one campus wide event each year;
- 21) Specific targets for campus wide recycling programs;
- 22) The establishment of campus wide sustainability indicators, and
- 23) Some sort of education/outreach commitment to both K-12 and the general community.

Benefits in belonging to such a consortium could include:

- Access to increased research funding due to a critical mass of alternative energy /climate shift researchers;
- Increased visibility and voice regarding the issue of climate change both at national and international levels;
- Increased market power for the purchasing of alternative energies, and more sustainable practices;
- Increased “marketability” for schools (i.e., some campuses could be “certified” greener by being part of the consortium);
- Increase communication between schools thereby increasing the possibility for intercampus teaching and research initiatives; and
- Potential funding to support collaborative teaching and research once the consortium is formed.

So please react thoroughly and carefully to this summary! Appendix 3 has the complete list of schools and contacts as part of arranging this Conversation-in-the-Disciplines.