



2009 Alachua County Greenhouse Gas Emissions Inventory

Prepared by

Alachua County Environmental Protection Department

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1.0 Introduction

This document presents an inventory of calendar year 2009 Greenhouse Gas (GHG) emissions for Alachua County prepared by the Alachua County Environmental Protection Department (ACEPD) and includes a limited comparison of the calendar year 2009 GHG inventory to a previous calendar year 1998 GHG for Alachua County.

This GHG inventory for Alachua County is an important tool supporting the efforts of local governments, institutions, businesses and individual homeowners to improve community sustainability, enhance energy conservation, reduce the community's dependence on fossil fuels and address climate change. The primary benefits of performing a periodic community GHG inventory include:

- Helps develop effective strategies for reducing community dependence on imported fossil fuels;
- Establishes a common metric for fossil fuel energy consumption and GHG emissions (tons CO₂);
- Monitors community energy usage and GHG emission trends;
- Measures the success of energy and GHG reduction efforts.
- Fosters community collaboration on energy reduction goals; and
- Helps guide local mitigation strategies to address local impacts of climate change.

An immediate practical benefit realized by the County from completion of this 2009 Countywide GHG inventory and the previous 2009 and 2008 County Government GHG inventories completed by ACEPD in April 2010 has been the comprehensive identification and listing in a single database of all County government utility accounts and a more thorough assessment of Countywide energy consumption sources. This updated account and energy usage database was used to initialize the new Utility Manager software that is currently being used to measure County energy reduction efforts.

The county-wide GHG inventory is based upon best available GHG emissions estimates associated with the

- Utility Sector: Consumption of electricity and natural gas within Alachua County that is directly supplied by utility providers;
- Transportation Sector: Estimated consumption of fossil fuels by vehicles on Alachua County roadways as derived from Vehicle Miles Traveled (VMT) data;
- Industrial Process Sector: Direct GHG emissions associated with industrial processes and non-utility provided power consumption by major industrial sources within the County; and
- Waste Sector: Estimated emissions of GHG from solid waste landfills and solid waste produced in Alachua County.

Inventory data was primarily compiled and processed with Local Governments for Sustainability Clean Air and Climate Protection Software (CACP) with specific local adjustments as described in the following sections. Based on this inventory, the estimated total Alachua County county-wide

GHG emissions for calendar year 2009 were 5,298,471 tons of CO₂e. The estimated total energy consumption associated with this GHG inventory was 39,541,518 MMBtu.

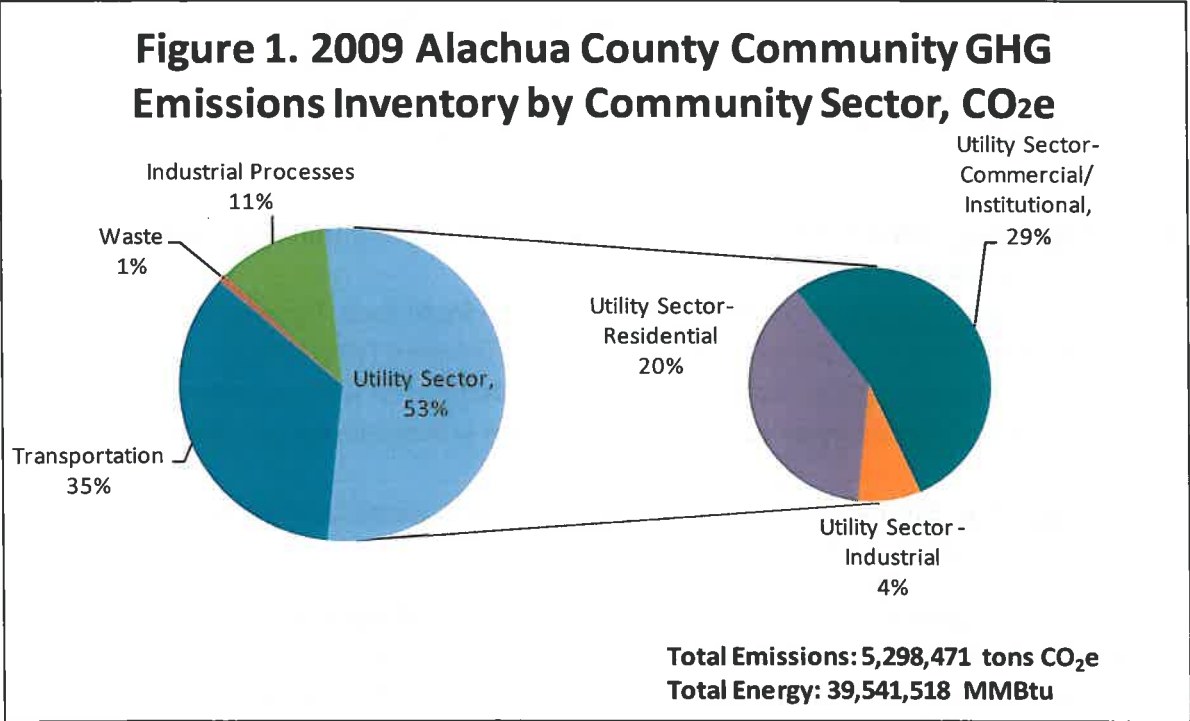
1.1 Background of GHG Inventory Process

In 2001 the County completed an initial estimated inventory of Alachua County government and total county GHG emissions for the year 1998. In 1999, the Alachua County committed to measure energy consumption and GHG emissions, develop a plan for GHG emission and energy reductions and to implement and monitor progress on reducing energy and GHG emissions. Alachua County's 2001 Comprehensive Plan established a goal of 20 percent reduction in GHG emissions from 1990 levels by the year 2010 for Alachua County. In December 2008, the Alachua County Energy Conservation Strategies Commission (ECSC) recommended that the County develop the capacity within Alachua County government to measure and evaluate GHG emissions and emissions reductions as part of an overall strategy for reducing community energy consumption. In May 2010, ACEPD completed an updated Alachua County Government GHG Inventory for 2009. This report completes the inventory update process by presenting an updated 2009 inventory of GHG emissions for Alachua County county-wide.

