

THE POCANTICO CONFERENCE CENTER  
OF THE ROCKEFELLER BROTHERS FUND

**LEADING BY EXAMPLE**  
CONNECTICUT COLLABORATES  
TO REDUCE GREENHOUSE GAS EMISSIONS

A REPORT BASED ON A SUMMIT HELD AT  
THE POCANTICO CONFERENCE CENTER  
OF THE ROCKEFELLER BROTHERS FUND  
OCTOBER 2-4, 2002

POCANTICO PAPER N° 6

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THIS REPORT WAS PREPARED BY  
THE GOVERNOR'S STEERING COMMITTEE

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## GOVERNOR'S STEERING COMMITTEE

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# FOREWORD

Connecticut's leadership in the effort to reduce greenhouse gas (GHG) emissions that cause climate change is part of an emerging national movement to tackle the problem of global warming. While this movement may not yet be widely recognized, many innovative efforts to reduce emissions are now underway at state and local levels all over the United States.

In addition to Connecticut, eight states have committed to reducing greenhouse gas emissions. The six New England states (along with five eastern provinces of Canada) jointly set a long-term target for reducing GHG emissions. New Jersey is on target to reduce its emissions by 5 percent by 2005. New York has just developed its own greenhouse gas emissions reduction plan. California has moved aggressively in recent months to reduce emissions coming from automobile tailpipes. California has also committed to generating 20 percent of its energy needs from clean renewable sources by 2020. Forty states have developed net metering rules that allow household consumers and businesses to run their electricity meters backwards if they can generate more power by using renewable energy systems. This makes it far more attractive to invest in these systems since this is a way of paying down the initial investment necessary to install them. Fifteen states, including Connecticut, have established clean energy funds with \$3.5 billion at their disposal to underwrite the development of clean energy generation in their states.

Meanwhile, 130 cities and counties have pledged to reduce greenhouse gas emissions by between 5 and 20 percent by 2010. A growing number of businesses, including IBM, Dupont, Johnson and Johnson, Nike, BP, and Shell, are actively lowering their emissions. One recent analysis by the Energy Foundation estimated that U.S. business has already reduced emissions by 100 million metric tons. Syndicates of universities in Pennsylvania and New Jersey and individual

campuses in other states are also working to reduce emissions. Hundreds of religious institutions are also protecting the global climate system by installing energy efficient lightbulbs and setting up solar rooftop systems to generate electricity. Churches, mosques and temples all over the U.S. are asking their members to do the same.

It is apparent that a greenhouse gas emissions reduction movement is being born in the U.S. Interestingly, very little of this effort is being led by environmentalists. It is mainly being directed by civil servants, administrators, religious leaders, and corporate vice presidents. Recent polls indicate that 85 percent of Americans are concerned about global warming and want to find solutions. As these local actions indicate, many ordinary Americans are rising to the challenge to design innovative strategies to tackle global warming. It is imperative that Americans do rise to this challenge. While the U.S. represents only four percent of the globe's population, it is responsible for 25 percent of the world's greenhouse gas emissions. We have a responsibility to act.

Scientists say the world will need to reduce emissions by 60 percent or more to stabilize the climate system. To achieve this scale of change, effective strategies will be needed at all levels of society. The work being done by innovative Americans all over the country will provide the raw material for future national-level strategies and policies.

The American political system is nothing if not entrepreneurial. Sub-national and citizen-led policy development is a typical precursor to federal action. As an example, states led the way 30 years ago in the development of clean air rules. The federal Clean Air Act was developed after it became necessary to harmonize numerous state rules and regulations. Many other examples exist of state-based innovation that later became national policy. On an issue as complicated as

global warming, state-, city-, business- and citizen-based policy innovation will be critical.

Within this emerging national greenhouse gas emissions reduction movement, no one is taking a more comprehensive approach to addressing this challenge than the State of Connecticut. As its innovative, multi-faceted program, described more fully in the following

paper, moves forward and accelerates, there is no doubt Connecticut is emerging as a model for the nation in the effort to reduce greenhouse gas emissions.

*Michael Northrop  
Rockefeller Brothers Fund  
December 1, 2002*

# INTRODUCTION

Imagine fall in Connecticut without its spectacular foliage display. Envision the vital wetlands of Connecticut's coastal ecosystems seriously damaged. Prepare for the introduction of even more mosquito-borne diseases previously unknown in the state. Are these scenes from some bleak piece of futuristic fiction? Sadly, no. These scenarios are very real possibilities, according to several climate change studies. Now ask yourself: Is climate change important to Connecticut? Will impacts of this global problem really be noticeable in our state? The answer to both these questions is a resounding, "Yes."

I have been involved with climate change issues for more than 20 years. While much of my focus has been on global-level concerns, I cannot help but ponder the consequences of climate change in Connecticut. The plant and animal species in our saltwater marshes could be seriously damaged by factors such as rising sea levels, shifting salinity levels and water temperature changes. The maples we treasure could be replaced by other species that would thrive in a warmer Connecticut climate. In one modeled projection, the much-loved maple, beech and birch forests of New England will disappear in this century. These changes alone would have serious economic impacts throughout the Northeast, as the tourism industry associated with foliage viewing and the maple sugar industry would likely be devastated.

The outlook for the rest of the country is no rosier. What other changes might be expected during this century? The best current estimate is that, absent major corrective actions, global warming in this century could make it impossible for about half of U.S. lands to sustain the types of plants and animals that now inhabit them. A huge portion of our protected areas—large and small—is now threatened. It is projected that much of the Southeast will become a huge grassland savanna too hot and dry to support forests. Extreme weather

events, sea level rise, coral bleaching, and public health risks are among the other predicted consequences.

How have we found ourselves in this position? The concept of climate change certainly is not a new one. In 1896, Svante Arrhenius published *On the Influence of Carbonic Acid in the Air upon the Temperature of the Ground*, in which he used models to demonstrate his theory that emissions from combustion of coal would lead to a warming of the Earth. With this effort, the science of climate change was born, more than 100 years ago.

Today a number of factors, including an increasingly concerned public, represent rays of hope that the problem of global warming is beginning to receive the attention it demands. Perhaps the brightest of these rays is that more than half the states are developing strategies or action plans that reduce greenhouse gas emissions. New Hampshire has legislation to cut power plant emissions of carbon dioxide, and California has moved to regulate carbon dioxide emissions from auto exhausts, to mention two leading examples. And now Connecticut is poised to move forward with the development and implementation of a climate change action plan. Successful implementation of such a plan would result in both environmental and economic benefits. All this is coming none too soon. Indeed, moving from research to research and action is long overdue.

The only way to reduce greenhouse gases and other pollution while achieving expected economic growth is to bring about a wholesale transformation in the technologies that dominate manufacturing, energy, transportation, and agriculture. We must rapidly abandon the 20th century technologies that have contributed so abundantly to today's problems and replace them with 21st century technologies designed with environmental sustainability in mind.

The good news here is that across a wide front, technologies that would bring about a vast improvement



are either available or soon can be. Many of the most significant advances are in the energy sector, a sector whose transformation is critical to reducing greenhouse gas emissions. From 1990 to 1998, when oil and natural gas use grew at a rate of 2 percent annually, and coal consumption grew not at all, wind energy grew at an annual rate of 22 percent and photovoltaics at 16 percent.

Focusing on an energy transformation as an integral part of a climate change action plan would also likely have a positive effect on the fuel cell industry, an industry sector with strong state ties. Connecticut is home to several of the nation's fuel cell industry leaders, including UTC Fuel Cells, FuelCell Energy and Proton Energy Systems, among others. They are just a few of the companies in Connecticut that are involved in fuel cell research, design and manufacture. As fuel cells become more prevalent sources of power for both buildings and mobile vehicles, and as the fuel cell industry grows, Connecticut's fuel cell companies should be well positioned to capture a large share of this growing market.

In order for a greenhouse gas reduction strategy to be successful, the plan must also be supported by parties other than those who might directly profit from its implementation. On a national level, some extraordinary developments have already occurred in the area of corporate governance and leadership. Seven large companies, including Dupont, Shell, BP Amoco and Alcan, have agreed to reduce their CO<sub>2</sub> emissions 15 percent below their 1990 levels by 2010. Eleven major companies, including GM, IBM and Dupont, have formed a Green Power Market Development Group and have committed to developing markets for 1000 megawatts of renewable energy over the next decade. Connecticut's corporations are beginning to exhibit this same level and type of leadership as indicated in this report.

Non-governmental organizations (NGOs) working in Connecticut must continue their essential efforts to develop and support climate change pro-

grams. As detailed in this report, NGOs have embraced a number of sustainability issues and have served as catalysts for grass roots action, corporate stewardship and public policy initiatives. By "filling the gaps" between corporate and government actions, NGOs play a vital role in advancing climate change initiatives.

