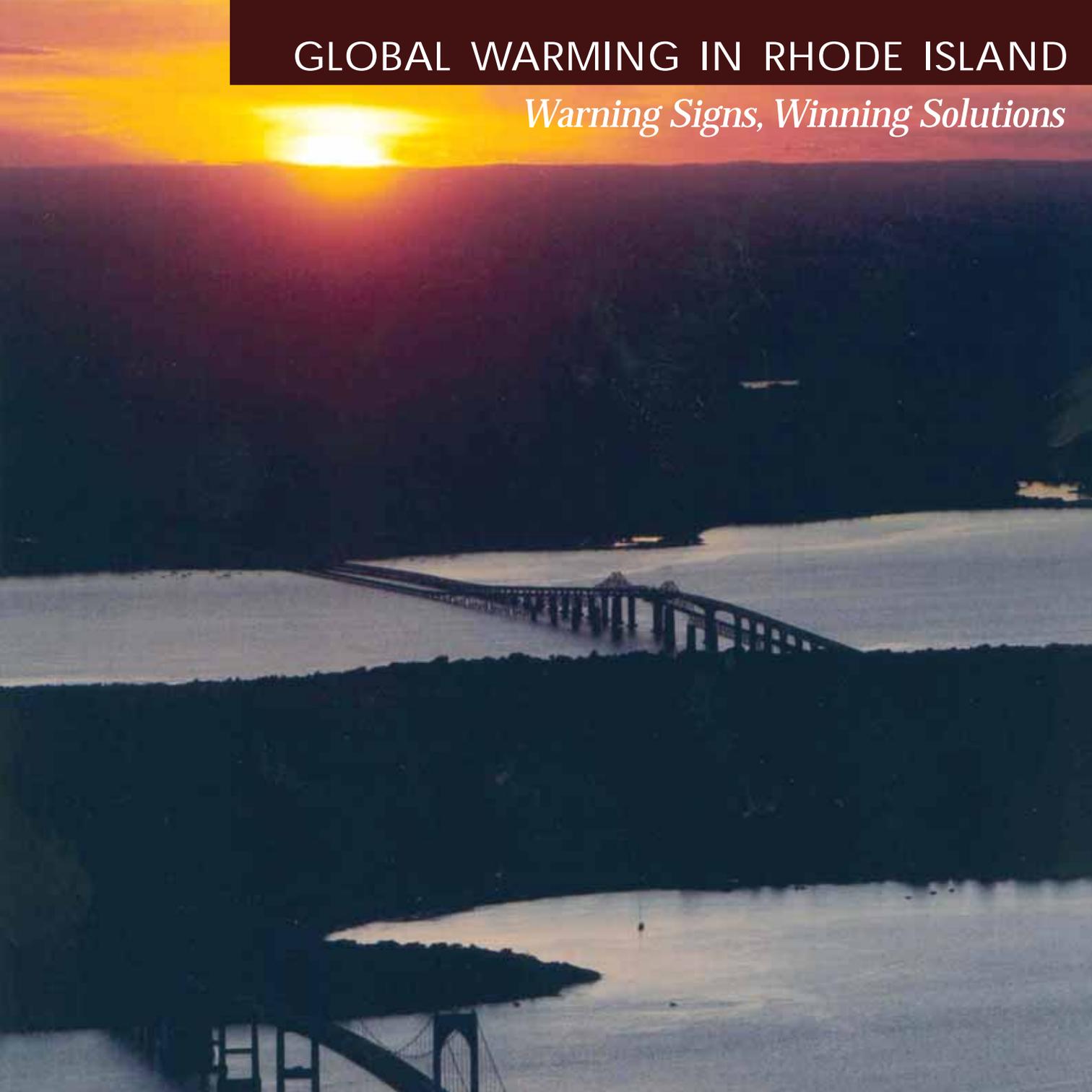


GLOBAL WARMING IN RHODE ISLAND

Warning Signs, Winning Solutions



WHAT RHODE ISLAND WILL WE PASS TO FUTURE

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

Will we pass on —

- Hotter summers, greater threats of drought?
- More smoggy days, more asthma?
- Disappearing beaches and loss of shoreline property?
- Increased threats of West Nile Virus, EEE and Lyme Disease?
- Loss of maples and their bright autumn colors?

