



# GLOBAL WARMING IN MAINE

*Warning Signs, Winning Solutions*



# WHAT MAINE WILL WE PASS ON TO FUTURE

*Our health, economy, and environment all depend on a healthy climate. Global warming puts all of these at risk. As Maine people witness the effects of global warming across the state, they are saying that now is the time to act. They are calling on the State to adopt some of the many winning solutions – from wind power to cleaner cars – that will protect Maine from the threat of global warming. They want Maine to do its part and they are taking personal actions to do their part.*

- Hotter summers, more smoggy days, more asthma?
- Disappearing beaches, coastal floods, homes and roads washed away?
- Insect infestations that harm our forests and health?
- More droughts that hurt farmers, wells and nature?
- Loss of native tree and wildlife species?
- Less snow, closed ski and snowmobile businesses?

# GENERATIONS?

- More sustainable, renewable power, such as wind, the world's fastest growing energy source?
- More cleaner-burning cars, such as hybrids, that save on gasoline and pollution?
- More competitive businesses using practical, efficient energy technologies?
- More comfortable homes with sensible insulation, heating, lights and appliances that lower bills and pollution?
- Fewer smoggy days, allowing us to breath easier and see Maine's natural beauty?



# GLOBAL WARMING: WARNING SIGNS, WINNING SOLUTIONS

An island-studded rocky coast and sandy beaches that stretch for miles. Brilliantly hued fall forests that yield maple syrup in the spring. A snow-covered winter landscape that beckons skiers, snowmobilers, and winter travelers.

This is the Maine we know and love, but is this the Maine that we will pass on to future generations? Probably not, unless we act now to do our part to address the threat of global warming.

There is broad consensus in the scientific community that global warming is occurring and that it is largely the result of human actions. Some of the effects are already easy to see in Maine.

Maple sap is running a week earlier than it did 50 years ago because our winters aren't as cold. Maine's beaches and coastlines are changing because the sea level has risen four inches in the last century. The ice on Moosehead Lake is breaking up five days earlier, on average, than it did 100 years ago. Over the last century, the average temperature in Lewiston has increased 3.4°F. Also, precipitation has decreased by as much as 20 percent throughout much of the state.

The effects of global warming are expected to get worse until we do something to stop it. People are causing global warming, but we also have the power to undo it by using energy more efficiently, driving cleaner burning vehicles, and developing new sources of clean, renewable power to reduce the burning of oil, coal and gas.

In 2003, Maine enacted a law establishing ambitious goals to reduce our state's contribution to the threat of global warming. Opinion polls show Mainers strongly support the actions necessary to implement this law. Now is the time for us to join together to do our part as businesses, communities, and citizens who share a common goal – to pass on to future generations a Maine much like the one we have the privilege of experiencing today.



*Global warming is caused by a blanket of pollution that traps heat around the Earth. This pollution comes from our cars, power plants, factories and homes, when we burn fossil fuels such as oil, coal and gas.*

# WARNING SIGNS IN MAINE

*The warning signs that Maine is being changed by global warming are all around us. The changes may seem small. They may seem incremental. But little by little, over time, the natural world around us may be altered in major and unwelcome ways. If global warming is left unchecked, scientists predict that the climate of Boston could become more like that of Atlanta, Georgia by the year 2100.*

## ■ Heat Waves

Over the last 100 years, the average temperature in Lewiston has increased 3.4 degrees F.

## ■ Droughts for Farmers, Dry Wells

Since 1900, precipitation has decreased 20% in many parts of Maine. In 2002, many wells around the state ran dry.

## ■ Smog & Asthma

More summer heat waves mean more ozone smog, which hurts our lungs and causes asthma.

## ■ Coastal Flooding

Rockland's sea level is expected to rise 14 inches by 2100. Sea level rise washes away homes, businesses and roads.