2.0 Inventory Results

2.1 GHG Emissions by Sector

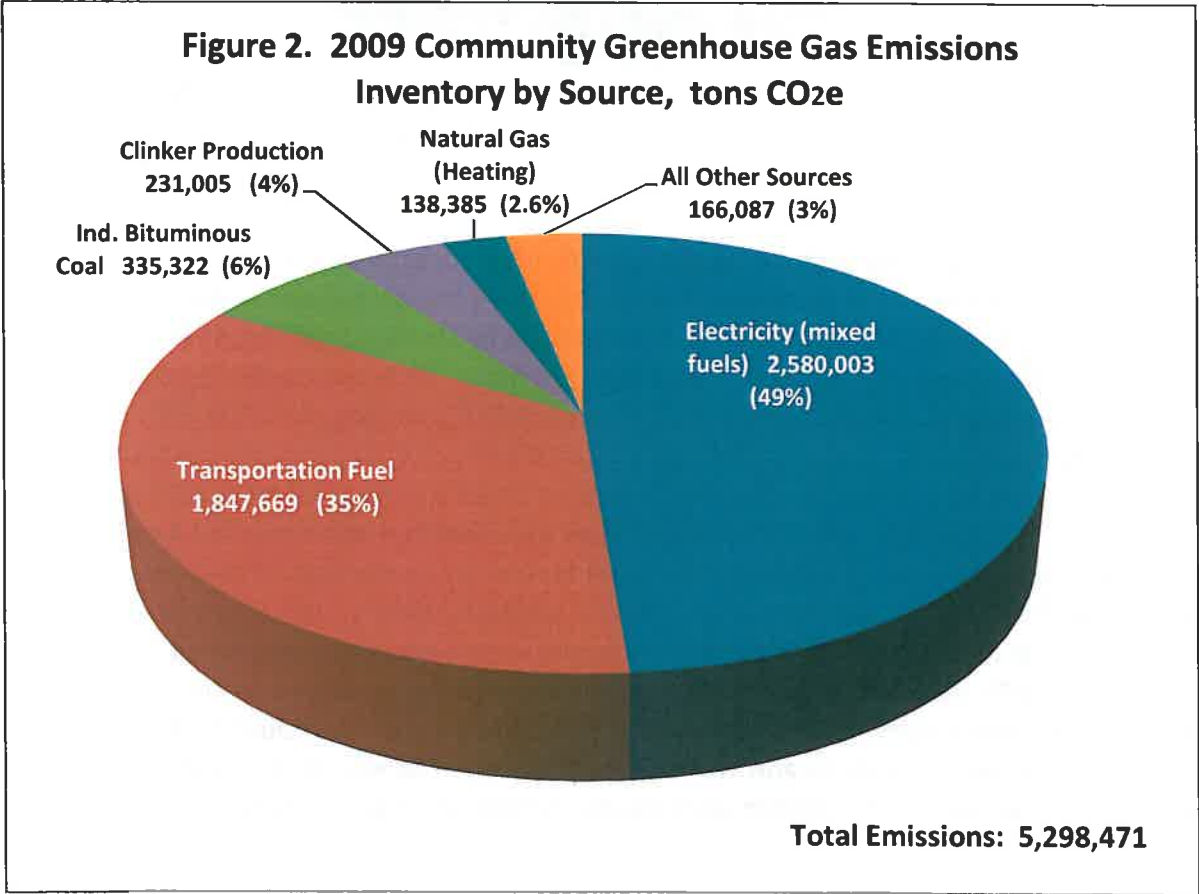
In calendar year 2009, the estimated total Alachua County GHG emissions were approximately 5,298,471 tons of CO₂e. The total energy consumption which was used to calculate GHG emissions in the County was 39,541,518 MMBtu (million Btu). As shown by **Figure 1**, the Utility Sector was the largest GHG sector and accounted for 53 percent of total emissions (2,824,007 tons CO₂e). The associated energy consumption for the Utility Sector was 13,528,594 MMBtu. The Utility Sector is comprised of the total GHG emissions associated with energy consumption



by residential customers (20 percent of total), commercial/institutional customers (29 percent of total) and industrial customers (4 percent of total). The GHG emissions associated with power production related to the University of Florida’s Chilled Water and Steam energy usage is accounted for under the Commercial/Institutional segment below. The Transportation Sector was the second largest GHG emissions sector and accounted for 1,847,669 tons CO₂e (35 percent of total) (23,103,991 MMBtu energy consumption). The Industrial Process Sector accounted for 585,700 tons CO₂e (11 percent of total) (3,524,050 MMBtu energy consumption) and the Waste sector accounted for the remainder of the emissions at 41,095 tons CO₂e (< 1 percent).

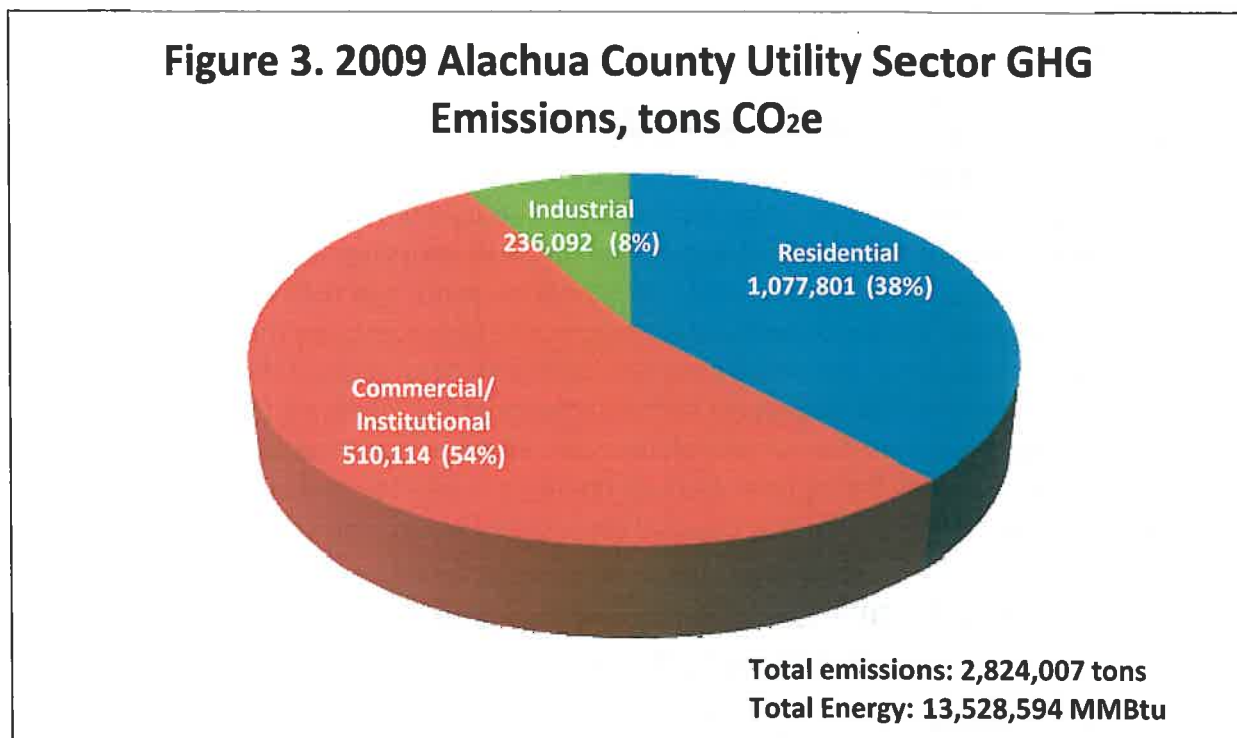
2.2 GHG Emissions by Source

Figure 2 displays the breakdown of 2009 Alachua County GHG emissions by source. Fossil fuel use associated with electricity consumption is the largest source of CO₂e emissions (49 percent). Transportation fuel consumption is the second largest emissions source and accounts for 35 percent of emissions. In the industrial process sector, GHG emissions associated with bituminous coal burned for energy in the production of cement (6 percent), and GHG emissions associated with the release of CO₂ during cement clinker production (4 percent) are the third and fourth largest sources respectively. The emissions associated with natural gas in the utility-residential, utility-commercial and industrial process sectors accounted for 2.6 percent of emissions. All other sources including the combustion of petroleum coke, liquid propane gas (LPG) and fuel oil by the industrial sector, methane flaring from Alachua County’s closed Southwest Landfill, and emissions estimated from solid waste disposal contributed about 3 percent overall.



2.3 GHG Emissions from Utility Sector

As shown in Figure 3, energy consumption by Commercial/institutional customers was the largest contributor of GHG emissions in the Utility sector at 54 percent (1,510,114 tons CO₂e) (7,337,409 MMBtu energy consumed) followed by Residential customers (38 percent)(1,077,801 tons CO₂e) (5,211,320 MMBtu energy consumed) and Industrial customers (8 percent)(236,092 tons CO₂e) (979,865 MMBtu energy consumed).



GHG emissions in the Utility Sector are calculated from utility provided data on electricity and natural gas energy consumed by Alachua County residents and businesses and includes the energy used to produce chilled water and steam for use by University of Florida (UF). Utility customers in the County are serviced by six major providers, with Gainesville Regional Utilities (GRU) being the largest energy supplier. Based on the CACP software, the 2009 GHG emissions associated with electricity consumption data obtained from all utility providers except GRU and the energy consumed to produce UF chilled water and steam were calculated using the appropriate EPA e-grid data. The EPA's e-grid value uses fuel mix data compiled for the Florida Reliability Coordinating Council (FRCC) sub-region for energy supply east of the Apalachicola River in Peninsular Florida to determine coefficients for calculating GHG's. This approach is consistent with that used in the previous 1998 County inventory. GHG emissions associated with power generation by GRU were calculated for the 2009 inventory using a "GRU-specific" emissions coefficient provided by GRU for the calculation. The fuel mix and coefficient for EPA e-grid and for GRU are provided in Table 1a and Table 1b, respectively. The emissions associated with UF's chilled water and steam consumption were obtained from UF's Climate Action Plan v 1.0 for Fiscal year 2008/09.