GENERATIONS?

Or —

- More sustainable, renewable power?
- Cleaner-burning cars that conserve gasoline and prevent air pollution?
- More competitive businesses producing practical, energy-efficient technologies?
- More comfortable homes with lower energy bills & efficient insulation, heating, lighting and appliances?
- More healthy air to breathe easier and to see more clearly Rhode Island's beauty?



WARNING SIGNS AND WINNING SOLUTIONS

A brilliant and productive bay that yields to forested hills and rivers is the Rhode Island we love. Our vibrant communities entice sailors, support fishing people, and exude history. Our schools and universities bring talent from around the world. People who work in health, large and small businesses, tourism, agriculture, and manufacturing enjoy the excellent quality of life here.

This is the Rhode Island we know and love, but is this the Rhode Island that we will pass on to future generations? No... unless we act now to address global warming.

A report from the U. S. Geological Survey says that spring melt in New England now occurs 2 weeks earlier than 50 years ago. Weather records show that average temperatures have warmed over the last 100 years. Carbon dioxide, the primary blanketing greenhouse gas, has increased over the last 180 years. The connection between the gases emitted by our cars, furnaces, and electric generators and the blanket effect that over-heats the earth has been confirmed.

The number of smog days in Rhode Island exceeds the law and is unhealthy. Smog comes from a combination of high temperatures and air pollution. Safe days for outdoor skating and ice-fishing have declined. Rain patterns are shifting, and the demand for water for outdoor watering is challenging our water supply capacity.

We can do our share to reduce the effects of global warming by driving more efficient cars, buying more efficient gadgets and appliances, making our homes and buildings more energy-secure.



Global warming is caused by a blanket of pollution that traps heat around the Earth. This pollution comes from our cars, trucks, power plants, businesses and homes when we burn coal, oil, gas, wood, diesel and gasoline.

WARNING SIGNS IN RHODE ISLAND

The warning signs that Rhode Island is being changed by global warming may seem small, but they are incremental. Little by little, over time, the natural world, the world we live in, will be changed if we continue on our present rate of burning coal, oil, gas, wood, diesel and gasoline. 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. This would bring some unwelcome changes.

■ Longer heat waves

The average temperature in Providence in summer has increased 3.3 degrees F. over the last 100 years. The number of very hot days is expected to increase in the future.

■ Water Shortage

35% of Rhode Island's people depend on wells for drinking water. Agriculture needs water for sustaining locally produced corn, vegetables, milk and eggs. Nurseries of ornamental trees and shrubs require water. Hotter days will demand more water.

■ Coastal flooding

U. S. EPA says the height of the ocean is expected to rise 1 to 12 inches in Rhode Island in the next 50 years. Stronger storms will wash away beaches, roads, and homes.

■ Impacts to Fish & Shellfish

Diseases that affect oysters, scallops, and quahogs will increase in warmer waters, which will also cut spawning of winter flounder. With fewer flounder to eat their eggs, more crabs will further reduce the numbers of scallops and quahogs.

■ Diseases

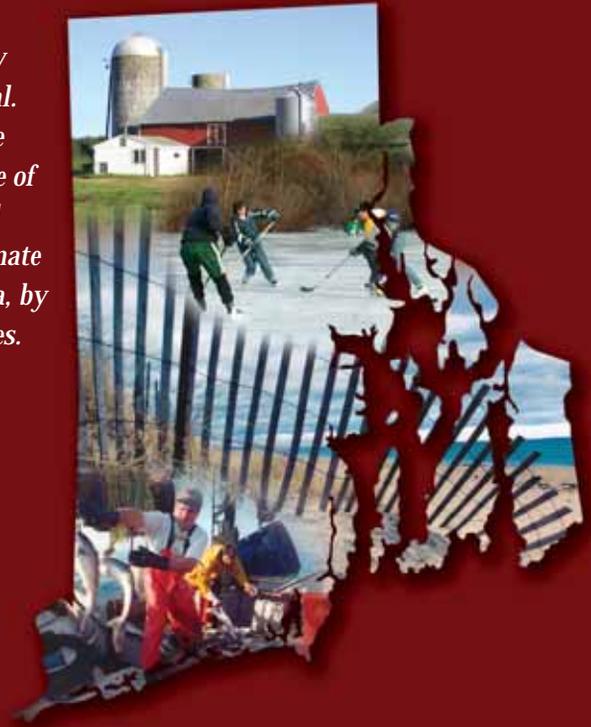
Mosquitoes and ticks will have longer periods of pooling bacteria and viruses that cause Lyme disease, Eastern Equine Encephalitis, and West Nile virus.

