

IMPLEMENTATION AND NEXT STEPS

Conducting the GHG Inventory and Forecast and outlining the reduction measures are first steps toward addressing greenhouse gas emissions. Community engagement and dialogue among the local decision-makers will be needed to adequately develop Local Action Plans specific to the needs of the unique jurisdictions.

With the completion of the Inventory, Forecast and Reduction Plan, the following steps are tentatively envisioned:

- ∞ **February 25th, 2009** - Presentation of Inventory, Forecast and Reduction Plan to Local Elected Boards.
- ∞ **Spring 2009** - Community Input Sessions held in each jurisdiction to discuss the report and gather citizen comments.
- ∞ **Late spring 2009** - Climate Change Committee meets to develop companion "Implementation Report", incorporating citizen comments.
- ∞ **Summer and Fall 2009** - Discussion by elected boards about the implementation measures, target setting and reduction plan.
- ∞ **October 29, 2009** - Joint meeting of elected boards to discuss planned implementation steps.
- ∞ **Late 2009 and Beyond** - Implementation steps addressed by each jurisdiction consistent within the overall plan and target, but tailored to individual community (jurisdictional) needs.



CCP PROTOCOL AND ACHIEVING MILESTONE RECOGNITION

Carrboro, Chapel Hill, and Orange County* have committed to follow the five milestone framework of the CCP Campaign. These milestones are:

- **Milestone One:** Create a GHG Emissions Inventory and Forecast
- **Milestone Two:** Set a Reduction Target
- **Milestone Three:** Develop a Local Action Plan
- **Milestone Four:** Implement the Local Action Plan
- **Milestone Five:** Measure Progress and Report Results

* Hillsborough is not an ICLEI Member



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This Executive Summary brochure was created for Orange County by ICLEI Canada. For more information please contact icleicanada@iclei.org. This is a summary of a full document for Orange County.

CARRBORO, CHAPEL HILL, HILLSBOROUGH, AND ORANGE COUNTY:

GREENHOUSE GAS EMISSIONS INVENTORY AND FORECAST



EXECUTIVE SUMMARY

Orange County, North Carolina, is a growing, dynamic community. The towns of Chapel Hill, Carrboro, Hillsborough, Durham, and Raleigh, and surrounding areas in Orange, Durham and Wake Counties, are referred to as the Research Triangle Region, due to their numerous prominent research universities in the three corners of the region. These sectors attract skilled and educated workers to high paying jobs and the average standard of living in the region is excellent. As a result of the booming local economy and mild climate, the region continues to be rated as one of the best places to live in America. The region continues to attract new businesses and workers and is dealing with a rapid rate of growth, which is generally expected to continue in the next decades.

In 2001, Chapel Hill and Carrboro became Members of ICLEI-Local Governments for Sustainability, an international membership association of over 1000 local governments worldwide committed to sustainability. In 2003, Orange County also joined ICLEI. The three local governments (as well as Hillsborough) have committed to take part in ICLEI's Cities for Climate Protection (CCP) Campaign.

As part of the CCP, a greenhouse gas emissions inventory was taken on. This inventory, forecast and reduction plan coincides with other actions currently being undertaken at the local, regional and national level. As an example of two institutions working together to combat climate change, University of North Carolina (UNC) and the Town of Chapel Hill are working together toward carbon reduction. UNC is assisting the Town with its Community Carbon Reduction (CRed) programs, and has signed the American College and University Presidents Climate Commitment to pursue climate neutrality.

At the national level the U.S. Dept. of Energy (DOE) in April 2006, issued new guidelines for the voluntary reporting of greenhouse gas emissions known as "1605 (b)." These new guidelines encourage broader reporting of emissions and sequestration by industry, utilities, small businesses and institutions. The goal of this registry is to comply with the current administration's goal of reducing greenhouse gas emission intensity. Under the program, participating companies will submit an annual report of emissions and reduction efforts. This registry will enable emitters to be credited with reductions they have made. The intent of the new guidelines is to

improve accuracy, reliability and verifiability of reported emissions.

At the state level, in 2006, the North Carolina Department of Environment and Natural Resources (DENR) has convened the Climate Action Plan Advisory Group (CAPAG), a group of interested citizens and local climate and energy experts. The purpose of the CAPAG is to develop recommendations to DENR and the Division of Air Quality for a state level climate

action plan, focusing in particular on economic opportunities and co-benefits associated with potential climate mitigation actions. The goal of the CAPAG is to seek consensus on a comprehensive series of locally proposed actions to reduce GHGs in North Carolina. With so many of the sources of GHG emissions being under their direct or indirect control, local governments will undoubtedly play a key role in enabling North Carolina to achieve any emission reduction plan established by the CAPAG. As Carrboro, Hillsborough, Chapel Hill, Orange County and the State of North Carolina are all planning for climate change action concurrently, they are poised to aid one another in achieving their mutual goals of climate change mitigation and social and economic vitality.



