



## CHAPTER 1

# HISTORY OF CONNECTICUT CLIMATE ACTIONS

By the Connecticut Climate Change Coordinating Committee<sup>1</sup>

### **New England Governors/Eastern Canadian Premiers Climate Change Action Plan**

The New England states and the eastern Canadian provinces have a long 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 impact on its economy. The NEG/ECP passed a joint resolution calling for the elimination of emissions contributing to those effects. As a result, states and provinces acted to reduce emissions of nitrogen oxides (NO<sub>x</sub>) and sulfur oxides (SO<sub>x</sub>). Those steps later served as a model for regional and federal action.

In 2000, the NEG/ECP, citing findings in the United Nations Intergovernmental Panel on Climate Change Third Assessment Report, commenced regional discussions on global warming and its environmental impact. In March 2001, the NEG/ECP, collaborating with the province of New Brunswick, held a climate change workshop in that province. Connecticut Governor John Rowland co-chaired the workshop, which presented findings on the scientific certainty that climate change is already occurring and that a significant human signature is contributing to the observed changes. Officials from government, academia, and industry in Canada and the United States developed strategic recommendations from the presentations. The well-attended workshop provided momentum for the development of a framework for a climate change action plan. In August 2001, the NEG/ECP submitted a climate change action plan<sup>2</sup> at their annual meeting in Westbrook, Connecticut, where Governor Rowland and the other NEG/ECP members signed it.

The vision of the Climate Change Action Plan is to reduce greenhouse gas (GHG) emissions to a level that stabilizes the earth's climate and eliminates the negative impact of climate change. The plan outlines important short- and mid-term goals for measuring progress toward the long-term objective based on environmental needs (not feasibility). The plan also specifies nine action items the states and provinces should undertake. Those goals and action items are detailed in Table 1.1. The plan further provides a recalibration mechanism. Starting in 2005, and continuing

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<sup>1</sup> For a list of the Connecticut Climate Change Coordinating Committee members, see Chapter 2, which describes the dialogue process.

<sup>2</sup> <http://www.negc.org/documents/NEG-ECP%20CCAP.PDF>

every five years thereafter, progress in achieving the goals will be evaluated. The goals will be adjusted, if necessary, and future emission goals may be established.

**Table 1.1**  
**2001 NEG/ECP Climate Change Action Plan and Related Resolutions**

**Regional Goals of Climate Change Action Plan**

**Short-term:** Reduce regional GHG emissions to 1990 levels by 2010.

**Mid-term:** Reduce regional GHG emissions to at least 10% below 1990 levels by 2020.

**Long-term:** Reduce regional GHG emissions sufficiently to eliminate any dangerous threat to the climate (current science suggests that this level is 75% to 85% below 2001 levels).

**Action Item 1 – Establishment of a Regional Standardized GHG Emissions Inventory**

**Goal:** Each jurisdiction should establish a standardized inventory beginning with 1999 GHG emissions levels, reported every three years.

**Action Item 2 – Establishment of a Plan for Reducing GHG Emissions and Conserving Energy**

**Goal:** Each jurisdiction should create a plan articulating measures for achieving GHG reductions in view of the regional short and mid-term targets.

**Action Item 3 – Promotion of Public Awareness**

**Goal:** By 2005, make the public aware of the problems and impact of climate change and what actions they can take at home and at work to reduce the release of GHGs. The public should also be made cognizant of adaptive measures they can accomplish.

**Action Item 4 – Need for State and Provincial Governments to Lead by Example**

**Goal:** Reduce end-use emissions of GHGs through improved energy efficiency and lower carbon fuels within the public sector by 25% by 2012, as measured from an established baseline.

**Action Item 5 - Reduction of GHGs From the Electricity Sector**

**Goal:** Reduce the amount of CO<sub>2</sub> emitted per MWh of electricity use within the region by 20% of current emission rate by 2025.

**Action Item 6 - Reduction of the Total Energy Demand Through Conservation**

**Goal:** By 2025, increase the amount of energy saved through conservation programs (as measured in tons of GHG emissions) within the region by 20% using programs designed to encourage residential, commercial, and industrial energy conservation.

**Action Item 7 - Reduction and/or Adaptation of Negative Social, Economic, and Environmental Impact of Climate Change**

**Goal:** Broaden the understanding of forecast effects on climate and plan the adaptation to these changes, where possible. In addition, seek climate adaptation options that do not increase GHG emissions further.

**Action Item 8 - Reduction in the Transportation Sector's Growth in GHG Emissions**

**Goal:** Slow the growth rate of transportation emissions in the near future, better understand the impact of transportation programs and projects on total emissions, and seek ways to reduce these emissions. Work with federal officials to improve the energy efficiency of vehicles for sale to the public.

**Action Item 9 - Creation of a Regional Emissions Registry and Exploration of a Trading Mechanism**

**Goal:** To create a uniform, coordinated basis for emissions banking and trading.

**Resolution 27-7 (August 2002)**

Encourage and promote climate change proposals focused on LED traffic lights; partnerships with regional colleges and universities for emissions-reduction programs; purchase of high-efficiency and low-emission office equipment; and use of clean, energy efficient vehicles in state and provincial fleets.

**Resolution 28-7 (September 2003)**

Evaluate "smart growth" approaches to land-use and development and seek recommendations for implementation. Continue to develop the administration, tracking, and reporting framework for a voluntary regional GHG registry. Work to develop voluntary partnerships with cities, towns, and businesses to increase the efficacy of NEG/ECP's climate change work.

The goals and results outlined in the plan are for the New England and eastern Canada region in aggregate and may not be achieved in equal measure by each jurisdiction. It is recognized that differences in emissions characteristics and inventories, social and political systems, economic profiles (including transportation, utility, and industrial infrastructures), and resources will lead to different approaches among the jurisdictions in contributing to the regional goals. However, each jurisdiction in the region has committed to participate in achieving the regional goals and will work with the other states and provinces in the region on this important effort.