■ Declining winter sports

Ice-fishing, local skiing, and outdoor skating will decline as temperatures become warmer.

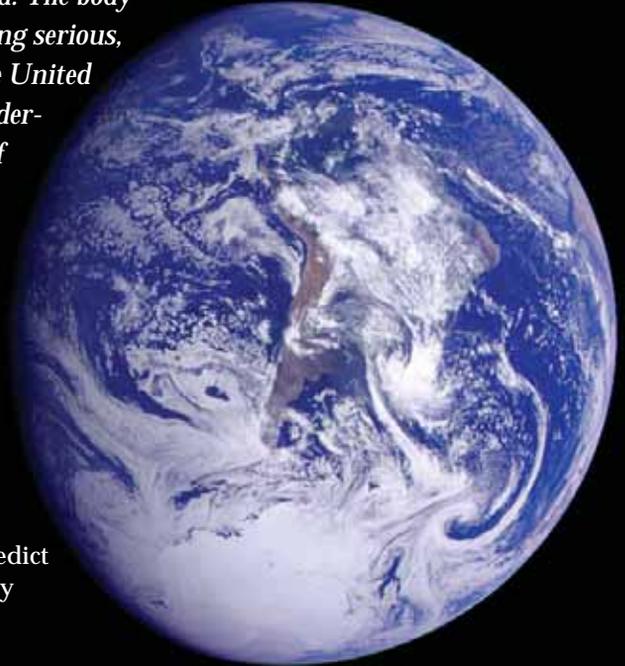
■ Increased Smog

Ozone and other pollutants harm the lungs and heart and trigger asthma. Air pollutants also damage the growth of trees in our forests.



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 pumping 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 while other regions overheat.

WARNING SIGNS

■ Water Shortages

If global warming brings hotter, drier summers, I worry about the increased demand for water that will bring. We could experience prolonged periods of drought and will need more water to keep our lawns and gardens green. Increased consumer water use will compete with the

needs of farmers, who will require more water to grow the fresh vegetables and fruits we love. Or, if we have stronger storms, will our local apple and corn harvests suffer?

— **Marion Gold**, *Director*

URI Cooperative Extension
Education Center

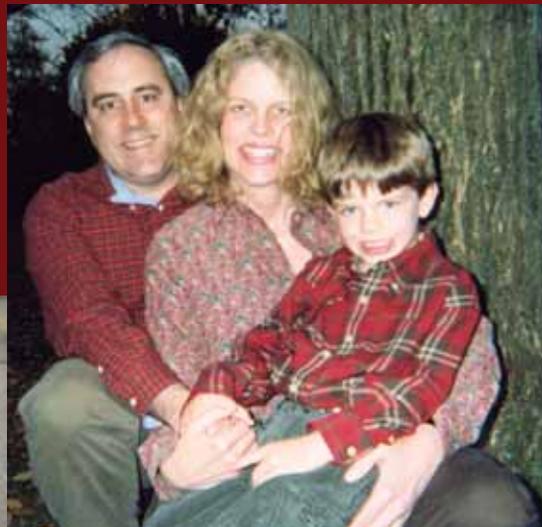


■ Smog and Asthma

There seem to be more and more bad air days now. My six-year old son Sidney and I both have asthma. Global warming means warmer summers, which means more bad days when we are stuck inside. That means for half the summer it's like we are living in a bubble stuck in our home. Any time that we need to go out we have to use our inhalers because the thick air just takes our breath away. No one should have to dread going outside, or worse, dread taking their son out on a warm, sunny, summer day. We are just the ones that are more sensitive, but bad air days affect everybody's health. We should not have to wait until everyone has lung damage and lung disease before we clean up these old, dirty power plants and move to renewable energy sources to protect everyone's health.