And finally, the State of Connecticut itself must pursue its commitment to develop and implement a climate change action plan. This report represents an important first step. Now, Connecticut needs to:

- Execute the commitments it has made under the New England Governors/Eastern Canadian Premiers agreement
- Commit to improving energy efficiency and reducing greenhouse gas emissions
- Support green energy industries by purchasing a portion of the state's power from renewable generators
- Grow the state's fleets of hybrid and alternative fuel vehicles

Only by leading by example can the state of Connecticut encourage its corporations and residents to make comparable decisions.

In conclusion, I would like to repeat a conviction that I expressed in a 1981 preface I wrote for a federal government report on climate change: People have altered the face of the planet throughout history, but the power of today's technology and our growing capacity to foresee, however uncertainly, the possible consequences of our acts put us in a new moral position. The responsibility for the climate change problem is ours—we should accept it and act in a way that recognizes our role as trustees of the Earth for future generations.

*James Gustave Speth*  
*Dean, Yale School of Forestry and*  
*Environmental Studies*

# A COMPELLING CONCERN

## CLIMATE CHANGE AFFECTS NEW ENGLAND

Humans are increasingly influencing the earth's climate by changing the composition of the atmosphere and by modifying the land surface. The present measured concentration of carbon dioxide in the atmosphere is approximately 30% higher than pre-Industrial Revolution levels (1850s). This is greater than any carbon dioxide concentrations within the past 400,000 years. Since carbon dioxide from fossil fuels has a chemical signature, scientists conclude that the increases in the past century result from the combustion of fossil fuels. Increased carbon dioxide and other greenhouse gas levels have resulted in a warming of the global climate. This warming trend is projected to accelerate over the next century.<sup>1</sup>

The New England Regional Assessment (NERA), a document prepared for the U.S. Global Change Research Program,<sup>2</sup> provides an assessment of the current and potential impacts of climate change on New England (its geographic coverage includes the six New England states plus upstate New York). NERA is one of 16 regional assessments completed from an effort that derives from a 1990 Congressional Act.<sup>3</sup> These regional assessments contribute to a national process of research, analysis, and dialogue on climate change and its impacts. The assessment processes included a broad range of stakeholders and experts.

### FINDINGS OF THE NEW ENGLAND REGIONAL ASSESSMENT

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The NERA made the following conclusions:

- The New England climate has warmed over the past century (*see Figure 1*). The region as a whole warmed by 0.7° F between 1895 and 1999. Some New England states have experienced greater warming than others and warming in winter months has exceeded summer warming. Connecticut has warmed by 1.4° F over the past 100 years, with wintertime warming (2.4° F) greater than summertime warming (1.2° F). In addition, regional precipitation has increased modestly (4%) over the same time period.
- The models project significant warming over the next century. The two models used by the regional assessment team project a significant warming of annual minimum temperatures in New England over the next century, between 6° F and 10° F, and a moderate to significant increase in precipitation (10%–30% for the region). Such temperature increases would be greater than any climate variations experienced in the region in the past 10,000 years.
- The impact of a few degrees in temperature increase is profound. An annual average increase of 6–10° F would result in Boston temperatures

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<sup>1</sup> Information from: National Assessment Synthesis Team, "Climate Change Impacts on the United States: The Potential Consequences of Climate Variability and Change," US Global Change Research Program, 400 Virginia Avenue, SW, Suite 750, Washington DC, 20024. New England Regional Assessment Group, 2001, "Preparing for a Changing Climate: The Potential Consequences of Climate Variability and Change." *New England Regional Overview*, U.S. Global Change Research Program, 96 pp., University of New Hampshire.

<sup>2</sup> The United States Global Change Research Program (USGCRP) began as a Presidential initiative in 1989 and was institutionalized by Congress in the Global Change Research Act of 1990. The USGCRP coordinates the research of ten Federal departments and agencies. Participants include: Department of Agriculture (USDA), Department of Commerce/National Oceanic and Atmospheric Administration (DOC/NOAA), Department of Defense (DoD), Department of Energy (DOE), Department of Health and Human Services/National Institutes of Health (HHS/NIH), Department of the Interior/U.S. Geological Survey (DOI/USGS), U.S. Environmental Protection Agency (EPA), National Aeronautics and Space Administration (NASA), National Science Foundation (NSF), Smithsonian Institution.

<sup>3</sup> An act requiring the establishment of a United States Global Change Research Program aimed at understanding and responding to global change, including the cumulative effects of human activities and natural processes on the environment, and promoting discussions toward international protocols in global change research, and for other purposes.

matching those of today's Richmond, Va. or Atlanta, Ga.

- Human activities are affecting climate. There is now strong scientific evidence that much of the global warming experienced in the last half of the 20th century is attributable to human factors including the build-up of greenhouse gases in the atmosphere. Continued build-up of greenhouse gases will lead to additional climate change in the future.
- The past and present changes have impacts throughout New England. It is likely that milder winters, earlier maple sap flows, earlier ice-out dates, and reduced snowfall are a response to the 0.7° F ("minor") increase in regional temperatures that has occurred over the last century.
- Regional air quality may worsen. Increased temperatures, particularly during the summer, correlate well with increased ground level ozone formation. This will result in increased public health and environmental effects, especially to

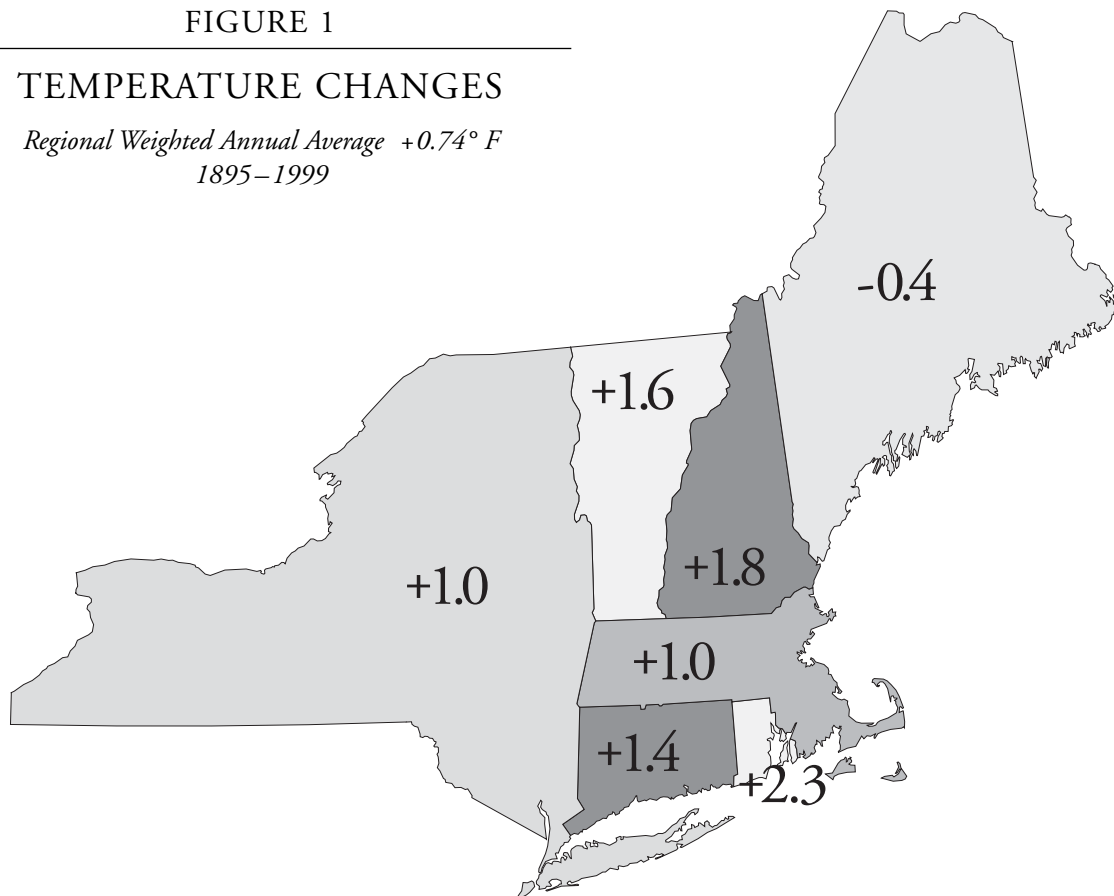
children, the elderly and those with compromised lung and immune systems. Further, increased and /or protracted episodes of ground level ozone and fine particulate will require regulatory agencies to adopt additional, more stringent control measures in order to attempt to reduce these concentrations.

