

Climate Change:

Setting the Context for **Local Action**

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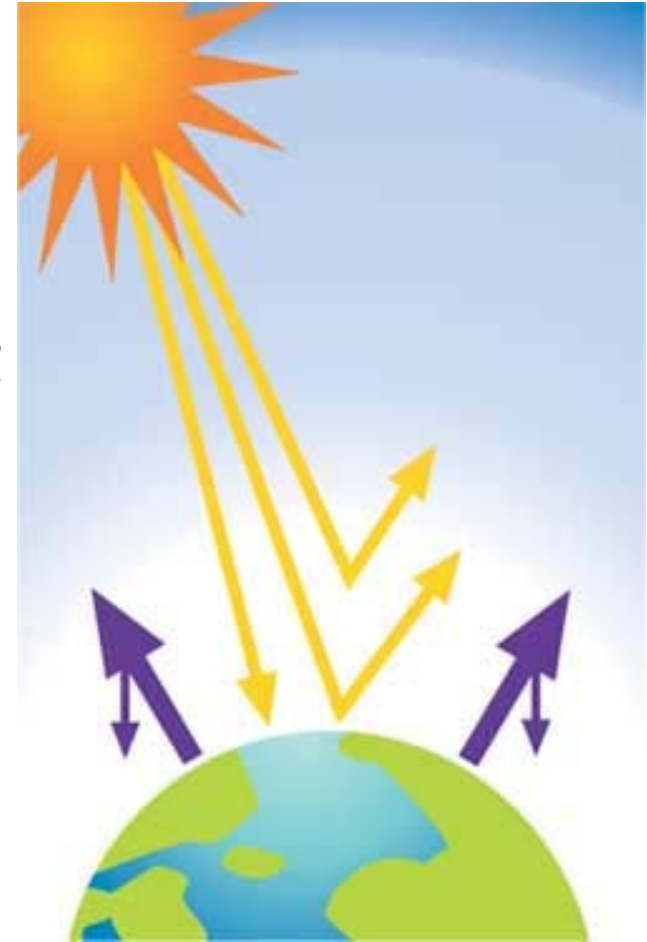
ICLEI- Local Governments for Sustainability



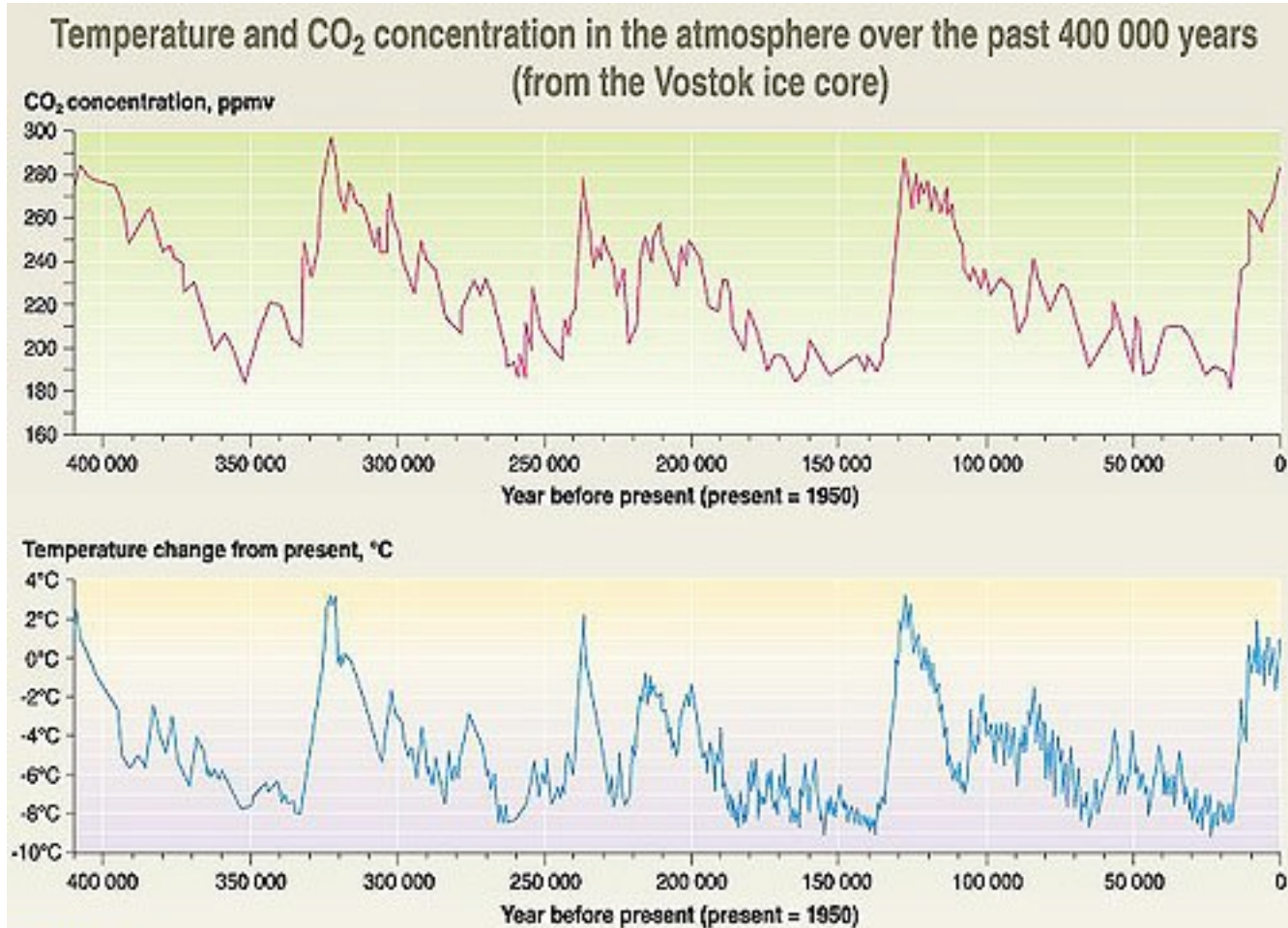
Climate Change Roundtable
Metropolitan Washington Council of Governments
January 29th, 2007

The Earth's Climate System

- Light from the Sun is absorbed by land and water, and is converted to heat.
- Some heat is emitted back into space while Some of this radiant heat is absorbed by greenhouse gases (GHGs).
- These gases act like the glass windows in a car creating the **“hot car effect.”**