— **Linda and James Davis**
with son **Sidney**

Providence, Rhode Island



*Sidney using his inhaler
on a "bad air day".*



■ More Insect Borne Disease

Ticks and mosquitoes are a serious concern in Rhode Island. Lyme Disease, West Nile Virus, and Eastern Equine Encephalitis put a cloud over our summers, and if temperatures are warmer longer in the fall due to global warming, these insects will be active longer, extending the threat of disease. I've been treated for Lyme disease already and it's debilitating. Lost work and poor health are not good for Rhode Island.

— **Kathryn Hopkins**

Cranston



■ Disappearing Beaches



Winter storms and summer hurricanes seem to be getting stronger, as predicted under global warming. We've been coming to our cottage at Roy Carpenter's Beach since 1980. In this period of time, the dune at the edge of the beach – 6' feet high – has been obliterated. A wooden bulkhead built to replace the dune has been exposed by the ongoing erosion. Every year the manager must bring in sand to keep the beach near us accessible. I'm worried that Carpenter's Beach, South Kingstown Town Beach and its boardwalk, and the places we love in the summer won't be here for my grandchildren and their children.

— **Frances and Peter Marcuse**
South Kingstown

■ Lost Winter Recreation

It seems like the ponds don't freeze nearly as much as they used to. As a child, I skated on the ponds almost daily in the winter. It's where I learned to love hockey, as did many of the players my father coached.

The game *has* changed since we've moved it indoors. As Steve Hardy said, "Some of the greatest players in hockey history learned the game on the ponds. That isn't as easy to develop in 50 minutes of ice time [in artificial rinks] . . . Have we killed the development of hockey players? No.

But maybe it's a different kind of hockey player that we've developed, someone who may not have that love of the game in the same way as the pond hockey player did."¹ Global warming will obviously continue to change the essence of hockey as well as other outdoor winter sports in Rhode Island and that's unfortunate.

— **William Eccelston** (*above*), Burrillville Middle School English teacher and son of legendary Rhode Island hockey coach Tom Eccleston





■ Unhealthy Forests

Global warming is impacting our Rhode Island forests now. Some pests and pathogens have moved north as a result of warmer temperatures and are impacting forest health. As an example, Black and Red Turpentine Beetle that was once largely a problem for our southern states is now found throughout Rhode Island. The first specimens in Rhode Island were found over 20 years ago but today the pest is quite common. It's ironic too, because at the same time these pests and pathogens are damaging our forests, we're counting on the trees to help combat global warming pollution. Healthy forests consume vast amounts of carbon dioxide, a main contributor to global warming.

— **Thomas Dupree**, *Chief*

Division of Forest
Environment, RI DEM





WINNING SOLUTIONS

Global warming is changing Rhode Island. Human actions have caused these changes and human actions 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 Rhode Island 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 Rhode Island'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

My car was almost ten years old and still getting close to thirty miles per gallon, but I was determined to make my next car a hybrid vehicle. So I kept her going another three years until I could get the Toyota Prius.

It was well worth the wait! It's a very comfortable car to drive, has a fabulous turning ratio, is much roomier than it looks from the outside, is averaging about forty-five miles per gallon, which significantly reduces its effect on global warming pollution. Now, in addition to bringing my own canvas grocery bags to the store, using cloth diapers rather than disposables, and composting our kitchen scraps, I feel good knowing that I am also minimizing the environmental impact of my car. I want to preserve the world for my daughters and help them make environmental conservation second-nature in their lives.

By the way, while I waited for my car to come in, after hearing me talk about the car's style and benefits, my father decided to buy one for himself and snagged one that became available immediately at a dealership... after checking with me to make sure I didn't want it first, of course! My best friend drives one, too, as does her husband's best friend. In fact, when we all get together, we have our very own mini Prius convention!



Above from left to right: Myron Waldman (my father) holding Eliana Waldmanwerth (my daughter, almost three years' old), me (Sharon Lee Waldman) holding Katrina Waldmanwerth (my other daughter, six months' old), Michael Durette behind me holding Timothy Hutzley, and Timothy's mother, Meimei Tsang. Michael is Meimei's husband, Bob Hutzley's, best friend.



