A field guide to **Sustainability**
Connecting concepts with action

*Fig. 2. Alcedo or*
Dear Reader,

Washington is rich in natural resources, and people are drawn here because of the outstanding natural beauty. As our population increases, maintaining the quality of our environment has become the defining challenge of our time.

The purpose of this booklet is to convey what sustainability is and why it is important to Washington State. Sustainability uses a new framework of thinking about larger systems to solve problems. It is consensus-based and involves many stakeholders. It recognizes the benefits of buying locally, reducing consumption, finding toxic-free products and using alternative forms of transportation.

Everyone has a role in working towards sustainability, including individuals, businesses, and government agencies. Washington residents and community groups have found many innovative ways to integrate sustainability into their lifestyle. Much as been accomplished and much more needs to be done. We hope you feel as excited as we do about putting sustainable practices into action.

Onwards,

The Sustainability Team

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Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it’s the only thing that ever has.

Margaret Mead
1901-1978
What is Sustainability?

Sustainability is a holistic approach to living and problem solving that addresses social equity, environmental health, and economic prosperity. To be sustainable, the economy must support a high quality of life for all people in a way that protects our health, our limited natural resources, and our environment over the long term.

Many traditional cultures hold this value strongly. The Iroquois and other Native Americans have a tradition to consider each decision by asking:

What impact will this have on the seventh generation?

HISTORY

The consequences of not evaluating the long-term effects of our actions are becoming increasingly evident. Rachel Carson, in her 1962 book *Silent Spring*, first called attention to the impacts on human health of toxic chemical build-up in the environment. Her work raised awareness about the relationships between the environment and society and led to the first Earth Day in 1970.

In the 1980s, the United Nations Commission on Environment and Development produced the Brundtland Report that provided a comprehensive study of global development trends. The Commission acknowledged that we need scientific information to determine if future populations and ecosystems could survive current rates and patterns of consumption.

The Natural Step — a scientifically based framework for sustainable decision making has four System Conditions necessary for creating a sustainable society, environment, and economy.

Key Principles of Sustainability

- **WHOLE-SYSTEMS THINKING**
  The merging of social, environmental, and economic systems.

- **LONG-TERM THINKING**
  Understanding the results of actions over time and preserving choices and opportunities for future generations.

- **RECOGNIZING LIMITS**
  Acknowledging that people, economies, and all life depend on healthy, functioning ecosystems.

- **IMPROVING LIVELIHOODS**
  Raising the quality of life for current and future generations.

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

*Our Common Future, 1989*
*“The Brundtland Report”*
The Natural Step: A Framework for Decision Making

The Natural Step framework strives to move beyond ongoing debate over appropriate levels of risk or potential long-term effects of a product or process. If an activity continually violates the system conditions, it cannot be sustained over the long term.

The Natural Step system conditions are internationally recognized and increasingly used as a compass to guide individuals, businesses, government agencies, and organizations towards sustainability.

THE NATURAL STEP: SYSTEM GUIDELINES

**SYSTEM GOAL 1:**
Fossil fuels, heavy metals and radioactive materials, and other minerals should not be extracted from the earth and accumulate on the surface at a faster rate than their slow redeposit into the Earth’s crust.

**SYSTEM GOAL 2:**
Synthetic substances should not be produced faster than they can be safely used or broken down in nature. For example, dioxins, polychlorinated biphenyls (PCBs) and dichlorodiphenyltrichloroethane (DDT) are persistent, bioaccumulative, and toxic (PBT).

**SYSTEM GOAL 3:**
Eliminate our contribution to the progressive physical degradation of nature and natural processes.

**SYSTEM GOAL 4:**
Eliminate our contribution to conditions that undermine people’s capacity to meet their basic human needs.

Columbia River Carbonates developed an innovative waste water treatment system that recycles treated waste water for use in its production process and for washing down the plant.

Before this conversion, the company treated and discharged more than 14 million gallons of process water into the Columbia River each year.

It now discharges no process waste water, even though its business has increased 50%.
Is Your Decision Sustainable?

Consider the environmental, economic, and community impacts of a decision.

Using the Natural Step Framework, we have created a tool to guide you toward decisions that are sustainable over the long term. The checklist is designed to help you think in new ways about the impacts of a decision.

