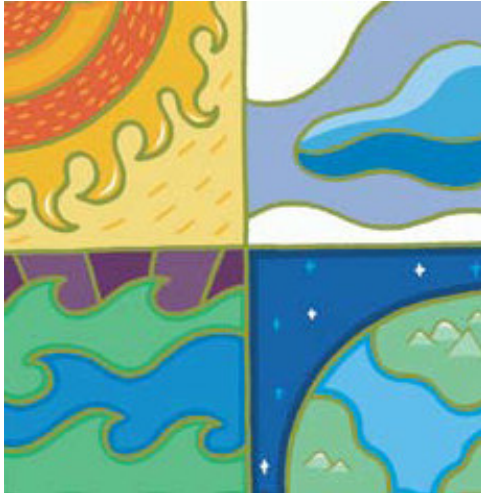


# Knowledge Building Series: Communicating Climate Change

## U.S. ENVIRONMENTAL PROTECTION AGENCY REGION 8



Part 2 of the Climate Change Knowledge Building Series includes tips for communicating climate change to others. Understanding climate change can be a challenge because it is complex and technical, but not intuitive. Because climate change is a global phenomenon, people may not necessarily see changes where they live. The key is to learn how to communicate this complex issue to various stakeholders in ways that are understandable and translate into action. First, you must know your audience.

### Knowing Your Audience

Regardless of your audience, you might start by explaining basic terminology like climate change, global warming, greenhouse gases and the Greenhouse Gas Effect, as well as the difference between weather and climate. These terms are often used interchangeably and incorrectly when talking about climate change. Part 1 of this series, “Climate Change 101” includes some definitions and there are other good resources listed on the last page.

### Sample Messages

**Elementary & Middle School Students:** Climate change may be a big problem, but there are many little things we can do to make a difference.

**High School, College Students and Adults:** Many greenhouse gases come from things we do everyday, like drive cars and use electricity. These things are not wrong, we just have to be smart about it and take actions to offset our emissions of carbon dioxide.

**Community Leaders:** You can show leadership by doing a greenhouse gas inventory, developing a climate change action plan, and considering how your community can adapt to a changing climate.

**Businesses:** Tools and technologies exist to substantially cut greenhouse gases. Making changes to your facility and processes to use less energy may save you money in the long run.

### A Better Way to Communicate

Here are some tips when talking about climate change:

- Explain to your audience what they can do to mitigate climate change
- Use diagrams to explain technical concepts
- Use language that the general public understands and define key terms
- Use appropriate terminology
- Address misconceptions and truths
- Don't get into a debate - try to understand diverse perspectives
- Separate the science from the politics
- Convey that we can use methods and technologies that already exist
- Explain that there is a preponderance of evidence from many different scientific disciplines

#### Misconception:

Climate change is a new issue

#### Truth:

The greenhouse effect was first described in theoretical terms by a Swedish researcher in the late 1800s. In the 1930s, scientists observed that parts of the globe had warmed during the previous half-century. Then in the early 1960s, scientists discovered that the level of carbon dioxide in the atmosphere was rising. Researchers later found a strong relationship between the increasing levels of carbon dioxide and the average global temperature.

## Words Matter!

The terms that scientists use often have a different meaning to the public. That's another reason why thoughtful communication is so important!

<u>Scientific Term</u>	<u>What is Means to the Public</u>	<u>Instead Use</u>
Enhance	Improve, make better	Intensify, Increase
Aerosol	A spray can	Small particle
Positive Trend	A good thing	Upward trend
Positive Feedback	A good thing	Self-reinforcing cycle
Radiation	Cancer therapy, X-rays	Energy
Theory	Opinion, speculation	Scientific understanding
Uncertainty	Might not happen	Range of possibility
Risk	Low probability	Threat
Scheme	Plot to deceive or harm	Scenario or plan

Source: *Improving How Scientists Communicate About Climate Change*, Susan Joy Hassel, Climate Communication

## Key Concepts to Communicate About Climate Change:

- Climate change is a symptom of unsustainable development
- The cost of inaction over the long run will be far greater than the cost of action
- The longer we wait to act, the costlier it will be and could potentially become irreversible
- Addressing climate change will have many benefits, including enhanced security and a stronger economy
- Actions taken today will impact life on Earth for generations to come
- Climate change is a "threat multiplier" - it may not directly cause environmental problems, but it can make them worse
- Climate change will require actions from individuals and society as a whole, through mitigation and adaptation strategies.

**Mitigation:** Actions to reduce emissions of greenhouse gases, or remove them from the atmosphere. These actions will help to reduce future climate change.

**Adaptation:** Reactions to changes that have already occurred, and preparations for future changes that are anticipated. These actions will support communities, ecosystems, and wildlife.