As discussed in Section 3.0 below, for the comparison of the 2009 Alachua County inventory with the earlier 1998 County inventory, 2009 GHG emissions estimates associated with GRU supplied electricity were calculated using the EPA e-grid values in the adjusted 2009 inventory to allow a more accurate assessment of GHG inventory trends because the previous 1998 inventory used the EPA e-grid values.

Table1a. Fuel mix for EPA e-grid FRCC sub-region

Fuel Source	Fuel Mix %
Coal	26.24
Oil	17.87
Natural Gas	39.03
Other Fossil	0.64
All other (including Nuclear, Purchased Fuel, Biomass, and Hydro)	16.22
EPA (FRCC) e-grid emissions coefficient	1.318 lb CO ₂ /Kwh
Source: USEPA 2005 E-grid values : http://cfpub.epa.gov/egridweb/index.cfm	

Table1b. Fuel mix for Gainesville Regional Utilities (used in 2009 Inventory)

Fuel Source	Fuel Mix %
Coal	59.1
Oil	0.3
Natural Gas	19.3
All other (including Nuclear, Purchased Fuel, Solar PV, waste recovery)	21.3
GRU emissions coefficient	1.873 lb CO ₂ /Kwh
Source: http://www.gru.com/Pdf/Final%20Climate%20Change.pdf , www.gru.com , 12/9/10	

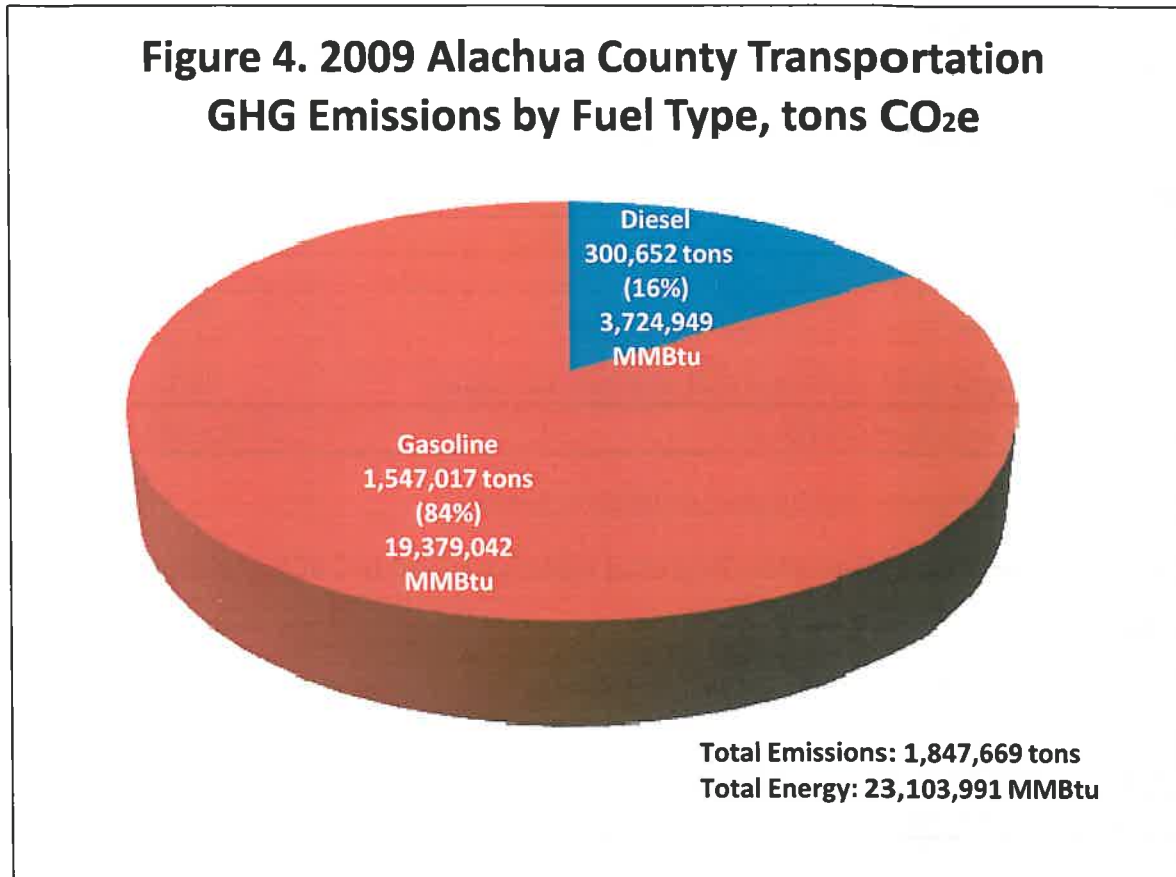
GRU is the only natural gas utility servicing residential and commercial customers in Alachua County. In 2009, GRU sold 2,072 million cubic feet of natural gas to residential and commercial customers, equating to approximately 125,049 tons CO₂e. This inventory does not include GHG emissions associated with residential or commercial consumption of liquefied propane gas in Alachua County¹. There are several liquid propane gas retailers in the area and consumption/sales data was requested but was not made available for this inventory.

2.4 GHG Emissions from Transportation Sector

Transportation Sector GHG emissions were estimated using vehicle miles traveled (VMT) data for Alachua County roadways obtained from the Florida Department of Transportation. The CACP software calculates the estimated GHG emissions from the Transportation Sector based on an assumption of 93 percent of vehicle miles traveled attributed to various classifications of gasoline powered vehicles and 7 percent to various classifications of diesel powered vehicles. It does not account for off-road equipment such as lawnmowers, recreational vehicles, gas powered tools,

¹ Stationary LPG was accounted for in the Industrial Sector.

construction equipment, or for driving off roads and in parking lots. The resulting emissions breakdown is depicted graphically in Figure 4.

