

**RESOLUTION No. 22-137**

**A RESOLUTION OF THE MAYOR AND THE CITY COUNCIL OF THE CITY OF DORAL, FLORIDA, AUTHORIZING THE CITY MANAGER TO ADOPT THE RECOMMENDATIONS OF THE 2022 GREENHOUSE GAS (GHG) INVENTORY OF CITYWIDE OPERATIONS REPORT; PROVIDING FOR IMPLEMENTATION AND PROVIDING FOR AN EFFECTIVE DATE**

**WHEREAS**, in 2014, the Climate Action Plan (CAP) was adopted by the City Council via Resolution No. 14-81 (approved 5-0); and

**WHEREAS**, the CAP generated the baseline for the GHG emissions associated with the local government operations and identified current sustainable strategies to reduce emissions; and

**WHEREAS**, in 2019, the City Council approved the implementation of the CAP via the Resolution No.19-97 (approved 5-0); and

**WHEREAS**, the 2019 Final Report recommended to reduce the GHG emissions from electricity consumption in all City buildings, Transportation, and reduce waste and increase the recycling rates; and

**WHEREAS**, since the last inventory, the City's population has increase over 40%, therefore a new report was needed to establish a new baseline of citywide operations and update the reduction goals by specific sectors, and

**WHEREAS**, the 2022 Final Report recommends to reduce the GHG emissions from the similar sectors as the 2019 Final Report, and establish a reduction target of GHG of 10 to 15 percent by the year 2050; and

**WHEREAS**, City Staff respectfully requests that the Mayor and the City Councilmembers authorize the City Manager to adopt and implement the recommendations of the 2022 GHG Inventory based on citywide operations inventory.

**NOW THEREFORE, BE IT RESOLVED BY THE MAYOR AND THE CITY COUNCIL OF THE CITY OF DORAL AS FOLLOWS:**

**Section 1. Recitals.** The above recitals are confirmed, adopted, and incorporated herein and made part hereof by this reference.

**Section 2. Approval.** The 2022 GHG Inventory Report and presentation, a copy of which is attached hereto as Exhibit "A", is hereby approved.

**Section 3. Authorization.** The City Manager is authorized to adopt and implement the recommendations in all the three major sectors with the highest percentage of GHG emissions.

**Section 4. Implementation.** The City Manager and the City Attorney are hereby authorized to take such further action as may be necessary to implement the purpose and the provisions of this Resolution.

**Section 5. Effective Date.** This Resolution shall take effect immediately upon adoption.

The foregoing Resolution was offered by Councilmember Mariaca who moved its adoption. The motion was seconded by Vice Mayor Cabral and upon being put to a vote, the vote was as follows:

Mayor Juan Carlos Bermudez	Yes
Vice Mayor Digna Cabral	Yes
Councilman Pete Cabrera	Yes
Councilwoman Claudia Mariaca	Yes
Councilman Oscar Puig-Corve	Yes

PASSED AND ADOPTED this 9 day of August, 2022.

  
\_\_\_\_\_  
JUAN CARLOS BERMUDEZ, MAYOR

ATTEST:

  
\_\_\_\_\_  
CONNIE DIAZ, MMC  
CITY CLERK

APPROVED AS TO FORM AND LEGAL SUFFICIENCY  
FOR THE USE AND RELIANCE OF THE CITY OF DORAL ONLY:

  
\_\_\_\_\_  
LUIS FIGUEREDO, ESQ.  
CITY ATTORNEY

# EXHIBIT “A”

# City of Doral 2018 Greenhouse Gas Inventory



# Introduction

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Greenhouse gases (GHG) are naturally occurring gases that exist in the Earth's atmosphere. These absorb infrared radiation, thereby trapping heat in the atmosphere and making the planet warmer. The most important GHG directly emitted by humans include carbon dioxide ( $\text{CO}_2$ ), methane ( $\text{CH}_4$ ), and nitrous oxide ( $\text{N}_2\text{O}$ ). While these occur naturally in the atmosphere, human activities have changed their atmospheric concentrations. The goal of this report is to understand the contribution of the City of Doral to the global warming potential of Miami-Dade County, as well as to propose goals to reduce these emissions. The global warming potential aims to compare the warming impacts of different gases based on their ability to absorb energy and the time they remain in the atmosphere.