■ Shifting to Clean Energy

For Rhode Island, the Ocean State, global warming is a threat. Many residents live at low elevation close to the shore.

Christopher Warfel, an engineer who lives on Block Island and specializes in energy efficiency and renewable energy, believes the effect of global warming and the associated air pollution could be greatly reduced through increased efforts to adopt these strategies.

“Environmental stewardship is everyone’s responsibility”, says Warfel. “Fundamentally I believe that



Chris Warfel

we must work towards leaving the world a better place. Otherwise with increasing populations and the associated pollution, the world’s ecosystem will collapse, leaving a world unrecognizable from what exists today. There are clear indications that this is already underway.

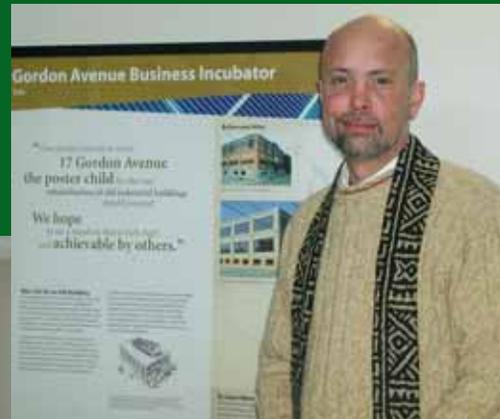
“From residential solar electric systems, to large scale wind, to energy efficient light bulbs, technological advancements have given everyone the ability to do something about global warming. If each homeowner replaced half of their incandescent light bulbs with energy efficiency bulbs, or installed a solar electric or solar hot water system, or switched to green electricity, they would prevent significant amounts of global-warming pollution *and* save energy dollars.

“People should know that their individual actions will have an effect. If they switch to efficiency and renewables, we will have a cleaner, safer, and more sustainable world. Just consider the alternative.”

■ Growing Green Businesses

Much of Rhode Island's global warming pollution comes from the need to heat or cool businesses and offices in our service economy. Many businesses have taken advantage of incentives to go to more efficient heating and cooling or to insulate. 17 Gordon Avenue, a business incubator center, shows the ultimate in combining efficiencies of physical plant and business concept.

The building structure includes plenty of south-facing window space for maximum natural light with appropriate baffles to prevent overheating the space. The roof is a garden to absorb precipitation and to serve as an insulating layer. The HVAC system is highly efficient, and the lights are controlled by an automatic system to dim in ample natural light. Its energy is purchased from green sources. The parking lot is paved with porous asphalt to minimize storm-water run-off. Its proximity to public transportation and facilities for bicycle commuting diminish carbon dioxide production.



*Joseph Newsome, Executive Director
South Providence Development Corp.
developer, 17 Gordon Avenue*



■ Greener Homes

“The Weatherization Program was a blessing for us,” says Mary Capobianco. “Without their help, we’d never have been able to reduce our energy consumption like we have.” Weatherization technicians used a computerized energy audit to determine the most cost-effective weatherization measures to install in the home. The team then added additional insulation to the home, replaced the old

inefficient boiler, installed compact fluorescents throughout the house, installed carbon monoxide and smoke detectors in the basement, and most importantly, took the time to teach Mary about different options for saving energy in and around the home.

Typically, once a home is weatherized, families experience a 25-30% reduction in their energy bills. Reducing energy demand decreases electricity generation and reduces emissions of carbon dioxide and other pollutants. “It gives us a good feeling to know that our home can help the global warming situation in some way. Our home is warm and safe, but more importantly, it’s responsible for much less global warming pollution,” Mary says proudly. “In my own way, I feel like I’m helping leave the earth a better place for my grandchildren.”



Mary's grandchildren help replace inefficient lightbulbs with compact florescents.

“Since the program’s inception in 1977, more than 30,000 Rhode Island homes have been weatherized, saving the equivalent of 68 million gallons of heating oil,” says Ralph Groves, Weatherization Assistance Program Manager at the State Energy Office.

To apply, contact the Community Action Agency in your area to see if you are eligible, or call the RI State Energy Office at 401-222-6920.