## ■ Less Maple Syrup

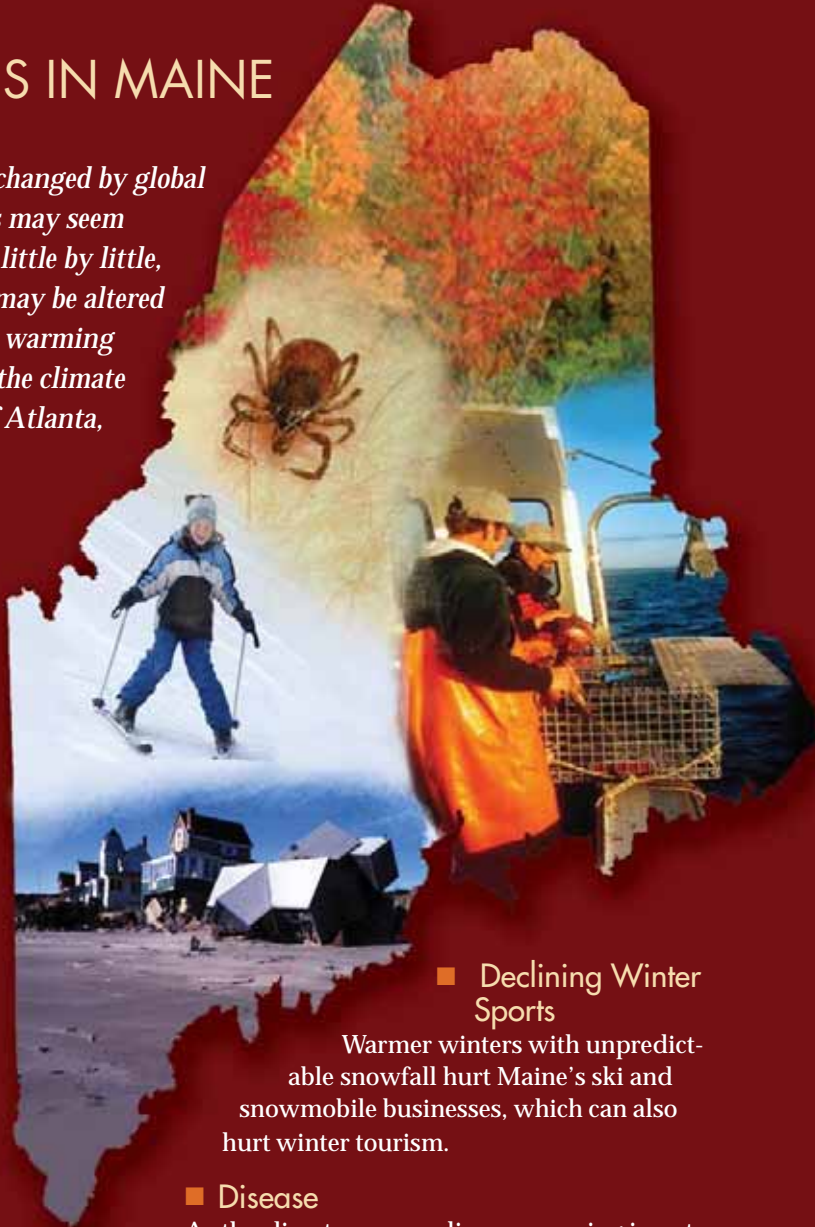
A different climate could change our forests and reduce the number of sugar maples, bringing duller fall foliage and less maple syrup.

## ■ Declining Winter Sports

Warmer winters with unpredictable snowfall hurt Maine's ski and snowmobile businesses, which can also hurt winter tourism.

## ■ Disease

As the climate warms, disease-carrying insects such as deer ticks that carry Lyme disease are spreading further into Maine.



# WARNING SIGNS AROUND THE WORLD

*Signs of global warming are emerging around the world. The body of scientific evidence is compelling. Impacts are becoming serious and people, businesses and nations are responding. The United States Government, however, has failed to show the leadership needed to help protect our planet from the threat of global warming. Now is the time to act.*

## ■ Heat Waves

Summer 2003 brought Europe its most serious heat wave in 500 years, leaving more than 19,000 people dead.

## ■ Historic Concentrations of Pollution

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

## ■ Species Extinction

If global warming persists at its current pace, scientists predict that more than 1,000,000 species of plants and animals may become extinct within the next 50 years.

## ■ Shrinking Glaciers

Glaciers around the world are melting, with up to 50% reduction in the size of glaciers in the European Alps, Mt. Kenya, Mt Kilimanjaro, and Alaska.

## ■ Disappearing Islands

Small islands in the Pacific Ocean may disappear as global warming causes sea level rise. The most vulnerable countries are Tuvalu and Kiribati, where their government and people could be forced to evacuate their homes and villages completely.

