Chapter 2
Inventory and Projections of GHG Emissions

Introduction

During Phase 1 of the Action Team process, the Florida Department of Environmental Protection (DEP) prepared a preliminary inventory and reference case projections of emissions. That preliminary inventory and reference case projections, was revised, updated and completed by the Center for Climate Strategies (CCS) in June 2008 to provide the Action Team and its Technical Work Groups (TWGs) an understanding of past, current, and possible future GHG emissions in Florida, and inform the policy recommendation development process. Since that time, the Action Team and TWGs have reviewed, discussed, and evaluated the draft inventory and methodologies, as well as alternative data and approaches for improving the draft GHG inventory and forecast. Based upon that review the inventory and forecast have been revised to address the comments provided by the Action Team and the TWGs. The information in this chapter reflects the information presented in the final *Florida Greenhouse Gas Inventory and Reference Case Projections* report (hereafter referred to as the Inventory and Projections report) provided in Appendix A.[1]

Historical GHG emissions estimates (1990 through 2005)[2] were developed using a set of generally accepted principles and guidelines for state GHG emissions inventories, relying to the extent possible on Florida-specific data and inputs. The reference case projections (2006-2025) are based on a compilation of various existing projections of electricity generation, fuel use, and other GHG-emitting activities, along with a set of simple, transparent assumptions described in the final Inventory and Projections report.

The Inventory and Projections report covers the six types of gases included in the U.S. GHG inventory: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Emissions of these GHGs are presented using a common metric, CO_2 equivalence (CO_2e), which indicates the relative contribution of each gas, per unit mass, to global average radiative forcing on a global warming potential-weighted basis.[3]

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[1] Center for Climate Strategies, Final Florida Greenhouse Gas Inventory and Reference Case Projections: 1990–2025. Prepared for the Florida Governor's Action Team on Energy and Climate Change, October 2008.

[2] The last year of available historical data for each sector varies between 2000 and 2005.

[3] Changes in the atmospheric concentrations of GHGs can alter the balance of energy transfers between the atmosphere, space, land, and the oceans. A gauge of these changes is called radiative forcing, which is a simple measure of changes in the energy available to the Earth–atmosphere system (IPCC, 2001). Holding everything else constant, increases in GHG concentrations in the atmosphere will produce positive radiative forcing (i.e., a net increase in the absorption of energy by the Earth). See: Boucher, O., et al. "Radiative Forcing of Climate Change." Chapter 6 in *Climate Change 2001: The Scientific Basis*. Contribution of Working Group 1 of the Intergovernmental

There are two ways to account for emissions: either through a consumption-based approach or through a production-based method. It is important to note that the emissions estimates used here reflect the GHG emissions associated with the electricity sources used to meet Florida's demands, corresponding to a consumption-based approach to emissions accounting. Another way to look at electricity emissions is to consider the GHG emissions produced by electricity generation facilities in the state—a production-based method. The study covers both methods of accounting for emissions, but for consistency, all total results are reported as consumption-based.

Florida GHG Emissions: Sources and Trends

Table 2-1 provides a summary of GHG emissions estimated for Florida, by sector, for 1990, 2000, 2005, 2010, 2020, and 2025. As shown in this table, Florida is estimated to be a net source of GHG emissions (positive emissions, or gross emissions). Since Florida's forests and forested acreage serve as "carbon sinks" of GHG emissions (removal of CO_2 from the atmosphere, or negative emissions), Florida's net emissions is arrived at by subtracting the equivalent GHG reduction capacity of emission sinks from the gross GHG emissions totals. The following sections discuss GHG emission sources, sinks, trends, projections, and uncertainties.

Historical Emissions

Overview

In 2005, on a gross emissions consumption basis (excluding carbon sinks), Florida accounted for approximately 337 million metric tons (MMt) of CO_2e emissions, an amount equal to 4.7 percent of total U.S. gross GHG emissions. On a net emissions basis (including carbon sinks), Florida accounted for approximately 309 $MMtCO_2e$ of emissions in 2005, an amount equal to 4.9 percent of total U.S. net GHG emissions.[4] Florida's GHG emissions are rising faster than those of the nation as a whole. From 1990 to 2005, Florida's gross GHG emissions increased by 35 percent, while national gross emissions rose by 16 percent.[5]

Table 2-1. Florida historical and reference case GHG emissions, by sector*

(Million Metric Tons CO2e)	1990	2000	2005	2010	2020	2025
Energy (Consumption Based)	210.3	270.9	286.8	307.3	356.0	385.3

Panel on Climate Change Cambridge University Press. Cambridge, United Kingdom. Available at: http://www.grida.no/climate/ipcc_tar/wg1/212.htm.