Vostok temperature and CO₂

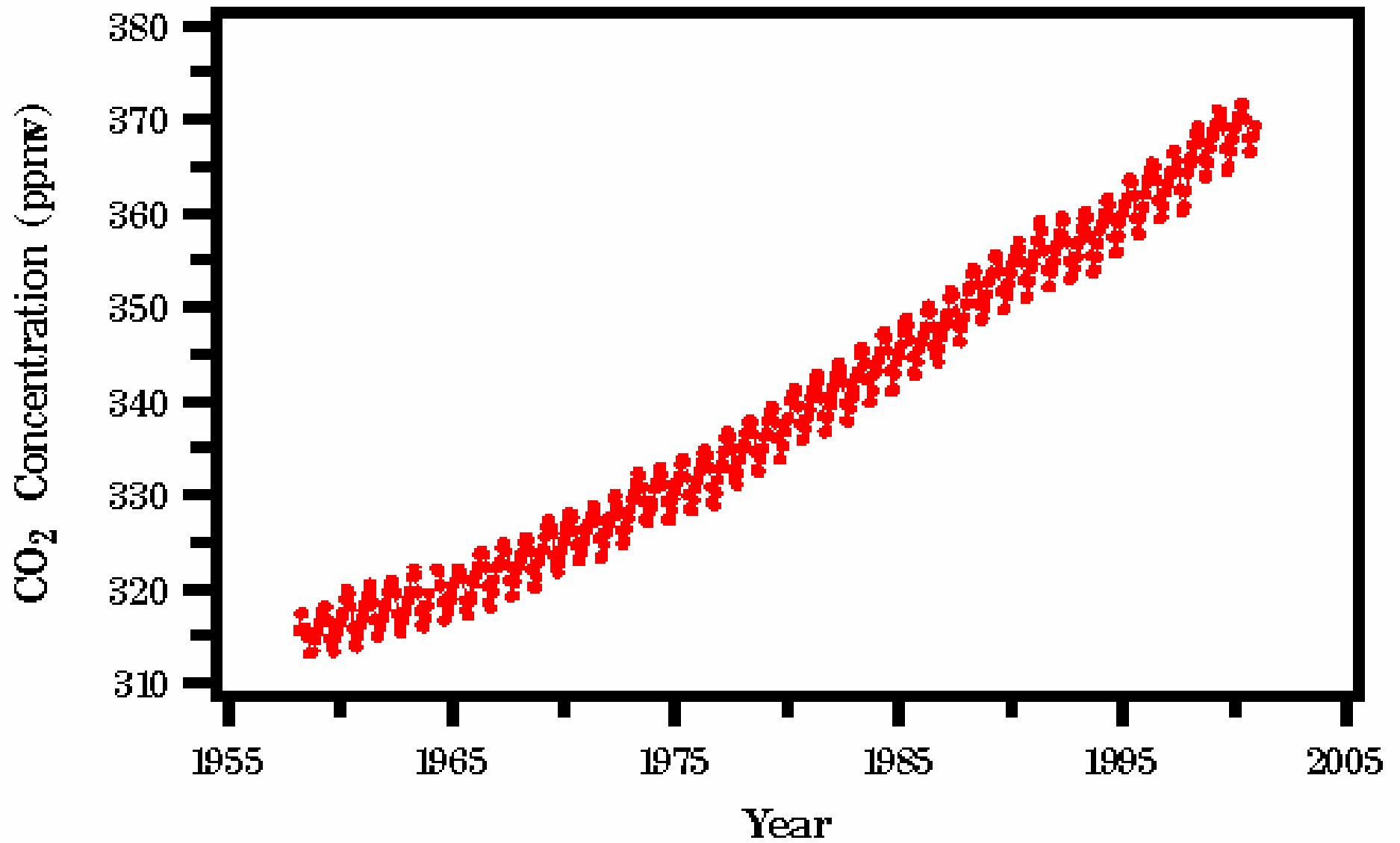


Natural forces affect GHG concentrations in the Atmosphere:

- Fluctuations in the sun's intensity
 - Gradual changes in earth's orbit
 - Volcanic eruptions
 - Changes in ocean currents
 - Shorter-term cycles like El Nino
-

What is new is that human activities are altering the climate system and face of the land at an unprecedented rate.

Mauna Loa, Hawaii

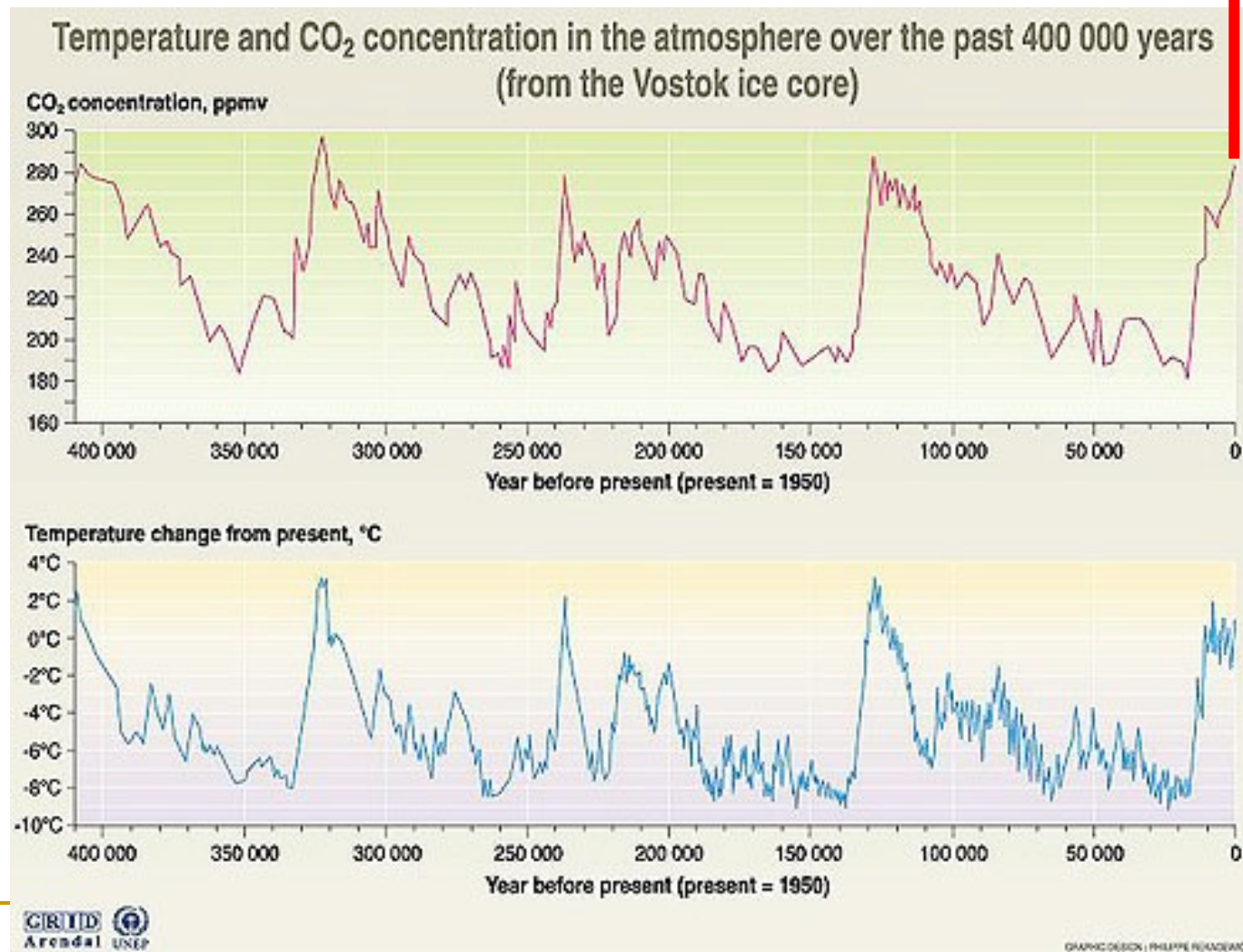


Source: Dave Keeling and Tim Whorf (Scripps Institution of Oceanography)

What human activities are affecting climate?