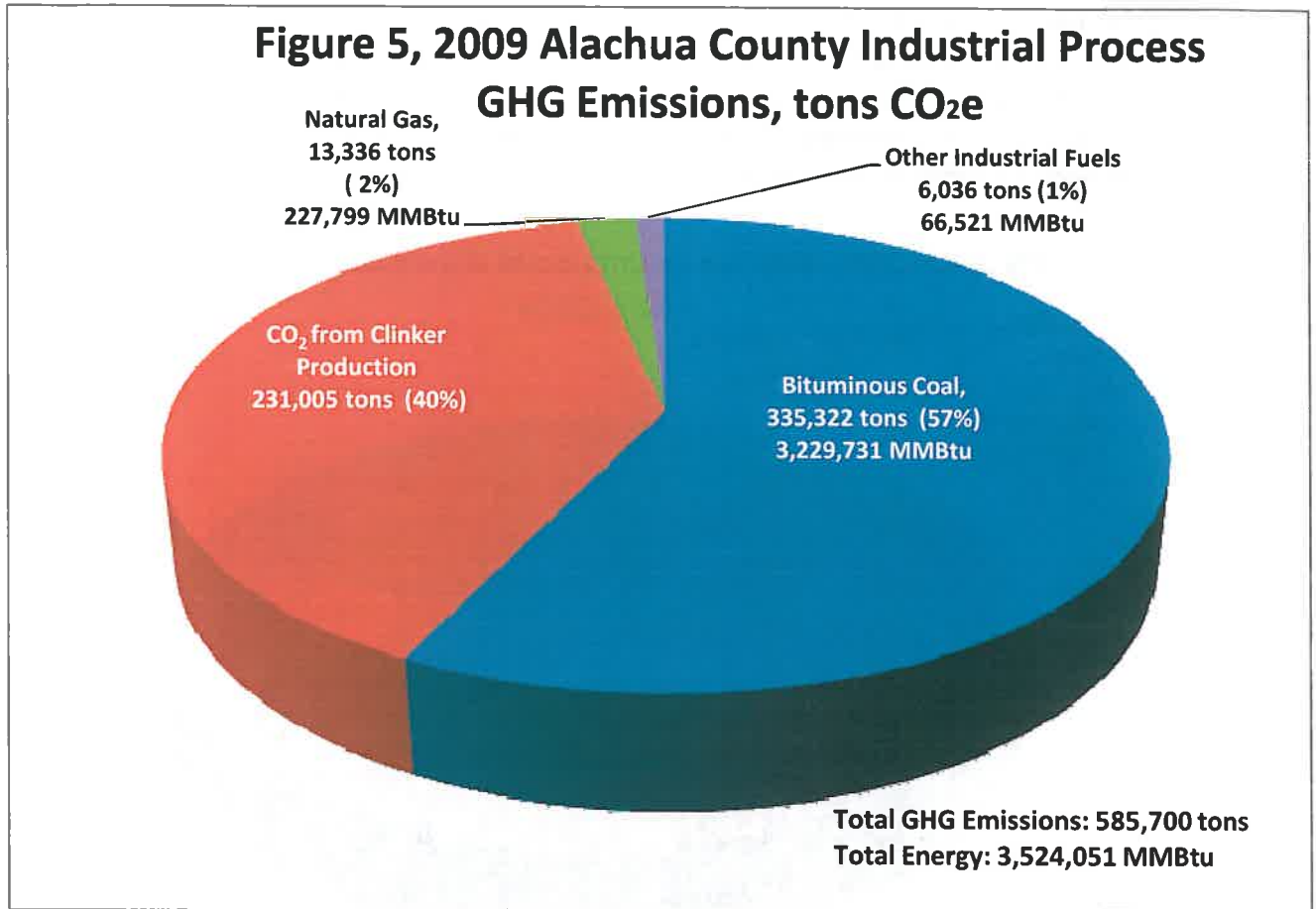


2.5 GHG Emissions from Industrial Processes

Figure 5 provides a breakdown of Industrial Process-related GHG emissions by source type. Carbon dioxide emissions associated with cement clinker production contribute 40 percent of the total Industrial Process emissions. Burning of natural gas (2 percent) and bituminous coal (57 percent) used as fuel for various industrial processes (including cement kiln heating) in Alachua County are the other two significant sources of Industrial Process GHG emissions. The “all other fuels” category which represents less than 1 percent of the total includes industrial consumption of fuel oil, petroleum coke, used tires, medical waste, liquid propane gas, and residual oil.

GHG emissions associated with internal (non-utility provided) energy use occurring at major industrial facilities in Alachua County were estimated using fuel use data obtained from Annual Operating Reports for the facilities provided by the Florida Department of Environmental Protection (FDEP). In addition, GHG emissions associated with direct carbon dioxide emissions

from the production of cement clinker at the Thompson S. Baker Cement Plant in Newberry, Florida were calculated.²

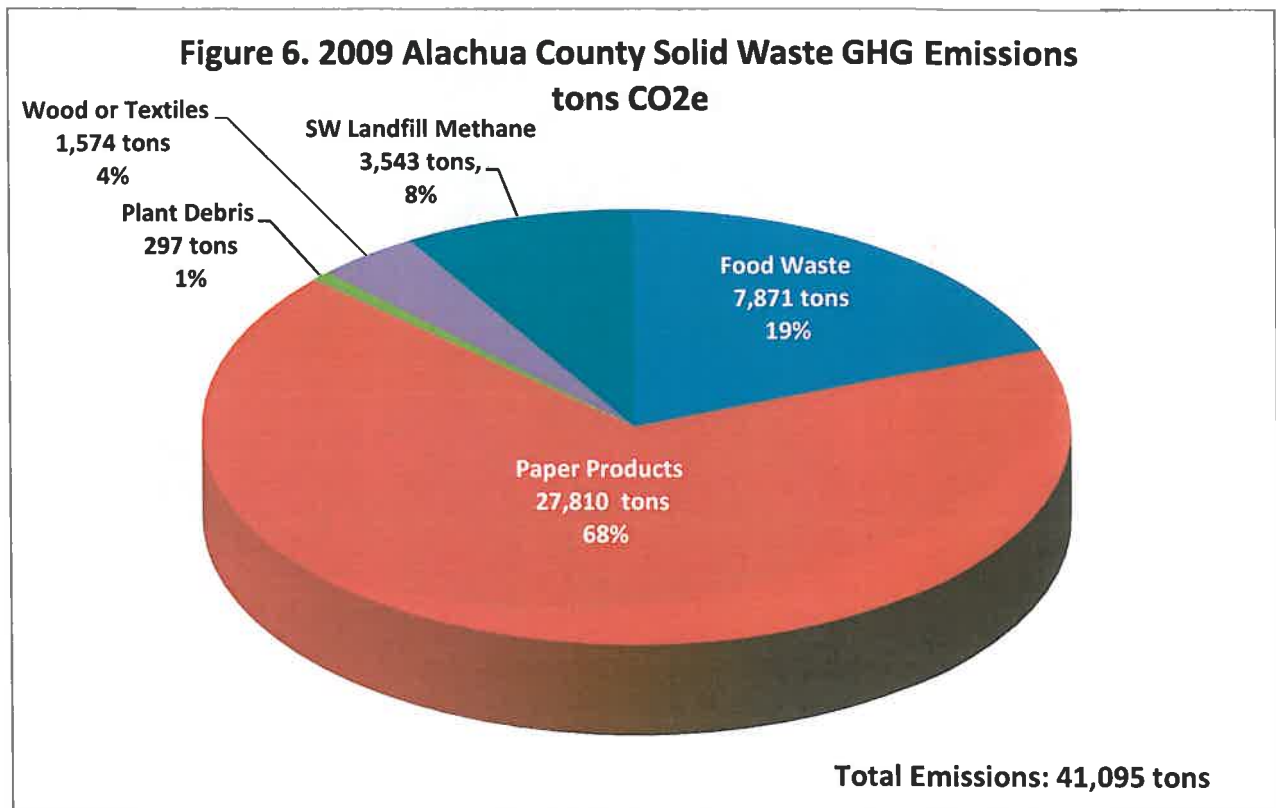


2.6 GHG Emissions from Municipal Solid Waste

According to Alachua County’s Public Works department, an estimated 173,412 tons of solid waste was hauled from Alachua County’s Transfer Station to the New River Landfill in Union county in 2009. The composition of the solid waste stream was determined from a waste composition study performed in 2009 by Alachua County Public Works which classified the solid waste into 78 subcategories. For this inventory, the subcategories were combined into 4 primary emission classifications for compatibility with the CACP software. These subcategories are identified as paper products, food waste, plant debris, wood and textiles. An “all other waste” category comprised primarily of metals and plastics is not assigned an emission coefficient by default in CACP software. Based on this waste categorization, 37,552 tons CO₂e emissions were generated from solid waste in 2009.

² Cement clinker production emissions were calculated by utilizing the Tier 1 method equation in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 3. A conversion factor of 0.507 tons CO₂ per ton of clinker was used in the calculation.

Alachua County's closed Southwest Landfill has a comprehensive landfill gas collection system and methane destruction system, enabling the collection of landfill gas emissions data. Methane collection data was used in Equation 9.1 of the CACP Local Government Operations Protocol to calculate the 3,543 tons CO₂e emissions associated with the closed landfill. The composition of the waste stream as defined by these analyses is depicted in Figure 6 along with the percentage breakdown of related emissions. Privately owned construction debris and yard waste landfills in Alachua County are not included in this estimate of waste emissions. The data from construction and yard debris landfills in Alachua County was not available for this inventory.



3.0 Comparison of Inventories

A best-estimate comparison was performed between the results of the 2009 County inventory and the previous 1998 County inventory. In order to provide a more accurate comparison of trends in county-wide GHG emissions, adjustments were necessary in both the 2009 and 1998 inventories before they could be compared to account for data inconsistencies and differing inventory scopes.