[4] The national emissions used for these comparisons are based on 2005 emissions from U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2006*, April 15, 2008, EPA430-R-08-005. Available at: http://www.epa.gov/climatechange/emissions/usinventoryreport.html.

[5] During this period, population grew by 38 percent in Florida and by 19 percent nationally. However, Florida's economy grew at nearly the same rate on a per capita basis as the nation (up 32 percent in Florida compared to 33 percent nationally).

	Electricity Use (Consumption)	**100.6**	**136.2**	**142.2**	**145.0**	**151.3**	**158.5**
	Electricity Production (in-state)	86.1	124.3	134.1	138.5	151.3	158.5
	Coal	*54.1*	*72.3*	*60.4*	*69.2*	*74.4*	*73.5*
	Natural Gas	*11.1*	*22.6*	*38.0*	*56.1*	*68.2*	*78.4*
	Oil	*20.3*	*28.1*	*32.0*	*9.38*	*5.10*	*3.75*
	Biomass (CH_4 and N_2O)	*0.015*	*0.010*	*0.000*	*0.000*	*0.000*	*0.000*
	MSW/Landfill Gas	*0.37*	*0.74*	*3.60*	*3.24*	*2.89*	*2.21*
	Other	*0.34*	*0.48*	*0.01*	*0.57*	*0.74*	*0.60*
	Imported/Exported Electricity	14.5	11.9	8.09	6.57	0.00	0.00
	Residential/Commercial/Industrial (RCI) Fuel Use	**21.0**	**23.1**	**21.2**	**21.3**	**23.3**	**24.4**
	Coal	*2.84*	*3.02*	*2.58*	*2.81*	*2.83*	*2.91*
	Natural Gas	*7.73*	*9.84*	*7.93*	*8.15*	*9.60*	*10.4*
	Petroleum	*10.1*	*10.1*	*10.5*	*9.86*	*10.3*	*10.5*
	Wood (CH_4 and N_2O)	*0.40*	*0.21*	*0.22*	*0.54*	*0.60*	*0.64*
	Transportation	**87.6**	**110.2**	**121.8**	**139.2**	**179.4**	**200.3**
	Onroad Gasoline	*52.9*	*66.0*	*76.2*	*88.7*	*114.3*	*126.7*
	Onroad Diesel	*9.73*	*14.0*	*18.3*	*23.5*	*34.4*	*40.7*
	Marine Vessels	*11.1*	*14.4*	*14.9*	*14.3*	*15.8*	*16.5*
	Rail, Natural Gas, LPG, other	*0.70*	*0.69*	*0.96*	*0.99*	*1.04*	*1.07*
	Jet Fuel and Aviation Gasoline	*13.2*	*14.5*	*11.5*	*11.7*	*13.9*	*15.3*
	Fossil Fuel Industry	**1.02**	**1.36**	**1.55**	**1.70**	**2.00**	**2.09**
	Natural Gas Industry	0.95	1.30	1.52	1.67	1.99	2.07
	Oil Industry	0.07	0.06	0.04	0.03	0.02	0.01
Industrial Processes		**4.38**	**9.20**	**12.8**	**17.6**	**28.7**	**36.2**
	Cement Manufacture (CO_2)	1.20	1.81	2.75	3.63	6.31	8.32
	Limestone and Dolomite Use (CO_2)	0.38	0.46	0.49	0.52	0.60	0.64
	Soda Ash (CO_2)	0.14	0.15	0.15	0.16	0.16	0.17
	Iron & Steel (CO_2)	1.09	1.15	1.03	1.06	1.12	1.15
	Ammonia and Urea (CO_2)	0.09	0.06	0.06	0.06	0.06	0.06
	ODS Substitutes (HFC, PFC)	0.02	4.64	7.45	11.3	19.7	25.2
	Electric Power T&D (SF_6)	1.44	0.87	0.81	0.75	0.69	0.67
	Semiconductor Manufacturing (HFC, PFC, and SF_6)	0.02	0.07	0.06	0.06	0.05	0.05
Waste Management		**10.7**	**14.1**	**15.3**	**16.6**	**19.9**	**21.9**
	MSW LFGTE	0.39	0.49	0.51	0.53	0.57	0.59
	MSW Flared	0.35	0.58	0.68	0.78	1.04	1.21
	MSW Uncontrolled	5.86	8.60	9.52	10.5	12.9	14.3
	MSW Uncontrolled & closed over 15 year	1.33	0.97	0.79	0.65	0.43	0.36
	Industrial Landfills	0.76	1.05	1.14	1.24	1.46	1.59
	Waste Combustion	0.23	0.20	0.19	0.17	0.15	0.14
	Municipal Wastewater	1.57	2.01	2.23	2.50	3.15	3.54
	Industrial Wastewater	0.22	0.22	0.22	0.22	0.22	0.22
Agriculture		**16.3**	**15.5**	**15.0**	**14.4**	**13.6**	**13.1**
	Enteric Fermentation	2.51	2.30	2.18	2.05	1.85	1.75
	Manure Management	0.76	0.76	0.69	0.63	0.57	0.55
	Agricultural Soils	3.36	2.73	2.43	2.03	1.43	1.14