- Carbon dioxide from **fossil fuels**
 - Methane from agriculture, livestock, landfills, fossil fuel production.
 - Nitrous oxide from agriculture and industry
 - Deforestation releases carbon
 - Refrigerants, like the CFC replacement HFC
-

375 —



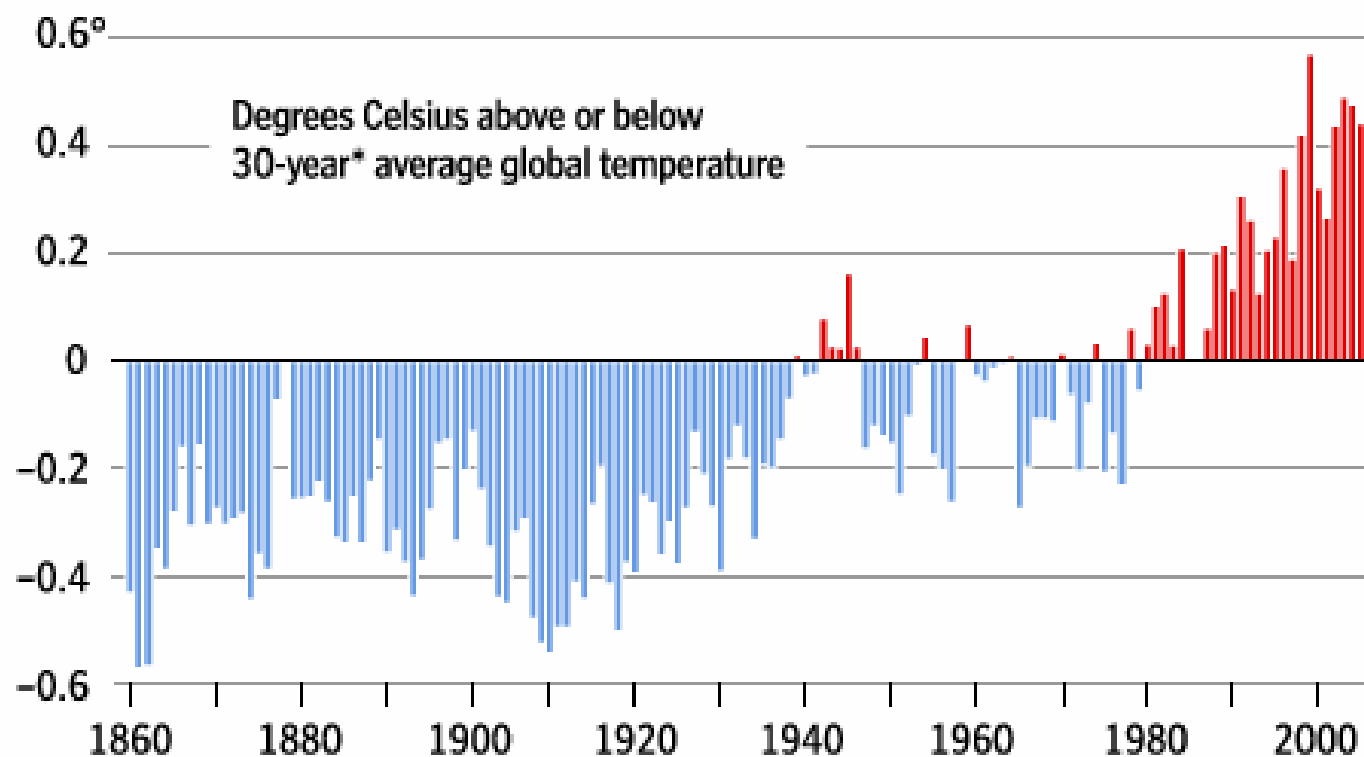
Source: J.R. Petit, J. Jouzel, et al. Climate and atmospheric history of the past 420 000 years from the Vostok ice core in Antarctica, *Nature* 399 (3 June), pp 429-436, 1999.

Turn it up...

- The 1980's were the hottest decade on record...until the 1990's.
- The 1990's were the warmest decade in at least 1,000 years.
- 2003 was the 2nd hottest year ever recorded.
- Until 2005, then that was the hottest.
- The five hottest years on record all have occurred since 1997, and the 10 hottest since 1990.



Graphic
Getting Warmer



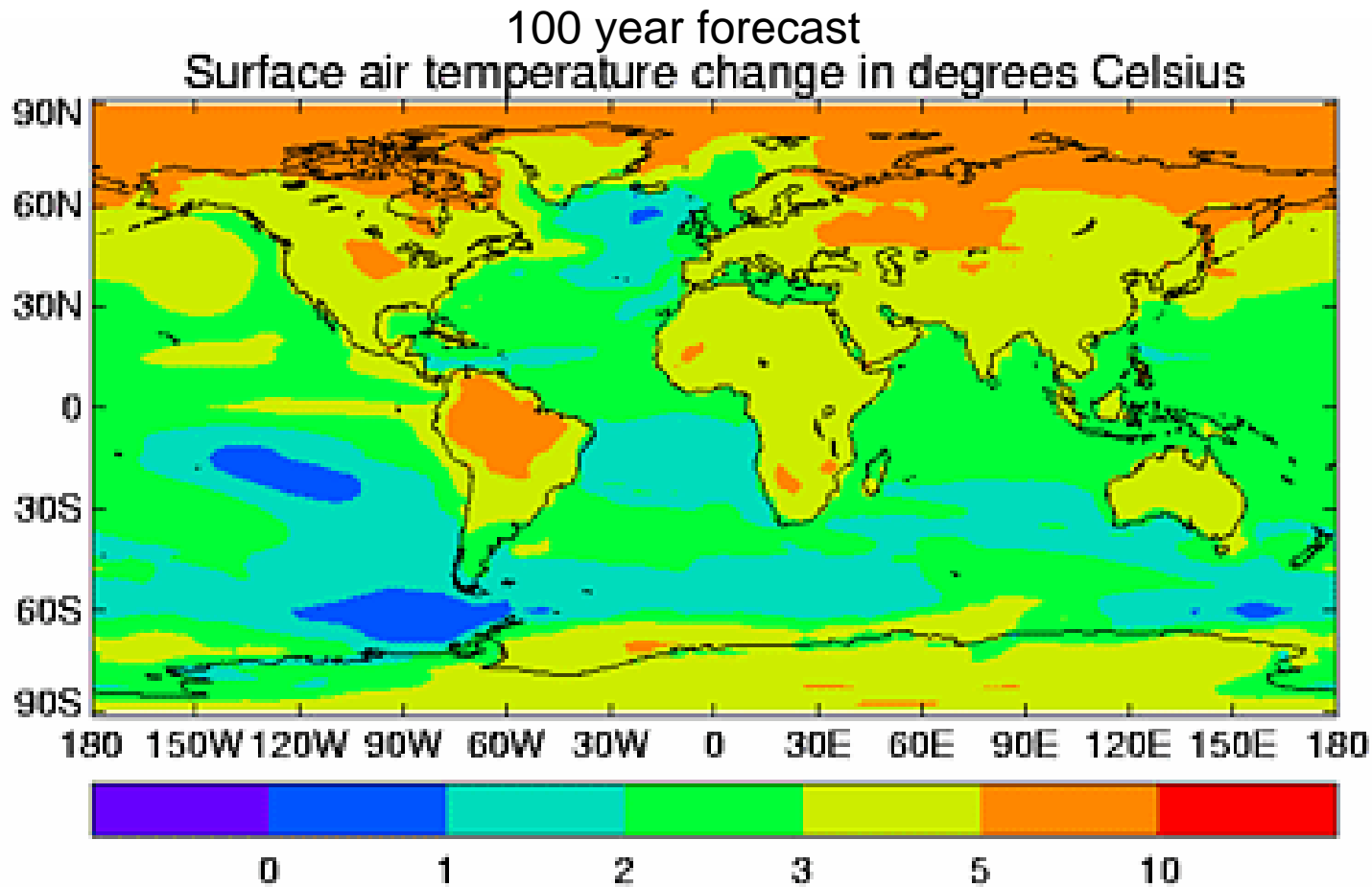
The planet has been experiencing a warming trend.

