



Community Carbon Footprint

10 Points

Updated March 2017

Pre-Requisite Action: The **Municipal Carbon Footprint** action is a pre-requisite and must be completed before points will be awarded for this action

A Community Carbon Footprint shows a community's impact on global warming and climate change by measuring of the amount of greenhouse gas emissions produced by a municipality's residents, schools, businesses, and industries in a given year. The footprint can be reported publicly to build awareness and support for actions that can bring down carbon emissions. It also can be used to track the progress of a municipality as it implements actions to combat global warming and climate change. This action provides instructions and links to accepted protocols for establishing a Community Carbon Footprint, also known as a Greenhouse Gas (GHG) Inventory, as well as forms and information for gathering the necessary data.

Why is it Important?

The greenhouse effect is a natural process that results from naturally occurring heat-trapping gases in the atmosphere, such as carbon dioxide, water vapor, and methane. The problem arises because human activities have now sharply increased the presence of greenhouse gases in the atmosphere. These gases prevent the escape of earth's infrared radiation into space. In general, the more gases that accumulate, the more heat the atmosphere traps.

The Intergovernmental Panel on Climate Change (IPCC) is the major international scientific effort to understand climate change and what can be done. According to a 2007 report issued by the IPCC, "Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased."¹

Global warming poses serious threats such as rising sea levels, changes in rainfall patterns, severe droughts and floods, more intense and frequent hurricanes and other windstorms, and new pathways for disease. With vast assets in facilities, parks, roads, bridges, waterfronts, and water and sewage networks, climate change creates significant risks for local governments in New Jersey.

In the U.S., nearly 900 mayors (94 in New Jersey) have signed the U.S. Mayors' Climate Protection Agreement pledging to meet or beat the Kyoto Protocol's goal of reducing GHG emissions to a 7% reduction from 1990 levels by 2012.

The Stern Review, *The Economics of Climate Change*, concluded that the risks of climate change could be substantially reduced if greenhouse gas levels in the atmosphere can be stabilized between 450 and 550 ppm carbon dioxide equivalent (CO₂e).[²] The Stern Review's conclusion is that "stabilization...requires that annual emissions be brought down to more than 80% below current levels."

This is the same target established by New Jersey's Global Warming Response Act, which calls for a reduction in greenhouse gas emissions to 1990 levels by 2020, approximately a 20 percent reduction, followed by a further reduction of emissions to 80 percent below 2006 levels by 2050.

Meeting greenhouse gas emission goals set by the state requires commitments at the local level. Conducting a Municipal Carbon Footprint establishes a baseline upon which progress towards greenhouse gas reduction targets can be evaluated. It helps develop an understanding of GHG emissions appropriate for making well-informed decisions regarding local policies and actions to reduce such emissions.

[1] Intergovernmental Panel on Climate Change (IPCC). *Climate Change 2013: Synthesis Report*; http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_SPM_FINAL.pdf

[2] Nicholas Stern, *The Economics of Climate Change*. Cambridge, U.K.: Cambridge University Press, 2007, p. xvi.

Who should lead and be involved with this action?

This action involves coordination with any staff and departments involved in developing a local government carbon footprint. If the **Municipal Carbon Footprint** action has not yet been pursued, it should be undertaken at the same time. See the **Municipal Carbon Footprint** action for a list of recommended participants. Collecting data at the community level may include participation from one or more of the following:

- Green Team / Climate Action Team members
- Facilities managers
- Administrator

- Public Works
- Recycling coordinator
- Utility provider liaison

Timeframe

Data collection and analysis may take several weeks to several months or more depending on the availability of data, staff and resources. Availability of data, which is often out of your hands, will be the biggest determinant of time. If the data is forthcoming, the timeframe will be short.

Project Costs and Resource Needs

The resources needed to implement this action vary depending on the scope and comprehensiveness with which the project is pursued. Generally it can be completed with a modest number of hours from a high level volunteer or professional staff that knows how to use spreadsheets with formulas in them.

What to do, and how to do it (“How to“)

This section provides guidance and recommendations for implementing the action. A municipality does not need to follow this guidance exactly as long as it meets the requirements for earning points for this action.

The most recent agreement that describes the exact protocol for calculating a community-wide carbon footprint was completed in 2014. The Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC) describes the methods and data needed to complete a community carbon footprint. Satisfying this action requires gathering data to calculate your community’s carbon emissions and reporting them publicly. The public reporting is intended to attract attention to your progress and can lead to a process for creating a Climate Action Plan and identifying other activities to reduce your community’s emissions.

A Community Carbon Footprint includes all greenhouse gas (GHG) emissions from direct emissions from stationary combustion of fuels like natural gas, heating oil, coal, and diesel (Scope 1), and from indirect emissions from consumption of purchased or acquired electricity (Scope 2). It also requires reporting emissions related to transportation and solid waste disposal. The municipality/Green Team members who will be collecting and entering the data for the footprint can read a detailed description of the process in the **Community Carbon Footprint Guidance Document** at the following link:

http://sustainablejersey.com/fileadmin/media/Actions_and_Certification/Actions/Energy/Community_Carbon_Footprint_Guidance_Document1.0.pdf

Completion of the “Municipal Carbon Footprint” action is a prerequisite to credit for completion of this Community Carbon Footprint action.