ENVIRONMENTAL QUALITY AND HUMAN HEALTH

- Use renewable energy.
  Burning fossil fuels such as oil and coal pollutes the air and is the primary contributor to global climate change.

- Choose energy efficient products.
  Increase energy efficiency and save money by using innovative technology, such as driving alternative fuel and fuel-efficient vehicles, constructing buildings that use natural ventilation and solar heat, and sharing waste heat with neighboring facilities that can make use of it.

- Choose non-toxic products.
  Persistent bioaccumulative toxins (PBTs) are chemicals that remain in the environment, accumulate in fatty tissues, concentrate as they move up the food chain, and travel long distances on wind and water currents. Human and wildlife exposure to toxins are linked to cancer, endocrine disruption, and problems with brain development.

- Preserve ecosystems.
  Our environment works as a system, and we rely on it to provide us with many benefits, not just raw materials. For example, forests not only supply timber, they also convert carbon dioxide to oxygen, regulate climate effects, shelter and feed wildlife, store water, and prevent soil erosion.

- Protect habitat.
  Protecting habitat is the most effective way to preserve biological diversity. Washington is losing approximately 30,000 acres of wildlife habitat each year and ranks among states with the fastest development rates. Ecosystem restoration and reduction in building size can improve the quality and quantity of habitat.

- Conserve water.
  The State’s water supply must meet the needs of a growing population, the economy, and wildlife. Innovative ideas and systems that conserve or reclaim water should be encouraged and supported, such as integrated water management processes. Growth should be well-planned, to assure that water resources are wisely used.

- Reduce, Re-Use, and Recycle.
  Our current system of production and consumption of goods starts with extracting raw materials and ends with disposing of used products. This results in resource depletion, pollution, loss of valuable habitat, and waste management problems. Consuming less, and reusing or remanufacturing products can cut waste and the need for disposal.
Support green businesses.
These sectors include businesses such as ecotourism, community supported agriculture, used product exchanges, green technology, and recycled product manufacturing.

Invest in sustainable companies.
Sustainable business practices reduce impact on the environment, give back to the community, ensure worker safety, pay living wages, and provide healthcare benefits.

Adopt sustainable practices at work.
Businesses are increasing their competitiveness in regional, national, and global markets by implementing sustainable practices such as environmentally preferable purchasing and green building. Cost savings from adopting sustainable practices can be used to protect and create jobs.

Buy locally.
Purchasing local goods and services can build and strengthen community, and provide economic and environmental benefits. For example, producing and selling goods locally reduces transportation requirements, thus lowering greenhouse gas emissions and increasing cost savings.

Create local jobs.
Sustainable practices are already supporting thousands of jobs in the Pacific Northwest and can create thousands more.

Create healthy work environments.
Reducing toxic materials in production processes and facilities management creates better working conditions so workers stay healthier, suffer less absenteeism, and are more productive. Choosing products like toxic-free cleaner, and low VOC paint and flooring helps protect human health.

Account for full life-cycle costs.
Projects should proceed only when long-term impacts to human and environmental health, the natural resource base, and society are included.

In Washington, Oregon, and British Columbia, clean energy is currently a $1.4 billion a year industry. Even if government does nothing to support these new businesses, this sector is expected to grow to a total of $2.5 billion a year over the next 20 years and add over 12,000 jobs in the region.

Poised For Profit: How Clean Energy Can Power The Next High-tech Job Surge In The Northwest Climate Solutions, Nov. 2001
The green economy has the power to deliver new sources of work, wealth and health to low-income people—while honoring the Earth. If you can do that, you just wiped out a whole bunch of problems.

Van Jones
2007

SOCIAL AND COMMUNITY WELL-BEING

- **Help develop a community vision.**
  Develop a “long-term vision” to create a picture of what your community wants and needs.

- **Plan for the long-term.**
  To ensure that future generations are able to meet their needs, we need to understand the consequences of our actions beyond immediate short-term benefits.

- **Collaborate with others.**
  Collaboration ensures that the benefits and consequences of an action are addressed. When citizens and organizations are a part of the decision-making process, they are more committed to the results.

- **Address social justice issues in your community.**
  Equitably sharing the benefits and burdens of society is fundamental to a sustainable economy and community.