GHG are removed from the atmosphere over time through different chemical processes. For example, carbon dioxide emissions are removed from the atmosphere through carbon sinks. These are natural systems that absorb and store carbon dioxide from the atmosphere. Some examples of these include plants, the ocean and soil. While this process seems like an ideal solution to reduce excess  $\text{CO}_2$  present in the atmosphere, human activities such as deforestation and increased emissions have exceeded the capacity of carbon sinks for natural uptake of  $\text{CO}_2$ .



# Introduction



In October of 2021, Miami-Dade County, and its Mayor Daniella Levine Cava, released a document titled Miami-Dade Climate Action Strategy. This report discusses the threats of climate change, community impacts and, human contribution to GHG. Additionally, it outlines proposed goals and approaches to address the overall reduction of GHG within Miami-Dade County. These goals will be taken into consideration when providing recommendations to address the reduction of GHG emissions. The aim of this GHG inventory is to allow policymakers to compare emission reduction's opportunities across various sectors and gases and provide feasible solutions for their overall reduction within the community, based on scientific and environmentally friendly proposed solutions. The inventory was created using data collected for the 2018 calendar year, because the data fluctuated and did not represent "normal" conditions due to the pandemic for the following years. The year 2018 GHG Inventory will serve as a future baseline for other inventories within the City of Doral and provide a starting point for comparison with future GHG emissions.

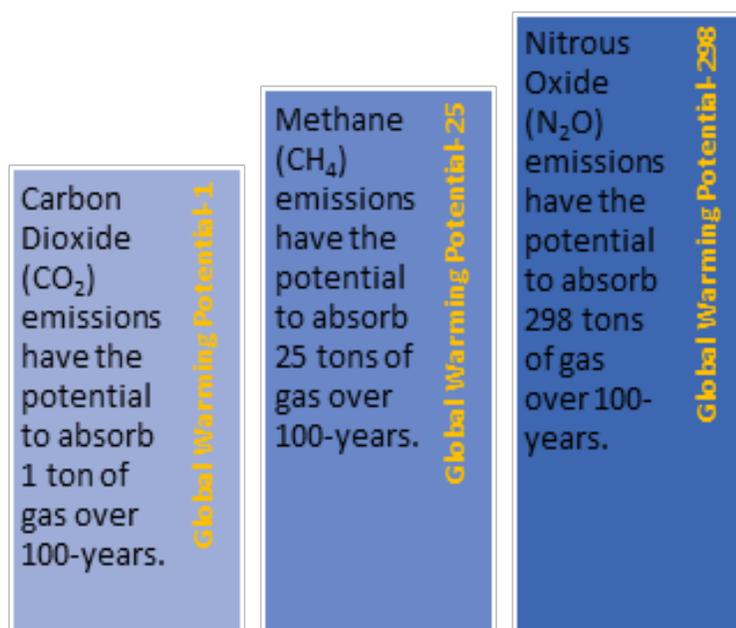
Leadership in Energy and Environmental Design (LEED) for Cities and Communities provides a set of guidelines for certification that helps communities become more sustainable and develop in a way that is beneficial to improving the overall quality of life in the community. This program is aligned with the United Nations Sustainable Development Goals and is based on engagement and feedback from cities and communities around the globe. This GHG inventory strives to fulfill the energy category portion of the prerequisites established by the LEED for Cities and Communities. This category will be fulfilled by establishing a metric of GHG emissions generated per year per person living and working in the City.