- Such future warming trends would profoundly change human health, forests, and water resources (the three focus sectors of the New England Regional Assessment). Human health would be impacted both directly (e.g., from poor air quality and extreme weather events) and indirectly (e.g., warmer winters facilitating expansion of Lyme disease and malaria, the latter of which was recently reported outside of Leesburg, Va., for the first time). The change in climate will result in forest species migration and a change in forest composition. Climate change will also impact freshwater quality and quantity and coastal ecosystems.

FIGURE 1

## TEMPERATURE CHANGES

*Regional Weighted Annual Average +0.74° F  
1895–1999*



# IDENTIFYING SOURCES

## CONNECTICUT'S GREENHOUSE GAS EMISSIONS INVENTORY

Connecticut has started to quantify and analyze the state's emissions that contribute to global climate change by completing greenhouse gas (GHG) emissions inventories for calendar years 1990 and 1995. These inventories were compiled primarily using methodologies developed by the U.S. Environmental Protection Agency (EPA) in its State Workbook: Methodologies for Estimating Greenhouse Gas Emissions (1998). The Connecticut GHG inventories included emissions of the three gases most commonly associated with climate change: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O).<sup>4</sup>

Of the three greenhouse gases included in Connecticut's inventories, carbon dioxide accounts for the vast majority of greenhouse gas emissions emitted in Connecticut, comprising about 94 and 96 percent of greenhouse gas emissions in the state for the years 1990 and 1995 respectively. Methane emissions totaled about 6 and 4 percent for 1990 and 1995, with nitrous oxide accounting for less than 1 percent for both years.

Total greenhouse gas emissions are expressed in tons of carbon dioxide equivalent (TCDE). Since the greenhouse gases noted above have differing levels of climate change impact, the TCDE for each gas is calculated by multiplying the total number of tons of that pollutant by its global warming potential. TCDEs "normalize" emissions of various greenhouse gases and allow for better analysis and quantification of mitigation actions.

### GLOBAL WARMING POTENTIAL VALUES<sup>5</sup>

<i>Greenhouse Gas</i>	<i>Global Warming Potential</i>
Carbon Dioxide	1.0
Methane	21.0
Nitrous Oxide	310.0

### ANALYSIS OF CONNECTICUT'S 1990 AND 1995 GREENHOUSE GAS INVENTORIES

A breakdown of Connecticut's 1990 and 1995 greenhouse gas emissions inventories by the human activity that gives rise to them is presented in the following table.

SOURCE	1990 EMISSIONS (TCDE)	1995 EMISSIONS (TCDE)
<b>ENERGY USE</b>		
• Mobile Sources	11,831,565	12,597,430
• Utilities	10,475,465	6,572,912
• Residential	7,901,361	8,395,783
• Industrial	4,778,615	5,261,989
• Other Transportation	4,135,035	3,287,276
• Commercial	3,858,436	4,068,033
• Natural Gas Distribution	204	240
<b>INDUSTRIAL</b>		
• Limestone Use	197,446	226,336
<b>WASTE MANAGEMENT</b>		
• Solid Waste Management	2,881,212	2,351,042
• Wastewater Treatment	23,113	20,870
<b>AGRICULTURE</b>		
• Domesticated Animals	138,714	135,550
• Manure Management	41,130	38,373
• Soil Management	52,516	60,136
TOTAL GROSS EMISSIONS	46,314,812	43,015,970
<b>LAND USE</b>		
• Storage by Forests	628,553	791,527
<b>TOTAL NET EMISSIONS</b>	45,686,259	42,224,443

<sup>4</sup> The information in this chapter is taken from Connecticut's Greenhouse Gas Emissions Inventory 1990 and 1995 Calendar Years, March 1999. Prepared for the Connecticut Department of Environmental Protection by The Environmental Research Institute and The Department of Natural Resources Management and Engineering, The University of Connecticut, Storrs, CT.

<sup>5</sup> These global warming potential values reflect the radiative effect of each gas over a measurement period of 100 years. The global warming potential for methane includes indirect effects of tropospheric ozone production and stratospheric water vapor production.

Total gross greenhouse gas emissions for Connecticut in 1990 were approximately 46,314,812 TCDE. Net emissions were estimated at 45,686,259 TCDE. For 1995, gross emissions decreased to 43,015,970 TCDE with a net emissions of 42,224,443 TCDE.<sup>6</sup> The results indicate a net decrease in greenhouse gas emissions of approximately 3,461,816 TCDE between the years 1990 and 1995. This is approximately a 7.6 percent reduction in greenhouse gas emissions over the five-year period.

The most significant reductions in greenhouse gases were found to occur in the energy use sector, most notably within the utility sector. Recognize that the 1990 and 1995 inventories are emissions snapshots. The utility fuel mix in Connecticut (nuclear, oil, coal, natural gas, other) changes considerably from year to year, and the reduction from 1990 to 1995 does not necessarily indicate a continuing trend toward lower greenhouse gas emissions in the state. Additional significant decreases in greenhouse gas emissions between 1990 and 1995 occurred at landfills, where methane emissions have decreased. Since the late 1980s, there has been a significant shift in waste disposal from landfilling to waste combustion (using waste-to-energy facilities). The closing of a majority of the state's landfills and an increase in methane recovery and flaring has resulted in less methane being emitted to the atmosphere.

When comparing emissions based on only two inventory years, one must keep in mind the many factors that are involved in, and contribute to, the emissions of greenhouse gases. Factors may include economic and climatic conditions which affect fossil fuel consumption and agricultural practices. Emission estimates need to be evaluated with other data to determine if contributions of greenhouse gases to the atmosphere are changing due to temporary outside influences or due to real changes in the management of greenhouse gas emitting processes. To date, the major sources of real change that have occurred in Connecticut are those noted above: an increase in natural gas consumption, a decrease in total coal and petroleum products consumption, and increased recovery and flaring of methane gas from municipal solid waste landfills.

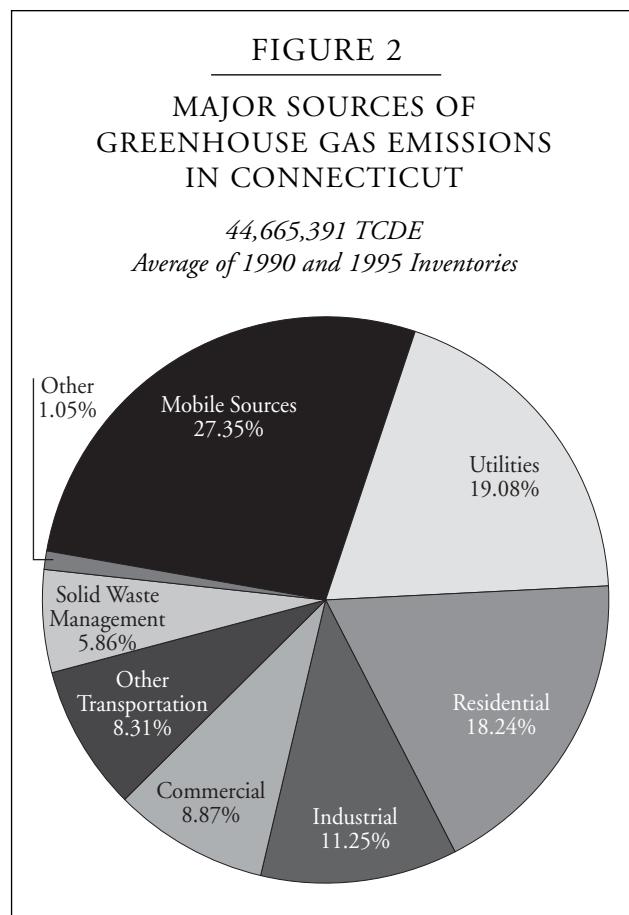


Figure 2 (using an average of 1990 and 1995 emissions) illustrates that the largest source of greenhouse gas emissions in Connecticut is mobile source fuel combustion (fuel burned by motorized vehicles), which accounts for more than 27 percent of total emissions. Connecticut has a relatively large quantity of emissions from mobile sources due to the population density of the state and the state's location between the major population centers of New York and Boston. Fuel combustion by the utility sector accounts for approximately 19 percent of GHG emissions, followed by an 18 percent contribution by fuel combustion in the residential sector.

<sup>6</sup> Net emissions were determined by subtracting carbon dioxide uptake from the land use sector from gross greenhouse gas emissions.

## UPDATED INVENTORY

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One of the important next steps in addressing climate change in Connecticut is the development of a greenhouse gas inventory for the year 2000. EPA is expected to release a revised State Workbook in late 2002. This updated workbook, complete with software tools, can be used by states to compile inventories using the most recent calculation methodologies.