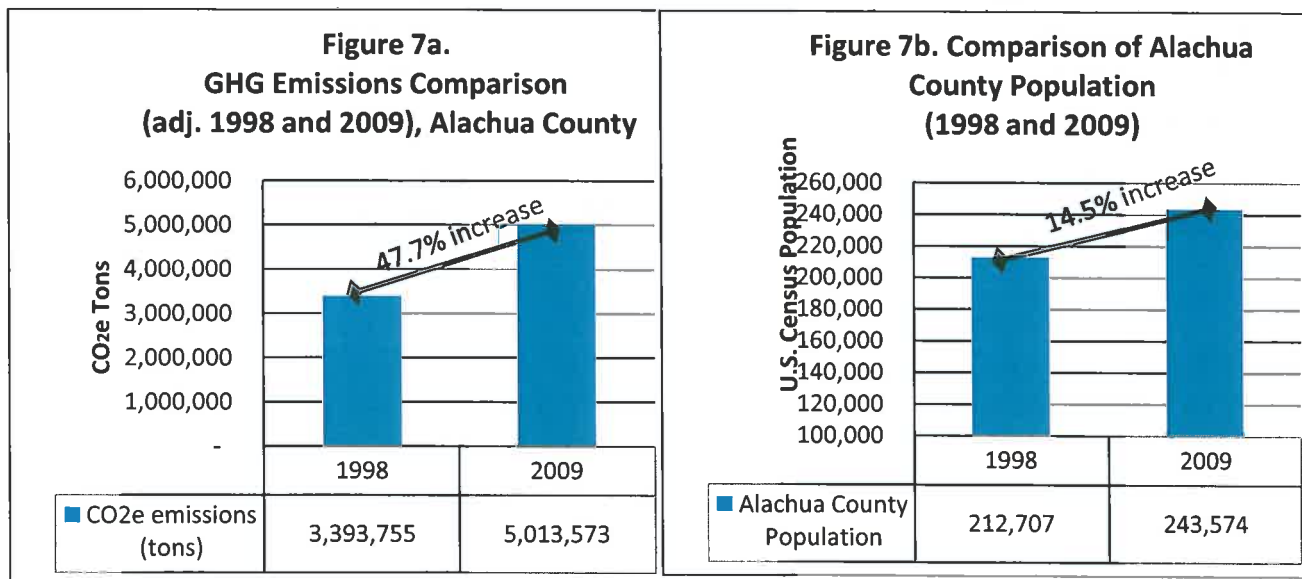
The 1998 inventory was adjusted due to an apparent inconsistency in the originally reported data. The adjustment involved a recalculation using current CACP software of 1998 emissions in the waste and transportation sectors using 1998 raw data inputs. This recalculated 1998 data is used in the adjusted 1998 inventory that is used in the comparisons in this section.

In the adjusted 2009 inventory, with one major exception, industrial process sector emissions were excluded from the emissions total since in the 1998 inventory, the industrial process sector

was not included. This adjustment was necessary in order to maintain consistency with the earlier inventory and to obtain a more accurate assessment of trends. The one major exception, however, was the inclusion in the adjusted 2009 inventory of the emissions from the Florida Rock- Thompson S. Baker Cement plant which was a significant new source added to the County after 1998. The remaining industrial process emissions without the Florida Rock Baker Cement plant are a very small fraction of the total community-wide emissions. In the adjusted 2009 inventory, all emissions sources that were counted in the 1998 inventory are included. Another significant emission source that has been added since 1998 are the energy consumption emissions related to UF's consumption of chilled water and steam produced by the UF-Cogen plant that was brought on-line in 2000.

In the adjusted 2009 inventory, the Utility Sector related emissions attributable to energy consumption from GRU were calculated using the EPA e-grid fuel mix and coefficient rather than the GRU specific fuel mix as used in the unadjusted 2009 inventory. Also emissions related to UF's chilled water and steam consumption are included in the Utility Sector related emissions. The 1998 inventory also used this EPA e-grid coefficient to calculate the Utility Sector emissions.

Figure 7a shows the increase in GHG CO₂e emissions (using the adjusted 1998 and 2009 inventories) and **Figure 7b** compares the population increase in Alachua County between 1998 and 2009. Total CO₂e emissions increased by 47.7 percent from 1998 to 2009 while County population increased by 14.5 percent in that period.



*2009 CO₂e emissions adjusted to exclude all industrial process emissions except for the Thompson S. Baker cement plant. 2009 GRU utility sector emissions calculated using EPA e-grid coefficients and inclusive of UF Steam and Chilled Water related emissions. 2008 adjusted inventory used recalculated waste and transportation emissions. Population data from US Census Bureau, Intercensal Estimates 1990-2000.

3.1 Utility Energy Sector

The comparison between the adjusted 2009 and 1998 Utility Energy Sector related emissions are listed in **Table 2** and depicted graphically in **Figure 8**. Utility-Residential CO₂e emissions in 2009

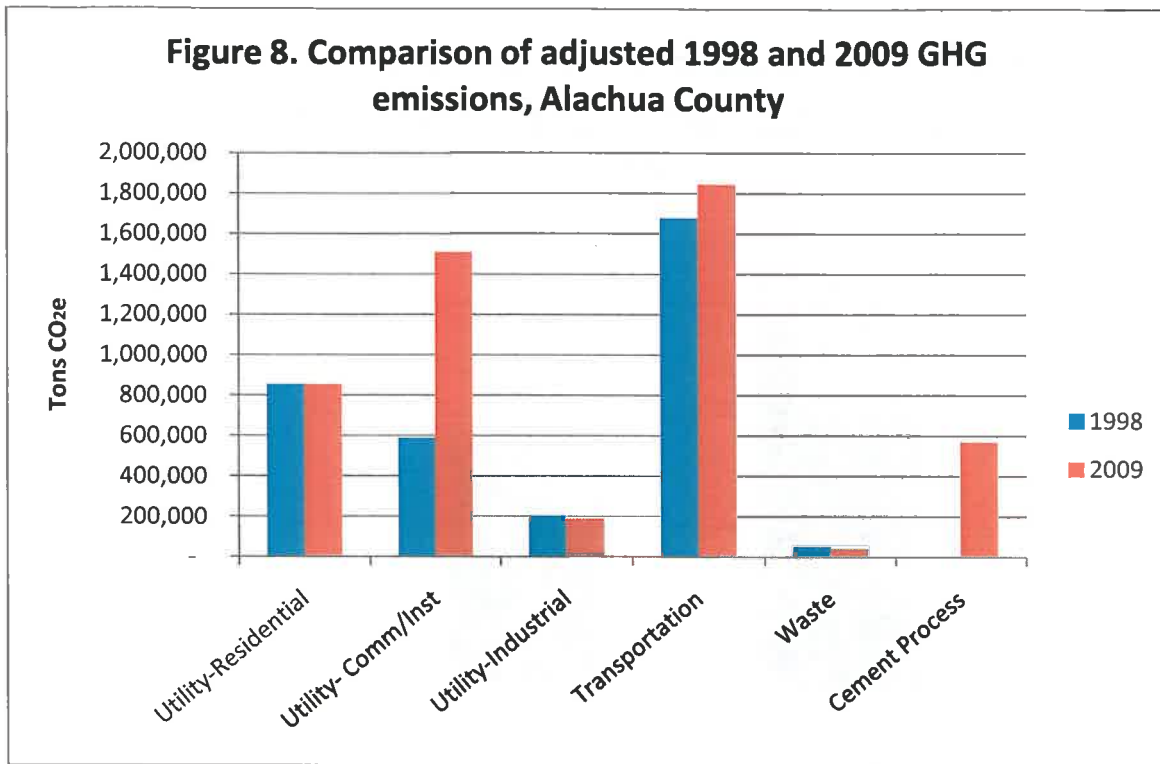
(854,199 tons) were down slightly from 1998 levels (854,593 tons) representing a reduction of 394 tons CO₂e since 1998 (0.05 percent).