# Methodology

This report was developed following the Environmental Protection Agency (EPA) guidelines for evaluating and accounting for GHG emissions. This tool works as an interactive spreadsheet that helps calculate GHG emissions for many sectors, including residential, commercial, transportation, and waste and water management. The tool is comprised of two separate modules: one for community-wide inventories, and the other for inventories of local government operations. For the purpose of this report, we used the community-wide inventory spreadsheet.

EPA's Local GHG Inventory Tool was developed to help communities across the United States evaluate their GHG emissions. By using this tool, we were able to compile a GHG inventory for the community of the City of Doral.

Emissions totals within this report are expressed as Carbon Dioxide Equivalent (CO<sub>2</sub>e), which were calculated based on the warming potentials of three main GHGs: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O.



The Local GHG Inventory Tool was used to calculate some of the major citywide emissions. This tool is a standard that provides visual results that allow identification of emission baselines, major contributing sources, and easy comparison across different cities. The data used for the emissions calculations within this was provided by the Department of Public Works at the City of Doral, as well as the Miami-Dade Water and Sewer Department.

The citywide inventory takes into consideration the main emissions that originate from sectors within the community's geographical boundaries. These are:

- Emissions from the Residential sector which include electricity and natural gas as the base sources.
- Emissions from the Commercial/Institutional sectors which include electricity and natural gas as the base sources.
- Emissions from the Industrial sector which include electricity and natural gas as the base sources.
- On-road transportation which includes emissions from gasoline and diesel passenger vehicles.
- Emissions from solid waste due to waste landfilled and waste-to-energy plants.
- Emissions from the wastewater sector are based on the community served by wastewater plants as well as by septic systems.

This GHG inventory considers the overall emissions sequestered by urban forests within the geographical limits of the City of Doral.



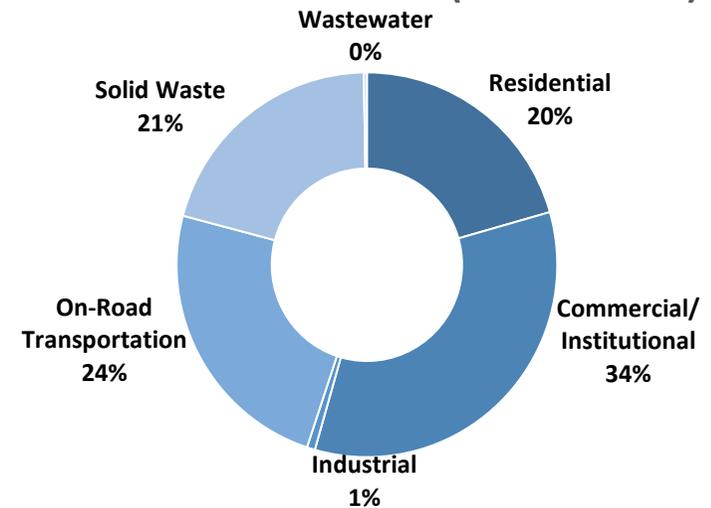
# Results

SECTOR	FUEL OR SOURCE	2018 TOTAL USAGE	USAGE UNIT	2018 EMISSIONS (MT CO <sub>2</sub> 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 <sup>2</sup>		8,138
<b>TOTAL COMMUNITY WIDE EMISSIONS</b>				<b>639,372</b>
<b>TOTAL EMISSIONS PER PERSON PER YEAR</b>				<b>11</b>

The results of this inventory are based on a citywide analysis of emissions. The total emissions calculated are represented in units of metric tons of CO<sub>2</sub> equivalent (MT CO<sub>2</sub>e) which account for the emissions of CH<sub>4</sub> and N<sub>2</sub>O.

The total citywide emissions in the City of Doral for the calendar year of 2018 were estimated to be 639,372 metric tons (MT) of Carbon Dioxide (CO<sub>2</sub>e). The total emissions generated in tons by person per year are 11 MT CO<sub>2</sub>e. A breakdown of these emissions can be seen below, by sector and fuel source.

