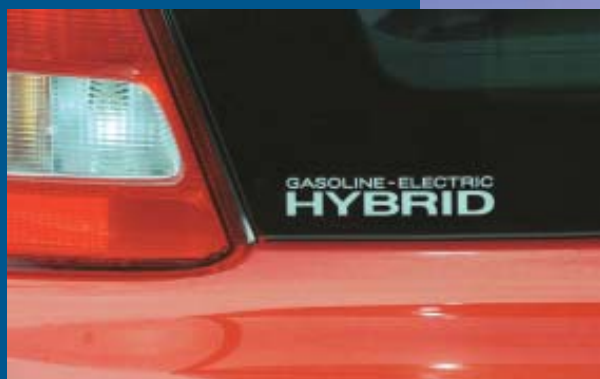


Energy for Maine's Future

A Call for Leadership



**Mainewatch
Institute**

Energy for Maine's Future

A Call for Leadership

Natural Resources Council of Maine
Mainewatch Institute
Maine Center for Economic Policy

Executive Summary	1
Background.....	5
New England's Electricity Mix	8
Maine's Energy Status.....	9
Goals and Recommendations	11
Goal 1: Establish State Leadership	11
Goal 2: Increase Energy Efficiency	12
Goal 3: Expand Renewable Energy	16
Goal 4: Support Regional and National Action	20
Conclusion	22



We would like to acknowledge the following individuals for input and comments: *Kurt Adams, Doug Baston, Ellen Baum, Nick Bennett, Judy Berk, Brad Bradway, Brownie Carson, Susan Coakley, Laura Rose Day, Dick Davies, Deborah Donovan, Deanna Ruffer, Robert Grace, Pat Hart, Ed Holt, Sherry Huber, Cathy Johnson, Sue Jones, Erika Morgan, David Moskovitz, Beth Nagusky, Lisa Pohlmann, Tom Reeves, Christopher St. John, Richard Silkman, Dan Sosland, Stephen Ward, and David Vail.*

Writer and Editor: *Pete Didisheim, Advocacy Director, NRCM*

Cover Design: *Jill Bock Design*

Layout: *Cynthia Beneski, Senior Advocacy Assistant, NRCM*

Technical Support: *Jessica Lavin, Advocacy Assistant, NRCM*

Printer: *J.S. McCarthy*

Photos: *Cover—Nance Trueworthy (children); Judy Berk (bulbs); Endless Energy Inc. (wind turbine); Peter Scarpaci (hybrid); p.1—Judy Berk; p. 2—NRCM photo file; p. 3—Green Mountain Power (wind turbines); p. 4—www.ccervone.web.wesleyan.edu/philosophy/resources; p. 7—Chris Ayres (coastline); John McKeith (moose); p.10—Ken Kimball; p. 16—Maine Department of Environmental Protection; p. 18—Peter Talmage; p. 20—NRCM photo file; p. 21—Ford Motor Company brochure; p. 22 —Anita Baldwin.*

This publication has been made possible with the generous support of the Beldon Fund, John Merck Fund, Energy Foundation, Margaret Dorrance Strawbridge Foundation of PA I, Inc., W. Alton Jones Foundation, Shelby Cullom Davis Foundation, and the members of the Natural Resources Council of Maine. Fall 2002

Executive Summary

Our society has become dangerously dependent on energy sources that are warming the earth, damaging the environment, threatening public health, and posing long-term risks to our security and quality of life. The warning signs are all around us:

- Power plant pollution is causing tens of thousands of premature deaths annually.¹
- Political instabilities in the Middle East could cause economic and national security crises because of the globe's dependence on oil from the region.
- Average global temperatures are rising and are projected to reach levels this century exceeding anything experienced on earth in more than 10,000 years.²
- A brown haze of health-threatening smog clings to Maine's landscape on hot summer days.
- New fears have emerged that nuclear power plants, hydroelectric dams, and other major energy facilities may be vulnerable to terrorist attacks.

It is clear that we are not on a sustainable energy path. Consequently, reducing the risks associated with energy use should be one of our government's highest public policy priorities. Regrettably, it is not – not at the national level, nor in Maine.

National energy policy continues to give preferential treatment and subsidies to fossil fuels and nuclear power, and only negligible support for renewable energy and energy efficiency. The average fuel efficiency for cars and trucks in America is at its lowest level in two decades, because

Congress has failed to enact increased fuel efficiency requirements. The U.S. has refused to join the international community in adopting a strategy to stabilize greenhouse gas emissions – the primary cause of climate change. And the White House is seeking changes to the Clean Air Act that would relax pollution control requirements for the nation's oldest and dirtiest coal- and oil-fired power plants – which would mean more air pollution drifting to Maine on prevailing winds.

Leadership in Maine has been lacking as well. There has been no serious energy planning in more than a decade, there is no recognized authority in state government to coordinate energy policy, and the State has made little apparent progress in curbing its own energy use, as it was directed to do by the Legislature in 2000.³

Although Maine once was considered a leader on energy issues – with progressive policies to promote energy conservation and nearly 50% of its power from indigenous renewable energy sources – we now lag far behind neighboring states in the region. As a result, we are missing important opportunities to save money for Maine consumers through energy efficiency gains, we are weakening our ability to help bring about a clean energy system for the entire region – an important goal for Maine, since we receive much of our air pollution from upwind sources – and we are falling short of our stewardship responsibilities to the environment and public health.

The message of this report is simple: Maine needs leadership on energy issues.

We need leaders in State Government, the business community, and the public at-large to help reduce energy waste, improve energy efficiency, and promote the generation of clean renewable power. We particularly need leadership from Maine's new Governor.



During summer 2002, Maine suffered its worst air pollution since 1988, threatening public health and degrading visibility. This view of Camden and Penobscot Bay was taken from Mt. Battie on a clear day, Sept. 25, 2002 (left), and on an ozone alert day, August 14, 2002 (right).

Reducing Maine's dependence on foreign oil and on energy sources that harm the environment and public health should be one of the State's highest priorities. A sound energy policy will be good for Maine and good for our economy, since each dollar not spent on foreign fuel or on wasted energy will be a dollar available to be spent in Maine.

This report provides a strategy for regaining Maine's lost leadership on energy issues. The recommendations are not an exclusive list, but are the most important actions that should be included in a high profile energy initiative pursued by Maine's Governor and Legislature and implemented statewide. These recommendations are aimed at achieving four major goals as follows:

Goal 1: Establish State Leadership

Maine needs leadership and commitment from the Governor, state agencies, and legislators so that a major energy initiative succeeds, with the following actions as specific demonstrations of such leadership:

- Maine's Governor should make it clear that energy policy will be a high priority of his Administration through staffing, resources, and personal involvement in policy development and promotion through administrative actions and executive orders.
- Maine State Government should lead by example by reducing energy consumption 25% by 2010, purchasing energy efficient appliances and vehicles, significantly increasing the amount of electricity it buys from in-state renewable energy sources, and ensuring that Maine taxpayer dollars are not used to subsidize projects that waste energy. The Governor should establish a State Energy Manager to track state energy use and oversee energy-related procurement, management, and utilization of equipment and facilities.



- The Governor should provide a full-time director and adequate resources for the Energy Resources Council (an interagency body established by the Legislature in 2002 to coordinate state energy policy), and the Legislature should hold the Council accountable to meeting its statutory responsibilities.
- The Public Utilities Commission (PUC) should provide strong leadership on policies that promote energy efficiency and renewable energy as a way of reducing harm to Maine's environment.

Goal 2: Increase Energy Efficiency

Improving energy efficiency should be the cornerstone of Maine's energy policy, with initiatives aimed at electricity, state energy use, transportation, building codes, and fostering an energy ethic among Maine people, as follows:

- The Public Utilities Commission should ensure that Maine has a successful and well-funded electricity conservation program, adopting approaches that are succeeding in neighboring states and increasing funding within existing law. The Legislature should enact legislation before 2004 to bring electricity conservation program funding to a level equal to the average within New England.⁴
- The State should help reduce gasoline use in Maine by promoting hybrid gasoline-electric vehicles and adopting policies to reduce sprawling patterns of development. The Legislature should consider amending Maine's Constitution to allow revenues from the state gas tax to be used for alternative transportation, in addition to highway construction and maintenance.
- The Energy Resources Council should establish a plan for improving the energy efficiency requirements in Maine's building



codes (which lag behind most other states), and assuring that these codes are enforced.

- The State should establish a program of Voluntary Energy Reduction Agreements for Maine businesses that improve energy efficiency at least 10% in five years.
- The State should foster a sustainable energy ethic among Maine people by bringing recognition to individuals and businesses that have shown leadership through major reductions in energy use.

ENERGY EFFICIENCY AND MAINE'S ECONOMY

Maine could save hundreds of millions of dollars to be spent elsewhere in our economy if we increased our investments in electricity efficiency programs, according to a September 2002 report for the Maine Public Advocate. The State's existing electricity efficiency program is funded at about \$5 million annually through a small monthly charge on electricity bills, although existing law would allow funding to reach \$15 million per year. At this higher level, Maine would realize net benefits worth \$271 million. If the program were funded to implement all identified cost effective programs over the next decade, then Maine electricity costs could be cut by well over half a billion dollars.

Source: The Achievable Potential for Electric Efficiency Savings in Maine, Optimal Energy, Inc. and Vermont Energy Investment Corporation, prepared for the Maine Public Advocate, September 26, 2002, <http://www.state.me.us/meopa/homepage.htm>.

Goal 3: Expand Renewable Energy

Maine should support the generation of an increasing amount of clean renewable energy to help displace power from dirtier sources, and ensure that Maine people have a choice of purchasing green power, as follows:

- The Governor should develop a Renewable Energy Plan that: a) evaluates the status of existing in-state renewable energy generation, b) assesses the potential for new renewable power in Maine, and c) sets specific goals for renewable energy generation over the next 20 years.
- The Legislature should rewrite Maine's Renewable Portfolio Standard so that it maintains and promotes clean renewable energy, and no longer allows fossil fuel-fired cogeneration plants or tire-derived fuels to be considered qualifying renewable energy sources.
- The Public Utilities Commission should establish a "green power" choice for Maine customers so they can vote for clean energy with their pocketbooks.
- The Governor should issue an Executive Order directing state agencies to purchase a significant and growing proportion of their electricity from in-state renewable energy sources, when available at competitive rates.
- Maine should develop statewide siting guidelines and improved regulations for wind power development to help direct wind projects toward sites that are most suitable and away from sites that are least suitable, with legal protection for areas with high ecological, scenic or recreation values.