Agricultural Burning	0.01	0.01	0.01	0.01	0.01	0.01
Rice Cultivation	0.06	0.09	0.06	0.06	0.06	0.06
Agricultural Soils (cultivation practices)	9.63	9.63	9.63	9.63	9.63	9.63
Forest Fires (CH_4 and N_2O)	**7.05**	**5.29**	**6.82**	**6.70**	**6.70**	**6.70**
Gross Emissions (Consumption Basis, Excludes Sinks)	**248.8**	**315.0**	**336.6**	**362.6**	**424.9**	**463.3**
increase relative to 1990		*27%*	*35%*	*46%*	*71%*	*86%*
Emissions Sinks	**-17.8**	**-26.7**	**-27.3**	**-27.2**	**-27.1**	**-27.1**
Forested Landscape	-3.38	-21.1	-21.1	-21.0	-20.9	-20.9
Urban Forestry and Land Use	-14.4	-5.65	-6.23	-6.23	-6.23	-6.23
Net Emissions (Includes Sinks)	**230.9**	**288.3**	**309.4**	**335.3**	**397.8**	**436.2**

$MMtCO_2e$ = million metric tons of carbon dioxide equivalent; CH_4 = methane; N_2O = nitrous oxide; MSW = municipal solid waste; LFTGE = landfill gas to energy; LPG = liquefied petroleum gas; ODS = ozone-depleting substance; HFC = hydrofluorocarbon; PFC = perfluorocarbon; SF_6 = sulfur hexafluoride; NG = natural gas; T&D = transmission and distribution;

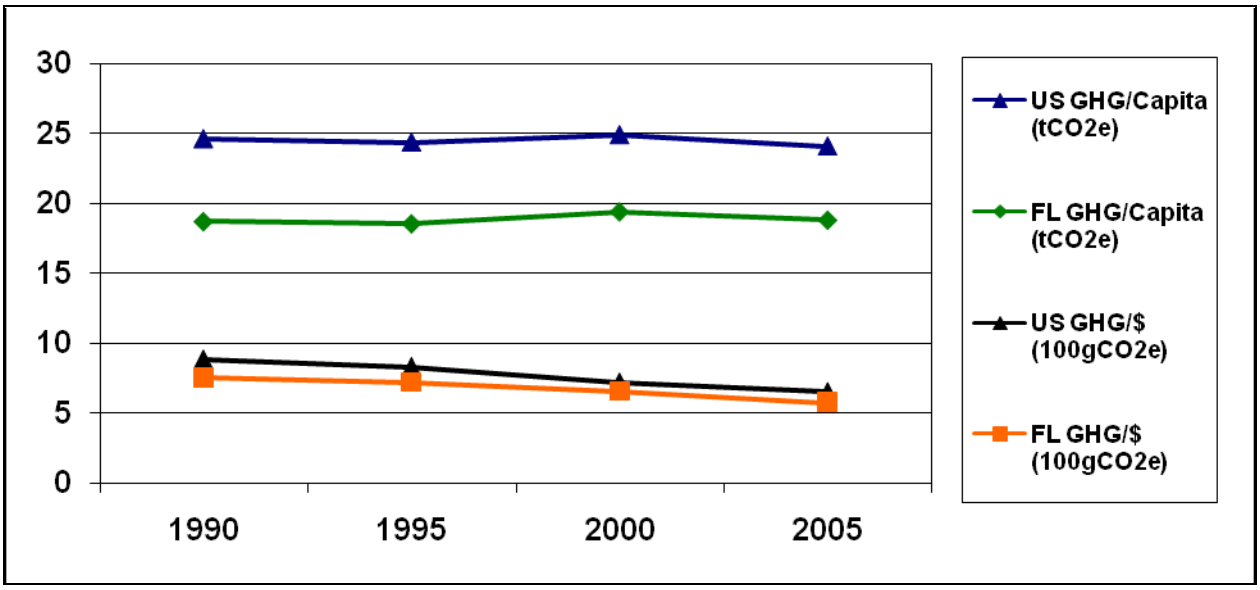
* Totals may not equal exact sum of subtotals shown in this table due to independent rounding.