Creating the community carbon footprint involves collecting some basic data and then entering this data into a spreadsheet that will convert the data into metric tons of carbon emissions. Sustainable Jersey has provided a [spreadsheet tool](#) to make this process rather simple.

The steps for completing the spreadsheet tool include:

Step 1. Decide on a base year and get the following data for that year.

The data that will be needed and potential sources that can provide it include:

A. Fuel used by vehicles – the data on municipal vehicles can be transferred from the municipal carbon footprint calculation. Data on residential vehicle miles travelled will also be needed, and can be obtained by contacting regional transportation planning authorities or by making estimations on vehicle miles travelled from census data.

B. Electricity, Natural Gas & Heating Oil usage – collect data from fuel used in buildings and other non-vehicle applications during the baseline year for each sector of the community (local government, residential, commercial, and industrial). This information can be obtained in summary format for each municipality by making a request to the local utility providers. A method for estimating the amount of residential heating oil using census data is included in the Step-by-Step directions cited previously.

C. Waste Generation – collect data on tons of waste generated in each of 34 categories. The recycling coordinator can provide this information.

Step 2: Enter the data into the Sustainable Jersey spreadsheet tool provided. The spreadsheet will convert this data into the equivalent metric tons of carbon emitted based on carbon emission factors provided by the Energy Information Administration.

What to submit to earn points for this action

In order to earn points for this action, the following documentation must be submitted as part of the online certification application in order to verify that the action requirements have been met. A municipality must be approved for the Municipal Carbon Footprint action in order to receive credit for the Community Carbon Footprint.

1. Description of Implementation – In the text box provided on the submission page for this action provide a short narrative (300 words or less) of what has been accomplished and the impact it has or will have on the community.

2. Upload the results from the [Carbon Footprint calculator](#).

Resubmission Requirements

To resubmit for points under this action, please provide updated information for all the requirements listed under "What to submit to earn points for this action" section of this action.

Approved Action Expiration Date

An approved municipal carbon footprint will be set to expire 3.5 years from the date of the baseline year provided for the data. For example, a municipality submitting a carbon footprint with data from 2015, will have the approved action remain good until June 2019.

IMPORTANT NOTES:

There is a limit of six uploaded documents per action and individual files must not exceed 30 MB. Excerpts of relevant information from large documents are recommended.

All action documentation is available for public viewing after an action is approved. Action submissions should not include any information or documents that are not intended to be viewed by the public.

Spotlight: What NJ towns are doing

Berkeley Heights Township (Union County)

The carbon footprint for the Township of Berkeley Heights was calculated to support the submission by the Berkeley Heights Environmental Commission for Sustainable Jersey certification. Data available from the New Jersey Department of Environmental Protection (DEP), Jersey Central Power and Light (JCP&L), Public Service Electric and Gas (PSE&G), suppliers of electricity and natural gas to Berkeley Heights and the US Census Bureau were used to calculate the CO₂ emissions associated with electricity and natural gas use, transportation and other miscellaneous activities. Natural gas use data from 2010, the first year a complete data set were available from PSE&G were used. The data are given in the appendix. The last year electricity use data could be obtained from JCP&L was 2008, so that year was used. Data are also shown in the appendix. Transportation and other activity data were obtained from a NJ DEP report which gave projected state wide CO₂ emission data for 2010. The state values were then prorated for Berkeley Heights based on the population ratio. The carbon footprint calculation results are given in the following table. The total emissions for Berkeley Heights Township were 304,593 mtCO₂e or 23.6 mtCO₂e per capita.

Resources

The following resources may be helpful in completing this action.

Sustainable Jersey Resources for Completing this action:

Guidance Document for Completing the Community Carbon Footprint

Carbon Footprint Calculator from Sustainable Jersey

TECHNICAL RESOURCES

Berkeley Height's CO₂ Inventory

http://www.sustainablejersey.com/fileadmin/media/Actions_and_Certification/Actions/Energy/Berkeley_Heights_Community_Carbon_Footprint.xls

Energy Information Administration Fuel Emission Factors

<http://www.eia.doe.gov/oiaf/1605/excel/Fuel%20Emission%20Factors.xls>

EPA Guidance on Mobile Combustion Sources

http://www.epa.gov/stateply/documents/resources/mobilesource_guidance.pdf

Intergovernmental Panel on Climate Change Fifth Assessment Report

<http://www.ipcc.ch/report/ar5/>

GENERAL RESOURCES

California Climate Action Registry

www.climateregistry.org

Energy Information Administration

<http://www.eia.doe.gov/>

ICLEI – Local Governments for Sustainability USA (ICLEI USA)

www.icleiusa.org

Intergovernmental Panel on Climate Change

<http://www.ipcc.ch/index.htm>

Mayors Climate Protection Center

<https://www.usmayors.org/mayors-climate-protection-center/>

National Conversation on Climate Action

<http://www.climateconversation.org/>

The Climate Registry

<http://www.theclimateregistry.org/>

U.S. EPA - Clean Energy-Environment Municipal Network

<http://www.epa.gov/cleanenergy/energy-programs/state-and-local/local.html>

¹ Intergovernmental Panel on Climate Change (IPCC). Climate Change 2007: Synthesis Report

http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf

² Nicholas Stern, The Economics of Climate Change. Cambridge, U.K.: Cambridge University Press, 2007, p. xvi.