SOURCE: National Center for Atmospheric Research | *30-year period: 1961-1990 | The Washington Post

Major Indicators of Climate Change

- Global temperature rise of 1° F in past 100 years.
 - Seasons in the US and Europe have shifted by one week in past 50 years
 - More extreme or odd weather events
 - Species are migrating higher and towards the poles
 - Sea level has risen by 6-10", and rising
-

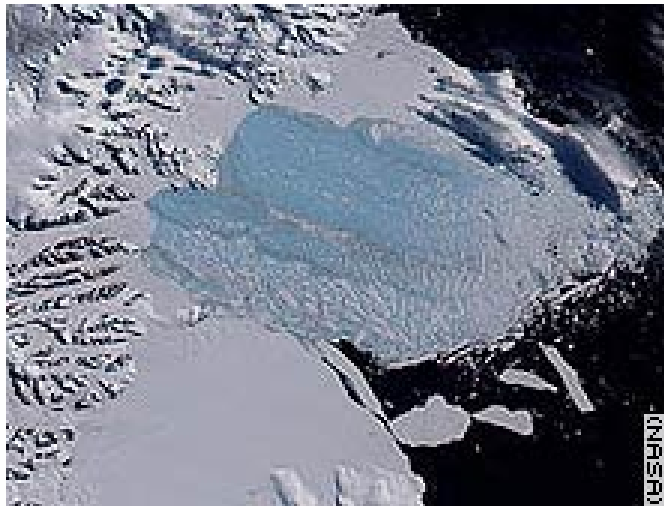
Bigger impact at high latitudes



Source: Hadley Center model projection

Antarctic ice collapse tied to greenhouse gases

POSTED: 11:24 a.m. EDT, October 17, 2006



The collapse of the Larsen B ice shelf in 2002.

OSLO, Norway (Reuters) – Scientists said Monday that they have found evidence linking the collapse of an ice shelf in Antarctica to global warming blamed on human activities.

Shifts in winds whipping around the southern ocean, tied to global warming by greenhouse gases, had warmed the Antarctic peninsula just off South America and contributed to the break-up of the Larsen B ice shelf, scientists said.

"This is the first time that anyone has been able to demonstrate a link directly linking the break-up of the Larsen Ice Shelf to human activities," said James Marshall, lead author of the study at the British Antarctic Survey.

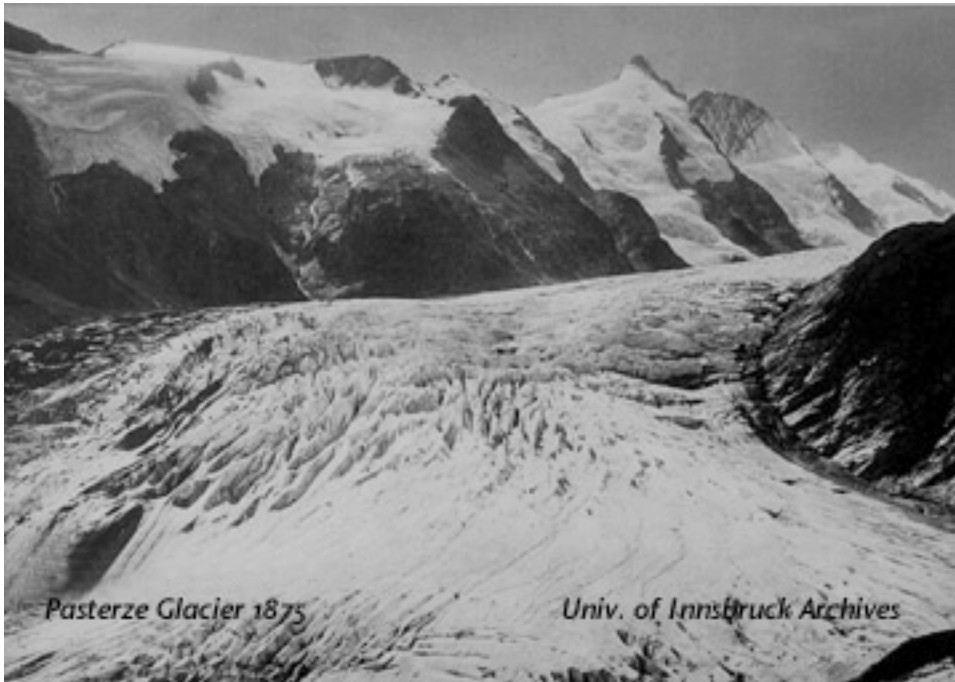
The chunk that collapsed into the Weddell Sea in 2002 was 3,250 square kilometers (1,255 square miles) in size.

