COOL CITIES

Solving Global Warming One City at a Time

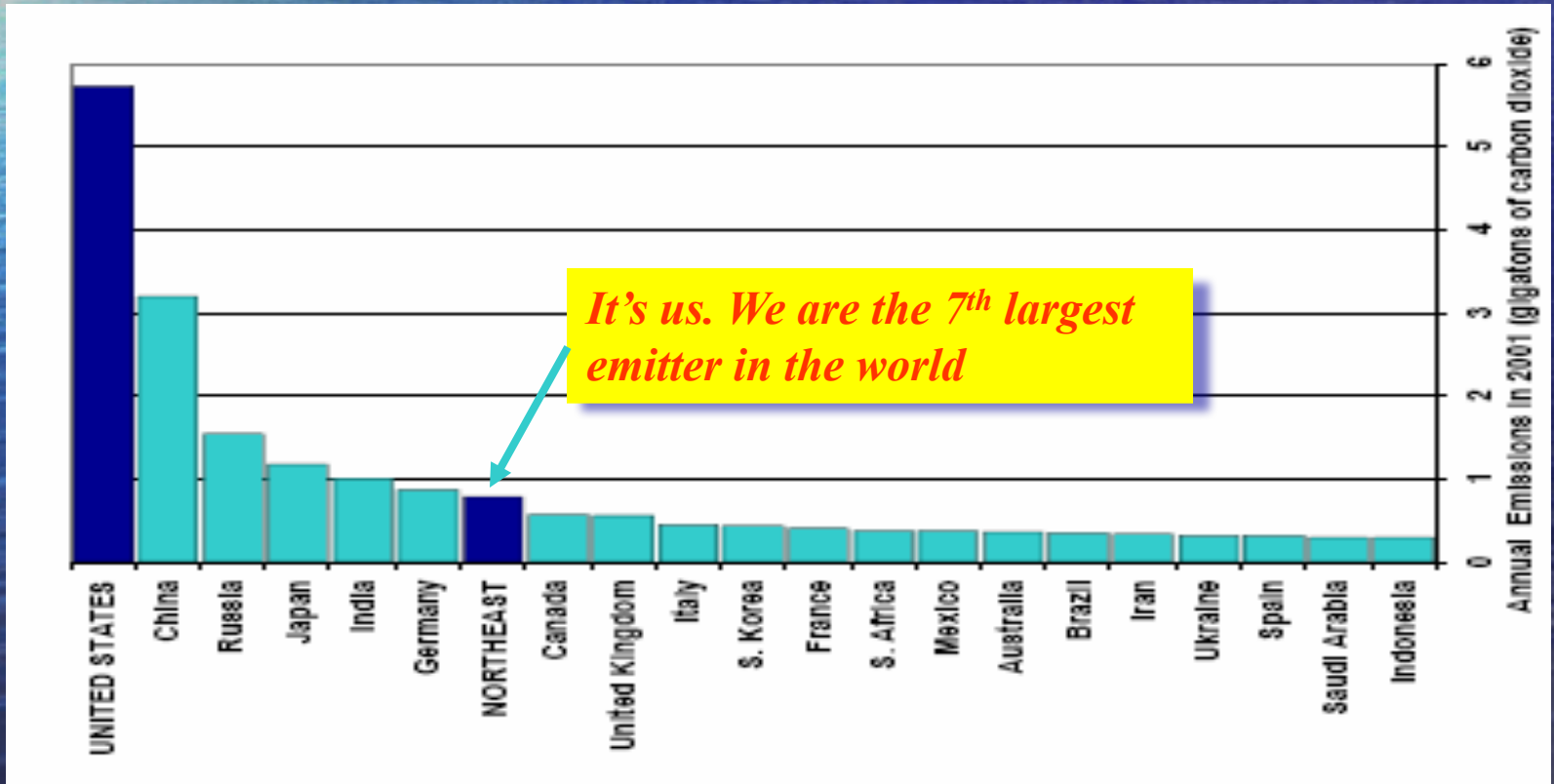
The Challenge of Climate Change:

Cool Cities

A local action program

US vs. the World…

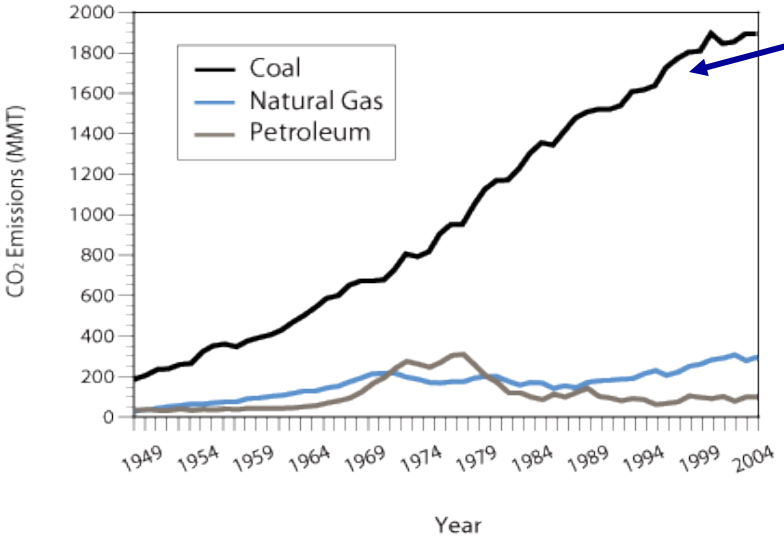
With 5% of the global population and 25% of total emissions, the US is the largest contributor to Global Warming