Connecticut has approached the Northeast States for Coordinated Air Use Management (NESCAUM) to develop a year 2000 greenhouse gas

inventory that will be regionally consistent with the inventories of others states in the northeastern U.S.

Projected and actual reductions of greenhouse gases resulting from mitigation actions contained in Connecticut's Climate Change Action Plan will be measured against the 1990 greenhouse gas inventory.<sup>7</sup> This analysis will help Connecticut determine which greenhouse gas reduction efforts will have the greatest impact.

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<sup>7</sup> In order to evaluate and quantify such reductions, Connecticut will utilize software tools such as the Gleneagle database, currently being developed by the (STAPPA/ALAPCO) State and Territorial Air Pollution Program Administrators/Association of Local Air Pollution Control Officials.

# CROSS-BORDER RESOLVE

## NEW ENGLAND GOVERNORS'/EASTERN CANADIAN PREMIERS' CLIMATE CHANGE ACTION PLAN

New England States and Eastern Canadian Provinces have a lengthy history of working together to address and resolve environmental issues. Starting in the 1980s, the New England Governors (NEG) and Eastern Canadian Premiers (ECP) recognized the harmful effects of acid rain on the region's forests and the negative impacts on its economy. A joint resolution was passed that called for the elimination of emissions that contribute to these effects. States and provinces acted to reduce emissions of nitrogen oxides and sulfur oxides. These steps later served as a model for regional and federal action.

In the mid 1990s a similar effort was launched to address mercury, a compound with sources both within and outside of the region (emissions transported long distances from Midwestern coal fired power plants). With advisories throughout the region to limit or avoid eating local freshwater fish, the NEG/ECP again acted to implement programs and control measures to eliminate the sources of mercury emissions.

In 2000, the NEG/ECP, citing the United Nations' Intergovernmental Panel on Climate Change (IPCC) and mindful of recent unprecedented weather related disasters in Quebec, the Maritime Provinces and New England, adopted Resolution 25-9 on global warming and its environmental impacts. The resolution directed the existing Northeast International Committee on Energy (NICE) to:

- 1) collaborate with New Brunswick to hold a climate change workshop; and
- 2) develop recommendations and an action plan to be presented to the 2001 NEG/ECP annual meeting.

The March 2001 climate change workshop, which was co-chaired by Governor Rowland, presented findings on the scientific certainty that climate change is already occurring and that a significant human signature is contributing to these observed changes. Policy

and strategic recommendations developed from comprehensive presentations by government, academia, industry and public officials from Canada and the United States. The well-attended workshop provided momentum to NICE, which then developed the framework for a climate change action plan between March and June 2001. The plan was submitted to the NEG/ECP for the August 2001 annual meeting in Westbrook, Connecticut, where Governor Rowland and all other members of NEG/ECP signed it.

Structurally, the Climate Change Action Plan resembles that of both the acid rain and mercury plans. The overall vision is to reduce greenhouse gas emissions to a level that stabilizes the earth's climate and eliminates the negative impacts of climate change. Like the previous two plans, the plan also outlines short- and medium-term goals that will be important to measure progress towards the long-term objective. The three goals are:

- Short-term: By 2010, reduce regional GHG emissions to 1990 levels.
- Mid-term: By 2020, reduce regional GHG emissions by at least 10% below 1990 levels.
- Long-term: Reduce regional GHG emissions to a level that eliminates any dangerous threats to the earth's climate. Current science suggests that this level is 75–85% below existing levels.

The plan further provides a recalibration mechanism. Starting in 2005 and continuing every five years thereafter, progress in achieving the goals will be evaluated. The goals may then be adjusted if necessary and future emission goals may be established.

Four principles guide the NEG/ECP plan for action:

- 1) Reduce energy and non-energy related GHG emissions through such measures as shifting to low and zero carbon energy sources and improving transportation efficiency;

- 2) Adopt “no-regrets measures” that develop the region’s economy and involve all segments of society;
- 3) Develop long-term environmental and economic sustainability measures and explore adaptation mechanisms; and
- 4) Work with the federal governments to encourage national solutions and improve the energy efficiency of vehicles.

Importantly, the plan’s goals are regional in scope. This enables the region to take advantage of measures and policies that can be applied broadly, as well as steps that an individual state or province may take on its own as an early action, but are not technically, economically or politically implementable on a broad scale. In this manner, no state or province is singled out if it is unable to achieve progress due to temporal economic or political sensitivities.

#### ACTION STEPS FOR THE NEW ENGLAND STATES AND EASTERN CANADIAN PROVINCES

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Nine specific action items comprise the NEG/ECP plan. They are both broad and deep in their structure and scope. They recognize that while the region shares a common border and economy, differences in federal laws have created disparities that, while ostensibly minor, need to be aligned to create the necessary market mechanisms to encourage transparency and foster economic development based upon climate friendly policies. For example, in the United States, power plants above a certain heat input baseline are required by the Clean Air Act to continuously monitor and measure emissions of several pollutants, including carbon dioxide. Affected units are required to report quarterly to the states, and these data are then available on a national database through EPA. In Canada, no similar national program exists. Each province has

developed its own requirements. In addition, emissions are reported on different calendar periods. Conversely, Canada has completed a nationwide GHG inventory including all sectors based on 1999 emissions. In New England, states have GHG inventories with differing baselines, some going back to 1995.

The vision the Governors and Premiers created in August 2001 requires significant coordination and collaboration to even begin its implementation. Five committees (inventory/registry, lead by example, energy, transportation, and adaptation) were established and significant work by each committee resulted in developing work plans that contain specific recommendations. These work plans were submitted to the August 2002 NEG/ECP meeting and include the following specific actions that were agreed to at this meeting:

- 1) A regional program to replace traffic lights with light emitting diode (LED) equivalents;
- 2) A commitment to work with colleges and universities to develop action plans based upon the NEG/ECP targets. An ancillary step is to work with these institutions to increase purchase of renewable energy. A goal of 150 institutions region wide was established.
- 3) The purchase of more energy efficient office equipment (Energy Star or better) by state and provincial governments.
- 4) The purchase and use of cleaner, more efficient vehicles by state/provincial fleets.

The progressive plan developed by the Governors and Premiers has been noted regionally and nationally. A large conference will be held in May 2003 in Hartford, Connecticut to increase public awareness of the region’s actions and to provide additional support for implementing the action plan. Connecticut is well positioned to take a lead role in helping the region attain these ambitious goals and greenhouse gas emission reductions.



# PROGRESS TO DATE

## CURRENT CONNECTICUT CLIMATE CHANGE INITIATIVES

An effective approach to climate change will require the commitment by and participation of many sectors and organizations. In Connecticut, state and local government, non-profit organizations, and businesses and institutions have already shown leadership by implementing cost-effective actions to reduce greenhouse gas emissions. Some examples (by no means a comprehensive list) of these organizations and their successful programs are detailed below.

### STATE GOVERNMENT ACTIONS

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One of the nine actions in the NEG/ECP Climate Change Action Plan, Action Item Four: State and Provincial Government to Lead by Example, recognizes that governments must take the lead in implementing climate change and greenhouse gas reduction programs. Not only do many activities performed by government directly impact GHG emissions, but government also has the ability to provide education and incentives to the private sector and individuals for further reductions. Demonstrating energy efficiency, clean energy technologies and sustainable practices should be a fundamental task of government. Such actions are not only environmentally responsible, but they also show fiscal prudence since the overwhelming majority of measures contemplated reduce government expenses and by reference, reduce reliance on taxpayer funding. Further, for the pilot/small scale types of measures envisioned, government leadership here in proving the success of such measures and/or technologies will reduce the incremental costs, making it more affordable to others. Finally, by recognizing that action needs to be taken now, government avoids burdening future generations with what will most surely be much higher costs in the future, and the decisions about such costs

would likely be made in emergency type forums without the leisure or benefit of time. A goal of reducing emissions within the public sector by 25% by 2012 is the set goal for the region.

Connecticut's top state officials acknowledge that the activities of state government contribute to emissions of greenhouse gases and feel very strongly that state agencies need to lead by example in addressing activities that reduce GHG emissions. State government will be taking a leadership role to achieve climate change objectives. Subsequent to the Connecticut Climate Change Action Plan Summit held in October 2002, the 13 state agencies that participated proceeded to inventory activities that are underway or completed that contribute to reducing GHG emissions. Additional state agencies will be asked to identify actions relative to their operations. Approximately 50 activities were listed. For the most part, these activities cover reduced energy use, transportation, outreach, buildings, and procurement. State government also recognizes the need to provide incentives, primarily financial, for others to reduce GHG emissions. Some incentives are currently in effect, while others still need to be identified. A sampling follows of measures attributable to Connecticut's government facilities and operations or those established as an incentive. Some are formalized in statutes or regulations; others are informal programs or policies.