Source: NH Dept. of Environmental Services



Brayton Point Power Plant in Somerset, Massachusetts is the largest source of air pollution in New England. This 40-year-old facility burns nearly 8,000 tons of coal every day, sending pollution into the air of Rhode Island, Massachusetts, and downwind to New Hampshire and Maine.

Goal 4: Support Regional and National Action

Maine should actively advocate for regional and national programs and policies to reduce air pollution, increase energy efficiency, expand renewable energy, and help mitigate the risk of climate change, with emphasis on the following actions:

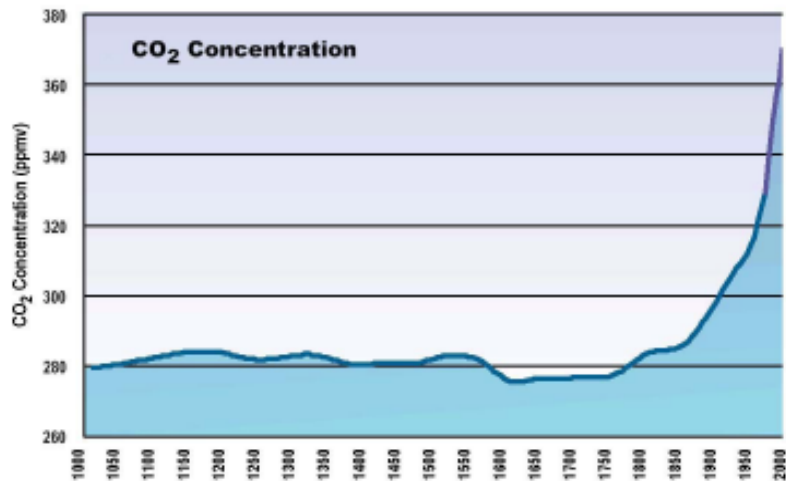
- Maine should adopt and be held accountable to specific strategies that will reduce our greenhouse gas emissions below 1990 levels by 2010, as part of the regional strategy adopted in 2001 by the New England Governors and Eastern Canadian Premiers.

- Maine's elected leaders should support regulations requiring old power plants to meet modern clean-up standards, and oppose efforts to weaken the Clean Air Act.
- Maine's elected leaders should support federal legislation to increase vehicle fuel efficiency standards, and a regional plan to regulate carbon dioxide emissions for cars and trucks.
- Maine's elected leaders should support continuous improvement in federal energy efficiency standards and the adoption of new standards for products not yet covered. Working with other states in the region, Maine should adopt state-based energy efficiency standards where Congress has failed to act.

Maine cannot achieve these goals on its own. A high level of collective action in Maine and across New England will be necessary. Other states in the region are taking energy policy much more seriously and are making more progress on actions such as these than we are. The starting point for Maine is for our political, business, and community leaders to embrace a common vision of a sustainable energy system, and to get on with the task of turning that vision into a reality. The people of Maine must hold our elected officials and public institutions accountable. Toward that end, please use the evaluation form on the inside back cover to assess whether this report's call for leadership on energy issues has been heard by our elected leaders, and acted upon.

Atmospheric Carbon Dioxide Levels Over Past 1000 Years

Concentrations of CO₂ in the Earth's atmosphere are significantly higher than those estimated for any time during the last 400,000 years.



Source: U.S. Global Change Research Program (2000)

Background

The generation and use of energy cause more negative impacts to the environment than any other human activities. Automobiles have transformed our landscape and are the source of much of our air

There is no such thing as a completely benign form of electrical power generation.

pollution. We now have more than 3.5 million miles of paved roads in the United States and more than 220 million registered vehicles.⁵

Electricity generation causes pervasive damage to our environment. There is no such thing as a completely benign form of electrical power generation. The exploration, extraction, and combustion of coal and oil impose land use, air quality, water quality, public health and national security costs. Nuclear power produces dangerous wastes that must be sequestered for thousands of years. While hydroelectric dams do not generate air pollution, they can cause serious harm to river ecosystems. Wind power can have substantial visual impacts on some landscapes. Even the manufacture of solar panels generates a small amount of toxic wastes. Since we all use electricity, we must consider the relative harm of different power sources and decide which forms of power are more acceptable than others.

Maine receives its electricity from a regional grid, and we receive much of our air pollution from upwind power sources. New England's electricity mix is not clean. Old coal- and oil-fired power plants generate high volumes of air pollution that threaten

DEFINING EFFICIENCY AND CONSERVATION

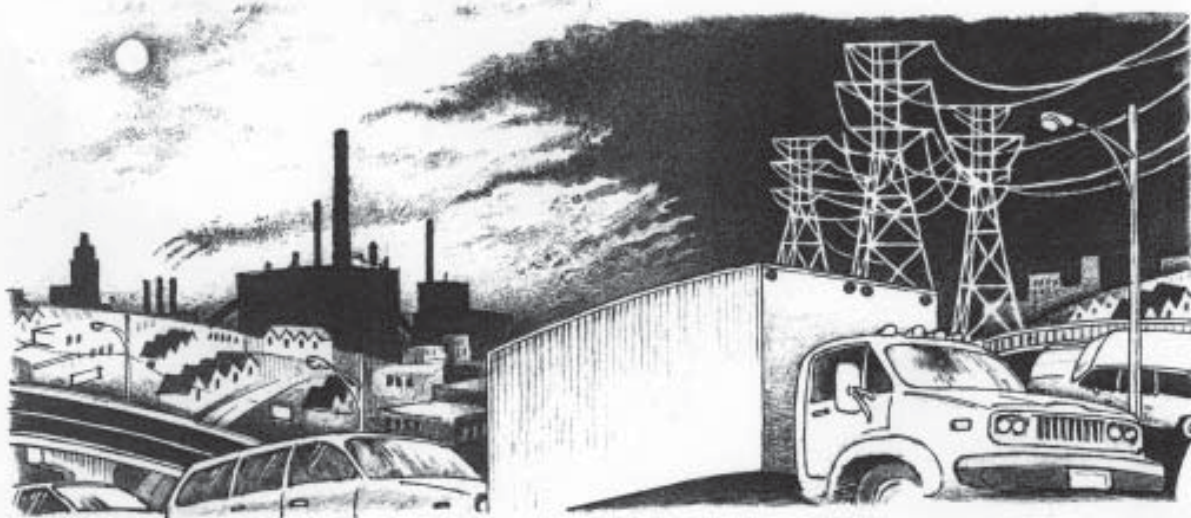
The terms “energy efficiency” and “energy conservation” often are used interchangeably. In this report we call actions “energy efficiency” wherever they result in less energy use and waste. For example, energy efficiency includes both turning off a light that is not in use and replacing an incandescent light with a compact fluorescent bulb. Energy efficiency includes both tuning a furnace and replacing an inefficient furnace with a more efficient model. It also means carpooling or purchasing a more fuel-efficient vehicle.

public health and the environment. Acid rain is damaging our forests, mercury from upwind power

National energy use could be cut 18% by 2010 and 33% by 2020.

plants is polluting our lakes, and ozone smog is causing health risks particularly to those with asthma and respiratory difficulties. On hot summer days, Maine's landscape is enveloped in a brown haze that makes scenic vistas disappear.

The U.S. has made major strides in energy efficiency over the past three decades. As a result,

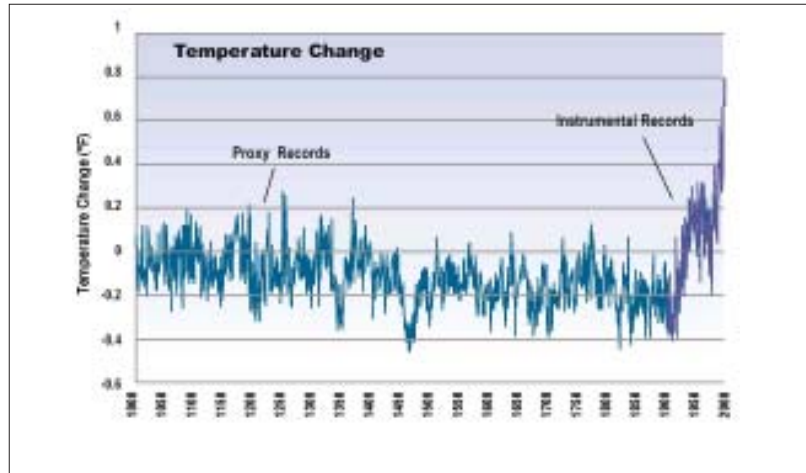


Jon Luoma

Global Temperatures are at Their Highest Level in 1000 Years

“There is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities.”

--Intergovernmental Panel on Climate Change (2001)



Source: U.S. Global Change Research Program (2000)

total primary energy use per capita in the U.S. in 2000 was almost identical to that of 1973, even though our economic output (Gross Domestic Product) per capita during this period increased 74%.⁶ Without these efficiency gains, U.S. consumers would have needlessly spent at least \$430 billion more on energy purchases in 2000. These achievements in energy efficiency are now the nation's largest "source" of energy – five times greater than annual domestic oil output.⁷

Yet, the untapped potential for additional energy savings remains vast. According to the Department of Energy, we could cost-effectively reduce national energy use by at least 10% by 2010, and 20% by 2020.⁸ The American Council for an Energy-Efficient Economy concludes that national energy use could be cut 18% by 2010 and 33% by 2020.⁹

Major energy savings could also be secured from the transportation sector, which consumes 27% of all energy used in the U.S. Fuel efficiency of today's cars and light trucks is at its lowest level in 20 years, because Congress has failed to improve fuel efficiency standards¹⁰ since 1985 and because such a high proportion of vehicles sold today are sport utility vehicles (SUVs) and light trucks.