## ■ Abrupt Climate Change

Scientists have concluded that the pumping of global warming pollution into the atmosphere is increasing the likelihood of sudden and drastic upheavals in the climate on a scale that could cause widespread drought or plunge portions of the Earth into a deep freeze.



# WARNING SIGNS

*You don't have to be a scientist or weather forecaster to know that global warming is changing Maine. Regular Mainers across the state are seeing that global warming is affecting their health, their income, and their environment. They are worried about our future and they support common-sense actions that will reduce the threat.*

## ■ Decline of Sugar Maples

I know my granddad made syrup commercially in the 60s and early 70s and they always planned on making syrup around the 12th or 15th of March. We're probably a week earlier. Is that due to global warming? That concerns me. I'm a firm believer in wind power. We've got to make electricity clean.

— **Rodney Hall**

Hall Farms Maple Products  
East Dixfield





## ■ Smog and Asthma

There seem to be more bad air days now than there used to be. My son Michael and I both have asthma. Global warming means warmer summers, which means more bad air days when we are stuck inside. People who have asthma are like canaries in the mines in measuring air quality. We are just the ones that are more sensitive, but bad air days affect everybody's health. Everybody should not have to have bad lung health before we clean up old power plants and move to renewable power resources to protect everybody's health.

— Michelle Caliandro, *South Gardiner*



## ■ Droughts

We grow about 10 acres of potatoes. We're always wondering what the weather is going to be. It seems to me summers have been dry for the last two or three years. This last year it rained but it rained at the wrong time... before we could get completely harvested. I wonder sometimes what's going on. Global warming is obviously a problem whose time has come.

— **Jim Cook**

Skylandia Organic Farms,  
Aroostook County



*Potato farms, such as this one in Houlton, will rely increasingly on irrigation as global warming kicks in.*



## ■ Beach Erosion



I've been living here at Higgins Beach, off and on, for almost 60 years. There is virtually no longer a beach at Higgins at high tide. That was never the case before. With global warming, I'm worried about the next 10 inches of sea-level rise. It's not going to take that much to be a major problem. It is obvious to me that we need to be more proactive with programs to address this issue, perhaps with cleaner burning fuels or driving cars that pollute less.



— Steve Seabury, Higgins Beach

## ■ More Lyme Disease



I think the warming trend is kind of ominous. The ticks were never here 20 years ago. I never had to worry about that. Now they're heavily established. Some places are just loaded. I've been treated for Lyme disease already. Personally, I think we're making a huge mistake by waiting until the problem is so obvious. I'd like to see government act now before the problems from global warming spin out of control.

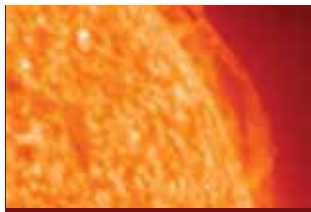
— **Harry Dwyer**, Ghost Dancer Forestry, *Fayette*

## ■ Fewer Lobsters

Changes in bottom temperature can have big changes in lobster behavior. If female lobsters don't get sufficiently cold bottom temperature for a period of weeks in the winter, then they won't produce young. Ultimately, you'd have fewer lobsters. Global warming can affect the lobsters, the diseases that they're subject to, and their vulnerability to them.