## Designing a Connecticut Process

The State of Connecticut, in partnership with the Emily Hall Tremain Foundation and the Rockefeller Brothers Fund, convened a summit on behalf of a Governor's Steering Committee<sup>3</sup> to establish a State process for developing a climate change action plan. The summit met October 2 to 4, 2002, at the Pocantico Conference Center of the Rockefeller Brothers Fund in Tarrytown, New York. Participants from 13 State agencies<sup>4</sup> assembled to establish a participatory process to develop an innovative and responsible plan to address climate change.

Jonathan Raab, Ph.D., facilitated the summit, which included presentations by Bill Moomaw, Ph.D., professor of international environmental policy education at the Fletcher School of Law and Diplomacy at Tufts University; Sonia Hamel, director of air policy and planning for the Massachusetts Office of Environmental Affairs; and Janet Keller, chief of strategic planning and policy for the Rhode Island Department of Environmental Management. Participants discussed the basic structure of an action plan, including a GHG emissions inventory, baselines, targets, GHG reduction options, and an implementation plan.

Speakers from Massachusetts and Rhode Island presented their states' efforts to establish action plans, which were considered within the design of Connecticut's process. The key challenges raised by the Massachusetts and Rhode Island speakers included stakeholder management, fundraising, human resources, and maintaining continuity. The summit participants established three Connecticut climate change goals for 2003:

1. Publish and distribute a report summarizing Connecticut's actions on climate change.<sup>5</sup>

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<sup>3</sup> 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), James F. Byrnes (Commissioner of the Department of Transportation), and John A. Mengacci (Undersecretary of the Office of Policy and Management)

<sup>4</sup> 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, Connecticut Siting Council, Connecticut Global Fuel Cell Center at the University of Connecticut, Institute for Sustainable Energy at Eastern Connecticut State University, and the Office of Policy and Management.

<sup>5</sup> For more detailed information on this event and Connecticut's actions on climate change, see the report entitled *Leading by Example: Connecticut Collaborates to Reduce Greenhouse Gas Emissions*. Pocantico Paper No. 6, by the Governor's Steering Committee. Available at: [www.ctclimatechange.com/rbf\\_rept.html](http://www.ctclimatechange.com/rbf_rept.html).

2. Update a GHG emissions inventory for 1990–2000.<sup>6</sup>
3. Coordinate a process to identify actions to reduce Connecticut’s GHG emissions.

The results of the third goal are reflected in this report.

## Connecticut’s GHG Inventory

Connecticut has quantified its emissions contributing to global climate change by completing GHG emissions inventories for 1990 through 2000. *Connecticut Greenhouse Gas Inventory 1990–2000* (August 2003) was developed by NESCAUM using the State GHG Inventory Tool, an Excel-based software package produced by the State and Local Climate Change Program of the U.S. Environmental Protection Agency (EPA).<sup>7</sup> The inventory summarizes Connecticut’s emissions of the six major GHGs covered in national inventories: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). The inventory also incorporates information from all major emissions sources in Connecticut: fossil and biomass fuel combustion, industrial production processes, gas and oil activities, landfills and wastewater treatment, agricultural sources, and land-use changes and forestry. To make the inventory comparable to the U.S. national GHG inventory and inventories from other industrialized countries, GHG quantities are expressed in million metric tons of CO<sub>2</sub> equivalent (MMTCO<sub>2e</sub>), which is derived from the relative global warming potential of each of these gases.

Table 1.2 summarizes Connecticut’s GHG emissions from 1990 through 2000 as developed by NESCAUM. The stakeholders used this inventory as a basis for establishing baseline emissions. Upon review of the NESCAUM inventory data, the stakeholders made adjustments to some of the historical data. The most significant adjustment was for the transportation sector (see Chapter 3 for sector-specific adjustments). In 2000, the State emitted 48.485 MMTCO<sub>2e</sub> of GHGs, approximately 9 percent more than in 1990. As shown in Figure 1.1, about 90 percent of the total emissions in 2000 came from the combustion of fossil fuels—oil, gas, and coal—to power the State’s cars and factories, heat and cool its homes and buildings, and generate electricity. Municipal solid waste management was responsible for about 6 percent of total emissions. Industrial processes and agriculture contributed less than 2 percent and 1 percent, respectively. Carbon stored in forests and soils offset about 4 percent of Connecticut’s annual GHG emissions, resulting in net GHG emissions (total emissions minus carbon sequestered) of 46.45 MMTCO<sub>2e</sub> in 2000.

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<sup>6</sup> *Connecticut Greenhouse Gas Inventory 1990–2000*. (2003). Connecticut: Northeast States for Coordinated Air Use Management, Connecticut Clean Energy Fund, and Connecticut Department of Environmental Protection. Available at: [www.ctclimatechange.com](http://www.ctclimatechange.com).

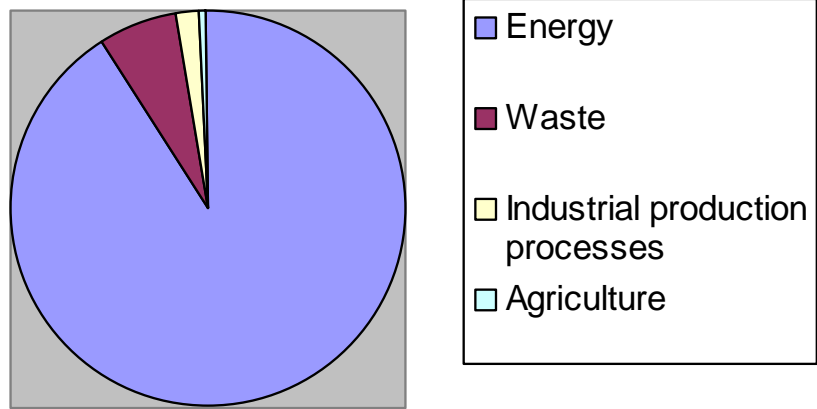
<sup>7</sup> Produced by Northeast States for Coordinated Air Use Management (NESCAUM) and the Connecticut Department of Environmental Protection, with support from the Connecticut Clean Energy Fund. The Inventory Tool incorporates revisions to EPA’s guidelines for estimating GHG emissions up through November 2002. The *Connecticut Greenhouse Gas Inventory 1990–2000* (August 2003) uses all revised modules of the Inventory Tool issued through May 30, 2003.

