



Coconut Creek Greenhouse Gas (GHG) Inventory

Overview and Results
February 8, 2024

ICLEI - *International Council for Local Environmental Initiatives*



“ICLEI is the first and largest global network of local governments devoted to solving the world’s most intractable sustainability challenges. Our standards, tools, and programs credibly, transparently, and robustly reduce greenhouse gas emissions, improve lives and livelihoods and protect natural resources in the communities we serve.”



Agenda:



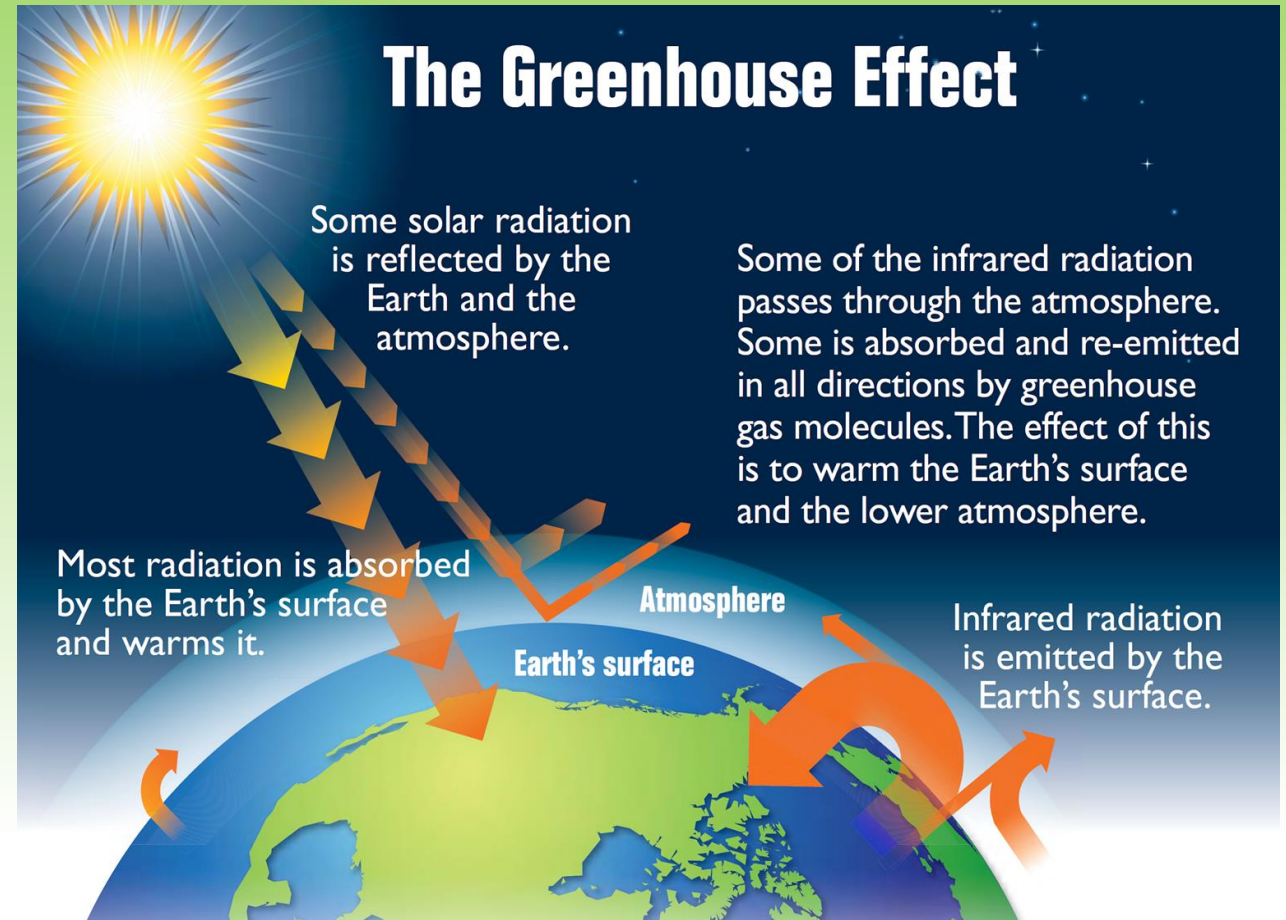
1. Greenhouse Gas and Inventory 101
2. Inventory Importance
3. Inventory Results
4. Key Takeaways
5. Current and Future Efforts



What is a Greenhouse Gas?