— **Diane Cowan**, Lobster Biologist  
The Lobster Conservancy, *Friendship*





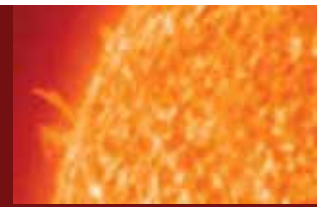
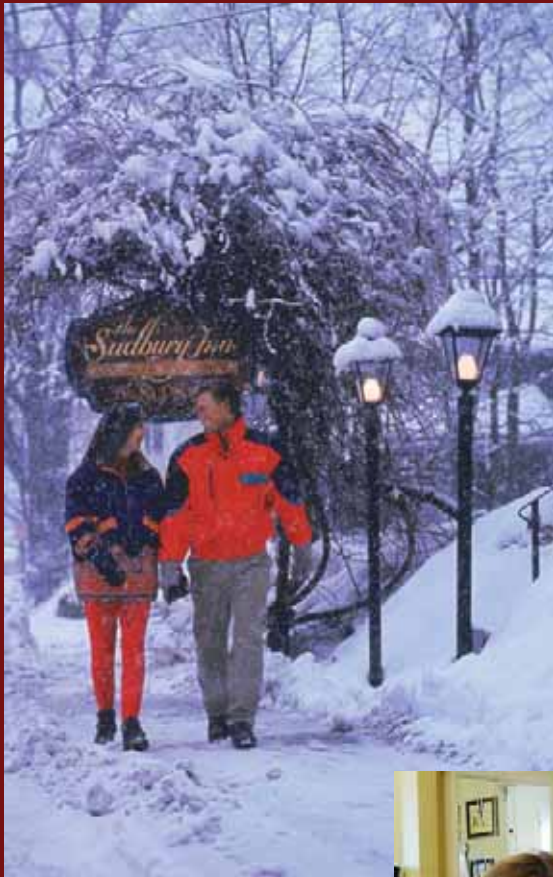
## ■ Shorter Ski Seasons

It seems like we don't get nearly as much snow as we used to. I remember all the forts we used to make – it's been years since we've seen that kind of snow. Even if we can make snow, if people don't see it in their backyards, they don't think of skiing. Global warming definitely means we don't have money in our pocket. When you run a business like this, you are totally affected by it.

— **Connie King**, Operator of Lost Valley ski area, *Auburn*



## ■ Tourism Impacts



Sixty-five percent of our business is probably connected to skiing and foliage. If the climate changes to a degree where even making snow wasn't possible, we'd certainly have to rethink what we did have to offer here. I'd like to see Maine be a little more proactive in leading the way and being more responsible with emissions.

— Nancy White, The Sudbury Inn, *Bethel*



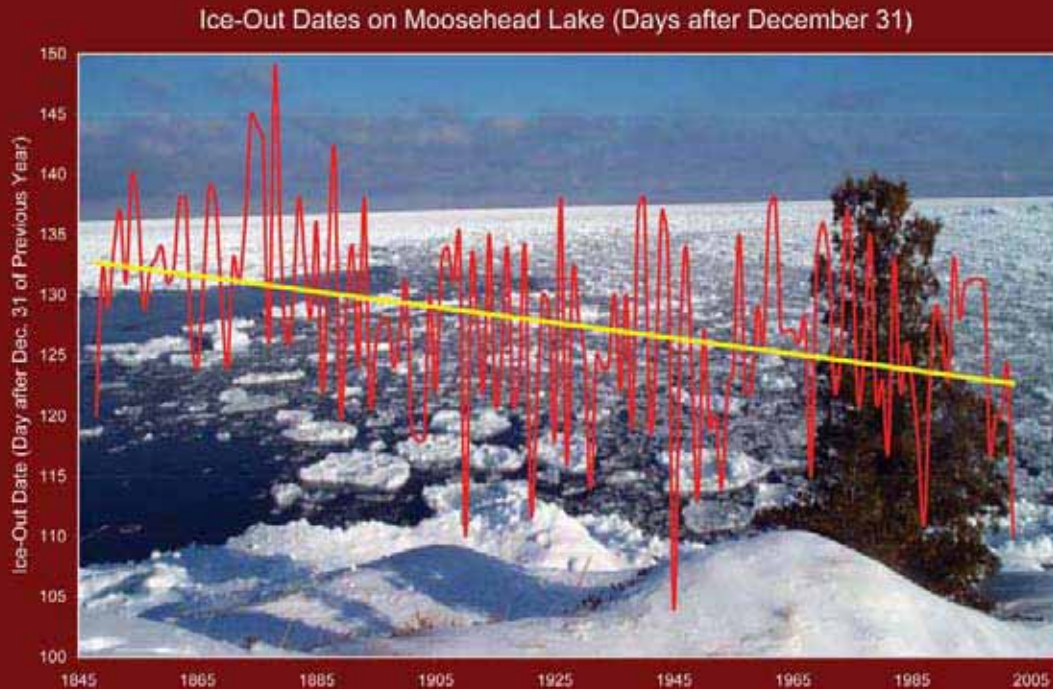


## ■ Earlier Ice Out

We've been here for 22 years and it seems like it used to be by the end of December, there was a significant amount of ice out here. In recent years, it typically doesn't freeze completely until the middle of January. Based on what I've seen there probably is some global warming. I've also seen more volatile weather patterns, more abrupt changes.