- **Deal with local problems.**
  Problems need to be dealt with at the source. Otherwise time, money, and creative energy are spent simply moving the problem from one place to another.

- **Buy green certified products.**
  Well-defined labeling and certification programs allow individuals and organizations to reflect their values in their purchasing habits.

- **Plant an urban vegetable garden.**
  Neighborhood greening projects build community, provide healthy food, support cultural diversity, increase environmental knowledge, and expand public spaces.

- **Consume less.**
  Consider sharing, buying used, or thinking twice about buying things you don’t need.

- **Participate in your neighborhood association.**
  Create a community where people feel safe, have meaningful jobs and relationships, and enjoy a healthy environment.

The states that do the most to protect their natural resources also wind up with the strongest economies and best jobs for their citizens.

Institute for Southern Studies
A Look at Washington State and Our Challenges

POPULATION
The population of Washington State is nearly six million (2000 Census) and is projected to grow to eight million by 2030. This is the equivalent to adding a city the size of Tacoma every two years.

HEALTH
Millions of tons of toxic chemicals are released to air, land, and water each year affecting humans and wildlife. Many of these chemicals take decades to degrade and are accumulating in the environment. For example, chemicals banned in the 1970s (such as PCBs and DDT) are still found in shellfish/fish in Washington. The Washington State Department of Health issues many warnings about eating certain seafoods because of dangerous levels of mercury and PCBs.

POVERTY
In Washington, 12 percent of people live in poverty compared to 11.3 percent nationwide. According to the 2002 State of Washington’s Children Report, 73 percent of families living in poverty are headed by working adults. People living in poverty are not able to meet basic needs and often have greater exposure to harmful pollutants and less access to health care.

LAND USE
Washington has approximately 21.8 million acres of forested land which is about 51 percent of the state’s land area. These forests provide critical environmental services. On average, an acre of Washington forest produces 2,700 tons of oxygen per year, and sequesters 16 tons of carbon. These forests also hold large quantities of water that are gradually released through the dry season. Poor planning and uncontrolled sprawl are depleting forest and water resources and creating increased conflict over land use and water rights.

AIR
Protecting air quality is critical to public and environmental health. Air pollution is linked to lung and heart disease, cancer, and asthma and is especially a concern for children. Air pollution also affects the environment by degrading soil, water, crops, forests, and harming wildlife. The main sources of air pollution in Washington are motor vehicles (over 50 percent) and smoke from outdoor burning and wood stoves.

WATER RESOURCES
The availability and quality of water influences our quality of life, the success of our farms and businesses, and our competitive position in the global economy. Water is the habitat for diverse marine life, it provides recreational opportunities, and is essential for agriculture and everyday living. Yet, as the state’s population continues to grow, it is increasingly difficult to protect the water we rely on.

Spending on petroleum and natural gas drained an estimated $17 million out of Washington’s economy each day in 2004. Northwest states spend $30 million every day for gasoline and natural gas.

Washington Scorecard 2005
Sightline Institute
CLIMATE CHANGE

Climate models project an average warming in the Pacific Northwest of 1.0 degree Celsius by the 2020s and 1.7 degrees Celsius by the 2040s. The Cascades are especially vulnerable to temperature increases. Nearly all of the state’s 700 glaciers are receding rapidly, and many have disappeared in the past few decades.

Changes in snow pack and stream flow will have significant consequences for water availability across the state. Agriculture in Washington will become increasingly difficult because of more frequent and prolonged droughts as well as higher temperatures. Marine fish and shellfish will be affected by changing ocean conditions, rising sea levels, and shifts in freshwater input to coastal ecosystems.

There is a sufficiency in the world for man’s need, but not for man’s greed.

Mahatma Gandhi, 1869-1948

TRANSPORTATION

Population has grown approximately 40 percent over the past 20 years, while the total vehicle miles traveled by Washingtonians has risen 60 percent. Measures of urban congestion rank Washington among the worst in the nation. Construction currently underway will bring light rail from Seattle to SeaTac airport by 2010. Light rail will need to expand to the rest of the I-5 corridor to address congestion and decrease pollution and greenhouse gas emissions from cars.

WASTE

The amount of solid waste recycled over the past 10 years has increased from about 2.4 pounds per person/per day to approximately 3.4 pounds per person/per day. However, the amount of waste discarded has increased 13 percent from approximately 3.9 pounds per person/per day to approximately 4.4 pounds per person/per day. In other words, we are using more and wasting more.