Transportation accounts for one-third of all heat-trapping gases (greenhouse gases) linked to climate change released from U.S. sources, and nearly 50% of Maine's

WARNING SIGNS OF CLIMATE CHANGE

Temperature

- *The 1990s was the warmest decade on record.*
- *The Northeast's winter of 2001-2002 was the warmest on record.*
- *The average temperature in Alaska has increased seven degrees over the last 30 years.*

Sea Level Rise

- *In the last century, average global sea level has risen 4-8 inches.*
- *The sea level in Rockland, Maine has risen 3.9" in the past 100 years, a faster pace than at any time in 5,000 years.*

Glaciers

- *Glaciers of the European Alps have lost 30-40% of their surface area and half their volume since 1850.*
- *Glaciers on Mt. Kenya and Mt. Kilimanjaro have lost 60% of their area in the last century.*

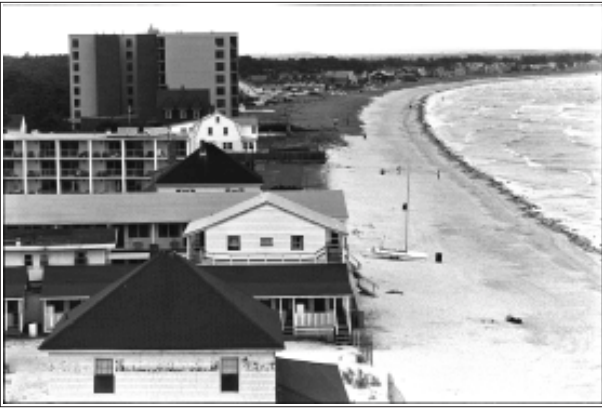
Ice Melt

- *Arctic sea ice volume has declined 40% since 1980.*
- *Sea ice off Alaska's coast has thinned 40% since the 1960s.*
- *The ice-out date for many New England lakes is earlier than at any time in the past 100 years.*

Ecological

- *Lyme disease from deer ticks is increasing throughout New England, possibly due to warming temperatures.*
- *4 million acres of forest in Alaska have been killed by beetles, reproducing twice as fast due to rising temperatures.*

Sources: *The Climate Challenge, Actions New Hampshire Can Take to Reduce Greenhouse Gas Emissions*, December 2001, NH Dept. of Environmental Services, p. 5. IPCC Working Group 2, *Third Assessment Report, Climate Change 2001: Impacts, Adaptations, and Vulnerability*, February 2001. *New York Times*, "Alaska No Longer So Frigid," Timothy Egan, June 16, 2002, p. A1.



Rising sea levels caused by global warming could inundate coastal properties, erode beaches, and damage tourist-based economies in Southern Maine.

total greenhouse gas emissions. Greenhouse gases released from the U.S. transportation sector alone exceed what every other country in the world except for China, Russia and Japan release from all sectors.

Climate Change

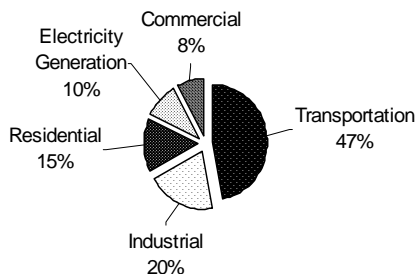
There is broad agreement in the scientific community that climate change is underway, human activities in the form of fossil fuel combustion are the primary cause, and the impacts of climate change are likely to be dramatic and pervasive.¹¹

New England faces the possibility of serious environmental and economic damage caused by climate change. The best current scientific modeling projects a warming of New England's climate of between 6°F to 10°F in annual minimum temperatures over the next century. Even the lower end of this range would be greater than any climate variation experienced by the region in the past 10,000 years.¹²

According to the U.S. Global Change Research Program, the current trajectory of greenhouse gas emissions could have the following results by 2100:

- Boston could have the climate of Atlanta, Georgia;

Maine Carbon Dioxide Emissions by Sector



Source: Maine State Planning Office

- Rising sea levels, already underway, could inundate low-lying areas in New England, including densely populated coastal communities;
- Some species of plants and animals native to Maine will no longer survive here; and
- New England states could experience more frequent extreme weather events, extended droughts, increased smog and air pollution, and the loss of snow-based economic activity.

Greenhouse gases from human sources over the long term will need to be reduced to a small fraction of current levels to reduce the threat of climate change.¹³ Recognizing this reality, the New England Governors and Eastern Canadian Premiers adopted in August 2001 at their annual meeting a climate plan with specific goals and targets:¹⁴

Short-term: Reduce regional greenhouse gas (GHG) emissions to 1990 levels by 2010.

Mid-term: Reduce regional GHG emissions by at least 10% below 1990 emissions by 2020, and establish an iterative five-year process, commencing in 2005, to adjust the goals if necessary and set future emissions reduction goals.

Long-term: Reduce regional GHG emissions sufficiently to eliminate any dangerous threat to the climate; current science suggests this will require cuts of 75-85% below current levels.

Since August 2001, Rhode Island, New Hampshire, Massachusetts, New York and New Jersey have developed comprehensive climate action plans with specific measures to reduce greenhouse gas emissions. Maine has not, and was unable to present any significant information at the August 2002 meeting of the New England Governors and Eastern Canadian Premiers concerning what it would do to honor its regional commitment to address the risk of climate change.



Climate change could alter Maine's spruce-fir forests to predominantly oak and hickory, and native wildlife may shift northward to Canada.

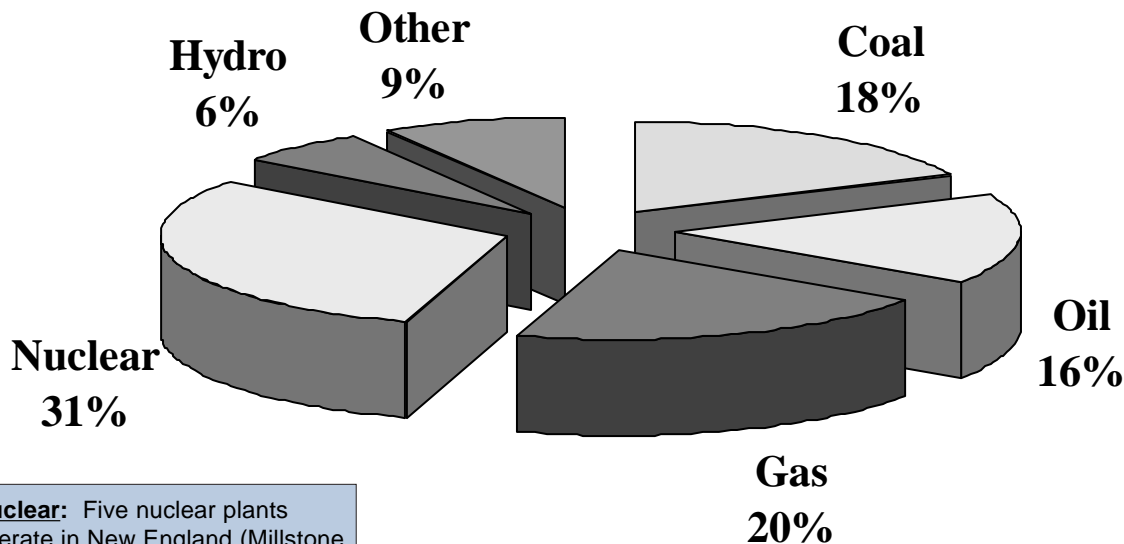
New England's Electricity Mix and Environmental Issues

Maine is part of a regional electricity generation and transmission system comprised of more than 500 generating facilities and 8,000 miles of transmission lines, servicing an estimated 6.5 million customers. Nearly 55% of the electrical power in New England comes from fossil fuel. As described below, each major form of electricity generation has impacts. Reducing the overall environmental harm of this system must be a top priority for Maine and the region.

Hydropower: More than 400 operational hydropower dams on New England rivers.
Impacts: Dams do not generate air pollution yet they can cause serious harm to river and stream ecosystems and aquatic life.

Biomass and Trash Incineration: 20 trash incineration and 25 biomass plants in New England.
Impacts: Trash incinerators can release mercury, dioxin, and other toxics. Sustainable biomass releases no net carbon dioxide. Burning wood does release nitrogen oxides and mercury (contained in the wood). Unsustainable biomass can foster poor timber practices.

Coal: 200,000 tons of coal burned annually in New England.
Impacts: Coal has the highest rates of sulfur dioxide, nitrogen oxide, mercury and carbon dioxide emissions of any power plant type. Other impacts include mining hazards, damage to watersheds in Appalachia, and large volumes of solid waste.



Nuclear: Five nuclear plants operate in New England (Millstone 2 & 3, Seabrook, Vermont Yankee, and Pilgrim)
Impacts: Several thousand pounds of high level radioactive waste are generated annually at these plants. This waste must be stored for 10,000 years – roughly twice the span of recorded human history. A nuclear plant accident could release life-threatening radiation. Uranium mining and fuel enrichment produce high volumes of radioactive waste as well.

Natural Gas: Nearly 600 billion cubic feet of natural gas burned annually.
Impacts: Natural gas releases about half as much carbon dioxide as coal, and very little sulfur dioxide. Nitrogen oxides, however, are generated at comparable levels to coal and methane (a potent greenhouse gas) is released during pipeline transport. Exploration and drilling for natural gas can harm the environment and wildlife habitat.

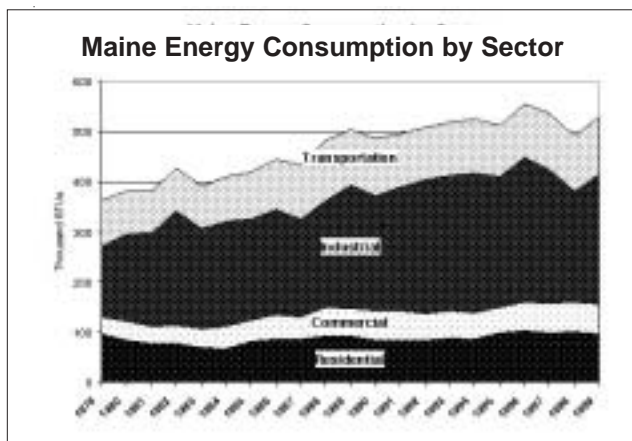
Oil: More than 90 million barrels of oil burned annually in New England.
Impacts: Oil-fired power plants generate nitrogen oxides, sulfur dioxide, carbon dioxide and mercury – all of which pose risks to human health and the environment. Dependence on foreign oil raises national security risks.

Renewable energy from wind power, solar power, tidal power, and other sources not included above are not yet generated at levels to significantly displace dirtier forms of electrical power.