— **Roger Currier**, Currier's Flying Service, *Greenville*







*As Maine's climate warms, forest parasites like balsam woolly adelgid can thrive and destroy forests like this one in Texas.*



## ■ Unhealthy Forests

We are seeing impacts on the forest related to climate. The fact of the matter is we seem to be having historically warm winters. There's tremendous concern about what it might mean for different pests. Balsam Woolly Adelgid has traditionally only been a problem on the coast. Now we are seeing it further inland, killing trees. The populations may be building up because of warmer winters.

— **Dave Struble**  
Maine Forest Service, *Augusta*





## WINNING SOLUTIONS

*Global warming is changing Maine. Human actions have caused these changes and human action can undo them. There are many ways that we can help stop the damage that is being done to our climate. In the end, global warming can only be undone through individual, state, national and global efforts.*

### ■ Efficient Appliances

Adopt state energy efficiency standards for appliances that do not currently have federal standards.

### ■ Energy Efficient Buildings

Establish new building codes and incentives that improve the energy efficiency of Maine buildings.

### ■ Cleaner Cars

Adopt rules that limit the amount of global warming pollution that can be made by new cars sold in the state.

### ■ Renewable Energy

Generate at least five percent of Maine's electricity needs from wind power by 2010, 10 percent by 2020 and create financial incentives for individuals and businesses to install solar panels and other renewable energy sources.

### ■ Cleaner Power Plants

Limit the amount of global warming pollution that power plants can emit each year.

### ■ State Leadership

Ask the state to pass laws to require the measures listed above and to set a good example by using efficient vehicles, buying renewable energy, and conserving more electricity.

### ■ Federal Action

Demand federal legislation to curb global warming through rigorous pollution reduction goals, efficient cars and technologies, and clean renewable energy.



## ■ Driving for Change

Jan Wilk is worried about global warming in Maine. Partially because her son has asthma, and partially because she has noticed significant changes in winter weather since she moved to Maine 24 years ago.

Those concerns made Jan wonder what she could do to reduce the amount of global warming pollution produced in Maine. Knowing that most of the pollution in Maine comes from vehicles, Jan considered how she could cut down on the car exhaust that her family creates.

“When we lived in Portland, I roller-bladed and walked to everything,” she says. “But now we live about 45 minutes outside of Portland and there’s no public transportation. We can’t really walk to anything.”

So in 2001, Jan and her husband Peter decided to buy a Toyota Prius hybrid. She says the car is comfortable and drives well, but most importantly, it gets up to 52 miles per gallon of gas. The hybrid gasoline and electric motor mean that for every mile in a hybrid, Jan is emitting much less global warming pollution than she did in her previous car.

“Obviously automobiles are a major source of pollution and affect global warming,” says Jan. “Driving the hybrid is a small way we are doing our part.”

Jan and her family liked the Prius so much that in 2003, when it came time to replace their second car, they bought another Prius.

“We are a two hybrid family,” says Jan. “I can’t imagine ever driving anything else.”



*Jan Wilk (pictured here with her son Taylor) liked her first hybrid gasoline-electric car so well, that she and her husband Peter are now a two hybrid car family.*





## ■ Shifting to Wind

For Ray Mersereau, wind power seems like a “no brainer.” He’s concerned about global warming. He’s concerned about air pollution caused by power plants. And he’s concerned about the oil we import from overseas. “Wind power could help address all of these issues,” says Ray, a long-time Aroostook County resident and Town Manager for the town of Mars Hill.

“Global warming is really going to hit our grandchildren,” says Ray. “If you have a concern for the next generation, you know that we have to do something to address the issue.”

Half of the electrical power in New England currently comes from fossil fuels. Coal and oil-fired power plants are leading sources of global warming emissions. These plants also threaten our health and environment with mercury, acid rain and smog.



*Ray Mersereau*

It would take 300,000 55-gallon barrels of oil each year to produce as much energy as a 50-megawatt wind project. “I’ve been around potato barrels all my life, and they are about the same size as an oil drum. So for me, the idea of replacing that many barrels of oil every year means a lot. It’s the equivalent of an entire oil tanker.”