### Top 5 Warmest Years Worldwide Since The 1890's

- 1) 2005
- 2) 1998
- 3) 2002
- 4) 2003
- 5) 2006

Source: NASA Goddard Institute for Space Studies

### **Misconception:**

The primary cause of climate change is the sun's variability.

### **Truth:**

Solar variations do affect climate, but they are not the only factor and have a lesser affect than greenhouse gases produced by human activities. It is extremely unlikely (<5%) that the global pattern of warming during the past half century can be explained without external forcing (the influence of human-caused greenhouse gases), and very unlikely that it is due to known natural external causes alone, according to the Intergovernmental Panel on Climate Change. The warming occurred in both the ocean and the atmosphere, and took place at a time when natural external forcing factors would likely have produced cooling.

### **Misconception:**

The hottest year on record was 1998, and it has been cooling ever since.

### **Truth:**

1998 was an exceptionally warm year because of a strong El Nino event, and subsequent years were cooler until 2005. 2005 was the warmest year since the late 1800s, according to NASA scientists. 1998, 2002, 2003, and 2006 followed as the next four warmest years. Of concern is the upward trend in average global temperatures in the last 50 years.

### **Misconception:**

If we can't accurately predict what the weather will do in the next few days, how can we really predict the climate in the future?

### **Truth:**

Climate is not weather. Weather is short term and local, while climate is long term and global. A season with cold temperatures or high levels of precipitation does not negate the buildup of greenhouse gases in the atmosphere and their influence on our baseline climate. This influence is predictable, and includes increasing global average temperatures.

## Making a Case for Businesses

Industrial and commercial energy use accounts for nearly 30% of total greenhouse gas emissions. These emissions primarily result from electricity use, product transportation, burning fossil fuels to power boilers and produce steam, and using gasoline to power vehicle fleets. Some industrial processes also produce greenhouse gases.

Improving energy efficiency not only reduces greenhouse gas emissions into the atmosphere, it is good for a corporation's bottom line, as many U.S. businesses face rising energy costs. **ENERGY STAR®** offers tools and resources to help organizations improve their energy performance. For example, *Portfolio Manager* helps companies establish the current energy use of their buildings and determine reasonable energy savings goals. ENERGY STAR also has resources for small businesses.

Some forms of energy generation are more polluting than others. **EPA's Green Power Partnership** is a voluntary program that supports the purchase of green power by offering expert advice, technical support, tools and resources. Green power is electricity produced from a subset of renewable resources such as solar, wind, geothermal, biomass, and low-impact hydro. Buying green power is one of the easiest and most effective ways to improve your organization's environmental performance.

Leading businesses and corporations are evaluated on many aspects of their performance, including product quality, ethics or standing in the community. These leaders can provide a powerful example promoting greenhouse gas reduction strategies through corporate incentives such as financial assistance for employees who use public transportation, car-pooling and even telecommuting. Other "green" practices such as recycling and purchasing products made with recycled materials also contribute to emissions reductions.

### Did You Know?

**About one-sixth of all the electricity generated in the US is used to air condition buildings.**



### Did You Know?

**Current national recycling efforts reduce greenhouse gas emissions by 49.9 million metric tons of carbon equivalent, which is equivalent to the annual GHG emissions from 39.6 million passenger cars.**

## Making a Case for Individuals

Making a few small changes in your home and yard can lead to big reductions of greenhouse gas emissions and save money. Examples include:

- Replace the conventional bulbs in your 5 most frequently used light fixtures with ENERGY STAR bulbs;
- When buying new appliances, electronics or windows, look for ENERGY STAR labeled products;
- Have your heating and cooling equipment tuned annually and clean air filters regularly;
- Seal air leaks and add more insulation to your home to save energy;
- Use electricity that is generated from renewable energy sources such as wind and the sun. You can buy green power or you can modify your house to generate your own green power;
- Reducing waste, reusing items and recycling helps conserve energy and reduces pollution and greenhouse gases from resource extraction, manufacturing, and disposal;
- Use a push mower, which, unlike a gas or electric mower, consumes no fossil fuels and emits no greenhouse gases.

## Making a Case for Communities

State and local governments play an important role in reducing greenhouse gas emissions and preparing for climate change impacts. EPA supports states and communities in these activities by providing technical assistance and tools, sharing best practices, and encouraging innovation.

An important first step is to develop an inventory to understand sources of greenhouse gas emissions. With this information, a State or local government can develop a climate change action plan and implement policies and programs to reduce greenhouse gas emissions. Examples include:

- Implementing energy efficiency measures for government buildings, including schools and water utilities;
- Installing equipment that captures energy from sunlight, wind, water, and other renewable energy sources;
- Preventing emissions of methane (a powerful greenhouse gas) through the development of landfill gas energy projects;
- Addressing air quality and transportation programs to reduce fuel use, reduce emissions from fleet vehicles and support development and use of public transit systems.

