# Greenhouse gas inventories:

Measuring local emissions to guide customized action plans

As major sources of greenhouse gas emissions and innovative hubs for climate solutions, cities, towns, and counties have an essential role to play in addressing the global challenge of climate change.

Greenhouse gas inventories are the first step to managing emissions. The inventory process and results supply local governments with baseline information on a community's greenhouse gas sources. The data can be used by community leaders to identify opportunities for governmental action and partnerships to achieve emissions reduction targets. The information can also be used to understand where there are opportunities for energy efficiency, saving taxpayer money, and more.

562,476 MT CO_2e

- 11%
- 13%
- 31%
- 26%
- 19%

Legend:
- ■ Transportation
- ■ Solid Waste
- ■ Industrial Energy
- ■ Commercial Energy
- ■ Residential Energy
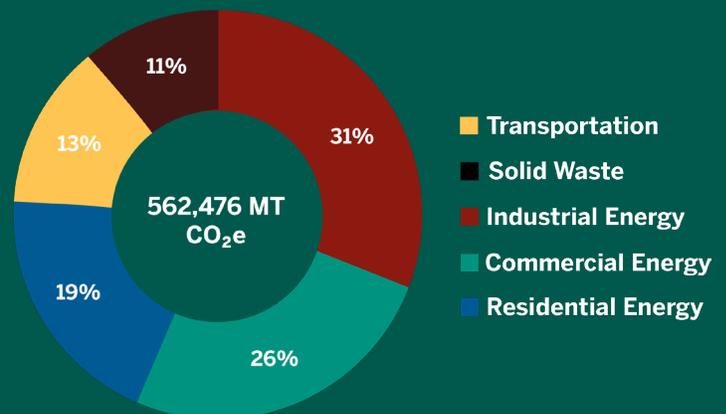
Percentage of total carbon dioxide equivalent emissions by sector in Goshen, Indiana for 2017.

What is a greenhouse gas inventory?

A greenhouse gas inventory quantifies the amount of heat-trapping gases released by human sources within a defined boundary over the course of a year. Common sources in community-wide inventories include transportation, residential and commercial energy, wastewater treatment, and the decomposition of solid waste.

Greenhouse gas inventories can measure the amount of emissions released by the operations of a business, industrial company, faith organization, nonprofit, or a local, state, or national government. Inventories can also be completed at the community scale, covering the emissions released by all human activities that occur within the boundaries of a city, town, or county.

How does a local government conduct a greenhouse gas inventory?

Two methodologies exist for community-wide inventories: the Global Protocol for Community-Scale Greenhouse Gas Emissions Inventories (GPC) and the US Community Protocol for Accounting and Reporting on Greenhouse Gas Emissions (US Community Protocol). Both methods require local governments to collect data on energy use in the residential, commercial, and industrial sectors, solid waste sent to landfills, water use and treatment, and transportation occurring within the defined boundary. Local governments work with a variety of local partners, including local energy utilities, regional transit authorities, and local businesses to collect data and use estimates for data that are unavailable.

For government operations inventories, local governments collect data on government solid waste generation, energy used in government buildings, water and wastewater treatment, streetlights, traffic signals, fuel used by the city, town, or county fleet, and employee commutes, among other sources.

Local governments can hire a consultant to go through the process, or they can do it themselves by using ClearPath, a web application from ICLEI-Local Governments for Sustainability. This software can be used to complete greenhouse gas inventories of the entire community and local government operations.

What can a local government do with the information?

Greenhouse gas inventories can **serve as baselines to track increases and decreases in future emissions** and can help communities identify reduction targets and effective strategies for reducing emissions within their boundaries. The information from the inventories can also be used to lower utility bills and save taxpayer money.

Following the completion of an inventory, local governments often **create a plan that outlines concrete steps to reduce emissions**. This process involves using the greenhouse gas inventory, collecting community input, drafting a customized action plan, and working with mayors, city councils, or other governing entities to adopt a final plan.

Greenhouse gas inventories play an essential role in the planning process, **allowing community stakeholders to see a comprehensive snapshot of local emissions to guide decision making**. For instance, if local government leaders find water and wastewater operations are their highest emissions contributor, they can prioritize energy efficiency upgrades or other measures at treatment facilities they might not have planned for otherwise.

How ERI is assisting local governments with greenhouse gas inventories

In 2019, ERI launched the Resilience Cohort program to guide Indiana cities, towns, and counties through the process of conducting community-wide greenhouse gas inventories and plans to reduce emissions.

The Cohort is supported by ERI with consultation and technical assistance from ICLEI-Local Governments for Sustainability. To boost staff capacity, local governments have the opportunity to host a summer extern through Sustain IU's Indiana Sustainability Development Program.

The Cohort runs on a two-year cycle, working with local governments to complete greenhouse gas inventories in odd years and customized action plans to reduce emissions in even years. Applications for the Cohort are due in the fall, with work starting the following year.
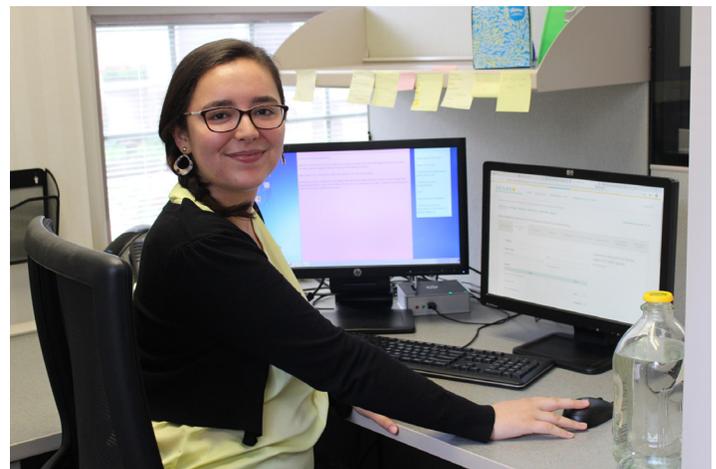
Through Sustain IU's Indiana Sustainability Development Program, student externs work with Indiana communities to complete greenhouse gas inventories and climate action plans.

What other resources does ERI offer to local governments?

ERIT (eri.iu.edu/erit), the ERI toolkit, offers strategies, case studies, tools, trainings, and funding opportunities for local governments to complete greenhouse gas inventories. Local governments in Indiana may benefit from using the Hoosier Resilience Index (hri.eri.iu.edu) to identify preparedness actions to include in their final plan.