

City of Doral 2018 Greenhouse Gas Inventory

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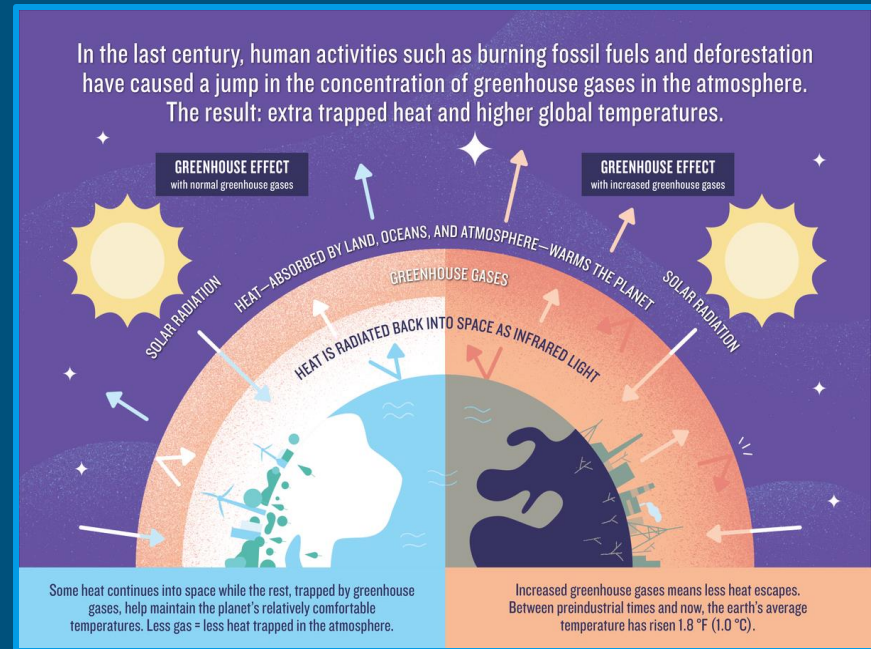
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Introduction

- Greenhouse gases (GHG):
 - Quantifiable/measurable
 - Carbon dioxide (CO₂)
 - Methane (CH₄)
 - Nitrous Oxide (N₂O)
 - Naturally occurring
 - Each gas has a different global warming potential
 - Human activities have changed their concentrations
 - CO₂ emissions are removed through carbon sinks



<https://www.nrdc.org/stories/greenhouse-effect-101>

Introduction

- Goal of the report:
 - Understand the City of Doral's contribution to the Global Warming Potential of Miami Dade County.
 - Allow comparison of emissions across various sectors.
- Results and recommendations are based on Miami Dade 2021 Climate Action Strategy.
 - Guidelines address goals to reduce overall GHG within the county.



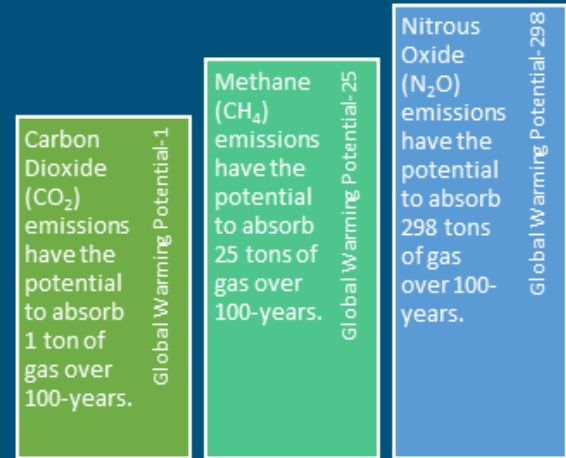
Introduction



- LEED for Cities and Communities:
 - Certification provides guidelines to increase sustainable development.
 - Follows United Nations Sustainable Development Goals.
- GHG Inventory will fulfill the energy category of the LEED by establishing a metric of greenhouse gas emissions in tons per year per person.