### REDUCED ENERGY USE, ENERGY CONSERVATION, EFFICIENCY

- Connecticut has established energy performance standards; implementation requires calculating the average energy use in state buildings, establishing thresholds for energy use and reducing energy use on a cost-effective life cycle basis.

- Design for major capital projects must be cost effective on a life-cycle basis including analysis of energy related costs.
- New leases for buildings over 10,000 square feet require an energy audit, and operational and maintenance improvements as recommended by the audit.
- Installation of a fuel cell to provide power at Dinosaur State Park will be completed by early 2003 along with an interpretative energy exhibit.
- One state university is having a software tool installed that will control all university computer monitors with the aim of saving energy.

#### FUEL EFFICIENT VEHICLES, LOWER CARBON FUELS

- The state fleet average for cars and light duty trucks shall have an EPA gasoline mileage rating of 35 mpg and after 1/1/03, 40 mpg.
- The Department of Transportation purchases a biodiesel blend for its equipment at certain facilities and has plans for an E-85 (ethanol) demonstration.
- Several tax exemptions exist for clean fuels, including a 50% tax credit for the construction of clean alternative fuel filling stations and improvements to existing stations, equipment to convert vehicles to clean alternative fuel or dual fuel systems vehicle purchase, and exemption from sales and use taxes for the purchase of equipment used in compressed natural gas filling or electric recharging stations for vehicles.
- Three state agencies have partnered with NGOs to promote a bike-to-work initiative in the Hartford area.

#### OUTREACH / EDUCATION

- The Global Fuel Cell Center was established at the University of Connecticut. The Center promotes the use of fuel cells as a clean and environmentally friendly alternative and educates students of all ages to assume a leading role in the fuel cell technology workforce of the future.
- The Institute for Sustainable Energy was established at Eastern Connecticut State University. The Institute will support school-based energy education on renewable energy and energy conservation and distribute information for the state on sustainable energy.

#### SUSTAINABLE BUILDING POLICIES

- The Department of Public Works (DPW) has a policy to incorporate “green” concepts into major capital projects (major renovations, new construction), by setting the Leadership in Energy and Environmental Design’s (LEED) Silver Standard as a goal and implementing it where feasible. DPW requires all architects and engineers to consider LEED standards when designing projects for the State.

#### PROCUREMENT OF ENVIRONMENTALLY PREFERABLE PRODUCTS

- An Environmental Purchasing Advisor position was created to develop a program to establish procedures that promote procurement and use of environmentally preferable products and services.
- The state may waive requirements for competitive bids to promote the purchase of alternative fuel cars and light trucks; a 10% price preference is available for goods made from recycled materials or for vehicles powered by clean alternative fuels.
- The Department of Administrative Services (DAS) is charged with procuring equipment and appliances for state use, which meet or exceed the federal energy conservation standards in the Energy Policy and Conservation Act.

Emissions reductions for most of the above actions have not yet been quantified. The identification of state agency climate actions will continue, and these measures will eventually be quantified as Connecticut moves forward with the climate change action planning process.

#### MUNICIPAL GOVERNMENT ACTIONS

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Connecticut municipalities are also taking action on the local level to address climate change. The town of Westport was the first in Connecticut to commit to purchasing renewable energy. Four municipalities—Bridgeport, Fairfield, New Haven and Willimantic—participate in the Cities for Climate Protections program run by the International Council for Local Environmental Initiatives (ICLEI). These municipalities have passed resolutions pledging to take a leadership role in reducing greenhouse gas emissions

from municipal operations. Each has also completed a greenhouse gas emissions inventory as one of five milestones under the ICLEI process. The inventories provide baseline data and preliminary recommended reduction measures. While funding is needed to proceed with an action plan, funding is not preventing these towns from making progress towards reducing energy consumption and emissions through actions such as lighting improvements, purchasing Energy Star office equipment, and changing over to LED traffic signals. In addition, more than a dozen Connecticut towns and cities participate in Rebuild America, a U.S. Department of Energy (DOE) initiative to reduce municipal energy costs and use the savings to modernize buildings and revitalize communities. Municipalities have also taken advantage of utility-run energy conservation programs.

## NON-GOVERNMENTAL ACTIONS

Non-governmental organizations have been strong supporters of climate change-related initiatives in Connecticut. This support is invaluable in engaging public involvement in and understanding of a wide spectrum of issues linked to climate change. Connecticut-based and regional non-profit groups have embraced a broad range of sustainability issues and acted as catalysts for grass roots action, corporate stewardship, and public policy initiatives. Much of this non-profit work is supported by grants from foundations. All of these groups (see a partial listing in the box below) will play an increasingly vital role as Connecticut pursues a more coordinated and comprehensive approach to climate change.

The combined efforts of many non-governmental organizations are helping to educate the public about climate change, assist the state's businesses and institutions, provide resources to municipalities, promote leadership among faith-based communities, and build partnerships between state agencies and non-governmental groups. Education on climate change and related issues ranges from the marketing of renewable energy to grass root action campaigns. Non-profits are surveying Connecticut residents' knowledge and understanding of climate related issues, planning a regional climate change conference, promoting low emission vehicles, supporting cleaner fuels and technologies for diesel

### NON-GOVERNMENTAL ORGANIZATIONS WITH CLIMATE CHANGE-RELATED INITIATIVES IN CONNECTICUT

Center for Clean Air Policy  
Clean Air – Cool Planet  
Clean Water Action  
Environment Northeast  
International Council for  
Local Environmental Initiatives  
Interreligious Eco Justice Network  
League of Conservation Voters  
Northeast States for Coordinated  
Air Use Management  
SmartPower Connecticut  
Sustainable Step New England  
World Resources Institute

engines, and providing education on the purchase of fuel cells and renewable energy technologies.

Many Connecticut businesses have already realized the economic and environmental benefits of increased energy efficiency. Non-profit organizations are supporting these actions by forming business partnerships and networking groups; providing technical assistance on renewable energy supply, distributed generation, and energy efficient products and technologies; and publicizing corporate sustainability successes. Similar assistance has been provided to the state's colleges and universities. Connecticut College in New London was the first university in the region to purchase renewable energy on its campus.

With assistance from a number of non-profit organizations, Connecticut municipalities have initiated programs to address climate change through local actions. The commitments of these municipalities and the solid support of non-governmental organizations in these efforts will help to expand and increase the impact Connecticut towns can make on statewide greenhouse gas emission reductions.

Non-governmental organizations are also responsible for increasing the focus on environmental sustainability among Connecticut's faith-based communities. Many faith congregations in Connecticut have made commitments to energy conservation and renewable energy purchases. As congregations take

such actions, their members gain an increased understanding of environmental issues and take similar actions at home.

Finally, non-profits and foundations have given strong support to the work of state agencies and the climate change planning process in Connecticut. In addition to supporting the Connecticut Climate Change Action Plan Summit, these groups are preparing a roadmap of actions to help stabilize emissions contributing to climate change, helping to update Connecticut's greenhouse gas emissions inventory, contributing to discussions on emissions registries and trading programs, and working with governmental agencies in proposing solutions to electricity grid congestion in southwestern Connecticut.

## BUSINESS SECTOR ACTIONS

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A variety of Connecticut businesses are leading the way to voluntarily reduce greenhouse gas emissions by adopting strategies and technologies that save energy, reduce pollution, and are cost effective. The motivation for taking action as well as the type of action differs from company to company, but all result in the mutual goal of reducing greenhouse gas emissions. Activities by businesses tend to fall into the following general categories: facility or company baseline measurement of GHG emissions, energy conservation and efficiency including switching to cleaner fuels and buying renewable power, cleaner industrial processes, cleaner vehicles, sequestration (improved agricultural and forestry practices), methane reduction, voluntary cap and trade of carbon dioxide, and participation in outreach and awareness raising.

Some Connecticut companies are involved in formal partnerships or voluntary programs with government agencies, NGOs, and other associations, whose aim is reducing pollution, emissions, or the impacts of climate change. About a dozen Connecticut companies are participating in either Environment Northeast's Connecticut Corporate Green Energy Group or Sustainable Step New England's project Sustainable Business Network, both of which were recently launched. Looking back a few years, 16 Connecticut manufacturers joined the Connecticut Climate Wise Partnership and between 1996 and 2000 these manufacturers reduced emissions of CO<sub>2</sub> by

133,000 tons.<sup>8</sup> Many of them continue to implement projects that reduce energy use and GHG emissions.