Maine's Energy Status

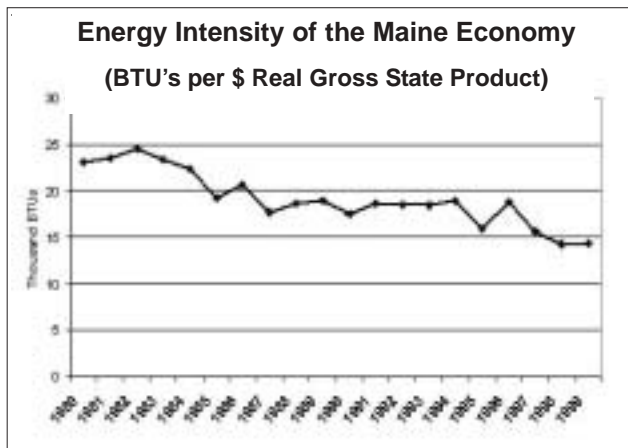
Over the last 20 years, total energy consumption in Maine has steadily increased, considering all fuel types for heating, power, and transportation. The biggest burst of energy consumption occurred during the 1980s, with total energy use growing 38 percent from 1979 to 1989. This pace slowed in the early 1990s as an economic recession hit the state. Since the mid-1990s, overall energy use has increased again.

The industrial sector uses the largest share of energy in Maine. The presence of significant industrial energy users in the paper industry, combined with low-density population in the state,



makes Maine's per capita energy use figures about 60 percent higher than any other New England state. Many pulp and paper manufacturers generate their own electricity with wood, wood-waste products, natural gas, coal and hydropower.

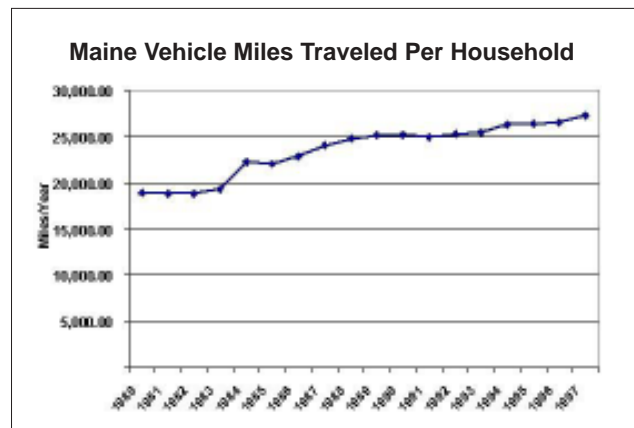
While total energy use has increased, the energy intensity of our economy has steadily declined. Since 1979, the amount of energy



BTU=British Thermal Unit, a standard unit of energy

required to produce one dollar of gross state product has decreased due to more energy efficient appliances, manufacturing processes, and building designs; energy conservation programs pursued by the State in the 1970s and 1980s; and the closure (or cutbacks) of manufacturing facilities that were large energy users.

Maine has a growing reliance on petroleum, which accounts for more than 50 percent of the energy we use for heating, power, and transportation. Maine people are using more energy for transportation than ever before due to growing sales of SUVs and light trucks and longer daily commutes. Total vehicle miles traveled per household has increased steadily since 1980 as a result of sprawling patterns of development, particularly in southern and coastal Maine.



One of the biggest changes in Maine's energy system over the past 20 years came as a result of the restructuring of the electricity market. In 1998, New England opened the wholesale electricity market to competition. Maine's 1997 Electric Industry Restructuring Law¹⁵ adopted a competitive retail model for Maine. As part of this policy change, Maine's utilities were required to sell their generating plants and now focus solely on the transmission and distribution of electricity. The theory was that competitive suppliers and customer choice would replace a public energy planning process. The theory failed in Maine and elsewhere. Maine has abandoned energy planning, but Maine's residential customers have no meaningful choice of suppliers, "green" or otherwise.

Maine's electric generating facilities are part of an integrated New England power grid fueled predominantly by fossil fuels (oil, coal, and natural gas) and nuclear power (see page 8). Within this

REDUCING DIRTY POWER PLANT OPERATIONS

Increased energy efficiency and renewable power in New England can reduce air pollution and other environmental harm from dirty power plants. Here's how:

The New England electricity system generates only as much power as is necessary to meet demand. Power plants bid into the market a day ahead. These bids are accepted by the Independent System Operator (ISO New England), from lowest to highest bids, until customer load is met. The last price bid before supply meets demand sets the "energy-clearing" price. The power plant that establishes the clearing price is called the "marginal plant." The marginal plants differ from hour to hour, and day to day, but generally are among the dirtiest and most costly to run in the region.

If electricity demand is reduced, then less power is purchased from these dirty power plants. Similarly, if the region generates more clean renewable energy with low operating costs (such as wind power, which has no fuel costs), then we can gain air quality benefits by reducing the amount of time the marginal fossil fuel-fired plants operate.



larger system, reductions in energy consumption and the addition of clean renewable power can deliver environmental benefits (see above).

Since 1990, the composition of power plants within Maine has changed significantly. With the shutdown of Maine Yankee in 1997, Maine no longer generates nuclear power. Five natural gas plants built in the past five years, with a combined installed capacity of 1,655 MW, more than replaced the lost nuclear capacity. Hydropower generation has remained relatively unchanged over the past decade, increasing slightly as a result of upgrades at some dams. However, as power purchase agreements with utilities have expired and as small

hydropower facilities enter the competitive market, several have become uneconomic to continue operating. Generating facilities that burn wood, wood waste, and municipal solid waste represent approximately 22 percent of total power plant capacity in Maine, although five of Maine's ten biomass plants were not operating in 2002 due to low wholesale energy prices.

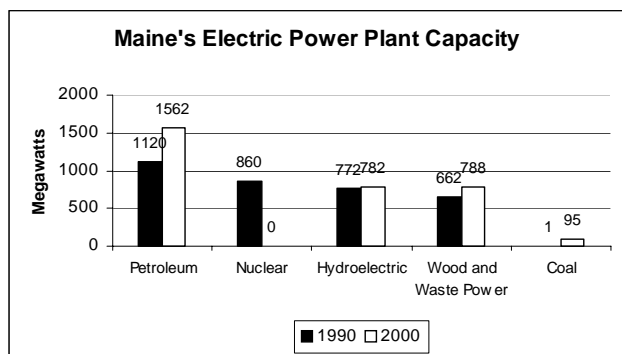
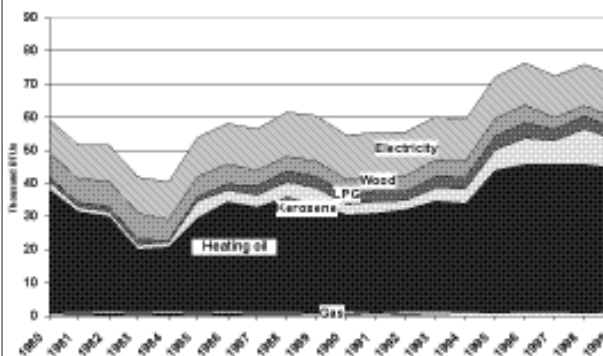


Chart does not include natural gas plant capacity installed since 2000.

Residential Energy Use in Maine



Maine households are vulnerable to energy price spikes because 76% of total residential energy use is provided by fossil fuels (heating oil, kerosene and liquid petroleum gas).

Source: U.S. Department of Energy, Energy Information Administration, State Energy Consumption, found at www.eia.doe.gov/emeu/sep/me.

Goals and Recommendations

The following goals and recommendations provide the basis for a major energy initiative for the State of Maine that will help cut energy costs, protect our environment, and provide momentum for a regional clean energy strategy throughout New England.

Goal 1: Establish State Leadership

For the past decade, there has been essentially no leadership from the State of Maine on energy matters. A 1992 report by the Commission on Comprehensive Energy Planning, established by the Legislature, proposed a series of major recommendations aimed at reducing Maine's dependence on fossil fuels, expanding renewable energy generation, and increasing energy efficiency,¹⁶ yet these goals have been largely unrealized due to inadequate attention and follow-through. Since dismantlement of Maine's energy office in the late 1980s, there has been a steady decline in institutional memory on energy issues within state government.

There has been no discernible coordination among state agencies on energy policies, no data gathering to assist in the formulation of energy policies, and no ownership at a senior level within State government of the responsibility for promoting energy efficiency or renewable energy development in Maine.¹⁷ Addressing the environmental consequences of energy use has not been a priority for the King Administration. This contrasts sharply with neighboring states, where energy issues have received considerable attention by Governors, state agency heads, and bipartisan groups of political leaders.

Addressing the environmental consequences of energy use has not been a priority for the King Administration.

Two recent developments create an opportunity and need to bring renewed leadership to energy issues in Maine. The Maine State Legislature in 2002 shifted responsibility for the state's electricity conservation program away from the utilities and to the Public Utilities Commission. The Legislature

LEADERSHIP IN ACTION

“The State of New York is committed to promoting energy efficiency to protect our environment, and our State agencies and authorities are leading by example.”

-Gov. George Pataki (New York) March 2002

“Efficiency in the use of electricity will reduce the cost of doing business, and will help make Massachusetts a more competitive state.”

— Gov. Jane Swift (Massachusetts) Oct. 2001

“New energy-efficient technologies – from more efficient light bulbs to new state-of-the-art manufacturing – are essential to ensuring that New Hampshire and the nation can meet our energy needs in the future.”

— Gov. Jeanne Shaheen (NH) Nov. 2001

also passed a bill directing the Administration to establish an Energy Resources Council, with the responsibility for coordinating and formulating energy policy involving energy use and conservation, development of energy resources, and facility siting.

Recommendations for Energy Leadership

- **Leadership from Maine's Governor**
Maine's incoming Governor should clearly establish that his Administration is committed to promoting an efficient and clean energy system for Maine and the region. This commitment should be demonstrated through policy initiatives, executive orders, administrative actions, staff appointments, and the allocation of resources. The Governor should appoint individuals to the Maine Public Utilities Commission who are

committed to the goal of promoting energy efficiency and clean power generation for Maine ratepayers. Commission vacancies occur in March 2003 and March 2005.

LEADERSHIP IN ACTION

In March 2001, Governor Judy Martz of Montana issued an Executive Order directing state agencies to reduce energy use by 10% in one year. This goal was met within nine months, with a reduction of 949,600 kilowatt hours (10.8%), saving an estimated \$1.2 million in Montana's electricity bill. The energy saved for that period was equivalent to not burning 135 tons of coal, Montana's primary energy source.