**Table 1.2**  
**Connecticut GHG Emissions: 1990–2000**

<b>Emissions (MMTCO<sub>2</sub>e)</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>
<b>Energy</b>	<b>40.270</b>	<b>39.518</b>	<b>39.476</b>	<b>38.582</b>	<b>37.656</b>	<b>37.578</b>	<b>41.002</b>	<b>44.130</b>	<b>43.748</b>	<b>44.133</b>	<b>44.159</b>
CO <sub>2</sub> from fossil fuel combustion	38.882	38.081	38.179	37.083	36.166	36.063	39.505	42.679	42.318	42.722	42.853
Stationary combustion	0.201	0.203	0.217	0.215	0.210	0.230	0.236	0.214	0.204	0.199	0.223
Mobile combustion	0.680	0.708	0.719	0.744	0.744	0.752	0.731	0.712	0.703	0.693	0.676
Coal mining	–	–	–	–	–	–	–	–	–	–	–
Natural gas and oil systems	0.508	0.526	0.361	0.540	0.536	0.533	0.530	0.525	0.523	0.520	0.408
<b>Industrial processes</b>	<b>0.314</b>	<b>0.325</b>	<b>0.311</b>	<b>0.397</b>	<b>0.419</b>	<b>0.528</b>	<b>0.634</b>	<b>0.700</b>	<b>0.740</b>	<b>0.772</b>	<b>0.840</b>
<b>Agriculture</b>	<b>0.330</b>	<b>0.321</b>	<b>0.335</b>	<b>0.344</b>	<b>0.350</b>	<b>0.336</b>	<b>0.313</b>	<b>0.307</b>	<b>0.335</b>	<b>0.329</b>	<b>0.326</b>
Enteric fermentation	0.124	0.121	0.124	0.121	0.121	0.120	0.110	0.106	0.109	0.107	0.109
Manure management	0.046	0.045	0.044	0.047	0.047	0.046	0.044	0.042	0.045	0.044	0.042
Rice cultivation	–	–	–	–	–	–	–	–	–	–	–
Agricultural soil management	0.160	0.155	0.167	0.176	0.182	0.170	0.159	0.159	0.181	0.178	0.175
Burning of agricultural crop waste	–	–	–	–	–	–	–	–	–	–	–
<b>Forest management and land-use change</b>	<b>(2.719)</b>	<b>(2.650)</b>	<b>(2.658)</b>	<b>(2.069)</b>	<b>(2.039)</b>	<b>(2.058)</b>	<b>(2.052)</b>	<b>(2.015)</b>	<b>(2.009)</b>	<b>(2.035)</b>	<b>(2.035)</b>
Waste	3.499	3.598	3.598	3.590	3.689	3.662	3.245	3.312	3.230	3.130	3.159
Municipal solid waste	3.239	3.337	3.337	3.329	3.425	3.400	2.983	3.049	2.966	2.863	2.883
Wastewater	0.260	0.262	0.261	0.261	0.264	0.262	0.262	0.263	0.264	0.267	0.277
<b>Gross emissions</b>	<b>44.414</b>	<b>43.762</b>	<b>43.720</b>	<b>42.914</b>	<b>42.115</b>	<b>42.103</b>	<b>45.194</b>	<b>48.450</b>	<b>48.053</b>	<b>48.364</b>	<b>48.485</b>
<b>Sinks</b>	<b>(2.719)</b>	<b>(2.650)</b>	<b>(2.658)</b>	<b>(2.069)</b>	<b>(2.039)</b>	<b>(2.058)</b>	<b>(2.052)</b>	<b>(2.015)</b>	<b>(2.009)</b>	<b>(2.035)</b>	<b>(2.035)</b>
<b>Net emissions</b>	<b>41.695</b>	<b>41.112</b>	<b>41.063</b>	<b>40.844</b>	<b>40.076</b>	<b>40.045</b>	<b>43.142</b>	<b>46.435</b>	<b>46.044</b>	<b>46.329</b>	<b>46.450</b>

Source: *Connecticut GHG Inventory 1990–2000*, August 2003.

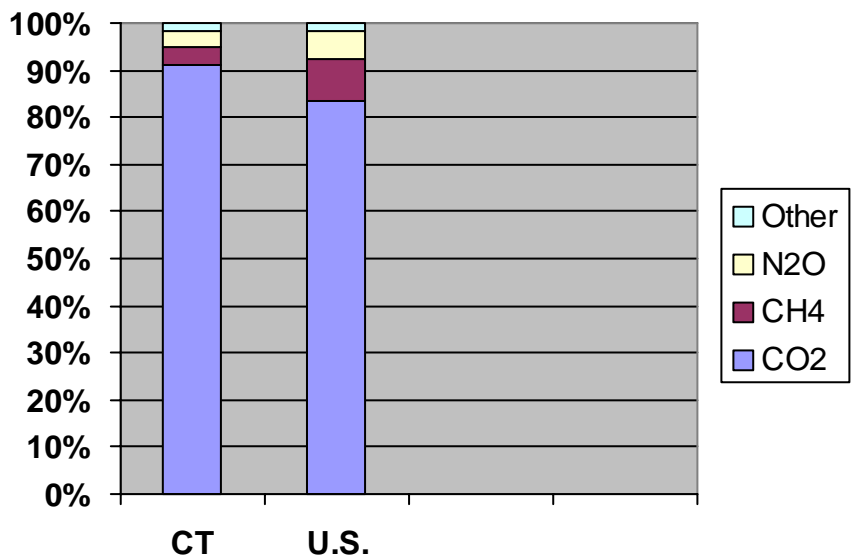
**Figure 1.1**  
**GHG Emissions by Sector, 2000**



Another breakdown of the State’s GHG emissions in 2000 is shown in Figure 1.2. CO<sub>2</sub>, largely from fossil fuel combustion, accounted for more than 90 percent of the emissions. The contribution of the major GHGs to Connecticut’s GHG emissions profile is similar to national figures.