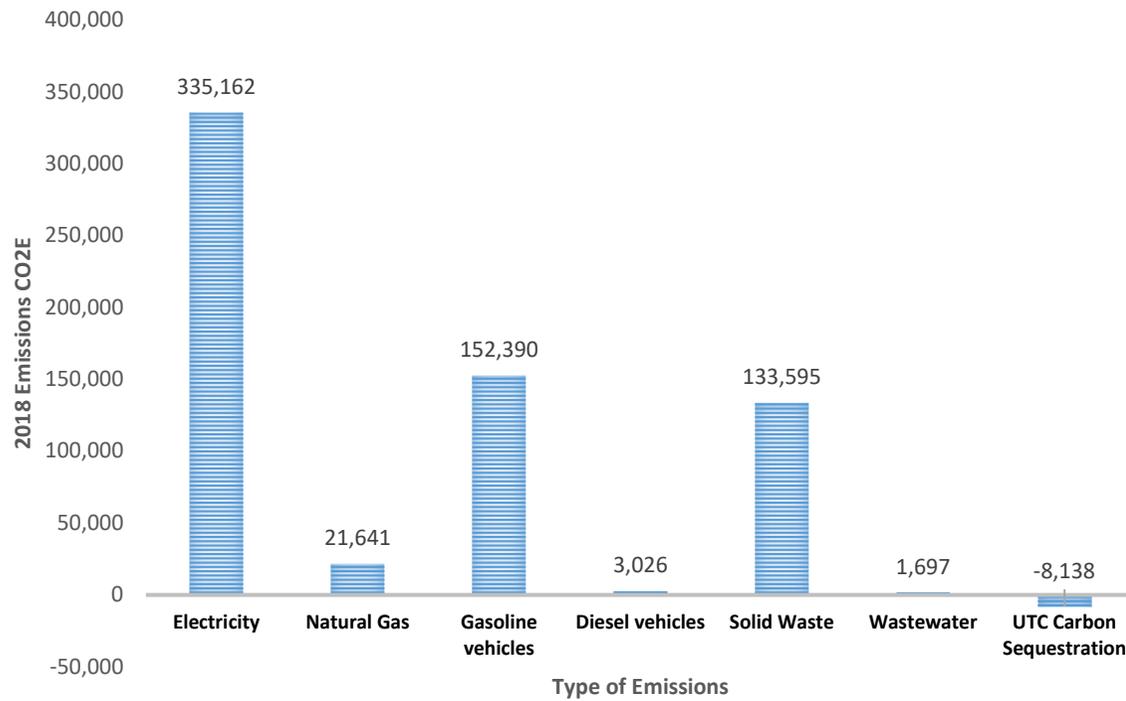
**2018 EMISSIONS (MT CO<sub>2</sub>E)**



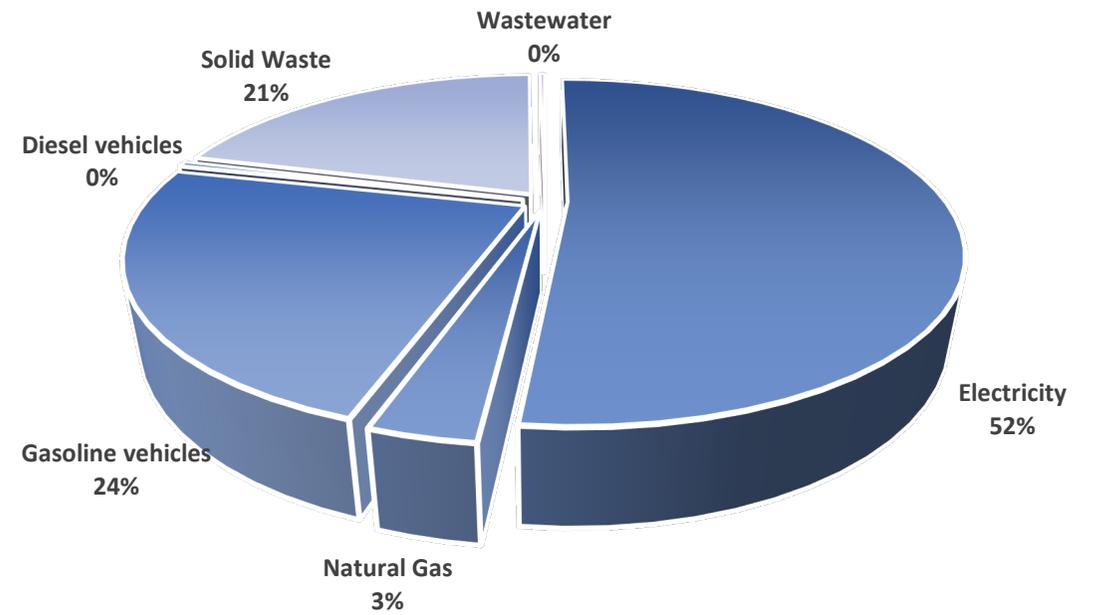
Thirty-four percent of the City of Doral's emissions come from the electricity and natural gas used to power commercial and institutional buildings. The next largest emission-producing activity is on-road transportation by passenger vehicles, which accounts for 24% of the overall emissions generated within the City. Residential energy, and solid waste emissions each contribute 20% and 21% to the total emissions within the City, respectively. Lastly, the emissions produced by wastewater and industrial activities contribute to 1% of the total emissions.

# Results

### GHG Emissions By Type - MT CO2E



### City Wide Emissions 2018



Overall, the largest emissions are generated by fulfilling the energy needed to produce electricity. The