We keep pumping GHG into the atmosphere…

Trends in CO_2 Emissions from the Electric Power Sector

United States, 1949 - 2004



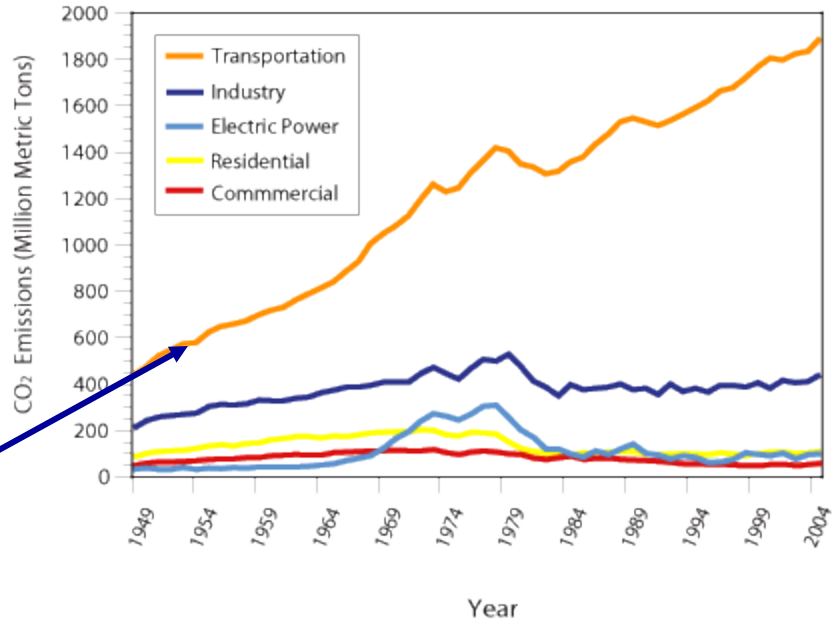
Source: Report # DOE/EIA-0573(2004)

1949-1959: Calculated from energy data in the Annual Energy Review.
1960-1989: Calculated from energy data in the State Energy Data Report.
1990-2004: Estimates documented in Greenhouse Gases in the United States 2004.

We produce most of our electricity with the dirtiest fossil fuel: Coal

Trends in CO_2 Emissions from Oil Combustion

United States, 1949 - 2004



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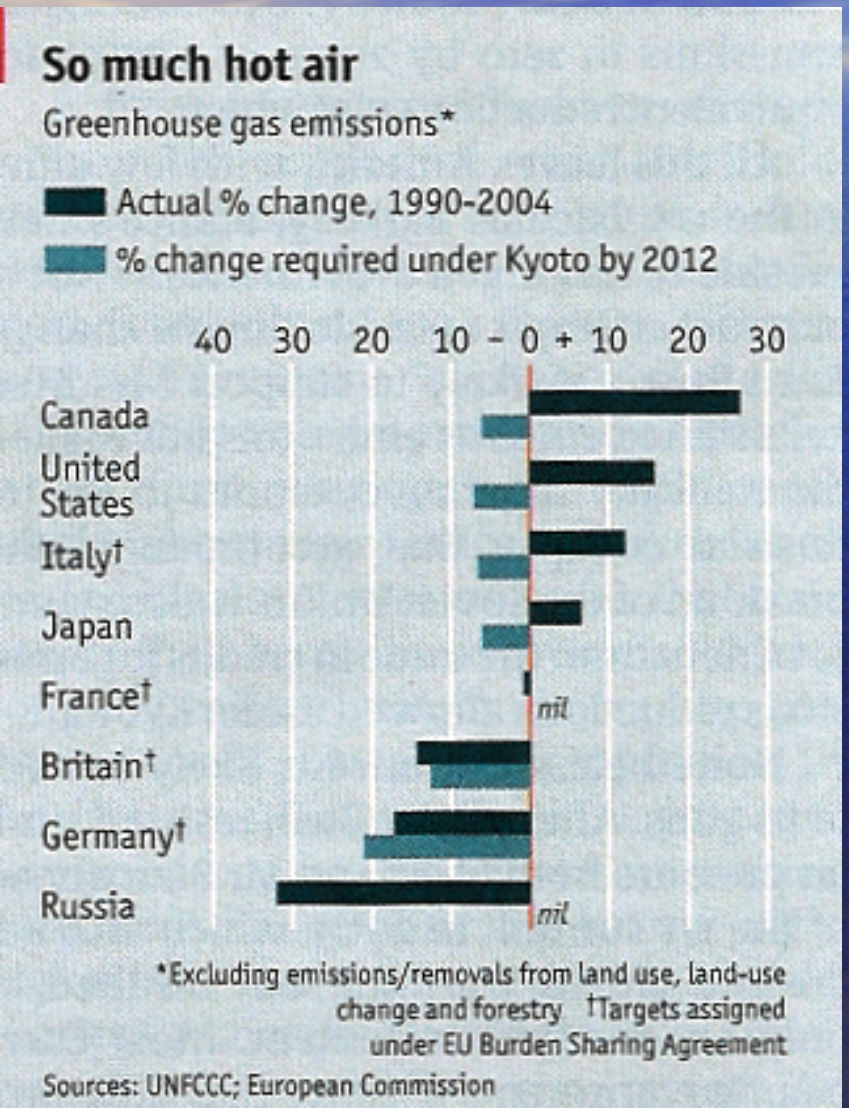
1949-1959: Calculated from energy data in the Annual Energy Review.
1960-1989: Calculated from energy data in the State Energy Data Report.
1990-2004: Estimates documented in Greenhouse Gases in the United States 2004.