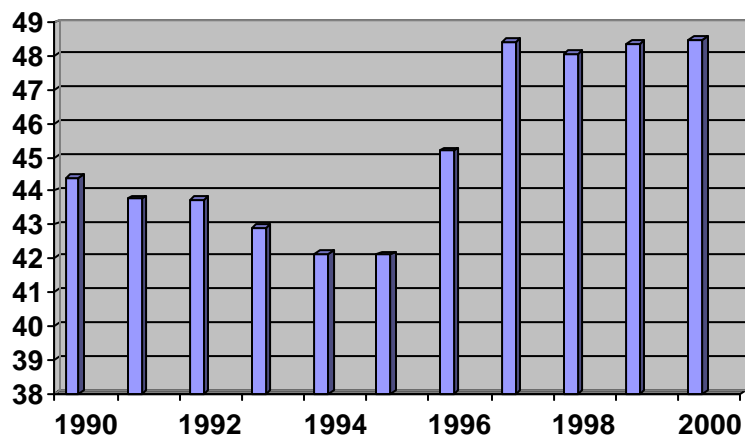
Figures 1.3 and 1.4 show the State’s GHG emissions trend between 1990 and 2000. Connecticut GHG emissions declined about 5 percent through the first half of the decade, most likely as a

**Figure 1.2**  
**Breakdown of Connecticut and U.S. GHG Emissions by Type of Gas, 2000**



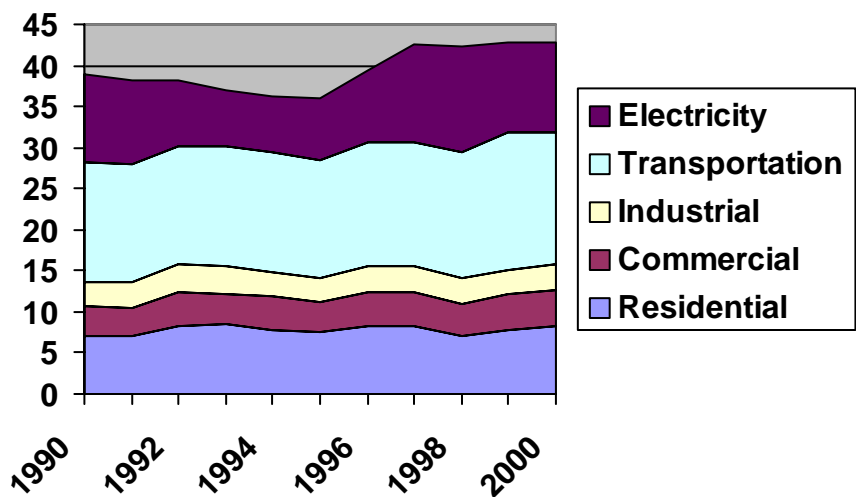
result of a shift in the utility fuel mix used in electric power generation, a shift in waste management practices from landfilling to waste-to-energy, a recession in the early part of the decade, and a slight decline in population. Gross GHG emissions, however, increased by more than 15 percent in the second half of the decade, again partly a result of changes in fuel mix, the economy, and the population.

**Figure 1.3**  
**Total Connecticut GHG Emissions, 1990–2000**  
**(MMTCO<sub>2</sub> equivalent)**



CO<sub>2</sub> emissions from fossil fuel combustion result from stationary sources (i.e., power plants, industrial facilities, and home heating systems) and from mobile sources, such as motor vehicles. Transportation accounts for approximately 40 percent of CO<sub>2</sub> emissions annually. Primary energy consumption in the residential (R) and commercial/industrial (CI) sectors is

**Figure 1.4**  
**CO<sub>2</sub> Emissions from Fossil Fuel Combustion, 1990–2000**  
**(MMT)**



approximately 20 percent and 10 percent, respectively. The electric utility sector contributes between 18 and 30 percent of the CO<sub>2</sub> emissions from fossil fuel combustion. The great fluctuation in electric utility CO<sub>2</sub> emissions stems from the changing fuel mix used to produce electricity in Connecticut.

## Connecticut Climate Change Actions

The State of Connecticut has a tradition of climate change leadership. Even before its landmark 1990 Global Warming Act, the State had numerous pieces of energy-related legislation on the books, for which the concern about global warming was one of several driving forces. From the late 1970s through the 1990s, the State passed more than 20 environmentally related laws that ranged in scope from allowing towns and cities to exempt solar collectors from property taxes to providing low-cost loans for energy efficiency and renewable energy improvements to RCI sectors. (Table A.1.1 in the chapter appendix provides a comprehensive look at those efforts.)

The Global Warming Act of 1990 was the direct result of an intense heat wave in 1988 and media accounts of James Hansen of the Goddard Institute for Spaceflight Studies, who indicated that the heat wave might be an early “fingerprint” of enhanced climate change. Although no single weather event can indicate a long-term shift in climate, legislation to mitigate potential climate problems was introduced in the 1989 session. For a number of reasons, the legislation failed to pass that year. Supporters reintroduced the legislation in 1990; it not only passed but also received the greatest number of co-sponsors<sup>8</sup> of any bill enacted that year. One key to the legislation’s success was that a team of legislators from both political parties drafted it, resulting in bipartisan support. Among other actions, the Connecticut law

- required revisions to State building codes;
- required the State to purchase energy efficient vehicles and appliances;
- authorized the Connecticut Department of Environmental Planning (DEP) commissioner to require applicants for air-discharge permits to provide for tree or turf grass planting to offset carbon emissions;
- required the Connecticut Office of Policy and Management (OPM) to develop a comprehensive energy plan to decrease dependence on fossil fuels by promoting energy conservation, solar energy, and other alternative energy sources in the design of all new State buildings as well as home energy efficiency; and
- investigated ways to increase the occupancy levels of vehicles.