Methodology

- Tools used for data reporting:
 - Environmental Protection Agency's (EPA) Local Greenhouse Gas Inventory.
 - Helps communities across the US evaluate their greenhouse gas emissions.
- Emissions totals are expressed as Carbon Dioxide Equivalent (CO₂e).
- Were calculated based on warming potentials of three main greenhouse gases Carbon Dioxide (CO₂), Methane (CH₄), and Nitrous Oxide (N₂O).



Methodology

- Emissions taken into consideration:
 - Emissions from the Residential sector (electricity and natural gas usage).
 - Emissions from the Commercial/Institutional sector (electricity and natural gas usage).
 - Emissions from the Industrial sector (electricity and natural gas usage).
 - On road transportation (gasoline and diesel passenger vehicles)
 - Emissions from solid waste (landfilled waste and waste-to-energy)
 - Emissions from wastewater and septic systems.
- Sequestered emissions are considered by the urban forests within the City of Doral

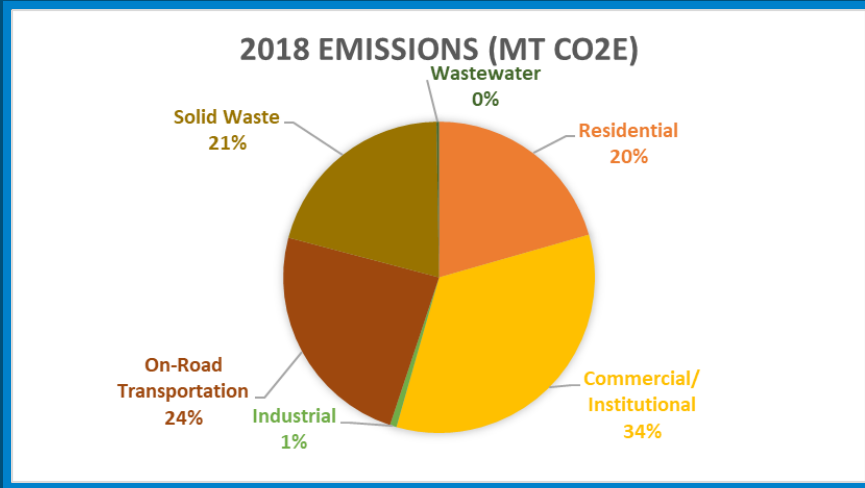


Results

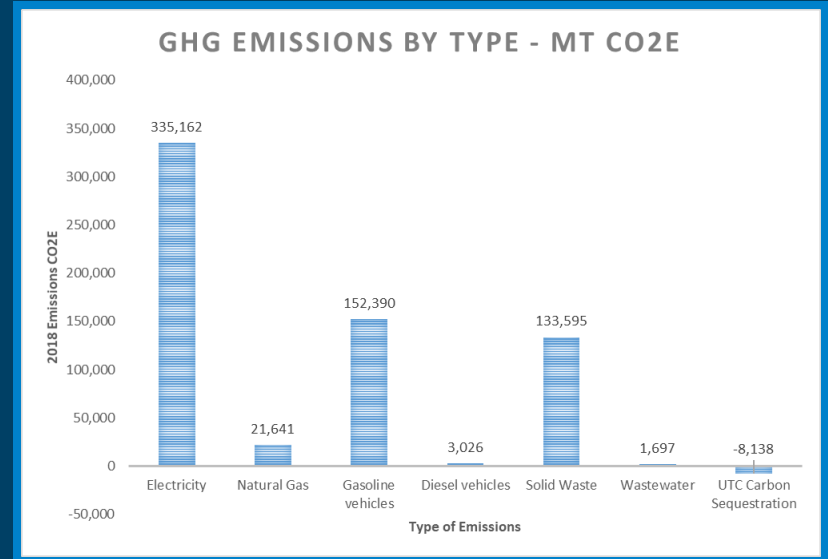


SECTOR	FUEL OR SOURCE	2018 TOTAL USAGE	USAGE UNIT	2018 EMISSIONS (MT CO ₂ E)
Residential Energy	Electricity (Florida Power & Light)	307,235,248	kWh	130,465
	Natural Gas	529,560	Therms	2,809
Commercial/ Institutional Energy	Electricity (Florida Power & Light)	473,158,459	kWh	200,923
