



ALACHUA COUNTY COMPREHENSIVE PLAN: 2011-2030 EVALUATION AND APPRAISAL ISSUE SUMMARY

April 17, 2018

STATEMENT OF ISSUE

Review level of service standard for solid waste disposal, and objectives and policies relating to waste reduction and diversion; include greater emphasis on waste reduction.

Facilitate renewable energy investment and infrastructure in Alachua County

INTRODUCTION

Waste to energy is currently not used for Alachua County Waste but could be an alternative option that would meet both Solid Waste and Energy Element Objectives.

The following background information is found on the United States Environmental Protection Department [webpage](#) addressing Energy Recovery from the Combustion of Municipal Solid Waste (MSW).

“Waste-to-Energy (WTE) facilities combust municipal solid waste (MSW) to produce electrical energy. Florida has grown from having one small WTE plant in 1982 to 12 operating WTE facilities as of 2017. Florida has established the largest capacity to burn MSW of any state in the country.”

“The first incinerator in the United States was built in 1885 on Governors Island in New York, NY. By the mid-20th Century hundreds of incinerators were in operation in the United States, but little was known about the environmental impacts of the water discharges and air emissions from these incinerators until the 1960s. When the [Clean Air Act \(CAA\)](#) came into effect in 1970, existing incineration facilities faced new standards that banned the uncontrolled burning of MSW and placed restrictions on particulate emissions. The facilities that did not install the technology needed to meet the CAA requirements closed.”

Combustion of MSW grew in the 1980s. By the early 1990s, the United States combusted more than 15 percent of all MSW. The majority of non-hazardous waste incinerators were recovering energy by this time and had installed pollution control equipment. With the newly recognized threats posed by mercury and dioxin emissions, EPA enacted the Maximum Achievable Control Technology (MACT) regulations in the 1990s. As a result, most existing facilities had to be retrofitted with air pollution control systems or shut down. The [Confederation of European Waste to Energy Plants \(CEWEP\)](#) provides additional information on Waste-to-Energy facilities: “Emissions have been significantly

reduced during the past 25 years. Modern Waste-to-Energy facilities are equipped with sophisticated filters. Between 1990 and 2000 dioxin emissions of Waste-to-Energy plants in Germany dropped from 400 g to less than 0.5 g per year while the amount of thermally treated waste had more than doubled in the same period.”

Florida and the 2020 75% Recycling Goal

“The over 37 million tons of municipal solid waste generated by 20 million Floridians and about 113 million visitors every year, provides many opportunities for recycling. Unfortunately, Floridians and our visitors continue to discard valuable commodities when there are better uses for those items. The Florida Legislature recognized that fact and through the Energy, Climate Change and Economic Security Act of 2008, established a statewide weight-based recycling goal of 75% by 2020 (see Appendix G). The Act instituted the 75% recycling goal, directed the Florida Department of Environmental Protection (DEP) to establish a reporting protocol and directed counties to report annually. The Legislature also established interim recycling goals: 40% by 2012, 50% by 2014, 60% by 2016 and 70% by 2018”...

“Recycling in Florida, the United States, and the world has changed significantly over the last 10 years. Many of the challenges we currently face with recycling have occurred as a result of changes in collection methods, shifts in the recycling markets and new and lighter weight packaging. Given these challenges and others detailed in the report, the current practices in Florida are not expected to significantly increase the recycling rate beyond the state’s current rate of 56%; causing it to level off. Without significant changes to our current approach, Florida’s recycling rate will likely fall short of the 2020 goal of 75%.”

Final Recycling Report - FDEP

https://floridadep.gov/sites/default/files/FinalRecyclingReportVolume1_0_0.pdf

Tying the two together, Waste to Energy, including biomass, meets the objective of alternative energy and also provides recycling credits towards the 75% recycling Goal.

“In 2012, DEP implemented a new methodology for calculating the recycling rate to include renewable energy recycling credits as a result of legislative changes to Section 403.706, F.S. To promote the production of renewable energy from solid waste combustion, the Legislature allowed that each megawatt-hour produced by a renewable energy facility using solid waste as a fuel counts as 1 ton of recycled material, and is applied toward meeting the recycling goals. Section 403.708(12)(c), F.S., states that DEP shall, by rule, develop and adopt a methodology to award recycling credit for the use or disposal of yard trash at a Class I landfill having a gas-collection system that makes beneficial use of the collected landfill gas.”

“Renewable energy is statutorily defined as “electrical energy produced from a method that uses one or more of the following fuels or energy sources: hydrogen produced from sources other than fossil fuels, biomass, solar energy, geothermal energy, wind energy, ocean energy and hydroelectric power.” A means of creating renewable energy by using solid waste occurs through waste-to-energy (WTE). WTE is the process of generating energy in the form of electricity and/or heat from the primary treatment of MSW. Most WTE processes produce electricity and/or heat directly through

combustion or produce a combustible fuel commodity. Currently, there are 12 WTE facilities that accept MSW from 22 Florida counties. Approximately 12% of Florida's MSW is combusted in WTE facilities. Research suggests that increasing the number of WTE plants in Florida could raise the recycling rate under the 2012 methodology. For example, by strategically adding new WTE capacity in higher population areas that currently do not have access to WTE could potentially increase the adjusted recycling rate by more than 5 percent."

