
CITY COUNCIL REPORT

TO: Alton J. Washington
Assistant City Manager

FROM: Karen O'Regan
Environmental Programs Manager

SUBJECT: CLIMATE CHANGE INFORMATION

This report provides additional information on climate change activities as requested at the April 18, 2007 Sustainability Subcommittee meeting. Information is presented on the International Council of Local Environmental Initiatives (ICLEI), (currently known as Local Governments for Sustainability) followed by information on conducting a greenhouse gas (GHG) emissions inventory. Attachment 1 provides selected information on GHG initiatives in other countries.

In response to other questions raised by the subcommittee, Dr. Michael Crimmins, Assistant Professor, Climate Science Extension Specialist, Department of Soil, Water and Environmental Science, at the University of Arizona will present information on climate change science.

THE ISSUE

ICLEI was founded in 1990 as the International Council for Local Environmental Initiatives. They are currently known as Local Governments for Sustainability, and are an international organization dedicated to addressing environmental problems through local actions. ICLEI provides information, technical assistance, training and workshops, peer exchange opportunities, and notifications of grant opportunities to local governments. ICLEI conducts research and pilot projects, provides software and tools to help local governments achieve sustainable objectives, and publicizes local climate protection successes.

The U.S. Conference of Mayors recognizes ICLEI as the nation's foremost organization working to help cities reduce green house gas emissions. In June 2006, the U.S. Conference of Mayors formed a partnership with ICLEI to reduce greenhouse gas emissions in cities through outreach, education and technical assistance.

One of ICLEI's signature programs is the Cities for Climate Protection (CCP) Campaign, which began in 1994. In order to participate in the ICLEI CCP Campaign, cities must join ICLEI, and pass a resolution to reduce local emissions by conducting the following 5 milestones:

- 1) Conduct a baseline greenhouse gas inventory to identify and quantify the pollution;

- 2) Establish a target to lower emissions;
- 3) Develop a local Climate Action Plan to implement actions that reduce pollution;
- 4) Implement the local Climate Action Plan; and
- 5) Measure, verify and report performance.

The five-step process helps participating local governments to develop and implement a GHG reduction plan based up on their specific circumstances. The amount of time needed to complete the milestones depends on the size and complexity of the city, and the availability of data, staff and resources.

Approximately 250 cities in the United States have joined ICLEI's CCP Campaign. Of those, about 180 have paid ICLEI dues. The other cities have been temporarily grandfathered in, but their membership will be revoked if they do not pay the dues. An additional 500 cities around the world have joined the CCP campaign. The annual dues for the City of Phoenix would be \$5,750 based upon a population of 1.5 million.

Under an EPA grant, ICLEI and the State and Territorial Air Pollution Program Administrators (STAPPA) and the Association of Local Air Pollution Control Officials (ALAPCO) developed a software product to help state and local governments model and track GHG emissions. The Clean Air and Climate Protection (CACP) software tracks emissions and reductions of the greenhouse gases (carbon dioxide, methane, and nitrous oxide) and criteria pollutants (nitrous oxide, sulfur oxide, carbon monoxide, volatile organic compounds and particulate matter) associated with electricity, fuel use, and waste disposal. This software contains thousands of emission factors that are used to calculate emissions based upon fuel and energy use, waste disposal, and other information. This tool is used to create emissions inventories, quantify the effect of existing and proposed GHG reduction efforts, predict future emission levels, set reduction targets and track progress towards meeting goals. This appears to be the only software designed specifically for local governments and states. The software is currently being upgraded and a new, more robust version should be available in early 2008.

ICLEI provides participating cities with assistance on inventories, identification and quantification of GHG reduction measures, and policy development. ICLEI can help train city staff, and can also conduct the GHG inventory using a fee-for-service approach. ICLEI emphasizes building climate protection expertise within the local government organization.

In response to specific Council questions, ICLEI Director of Programs, Garrett Fitzgerald, indicated that approximately 100 to 150 cities in the CCP campaign have completed emissions inventories, and that about 10 to 12 have completed all 5 milestones. He also indicated that the goals are typically set 10 to 15 years out in the future, so currently, cities have not met their goals. He indicated that depending on a city's size and complexity, and data availability, it could take up to a year (or more) to complete an inventory.

GHG Inventories

The purpose of a GHG inventory is to identify and quantify the global warming emissions produced by city operations. GHG inventories can also be done for the community at large, but it is more difficult to be able to forecast, control or change community emissions. The inventory and forecast provide a benchmark against which the city can measure the progress of its emission reduction activities.

An inventory is developed by collecting data about energy management, recycling and waste reduction, transportation, and land use. The inventory also identifies the activities that contribute to climate change and the quantity of pollution generated for a base year (e.g. 2000) and a forecast year (e.g. 2020). The analysis provides key information on current levels of GHG emissions, estimates of how the emissions will change in the future (by activity and in total), and how emissions have changed in the past. This information is critical to help identify the most effective mitigation strategies. The inventory and forecasts for the future should be designed to be consistent with standard GHG accounting procedures and with standard GHG reporting systems.

GHG inventories should address all six gases identified by the International Panel of Climate Scientists: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The criteria pollutants such as PM-10 and PM-2.5 can also be included in the inventory. The inventories need to cover all sources either owned or under the management control of the City of Phoenix. These include direct sources, such as fuel combustion (e.g. fleets, landfills) and indirect sources such as energy consumed by the city's operations (buildings, street lights, etc.).

Because the City of Phoenix owns or operates at least 1,100 city facilities, conducting a greenhouse gas emissions inventory will be very challenging. Landfills and wastewater treatment plants are larger emitters, which will need to be calculated separately. Emissions from the airport facilities and city operations will also be addressed.