“Instead of sending our money to Saudi Arabia, we could be exporting clean power to people in other states. It seems like common sense economics.”

Ray believes we must address the global warming issue by “doing what we can do now. The new technology now available opens up a whole new door for electricity generation. I feel that the potential for wind power in Aroostook County and Washington County is fantastic.”



## ■ Growing Green Industries

Much of Maine's global warming pollution comes from industrial sources like factories and mills. One business in Maine is leading the way in reducing pollution.

Interface Fabrics Group's Guilford mill makes commercial fabrics and textiles. In a traditionally high-impact industry that uses lots of energy, the company's mission is to make high quality fabrics, without causing unnecessary environmental harm.

Wendy Porter is in charge of minimizing the company's impact on the environment.

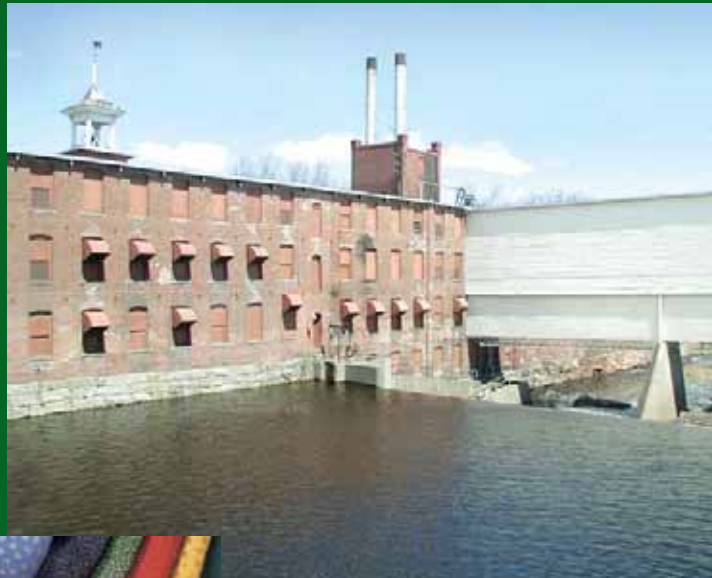
"We have built our company around the notion that you can do well while doing good," says Wendy. "We are trying to demonstrate that you can be financially *and* environmentally sustainable."

Interface Fabrics has worked in various ways to cut down on their global warming pollution.

"We installed energy efficient lights, and bought efficient motors and air compressors," says Wendy.

"Energy conservation in-and-of-itself saves you money without question," says Wendy. "Some of the money we save goes into buying green power."

In New England, the company is already buying 58% of their energy needs from renewable sources that emit less pollution. They also buy 'green tags' which invest money in new wind power developments in other states, and in Maine.



*Interface Fabrics has saved \$29 million in its facilities, while reducing thousands of tons of global warming pollution, by using more environmentally-friendly equipment and processes.*



## ■ Greening an Old House

When Cyndie Beneski and her husband Brian bought their Gardiner home, they had no idea what they were getting into.

“It’s an old farmhouse,” says Cyndie. “We moved in during the spring, and when winter hit our heating bill went through the roof.”

The house is heated with an oil furnace, and Cyndie knew that burning so much oil was expensive and meant they were emitting a lot of global warming pollution. So in 2001, she had an energy audit on her house.

For \$150, an energy auditor came in and spent four hours examining the house from basement to roof pitch. A couple of weeks later she received a 20-page report with a list of things they could do to make the house more efficient.

“It was about ten things in order of importance,” says Cyndie. “He estimated that it would cost about \$3,000 dollars to get the most important stuff done.”

Over the next few months, Cyndie and Brian put more insulation in their attic and basement. They immediately noticed a difference.

“It was the summer and we noticed it was actually cooler in the house,” says Cyndie. “Then winter came and we really saw the benefits.”

Cyndie’s yearly oil use dropped by 114 gallons, and her propane use dropped by 96 gallons. Her house is more cozy, and is responsible for much less global warming pollution.

“Global warming is my number one concern,” says Cyndie. “This is just one small thing that we could do about it.”



*Cyndie’s husband Brian and daughter Sam show off one of the dozens of compact fluorescent light bulbs they have installed throughout their home*

## ■ Low Emissions From the Ground Up

Guy Marsden says he wanted to try solar heating for years before he bought his Woolwich home in 2001. He was concerned about global warming, and wanted to leave as small a footprint on the environment as possible.