City generates an estimate of 335,162 metric tons of carbon dioxide or six metric tons of carbon dioxide per person per year.



# Results

## Comparisons Established through EPA Greenhouse Gas Equivalence

While this data serves as a baseline for future emissions, is not as easy to visualize how much is 639,372 metric tons of CO<sub>2</sub>, the EPA has a calculator that allows doing so in simpler terms.

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

- **77,774,902,047** number of smartphones charged 
- **1,587,052,734** miles driven by an average gasoline-powered passenger vehicle 

Akin to driving from Miami to Alaska approximately **300,000** times.

### This is equivalent to GHG emissions avoided by:

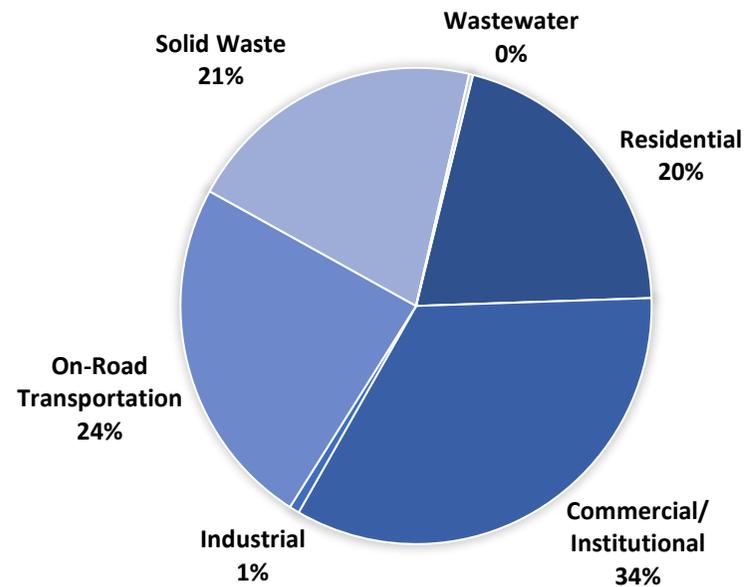
- **174** wind turbines running for a year 
- **24,232,846** incandescent lamps switched to LEDs 