Reducing GHG emissions in Connecticut to 1990 levels and lower will require aggressive action by all sectors of society, including its businesses and institutions, colleges and universities, nongovernmental organizations (NGOs), and local governments. All sectors will play a vital role in focusing attention on climate change in Connecticut and implementing the GHG mitigation actions proposed in this plan.

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<sup>8</sup> Chief co-sponsors were Mary Mushinski, James Fleming, Joel Gordes, David Anderson, and Mike Meotti.

Connecticut businesses have shown leadership in the development of cleaner and renewable energy technologies, such as fuel cells, gas turbines, and the American wind turbine. In addition, many Connecticut businesses and industries have embraced cost-effective measures to reduce GHG emissions voluntarily. Those activities include energy conservation and efficiency, fuel switching and renewable energy purchases, the development of cleaner technologies and the application of cleaner industrial processes, the use of cleaner and more efficient vehicle fleets, carbon sequestration (through improved agriculture and forestry practices as well as participation in voluntary offset projects), and participation in public outreach and awareness. Some companies have joined partnerships or voluntary programs to reduce pollution and emissions and increase corporate stewardship.

Seventeen of the State's colleges and universities have formally committed to making an inventory of GHG emissions on campus and taking actions to reduce emissions. A number of colleges are purchasing renewable energy; many are improving the energy efficiency of lighting, heating, ventilation, and cooling systems and computers and appliances. Connecticut's colleges and universities have also embraced new cleaner technologies, such as solar photovoltaics (i.e., direct conversion of sunlight into electricity), fuel cells, and geothermal heating systems. Some colleges are incorporating green building design standards into new construction and renovations.

NGOs have been strong supporters of climate change initiatives in Connecticut. Their support is invaluable in engaging public involvement in understanding the wide spectrum of issues linked to climate change. State and regional nonprofit organizations have acted as catalysts for grassroots action, corporate stewardship, and public policy initiatives. The combined efforts of many NGOs 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, build partnerships, and focus the attention of policy makers. Foundations are supporting much of this work through grants.

Seven Connecticut municipalities and one regional planning organization are participating in the international Cities for Climate Protection program. These jurisdictions have shown leadership by passing resolutions to inventory and reduce GHG emissions from municipal operations. Many other municipalities have begun to save money through energy efficient measures, such as the installation of light-emitting diode (LED) traffic lights, purchasing Energy Star office equipment, performing energy benchmarking and efficiency upgrades at schools and other public buildings, improving public transit options, and increasing the efficiency of municipal fleets. Several have participated in the utility-sponsored Community-Based Program, which coordinates all conservation and load management programs in selected cities and towns.

State initiatives include the planning and development of statewide GHG mitigation measures as well as the implementation of GHG reduction actions in State operations. Some actions are embodied in State statutes and regulations; others are informal programs or policies. The State has implemented energy performance standards for State buildings and is promoting green building design on major capital projects, purchasing environmentally preferable products ranging from computers to lighting, providing certain tax incentives for clean fuels, and beginning to perform energy benchmarking on State buildings to improve efficiencies. In

addition, the State is increasing its use of electronic media, resulting in a commensurate reduction in paper consumption.

The Connecticut treasurer has taken a leadership role among institutional investors by addressing climate change issues with companies in which the State pension fund invests. For example, shareholder resolutions have been filed with a number of companies. In November 2003, Connecticut co-chaired the Institutional Investor Summit on Climate Risk at the United Nations, which developed a set of principles to advise investors on climate risk.

## CHAPTER 1 APPENDIX

**Table A.1.1**  
**Record of Past Legislation**

Legislation	Highlights
<b>Global Warming</b>	
*PA 90-219: An Act Concerning Global Warming	<p>This legislation</p> <ul style="list-style-type: none"> <li>• required State buildings to reduce energy use by 15% by 1995, 30% by 2000, and 50% by 2010;</li> <li>• required the Department of Administrative Services to purchase energy efficient appliances;</li> <li>• required revision of the State Building Code to incorporate optimum energy efficiency;</li> <li>• required the State to purchase energy-efficient vehicles and consider the use of alternative fuels;</li> <li>• authorized the DEP Commissioner to require applicants for air-discharge permits to provide for tree or turf-grass planting to offset carbon emissions;</li> <li>• required OPM to develop a comprehensive energy plan to decrease dependence on fossil fuels by promoting energy conservation, solar energy, and other alternative energy sources when designing new State buildings and promoting home energy efficiency;</li> <li>• established a group to institute more stringent standards for any use of electric resistance heating;</li> <li>• requested recommendations for disincentives to free parking, including urban and suburban employment centers, off-peak transit services, and urban center loop shuttles;</li> <li>• investigated ways to increase vehicle occupancy levels and promote mass transit; and</li> <li>• required OPM to conduct a study of telecommuting.</li> </ul>
PA 91-395: An Act Concerning Global Climate Change	<p>This legislation included provisions to mitigate suburban sprawl, including promotion of cluster development. It reaffirmed the development of solar subdivisions as outlined in previous legislation, PA 81-334.</p>
<b>Energy Tax Incentives</b>	
PA 76-109: An Act Providing Property Tax Exemption for Solar Energy Systems	<p>This legislation allowed towns the local option to provide a 15-year property tax exemption for solar systems. It defined an existing exemption to also include windmills and waterwheels that provide for the collection, transfer, storage, and use of incident solar energy for water heating, space heating, or cooling. It also called for establishing standards by the Commissioner of Planning and Energy Policy.</p>
PA 79-547: An Act Providing a Sales Tax Exemption for Solar Energy Systems	<p>This legislation extended the sales tax exemption, previously available only to solar collectors, to all component parts of a solar energy system.</p>
PA 80-406: An Act Concerning the Property Tax Exemption for Buildings	<p>This legislation</p> <ul style="list-style-type: none"> <li>• recognized passive solar systems as eligible solar heating and</li> </ul>