What degree of proof about the human catastrophe from global climate change do we need, before we are motivated to act to prevent it?

Eric Chivian MD
Harvard Medical School
Center for Health and the Global Environment

When the well is dry, we know the worth of water.

Benjamin Franklin 1706-1790

Toxic chemicals from consumer products, food, and industrial pollution contaminate our bodies. Every person tested had at least 26 and as many as 39 toxic chemicals in his or her body.

Washington Toxics Coalition 2006

Photo: Chery Sullivan
MOVING TOWARDS A Sustainable Washington

Environmental, economic, and social goals need to be addressed simultaneously in decision-making to maintain a high quality of life for current and future generations of Washingtonians. Here are some examples of sustainable actions taken by government, business, communities, and schools.

GOVERNMENT ACTIONS:
• Renew government commitment to our common vision of a sustainable future and involve others in setting long-term goals.
• Develop and implement incentives.
• Use government purchasing power to create markets for “green” products and services.
• View sustainability as a bi-partisan issue.
• Provide resources to support community involvement.

BUSINESS ACTIONS:
• Consider long-term as well as short-term profits.
• Help define a sustainable vision for our State.
• Report to shareholders on the Triple Bottom Line: economic performance, environmental stewardship, and social justice.
• Reduce toxins and greenhouse gases wherever possible.

COMMUNITY ACTIONS:
• Take responsibility to learn what is required for a sustainable Washington.
• Communicate expectations to business and government.
• Support sustainability research.
• Demand sustainable products and services.
• Raise sustainability as an election issue.

EDUCATION ACTIONS:
• Integrate the sustainability framework into curriculum.
• Engage students in solving problems in their community.
• Begin an organic farm on campus.
• Track sustainability indicators at school and in the community.
• Reduce the use of toxins on campus.
• Purchase reused or recycled materials.

Come forth into the light of things, let nature be your teacher.

William Wordsworth 1770-1850
Washington State has a strong reputation nationally as one of the leaders in the sustainability movement. This reputation has been developed by leaders in state and local government who are committed to exploring and implementing sustainable practices. It is important that government not only support sustainability goals but also lead by example.

**Government**

**Environmentally Preferable Purchasing**

Individuals, businesses, schools, and government consume substantial resources in the form of products and services. The increasing demand for products that are healthy for people and the planet has led to wider availability of environmentally friendly products.

Government can exercise its purchasing power by putting specifications in contracts to buy products which are safer to produce and use.

**Green Building**

Green building refers to design, construction, and deconstruction practices that significantly reduce impacts on the environment and occupants in five main areas: sustainable site planning, conservation of materials and resources, energy efficiency and renewable energy, water conservation, and indoor air quality.

Green building will be a big part of creating sustainable communities and cities. The High-Performance Public Buildings bill requires all new state-funded facilities over 5,000 square feet to meet green building criteria.

**Green Energy**

Washington public policy is supporting the shift to clean, renewable energy sources such as wind and solar. State agencies are required to lead by example through conservation efforts and shifting to sustainable, renewable sources. The state requires utilities to provide rebates on energy-conserving products and promote markets for local manufacturers of energy-conservation products.

The Department of Community, Trade, and Economic Development is supporting the export of key green energy technologies made in Washington, like high-efficiency inverters for use with solar energy systems.
Many Washington businesses have begun to include sustainability goals into their mission statements and practices. One way businesses commit to sustainability is to focus on the “Triple Bottom Line,” an approach that values people, the planet, and profits. A growing number of consumers are also beginning to demand that the businesses they support be environmentally and socially responsible.

**ON THE RIGHT PATH**

**Sustainability in Washington Businesses**

160 firms in the Pacific Northwest have reduced their costs by more than $55 million annually by reducing their impact on natural ecosystems, diminishing raw materials, and eliminating excess energy and water use.