On a per capita basis, Florida emitted about 19 metric tons (t) of gross CO_2e in 2005, lower than the national average of about 24 tCO_2e. Figure 2-1 illustrates the state's emissions per capita and per unit of economic output. It also shows that Florida per capita emissions have remained relatively flat between 1990 and 2005, similar to the nation as a whole. In both Florida and the nation as a whole, economic growth exceeded emissions growth throughout the 1990-2005 period. From 1990 to 2005, emissions per unit of gross product dropped by 26 percent, both in Florida and nationally.[6]

The principal sources of Florida's GHG emissions in 2005 are electricity consumption and transportation – these account for 42 percent and 36 percent, respectively, of Florida's gross GHG emissions, as shown in Figure 2-2. The direct use of fuels—natural gas, oil products, coal, and wood—in the residential, commercial, and industrial (RCI) sectors accounts for 6 percent of the state's emissions in 2005, significantly lower than the RCI sector contribution for the nation at 22 percent.

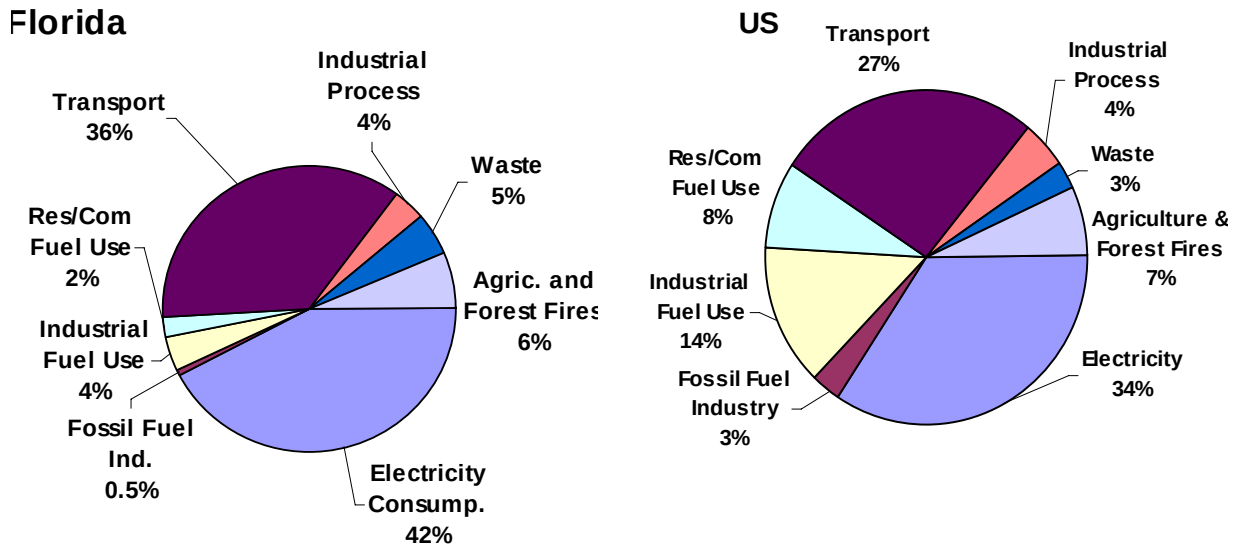
[6] Based on real gross domestic product (millions of chained 2000 dollars), that excludes the effects of inflation, available from the U.S. Department of Commerce, Bureau of Economic Analysis. "Gross Domestic Product by State." Available at: http://www.bea.gov/regional/gsp/.

Figure 2-1. Florida and U.S. gross GHG emissions, per-capita and per-unit gross product



GHG = greenhouse gas; tCO_2e = metric tons of carbon dioxide equivalent; GSP = gross state product; GDP = gross domestic product; g = grams.

Figure 2-2. Gross GHG emissions by sector, 2005: Florida and U.S.