**Table A.1.1**  
**Record of Past Legislation**

<b>Legislation</b>	<b>Highlights</b>
Equipped with a Passive Solar System	<p>cooling equipment and extended the property tax exemption for identifiable portions;</p> <ul style="list-style-type: none"> <li>• provided a sales tax exemption on alternative energy systems, except wood stoves;</li> <li>• provided exemption from the corporation profits tax for individually owned companies involved in the manufacture, research, and development of alternative energy systems whose gross annual revenues did not exceed \$100 million; and</li> <li>• exempted virtually all forms of taxes on alternative energy products.</li> </ul>
<b>Energy Loans</b>	
*PA 79-509: An Act Concerning Authorization of State Bonds for Loans for Energy Conservation Measures	<p>This legislation established the Energy Conservation Loan Fund and authorized bonding for a revolving fund to provide residential loans for low- and middle-income people (The loan amounts in the original legislation were from \$400 to \$3,000 for energy conservation only. Revisions to the legislation apply the loan to both conservation and alternative energy devices and increase the loan limit to \$15,000.)</p> <p>Interest rates have varied over time from 0% to 9.75% depending on income, family size and statistical metropolitan sample area (SMSA). Terms are for up to 10 years.</p> <p>In 1982, a decision mandated that the electric and gas utilities pay into the fund to provide the interest rate buydown from State bonding rates.</p>
PA 79-520: An Act Concerning Industrial Loans for Renewable Energy and Energy Conservation Projects	<p>This legislation</p> <ul style="list-style-type: none"> <li>• recognized the need in the State for the development and use of indigenous and renewable energy sources that are not subject to rapid cost increases and uncertain availability due to unstable foreign governments and other causes,</li> <li>• recognized that financial assistance by the Connecticut Development Authority would encourage business and industry to construct industrial facilities using renewable energy, and</li> <li>• declared itself to be a "guiding policy of the DED."</li> </ul>
PA 80-345: An Act Concerning Loans by the Connecticut Development Authority for Renewable Energy and Energy Conservation Projects	<p>This legislation reaffirmed the intent of PA 79-420.</p>
*PA 95-288: AAC The Connecticut Critical Industries Development Account	<p>This legislation established an economic development program to provide financing for Connecticut-built products, particularly technologies such as renewable energy sources, advanced aeroderivative gas turbines (some using gasified biomass), and fuel cells.</p>

**Table A.1.1  
Record of Past Legislation**

Legislation	Highlights
	<p>It also provided a fund into which any person or entity (insurance pension fund) can contribute and receive a modest tax credit on the front end. Loans can be made to eligible projects that use Connecticut-built products meeting due diligence and are at or below market rates. The loan repayments are returned to the original investors.</p>
<b>Planning and Zoning/Land Use</b>	
<p>PA 78-314: An Act Concerning the Inclusion of Energy Considerations in Local Planning and Zoning Functions</p>	<p>This is the first Connecticut statute to tie energy considerations to land-use statutes. It added language encouraging energy efficient patterns of development, the use of solar and other renewable forms of energy, and energy conservation.</p>
<p>PA 81-334: An Act Concerning Passive Solar Design for Subdivisions</p>	<p>This legislation stated that planning and zoning commissions must require developers to demonstrate that they have considered passive solar design features in new subdivisions and encourage energy efficient patterns of development and land use. It also stated that the regulations must require planning and zoning commissions to consider techniques including the following:</p> <ul style="list-style-type: none"> <li>• house orientation</li> <li>• street and lot layout</li> <li>• vegetation</li> <li>• natural and man-made topographical features</li> <li>• protection of solar access within the development.</li> </ul> <p>In return, developers are allowed density bonuses or lower performance standards on roads within the subdivisions as well as allowance or cluster developments.</p> <p>The legislation reaffirmed and made explicit that the requirement to consider the above techniques was mandatory in Public Act 88-263.</p>
<b>State Buildings</b>	
<p>PA 79-462: An Act Concerning the Use of Renewable Energy in New State Buildings and Establishing a Program to Maximize Efficiency of Energy Use in State-Owned and Leased Buildings</p>	<p>This legislation required renewable energy resources to be used in new State buildings planned in the statewide bank capital facility plan.</p> <p>For the first year, 5% of all new floor space must be heated, cooled, or provided with domestic hot water using renewable resources. Any of these energy applications must provide at least 30% of the total load to fulfill the legislation.</p> <p>Each year for the next nine years, the percentage of floor space served by renewable resources must increase by 5% until 50% of all new floor space uses renewable sources.</p> <p>System selection is subject to lifecycle cost analysis procedures (see PA 79-496). Selection of the system may be overwritten if</p>

**Table A.1.1**  
**Record of Past Legislation**

Legislation	Highlights
PA 79-496: An Act to Establish and Attain Energy Performance Goals in State Buildings	<p>the selection will cause an undue economic hardship to the State.</p> <p>This legislation require that new construction or the renovation of any existing structure more than 10,000 square feet is used or funded by the State meet energy performance goals to be formulated by OPM's Energy Division. The goals be the minimum practical achievable on a lifecycle cost basis and make maximum use of renewable energy resources.</p> <p>Each design proposal include at least two alternate energy systems for heating, cooling, and domestic hot water; at least one system use a renewable energy source. Consideration was to be given to maximize exposure to the sun for use of active and passive solar energy systems.</p> <p>The retrofit program was to have begun in 1982 under the auspices of the Department of Administrative Services. Called for the development and publication of guidelines for an energy efficiency maintenance program applicable to all agencies.</p>
PA 90-130: An Act Establishing a Shared Energy Savings Program	<p>Reporting to the Governor and the general assembly was required on the preceding year's activities that met the energy performance goals.</p> <p>The legislation was formulated to overcome barriers presented by the Connecticut budgeting process wherein any savings realized by a State agency through energy projects.</p> <p>It mandated that at least 50% of the energy savings would remain with the agency and could be used for future energy-related activities</p>
*PA 90-221: AAC Various Administrative Provisions and Reporting Requirements of the DPUC; The Allocation of Economic Benefits of Water Company Land Sold for Open Space and Recreational Purposes, and Energy Efficient Lighting in State Buildings	<p>Section 11 of this law mandated the relamping of bulbs, lighting fixtures, and other retrofits in all State-owned or -leased buildings to achieve a [first-year] savings of \$4 million. This money is to be deposited in the State's general fund for the purposes of deficit reduction. These actions are projected to save up to \$130 million over the life of the installed equipment.</p>
<b>Restructuring</b>	
*PA 98-2: An Act Concerning Electric Restructuring	<p>Section 25 provided for a renewable portfolio standard (RPS) requiring that power marketers operating in Connecticut provide an increasing proportion of power from Class I and Class II renewable energy resources. Implementation begins with 0.5% Class I and 5.5% Class II resources in the first year, up to a maximum of 6% Class I and 7% Class II by 2009.</p> <p>Section 33 created the Energy Conservation and Load</p>