**Resources:**

- **Business and Industry Resource Venture** provides free information, assistance, and referrals to help Seattle businesses improve their environmental performance. [www.resourceventure.org](http://www.resourceventure.org)
- **Network for Business Innovation and Sustainability (NBIS)** helps businesses and organizations implement sustainable practices that increase revenue, enhance reputation, and reduce risk and uncertainty. [www.nbis.org](http://www.nbis.org)
- **Northwest Product Stewardship Council (NWPSC)** brings government, businesses, and non-profits together to integrate product stewardship into the policy and economic structures of the Pacific Northwest. [www.govlink.org/nwpsc](http://www.govlink.org/nwpsc)
- **Pacific Northwest Pollution Prevention Resource Center (PPRC)** is the Northwest’s leading resource for promoting a cleaner environment through pollution prevention. [www.pprc.org](http://www.pprc.org)
- **Sustainable Connections** in Bellingham is a collaborative effort of Washington business and community leaders working to transform and model an economy built on sustainable practices. [www.sconnect.org](http://www.sconnect.org)
- **Sustainable Industries Journal** is a monthly publication on sustainable practices. [www.sijournal.com](http://www.sijournal.com)

**Concepts in Action**

**Batdorf and Bronson Coffee Roasters**, an Olympia-based business, has offset all of its emissions of carbon dioxide and other gases through the Bonneville Environmental Foundation’s Green Tags program. This program allows companies to support energy research and alternative sources of power, such as solar and wind energy, through their electric bill.

**Snoqualmie Gourmet** ice cream factory has freezers that recycle heat for hot water and for warming their facility, and has air-cooled rather than water-cooled freezers that use about one-third less water than a typical ice cream plant. The use of landscaping and porous concrete for their driveway better protects local water sources and eliminates the need to build an expensive on-site storm-sewage system.

**Watson Furniture Group** in Kitsap County has been able to “design out” hazardous and non-sustainable materials, thus creating a “no impact” manufacturing process for their office furniture product line.

160 firms in the Pacific Northwest have reduced their costs by more than $55 million annually by reducing their impact on natural ecosystems, diminishing raw materials, and eliminating excess energy and water use.

Center for Watershed and Community Health. 2000
The opportunities to include sustainability in our daily activities are limitless. There are many fun and easy ways to reduce toxics in and around homes, protect green spaces and water sources, and lessen our impact on natural resources. These efforts include reducing waste by buying less, avoiding single-use items such as bottled water or disposable cameras, buying used items, and looking for less toxic products.

**Concepts in Action**

**Cascadia Chapter of the US Green Building Council** assists the building community in revolutionizing the built environment to protect people and the environment. [www.cascadiagbc.org](http://www.cascadiagbc.org)

**Climate Solutions** promotes a regional approach to global warming solutions. [www.climatesolutions.org](http://www.climatesolutions.org)

**Free Geek** Olympia volunteers refurbish and recycle used computers to provide education and access to the internet in exchange for community service. [www.oly-wa.us/freegeek](http://www.oly-wa.us/freegeek)

**Friends of the San Juans** works to protect the health and future of the San Juan Islands. [www.sanjuans.org](http://www.sanjuans.org)

**Northwest Earth Institute** develops programs to educate individuals and organizations on sustainability. [www.nwei.org](http://www.nwei.org)

**Northwest EcoBuilding Guild’s** mission is to encourage green building practices. [www.ecobuilding.org](http://www.ecobuilding.org)

**Oregon Natural Step Network** sponsors training and workshops to help support The Natural Step framework for businesses and organizations. [www.ortns.org](http://www.ortns.org)

**Public Market on the Willapa** started in 1997 by local women wanting to increase their earnings while building a stronger sense of place in Raymond. Now over twenty small businesses sell a range of locally produced products.

**Scallops (Sustainable Communities All Over Puget Sound)** meet publicly to share successes, troubleshoot challenges, and get inspiration and ideas. [www.sustainableballard.org](http://www.sustainableballard.org)

**Sightline Institute** aims to foster social and economic sustainability in the Pacific Northwest. [www.sightline.org](http://www.sightline.org)

**Sustainable Community Roundtable of South Puget Sound** works with business, higher education, local government and community to promote sustainability. [www.sustainsouthsound.org](http://www.sustainsouthsound.org)

**Sustainable Seattle** is a volunteer-based civic network and forum. [www.sustainableseattle.org](http://www.sustainableseattle.org)

**Washington Toxics Coalition’s** mission is to protect public and environmental health by identifying and promoting alternatives to toxic chemicals. [www.watoxics.org](http://www.watoxics.org)
ON THE RIGHT PATH

Sustainability in Washington Schools

Washington Schools are rapidly adding curriculum about sustainability to their programs. A few provide undergraduate and graduate degrees that include sustainability. Washington schools are also innovators outside of the classroom and incorporate sustainable practices into their daily operations to create sustainable campuses.