An example of some Connecticut businesses that are working in formal partnerships to reduce emissions are listed below:

- Pitney Bowes was a partner company in the former CT Climate Wise Partnership and continues to be a company leader in reducing GHG emissions and looking for cost competitive ways to buy new, green power. They are active in efforts driven by Sustainable Step New England, Environment-Northeast, and the World Resources Institute.
- Pfizer is a partner in the EPA Climate Leaders initiative to measure corporate GHG emissions, set reduction targets, and publicize their efforts. Pfizer is also looking for ways to enhance energy conservation and to buy clean energy in Connecticut to displace a percentage of the energy it buys from conventional/fossil fueled sources.
- MeadWestvaco Corp. participated in the development of the Chicago Climate Exchange.<sup>9</sup> Participants agree to reduce total GHG's by 1% per year, and to buy "offsets" from other participants for any shortfall in meeting their target reduction levels.
- United Technologies Corporation (UTC) is a member of the Pew Business Environmental Leadership Council. UTC has initiated a unique voluntary program to reduce its worldwide energy and water consumption by 25% as a percent of sales by 2007. This program will decrease CO<sub>2</sub> emissions by approximately the same amount and covers 242 facilities in 36 countries. The company is also manufacturing products such as fuel cells, turbines and cooling equipment that make efficient use of energy. Pratt and Whitney instituted the Green Engine initiative to achieve greater efficiencies in its products.
- Unilever has set targets for reducing total energy use and reducing CO<sub>2</sub> intensity in the energy it uses in its global manufacturing processes.
- Utilities—some natural gas distributors are working with EPA to monitor and reduce

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<sup>8</sup> CT Climate Wise Partner companies included Amerbelle Corp., Branson Ultrasonics Corp., Chandler Evans Control Systems, Clairol, Frito-Lay, Inc., Hamilton Sundstrand (Farmington & Windsor Locks), Kaman Aerospace Corp., Pitney Bowes Inc., Pratt & Whitney (Cheshire, East Hartford, Middletown & North Haven), Sikorsky Aircraft Corp., Trumpf, Inc., United Technologies Corp.

<sup>9</sup> The Chicago Climate Exchange is the first US voluntary pilot program for the trading of greenhouse gases.

methane leakage; also the electric utilities administer the energy conservation programs.

- Whyco Technologies (Thomaston), Green Technology Group (Sharon), Advanced Fuel Research (East Hartford), and Acceleron Electron Beam (East Granby) have received grants for the demonstration of new technologies that reduce energy use through participation in the US DOE's National Industrial Competitiveness through Energy, Environment, and Economics program (NICE3).

Still, other companies are taking action outside of formal partnerships or networks and it is often difficult to identify these companies. A handful of small companies are purchasing power from renewable sources. Others have received grant money to install fuel cells on-site. Connecticut Light & Power's Small Business Advantage program has many small businesses enrolled in the program that centers on retrofits and other energy conservation improvements. The Native American Mohegan Tribe is also taking action separate from a partnership program, and their efforts have been

well publicized. The Tribe operates the Mohegan Sun Resort and Casino. This facility is taking a comprehensive, proactive approach toward reducing pollution and greenhouse gas emissions. Through the installation and operation of two 200-kilowatt fuel cells, the purchase of carbon offsets, and an education program, it is estimated that over 1,280 tons of CO<sub>2</sub> emissions will be reduced over a twenty-five year period. Connecticut's two major trade associations—Connecticut Business and Industry Association (CBIA) and Southwestern Area Commerce and Industry Association (SACIA)—are interested in getting their members to take a leadership role in addressing climate change.

Connecticut's government agencies, non-profit organizations, and businesses and institutions have made solid accomplishments in greenhouse gas emissions reductions. The continued and expanded commitment from these and other organizations is vital as Connecticut strives to meet regional climate change goals and targets.

# SETTING A FRAMEWORK CONNECTICUT CLIMATE CHANGE ACTION PLAN SUMMIT<sup>10</sup>

The State of Connecticut, in partnership with the Emily Hall Tremain Foundation and the Rockefeller Brothers Fund, held a Climate Change Action Plan Summit to set a process for developing a greenhouse gas emissions reduction plan. This summit was held at the historic Pocantico Conference Center of the Rockefeller Brothers Fund in Tarrytown, New York from October 2 to 4, 2002. In attendance were 22 participants from 13 state agencies. These participants represented very diverse interests, and they brought their own unique perspectives to the facilitated discussion on global climate change (see box at right). The objectives of the summit were to establish a framework for a participatory process by which Connecticut would develop an innovative and responsible plan to address climate change, and to identify opportunities state agencies could take to “lead by example.”

The organization of this summit was led by the Governor’s Steering Committee, made up of prominent state agency leaders appointed by Governor John Rowland in early 2002. This committee is responsible for overseeing the direction and coordination of Connecticut’s actions on climate change. Their oversight, guidance, and leadership led to the organization of the Connecticut Climate Change Action Plan Summit (see Summit Agenda). The Governor’s Steering Committee intends to invite other agency commissioners to join the effort as various sector issues arise relating to their respective spheres of influence.

<sup>10</sup> The CO<sub>2</sub> emissions generated from this summit through transportation and electricity usage were offset through the purchase of 13 Pure Wind<sup>SM</sup> certificates ([www.purewind.net](http://www.purewind.net)). Each Pure Wind certificate is equivalent to 1 MWh of electricity produced by wind energy from a wind farm in Madison, New York. Each certificate represents all the emissions avoided from other means of generating electricity. Total emissions offset through the purchase of these certificates is nearly 20,000 pounds of CO<sub>2</sub>.

<sup>11</sup> Added to Governor’s Steering Committee as a result of discussions at the Pocantico summit.

<sup>12</sup> Added to Governor’s Steering Committee as a result of discussions at the Pocantico summit.

## PARTICIPATING AGENCIES

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Connecticut Clean Energy Fund  
Connecticut Department of  
Administrative Services  
Connecticut Department of Agriculture  
Connecticut Department of  
Environmental Protection  
Connecticut Department of  
Public Utility Control  
Connecticut Department of Public Works  
Connecticut Department of Revenue Services  
Connecticut Department of Transportation  
Connecticut Innovations, Inc.  
Connecticut Siting Council  
Global Fuel Cell Research Center at UCONN  
Institute for Sustainable Energy at ECSU  
Office of Policy and Management

## GOVERNOR’S STEERING COMMITTEE

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Arthur H. Diedrick  
*Chairman of the Connecticut Clean Energy Fund*  
Donald W. Downes  
*Chairman of the Department  
of Public Utility Control*  
Arthur J. Rocque, Jr.  
*Commissioner of the Department  
of Environmental Protection*  
Barbara Waters  
*Commissioner of the Department  
of Administrative Services*<sup>11</sup>  
James F. Byrnes  
*Acting Commissioner of the  
Department of Transportation*  
John A. Mengacci  
*Undersecretary of the Office of  
Policy and Management*<sup>12</sup>

## CLIMATE CHANGE EDUCATION

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A series of presentations was organized to give participants a better understanding of the commitments and issues surrounding climate change. The summit was launched by Connecticut Innovations President Victor R. Budnick, who discussed the Governor's leadership and commitment to climate change action. He challenged the participants to think about ways of quantifying the benefits to society of effective and coordinated actions to address climate change.

Dr. Bill Moomaw, Professor of International Environmental Policy Education at the Fletcher School of Law and Diplomacy at Tufts University, addressed the breadth of issues surrounding global climate change, from science and policy to a need for state action. He pointed out that the continuing warming trends in New England would significantly impact Connecticut's environment, causing it to resemble that of Washington, D.C., in 2050 and Atlanta, Georgia., in 2100, while resulting in the spread of infectious diseases, displacement of agricultural industries, and severe flooding of coastal regions.

The evening concluded with a series of presentations from agency leaders discussing the role of their organizations in addressing climate change. Commissioner Arthur J. Rocque, Jr. of the Connecticut Department of Environmental Protection discussed possible approaches to some of the current barriers to the planning and permitting of an efficient, reliable, environmentally sound energy system in Connecticut. Michael Sanders of the Connecticut Department of Transportation discussed how decisions based first on sound business practices benefited the environment second. Victor R. Budnick then concluded the evening with a discussion of the contributions renewable energy and fuel cell technologies can make to mitigating climate change.

The events of the first day prepared the participants for the tasks of developing a planning process framework while encouraging them to identify opportunities for their own agencies to "lead by example."

## ANATOMY OF A CLIMATE CHANGE ACTION PLAN

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The facilitator, Dr. Jonathan Raab, presented the basic anatomy of a climate change action plan by giving an overview of the basic elements a plan might include

such as a baseline, target, GHG reduction options, and an implementation plan. To further the participants' knowledge of varying approaches to developing a statewide climate change action plan, case studies of Rhode Island and Massachusetts were presented by their respective program leaders.