Guy chose his new home, partially because of a 15-year-old barn on the property that he wanted to convert into an art and woodworking studio.

“It was a raw concrete floor, bare studs and siding when we started,” says Guy. “I completely finished it out.”

Because solar technology has become affordable and practical in recent years, Guy decided to put in a solar heating system.

He put in solar hot water panels on a pitched roof, and laid tubing under a new concrete floor. The sun heats the water, which heats the concrete, which heats the barn. Guy also super-insulated the building and added back-up propane heating.

“The renovations probably cost about \$15,000,” he says. “I keep the barn at 70 degrees in the winter; it wasn’t even heatable before. I like to be a frontrunner in the demonstration and use of renewable energy and to help reduce global warming.”



*Guy Marsden*

*Buildings consume 38% of the energy used  
in the nation each year.*



## ■ Clearing the Air with Cleaner Cars

When Sue Jones looks at a car, she thinks about its emissions – the nitrogen, hydrocarbons and sulfur that contribute to ozone smog, and carbon dioxide responsible for global warming. As the Natural Resources Council of Maine’s Clean Energy Project Director, Sue spends her days advocating for policies and technologies to reduce air pollution and curb global warming. And for her, cars are a key target.



*Sue Jones*

“We love our cars and depend on them for our daily needs. But we don’t have to accept the mediocre gasoline efficiency of most of our cars and trucks, and the continued high levels of pollution coming from vehicle tailpipes,” says Sue. “We can reduce the amount of pollution from our vehicles without increasing costs or affecting vehicle safety or performance.”

Cars and trucks are the largest source of global warming pollution in Maine. Since 1996, Maine has adopted low emission vehicle standards to help reduce ozone smog. “What we need to do next,” says Sue, “is to adopt standards that will reduce the carbon dioxide from cars to help reduce global warming pollution.”

Global warming pollution from vehicles could be reduced by 30 percent using existing technologies such as improved transmission systems, better aerodynamic designs, and smoother-rolling tires that are as safe but more efficient than most tires. Hybrid cars, for example, create less pollution and get better gas mileage by recapturing wasted energy.

“The technologies are clearly there. What is missing is the political will,” says Sue. “American car companies are fighting against global warming emission reductions, just as they fought against unleaded gasoline, airbags and catalytic converters.”

“We need cleaner-burning vehicles that reduce global warming and our dependence on foreign oil, while saving Mainers millions of dollars on fuel each year. That’s what I think about when I get into a car. And that’s what we should work to make happen in Maine,” says Sue.



## ■ Winning Solutions for Maine

Global warming challenges us to think differently about our future. It requires us to think about our responsibility to future generations, and to the natural world. Our impacts on the earth have now reached global proportions, with signs of a warming planet showing up around world, and across Maine.

Fortunately, there are winning solutions that can dramatically reduce global warming pollution, save energy, and reduce our reliance on foreign oil. Maine people have a tradition of a can-do attitude and Yankee ingenuity. Maine also has a long tradition of environmental stewardship. We have worked hard to reduce industrial pollution in our rivers. We have eliminated many sources of toxic chemicals. We have established recycling programs, a bottle bill, and land use policies that help protect our natural resources. Now we must do our part to reduce the global warming pollution that could literally change life as we know it in Maine.

Our request is simple: As you experience Maine's natural beauty; as you cherish a walk in the woods, a day on the beach, or a wide-open mountain vista; think about the importance of passing this Maine on to future generations, and make a commitment to be part of the solution to global warming. Please remember the concerns expressed by the Maine people in this publication, and join us in advocating for cleaner energy, more efficient cars and trucks, and policies at the state and national levels that will reduce the threat of global warming.





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## ■ Another Winning Solution



### **Help Stop Global Warming by Joining the Natural Resources Council of Maine!**

You can do your part to help stop global warming by taking simple actions to reduce energy use and pollution from your home, your car and your business.

**You can also support the Natural Resources Council by becoming a member,** or joining the **NRCM Action Network** to receive timely action alerts, legislative reports, and invitations to events. Join with the 8,000 households leading Maine's efforts to help stop global warming – by promoting energy efficiency and wind power, and cleaning up the pollution from coal- and oil-fired power plants.

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