Uppsala Glacier Patagonia, Argentina



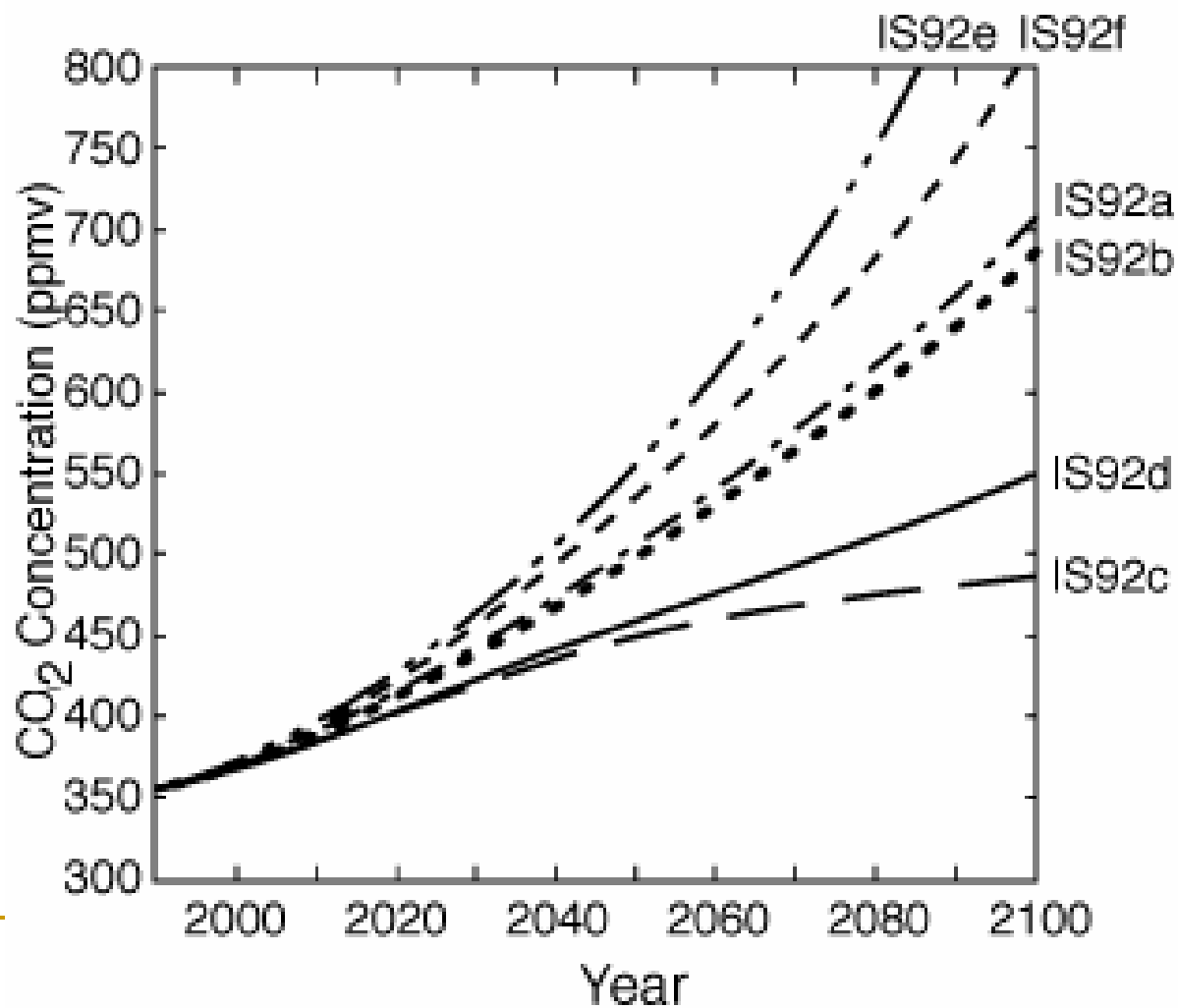
Pasterze Glacier Austria

1875-2004



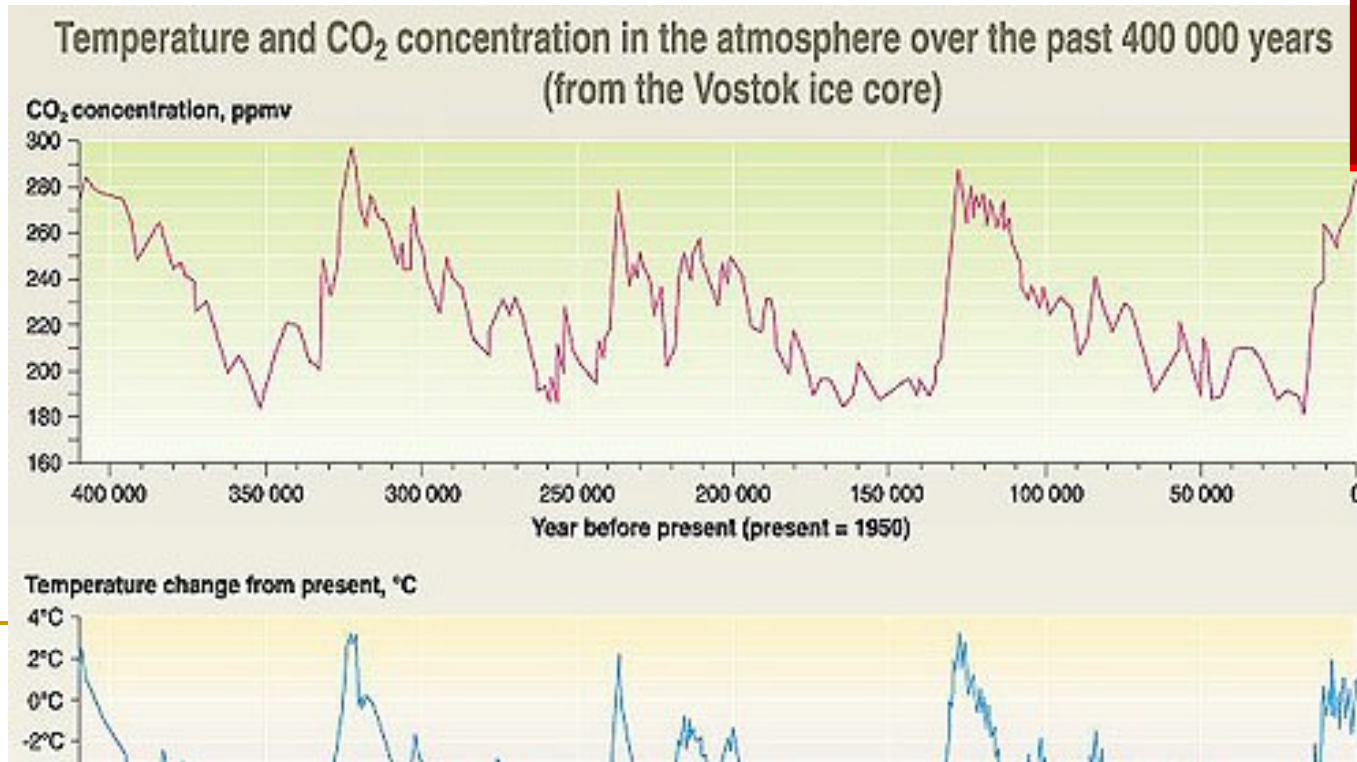
What's to come?