From 1998 to 2009, Utility-Commercial/Institutional Sector emissions increased by 922,934 tons CO₂e (157 percent). The increase in commercial/institutional emissions is likely related to the growth in commercial businesses, including apartment complexes, and institutions such as hospitals and the University of Florida (UF) and other schools and government institutions in the County. Another contributor to the increase in the commercial/institutional emissions is the addition of the UF's chilled water and steam related emissions that came on-line in 2000. These emissions are responsible for 2.4 percent of total Utility-related emissions (118,955 tons CO₂e) in the adjusted 2009 dataset and 13 percent of the increase in Utility-Commercial/Institutional sector from 1998

Utility-Industrial Sector emissions decreased by 13,380 tons CO₂e (6.6 percent) since 1998.

Table 2. Comparison of Adjusted 1998 and 2009 County GHG inventories for Selected Sectors

Inventory Sector	Tons CO ₂ e		% Difference
	Year 1998	Year 2009	
Utility-Residential	854,593	854,199	-0.05%
Utility- Commercial/Institutional	587,780	1,510,114	157%
Utility-Industrial	202,881	189,501	-6.6%
Transportation	1,680,634	1,847,669	9.9%
Waste	67,867	41,095	-39.4%
Cement Process	N/A	570,995	N/A
Total	3,393,755	5,013,573	47.7%

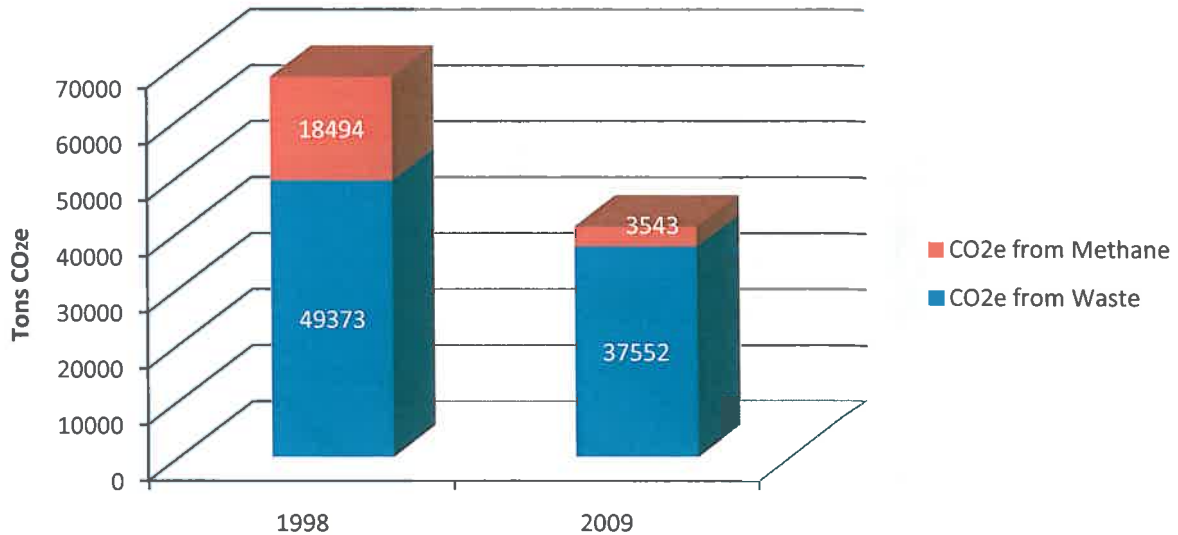


3.2 Waste Sector

Table 2 and **Figure 9** compare the total Alachua County waste sector related emissions between 1998 and 2009. Total waste sector related emissions, including the GHG emissions calculated from the annual tonnage of new solid wastes generated in the County and sent to the New River Landfill and GHG emissions calculated from the volume of landfill gas generated by existing wastes in the closed Southwest Landfill, have decreased by 39.4% from 67,867 tons CO₂e in 1998 to 41,095 tons CO₂e in 2009. The bulk of this total reduction in waste related GHG emissions between 1998 and 2009 is due to the initiation of a landfill-gas to energy program in 2003 at the closed Southwest Landfill in Archer. CO₂e from landfill gas methane was reduced by 81 percent from 18,494 tons CO₂e in 1998 to 3,543 tons in 2009. The gas to energy effort was discontinued in 2008 due to a significant reduction in recoverable methane at the landfill. Currently, remaining generated methane is destroyed by flaring at the landfill.

Policies intended to reduce the waste stream to landfills and to increase recycling over the last decade implemented by Alachua County's local governments and institutions are likely significant contributors to the reduction in the total tons of solid waste sent to the New River Landfill and the resulting reduction in CO₂e emissions from waste generated in 2009 as compared to 1998.

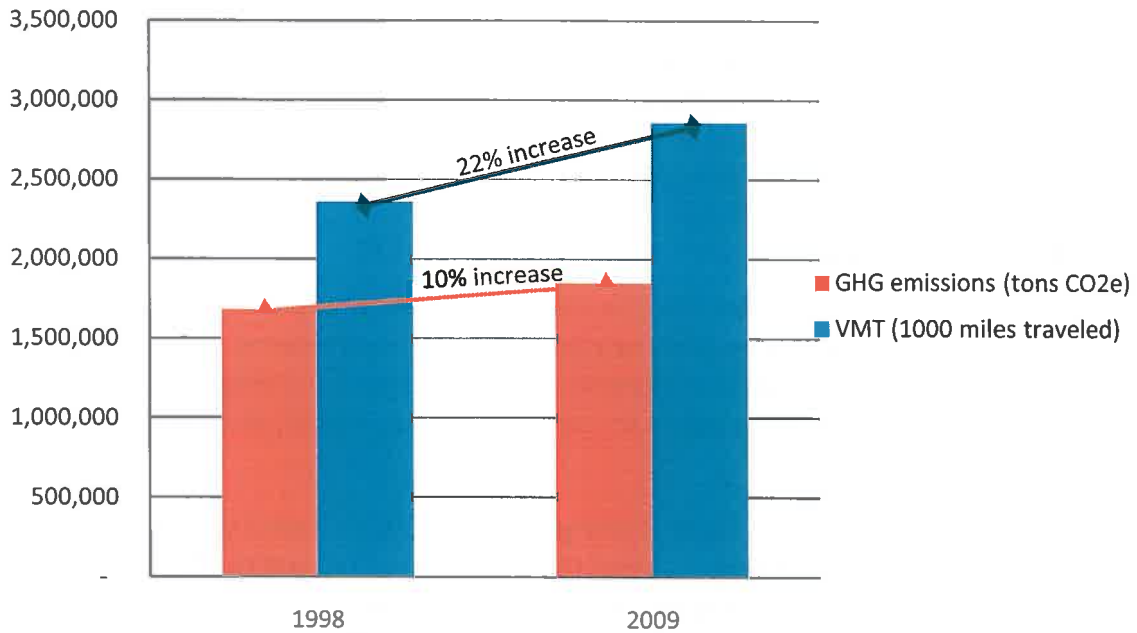
Figure 9. Comparison of Waste Generated GHG emissions in Alachua County, 1998/2009, tons CO₂e



3.3 Transportation Sector

Figure 10 shows the trend in Transportation Sector related emissions between 1998 and 2009. As calculated from VMT, 1998 transportation related emissions were 1,680,634 tons CO₂e. In 2009, transportation related emissions are estimated to have increased by 10 percent to 1,847,669 tons CO₂e. VMT data from 1998 to 2009 increased approximately 22%. The increase in emissions was not proportionate to the increase in VMT likely due to increases in fuel efficiencies in vehicles over the years from 1998 to 2009. The 2009 CACP software, used to calculate 1998 emissions from raw 1998 VMT data, accounts for the increasing fuel efficiency trend in its calculations.