	Natural Gas	3,421,916	Therms	18,149
Industrial Energy	Electricity (Florida Power & Light)	8,888,229	Kwh	3,774
	Natural Gas	128,800	Therms	683
On-Road Transportation	Gasoline (passenger vehicles)	416,852,242	VMT	152,390
	Diesel (passenger vehicles)	7,171,651	VMT	3,026
Solid Waste	Waste Landfilled	9,315	Tons	6,583
	Waste-to-Energy	83,832	Tons	127,012
Wastewater	Population served by septic systems	738	People	1,697
	Population by Aerobic Treatment	60,880	People	
Urban Forest Carbon Sequestration		Area considered 35km ²		8,138
TOTAL COMMUNITY WIDE EMISSIONS				639,372
TOTAL EMISSIONS PER PERSON PER YEAR				11

Results




The largest emissions come from the energy needed to produce electricity, which generates a total of 335,162 metric tons of carbon dioxide or 6 metric tons of carbon dioxide per person per year.



Comparisons Established by EPA Greenhouse Gas Equivalence

639,372 metric tons of carbon dioxide are equivalent to:

- Equivalent to GHG emissions from:


 1,587,052,734 miles driven by an average gasoline-powered passenger vehicle.

That would be similar to driving from Miami to Alaska 300,000 times.

 77,774,902,047 smartphones charged.

- Equivalent to GHG emissions avoided by:

 24,232,846 incandescent lamps switch to LEDs

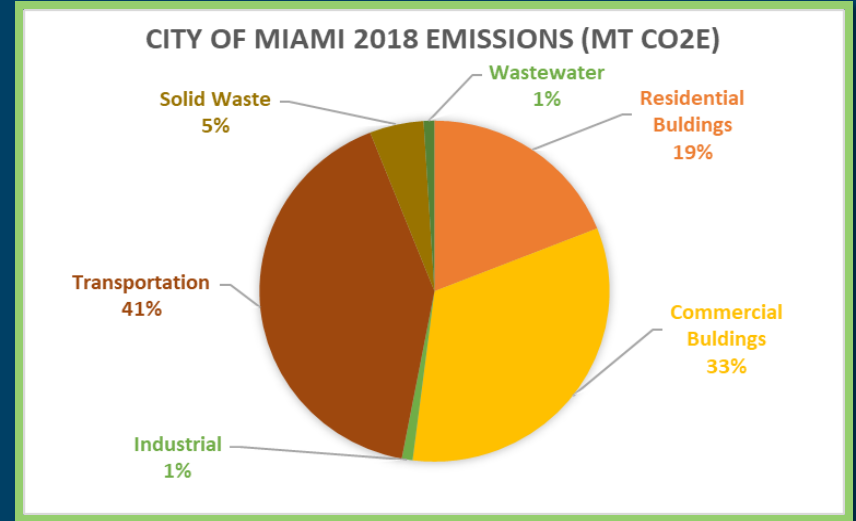
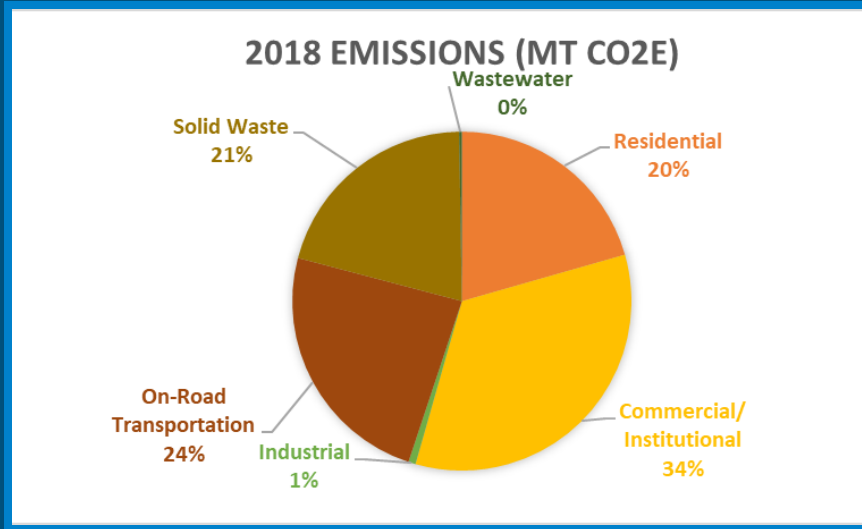
 174 wind turbines running for a year