CO₂ Concentration Growth Scenarios



650 —

375 —

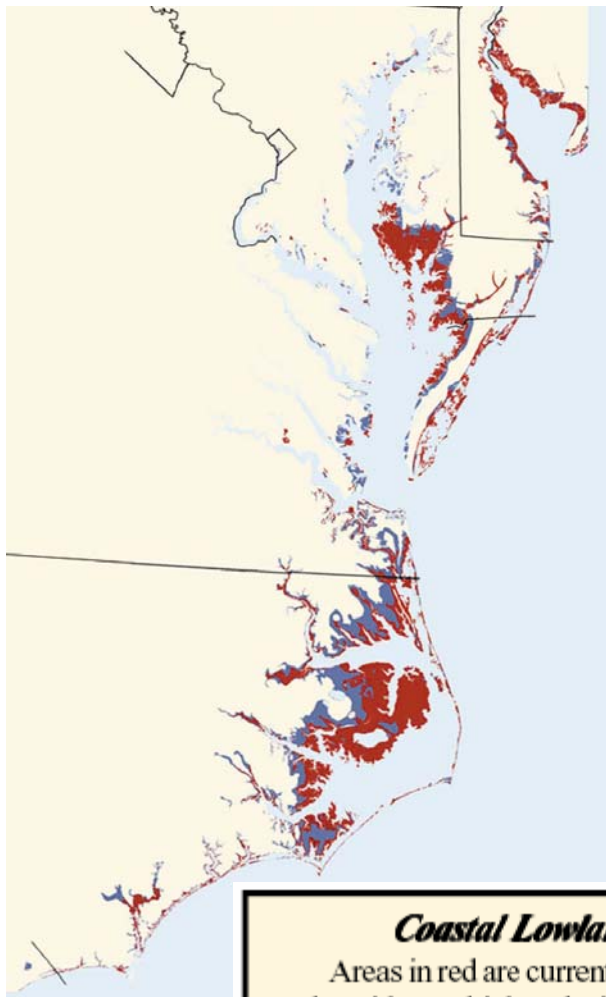


What does climate change mean to you locally?

- Long term shift in climate zone.
 - Look southward 2-3 states....
 - Replacement of maple, birch, with oak and pine
 - Increase invasive in insect species.
- Extreme/odd weather events
 - Tornados, floods, hurricanes, droughts, heat waves, etc.
- Increased vulnerability of cities, people, and infrastructure

Check out Union of Concerned Scientists
<http://www.ucsusa.org/>

Impacts in Maryland



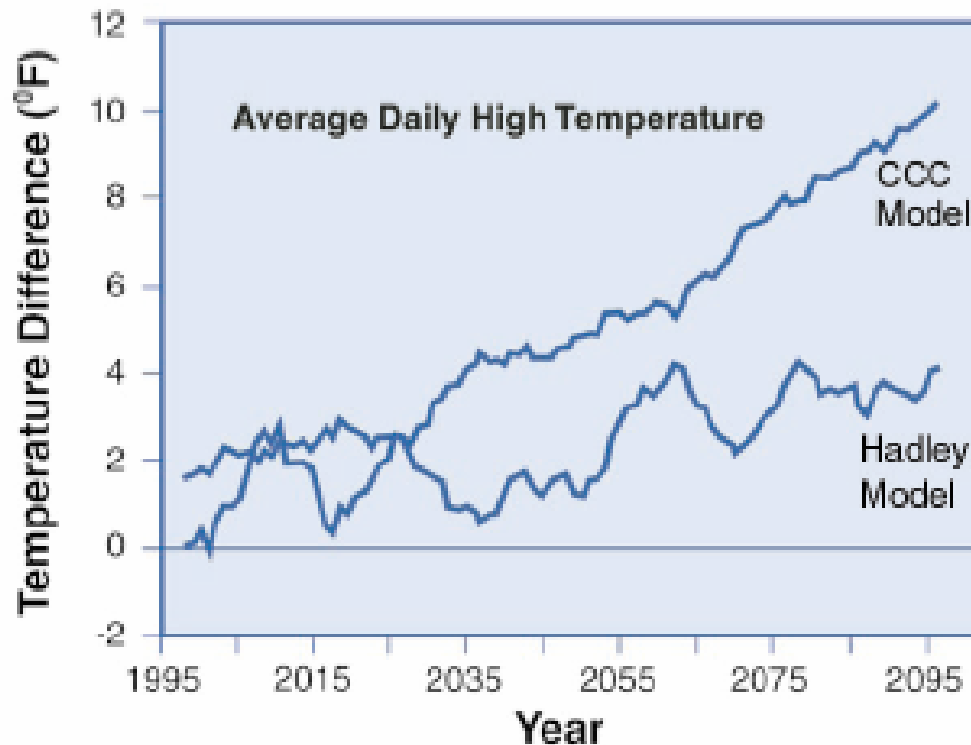
Coastal Lowlands

Areas in red are currently at risk when tides are high and will be flooded more frequently as sea level rises.

- Sea Level Rise 15-40 inches, sea water intrusion
- Agricultural Impacts: less tobacco more soybeans
- Wintertime Precipitation increase, summertime decrease

Source : Mid-Atlantic Climate Impacts Assessment (Penn State, 2000)

Mid-Atlantic Daily High Temperatures



Two Projections for Temperature Rise Over the Next Century in the Mid-Atlantic Region

Outcome: Substantial increase in heat stress on population

We need to reduce emissions
of GHGs starting right
NOW.

Let's Begin....

We must all work together to change...

- National Government.
 - Drive non-fossil based energy policy
 - State Government.
 - Create regulatory frameworks, RPS
 - Create incentives for new industry
 - Local Governments.
 - Create markets for energy
 - *Spearhead community sustainability*
-

ICLEI – Local Governments for Sustainability



A worldwide movement of local governments dedicated to achieving tangible improvements in global environmental conditions through
CUMULATIVE LOCAL ACTION

- Association of cities, towns, counties in over 50 countries
- 11 offices worldwide

Local Governments Contribute to the Problem And can Create the Solutions

They influence all major sources of global warming
pollution



Energy



Transportation



Solid Waste

Why Local Governments?

Local governments have responsibility for:

- ❑ Establishing and enforcing local and national policies and regulations
- ❑ Overseeing the local planning processes – land use and transportation
- ❑ Day to Day Operations – energy, Water and Waste disposal

Local governments work closely with the public:

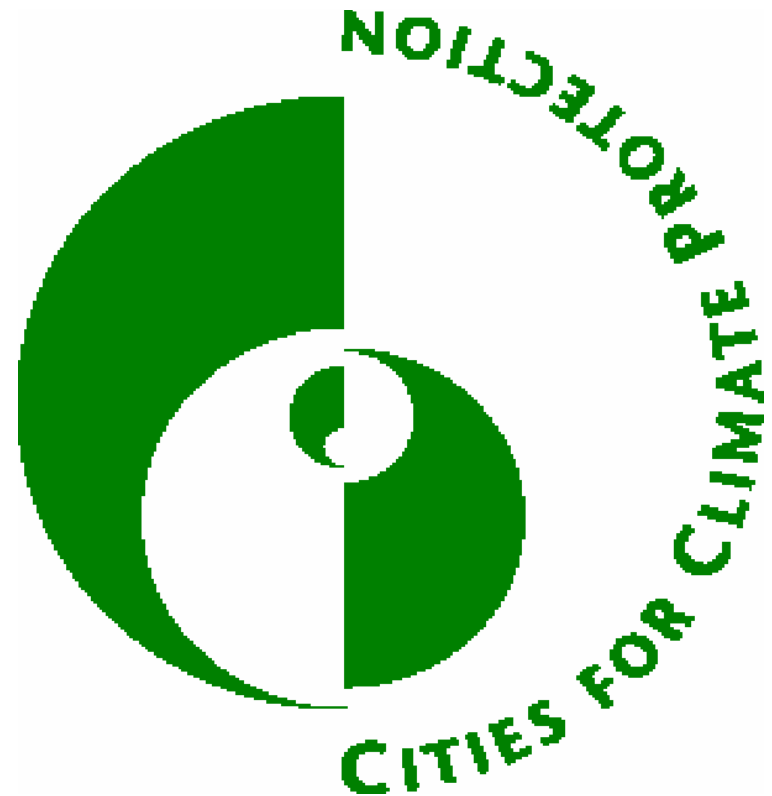
- ❑ Citizens first turn to local government for assistance
- ❑ Better equipped to identify and understand local issues
- ❑ Provide numerous education opportunities for public
- ❑ Mobilize public