Recommended Actions for Local Government Emission Reduction

In the Local Action Plan, ICLEI has made many recommendations for ways in which the local governments of Orange County can reduce emissions throughout the various sectors of their operations. Some examples include:

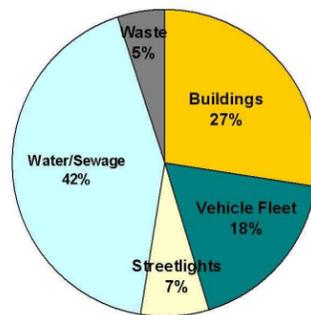
- ∞ All jurisdictions to explore further retrofits on all municipal buildings;
- ∞ All fleets should be evaluated for improvements to fuel efficiency and the use of alternative fuels;
- ∞ All jurisdictions should look further into advancing green purchasing policies;
- ∞ That all of the jurisdictions look into the viability of alternative vehicles (hybrids) for their fleets; and
- ∞ Solar panels (alternative energy source) installed on all LED traffic signals or flashers to power them.

LOCAL GOVERNMENT INVENTORY, FORECAST & TARGET

The local government module quantifies emissions from buildings, vehicle fleets, streetlights & traffic signals, water & wastewater treatment facilities, and waste produced by municipal and county operations. The local government module is reported in more detail than the community module; as local governments have direct control over their own operations and are most likely to be able to directly effect major emissions reductions, they can act as a leader within their own community. With more detailed information, local governments can better determine where the greatest opportunities for improvement lie. Local government operations for Chapel Hill, Carrboro, Hillsborough and Orange County produced approximately 42,840 tons of greenhouse gases in 2005; this accounts for approximately 2% of the emissions produced by the community as a whole.

Orange County, and the Towns of Chapel Hill, Hillsborough and Carrboro have selected 2030 as the year by which the communities will achieve a voluntary GHG emissions reduction target. In order to determine the level of emission reductions that could be achieved given socio-economic growth in the region, emissions were forecast to 2030 using a set of growth factors. Emissions from the Towns' and County's local government operations were projected for the target year of 2030 under Business As Usual (BAU) and "Currently Planned" emissions reduction scenarios. Figure 2 illustrates the differences in emissions between 2005, 2030 BAU and 2030 with currently planned measures. To construct a BAU forecast of energy use within local government operations in 2030, ICLEI worked with Town and County

Figure 1. 2005 Corporate GHG Emissions

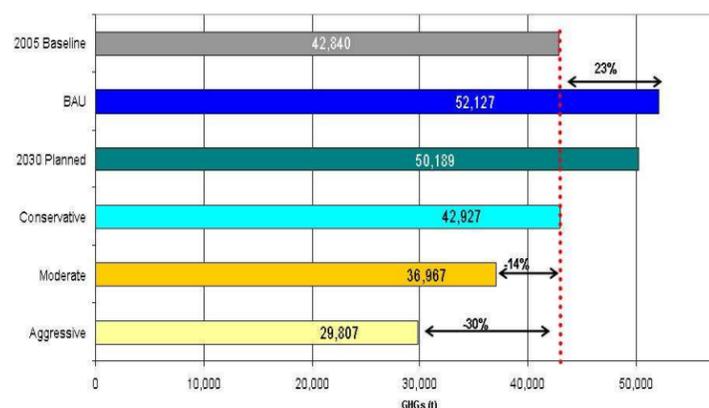


staff to identify and estimate the anticipated growth in local government infrastructure between the base year and the forecast year.

When choosing a reduction target, a local government should be aware that targets are an iterative policy development tool which can and should be refined and increased over time. Ultimately a larger reduction in GHG emissions is needed to avert the worst impacts of climate change. The target that Orange County chooses to adopt following this report should be seen as the first step in that direction.

ICLEI has developed three different scenarios for Orange County to consider when adopting their reduction target. These scenarios demonstrate different levels of emission reductions (conservative, moderate and aggressive) that are achievable through different levels of commitment, investment and ingenuity on the part of the participating local governments. The conservative target of 86 tons above the baseline at 42,840 tons is achievable through taking advantage of 'low hanging fruit.' That is, easy and quick methods of reducing energy consumption and emissions. The moderate scenario of approx. 5800 tons below the baseline, involves some ingenuity, investment and planning. The high scenario of 13,000 tons below the baseline involves greater levels of ingenuity and investment, as well as long-term strategies to achieve more dramatic results. These three different scenarios can help the communities to determine which target is appropriate, given its commitment to saving energy, improving local air quality and helping to avert global climate change. The different scenarios can also be seen as stages in an emission reduction strategy. The participating communities may choose to begin with lower targets, and as progress is made towards them, the target may be modified to follow a more aggressive emission reduction strategy. Figure 2 illustrates the reduction targets developed.