- **Maine Leading By Example** The State should model the behavior it believes is important. State agencies should be required to reduce energy use 25% by 2010 (compared to a 1998 baseline). The Governor should establish a State Energy Manager position to oversee all procurement, management, and utilization issues as they relate to state energy use. A scorecard-like reporting system on facility energy use should be provided annually to the Legislature and the public.¹⁸ The State should only purchase energy efficient appliances and vehicles,¹⁹ and should require that construction projects financed by the State be designed to exceed the minimum energy code by 20% where cost effective on a life cycle basis.
- **Coordinated State Energy Policy** The newly-established Energy Resources Council should chart out an ambitious agenda of energy policy work. Each state agency assigned to the Council should provide funds and staff resources to support the Council's work. The Governor should provide a full-time Executive Director for the Council. The Council should ensure that a broad, coordinated approach is pursued by the state

to promote energy efficiency and renewable energy generation. The Utilities and Energy Committee of the State Legislature should ensure that the Council is meeting its statutory responsibilities.

- **Leadership from the Public Utilities Commission** Maine's Public Utilities Commission should be an active leader in promoting electricity conservation and clean power as two of its primary responsibilities to ratepayers. The Commission's focus on deregulation of the electricity market in recent years has led it away from sustainable energy planning. In mid-2002, the Commission and its staff demonstrated considerable initiative in taking charge of the State's electricity conservation program, pursuant to legislative direction. The PUC should build on these positive steps with policy analysis, planning, and program implementation that helps Maine realize the full potential of energy efficiency and renewable energy development.

Goal 2: Increase Energy Efficiency

"Increased energy efficiency should be the cornerstone of meeting Maine's future energy demand." This was one of the major conclusions of the Commission on Comprehensive Energy Planning, which provided Maine's last significant energy plan to the Governor and Legislature in May 1992.²⁰ This conclusion is as relevant today as it was then, but there is little indication that it has been embodied in state policy or practice.

Real Mainers use air conditioning

How about you?

Central Maine Power
Maine's largest utility promotes increased electricity use.

Table 2

Northeast Energy Efficiency Partnerships Regional Initiatives	Participation by Northeast States (✓ indicates involvement)							
	Conn	Mass	New Jersey	New Hampshire	New York	Vermont	Rhode Island	Maine
Energy Star® Appliance Initiative	✓	✓		✓	✓	✓	✓	
Building Energy Codes Initiative	✓	✓		✓	✓	✓	✓	
Energy Star® Buildings Project	✓	✓	✓	✓	✓		✓	
Energy Star® Lighting Initiative	✓	✓	✓	✓	✓	✓	✓	✓
Energy Star® Windows Initiative	✓	✓	✓		✓	✓	✓	
Premium Efficiency Motors	✓	✓	✓	✓	✓	✓	✓	
Commercial & Industrial Unitary Heating, Vent, Air Conditioning	✓	✓	✓	✓	✓	✓	✓	
Efficient Building Operations	✓	✓	✓	✓	✓		✓	✓
Commercial & Industrial Lighting Design	✓	✓		✓	✓	✓	✓	
Residential HVAC	✓	✓	✓		✓		✓	

Source: <http://www.neep.org>

For most of the past decade, energy efficiency efforts in Maine have foundered. With deregulation of the electricity market in 2000, Maine’s utilities no longer have an interest in promoting energy conservation as a means of avoiding the cost of building additional power plants. Maine’s largest utility is actively encouraging *increased* energy use through monthly “customer guides” urging customers to operate air conditioners, install extra lighting, and purchase additional household appliances.²¹ Funding for Maine’s electricity conservation program declined 33 percent from 1990 to 2001, and Central Maine Power has advocated that the program be eliminated altogether.²²

Yet the untapped potential in Maine for improving energy efficiency and eliminating energy waste remains vast. Maine’s State Planning Office in January 2002 concluded that per capita residential energy use could be cut 25% over the next ten years through cost-effective investments in efficiency programs.²³ A September 2002 report to the Public Utilities Commission concluded that there exists a vast amount of untapped potential for electricity use reductions, amounting to an estimated 12.8 million MWh in avoided electricity use from 2003 through 2012.²⁴ This is approaching the amount of electricity generated from running the Wyman Station power plant in Yarmouth, Maine for more than seven years.²⁵

LEADERSHIP IN ACTION

In June 2001, Gov. Pataki (New York) signed an Executive Order requiring all state agencies to improve energy efficiency, with a goal of reducing energy use 35% by 2010, relative to 1990 levels. The Order requires all new public buildings to achieve at least a 20% improvement in efficiency, and all major renovations to achieve at least a 10% efficiency gain, relative to New York’s energy code.

Maine has failed to participate in one of the region’s most significant energy efficiency collaborations, managed by Northeast Energy Efficiency Partnerships, Inc. (NEEP). NEEP is a regional non-profit organization with major initiatives to promote the manufacture, sale, use, and implementation of energy efficient goods and services. NEEP’s programs involve utilities, government agencies, trade groups and others from throughout the Northeast states. Participation by other Northeast states demonstrates that these programs are of significant value. As of mid-2002, Maine was noticeably absent from all but two of NEEP’s ten major partnership initiatives (see chart).

The following examples from other states illustrate the type of benefits that Maine could secure through a well-funded, long-term energy efficiency initiative:

- **Avoided Pollution** In Vermont, the energy efficiency measures installed during 2000 will result in an estimated reduction of 390 tons of nitrogen oxides, 1,035 tons of sulfur dioxide, 253,625 tons of carbon dioxide and 87 tons of particulates over the lifetime of the measures.
- **Avoided Peak Load Costs** In Massachusetts, ratepayers saved a total of \$2.2 million in additional peak load electricity costs during the summer of 2000 because of energy efficiency programs, according to the Massachusetts Division of Energy Resources.
- **Ratepayer Savings** In New York, the State's energy conservation programs are resulting in electricity savings of over 927 million kilowatt hours (kWh) per year and an anticipated energy bill savings of more than \$119 million annually — \$102 million from electricity savings, \$13.8 million from natural gas savings, and \$3.3 million from oil savings.

Although Maine also has earned significant energy savings and pollution avoidance through its energy efficiency efforts, most notably in the 1980s, the state's electricity conservation program will fall short of its potential because of limited funding. Maine funds its electricity efficiency program at one of the lowest levels of any state in New England.

In the transportation sector, Maine has taken several steps to promote energy efficiency and reduced use of fossil fuels, yet the potential for additional action remains large. The Sensible Transportation Policy Act, adopted in 1991, establishes a state policy to "reduce the State's reliance on foreign oil and promote reliance on energy-efficient forms of transportation." This goal is to be achieved through planning efforts aimed at identifying transportation alternatives that "minimize the harmful effects of transportation on public health, air and water quality, land use and other natural resources."²⁶

Despite these laudable objectives, the State has very limited means of financially carrying them out. The arrival of AMTRAK service in 2001²⁷ and a strong bus service from Portland to Boston are welcome additions to the public transportation mix, yet additional public transportation options are needed. A logical source of funding, a state tax of 22 cents on each gallon of gasoline sold in Maine, is unavailable for any purpose other than the construction and maintenance of highways and bridges.²⁸

Recommendations for Energy Efficiency

- **Strengthen Maine's Electricity Conservation Program** The Maine Public Utilities Commission should continue to bring leadership and direction to the State's electricity conservation programs. Maine can maximize its resources and build on the success of others by adopting tested program models from neighboring states, such as by joining regional initiatives managed by

SAVING ENERGY SAVES MONEY

Energy efficiency actions can help put a substantial amount of money back into the pocket of Maine people, while providing jobs for companies that provide energy audits, weatherization, and energy retrofit services.

- *Compact fluorescent lights use up to 75% less energy than incandescent bulbs.*
- *High efficiency oil furnaces use 20-40% less oil than boilers that are more than 10 years old.*
- *Energy Star® rated appliances (e.g., refrigerators, dishwashers, and washing machines) typically use 50% less energy than older models.*

The upfront purchase price for energy efficient products may be higher than traditional models, yet the payback period usually is a few years or less and the long term savings are substantial.



LEADERSHIP IN ACTION

The United States Navy will construct 126 new base housing units at the Brunswick Naval Air Station, all of which the Navy has specified must meet the U.S. Environmental Protection Agency Energy Star® Homes Standard. The Brunswick homes are expected to be 50% more energy efficient than homes built to standard energy codes.

Northeast Energy Efficiency Partnerships, Inc. Maine's program also needs increased funding, which could help deliver hundreds of millions of dollars in avoided electricity costs (see box on p. 3). The PUC should immediately increase funding within existing law, and the Legislature should act before 2005 to raise funding for Maine's electricity conservation program at least to the average level within New England.²⁹

- **Reduce Gasoline Use through Alternative Transportation and Cleaner Cars** The State should help reduce gasoline use in Maine by developing a strategy for funding alternative modes of transportation, as called for by the Sensible Transportation Policy Act of 1991. The Legislature should consider amending Maine's Constitution to allow revenues from the state gas tax to be used for cleaner and more efficient modes of transportation. The State should adopt policies that reduce sprawling patterns of development, as a way of reducing the growth in annual vehicle miles traveled. The State also should actively promote carpooling, mass transit, and the sale of clean, high efficiency cars and trucks, including hybrid gasoline-electric vehicles.



- **Establish a Plan for Improving Maine's Building Codes** To cut energy costs in new residential homes, the Governor should pursue an Energy Efficient Buildings Initiative, including additional training opportunities for builders, an incentive program for construction of Energy Star® Homes, and a consensus-based approach to upgrading the energy performance standards in Maine's residential building code. The initiative should examine shifting code enforcement functions to the private sector, as other states have done, since this often is an unmanageable responsibility for local code enforcement officers.
- **Promote Voluntary Energy Reduction Agreements** To stimulate more widespread energy efficiency improvements at Maine's manufacturing facilities and businesses (which account for 60% of Maine's total energy use), the Governor should establish a

LEADERSHIP IN ACTION

Since 1996, Guilford of Maine, a major textiles manufacturing company, has cut its carbon dioxide emissions nearly in half, reduced the amount of nonrenewable materials used in production by 75 percent, and cut energy use by 25 percent—saving \$3 million.

program of voluntary energy efficiency agreements. Individual companies would pledge to reduce their overall energy intensities (energy per unit of output) by an agreed-upon amount, for example, at least 10% in five years. Participation could be encouraged through technical assistance, or through a competitive grants program open to participating businesses which would provide cost-shared financial support for projects at their facilities.³⁰

- **Foster a sustainable energy ethic among Maine people.** Each of us has within our reach dozens of ways to help eliminate wasted energy – yet we often fail to act on

LEADERSHIP IN ACTION



In the past two years, more than 200 Maine people, from all 16 counties, have purchased hybrid gasoline-electric vehicles which typically get more than 50 miles per gallon. The State has purchased 12 hybrid cars, saving nearly 28 tons of emissions and \$2,300 in gas costs annually.

those opportunities. From minor actions within our homes to more significant measures at our places of employment, we could play an active role in reducing unnecessary energy demand. We need to

play this role, to save money and to fulfill our stewardship responsibilities to the environment. The U.S. has 5% of the world's population, yet generates more than 25% of global emissions of climate-warming carbon dioxide. North Americans consume nine times more gasoline on average than do the citizens of any other country in the world. Individuals and businesses who have achieved major reductions in energy use should be publicly recognized at the highest levels for their leadership, so that they may be looked to as role models for others.