**Figure 10. Transportation emissions comparison:
1998 and 2009**



4.0 Limitations

The 2009 Alachua County inventory contained in this report is a good-faith attempt to estimate the greenhouse gases emitted in Alachua County in 2009. Data from the primary emission sources in the county have been investigated and their associated emissions are presented in this report. Regardless, there are some areas that have not been included due to either lack of resources to perform the investigation or lack of available data.

Agriculture and forestry sectors are potential contributors to the community emissions inventory that were not included in this inventory. Also, forest conservation and management are potential carbon sequestration resources that can be included in a future, more comprehensive inventory.

Fugitive refrigerant emissions, a well-documented contributor to climate change and air quality issues, would be an interesting and valuable resource for inclusion in this report. These sectors were not included due to a lack of available data or resources to perform the investigation during this time period.

Methane and nitrous oxide are greenhouse gases that are associated with wastewater treatment plant operations. GRU's wastewater treatment activities are responsible for the vast majority of wastewater treatment in Alachua County. Based on their 1605(b) greenhouse gas inventory report for calendar year 2006, GHG emissions associated with GRU's wastewater operations was determined to be negligible (< 0.10 percent of the total 2009 County inventory) and, therefore, wastewater emissions were not included in this 2009 inventory.

Liquefied Propane gas data and yard waste and construction debris data was not made available for this inventory.

The use of VMT data to calculate transportation related GHG emissions does not account for agricultural, off-road recreational, marine or construction related fossil fuel use.

Collaboration and coordination with other stakeholders in the community, such as individual municipalities and large organizations such as the universities and planning organizations performing inventories throughout the county is also likely to provide a more comprehensive annual snapshot of annual GHG emissions.

5.0 Conclusions

The 2009 Alachua County county-wide inventory represents an important milestone in Alachua County Government's commitment to track and reduce GHG emissions. This inventory and future updates can be used by the public and private sectors to determine progress on GHG reduction issues and is useful as a progress report on community sustainability as it relates to GHG emissions.

As indicated in the difference between the e-grid and GRU's emissions coefficients in Tables 1a and 1b, the use of "cleaner" energy sources to power the energy grid can have some positive effect on emission reductions in the face of growth. Increases in energy conservation and energy efficient housing will be helpful in meeting the sustainability goals of the county. As growth in Alachua County is likely inevitable, there is a need for a progressively cleaner energy grid and further progress in energy conservation and efficiency in the future.

It is likely that the industrial process emissions in this 2009 inventory are lower than their potential based on the recent economy and decreased production data. For instance, clinker production and associated CO₂ emissions at the Thompson S. Baker Cement Plant were only a little more than half of their permitted allowance. During a time of high production, the CO₂e emissions from the industrial process sector are likely to be higher across the board.

Future community inventories will enable a closer analysis of trends in each of these sectors and from each of the sources outlined in the 2009 inventory. Pending availability of resources, ACEPD plans to begin an update to a GHG reduction plan for County government and the County that was originally completed in 2002. As such, ACEPD will collaborate with local municipalities, the University of Florida, the City of Gainesville, Santa Fe College and the private sector to share analytical techniques and methodologies, with the goal of ensuring consistency in approaches used to quantify, report and reduce GHG emissions and energy consumption.

Appendix A

Summary of 2009 Alachua County GHG Emissions Inventory

Utility-Residential	Equiv CO2 tons	Utility-Commercial/ Institutional	Equiv CO2 tons	Utility-Industrial	Equiv CO2 tons
Central Florida Electric Electricity	6,060	Central Florida Electric Electricity	322	Clay Electricity	76,044
City of Alachua Electricity	27,021	City of Alachua Electricity	52,596	GRU* Electricity	157,753
Clay Electric Electricity	177,806	Clay Electric Electricity	20,909	Progress Electricity	2,295
FP&L Electricity	7,889	FP&L Electricity	9,962		
GRU* Electricity	757,091	GRU* Electricity	761,245		
Natural Gas	66,858	Natural Gas	58,191		
Progress Energy Electricity	35,076	Progress Energy Electricity	487,934		
		UF-Chilled Water and Steam Chilled Water	81,233		
		Steam	37,722		
Subtotal	1,077,801	Subtotal	1,510,114	Subtotal	236,092

Utility-Sector Total: 2,824,007

Industrial Process	Equiv CO2 tons	Transportation	Equiv CO2 tons	Waste	Equiv CO2 tons
APAC Southeast Fuel Oil (#1,2,4)	9	Diesel	300,652	Paper Products	27,810
Residual Fuel Oil	8	Gasoline	1,547,017	Food Waste	7,871
Escalade Sports: Fred Bear Archery		VMT(2009)= 2,858,295,290		Plant Debris	297
Natural Gas	337			Wood or Textiles	1,574
Stationary LPG	13			SW Landfill Methane	3,543
Florida Rock Industries: Thompson S. Baker Cement Plant				Tons SW (2009)= 173,412 Landfill Methane (2009)= 153.06 metric tons	
Bituminous Coal	335,322				
Fuel Oil (#1,2,4)	1,413				
Natural Gas	816				
Petroleum Coke	1,684				
Carbon Dioxide	231,005				
Tires	756				
John C. Hipp Asphalt Plant Fuel Oil (1,2,4)	4				
Natural Gas	2,286				
N.FLA/South GA Veterans Health System					
Fuel Oil (1,2,4)	875				
Natural Gas	6,252				
Medical Waste	288				
VE Whitehurst and Sons, Inc. Fuel Oil (1,2,4)	987				
Natural Gas	3,645				
Industrial Process Subtotal	585,700	Transportation Subtotal	1,847,669	Waste Subtotal:	41,095

Total 2009 Inventory: 5,298,471 tons CO2e

*GRU Emissions data calculated using GRU specific fuel mix and CO2 coefficient (1.873 lbs CO2 per kwh)

Appendix B

Community Greenhouse Gas Emissions in 2009 Detailed Report

	CO ₂ (tons)	N ₂ O (lbs)	CH ₄ (lbs)	Equiv CO ₂ (tons) (%)		Energy (MMBtu)
Residential						
Alachua County, Florida						
<i>Central Florida Electric</i>						
Electricity	6,053	16	425	6,060	0.1	31,334
<i>Subtotal Central Florida Electric</i>	6,053	16	425	6,060	0.1	31,334
<i>City of Alachua</i>						
Electricity	26,990	72	1,895	27,021	0.6	139,719
<i>Subtotal City of Alachua</i>	26,990	72	1,895	27,021	0.6	139,719
<i>Clay Electric</i>						
Electricity	177,602	475	12,472	177,806	3.7	919,394
<i>Subtotal Clay Electric</i>	177,602	475	12,472	177,806	3.7	919,394
<i>Florida Power and Light</i>						
Electricity	7,880	21	553	7,889	0.2	40,793
<i>Subtotal Florida Power and Light</i>	7,880	21	553	7,889	0.2	40,793
<i>GRU</i>						
Electricity	532,874	1,426	37,420	533,488	11.1	2,758,539
Natural Gas	66,687	251	12,568	66,858	1.4	1,140,170
<i>Subtotal GRU</i>	599,561	1,677	49,988	600,346	12.5	3,898,709
<i>Progress Energy</i>						
Electricity	35,036	94	2,460	35,076	0.7	181,370
<i>Subtotal Progress Energy</i>	35,036	94	2,460	35,076	0.7	181,370
Subtotal Residential	853,122	2,355	67,794	854,199	17.8	5,211,320

All Residential, Commercial and Industrial GHG for all utility suppliers including GRU in this Detailed Report are calculated using the EPD E-grid coefficient data (1.318 lbs CO₂e per kwh) consistent with previous inventories and CACP protocols. 2009 GHG inventory data in Appendix A was calculated using a GRU specific coefficient data (1.873 lbs CO₂e/KWh) for electricity generation from GRU.