The agricultural and forest wildfire sectors together account for 6 percent of the gross GHG emissions in Florida in 2005. These methane (CH_4) and nitrous oxide (N_2O) emissions primarily come from agricultural soils, rice cultivation, enteric (intestinal) fermentation, and manure management. Landfills and wastewater management facilities produce CH_4 and N_2O emissions that account for 5 percent of total gross GHG emissions in Florida in 2005. These emissions include:

- CH_4 emissions from municipal and industrial solid waste landfills;
- CH_4, CO_2, and N_2O emissions from the combustion of solid waste at open residential sites or in incinerators; and
- CH_4 and N_2O from municipal wastewater and CH_4 from industrial wastewater treatment facilities.

Also, industrial process emissions accounted for another 4 percent of the state's GHG emissions in 2005, and these emissions are rising due to the increasing use of HFCs and PFCs as substitutes for ozone-depleting chlorofluorocarbons.[7] In addition, emissions associated with the production, processing, transmission, and distribution of fossil fuels accounted for 0.5 percent of the gross GHG emissions in 2005.

Forestry emissions refer to the net CO_2 flux[8] from forested lands in Florida, which account for about 47 percent of the state's land area.[9] Florida's forests are estimated to be net sinks of CO_2 emissions in the state, reducing net GHG emissions by 27 $MMtCO_2e$ in 2005.

Reference Case Projections

Relying on a variety of sources for projections, a simple reference case projection of GHG emissions through 2025 was developed. This is illustrated in Figure 2-3 and shown numerically in Table 2-1. Under the reference case projections, Florida's gross GHG emissions would continue to grow steadily, climbing to about 463 $MMtCO_2e$ by 2025, or 86 percent above 1990 levels. This equates to a 1.6 percent annual growth rate from 2005 to 2025. By 2025, transportation emissions would increase to 43 percent while emissions from electricity consumption would decrease to 34 percent. In addition, emissions from industrial processes would increase to 8 percent while emissions from the RCI sector would decrease to 5 percent.

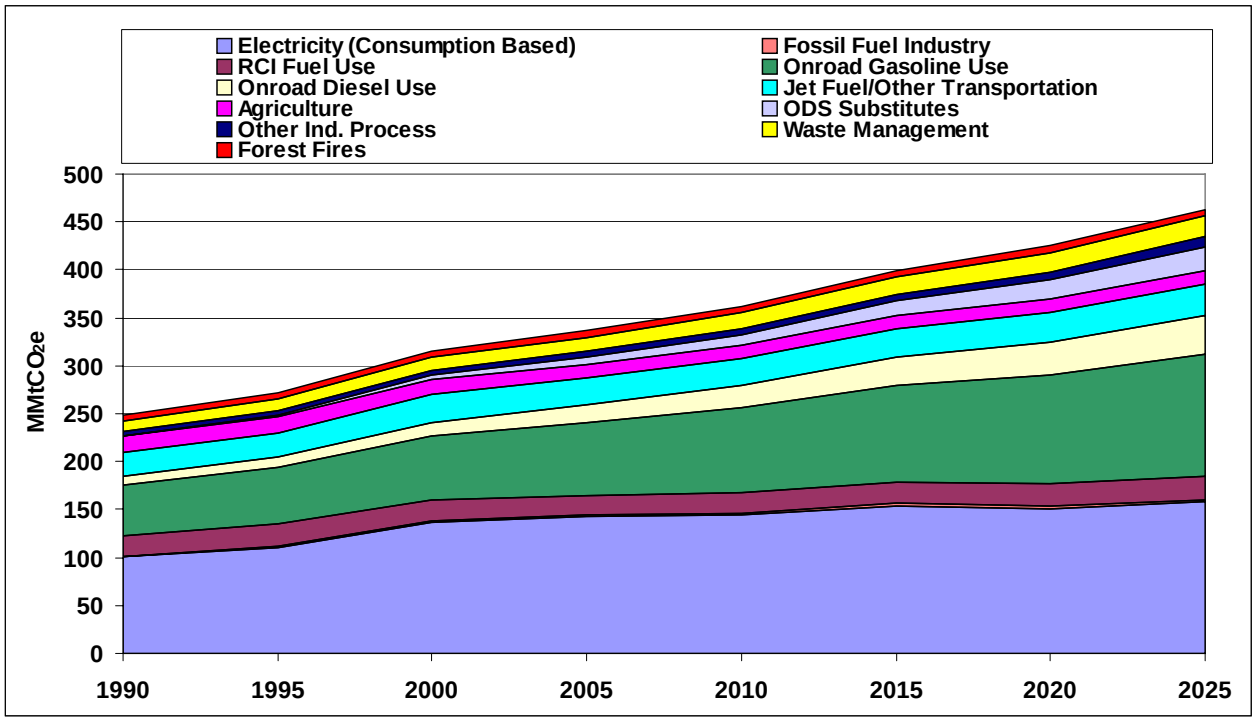
Therefore, emissions associated with the transportation sector are projected to be the largest contributor to future GHG emissions growth in Florida, followed by emissions associated with the increasing use of HFCs and PFCs as substitutes for ozone-depleting substances (ODS) in refrigeration, air conditioning, and other applications. Other sources of emissions growth include electricity consumption, as well as the waste management sector, as shown in Figure 2-4. Table 2-2 summarizes the growth rates in the Florida reference case projections.