We put more inefficient vehicles on the road and we travel more per capita

A long way to go to fix the problem…

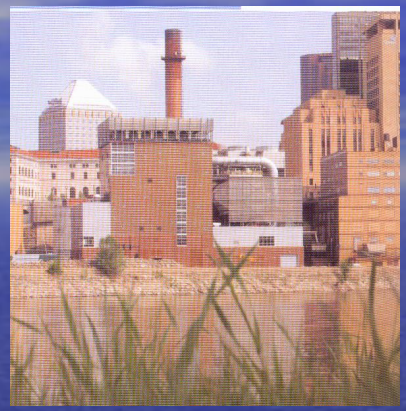


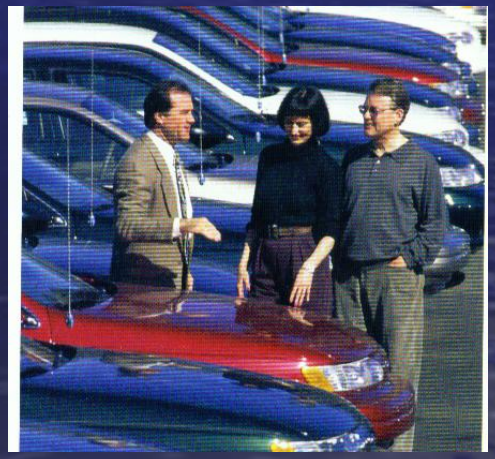
New Jersey's Global Warming Response Act:
80% reduction of 2006 GHG emissions by 2050

EU GHG emission reduction goals:
60% reduction over 1990 GHG emissions by 2050

We need to start locally

Global warming is a global problem contributed to by local energy use. All over America , cities, counties and states are moving forward with innovative energy solutions…..





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The Cool Cities program is based on a national program started by Seattle Mayor Greg Nickels (US Mayors Climate Protection Agreement)

The goal is to have local communities (cities, counties, states) to subscribe to the Kyoto Protocol emission reduction objectives and meet them by 2012

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Solving Global Warming One City at a Time

The Cool Cities program is a grassroots effort to contain and ameliorate Global Warming effects by:

- Increasing awareness of the Global Warming problem in the population at large
- Building a consensus in the communities on the necessity of immediate intervention at the local level.
- Approaching local authorities to ask them to subscribe to the goals of the USMCPA and initiate amelioration actions
- Using the active intervention of the community to provide the needed support for local authorities to implement energy conservation measures
- Developing appropriate community based means to monitor and foster progress towards the USMCPA‘s goals.

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The timing to initiate local actions is very appropriate

- Increased media attention to Global Warming
- Visible manifestations of climate change and instability
- Final scientific consensus (IPCC Fourth Assessment Report)
- Initial planning from Government and Industry to cope with expected Global Warming effects (California, New Jersey)

Active local action will prepare the population for better understanding and acceptance of larger national initiatives needed to limit the effects of Global Warming