Janet Keller, Chief of Strategic Planning and Policy for the Rhode Island Department of Environmental Management, detailed her state's effort to develop a consensus-based plan. Rhode Island initiated its greenhouse gas emissions reduction planning process in October of 2001 and identified 49 consensus policy options. Its next steps are to develop a high priority policy for short-term implementation. Rhode Island identified fundraising and the management of stakeholders as its key challenges.

Sonia Hamel, Director of Air Policy and Planning at the Massachusetts's Office of Environmental Affairs, detailed her state's efforts to develop a greenhouse gas emissions reduction plan. Massachusetts initiated its process in 1998 and will complete the plan in the winter of 2002. Massachusetts' stakeholders served as advisors to the process. Elements Ms. Hamel identified as the key challenges in the Massachusetts process were maintaining continuity, management of stakeholders, and allocating adequate resources.

## A FRAMEWORK FOR CONNECTICUT

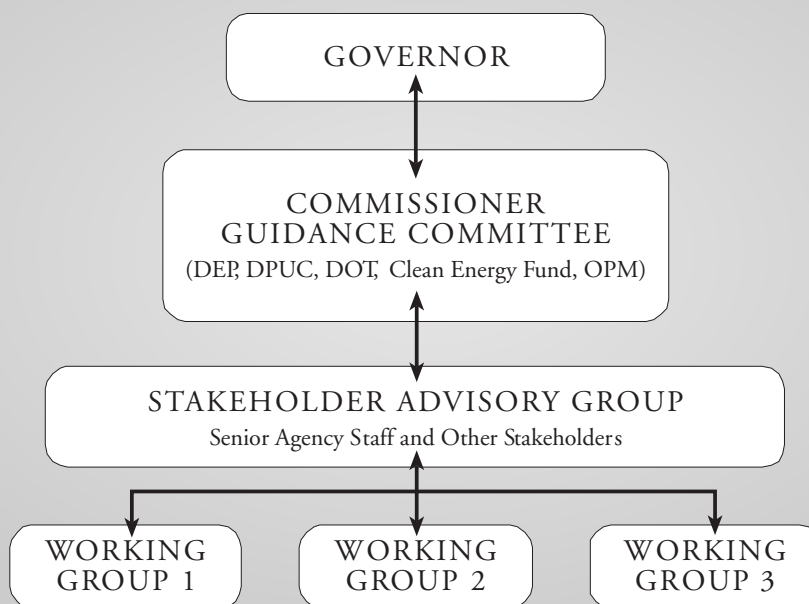
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Following the Massachusetts and Rhode Island cases, the participants broke into groups to discuss what framework makes sense for Connecticut. The groups developed similar responses:

- Make use of the remarkable level of interagency cooperation and leadership of the Governor's Steering Committee.
- The process needs a vigorous proponent such as the governor.
- Stakeholder input as a high-level advisor is necessary and should be included throughout the process.
- Working groups would be established to address specific issues on an as-needed basis.
- Connecticut state legislators should be enrolled throughout the process.

FIGURE 3

## PLANNING PROCESS FRAMEWORK



A proposed framework for a Connecticut Climate Change Action Plan arose out of these groups (See Figure 3).

The groups also discussed potential stakeholders and created a listing of organizations that might participate in the process from state and federal agencies, professional associations, non-profit organizations, and industry.

### GREENHOUSE GAS EMISSION REDUCTION OPTIONS

Working groups assembled to establish criteria for evaluating options and brainstorming a potential short list for GHG reduction options. The short list of GHG reduction options included:

**Transportation** – State vehicle fleet turnover to alternative, hybrid, fuel-efficient vehicles in combination with a tax credit for Connecticut consumers interested in purchasing hybrid vehicles.

**Energy** – (1) State purchase of renewable energy combined with a promotion to create incentives for Connecticut consumers to conserve energy and/or pur-

chase renewable energy. (2) Targeted clean distributed generation initiative to alleviate transmission congestion in Southwest Connecticut.

**Buildings/Facilities** – State buildings to meet U.S. Green Building Council LEED-rated silver green building standards in combination with adopting best practices for energy efficiency building codes for all sectors.

### DEVELOPING A GREENHOUSE GAS PLANNING PROCESS FOR CONNECTICUT

The final tasks of the summit focused on building on the work done through the various exercises to create an initial roadmap for developing a GHG reduction plan. The participants discussed the proposed planning process framework and the interaction of the various parties. They agreed on the broader outline of the framework in terms of effectively integrating agencies, stakeholders, and working groups while clarifying boundaries and outlining the leadership and accountability structures. The participants also recommended that the initial working groups focus on: (1) buildings



and facilities, (2) energy supply, and (3) transportation, and be directed by senior agency staff leading the appropriate working groups.

The participants then discussed the planning process needs in terms of human and financial resources. The use of modeling and technical consultants was discussed, and the participants recommended that a separate working group be organized to identify the needs and uses of consultants in the process depending upon the final determination of the framework by the Governor's Steering Committee. The use of outside facilitation was also discussed, and the need for such expertise was clearly evident. Participants felt that an outside facilitator brought independence, impartiality, focus, and expertise to the process. Depending upon the final structure of the planning process framework, plans would be made accordingly. The participants determined that every effort would be made to identify partners to support the planning

process. As a wrap up, the group determined the next steps in preparation for the recommendations to be made to the Governor's Steering Committee.

## SUMMIT CONCLUSION

The summit resulted in some significant steps forward for the state of Connecticut with regard to climate change. Not only did the participants feel that their organizations had important roles to play in implementing an effective climate change action plan, but these participants also stated their organizational commitments to continue leading this process. The summit was effective in educating and motivating agency participants to look at the impacts of climate change in a different light while taking actions to address the "low hanging fruit" of their respective agencies.



## Connecticut Climate Change Action Plan Summit

WEDNESDAY OCTOBER 2, 2002

Welcome and Overview

Global Climate Change and the  
Need for State Action

Charge to the Summit

Agency Involvement  
Stakeholder Involvement  
Use of Working Groups

- Use of Consultants, Facilitation, and Modeling Experts
- Budget

Tour Pocantico

Small Group Exercise

*Role of Agencies and Stakeholders in  
Developing Connecticut's Greenhouse  
Gas Emissions Reduction Plan*

Small Group Exercise

*GHG Emissions Mitigation Options*

THURSDAY, OCTOBER 3

Overview of Two Days and Groundrules

Anatomy of a Greenhouse Gas Reduction Plan

- Baseline, Targets
- Reduction Policies and Programs
- Implementation Plan

Anatomy Case Studies:

*Massachusetts, Rhode Island, etc.*

Options for Developing the Plan

Detailed Process Issues Case Studies:

*Massachusetts, Rhode Island, etc.*

- Goals
- Timeline and Sequencing
- Structure and Approach

FRIDAY, OCTOBER 4

Developing Greenhouse Gas Planning Process  
for Connecticut

- Goals
- Timeline and Sequencing
- Structure and Approach

What Options Make the Most Sense to  
Pursue in Connecticut?

# SUMMIT PARTICIPANTS

## PARTICIPANTS

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Richard Barredo  
*Connecticut Clean Energy Fund*

Arnold Brandyberry  
*Connecticut Innovations, Inc.*

Subhash Chandra  
*Connecticut Clean Energy Fund*

Michael Chowaniec  
*Connecticut Department of Public Utility Control*

Bryan Garcia  
*Connecticut Clean Energy Fund*

Bruce Garrett  
*Connecticut Department of Transportation*

Bruce Gresczyk  
*Connecticut Department of Agriculture*

Chris James  
*Connecticut Department of Environmental Protection*

David Lepri  
*Connecticut Department of Revenue Services*

Robert Luysterborghs  
*Connecticut Department of Public Utility Control*

John Mengacci  
*Office of Policy and Management*

Barbara Moser  
*Connecticut Department of Administrative Services*

Stephen Murphy  
*Connecticut Department of Public Works*

Jim Passier  
*Connecticut Department of Administrative Services*

Derek Phelps  
*Connecticut Siting Council*

Ken Reifsnider  
*Global Fuel Cell Center at UCONN*

Joel Rinebold  
*Institute for Sustainable Energy at ECSU*

John Ruckes  
*Office of Policy and Management*

Michael Sanders  
*Connecticut Department of Transportation*

Emily Smith  
*Connecticut Innovations, Inc.*

Lynn Stoddard  
*Connecticut Department of Environmental Protection*

Lisa Varvelli  
*Connecticut Clean Energy Fund*

## PRESENTERS

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Victor R. Budnick  
*President and Executive Director of Connecticut Innovations, Inc.*

Sonia Hamel  
*Director of Air Policy and Planning at the Massachusetts Office of Environmental Affairs*

Janet Keller  
*Chief of Strategic Planning and Policy for the Rhode Island Department of Environmental Management*

William R. Moomaw  
*Professor of International Environmental Policy at the Fletcher School of Tufts University*

Arthur J. Rocque, Jr.  
*Commissioner of the Connecticut Department of Environmental Protection*

Michael Sanders  
*Transit and Ridesharing Administrator of the Connecticut Department of Transportation*

## FACILITATORS AND OBSERVERS

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Theodore Anson  
*Commissioner of the Connecticut Department of Public Works*

Joel Fetter  
*Facilitator for Raab Associates, Ltd.*

Stewart Hudson  
*President of the Emily Hall Tremaine Foundation*

Jonathan Raab  
*President and Facilitator for Raab Associates, Ltd.*

Nicole Smith  
*Program Associate of the Emily Hall Tremaine Foundation*

# A CALL TO ACTION

## CONCLUSION AND NEXT STEPS

The potential economic, health and societal consequences of continued climate change are so far-reaching and profound as to dwarf many of the other issues that confront us day to day. We in Connecticut owe it to ourselves, our children, our state and our nation to take bold steps right now to tackle this challenge and take control of our future.