[7] Chlorofluorocarbons are also potent GHGs; however, they are not included in GHG estimates because of concerns related to implementation of the Montreal Protocol on Substances That Affect the Ozone Layer. See Appendix I in the Final Inventory and Projections report for Florida (http://www.flclimatechange.us/Inventory_Forecast_Report.cfm).

[8] "Flux" refers to both emissions of CO_2 to the atmosphere and removal (carbon sinks) of CO_2 from the atmosphere.

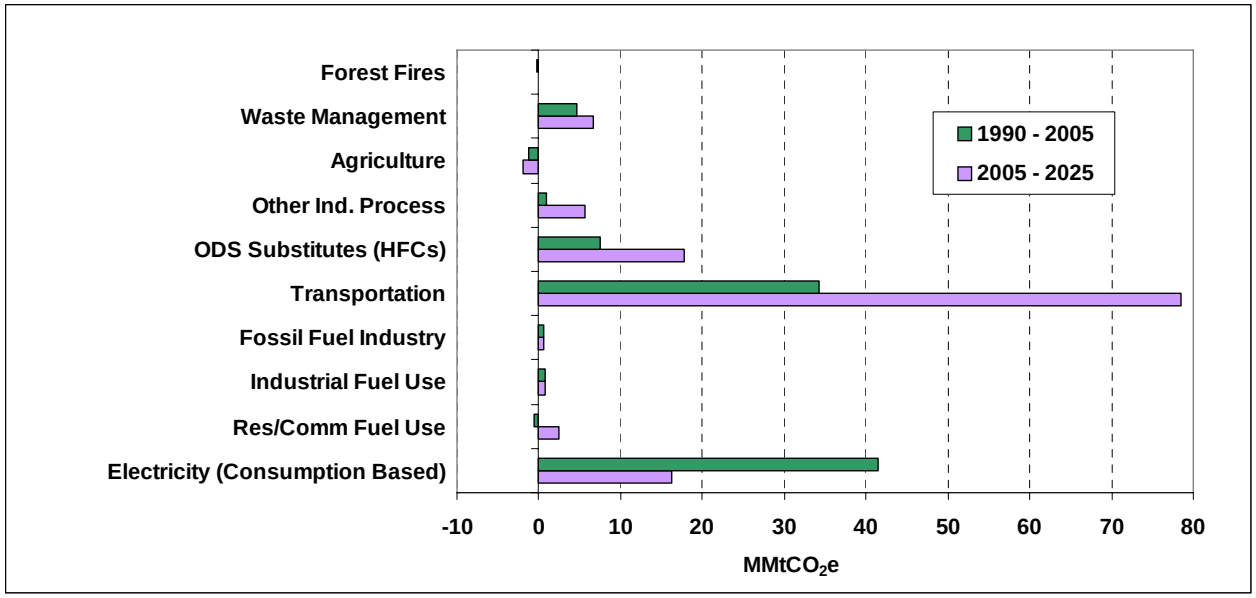
[9] Total forested acreage is 16.3 million acres. For acreage by forest type, see: Richard A. Birdsey and George M. Lewis. "Carbon in United States Forests and Wood Products, 1987–1997: State-by-State Estimates." Florida Estimate for 1987–1997. Available from the U.S. Department of Agriculture, Forest Service, Northern Global Change Research Program, at: http://www.fs.fed.us/ne/global/pubs/books/epa/states/FL.htm. The total land area in Florida is 34.6 million acres (http://www.50states.com/florida.htm).