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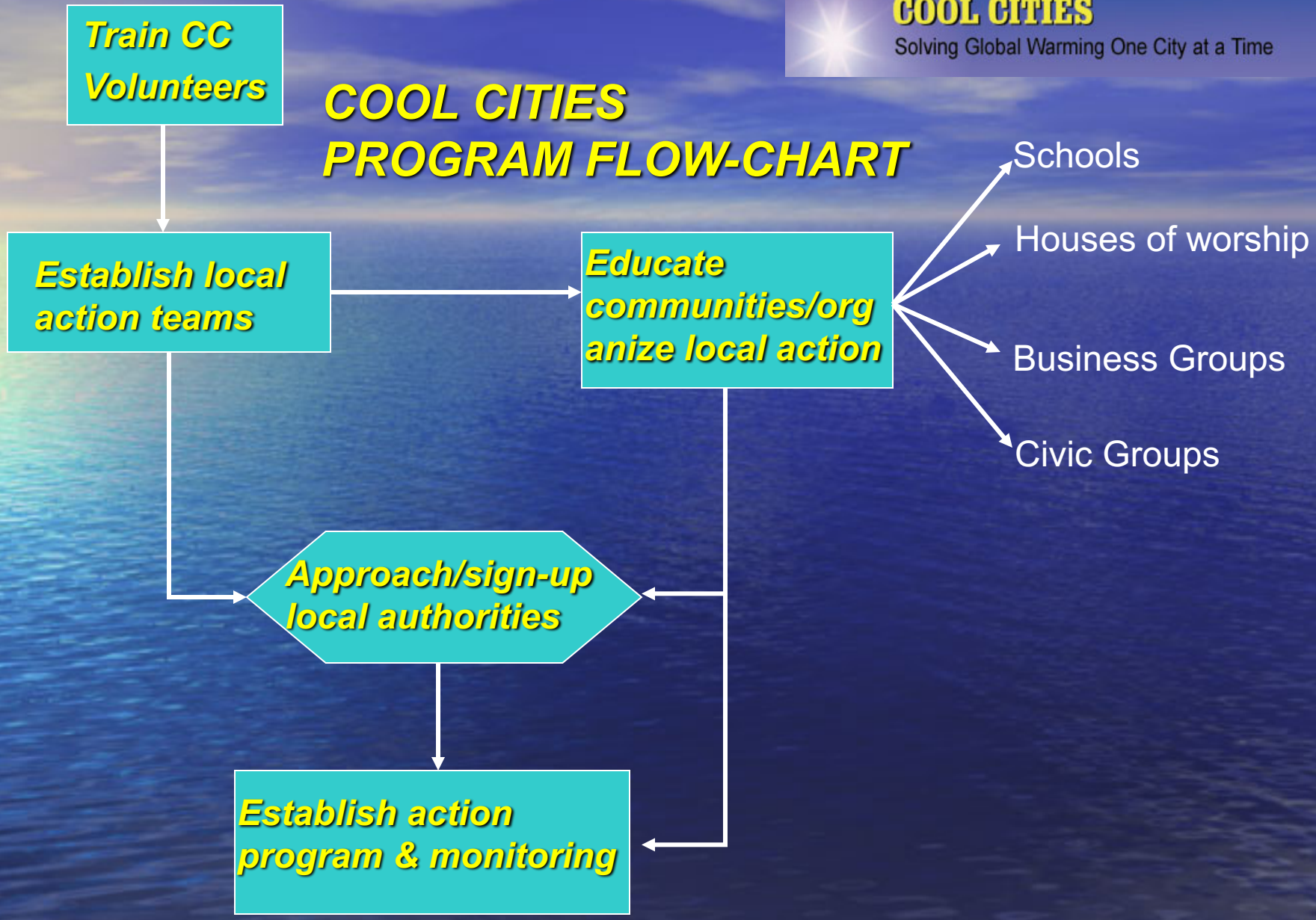
COOL CITIES PROGRAM FLOW-CHART