Community Greenhouse Gas Emissions in 2009 Detailed Report

	CO ₂ (tons)	N ₂ O (lbs)	CH ₄ (lbs)	Equiv CO ₂ (tons)	(%)	Energy (MMBtu)
Commercial						
Alachua County, Florida						
<i>Central Florida Electric</i>						
Electricity	321	1	23	322	0.0	1,663
<i>Subtotal Central Florida Electn</i>	321	1	23	322	0.0	1,663
<i>City of Alachua</i>						
Electricity	52,535	141	3,689	52,596	1.1	271,959
<i>Subtotal City of Alachua</i>	52,535	141	3,689	52,596	1.1	271,959
<i>Clay Electric</i>						
Electricity	20,197	54	1,418	20,220	0.4	104,555
<i>Subtotal Clay Electric</i>	20,197	54	1,418	20,220	0.4	104,555
<i>Clay Electric - Street Lights</i>						
Electricity	689	2	48	689	0.0	3,565
<i>Subtotal Clay Electric - Street l</i>	689	2	48	689	0.0	3,565
<i>Florida Power and Light</i>						
Electricity	9,951	27	699	9,962	0.2	51,512
<i>Subtotal Florida Power and Lig</i>	9,951	27	699	9,962	0.2	51,512
<i>GRU - Gen Svc Non-Demand</i>						
Electricity	123,574	331	8,678	123,717	2.6	639,710
<i>Subtotal GRU - Gen Svc Non-l</i>	123,574	331	8,678	123,717	2.6	639,710
<i>GRU - Outdoor Lighting</i>						
Electricity	17,359	46	1,219	17,379	0.4	89,863
<i>Subtotal GRU - Outdoor Lightii</i>	17,359	46	1,219	17,379	0.4	89,863
<i>GRU Gen Svc Demand</i>						
Electricity	394,866	1,056	27,728	395,321	8.2	2,044,109
Natural Gas	58,042	219	10,939	58,191	1.2	992,364
<i>Subtotal GRU Gen Svc Demar</i>	452,908	1,275	38,667	453,512	9.4	3,036,474

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Community Greenhouse Gas Emissions in 2009 Detailed Report

	CO ₂ (tons)	N ₂ O (lbs)	CH ₄ (lbs)	Equiv CO ₂ (tons) (%)	Energy (MMBtu)
<i>Progress Energy</i>					
Electricity	487,373	1,304	34,224	487,934 10.2	2,522,992
<i>Subtotal Progress Energy</i>	487,373	1,304	34,224	487,934 10.2	2,522,992
<i>UF - Steam</i>					
Carbon Dioxide	37,722	0	0	37,722 0.8	0 195,060
<i>Subtotal UF - Steam</i>	37,722	0	0	37,722 0.8	0
<i>UF Chilled Water</i>					
Carbon Dioxide	81,233	0	0	81,233 1.7	0 420,056
<i>Subtotal UF Chilled Water</i>	81,233	0	0	81,233 1.7	0
Subtotal Commercial	1,283,862	3,180	88,666	1,285,286 26.8	6,722,293 7,337,409
Industrial					
Alachua County, Florida					
<i>APAC=Southeast, Inc. First Coast Div. Gainesville Asphalt Plant</i>					
Fuel Oil (#1 2 4)	9	0	1	9 0.0	115
Residual Fuel Oil	8	0	1	8 0.0	94
<i>Subtotal APAC=Southeast, Inc</i>	17	0	1	17 0.0	209
<i>Clay</i>					
Electricity	75,957	203	5,334	76,044 1.6	393,207
<i>Subtotal Clay</i>	75,957	203	5,334	76,044 1.6	393,207
<i>Escalade Sports: Fred Bear Archery Equipment</i>					
Natural Gas	337	1	13	337 0.0	5,757
Stationary LPG	13	0	1	13 0.0	193
<i>Subtotal Escalade Sports: Fre</i>	350	2	14	351 0.0	5,950
<i>Florida Power and Light</i>					
Electricity	0	0	0	0 0.0	1
<i>Subtotal Florida Power and Lig</i>	0	0	0	0 0.0	1

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<i>Florida Rock Industries- Thompson S. Baker Cement Plant</i>						
Bituminous Coal	332,733	11,393	78,324	335,322	7.0	3,229,731
Fuel Oil (#1 2 4)	1,408	23	116	1,413	0.0	17,467
Natural Gas	815	3	31	816	0.0	13,933
Petroleum Coke	1,679	20	99	1,683	0.0	14,915
Carbon Dioxide tires	231,005 739	0 72	0 550	231,005 756	4.8 0.0	0 7,803
<i>Subtotal Florida Rock Industrie</i>	<i>568,380</i>	<i>11,511</i>	<i>79,119</i>	<i>570,995</i>	<i>11.9</i>	<i>3,283,849</i>
<i>GRU - Large Power</i>						
Electricity	111,034	297	7,797	111,162	2.3	574,792
<i>Subtotal GRU - Large Power</i>	<i>111,034</i>	<i>297</i>	<i>7,797</i>	<i>111,162</i>	<i>2.3</i>	<i>574,792</i>
<i>John C. Hipp Construction Equipment Co. Asphalt Plant</i>						
Fuel Oil (#1 2 4)	4	0	0	4	0.0	49
Natural Gas	2,284	9	86	2,286	0.0	39,051
<i>Subtotal John C. Hipp Constru</i>	<i>2,288</i>	<i>9</i>	<i>86</i>	<i>2,290</i>	<i>0.0</i>	<i>39,099</i>
<i>N.FLA/South GA Veterans Health System</i>						
Fuel Oil (#1 2 4)	872	14	72	875	0.0	10,814
Natural Gas	6,246	24	235	6,252	0.1	106,793
US MSW fossil portion	288	0	0	288	0.0	2,877
<i>Subtotal N.FLA/South GA Vete</i>	<i>7,406</i>	<i>38</i>	<i>307</i>	<i>7,415</i>	<i>0.2</i>	<i>120,484</i>
<i>Progress Energy</i>						
Electricity	2,292	6	161	2,295	0.0	11,865
<i>Subtotal Progress Energy</i>	<i>2,292</i>	<i>6</i>	<i>161</i>	<i>2,295</i>	<i>0.0</i>	<i>11,865</i>
<i>VE Whitehurst and Sons, Inc</i>						
Fuel Oil (#1 2 4)	983	16	81	987	0.0	12,194
Natural Gas	3,642	14	137	3,645	0.1	62,265
<i>Subtotal VE Whitehurst and Sc</i>	<i>4,625</i>	<i>30</i>	<i>218</i>	<i>4,632</i>	<i>0.1</i>	<i>74,459</i>
Subtotal Industrial	772,350	12,095	93,038	775,201	16.1	4,503,915

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Community Greenhouse Gas Emissions in 2009 Detailed Report

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Transportation						
Alachua County, Florida						
<i>Alachua County Community</i>						
Diesel	300,358	1,774	1,826	300,652	6.3	3,724,949
Gasoline	1,514,120	200,694	170,391	1,547,017	32.2	19,379,042
<i>Subtotal Alachua County Comi</i>	1,814,478	202,469	172,217	1,847,669	38.5	23,103,991
Subtotal Transportation	1,814,478	202,469	172,217	1,847,669	38.5	23,103,991
Waste						
Alachua County, Florida						
<i>Community Waste</i>						
						<i>Disposal Method - Managed Landfill</i>
Paper Products	0	0	2,648,575	27,810	0.6	
Food Waste	0	0	749,597	7,871	0.2	
Plant Debris	0	0	28,318	297	0.0	
Wood or Textiles	0	0	149,919	1,574	0.0	
<i>Subtotal Community Waste</i>	0	0	3,576,409	37,552	0.8	
Subtotal Waste	0	0	3,576,409	37,552	0.8	
Other						
Alachua County, Florida						
<i>SW Landfill</i>						
Methane	0	0	337,440	3,543	0.1	
<i>Subtotal SW Landfill</i>	0	0	337,440	3,543	0.1	
Subtotal Other	0	0	337,440	3,543	0.1	
Total	4,723,812	220,099	4,335,562	4,803,450	100.0	39,541,518

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