While the problem of climate change is not unique to Connecticut, Connecticut is uniquely positioned to address it, because several elements vital to its solution converge here in our state.

### INTELLECTUAL CAPITAL

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First and foremost, Connecticut is rich in the resource most critical to solving any problem: intelligence. Our small state benefits from an abundance of intellectual capital. Our population is among the best-educated in the country. Our excellent elementary schools earned us the designation of the “smartest state.” We rank fifth in the nation, not only in the percentage of people with college degrees, but in the percentage of workers who are Ph.D. scientists and engineers.

### INNOVATION

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The state’s concentration of talented, highly educated people is enhanced by the nature of our business base, which includes a high percentage of knowledge-based companies—companies for which generating innovative solutions is a way of life. From high technology to bioscience to financial services and more, Connecticut’s businesses are an exceptional source of talent, expertise and new ideas.

We’re also fortunate to have so many fine colleges and universities, including two world-class research universities: the University of Connecticut

and Yale University. Large, small, public and private, Connecticut’s colleges and universities both generate and embrace innovation. Connecticut College and Wesleyan University were among the first institutions of higher education in America to commit to purchasing clean power. With its extraordinary capabilities for research, analysis and original thought, Connecticut’s academic community will be an invaluable asset in developing solutions no one has even imagined yet.

Innovation is today, as it has always been, part of the very fabric of Connecticut’s culture. This is a state with an unparalleled tradition of technological innovation. In earlier days, we gave the world the cotton gin, the helicopter, the submarine and the Colt revolver. It was a Connecticut resident who invented the wind turbine that powered the growth of rural America, and a Connecticut company today is one of the world’s leading producers of modern wind turbines.

More recently, Connecticut-grown technology contributed to everything from revolutionizing air and space travel to developing the first artificial heart.

Today, in addition to our leadership in biotechnology, information technology and high-precision manufacturing, we’re showing the world the way to a cleaner, more sustainable, energy future. We’re perfecting and commercializing fuel cells. We’re designing and building “green buildings,” and we’re developing the technologies critical to mitigating climate change.

If we can harness this powerful, longstanding spirit of innovation and direct it toward reining in the pace of climate change, we will certainly succeed.

### VISION

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Connecticut is fortunate to have forward-thinking government leaders determined to address energy and environmental issues.

The General Assembly demonstrated this when, in 1998, it created two funds designed to shape a more sustainable energy landscape: the Connecticut Clean Energy Fund supports initiatives that stimulate the development of clean power technologies and markets, while the Conservation and Load Management Fund promotes initiatives focusing on energy efficiency and load management for commercial and industrial businesses.

Governor Rowland has made the climate change initiative a top priority of his administration. The Governor's Steering Committee he appointed to drive the climate change initiative comprises leaders from key state agencies — agencies committed to leading by example in the effort to cut greenhouse gas emissions. Just as important, the Governor's Steering Committee recognizes that developing Connecticut's strategy must reflect numerous perspectives if it is to succeed. For that reason, committee members have crafted a process that emphasizes an inclusive approach, encouraging participation by a broad spectrum of people and organizations in the state.

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## COLLABORATION

Reducing the emissions that cause climate change will take a concerted effort by every sector in Connecticut — government, business, the nonprofit and academic communities and the general public. Fortunately, this sort of collaboration has many precedents in this state.

There are countless examples in our recent history where representatives from all sectors have come together to achieve common goals. The Governor's Council on Economic Competitiveness and Technology, which fosters public/private dialogue on economic development issues, is one example. Our respected quasi-public agencies, which combine private-sector agility with government's public purpose, are another. Cooperative efforts to address transportation issues statewide are yet another. On the energy front, the installation of a fuel cell at South Windsor High School represents a close collaboration among the state, a municipality and a private enterprise. And the Connecticut Green Building Council, which promotes the development of environmentally sound structures, is a cooperative effort by public and private organizations.

To address the issue at hand, we must build on this foundation of cooperation among all sectors to ensure all stakeholders have an opportunity to contribute to the eventual solution. The more minds we involve in the process, the more successful and acceptable the solution will be.

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## A CALL TO ACTION

Those of us who have been involved in the climate change effort to date urge you to take up this cause as your own and to join with us in this vitally important endeavor. Examine your own practices and operations. Draw on your own expertise to develop new ideas. Prepare to bring your concepts and your achievements to the table to share with others, so all may benefit from the knowledge you've gained.

In your own way, and in partnership with others, let your overarching goal be to move Connecticut away from excessive reliance on fossil fuels. Explore the technologies that are available — right now — to provide the energy we need, without the harmful emissions the world simply cannot afford. Redouble your efforts at conservation and energy efficiency. Consider emerging concepts such as industrial ecology. Think in new ways. And, when the opportunities arise, lend your talent and expertise to working groups and other bodies focusing on positive change.

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## THE BIG PICTURE

Connecticut is uniquely positioned to demonstrate to the rest of the country what a state can achieve through intelligence, innovation, vision and collaboration among all sectors.

In doing so, we will contribute to a cleaner world. We will inspire other states and nations to pursue their own efforts. We will enhance our state's reputation for vision and innovation. And we will improve Connecticut's quality of life for years to come.

*Governor's Steering Committee  
The State of Connecticut*

## THE ROCKEFELLER BROTHERS FUND AND ITS POCANTICO PROGRAMS

The Rockefeller Brothers Fund was founded in 1940 as a vehicle through which the five sons and daughter of John D. Rockefeller, Jr., could share a source of advice and research on charitable activities and combine some of their philanthropies to better effect. John D. Rockefeller, Jr., made a substantial gift to the Fund in 1951, and in 1960 the Fund received a major bequest from his estate. On July 1, 1999 the Charles E. Culpeper Foundation of Stamford, Connecticut merged with the Fund.

The Rockefeller Brothers Fund promotes social change that contributes to a more just, sustainable, and peaceful world. Through its grantmaking, the Fund supports efforts to expand knowledge, clarify values and critical choices, nurture creative expression, and shape public policy. The Fund's programs are intended to develop leaders, strengthen institutions, engage citizens, build community, and foster partnerships that include government, business, and civil society. Respect for cultural diversity and ecological integrity pervades the Fund's activities.

As an institutional citizen of an interdependent world, the Fund is active globally, nationally, and locally in its home city of New York. Grant programs are organized around four themes: Democratic Practice; Sustainable Development; Peace and Security; and Human Advancement through arts and culture, education, individual leadership, and health. The Fund supports activities at the global level and in North America and East Asia, as specified in the guidelines for each grant program. In addition, the Fund pursues cross-programmatic grantmaking in several RBF "pivotal places," selected for their extraordinary regional or global significance and for their special importance with regard to the Fund's substantive concerns. In these RBF pivotal places, the Fund pursues strategies that advance two or more of its programmatic interests, as determined by a careful assessment of local needs and priorities. The Fund currently focuses on three pivotal places: New York City, South Africa, and Serbia/Montenegro. During 2003, Fund staff and trustees, through wide consultations, will consider designating an RBF pivotal place in Asia.

The Pocantico Conference Center of the Rockefeller Brothers Fund is located in the Pocantico Historic Area, the heart of the Rockefeller Family estate in Westchester County, New York. The Historic Area, which is owned by the National Trust for Historic Preservation and leased by the Fund, includes John D. Rockefeller's home, Kykuit, the surrounding gardens and sculpture collections, and the Coach Barn meeting facility. At Pocantico, the Fund convenes a wide range of meetings and conferences related to its philanthropic programs. In connection with its conference program, the Fund publishes a series of occasional reports, called Pocantico Papers, designed to widen the impact of selected RBF-sponsored meetings at the Conference Center. The Pocantico Programs also include a public visitation program and year-round stewardship of the site.