Implementing Climate Protection Actions

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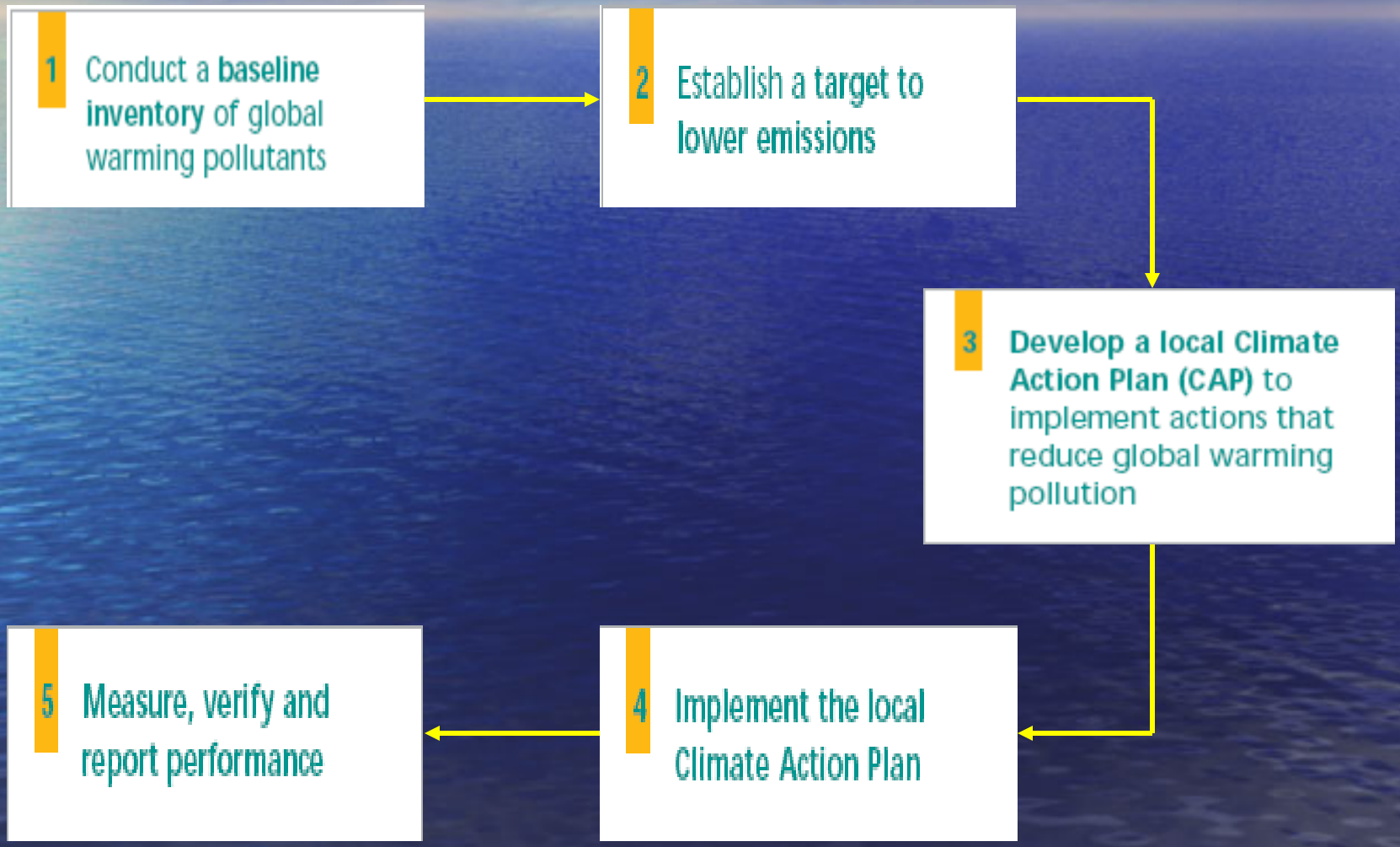

The magnitude of the task…

My individual effort will not change anything…..

The Cool Cities program can blend individual conservation efforts into community action that will result in appreciable reduction in emissions and adoption of new practices and technologies

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Solving Global Warming One City at a Time