The Benefits of Local Climate Protection

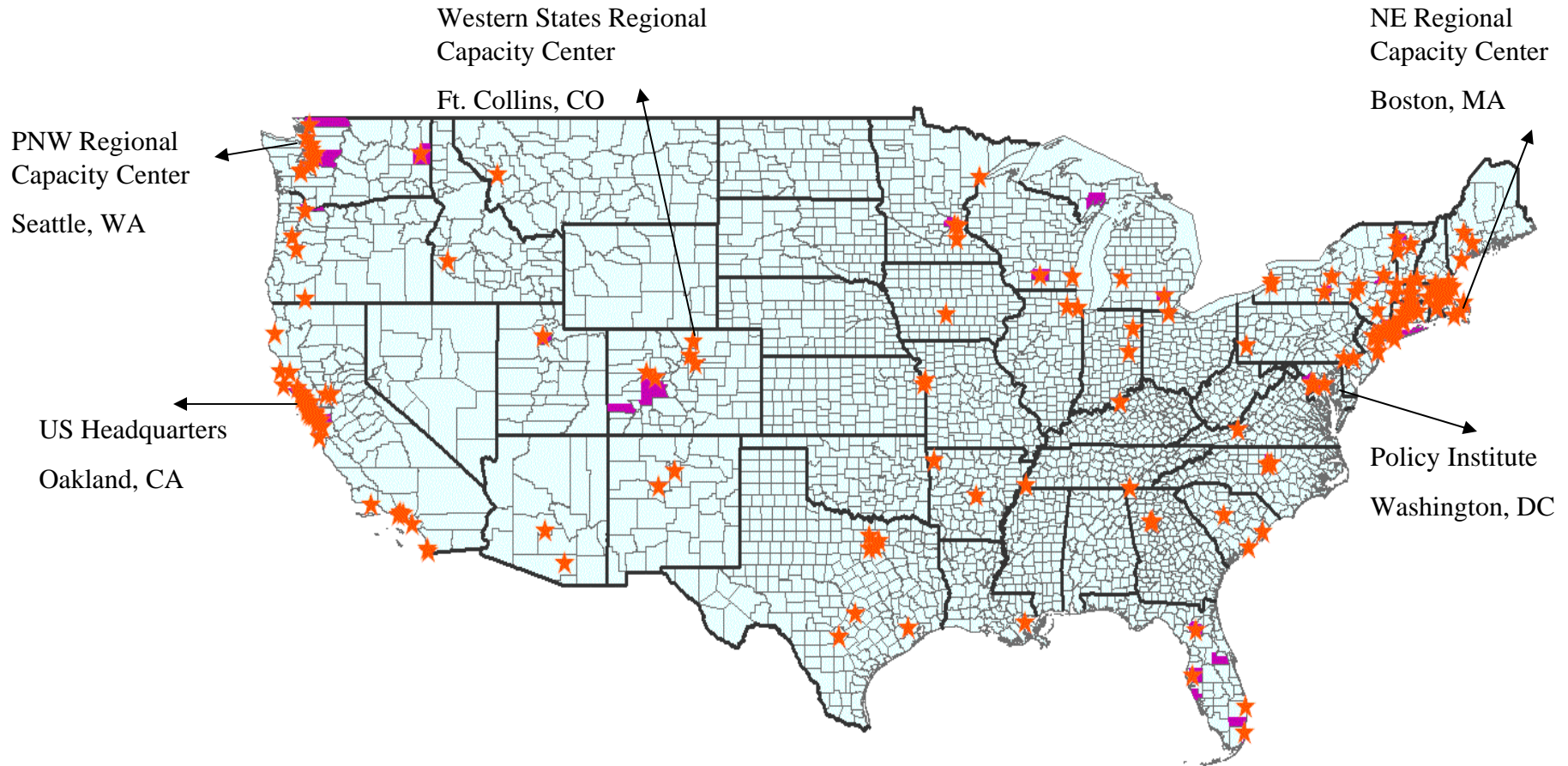
- **Save taxpayer dollars** by reducing municipal operating costs
- **Build local economy and jobs**
- **Improve air quality and public health**
- **Improve community livability**
- **Connect cities with a network** of progressive local governments nationwide
- **Create a lasting legacy of leadership**

Cities for Climate Protection Campaign™

- **Mission:** To build a worldwide movement of local governments who achieve measurable reductions in local greenhouse gas emissions, improve air quality, and enhance urban livability.
- **Participation:** 750+ municipalities worldwide representing 15% world GHG emissions
- **Theme:** Climate action makes sense for cities



ICLEI – Local Governments for Sustainability



US Offices

The CCP Milestone Process



The Measures Cities Implement



Building-Related Energy

- ❑ Municipal Building Energy Efficiency & Conservation
- ❑ Community Building Energy Efficiency & Conservation
- ❑ Outdoor Lighting
- ❑ Clean Energy



Transportation

- ❑ Vehicle Fuel Efficiency
- ❑ Alternative Fuels
- ❑ Trip Reduction / Transportation Demand Management



Recycling & Waste

- ❑ Recycling
- ❑ Methane Recovery



Land Use

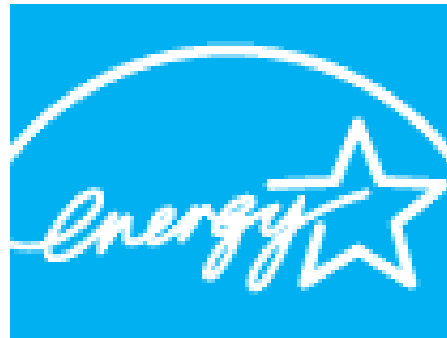
- ❑ Institute growth boundaries, ordinances or programs to limit sprawl
- ❑ Brownfield Development
- ❑ Open Space Protection
- ❑ Plant shade trees

What are some selected goals?