Consultant services can be used to prepare a workplan, meet with departments, collect available records (electricity and fuel purchases, refrigerant purchases, vehicle-miles traveled, etc), develop the emission estimates for each pollutant for each source, develop and document the inventories and emission forecasts, calculate the impact of programs implemented since the base year, identify options for GHG reduction programs, and recommend GHG reductions goal. OEP's preliminary recommendation is that the baseline be the year 2000 to be consistent with the Arizona GHG inventory.

The consultant can help prepare a final report documenting the methods and data sources used to construct the inventory. Deliverables typically include a workbook, training and a draft climate action plan. Initial estimates from several consultants indicate that because of the size and complexity of Phoenix' operations, a thorough GHG inventory for the city could range from \$75,000 to \$100,000.

Other Countries

The subcommittee also requested information on Kyoto Protocol and on GHG reduction efforts being conducted in other countries. That information is provided in Attachment 1. Within the United States, there is no overall regulatory framework or comprehensive program for reducing GHG emissions. However, many states have independently taken action to begin GHG reduction efforts, and several state coalitions have initiated regional efforts. Arizona is working with the Western Regional Air Partnership, the Eastern Climate Registry, and the Midwestern states to establish a multi-state climate registry to provide a common framework for state programs.

RECOMMENDATION

This report provides information to support a previous staff recommendation to:

- 1) Retain a consultant to conduct a GHG emissions inventory and to
- 2) Approve a resolution (Attachment 2) that endorses the State GHG goal and commits to conduct the ICLEI five-step climate action milestones.

RESOLUTION NO. _____

A RESOLUTION OF THE CITY OF PHOENIX
CLIMATE CHANGE ACTION

WHEREAS, the City of Phoenix, a unique desert city, has particular concerns about the impacts of climate change and climate variability on residents, business, and the environment, including the potential for prolonged drought, warmer temperatures, adverse impacts on water supplies, and other effects; and

WHEREAS, there is a scientific consensus that increasing emissions of carbon dioxide, methane, and other greenhouse gases released to the atmosphere are affecting the earth's climate; and

WHEREAS, the Inter-Governmental Panel on Climate Change (IPCC), the international community's most-respected assemblage of scientists, has found that human activities are largely responsible for increasing concentrations of global warming pollution; and

WHEREAS, the City of Phoenix served on Arizona's Climate Change Advisory Group which developed recommended actions to reduce greenhouse gas (GHG) emissions in the State of Arizona, which are projected to increase by an estimated 148 percent over 1990 emissions levels by 2020; and

WHEREAS, on September 7, 2006 the Governor of the State of Arizona issued Executive Order 2006-13, Climate Change Action, which set a goal to reduce greenhouse gas emissions in Arizona to 2000 emissions levels by 2020 and to 50 percent below 2000 emissions levels by 2040; and

WHEREAS, actions taken to reduce greenhouse gas emissions and conserve fossil fuels may have multiple benefits, including economic development, job creation, cost savings, and improved air quality; and,

WHEREAS, the International Council for Local Environmental Initiatives (ICLEI) – Local Governments for Sustainability has a program for local governments to become Partners in the Cities for Climate Change Protection Campaign.

WHEREAS, the City of Phoenix is implementing a wide range of programs to help reduce greenhouse gas emissions;

NOW THEREFORE, be it resolved that the City of Phoenix endorses the Arizona Governor's goal to reduce statewide greenhouse gas emissions to 2000 emissions levels by 2020 and 50 percent below 2000 emissions levels by 2040.

BE IT FURTHER RESOLVED, that the City of Phoenix will undertake the Cities for Climate Change Protection's milestones to reduce greenhouse gas and air pollution emissions:

1. Conduct a greenhouse gas emission inventory and forecast to determine the sources and quantities of greenhouse gas emissions from City operations;
2. Establish a greenhouse gas emissions reduction target for City operations;
3. Develop a plan to meet the City's greenhouse gas emission reduction target;
4. Implement the plan; and
5. Monitor and report the City's progress.

BE IT FURTHER RESOLVED, that the City will continue to demonstrate its ongoing commitment to a sustainable future and reduction of greenhouse gas emissions through programs such as:

- Practice and promote: smart growth planning, policies and zoning, infill and brownfields development and incentives, pedestrian friendly and transit-oriented development, and heat island reduction activities;
- Promote transportation options such as a bikeway system, trip reduction programs, light rail, public transit, rideshare and carpooling incentives and bikes on buses;
- Promote the use of renewable energy resources such as gas-to-energy, solar projects and other innovative technologies;
- Conduct energy practices and projects in City facilities and operations such as energy efficiency retrofits, energy conservation outreach, energy efficient lighting, Energy Star equipment, energy efficient heating and cooling systems;
- Adopt energy efficient building codes for commercial and residential development;
- Practice and promote sustainable building practices for City buildings using the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED), or similar, program;
- Evaluate and purchase fuel-efficient, and alternative/clean fuel vehicles for the City fleet;
- Practice and promote recycling, household hazardous waste collection events, mulching, and rubberized asphalt programs;
- Practice and promote pollution prevention actions, such as product substitution and process changes, and environmentally preferable purchasing programs;
- Practice and promote water conservation, riparian area restoration and preservation, water protection and planning, and water reclamation and reuse programs;
- Practice and promote programs to preserve open space for urban forest programs, parks, vegetation, and trees on City properties; and,
- Coordinate with other governments on regional and statewide climate change programs including the Arizona Climate Change Executive Committee.

We recognize the unique nature of the Valley's environment and will continue to promote public awareness and implement these important steps to ensure vitality and sustainability.

PASSED by the Council of the City of Phoenix this _____ day of (month), (year).

MAYOR

ATTEST:

City Clerk

APPROVED AS TO FORM:

City Attorney

REVIEWED BY:

City Manager