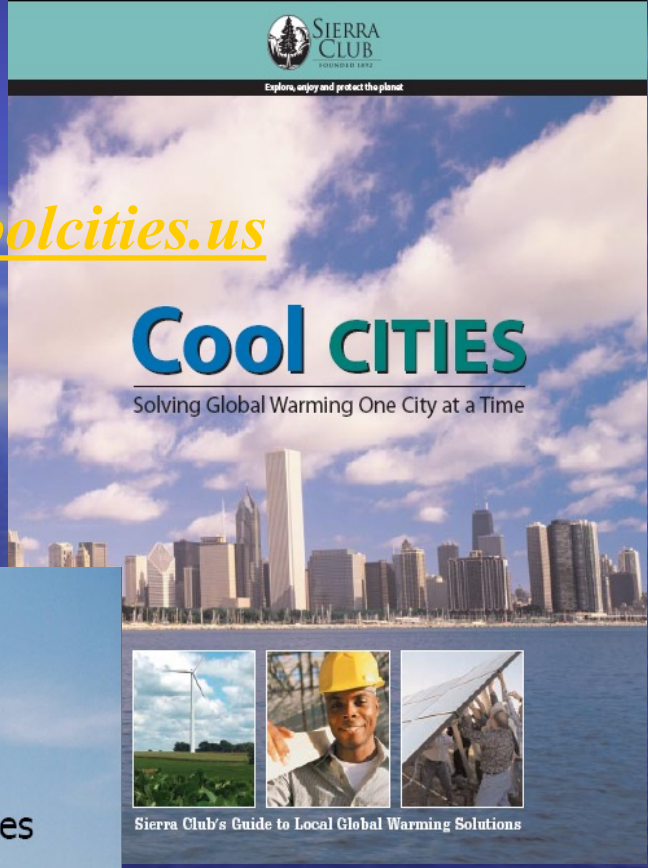
NJ's Clean Energy Program

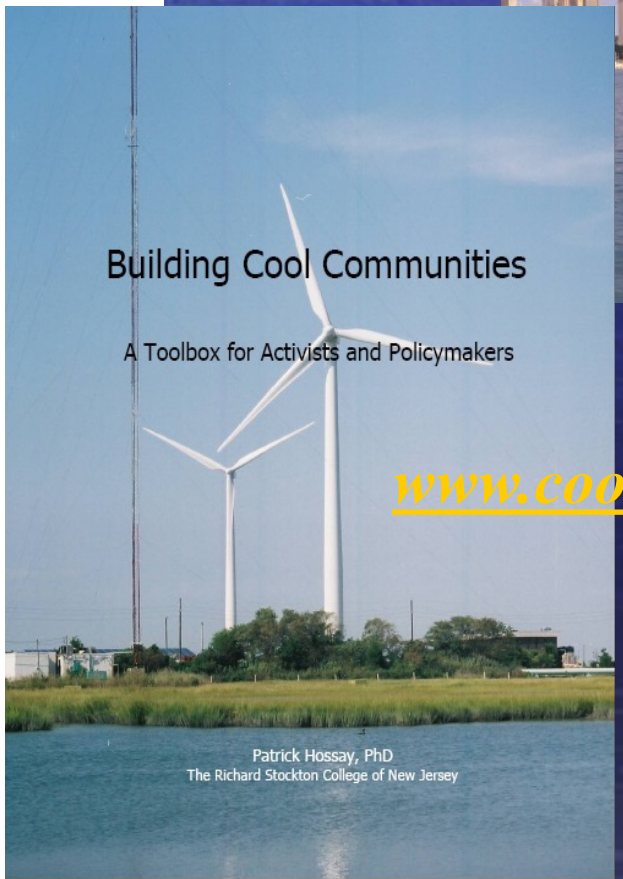
- Energy Audits
- Smart Start
- Renewable Energy
- Financing & Assistance
- Green Power Choice
- Outreach & Ed. Grants
- Clean Cities Program

www.njcleanenergy.com/

www.iclei.org/usa

www.coolcities.us





www.coolnewjersey.org

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Solving Global Warming One City at a Time

Contacts and support sites

NJ Cool Cities Committee: Stefano Crema
stefcre@aol.com
Faith Teitelbaum
faithtei@aol.com

Websites: www.coolcities.us
Information and signatory cities
www.coolnewjersey.org or www.iclei.org/usa
Local activities and energy saving suggestions
www.newjersey.sierraclub.org
Local activities and training seminars

Why Measure GHGs?

- Establish a baseline against which future inventories can be measured
- Analyze and forecast emissions and growth
- Identify necessary reductions to meet targets
- Analyze the impact of solutions before implementation
- Develop analytical evidence to create political and community support
- Demonstrate and monitor progress towards achieving emission reduction goals

Measuring Solutions - Emissions Reduction Measures

- Quantifies emissions reductions from existing and proposed solutions
- Calculates energy and cost savings of solutions
- Calculates simple payback periods
- Demonstrates progress solutions are making toward community's reduction goals

Summary Measures Report

Climate Action Plan Summary Report:

Sample Community

Community Greenhouse Gas Emissions Reductions in 2010

Target Year Measures Summary Report

Measures Summary	Equiv CO_2 (tonnes)	Equiv CO_2 (%)	Energy (GJ)	Energy Cost Savings ($)
Residential Sector	370,529	21.9	3,934,500	28,849,875
Commercial Sector	605,537	35.8	8,692,000	45,000,000
Industrial Sector	191,270	11.3	900,000	17,500,000
Transportation Sector	326,386	19.3	4,789,619	76,003,767
Waste Sector	198,000	11.7		3,000,000
Total	1,691,722	100.0		

Local Action Plan	(tonnes)
Base Year Emissions	6,129,846
Target Year Emissions Forecast	7,279,122
Target Emissions Level	4,903,877

Measures Summaries compare:

- the base year emissions,
- predicted emissions,
- target emissions level,

With the impact of the actions

What Is a Climate Action Plan?

Outlines each step toward reducing emissions

- Complete a GHG emissions baseline inventory and forecast
- Set GHG emissions reduction targets and timelines
- Formulate solutions and policies to reduce emissions
- Implement solutions and policies
- Monitor emissions reductions progress periodically and verify results

Why Measure GHGs?