Goal 3: Expand Renewable Energy

Improving energy efficiency should be the cornerstone of Maine's energy policies, but we also need cleaner power generation. Even if projected increases in energy demand for Maine and the region were fully met through improvements in energy efficiency (a very ambitious, yet worthy goal), we still would experience the air pollution, public health, and ecological harm caused by existing power plants.

The electricity sold to Maine consumers by existing providers³¹ has significant adverse environmental impacts. Contrary to expectations, utility deregulation has not provided customers with a choice of electricity providers. Maine's residential customers have no option at present but to purchase the so-called "standard offer" service within their part of the state. Each of the standard offer services are comprised of dirty power sources, as revealed by the "Uniform Disclosure Information

Table 3

Power Sources	Electric Utility Service Territories		
	Central Maine Power	Bangor Hydro-Electric	Maine Public Service
	%	%	%
Oil	26.3	14.9	19
Coal	18.2	7.7	12
Nuclear	26	21.3	13
Subtotal	70%	43.9%	44%
Natural Gas	6.5	17.5	8
Hydropower	10.3	19.7	13
Municipal Waste	1.4	15.7	2
Biomass	11.3	3.2	33
Solar	0	0	0
Wind	0	0	0
Other Renewables	0	0	0

Source: Summer 2002 Uniform Disclosure Information Labels, Maine PUC.

Label" mailed to each consumer. These disclosure statements indicate the proportion of a customers' electricity dollars being spent to support different

Monthly electricity bills for Maine homeowners primarily support continued generation of electricity from fossil fuels and nuclear power.

types of power sources, as well as the air emissions associated with those energy sources. As indicated in Table 3, Maine's three standard offer service providers are heavily invested in oil, coal and nuclear power. Thus, the monthly electricity bills for Maine homeowners (unless they have a private electricity source) primarily support continued generation of electricity from fossil fuels and nuclear power.

LEADERSHIP IN ACTION

Seven colleges and universities in Pennsylvania have committed to purchase a percentage of their electricity from wind farms in that state. Drexel University, for example, will receive 10% of its power from wind, eliminating the annual equivalent of 11,000 lbs. of nitrogen oxides, 36,000 lbs. of sulfur dioxide, and 4.5 million lbs. of carbon dioxide, when compared with the average energy mix in the mid-Atlantic region.

Our goal should be to help foster the replacement of dirty power plants with clean, renewable power. The construction of natural gas plants can help reduce air pollution, since they are cleaner than oil- or coal-fired plants. Natural gas plants produce very little sulfur dioxide and particulate emissions, and less than half as much carbon dioxide per unit of energy than coal and one third as much as oil. However, natural gas does not provide a sustainable solution to the threat of

LEADERSHIP IN ACTION

The Vermont Department of Public Service in 2002 hosted four workshops about wind power with a diverse set of landowners, wind power developers, regulators, and environmentalists. These meetings addressed regulatory, environmental, and siting issues, with the goal of helping forge a common approach to wind power development in Vermont. Vermont's comprehensive energy plan calls for replacing one-third of the nuclear power from Vermont Yankee with wind power, once the nuclear plant closes in 2012.

climate change, air pollution or resource depletion, because it is still a fossil fuel source with limited reserves, can involve substantial land and wildlife impacts, and contributes to climate change through the release of methane, which is a potent greenhouse gas. In addition, over-dependence by the region on natural gas has become a significant concern because it is making the northeast vulnerable to future price spikes and supply shortages.

To achieve cleaner air and a healthier environment, we will need a growing proportion of our power to come from clean, renewable energy sources. Other states in the region appear to recognize this fact, and are doing a better job than Maine is at present in terms of developing new renewable energy. Examples include:

- **Massachusetts** is promoting solar energy, wind power, and fuel cells, as well as electricity generation from landfill methane and biomass, through its Renewable Energy Trust. Established in 1998, the Trust has collected and is distributing more than \$100 million to help accelerate the generation of electricity from new renewable energy sources.
- **New Jersey** is purchasing 12% of its power for 196 state facilities from renewable energy sources. Pennsylvania and New York also

have established commitments for green power purchases by state agencies.

- **Connecticut** has a major initiative underway to expedite the commercial development and application of fuel cell technology, funded through the Connecticut Clean Energy Fund.
- **Vermont** has committed to install 1,000 solar power systems on residential homes by 2010 and is pursuing a “Governor’s Energy Initiative” aimed at meeting the State’s projected growth in energy demand entirely through energy efficiency, combined heat and power systems, and renewable energy development – with an emphasis on wind power.

Maine has given up the leadership role it once held regarding renewable energy policies and is falling significantly behind. Maine’s “renewable portfolio standard,” enacted in 1997 as part of the utility deregulation law, is broadly recognized as a failure.³² It provides no impetus for new renewable energy generation and wrongly allows coal- and oil-fired cogeneration and tire-derived fuel facilities to qualify. It sets a minimum amount from renewable and qualifying sources at 30%, yet this percentage is well below historic levels for hydropower and biomass generation in Maine.

Maine has substantial wind resources, yet has no strategy for guiding the development of wind power to appropriate sites. Maine faced one highly

Maine’s renewable portfolio standard is the most poorly designed in the country, according to the Union of Concerned Scientists.

contentious wind power proposal in the early 1990s, when Kennetech Windpower, Inc. proposed to build a 210MW project in Maine’s western mountains. The project received its required permits, yet the company went bankrupt (for reasons unrelated to the Maine proposal) and the project was not pursued. Maine has done nothing in the intervening years to foster a dialogue or public consensus about wind power siting, or to create a wind power development plan for Maine, as called for in 1997 by Maine’s Land Use Regulation Commission.³³ As such, Maine is not prepared to help encourage wind power projects at appropriate sites or to respond

proactively to wind developers who currently are exploring sites in Maine for possible development.

Similarly, the State has taken no significant action in recent years to assess opportunities to develop solar energy, fuel cells, ocean-based (wave and tidal) power, or low-emission biomass. Maine has made no commitment to purchase any portion of the State’s electricity from renewable energy sources above the level required for all electricity products sold in Maine, and there has been no effort to establish a renewable energy fund such as exists in Massachusetts, Connecticut, Pennsylvania, Rhode Island, New York and 11 other states.

Recommendations for Renewable Energy

- **Create a Renewable Energy Plan** The Governor should direct the Energy Resources Council to create a plan for the development and promotion of renewable energy in Maine. This plan should evaluate existing renewable energy generation and the potential for increased electricity in Maine from solar power, on- and off-shore wind power, ocean-based systems (wave and tidal power), sustainable, low-impact biomass, landfill methane, geothermal, increasing hydropower



generation at existing sites (e.g. efficiency upgrades), and fuel cells that utilize renewable fuel sources. The plan should ensure that renewable energy is developed in an ecologically-suitable fashion. The plan, developed with broad stakeholder input, should set specific goals for new, renewable energy generation over the next 20 years. The plan should identify specific market and legal barriers to increased renewable energy generation, with proposed approaches (including legislation) for removing those barriers. The plan also should provide a recommendation to the Legislature about the establishment of a renewable energy fund, supported by a small ratepayer charge or other long-term funding source.

- **Rewrite Maine's Renewable Portfolio Standard** Maine's existing renewable portfolio standard is broken and needs to be rewritten so that it helps maintain existing renewable energy and promotes new clean renewable power generation. Power generated from fossil fuel-fired cogeneration and tire-derived fuel should not be allowed to count toward meeting the standard. Qualifying sources of renewable power generation should be truly sustainable, with recognized environmental benefits when compared with coal, gas, oil, and nuclear power. Maine's renewable portfolio standard should include a baseline requirement for existing renewable power, as well as a growing percentage for "new" renewable energy. The qualifying sources should be defined through a process that ensures a full comparative analysis of adverse environmental impacts caused by each candidate form of generation.
- **Establish a Green Power Choice for Customers** There is strong interest among Maine people to "vote with their pocketbooks" by purchasing an electricity product with reduced environmental impacts, yet no green power product is available. Until a "green power" option is created through retail competition, the Maine Public Utilities Commission should provide for a green product. Several approaches have been used to accomplish this goal in other states, and the PUC should determine which of those methods will work best in Maine.³⁴

- **Require State Purchases of Green Power** The Governor should issue an Executive Order directing the State to provide a substantial amount of its electricity needs from in-state renewable energy sources. The percentage of the State's power purchased from renewables should significantly exceed (by at least 10% by 2005 and 20% by 2010) the baseline amount provided through standard offer services.
- **Develop Siting Guidelines for Wind Power** Maine should develop statewide siting guidelines for wind power that will help steer projects to sites that are most appropriate, and away from sites that are least appropriate considering both landscape characteristics and human use patterns. For high elevation areas, the State should create a classification system based on the ecological, scenic and recreational values of these sites, similar to what was done in 1982 for hydropower as part of the Maine Rivers Study.³⁵ The state should adopt regulations prohibiting wind power development in areas with the highest resource values. Maine's regulations for wind power permits should be amended to require mitigation (on- or off-site) of project impacts, an analysis of reasonably available alternative sites, and decommissioning at the end of a project's life. The Energy Resources Council should determine whether other changes in regulations would help facilitate consideration

LEADERSHIP IN ACTION

"For the preservation of God's creation, we join together to purchase electric power that has the least possible adverse effect on this fragile earth - our island home."

- Maine Interfaith Power & Light, Mission Statement

Maine Interfaith Power and Light has collected more than 1200 signed letters of commitment from individuals, businesses, organizations, churches and synagogues for the purchase of green power – if and when a green power choice becomes available in Maine.

of proposed wind power projects and an appropriate balancing of clean energy benefits and potential site impacts.