**Table A.1.1  
Record of Past Legislation**

Legislation	Highlights
*PA 03-135: An Act Concerning Revisions to the Electric Restructuring Legislation	<p>Management Fund, to be administered by the utilities with oversight from an 11-member board comprising business, public sector, and nonprofit interests. A surcharge of 3 mills per kWh is assessed to fund the programs, equating to approximately \$85 million. Programs may use buydowns, loans, RD&amp;D grants, and equity positions and encompass commercial, industrial, residential, and governmental sectors. Programs must pass cost-effectiveness tests and are subject to final approval from DPUC.</p> <p>Section 44 established what is now called the Connecticut Clean Energy Fund, administered by Connecticut Innovations, Inc. It was funded initially by an 0.5 mill surcharge per kWh, which rose incrementally to 1 mill over four years. The fund uses grants, direct or equity investments, contracts, and other actions to support R&amp;D, manufacturing, commercialization, deployment, and installation of renewable energy sources. Technologies may include solar energy, wind, ocean thermal, wave and tidal energy, fuel cells, low-emission advanced biomass conversion, and other emerging technologies not involving fossil fuels combustion, nuclear energy, or municipal solid waste.</p> <p>Section 52(e) of this legislation empowered DPUC to decide whether demand-side management or new conventional-distribution capacity would be more cost-effective to meet the demand for electricity for which the increased distribution capacity is proposed.</p> <p>This legislation expanded the definition of Class I renewables to include ocean thermal power, wave or tidal power, low-emission advanced renewable energy conversion technologies, and distributed generation (DG). DG generates electricity on a customer's premises using technologies such as fuel cells, photovoltaic systems, and small wind turbines.</p> <p>The legislation reaffirmed the RPS but</p> <ul style="list-style-type: none"> <li>• reduced the total amount of renewable power that suppliers must obtain,</li> <li>• modified what counts as renewable resources and where it can be produced, and</li> <li>• extended the modified RPS to apply to the services utilities provide to customers who do not choose suppliers.</li> </ul> <p>The act extended to utilities other environmental provisions that currently apply to suppliers.</p>
<b>Other</b>	
PA 79-225: An Act Concerning the Use of Sewage as an Alternative Energy Source	<p>This legislation stated that if a municipality's water pollution control authority plans to acquire, construct, or operate a new or additional similar system, it must consider the feasibility of using the collected sewage as an energy source for the generation of electricity or other uses.</p>

**Table A.1.1**  
**Record of Past Legislation**

<b>Legislation</b>	<b>Highlights</b>
PA 79-606: An Act Requiring Registration of Home Improvement Contractors	This legislation required that each person, <i>including anyone connected with the installation or improvement of a solar energy system</i> , whose total cash receipts for a consecutive 12-month period as a home improvement contractor is \$1,000 or more register with the Department of Consumer Protection.
PA 80-70: An Act Concerning a Study of a Proposal to Establish a Connecticut Energy Authority	This legislation would have authorized a study to determine the need for a Connecticut Energy Authority for the purpose of developing and implementing new energy technologies and developing and encouraging energy conservation technologies and indigenous renewable energy resources. The study committee was to report to the General Assembly no later than January 7, 1981. If successful, it would have established an entity similar to the New York State Energy Research and Development Authority.
PA 80-108: An Act Concerning Certificates of Occupancy	This legislation eliminated the requirement that a structure must be connected to the electric utility to obtain a certificate of occupancy, as long as the structure otherwise conforms with the requirements of the building and health codes.
PA 81-326: An Act Concerning Solar Energy Devices Installed Within Historic Districts	This legislation stated that an application for a certificate of appropriateness for an exterior architectural feature, such as a solar energy system, may not be denied unless the commission finds that the feature cannot be installed without substantially impairing the historic character and appearance of the district.
*PA 88-57: AAC Conservation and Utility Company Conversion From Oil Heating Systems to Gas or Electric Heating System Conservation Rate Incentive)	This legislation allowed DPUC to provide a 1 to 5% conservation rate incentive on investments by electric or gas utilities operating multiyear energy conservation and load management programs. It provided encouragement to utilities engaged in energy conservation activities.
*PA 91-248: An Act to Encourage the Development and Implementation of Economic Development Programs and Conservation and Load Management Technologies	This legislation mandated a study to investigate the appropriateness of decoupling utility profits from sales. This would have the effect of basing a company's rate of return not largely on kWh sold but on other performance metrics—thereby leveling the playing field for energy conservation and renewable energy sources because under this regulatory system, they may be considered in setting of such returns.

## New England Governors/Eastern Canadian Premiers Resolutions

### RESOLUTION 27-7 RESOLUTION CONCERNING CLIMATE CHANGE August 2002

**WHEREAS**, state and provincial governments are committed to lead by example in implementing climate change and greenhouse gas reduction programs, and have compiled a survey of public sector climate change activities; and

**WHEREAS**, the Conference's Climate Change Steering Committee is considering climate change proposals in a number of areas, including LED traffic lights, partnerships with colleges and universities on emission reduction programs, purchasing programs for high efficiency-low emission office equipment, and the use of clean, energy efficient vehicles in state/provincial fleets.