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What does an inventory include?
Emissions that a municipality is directly producing or indirectly responsible for…
Greenhouse Gases
Carbon Dioxide (CO_2)
Methane (CH_4)
Nitrous Oxide (N_2O)
Reported in carbon dioxide equivalencies (eCO_2)
and
Criteria Air Pollutants


Clean Air and Climate Protection Software©
File Settings Help
Community Analysis
Community Measures
Government Analysis
Government Measures
STAPPA/ALAPCO and ICLEI's
Clean Air and Climate Protection Software
State and Territorial Air Pollution Program Administrators and Association of Local Air Pollution Control Officials
International Council for Local Environmental Initiatives
Released May 2003

Community
– Residential
– Commercial
– Industrial
– Transportation
– Waste
– Other
Government
–Buildings
–Vehicle Fleet
–Employee Commute
–Water / Sewage
–Waste
–Streetlights
–Other
Organization of Emissions by Sector

Summary Inventory Report

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Anytown

Community Greenhouse Gas Emissions in 2000

Summary Report

	Equiv CO_2 (tons)	Equiv CO_2 (%)	Energy (MMBtu)
Residential			
Anytown, Any State	1,689,794	12.9	25,843,996
Subtotal	1,689,794	12.9	25,843,996
Commercial			
Anytown, Any State	570,902	4.3	1,706,485
Subtotal	570,902	4.3	1,706,485
Transportation			
Anytown, Any State	10,887,313	82.8	126,405,952
Subtotal	10,887,313	82.8	126,405,952
Waste			
Anytown, Any State	73	0.0	
Subtotal	73	0.0	
Total	13,148,081	100.0	153,956,433

Measuring Solutions - Emissions Reduction Measures

- Quantifies emissions reductions from existing and proposed solutions
- Calculates energy and cost savings of solutions
- Calculates simple payback periods
- Demonstrates progress solutions are making toward community's reduction goals

Develop a local Climate Action Plan

A local Climate Action Plan (CAP) is a customized roadmap to reduce global warming pollution by the target that your city has identified. The CAP includes an implementation timeline for reduction measures, costs and financing mechanisms, assignments to city departments, and actions the city must implement to achieve its target. The inventory and quantification of existing climate protection measures helps guide a city to understand where they can get the largest emissions reductions. The majority of measures in CAPs fall into the following categories:

Energy management

Transportation

Waste reduction

Land use

As the next section illustrates, common measures include energy efficiency improvements to municipal buildings and water treatment facilities, streetlight retrofits, public transit improvements, installation of renewable power applications, and methane recovery from waste management.

Government Measures

Short Term

Encourage car-pooling, van-pooling, and mass transit use by municipal employees

Encourage telecommuting for municipal employees

Restrict idling of municipal vehicles

Station police officers on bicycles

Long Term

Retire old and under-used vehicles

Use car sharing programs in lieu of a city fleet

Purchase fuel efficient (e.g. hybrid) and/or smaller fleet vehicles

Utilize fuel-efficient vehicles (e.g. scooters) for parking enforcement

Utilize alternative fuel vehicles (biodeisel, ethanol, electric, compressed natural gas) for city fleet

Community Measures

Short Term

Promote commute trip reduction programs, incentives for car and van pooling, and public transit

Restrict idling at public facilities

Improve traffic signal synchronization

Open local government alternative fueling stations to the public

Long Term

Promote community purchases of compact and hybrid vehicles

Help bring car sharing programs to the community

Implement bicycle and pedestrian infrastructure programs

Provide electric plug-in stations for freight vehicles at truck stops or boats marinas and ports

Government Measures

Short Term

Purchase green electricity from solar, geothermal, wind or hydroelectric sources

Purchase green tags/renewable energy certificates

Long Term

Install solar panels on municipal facilities

Generate electricity from landfill or wastewater methane or refuse

Community Measures

Short Term

Promote community clean energy use through green power purchasing or on-site renewable technologies

Long term

Offer incentives to foster solar photovoltaic installations in the community

Implement a form of community choice aggregation

Government Measures

Short Term

Install energy-efficient exit sign lighting
Perform energy-efficient building lighting retrofits
Institute a “lights out at night” policy
Institute a “lights out when not in use” policy
Install building/office occupancy sensors
Purchase only ENERGY STAR equipment and appliances for City use. Negotiate prices by purchasing in bulk where feasible.

Long Term

Conduct an energy audit of municipal facilities
Implement an energy tracking and management system
Perform heating, cooling and ventilation system retrofits (e.g. chillers, boilers, fans, pumps, belts, fuel-switching from electric to gas heating)
Install ENERGY STAR appliances - and require this and the following in specs/purchasing RFPs
Install green or reflective roofing
Improve water pumping energy efficiency
Install energy-efficient vending machines
Install energy-efficient traffic lights
Install energy-efficient street lights (e.g. high pressure sodium)
Decrease average daily time for street light operation

Community Measures

Short Term

Adopt stringent residential or commercial energy code requirements

Promote energy conservation through campaigns targeted at residents and businesses

Long Term

Implement a low-income weatherization program

Implement district heating and cooling

Implement time-of-use or peak demand energy pricing

Install energy-efficient co-generation power production facilities

Launch an “energy efficiency challenge” campaign for community residents

Promote participation in a local green business program

Promote the purchase of ENERGY STAR appliances

Promote water conservation through

Government Measures

Short Term

Encourage/Sponsor city staff to become LEED Accredited Professionals

Long Term

Require all new construction projects to be LEED certified

Require all retrofit projects to become LEED certified

Best Practices

Austin Builds Green

Whether remodeling a home or building an office tower, the City of Austin's Green Building program helps community members, governments and businesses build more energy efficient, environmentally sound structures. Since 2000, the City Council has mandated that all new municipal buildings achieve a LEED silver rating. LEED accreditation ensures sustainable site development, water savings, energy efficiency and green materials selection. In 2003, 22 percent of new homes and four commercial projects totaling 145,000 sq ft. in the Austin Energy utility district were built in accordance with the program's guidelines. Overall, the program has peak load energy use and the total 21,600 megawatt-hour savings equals a $1.8 million savings for utility customers. In terms of pollution reduction, this means 8,343 tons yearly reduction of CO2.