- Equivalent to the carbon sequestered by:

 10,572,071 tree seedlings grown for 10 year

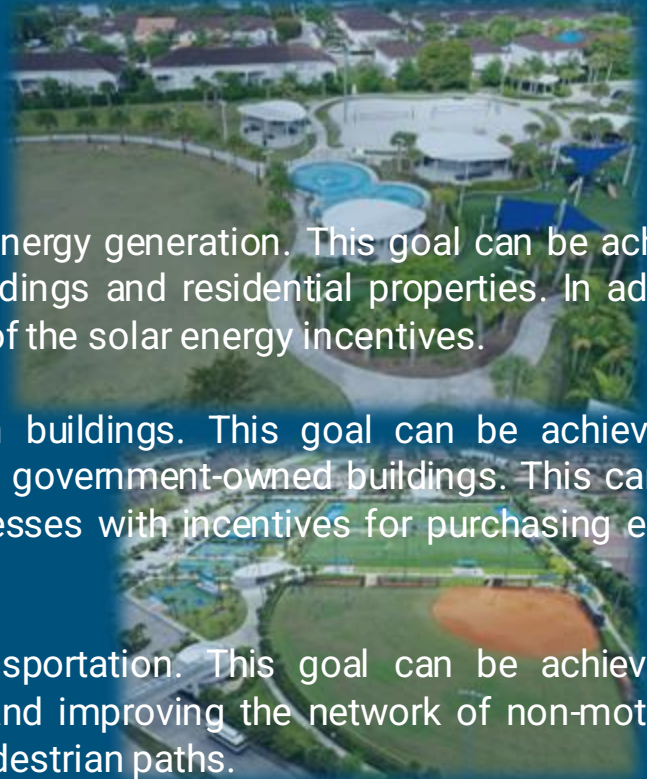
 756,655 acres of U.S. forests in one year

Comparison to City of Miami 2018 GHG Inventory



Recommendations

- **Recommendation 1.** Reduce GHG emissions from energy generation. This goal can be achieved by increasing solar panel usage in government buildings and residential properties. In addition, the City can encourage residents to take advantage of the solar energy incentives.
- **Recommendation 2.** Increase energy efficiency in buildings. This goal can be achieved by conducting energy efficiency retrofits in private and government-owned buildings. This can also be accomplished by providing residents and businesses with incentives for purchasing energy-efficient appliances.
- **Recommendation 3.** Reduce emissions from transportation. This goal can be achieved by encouraging citizens to use public transportation and improving the network of non-motorized transportation infrastructure, such as bicycle and pedestrian paths.



Action Items:

Will achieve reduction of GHG emission by 10 to 15 percent by the calendar year of 2050 in the following sectors.




- Increase electric and hybrid fleet from 3% to 20% in government facilities.
- Install additional electric vehicle charging stations.
- Increase solar energy and energy storage in government buildings.
- Replace outdoor lighting with more efficient options.
- Creation of a pilot composting program.
- Implement a community garden pilot program.



Acknowledgements

City of Doral Public Works
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Resources
Miami Dade Water and Sewer Department



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