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## EPA Climate Change Information

### Regional Climate Change Coordinator

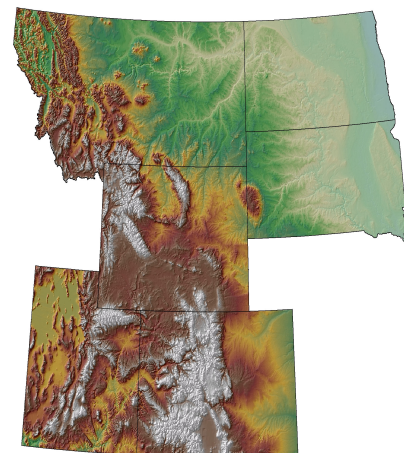
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### Region 8 Climate Change Website

[http://www.epa.gov/region8/  
climatechange/](http://www.epa.gov/region8/climatechange/)

### EPA National Climate Change Website

<http://www.epa.gov/climatechange/>



### Resources for Teaching about Climate Change:

#### REGION 8 ENVIRONMENTAL EDUCATION

[HTTP://EPA.GOV/REGION8/EE/](http://EPA.GOV/REGION8/EE/)

#### GUIDE FOR TEACHERS

[HTTP://EPA.GOV/CLIMATECHANGE/WYCD/DOWNLOADS/  
WYCD-SCHOOL.PDF](http://EPA.GOV/CLIMATECHANGE/WYCD/DOWNLOADS/WYCD-SCHOOL.PDF)

#### CLIMATE CHANGE FOR KIDS

[HTTP://EPA.GOV/CLIMATECHANGE/KIDS/](http://EPA.GOV/CLIMATECHANGE/KIDS/)

#### THE ROCKY MOUNTAIN AND PLAINS REGIONAL CLIMATE SCIENCE EDUCATION COLLABORATIVE

[HTTP://EPA.GOV/REGION8/EE/CLIMATEEDUCATION.HTML](http://EPA.GOV/REGION8/EE/CLIMATEEDUCATION.HTML)

#### USGS CLIMATE CHANGE LESSONS

[HTTP://ERG.USGS.GOV/ISB/PUBS/TEACHERS-PACKETS/  
GLOBALCHANGE/GLOBALHTML/](http://ERG.USGS.GOV/ISB/PUBS/TEACHERS-PACKETS/GLOBALCHANGE/GLOBALHTML/)

#### CLIMATE CHANGE EDUCATION

[HTTP://WWW.CLIMATECHANGEEDUCATION.ORG/](http://WWW.CLIMATECHANGEEDUCATION.ORG/)

#### ENVIRONMENTAL HEALTH EDUCATION

[HTTP://EPA.GOV/REGION8/EE/TEACHINGENVHEALTH.HTML](http://EPA.GOV/REGION8/EE/TEACHINGENVHEALTH.HTML)

### Resources for Taking Action:

#### ENERGY STAR

[HTTP://WWW.ENERGYSTAR.GOV/](http://WWW.ENERGYSTAR.GOV/)

#### CLIMATE LEADERS PROGRAM

[HTTP://WWW.EPA.GOV/CLIMATELEADERS/](http://WWW.EPA.GOV/CLIMATELEADERS/)

#### EPA GREEN POWER PARTNERSHIP

[HTTP://WWW.EPA.GOV/GREENPOWER/INDEX.HTM](http://WWW.EPA.GOV/GREENPOWER/INDEX.HTM)

#### A BUSINESS GUIDE TO EPA CLIMATE PARTNERSHIP PROGRAMS

[HTTP://WWW.EPA.GOV/PARTNERS2/  
BIZ\\_GUIDE\\_TO\\_EPA\\_CLIMATE\\_PARTNERSHIPS.PDF](http://WWW.EPA.GOV/PARTNERS2/BIZ_GUIDE_TO_EPA_CLIMATE_PARTNERSHIPS.PDF)

#### GREENHOUSE GAS EMISSIONS CALCULATOR

[HTTP://WWW.EPA.GOV/CLIMATECHANGE/EMISSIONS/  
IND\\_CALCULATOR.HTML](http://WWW.EPA.GOV/CLIMATECHANGE/EMISSIONS/IND_CALCULATOR.HTML)

#### ACTIONS AT HOME

[HTTP://WWW.EPA.GOV/CLIMATECHANGE/WYCD/  
ACTIONSTEPS.HTML](http://WWW.EPA.GOV/CLIMATECHANGE/WYCD/ACTIONSTEPS.HTML)

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