Goal 4: Support Regional and National Actions

The recommendations identified above, if fully implemented, would deliver substantial benefits to Maine consumers and the environment – yet broader actions will be needed on a regional, national, and global basis to help achieve a sustainable energy path. Dating back to Sen. Edmund Muskie’s tenure, Maine’s elected officials have had a strong presence in regional and national policy debates about ways to improve air quality. This tradition must be upheld now, more than ever, as threats increase to sections of the Clean Air Act that help protect air quality in Maine and as the prospect of climate change threatens to alter our environment, economy and quality of life.

Specifically, we need documented progress at the state, regional and national levels in stabilizing greenhouse gas emissions, and then reducing them to levels that no longer pose a threat to our climate. We need old coal- and oil-fired power plants to be cleaned up to modern control standards so they stop polluting the air and threatening our health. We also need automobiles and appliances in the future that use far less energy than today’s models.

Recommendations for Regional and National Actions

- **Reduce greenhouse gas emissions.** Maine should adopt and hold itself accountable to a climate change action plan that will reduce our greenhouse gas emissions to 1990 levels by 2010, and at least 10% below 1990 levels by 2020, as part of the regional strategy adopted in 2001 by the New England Governors and Eastern Canadian Premiers. Maine should play an active role in regional climate change initiatives, and our Governor and congressional delegation should strongly advocate for adoption by the United States of commitments and timetables for reductions in our nation’s greenhouse gases as part of a global framework for addressing the risks of climate change.



40-year-old Wyman Station in Yarmouth is the State’s largest single source of air pollution because it has not been required to meet modern pollution control standards.

- **Require old power plants to meet modern pollution controls.** Under the 1977 Clean Air Act, old oil- and coal-fired power plants were exempted (“grandfathered”) from meeting modern pollution standards as long as they did not undergo major physical or operational changes. It was expected that most of these plants would be shut down by now. They were not. Rather, many have received major upgrades to increase capacity without installing modern emission controls. Maine has objected to these upgrades, joining other states in the region in legal action. Our congressional delegation has supported federal legislation that would require all “grandfathered” power plants to meet modern emission standards. The Bush Administration has introduced legislation that would weaken the Clean Air Act’s requirement for tougher emission controls on old power plants when they are modified. Maine’s Governor, Attorney General, and congressional delegation need to remain strong advocates for cleaning up these power plants and opposing efforts to gut federal clean air laws. They also should insist on tough controls for Maine’s Wyman Station, which continues to benefit from grandfathered status for sulfur dioxide emissions.



Driving an SUV with 13 mpg for one year, versus an average vehicle, uses the additional energy equivalent to leaving a refrigerator door open for six years.

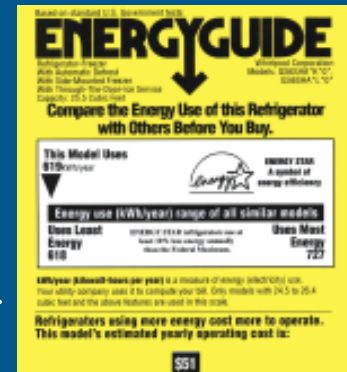
Source: Sierra Club

- Increase fuel efficiency requirements and reduce carbon dioxide emissions for cars and trucks.** Maine's congressional delegation has provided a leadership voice in support of increasing national fuel efficiency standards. Increasing the CAFE standards (also known as "corporate average fuel economy" standards) to 27.5 miles per gallon (mpg) by 2008 would save one million barrels of oil per day, reduce annual oil imports by 10 percent and prevent 240 million tons of carbon dioxide from being released into the atmosphere.³⁶ Although Congress failed in 2002 to enact higher fuel efficiency standards, Maine's elected officials should remain persistent advocates for such action. In addition, Maine should work with other New England states to enact standards governing carbon dioxide emissions from cars and trucks sold in the region – as was recently done in California. Over the past decade, Maine and several other Northeastern States have followed California's lead on vehicle emission standards. As a result, Maine people have had access to the cleanest cars available.
- Improve energy efficiency standards.** Maine's elected leaders should support continuous improvement in federal energy efficiency standards and the adoption of new standards for products not yet covered. Maine could realize \$517 million in net savings through 2020 if efficiency standards

are adopted for 10 products not currently covered by federal requirements, according to a report by Northeast Energy Efficiency Partnerships, Inc. (NEEP).³⁷ Working with NEEP and other Northeast states, the Maine Legislature should adopt state-based energy efficiency standards for these 10 products.³⁸ If enacted throughout the region, these standards could meet hundreds of megawatts of projected demand growth. Adoption of minimum efficiency standards at the state level will provide pressure on the federal standards program to keep up with technological progress and the proliferation of new energy using products.

THE POWER OF EFFICIENCY STANDARDS

Federal energy efficiency standards have delivered enormous savings for consumers by prohibiting the sale of products that waste energy. In 2000, federal appliance and equipment standards reduced energy bills by approximately \$9 billion. By 2020, efficiency standards already adopted will reduce peak U.S. electrical demand by an amount equal to the output of more than 400 power plants of 300MW each.³⁹



The average 2002 refrigerator uses one-fourth the electricity of a 1973 model. Before purchasing an appliance, check the EnergyGuide to see how much energy it will use compared with similar models. An EnergyStar® rating will save you the most in avoided energy costs. For assistance with appliance purchases, see www.energystar.gov.

Conclusion

This report provides a strategy for helping reduce the environmental and public health harm in Maine caused by the generation and use of energy. Pursued aggressively with a sense of purpose and commitment, these recommendations would provide substantial benefits to the people of Maine and the region. Our state lags behind other states in New England and across the nation in terms of capturing the benefits of increased energy efficiency and additional renewable energy. The recommended steps in this report could make Maine a leader, consistent with our general reputation as a state that cares about environmental quality.

Moving Maine onto a sustainable energy path will not require major advances in technology, since vast improvements in energy efficiency and clean power production can be readily secured through available products, services, and energy systems. Rather, our fundamental challenge is one of leadership. We need leadership from our elected officials, business and community leaders, and individuals throughout the state. We need leadership that will help foster a sustainable energy ethic among Maine people to reduce energy use and make prudent decisions about future power sources. Maine's new Governor will have a particularly important leadership opportunity. We hope the Governor and the Legislature seize it for the benefit of our environment, economy, public health and future generations.



FOOTNOTES

- ¹ Pollution from power plants causes an estimated 30,100 premature deaths annually, more than drunk driving (16,935) or homicides (17,893). National Environmental Trust, *Cleaning Up Air Pollution from America's Power Plants*, 2002, p. 12.
- ² U.S. Global Change Research Program, University of New Hampshire, *Preparing for a Changing Climate: The Potential Consequences of Climate Variability and Change. New England Regional Overview*, 2001, p. 23.
- ³ "The Energy Conservation in Buildings Act" set a goal for state facilities of reducing energy consumption 25% by 2010, compared to a 1998 baseline, and required the State by September 2000 to identify 10 facilities for an energy efficiency pilot project. Some progress has been made, but the State does not appear to have a 1998 baseline for energy use and is two years behind schedule with the pilot project.
- ⁴ Funding for Maine's electricity conservation program is collected through a small fee (systems benefit charge) on ratepayers. Other than within Central Maine Power's service territory, the Maine PUC collects these funds at a level below the authorized legal cap, and Maine's funding cap is below the level in Vermont, Rhode Island, Massachusetts and Connecticut.
- ⁵ On Line Highway Statistics at <http://www.fhwa.dot.gov/ohim/ohimstat.htm> and CIA, *The World Factbook, United States* at <http://www.cia.gov/cia/publications/factbook/geos/us.html>.
- ⁶ American Council for an Energy-Efficient Economy, *Smart Energy Policies: Saving Money and Reducing Pollutant Emissions Through Greater Energy Efficiency*, September 2001, p. ii.
- ⁷ Amory and L. Hunter Lovins, "Domestic oil and gas is not the ticket to U.S. Energy," *Grist Magazine*, November 20, 2001.
- ⁸ Department of Energy Interlaboratory Working Group, *Scenarios for a Clean Energy Future*, 2000.
- ⁹ American Council for Energy-Efficient Economy, *Meeting America's Kyoto Protocol Target: Policies and Impacts*. Washington, D.C. 1999.
- ¹⁰ These standards establish miles per gallon requirements for the average new vehicle sold in America.
- ¹¹ Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2001: The Scientific Basis, Summary for Policymakers*, January 2001. <http://www.ipcc.ch/pub/reports.htm>.
- ¹² U.S. Global Change Research Program, University of New Hampshire, *Preparing for a Changing Climate: The Potential Consequences of Climate Variability and Change. New England Regional Overview*.
- ¹³ Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2001: The Scientific Basis, Summary for Policymakers*, January 2001, p. 13, <http://www.ipcc.ch/pub/reports.htm>.
- ¹⁴ *Climate Change Action Plan 2001*, New England Governors/ Eastern Canadian Premiers.
- ¹⁵ Title 35-A, Chapter 21 (PL 1997, c. 316).
- ¹⁶ Final Report of the Commission on Comprehensive Energy Planning, Maine Legislature, May 1992.
- ¹⁷ The Maine Public Utilities Commission has begun to exhibit leadership on energy efficiency programs, pursuant to 2002 legislative action assigning this responsibility to the PUC, and

some state agencies have identified ways to save energy as part of the “Clean Government Initiative,” but the program lacks enforceable targets and accountability.

¹⁸ See New York example, Executive Order No. 111, “Green and Clean” State Buildings and Vehicle Guidelines, Governor George E. Pataki, December 2001, p. 50.

¹⁹ State law enacted in 1991 requires the State, beginning January 1, 2000, to purchase vehicles with an estimated highway mileage rating of at least 45 miles per gallon, and light duty trucks that get 35 mpg (M.S.R.A., Title 5, Part 4, §1812-E). This requirement has not been enforced. On August 23, 2002, Governor King announced that Maine would purchase gasoline-hybrid vehicles when cost effective, and otherwise purchase cars meeting 30 mpg.

²⁰ Commission on Comprehensive Energy Planning, May 1992, p. 3.

²¹ In May 2001, CMP launched a “Real Mainers use air conditioning” campaign, two months before a regional “power watch” was issued for New England urging conservation measures to help avoid the threat of blackouts.