- “GHG” for short
- Gases that act like the glass in a greenhouse, trapping the sun’s heat near the earth’s surface
- GHG emissions from human activities are largely responsible for our changing climate



Primary types of GHGs



GHG	Global Warming Potential (GWP)
Carbon Dioxide (CO₂)	1
Methane (CH₄)	28
Nitrous Oxide (N₂O)	265
Hydrofluorocarbons (HFCs)	116-12,400 (varies based on type)
Perfluorocarbons (PFCs)	6,630-11,100 (varies based on type)
Sulfur Hexafluoride (SF ₆)	23,500

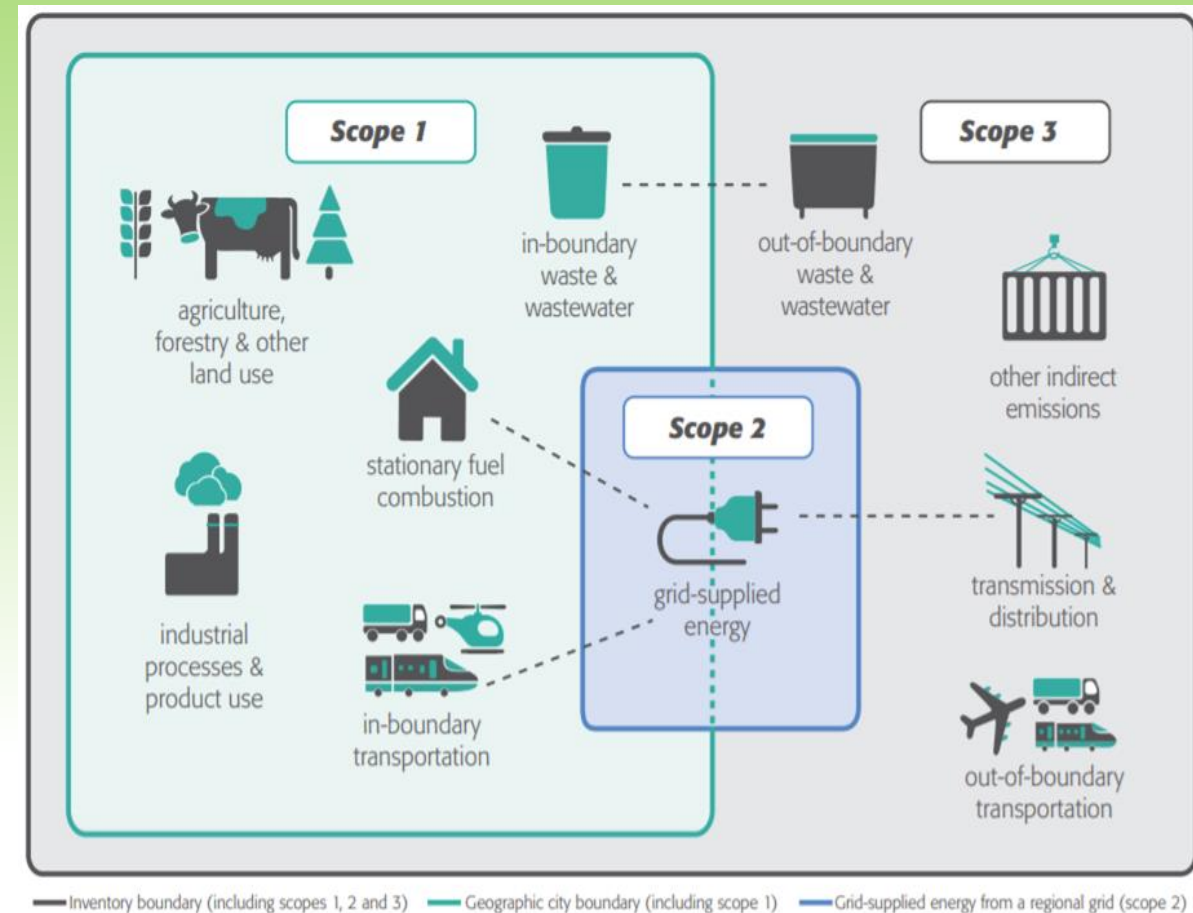
GHG Emissions are typically reported as Carbon Dioxide-Equivalent (CO₂e)



GHG Inventory Scopes



- **Scope 1:** Direct emissions
- **Scope 2:** Indirect emissions from electricity consumption
- **Scope 3:** All other indirect emissions (exported waste, out-of-boundary transportation, etc.)





What is a Communitywide GHG Inventory?

Although communitywide GHG inventories do not necessarily include all of these activities, these are a majority of the emissions-generating activities that might be included:

- Stationary energy use (e.g. buildings)
 - Electricity
 - Natural Gas
 - Other fuels (propane, kerosene, etc)
- Mobile fuel use (gas and diesel)
 - Vehicles
 - Off-road equipment
- Industrial processes
- Solid waste decomposition/combustion
- Wastewater treatment (such as digester gas combustion or nitrogen discharge)
- Agriculture, Forestry, and Land use
- Fugitive Emissions





Why is a GHG Inventory Important?

- Activity Data x Emissions Factor = **Emissions Estimate**
- Your GHG inventory is a baseline that will allow your community to:
 - Forecast business-as-usual emissions
 - Create emissions reduction targets
 - Model potential reduction scenarios
 - Monitor emissions reduction progress
 - Make informed decisions on mitigation
 - Demonstrate accountability and leadership
 - Motivate community action
 - Recognize GHG emissions performance relative to similar communities



ICLEI Five Milestones for Climate Mitigation

Why is a GHG Inventory Important ? (cont.)