Figure 2-3. Florida gross GHG emissions by sector, 1990–2025: historical and projected



$MMtCO_2e$ = million metric tons of carbon dioxide equivalent; RCI = direct fuel use in residential, commercial, and industrial sectors; ODS = ozone-depleting substance; Ind. = industrial.

Figure 2-4. Sector contributions to gross emissions growth in Florida, 1990–2025: reference case projections



$MMtCO_2e$ = million metric tons of carbon dioxide equivalent; ODS = ozone-depleting substance; HFCs = hydrofluorocarbons; RCI = direct fuel use in residential, commercial, and industrial sectors.

Table 2-2. Key annual growth rates for Florida, historical and projected

	1990-2005	2005-2025	Sources
Population	2.2%	1.7%	From the Demographic Estimating Conference Database, updated August 2007. http://edr.state.fl.us/population.htm
Electricity Sales Total Sales[a]	3% (1990-1999)	2.2% (2000-2007) 1.7% (2008-2025)	For 1990-1999, annual growth rate in total electricity sales for all sectors combined in Florida calculated from EIA State Electricity Profiles (Table 8) http://www.eia.doe.gov/cneaf/electricity/st_profiles/florida.html For 2000-2007, annual growth rates are based on average growth rates in the SERC/FL and SERC NERC regions in which Florida is located, as reported by the FRCC. For 2008-2025, an annual growth rate of 1.7 percent annually was assumed, based on the recommendation of the Action Team's Energy Supply and Demand TWG, as reviewed and accepted by the Action Team.
Vehicle Miles Traveled	4.1%	2.9%	Based on VMT projections provided by Florida Department of Transportation.

[a] Represents annual growth in total sales of electricity by generators in and outside Florida to RCI sectoral demand within Florida.

A Closer Look at the Two Major Sources: Electricity Consumption and Transportation

As shown in Figure 2-2, electricity use in 2005 accounted for 42 percent of Florida's gross GHG emissions (about 142 $MMtCO_2e$), which is much higher than the national share of emissions from electricity generation (34 percent). On a per capita basis, Florida's GHG emissions from electricity consumption are slightly lower than the national average (in 2005, 7.9 tCO_2e per capita in Florida, versus 8.1 tCO_2e per capita nationally). Electricity generation in Florida comes from a diverse mix of natural gas (38 percent of Florida gross electricity production in 2005), coal (28 percent), petroleum (17 percent), and nuclear (13 percent) fuels. Florida imports 10 percent of its electricity from out of state.

As noted above, these electricity emission estimates reflect the GHG emissions associated with the electricity sources used to meet Florida's demand for electricity, corresponding to a consumption-based approach to emissions accounting. For many years, Florida power plants have produced less electricity than is consumed in the state. In 2005, for example, emissions associated with Florida's electricity consumption (142 $MMtCO_2e$) were about eight $MMtCO_2e$ higher than those associated with electricity production (134 $MMtCO_2e$). The higher level for consumption-based emissions reflects GHG emissions associated with net imports of electricity from coal burning generators in other states to meet Florida's electricity demand.[10] Projections of electricity sales and generation for 2005 through 2025 nominally show Florida's imports of electricity falling to zero by 2017 as current firm import contracts expire[11], though it is

[10] Estimating the emissions associated with electricity use requires an understanding of the electricity sources (both in-state and out-of-state) used by utilities to meet consumer demand. The current estimate reflects some very simple assumptions, as described in Appendix A of the Inventory and Projections report.

[11] Import trends used in the revision of the Action Team forecast of electricity sales, production, and electricity sector emissions were taken from the Florida Reliability Coordinating Council (FRCC) report "2008 Regional Load & Resource Plan", published in July, 2008. As noted above, it is recognized that though imports in the FRCC report

recognized that some of these contracts may be renewed, and that Florida will continue to import electricity for the entire period. The reference case projection assumes that production-based emissions (associated with electricity generated in-state) will increase by about 24 $MMtCO_2e$ between 2005 and 2025, and consumption-based emissions (associated with electricity consumed in-state) will increase by about 16 $MMtCO_2e$, reflecting the underlying assumption that emissions from electricity imports are decreasing over this time period.

While estimates are provided for emissions from both electricity production and consumption, unless otherwise indicated, the tables, figures, and totals in this report reflect electricity consumption emissions. The consumption-based approach, which is largely unaffected by assumptions regarding power imports, better reflects the emissions (and emission reductions) associated with activities occurring in Florida, particularly with respect to electricity use (and efficiency improvements), and is particularly useful for decision-making. Under this approach, emissions associated with electricity exported to other states would need to be covered in those states' inventories in order to avoid double counting or exclusions.