Community Measures

Short Term

Provide green building information to the public

Share the efforts and knowledge of the city's green building resources

Long Term

Encourage incentives or mandate developers to construct LEED certified or ENERGY STAR homes

Government Measures

Short Term

Establish/expand recycling programs

Implement organics and yard debris collection and composting

Long Term

Establish system for reuse or recycling of construction and demolition materials for government construction projects

Implement solid waste reduction programs for facilities

Implement environmentally preferable purchasing program

Establish a methane collection system for your landfill or consider a waste-toenergy facility for your community

Community Measures

Short Term

Establish/expand recycling programs and set aggressive recycling targets/goals

Educate the public about existing programs to boost compliance

Implement penalties for non-compliance with recycling programs

Long Term

Implement organics and yard debris collection and composting

Establish system for reuse or recycling of construction and demolition materials

Implement solid waste reduction programs

Government Measures

Short Term

Educate city staff about reducing global warming pollution and its importance to their work and the city's mission

Education and Outreach

From

Education

Effectively communicating to a city's staff the importance and impact of taking actions to reduce global warming pollution is key to the success of the following measures. Motivating staff to partner and pioneer simple energy and water conservation actions and implement complex measures is integral to ensuring the success of programs. See the Education and Outreach page for more information.

Clean Fleets and Fuel

From restricting the idling of all city staff vehicles or assigning police officers to patrol on bicycles in dense urban areas to purchasing the most fuel efficient vehicles possible or using alternative fuels – cities can reduce emissions and costs from what is often one of the largest sources of global warming pollution – transportation. See the Transportation page for more information.

Recycling

Waste prevention and recycling reduces global warming pollution by reducing methane emissions and saving energy. Reducing the waste stream produced by city staff operations cuts the volume of waste disposed, reduces solid waste collection fees and can even generate revenue. In 2001 ICLEI found that more than 70 percent of reported global warming pollution reductions from CCP participants were due to waste-related activities. See the Recycling and Waste Reduction page for more information.

Switch to LED’s or CFL’s

Save energy and maintenance costs by switching to LEDs (Light Emitting Diodes) in traffic signals and exit lights. Use CFLS (Compact Fluorescent Lights) to light municipal buildings. LEDs are 90 percent more energy efficient and last 6–10 times longer than conventional lights and CFLs use up to 66 percent less energy than a standard incandescent bulb and last up to 10 times longer. Both LEDS and CFLs significantly lower both energy and maintenance costs. See the Energy Efficiency page for more information.

Turn out the lights at night

Instituting a “lights out at night” or “while not in use” policy is an easy and effective way to save electricity, reduce global warming pollution, and save municipal dollars. This can be accomplished through educational campaigns and through technology, such as timers and occupancy sensors. See the Energy Efficiency page for more information.

Purchase energy efficient equipment

Look for ENERGY STAR labeled equipment. ENERGY STAR computers use 70 percent less electricity than non-ENERGY STAR equipment. Some ENERGY STAR copy machines reduce paper costs by $60 a month and reduce energy costs at the same time, and fax machines that have earned the ENERGY STAR label can cut associated energy costs by 40 percent. See the Energy Efficiency page for more information.

Lighten Rooftops

In warm climates, cool roofs can absorb less solar energy and quickly release any heat that they store. Simply adding a highly reflective/emissive coating to a black or metal roof on a city building can reduce the need for air conditioning and produce huge annual cost and energy savings while decreasing global warming pollution at the same time. See the Green Building page for more information.

Encourage Commuters to take Public Transit

In cities with public transit systems, providing incentives for employees and commuters in the community to commute via public transit is one way for cities to decrease traffic, free up downtown parking spaces, and reduce emissions. These can include subsidized or free transit passes, parking cash-out programs, coordinated car or van pools, and programs such as a commuter challenge. See the Transportation page for more information.

Plant Trees

Studies have shown that well-landscaped commercial buildings and residential neighborhoods have lower heating and cooling costs. Strategically planted street trees and shrubs can significantly reduce cooling costs around low-rise facilities by providing shade in the summer months. Planting deciduous trees can offers shade in the summer and allows the sun to warm buildings naturally in the winter. See the Land Use page for more information.