■ Low Emissions From the Ground Up

“I started building my house in 1993 with the intention of making it as energy independent and planet friendly as possible. The house is a wood framed, two-story with a full basement, 10½-inch thick outside walls and good southern exposure for passive solar gain. All the lighting and appliances are energy efficient with heat coming from a normal wood stove and a wood pellet stove. From the first day we moved into the house we have used about half the energy of a ‘normal’ house and generated about half the pollution.

“Over the past 12 years I have worked toward the goal of energy independence, adding a solar electric system and solar hot water system to a simple but well insulated house that is heated with wood. In October of 2004 I finally reached my goal of net zero electrical energy use. The 2.5kW solar electric system makes as much electricity as is used in the house, and the solar hot water system makes most of the hot water.

“My current goal is to run my home completely free of using any fossil fuel. I use about 60 gallons of propane per year for cooking and clothes-drying (when I cannot use the clothesline), and I am researching how to replace my propane use with hydrogen or methane produced on site. I am even running my truck on bio-diesel, a fuel made from soybeans.”

— **Dan Cartier**



Solar panels on the property make Dan Cartier's house nearly energy independent.



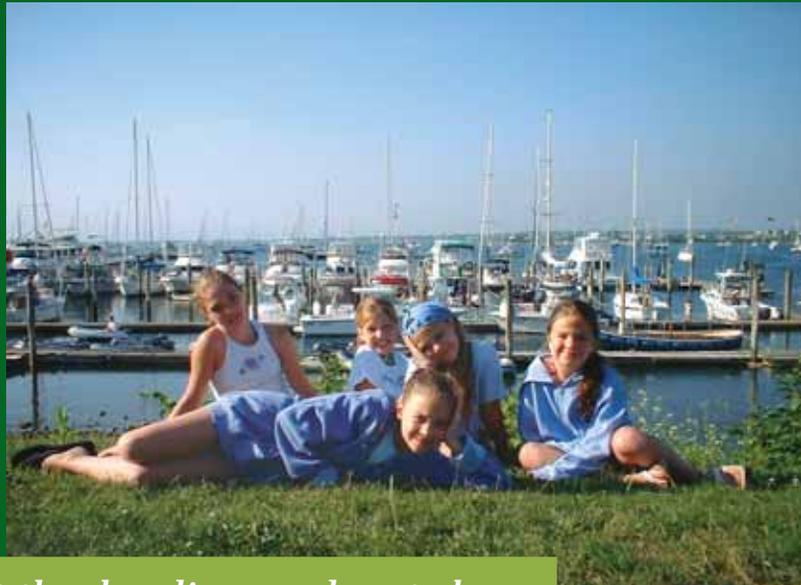
■ Clearing the Air in Rhode Island

- **Greenhouse Gas Action Plan**
Business, government and non-profit interests in RI have forged the Greenhouse Gas Action Plan, strategies for reducing global warming pollutants.
- **Legislation**
The RI General Assembly has passed standards for renewable energy purchasing and continues to craft standards for efficient appliances.
- **Clean Car Campaign**
Cars in RI must meet Low Emissions standards. Local organizations have joined the national effort to promote use of efficient, low-carbon dioxide emitting vehicles.
- **RIPTA**
The Public Transit Authority has retrofitted buses for cleaner combustion, offers bike racks on buses, provides free rides on high pollution days, and promotes car-pooling.
- **Green Start Narragansett Electric**
The state's largest electricity supplier offers a voluntary program for customers to purchase wind, solar and hydro sources of energy.
- **Apeiron Institute for Environmental Living**
Apeiron provides a model dwelling, programs and education at all levels for energy efficient living.
- **Anti-Idling for School Buses**
Environmental groups are working to pass legislation that provides cleaner air for students and less global warming pollution by restricting school-bus idling. Warwick school buses have begun to use only bio-diesel, protecting air quality and saving money on maintenance.



■ Winning Solutions

- Public policies and institutional decisions that lower carbon dioxide emissions from boilers, electric generation, and fleets of vehicles.
- Individual choices for energy efficient appliances, cars, trucks, furnaces, homes, and renewable sources of electricity.
- Well insulated buildings that save money by using less heat in winter and less air conditioning in summer.
- Energy produced by wind, sun, and existing hydropower.
- Efficient motors in boats, lawn mowers, compressors, and refrigerators.
- Your commitment to efficiency at home, at work, and on the road.
- Clean air, ample beaches, adequate forests, and moderate temperatures for future generations.