Like electricity emissions, GHG emissions from transportation fuel use have risen steadily from 1990 to 2005, at an average annual rate of 2.2 percent. In 2005, gasoline-powered on-road vehicles accounted for about 63 percent of transportation GHG emissions; on-road diesel vehicles for 15 percent; marine vessels for 12 percent; aviation fuels for 9 percent; and rail and other sources (natural gas- and liquefied petroleum gas-fueled vehicles used in transport applications) accounted for the remaining 1 percent. As a result of Florida's population and economic growth and an increase in total vehicle miles traveled (VMT), emissions from on-road gasoline use increased at an annual rate of 2.5 percent from 1990 to 2005. Meanwhile, emissions from on-road diesel use increased by 4.3 percent per year from 1990 to 2005, suggesting an even more rapid growth in freight movement within the state. Emissions from on-road gasoline vehicles in 2025 are projected to increase by 2.6 percent annually from 2005 levels, and emissions from on-road diesel vehicles are projected to increase by 4.1 percent annually from 2005 to 2025, with total transportation emissions expected to reach 200 $MMtCO_2e$ by 2025.

Action Team Revisions

The Action Team made the following revisions to the inventory and reference case projections, which explain the differences between the final Inventory and Projections report and the draft initial assessment completed in June 2008:

- *Electricity Consumption*: The electricity supply forecast was revised based on information from the Florida Reliability Coordinating Council (FRCC) forecasts, as modified based on recommendations from the Energy Supply and Demand TWG. Key revisions are:

trend to zero by the end of the FRCC planning period (2017), imports at some level are, in fact, highly likely to continue past that date.

- Florida Electricity Sales: Using TWG recommendations, sales in 2025 are 8.8 percent lower than the original (AEO2007-based) Action Team forecast, and 13.2 percent lower than the (extrapolated) FRCC forecast.
- Transmission and Distribution (T&D) losses: FRCC estimates T&D losses as a fraction of net generation increase over 2008-2013, and are substantially higher (at about 8 percent of net generation in 2013, remaining stable thereafter) than in the original Action Team forecast (based on U.S. Department of Energy *Annual Energy Outlook* figures).
- Revised estimates of electricity generation by type of generation: There is considerably more nuclear and gas-fired electricity, and considerably less coal- and oil-fired generation, than in the earlier forecast prepared for the Action Team.

- *Agriculture*:
  - A University of Florida report on soil carbon was utilized to update emissions from the cultivation of organic soils. (Original emissions were based on 1997 U.S. Department of Agriculture data.)

- *Waste Management*:
  - DEP provided supplemental landfill facilities information to update the data from EPA's Landfill Methane Outreach Program. Gaps in activity data were augmented with average values and assumptions (described in Appendix G of the Inventory and Forecast report).
  - Solid waste landfills and emissions were separated into five groups: Municipal Solid Waste (MSW) Landfill Gas-to-Energy, MSW Flared, MSW Uncontrolled, MSW Uncontrolled and Closed Over 15 Years, and Industrial Landfills.
  - Historic (2000-2005) growth in emissions from landfills were used as growth rates for projecting 2006-2025 emissions from waste landfilled.

- *Forestry and Land Use*:
  - The Agriculture, Forestry, and Waste TWG provided an updated U.S. Forestry Service report, *Florida's Forests – 1995*, which was used to revise historic forest carbon flux values for 1987-1995 and 1995-2005.
  - Projections in forest land carbon flux (2005-2025) were originally kept at 2005 levels. The revised projections take into account annual forest area losses based on U.S. Forestry Service reports: *Florida's Forests – 1995,* and *Florida's Forests - 2005*.
  - In addition to wildland fire emissions, the Florida Division of Forestry provided activity data for prescribed burning, which increased the overall emissions from forest fires. Also, forest fires emission forecasts were revised to reflect historic

average emissions; this was done due to uncertainty in future forest fire projections and wide annual fluctuations in acres of forest area burned.

Key Uncertainties

Some data gaps exist in this inventory, and particularly in the reference case projections. Key tasks for future refinement of this inventory and forecast include review and revision of key drivers (such as the transportation, electricity demand, and waste management growth rates) that will be major determinants of Florida's future GHG emissions (See Table 2-2 and Figure 2-4). These growth rates are driven by uncertain economic, demographic, and land use trends (including growth patterns and transportation system impacts), all of which would deserve closer review and discussion.