- Create emissions reduction targets – **Science Based Targets (SBT)**
 - Measurable, actionable, and time-bound climate targets
 - Aligned with:
 - Earth's limits (1.5°C)
 - The global need of 50% reduction by 2030 and net zero by 2050
 - Societal sustainability goals
 - A 2030 target that reflects maximum effort toward or beyond a fair share of 50% CO2 reductions by 2030



Coconut Creek Inventory Results



Emissions (MTCO₂e)

Water & Wastewater

0.8%

Solid Waste

7.6%

Residential Energy

23.9%

Transportation and
Mobile Sources

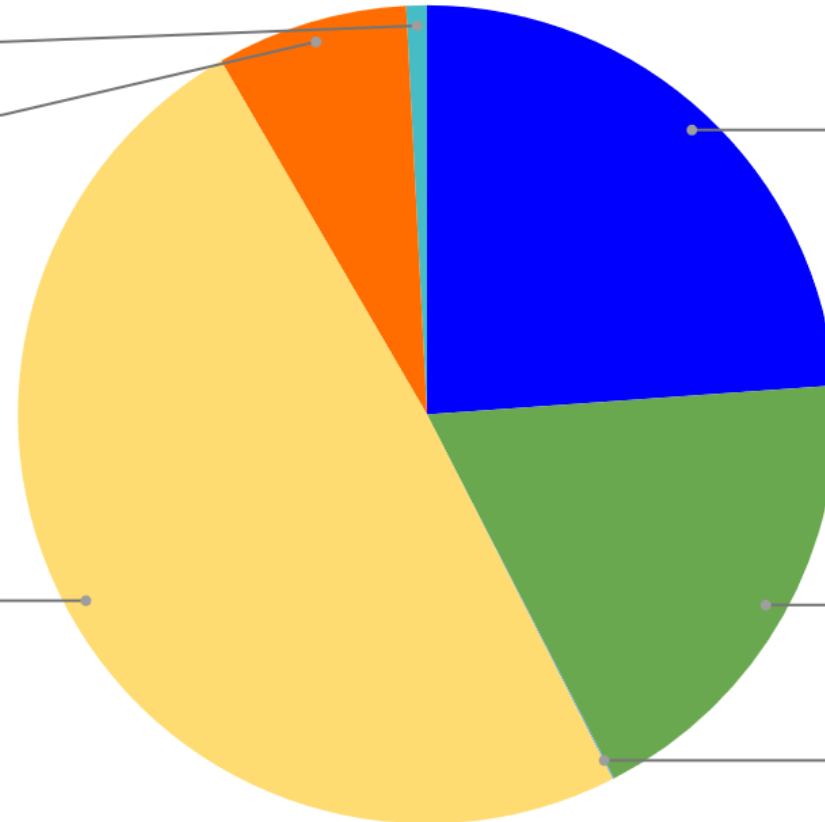
49.1%

Commercial Energy

18.6%

Industrial Energy

0.1%



Total Community-Wide Emissions: 390,795 MTCO₂e

Key Takeaways



- Given that mobile combustion (on-road transportation) is the largest (49.1%) source of emissions, we could reduce our dependency on single-passenger cars.
- Given that residential energy (home electricity) is the 2nd-largest (23.9%) source of emissions, we could increase energy efficiency in our homes and increase our solar use.
- Given that commercial energy (commercial building electricity and natural gas) is the 3rd-largest source (18.6%) of emissions, we could increase energy efficiency in our businesses and increase our solar use.
- Zero Waste programs to remove GHG emitting waste types (e.g., food waste, yard waste) from waste streams to make a significant impact on methane from landfills.



Combating GHG – Current Efforts



- **Increase tree canopy in the community:** Trees (with leaves) are the most effective and efficient means to combat GHG that we currently have in our toolbox. We should continue to work towards our stated goal of 40% tree canopy coverage in the city (we are currently around 30%).
- **Alternative transportation:** Bike lanes and EV chargers chip away at GHG emissions a little at a time. We should expand our EV chargers in the city.
- **Sustainability Reviews:** Review all new development and redevelopment for sustainable requirements.



Combating GHG – Possible Future Efforts



- **Reduction of food waste:** Supporting local waste reduction efforts, creating a composting program, education and outreach on the topic, adopt zero waste policies and codes.
- **Transportation Solutions:** Continue to support public transportation including high-speed rail, innovations to public transit, consider policy and codes related to electric bicycles and scooters.
- **Enhanced Building Solutions:** Support programs for high-performance glass, low-flow fixtures, building automated systems, solar usage.
- **Other Industry Solutions:** Address refrigerants, improve building materials, alternative cement, bioplastics.





Thank you



Coconut Creek