²² Central Maine Power spokesman, David Allen, in February 2001 testimony to the Utilities and Energy Committee said that, from CMP’s perspective, “there is no such thing as a cost-effective electricity conservation program.”

²³ Maine State Planning Office, *Reducing Household Energy Consumption in Maine*, January 15, 2002.

²⁴ Exeter Associates Inc., *The Technical Potential for Electric Energy Conservation in Maine*, Prepared for the State of Maine Office of Public Advocate, September 2002. Not all of this potential is cost effective. A separate study by Optimal Energy, Inc. addresses achievable electrical conservation.

²⁵ Wyman Station generated 1.7 million MWh of electricity in 1998, US EPA Database.

²⁶ 23 M.R.S.A. 73, the Sensible Transportation Policy Act.

²⁷ Passenger rail service returned to Maine in late 2001 after a 30-year hiatus. The Downeaster has broken revenue and ridership projections, with 30,000 passengers in July 2002 alone.

²⁸ The limitation on use of the gasoline tax is the result of Article 9, Section 19, of Maine’s Constitution. This amendment passed in 1944 when highway conditions were vastly different. Other states, including Vermont, have been leaders in using revenue from gasoline taxes for purposes other than building and maintaining roads.

²⁹ Maine’s electricity efficiency program is funded through a small fee (systems benefit charge) per kilowatt-hour of electricity used. Within existing law, the PUC could increase the fee allotted per unit of energy for consumers in service districts other than Central Maine Power’s, which currently is set at the statutory ceiling. The ceiling for Maine’s program is below that of Vermont, Rhode Island, Massachusetts, and Connecticut. Average household electricity use in Maine is 6,000 kWh/year. At the current statutory cap, the systems benefit charge in Maine amounts to about 75 cents/month per household.

³⁰ Public Service of New Hampshire has a program, called the “Energy Rewards RFP Program,” available to large commercial and industrial customers.

³¹ The electricity for households serviced by Central Maine Power and Bangor Hydro-Electric is provided through the standard offer contract with Constellation Power Source Maine, LLC; the electricity provided to households in Maine Public Service Company’s service district is provided by WPS Energy Services.

³² The Union of Concerned Scientists, in July 2002 comments to the Maine PUC, said of Maine’s renewable portfolio standard (RPS) that “we have concluded that Maine’s is the most poorly designed of all RPS policies to date.” PUC Docket No. 2002-300.

³³ Comprehensive Land Use Plan, Land Use Regulation Commission, 1997, p. 61.

³⁴ Oregon and New York (Niagra Mohawk service territory) provide two examples of green power products.

³⁵ The Maine Rivers Study assessed the resources values and management approaches for Maine’s rivers, recluding dams on some rivers and delineating appropriate uses. Final Report, May 1982.

³⁶ *Drilling for Detroit*, a June 2001 report by the Union of Concerned Scientists, shows that fuel efficiency standards could be increased to 40 mpg by 2012 and 55 mpg by 2020, yielding major consumer, economic, and environmental benefits without sacrificing passenger safety. In the face of heavy industry lobbying, Congress in 2002 defeated a proposal to increase fuel efficiency standards.

³⁷ Northeast Energy Efficiency Partnerships, Inc., *Energy Efficiency Standards: A Low-Cost, High Leverage Policy for Northeast States*, Summer 2002, p.9. The products include EnergyStar® rated commercial washing machines, commercial heat pumps, ceiling fans, beverage vending machines, and traffic signals.

³⁸ Bills to adopt these standards have been introduced in the Connecticut and Rhode Island legislatures. Standards for some of these products may be included in national energy policy legislation which was not finalized by Congress before this report went to print.

³⁹ American Council for an Energy-Efficient Economy, *op. cit.*, p.iv.

RESOURCES FOR A CLEAN ENERGY FUTURE

General Consumer Information:

Green Advisor
<http://www.greenadviser.org>

American Council for an Energy-Efficient Economy (ACEEE)
1001 Connecticut Avenue, NW Suite 801
Washington, DC 20036
Phone: (202) 429-8873
Website: <http://www.aceee.org/consumerguide>

Consortium for Energy Efficiency
One State Street, Suite 1400
Boston, MA 02109-3529
Phone: (617) 589-3949
Website: <http://www.cee1.org>

Consumer Federation of America Foundation
1424 16th Street NW, Suite 604
Washington, DC 20036
Phone: (202) 387-6121
Website: <http://www.buyenergyefficient.org>

Energy Star
Hotline: 1-888-STAR-YES (782-7937)
Website: <http://www.energystar.gov>

Green Home
Phone: (415) 282-6400
Website: <http://www.greenhome.com>

Consumer Advice to Reduce Climate Change:

Safe Climate
World Resources Institute
10 G Street, NE
Washington, DC 20002
Phone: (202) 729-7660
Website: <http://www.safeclimate.net>

Advice on Purchasing a Clean Car:

Natural Resources Council of Maine
3 Wade Street
Augusta, ME 04330
Phone: (207) 622-3101
800#: 1-800-287-2345
<http://www.maineenvironment.org/hybrid>

ACEEE Environmental Guide to Cars and Trucks
<http://www.greencars.com>

U.S. Department of Energy Fuel Economy Guide
<http://www.fueleconomy.gov>

Information About Environmental Impacts of Electricity:

Power Scorecard of Electricity Products
<http://www.powerscorecard.org>

Information about Climate Change:

Pew Center on Climate Change
2101 Wilson Blvd., Suite 550
Arlington, VA 22201
<http://www.pewclimate.org>

United Nations
Intergovernmental Panel on Climate Change
<http://www.ipcc.ch>

U.S. Global Change Research Program Office
400 Virginia Ave., SW, Suite 750
Washington, DC 20024
Phone: (202) 488-8630
Website: <http://www.usgcrp.gov>

ENERGY POLICY REPORT CARD

Assessing Maine's Performance

Is Maine on track for a clean energy future? Are our elected leaders working to implement an energy policy that protects the environment and public health, helps avert the risk of climate change, and saves money for Maine people. The three organizations involved with this report will be monitoring progress and will issue a report card on a regular basis. We also ask you to contact the Governor and your elected officials directly and ask them to answer these questions, so that you may assess progress yourself.

	Yes	No
Establish State Leadership		
1. Is the Governor providing leadership on energy issues through personal involvement, staffing, resources and administrative actions?	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the State leading by example with a plan to reduce energy use 25% by 2010? Purchasing energy efficient vehicles and products? Creating an Energy Manager position? And ensuring that state-finance construction projects meet high energy efficiency standards?	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the State coordinating its energy policies successfully through the Energy Resources Council? Does this Council have a full-time Executive Director and the resources necessary to succeed?	<input type="checkbox"/>	<input type="checkbox"/>

Increase Energy Efficiency		
1. Does Maine have an effective electricity efficiency program? Has the PUC increased funding within existing law? Has Maine joined with successful regional initiatives? Has the Legislature acted to increase program funding?	<input type="checkbox"/>	<input type="checkbox"/>
2. Is Maine working to reduce gasoline use by promoting hybrid gasoline-electric vehicles? Curbing sprawling patterns of development? And evaluating whether the Maine Constitution should be amended to allow state gas tax funds to be used for alternative modes of transportation?	<input type="checkbox"/>	<input type="checkbox"/>
3. Has Maine improved the energy requirements in its building codes?	<input type="checkbox"/>	<input type="checkbox"/>
4. Has a program of voluntary energy reduction agreements been established to spur efficiency efforts by businesses? Is the State helping to foster a sustainable energy ethic among Maine people?	<input type="checkbox"/>	<input type="checkbox"/>

Expand Renewable Energy		
1. Has Maine developed a renewable energy plan with goals and timelines?	<input type="checkbox"/>	<input type="checkbox"/>
2. Has the Legislature rewritten the Renewable Portfolio Standard so that it actually promotes renewable energy development?	<input type="checkbox"/>	<input type="checkbox"/>
3. Has the Public Utilities Commission created a "green power" option for Maine people?	<input type="checkbox"/>	<input type="checkbox"/>
4. Has the State made a major commitment to purchase renewable energy?	<input type="checkbox"/>	<input type="checkbox"/>
5. Has Maine developed siting guidelines and improved regulations for wind power?	<input type="checkbox"/>	<input type="checkbox"/>

National and Regional Action		
1. Has Maine adopted a plan to reduce greenhouse gas emissions as part of a regional strategy?	<input type="checkbox"/>	<input type="checkbox"/>
2. Are Maine's elected leaders working to regulate old power plants to modern emission standards and defending the Clean Air Act from attacks?	<input type="checkbox"/>	<input type="checkbox"/>
3. Are Maine's elected leaders promoting improved vehicle fuel efficiency standards at the national level, and acting to reduce carbon dioxide emissions for cars sold in the region?	<input type="checkbox"/>	<input type="checkbox"/>
4. Are Maine's elected leaders pressing for improved federal efficiency standards, and implementing state-based standards where Congress has failed to act?	<input type="checkbox"/>	<input type="checkbox"/>

Maine Center for Economic Policy is an independent, nonpartisan research organization. Our mission is to advance public policy solutions to achieve a prosperous, fair and sustainable economy. We analyze state tax and budget options within the context of a Maine economy that generates opportunities for all Maine residents. For additional information, contact us at P.O. Box 437, Augusta, ME 04332; (207) 622-7381; info@mecep.org; www.mecep.org.

Mainewatch Institute is an independent, nonprofit, nonpartisan research and educational organization which identifies, monitors, and analyzes long-term trends and issues affecting Maine's environment and economy. Mainewatch explores issues of economic and environmental sustainability facing Maine and the surrounding region, and offers alternatives and analysis for consideration by public policymakers. For additional information, contact us at P.O. Box 209, Hallowell, ME 04347; (207) 797-4454.

Natural Resources Council of Maine is Maine's leading member-supported environmental watchdog before the Maine Legislature and state agencies, working to ensure that citizens' voices for the environment are heard. Since 1959, the Council's staff of lawyers, policy analysts, organizers and scientists have worked to clean up Maine's lakes and rivers, reduce air pollution, promote sound energy policy, protect Maine's forests, and conserve Maine's special places. For additional information, contact us at: 3 Wade Street, Augusta, ME, 04330, (800) 287-2345; nrcm@nrcm.org; www.maineenvironment.org.



*3 Wade Street,
Augusta, Maine 04330-6351
(207) 622-3101*

Non-Profit Org
U.S. Postage
P A I D
Augusta, ME
Permit No. 249