**NOW, THEREFORE, BE IT RESOLVED THAT** the Conference of New England Governors and Eastern Canadian Premiers accept the Climate Change Report outlining the major accomplishments since the adoption of its Climate Change Action Plan and priorities for the coming year as submitted by its Committee on the Environment and its Northeast International Committee on Energy; and

**BE IT FURTHER RESOLVED THAT** the Committee on the Environment and the Northeast International Committee on Energy be directed to evaluate and recommend options for reducing greenhouse emissions from the electricity sector and increase the amount of energy saved through conservation programs in a cost-effective manner; and

**BE IT FURTHER RESOLVED THAT** the Conference of New England Governors and Eastern Canadian Premiers continue developing mechanisms to promote cleaner and more efficient vehicles, identify opportunities related to bio-fuels, and explore models of land use and development that could lead to the design of potential incentives and performance-based practices to encourage a reduction in vehicle miles and kilometres traveled; and

**BE IT FURTHER RESOLVED THAT** the regional inventory and registry initiative focus on building jurisdictional and national capacity and standardized methods to produce a regional inventory, and develop administrative, tracking, and reporting framework for a regional registry; and

**BE IT FURTHER RESOLVED THAT** the Conference of New England Governors and Eastern Canadian Premiers direct its Committee on the Environment and its Northeast International Committee on Energy, in collaboration with the Commonwealth of Massachusetts, to hold a symposium in the spring of 2003 to explore the current state of understanding of climate change impacts on the natural resource base of New England and Eastern Canada, and present a summary of findings and recommended actions at its 2003 Conference; and

**BE IT FURTHER RESOLVED THAT** the Conference of New England Governors and Eastern Canadian Premiers identify areas for expanded jurisdictional efforts for the implementation of government climate change programs; and

**BE IT FURTHER RESOLVED THAT** the Conference of New England Governors and Eastern Canadian Premiers direct its Committee on the Environment and NICE to encourage and promote climate change proposals centred on LED traffic lights, partnerships with colleges and universities within the region on emission reductions programs, purchasing high efficiency-low emission office equipment, and using clean, energy efficient vehicles in state/provincial fleets.

**Adopted at the 27th Annual Conference of New England Governors and Eastern Canadian Premiers, August 25–27, 2002.**

Bernard Landry  
Premier of Québec  
Co-Chair

Lincoln Almond  
Governor of Rhode Island  
Co-Chair

**RESOLUTION 28-7  
RESOLUTION CONCERNING ENVIRONMENTAL  
PROJECTS AND ISSUES  
September 2003**

**WHEREAS**, air quality in the Northeastern United States and Eastern Canadian Provinces is significantly influenced by transboundary air pollution as a result of major emission sources lying upwind and pollutants transported into the region by prevailing wind patterns; and

**WHEREAS**, the link between air pollution and public health continues to be of significant concern to the northeast region, and the Conference has successfully developed and supported regional cooperative actions through the NEG/ECP Acid Rain Action Plan to address transboundary air quality issues; and

**WHEREAS**, energy efficiency, conservation and renewable energy are important components of the strategy to enhance energy security, public health, economic development, environmental protection; and enhanced continental energy independence; and

**WHEREAS**, diesel engines are a source of several pollutants of concern that adversely impact the environment and public health; and

**WHEREAS**, the region has achieved a 55% reduction in mercury emissions, exceeding the 2003 goal of the NEG/ECP Mercury Action Plan, and continues to progress toward its 75% reduction target for 2010; and

**WHEREAS**, the continued implementation of the NEG/ECP Climate Change Action Plan is focusing on developing energy efficient and economically beneficial strategies to reduce greenhouse gas emissions from sources in the northeast and help our region's economy and environment adapt to the impacts of climate change.

**NOW, THEREFORE, BE IT RESOLVED THAT** the Conference of New England Governors and Eastern Canadian Premiers directs its Committee on the Environment to continue to seek funding from federal agencies in our two countries, to support efforts in the northeast region compatible with the goals and programs of the U.S.–Canada Air Quality Agreement; and

**BE IT FURTHER RESOLVED THAT** the Conference of New England Governors and Eastern Canadian Premiers commends the successful efforts of its Acid Rain Steering Committee, Mercury Task Force and Climate Change Steering Committee, and accepts their reports and next year's work plans as submitted to the Conference; and

**BE IT FURTHER RESOLVED THAT** the Conference directs its Committee on the Environment to work with the Northeast International Committee on Energy to review the status of energy efficiency, conservation programs, and the use of renewable energy in the region and report back to the next meeting of the Conference with recommendations to promote energy security, economic development and energy conservation through such programs; and

**BE IT FURTHER RESOLVED THAT** the Conference of New England Governors and Eastern Canadian Premiers directs its Committee on the Environment and the Northeast International Committee on Energy to:

- Evaluate “smart growth” approaches to land-use and development and seek recommendations for implementation;
- Continue to develop the administration, tracking and reporting framework for a voluntary regional greenhouse gas registry; and
- Work to develop voluntary partnerships with cities, towns, and businesses to increase the efficacy of

**RESOLUTION 28-7  
RESOLUTION CONCERNING ENVIRONMENTAL  
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our climate change work.

**BE IT FURTHER RESOLVED THAT** the Conference of New England Governors and Eastern Canadian Premiers supports reducing emissions in heavy duty diesel vehicles to protect the public health, particularly of our children and citizens with respiratory ailments. The Conference directs its Committee on the Environment

- pursue appropriate options to reduce diesel emissions;
- encourage the early introduction of cleaner diesel fuels in the region;
- promote anti-idling initiatives; and
- enhance education for the public on the benefits of diesel clean-up programs.

**Adopted at the 28th Annual Conference of New England Governors and Eastern Canadian Premiers, September 7–9, 2003.**

John G. Rowland  
Governor of Connecticut  
Co-chair

Bernard Lord  
Premier of New Brunswick  
Co-chair