“I want the shorelines we love to be here for my grandchildren.”



Credits

This publication has been made possible by the generous support of Rhode Island State Energy Office, RI Department of Environmental Management, EarthdayRI, Environment Council of RI, Environment Council Education Fund, and the ADDD Fund of the Rhode Island Foundation.

We thank our sister NWF affiliate, Natural Resources Council of Maine, for permission to use their original materials and layout. And thanks also to Dean Bennett for woodland page corner photo.

We are grateful to Jane Austin of Save the Bay, Matt Auten of RI PIRG, Paul Beaudette of NWF, Terri Bisson of RI DEM, Julie Capobianco of State Energy Office, Sheila Dormody and Greg Gerritt of Environment Council of RI, Art Handy of American Lung Association of RI, Brad Hyson of Apeiron Institute for Environmental Living, Emily Rochon of Clean Water Action, and Eugenia Marks of Audubon Society of RI for producing text, editorial review, and photo selection.

Information in this publication is based on reports from U. S. EPA, U.S. Geological Survey, RI Greenhouse Gas Stakeholders, Associated Press news and personal communication with RI Public Transit Authority, RI Department of Environmental Management, and RI State Energy Office.

Design: **Jill Bock Design**

■ Photo Credits —

Cover – RIDEM/*Providence Journal*; inside cover, ESA/NASA; **p.1** – RI DEM/*Providence Journal*; **p. 3** – RI DEM; **p. 4** – Paul Jordan (map), RI DEM, Matthew Bisson, *Providence Journal*; **p. 5** – NASA/USGS; **p. 6** – RI DEM/*Providence Journal*, Lisa Tewksbury; **p. 7** – Melinda Hopkins, RI DEM; **p. 8** – Michigan Department of Natural Resources, Alec Thibodeau; **p. 9** – Peter Marcuse; **p. 10** – Matthew Bisson, Jonathan Bisson; **p. 11** – Greg Cassidy, Bruce Payton; **p. 12** – Jessica Lavin, Judy Berk; **p. 13** – Sharon Waldman; **p. 14** – RI State Energy Office, Julie Capobianco; **p. 15** – Melinda Hopkins, South Providence Development Corp.; **p. 16** – Julie Capobianco; **p. 17** – Dan Cartier; **p. 18** – Janet Rochon; **p. 19** – Julie Capobianco.

■ Footnote —

p. 10 – ¹ Stephen Hardy, Ph.D., Professor of Sport Studies at the University of New Hampshire in the film *On Frozen Pond: The Tom Eccelston Story*.

■ Another Winning Solution —



Join the Environment Council of Rhode Island

Environment Council of Rhode Island (ECRI) is a coalition of organizations and individuals whose mission is to serve as an effective voice for developing and advocating policies and laws that protect and enhance the environment. ECRI is the designated state affiliate of the National Wildlife Federation (NWF).

Providing a unified voice for the environment and a forum for members, ECRI invites your membership, whose benefits include access to elected officials and their staffs, participation in planning candidate debates and panels, setting agendas for quarterly meetings with DEM, DoH and DoT Directors, monthly meetings for building consensus on key state, local and national issues.

For more information, call (401) 621-8048 or visit our web site, where this booklet appears as a PDF, at www.environmentcouncilri.com. To join, fill out the coupon below.



* I want to add my voice to **Environment Council of Rhode Island** as...

Individual / \$20 annual dues **Organization** / \$45 annual dues

I do not wish to join at this time but I send a donation of \$ _____

Enclosed is a check made payable to ECRI for \$ _____

Name _____

Name of Organization _____

Address _____

City _____ State _____ Zip _____

Phone _____ Email _____

* My primary environmental interest is _____

Please mail to: **ECRI, P. O. Box 9061, Providence, RI 02940**

GLOBAL WARMING

What will you do?



Environment Council of Rhode Island

298 West Exchange Place
Providence, RI 02903

Mailing Address

PO Box 9061, Providence, RI 02940

Tel: 401-621-8048 / Fax: 401-331-5266

email: environmentcouncil@earthlink.net
www.environmentcouncilri.org