### This is equivalent to the amount of carbon sequestered by:

- **10,572,071** tree seedlings grown for 10 year 
- **756,655** acres of U.S. forests in one year 

# Results

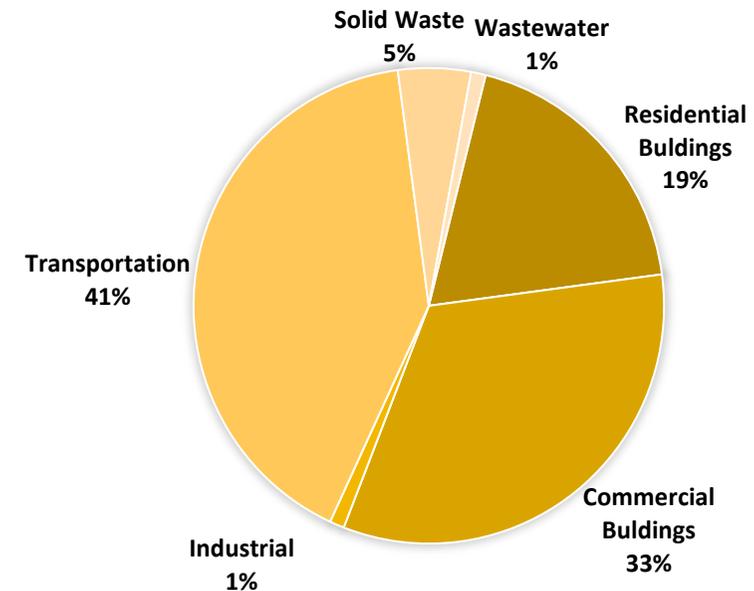
CITY OF DORAL 2018 EMISSIONS (MT CO2E)



Although the City of Doral and the City of Miami have different population sizes, and land usage, a brief comparison will be established to compare the emissions from each sector vary across Miami-Dade County.

The population size of the City of Doral during the year 2018 was approximately 60,880 people while that of Miami was 451,214 residents. The sectors with the highest emissions for both cities were commercial, residential, and transportation.

CITY OF MIAMI 2018 EMISSIONS (MT CO2E)



Overall, the City of Miami generated an estimate of 3,490,318 metric tons of carbon dioxide during the year 2018, while the City of Doral generated an estimate 639,372 metric tons of carbon dioxide in comparison. A direct comparison cannot be done, since not all of the same sectors were sampled when collecting the data for GHG emissions.

# Recommendations

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The recommended approaches to reduce emissions provided in the Miami-Dade County in the Climate Action Strategy are summarized below:

## Energy and Buildings:

- Benchmark, retune, and retrofit existing buildings.
- Expand renewable energy generation.
- Build ultra-low energy buildings.

## Land Use & Transportation:

- Reduce transportation-related fuel consumption.
- Expand and protect green and blue spaces.

## Water & Waste:

- Convert waste to energy.
- Reduce waste and water use.

Based on these and our results we provide the following recommendations to the City of Doral to reduce its GHG emissions:

**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.



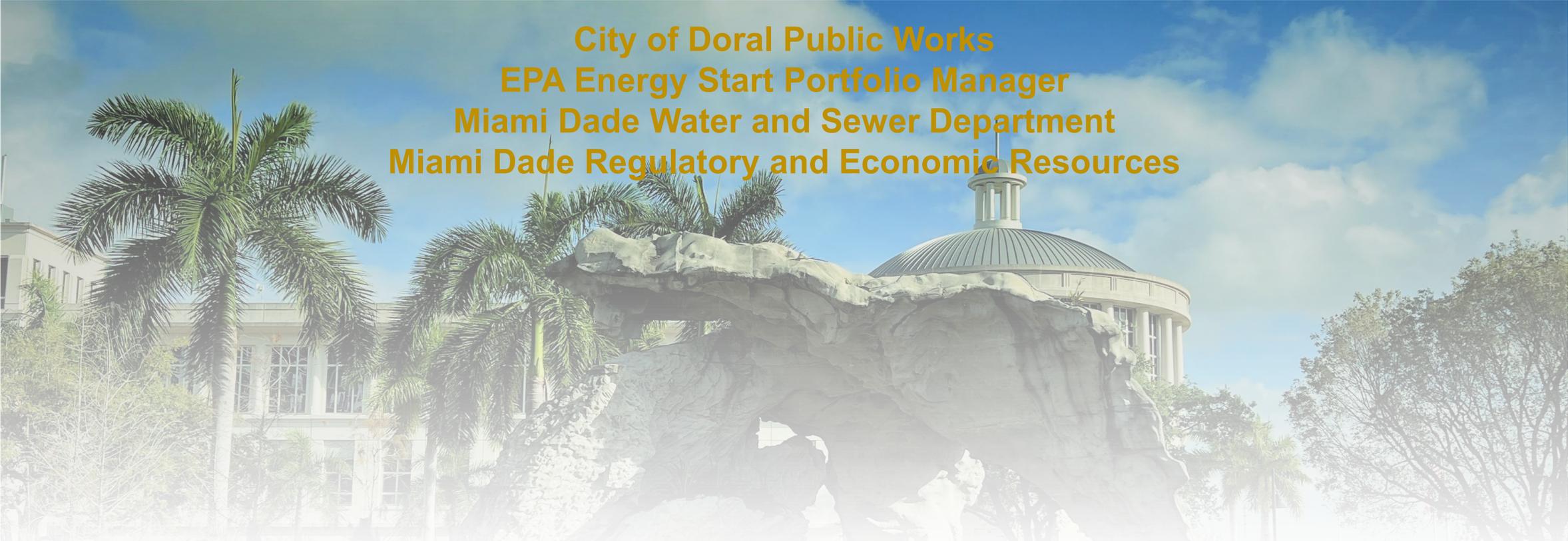
# Recommendations

Based on the findings of this inventory, the City of Doral will implement the following action items, with the purpose and commitment of establishing an overall GHG emission reduction of 10 to 15 percent by the year 2050 in the following sectors.

## Action Items:

1. Price contract options for electric car fleets will be prioritized by government facilities to increase the electric and hybrid fleet from 3% to 20%. This will increase the number of electric and hybrid vehicles from 9 to 58 in a fleet of 288.
2. A feasibility study will be conducted to install additional electric vehicle charging stations on public places and increase public accessibility to these.
3. The City will conduct a feasibility assessment to increase solar energy and provide energy storage for government buildings.
4. Outdoor lighting in public places such as parks and government facilities will be replaced with more efficient options. Additionally, the city will work with FPL and implement a variety of programs under FPL's Clean Energy Solutions.
5. The City will create a composting pilot program to engage residents and local schools which will decrease the overall solid waste generation by city residents.
6. The City will implement a community garden pilot program to increase sustainable agricultural practices while involving local schools and community residents. This program will help reduce GHG emissions as while allowing residents access to fresh foods and provide dietary education.

# References & Acknowledgements



**City of Doral Public Works  
EPA Energy Start Portfolio Manager  
Miami Dade Water and Sewer Department  
Miami Dade Regulatory and Economic Resources**

EPA. 2022. *Draft Inventory of U.S. GHG Emissions and Sinks: 1990-2020*. U.S. Environmental Protection Agency, EPA 430-P-22-001. <https://www.epa.gov/ghgemissions/draft-inventory-us-greenhouse-gas-emissions-and-sinks-1990-2020>.

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Environmental Protection Agency. (n.d.). Overview of Greenhouse Gases. EPA. Retrieved March 2022, from <https://www.epa.gov/ghgemissions/overview-greenhouse-gases>