LOCAL JURISDICTION	CO2 REDUCTION TARGET: % BELOW BASELINE EMISSIONS	TARGET YEAR
Austin, TX	10-20%	2010
Berkeley, CA	15%	2010
Burien, WA	10%	2010
Burlington, VT	10%	2005
Chula Vista, CA	20%	2010
Durham, NC	5%	2025
Hillsborough Co., FL	20%	2010
Miami-Dade Co., FL	20%	2005
Minneapolis, MN	20%	2005
Oakland, CA	15%	2010
Portland, OR	20%	2010
Saint Paul, MN	20%	2005
Takoma Park, MD	20%	2010
Toledo, OH	20%	2020
Tucson, AZ	20%	2010

Results from CCP Participants

Cumulative *local* actions have a positive impact on *global* climate change



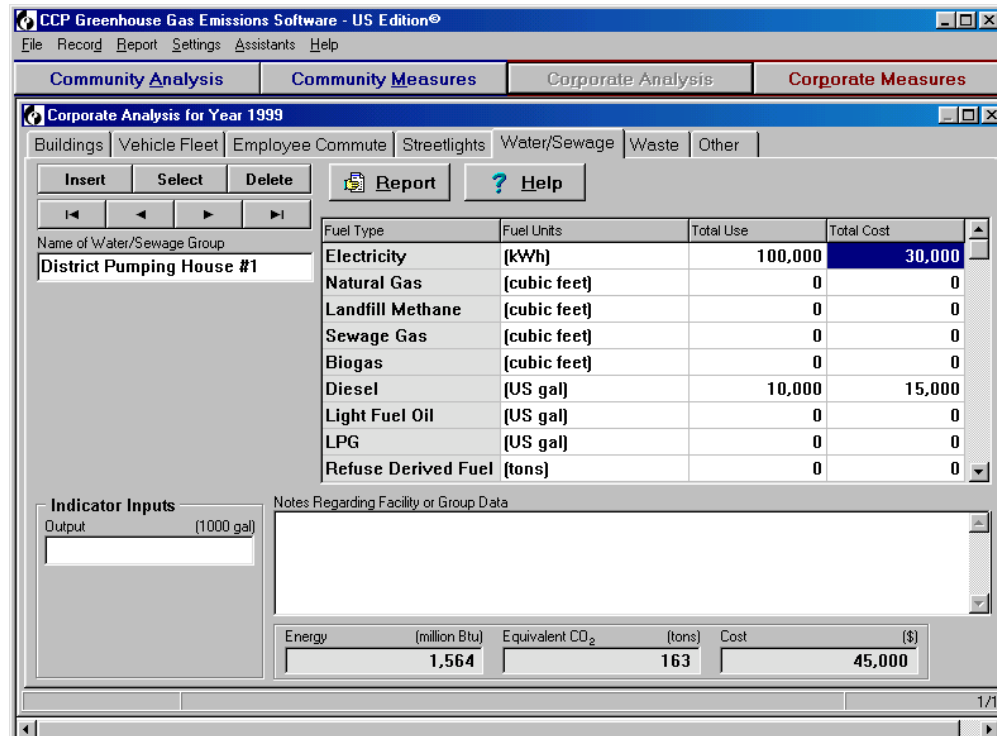
- **1200+ reported actions**
- **23 million tons of eCO₂**
- **\$ 535 million in energy savings**

Take Advantage of Support...



What ICLEI provides for staff like you....

- Tools & methodology
- Greenhouse gas quantification software
- Technical assistance
- Training sessions
- Professional network
- Competitive grants
- Publications
- Interactive website



Fuel Type	Fuel Units	Total Use	Total Cost
Electricity	(kWh)	100,000	30,000
Natural Gas	(cubic feet)	0	0
Landfill Methane	(cubic feet)	0	0
Sewage Gas	(cubic feet)	0	0
Biogas	(cubic feet)	0	0
Diesel	(US gal)	10,000	15,000
Light Fuel Oil	(US gal)	0	0
LPG	(US gal)	0	0
Refuse Derived Fuel	(tons)	0	0

Energy	(million Btu)	Equivalent CO ₂	(tons)	Cost	(\$)
	1,564		163		45,000

The Next Generation

HEAT: Harmonized Emissions Analysis Tool

<http://heat.iclei.org>

ICLEI - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://www.icleiheat.org:8080/ICLEIHEAT/portal/main.jsp

Getting Started Latest Headlines

HEAT
HARMONIZED EMISSIONS ANALYSIS TOOL

HOME
NEWS
ANNOUNCEMENTS
SPONSORS

MEMBER ACCESS

UserID

Password

Sign In

GUEST ACCESS

[[Choose Country]]

[[Choose Language]]

Sign In Calculators

FEEDBACK

Click here to email ICLEI for information about registering for the HEAT application, or to provide feedback on the public tools.

Welcome to the HEAT home portal!

ICLEI - Local Governments for Sustainability is an international association of local governments dedicated to fostering a sustainable world. With valuable support from US Agency for International Development (USAID), ICLEI developed the Harmonized Emissions Analysis Tool (HEAT) online software to support local greenhouse gas and air pollution emission reduction planning. This software provides capacity to local governments to seek to reduce GHG emissions based on sound governance, economic development, improved waste management, energy efficiency, better urban mobility, and better air quality. Beyond being a planning tool, this site offers consultants, NGOs, government agencies, academics, and others free tools to translate energy, transportation and waste activities into pollution emissions.

In general the software will:

- Build an emissions inventory based on local energy use, transportation demand, and waste practices
- Help a user/city build a simple emissions forecast
- Set a target/goal for reducing emissions (e.g., reduce GHG emissions by 10%)
- Quantify emission reduction activities and their co-benefits
- Develop, report, and track progress made in meeting that target.

HEAT features 24/7 access from any computer with an internet connection and an optional downloadable standalone application for off-line work. Initial countries for which HEAT is being prepared include India, Indonesia, South Africa, and Brazil.

Enjoy the site and please be sure to provide your comments.

NEWS

International Data Partners Confirmed..... [more](#)

ANNOUNCEMENTS

First HEAT Training conducted in South Africa... [more](#)

HEAT Training In India... [more](#)

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USAID
FROM THE AMERICAN PEOPLE

© ICLEI 2005

Done

Start HEAT Presenta... New Folder ICLEI - Mozill... CDM: Validatio... Breaking World... Inbox - Micros... Microsoft Powe... 1:34 AM

We're interested in recruiting testers.

The Ultimate Goal: “The Global Cities Action Report”

Country	Council/City	Baseline Emissions	% Target	Achievements Planned	Achieved to Date
Brazil	Sao Paulo				
	Betim				
	...				
UK	London				
	Nottingham				
	...				
India	Calcutta				
	Delhi				
	Hyderabad				
	...				
Sweden	Stockholm				
	Uppsala				
	Lund				
	...				
USA	Chicago				
	Salt Lake City				
	Seattle				
				
Others....					
Total					?????????

Keys to success...



- Publicize community dialog and create political will
 - Within your city government, facilitate a climate planning committee to meet regularly
 - *Climate change can not be solved by a single staffer or department. Successful climate planning can, however, be facilitated by a champion or department*
 - Set up and participate local and regional networks
-

Thank you!

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