Concepts in action:

Antioch University/Seattle has Masters and PhD level programs approaching environmental policy and sustainability issues from both a social science and natural science perspective. www.antiochsea.edu/academics/enviro/index.html

Bainbridge Graduate Institute offers an MBA in changing business for good by integrating sustainability throughout the curriculum. www.bgiedu.org

The Evergreen State College has a “Practice of Sustainable Agriculture” program and a program in “Sustainable Design.” Evergreen also offers a Master of Environmental Study degree and hosts an annual “Synergy Sustainable Living Conference.” www.evergreen.edu

Islandwood on Bainbridge Island has an educational mission to inspire environmental and community stewardship. www.islandwood.org

Washington State University has a Center for Sustaining Agriculture and Natural Resources. Within its College of Engineering and Architecture is the Institute for Sustainable Design. www.wsu.edu/

The University of Washington has a collaborative graduate certificate program called “Interdisciplinary and Policy Dimensions of the Earth Sciences” which addresses issues of public policy and pursues the need for a ‘sustainability science’.

In the Environmental Management Program, graduate students from across the university collaborate to tackle the role of the environment in healthy communities and sustainable economies. www.depts.washington.edu/poeweb/about/index.html

Western Washington University offers a Minor Degree in Sustainable Design that is shared between the Engineering Technology Program and Huxley College of the Environment. www.wwu.edu/sustain/academics/degrees/

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Do unto future generations as you would have them do unto you.

Robert Gilman
Director of the Context Institute

What we human beings are all living now, whether we are volunteers or not, is an extraordinary but exceptionally dangerous adventure. We have a very small number of years left to fail or to succeed in providing a sustainable future to our species.

Jacques Cousteau
1910-1997
Resources

Ecology’s Sustainability website offers information about sustainability and a comprehensive list of resources. www.ecy.wa.gov/sustainability/

SUGGESTED READING FOR MORE INFORMATION:

*An Inconvenient Truth*, by Al Gore, 2006
Take action page: www.climatecrisis.net/takeaction/


*Cradle to Cradle—Remaking the Way We Make Things*, by William McDonough, 2002

*Fostering Sustainable Behavior*, by Doug McKenzie Mohr and William Smith, 1999

*Natural Capitalism—Creating the Next Industrial Revolution*, by Paul Hawken, Amory Lovins, and L. Hunter Lovins, 1999

*The Great Turning: From Empire to Earth Community*, by David C. Korten, 2006

*The Natural Step*, by David Cook, 2005

*The Omnivore’s Dilemma*, by Michael Pollan, 2006

Citations


*Poised for Profit: How Clean Energy Can Power the Next High-Tech Job Surge in the Northwest*, Nov 2001, Climate Solutions

http://sightline.org/research/washington/res_pubs/wa_scorecard07

http://www.pollutioninpeople.org/files/pollutioninpeople_may06.pdf

http://cwch.uoregon.edu/publicationspress/justplaingoodbusiness.pdf

I believe that there is a subtle magnetism in Nature, which, if we unconsciously yield to it, will direct us aright.

*Henry David Thoreau*  
1817-1862

Adopt the pace of nature: her secret is patience.

*Ralph Waldo Emerson*  
1803-1882

There is more to life than increasing its speed.

*Mahatma Gandhi*  
1869-1948

Washington State Department of Ecology • 13
What can I do to be more sustainable?

Priority Actions for American Consumers

**Transportation:**
- Choose a place to live that reduces the need to drive.
- Think twice before purchasing an additional car.
- Choose a fuel-efficient, low-polluting car.
- Set goals for reducing your travel.
- Whenever practical, walk, bicycle, or take public transportation.

**Food:**
- Eat less meat.
- Buy certified organic products.

**Household Operations:**
- Reduce the environmental cost of heating and hot water.
- Install efficient lighting and appliances.
- Choose an electricity supplier offering renewable energy.

Union of Concerned Scientists

Photo: Bonnie Sims