Figure 2. Corporate GHG Emission Scenarios



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COMMUNITY INVENTORY, FORECAST & TARGET

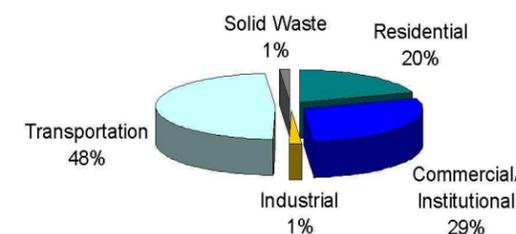
The community inventory provides an estimate of all of the greenhouse gas emissions produced within Orange County both by residents in their homes and by local businesses and agencies as they carry out their operations. Five key sectors are included in the community inventory: residential, commercial/institutional, industrial, transportation, and solid waste.

During 2005, Orange County (including Carrboro, Hillsborough and Chapel Hill) produced approximately 2,802,500 tons of GHGs; figure 3 shows a breakdown of the emissions by sector in 2005.

The combined emissions saw the transportation sector emit the most GHGs with 48% (1,356,984 tons) of the emissions profile. The Commercial/Institutional sector followed with 29% (813,943 tons) of the emissions profile. The residential sector had approximately 20% of the emissions profile with 552,188 tons of GHGs.

Orange County, and the Towns of Chapel Hill, Hillsborough and Carrboro have selected 2030 as the year by which the communities will achieve a voluntary GHG emissions reduction target. In order to determine the level of emission reductions that could be

Figure 3. 2005 Community GHG Emissions



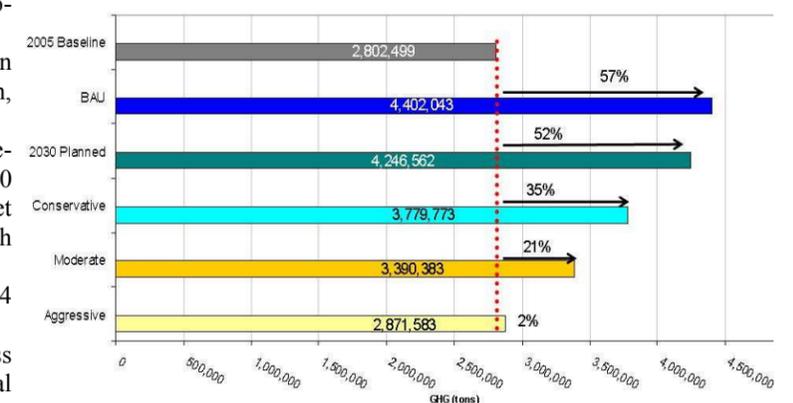
achieved given socio-economic growth in the region, emissions were forecast to 2030 using a set of growth factors. Figure 4 illustrates the business as usual (BAU)

forecast and the 2030 Planned Scenarios. The BAU scenario is 57% higher than the baseline year, and the planned scenario is 52% higher than baseline emissions.

The 2030 Currently Planned emission reduction scenario assumes that all of the planned new measures outlined in the section entitled "Planned Future Community Measures" are implemented, including the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO) Long Range Transportation Plan (LRTP). Approximately 155,481 tons of GHGs would be avoided as a result of the implementation of new measures.

In 2005, Orange County generated approximately 22.8 tons of GHGs per capita, only slightly less than the U.S. average of approximately 24.09 tons per capita. However, it is important to consider that total U.S. emissions include some sources not included in the CCP inventory (e.g. agriculture, soil management, air transportation and others) and

Figure 4. Community GHG Emissions Target Scenarios



given Orange County's relative lack of industry, this emission profile is high.

ICLEI recommends that CCP participants adopt a 6% community emissions reduction target; meaning emissions would be reduced by 6% below the baseline year within 10 years, however as can be seen in Figure 4 the projected growth within these communities from the 2005 baseline year and the 2030 target year, 6% would be an unrealistic target to set. The three target scenarios that were developed in this inventory and local action planning process predicted that 2030 emissions could be reduced from forecasted levels to 36% above the baseline (conservative scenario), 22% above the baseline (moderate scenario) and 3% above the baseline (aggressive scenario). Given that the BAU scenario would result in a 59% growth in GHG emissions, and the planned scenario would result in 53% growth in emissions, these scenarios would respectively involve a 12%, 25% and 48% reduction from planned emission levels by 2030.

Recommended Local Government Emission Reductions

In the Local Action Plan, the advisory committee and ICLEI have made many recommendations for ways in which the various communities can reduce emissions in each community sector. Some examples include:

- ∞ Further partnership development between the jurisdictions and the local utilities;
- ∞ Work with state and federal programs that could be implemented within the jurisdictions;
- ∞ Reduce single occupancy vehicle (SOV) trips throughout the jurisdictions through transportation demand management (TDM) initiatives, and promotion of non-motorized transportation planning principals; and
- ∞ Further partnerships with community groups and local businesses to reduce emissions.