Final Recycling Report - FDEP

https://floridadep.gov/sites/default/files/FinalRecyclingReportVolume1_0_0.pdf

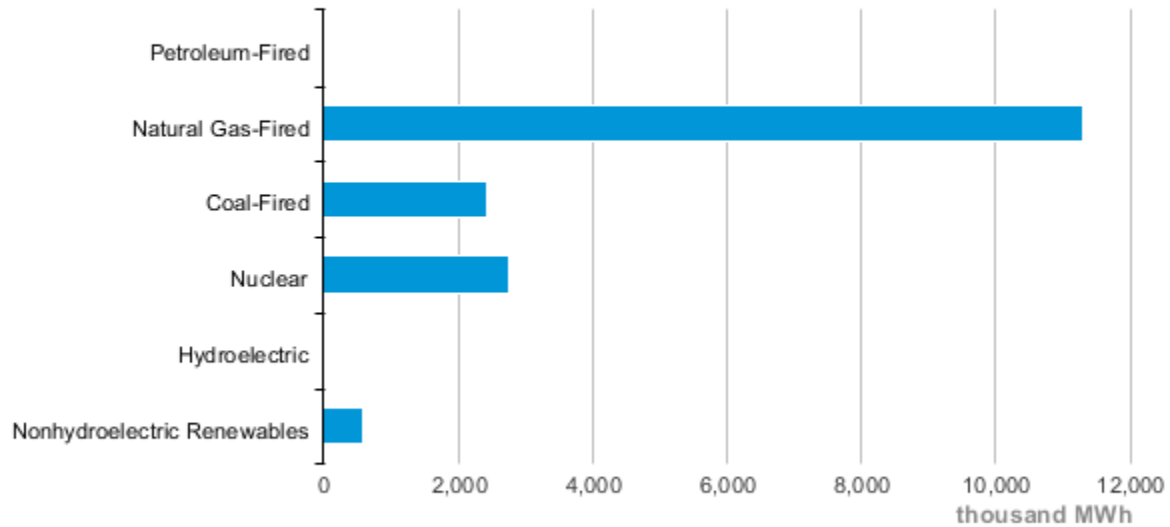
The Board has several policies in place to facilitate the adoption of renewable energy and decrease of usage of fossil fuels for the community and County government operations. The main policies to achieve these ends include those related to the purchase or production of renewable energy (County Government Objective 5.2 and Community Wide Objective 7.0), capital investment (Policies 2.2.2, 5.1.3) alternative finance mechanisms such as Property Assessed Clean Energy Solar (Policy 7.1.2), removal of barriers related to permitting renewable energy installations (Objective 7.2 and Policy 7.2.1) and a fleet 20% reduction in liquid fossil fuels (Policy 5.1.4.), which was resented to the Board on November 6, 2017.

Across the world, renewable energy in electricity production is growing in capacity and is beginning to exceed fossil fuel sources in capital investments. (*Petroleum Economist, 2017*) Looking at the most recent national data from the Energy Information Administration, renewable energy in the United States has grown by 80.5% from 2000 to 2017 to 11 quadrillion Btu. Renewable energy in the United States is dominated in the consumption sectors in order of Biomass, Hydroelectric, Wind, and Solar. Solar which doubled in productivity from 2013 to 2016 represents 6% or 0.6 quadrillion Btu in this sector. (*U.S. Energy Information Administration, 2018*)

Sources in Florida

For Florida, 64% of energy consumed is in the residential, commercial and industrial sectors with 36% being consumed in transportation. (U.S. Energy Information Administration, 2018) Referencing the Florida Net Electricity Generation by Source chart, Florida's 17.1 GWh is dominated 66% by natural gas production at 11.3 GWh in 2017. Nonhydroelectric renewables represent 3.3% or 0.57 GWh of the State's generation portfolio.

Florida Net Electricity Generation by Source, Dec. 2017



 Source: Energy Information Administration, Electric Power Monthly

Sources in Alachua County

In the County, electricity production is shared among several providers. Gainesville Regional Utilities (GRU), Duke Energy and Florida Power & Light (FPL) are major producers. Alachua County Operations are primarily powered by GRU (97%).

Utility Provider for Alachua County	Total (MWh)
GRU	18,919
Duke	155
FPL	112
(Resellers) Central Florida, City of Alachua, Clay Electric	310
Total MWh for FY17	19,496

Source: UMS Database Electricity Usage Breakdown Year Ending 09-17

GRU Renewable Energy Production 2017

Breaking down GRU's sources of fuel for electricity in 2017, shows natural gas as the dominant source (52%). Notable exceptions to the State's energy profile can be seen in GRU's renewable sector with 280,503 MWh produced representing 14% of their portfolio.

GRU Fuel Mix in MWh for 2017	MWh	Percent
Natural Gas	1,067,779	52%
Interchange Purchases and Sales	435,734	21%
Coal	248,909	12%
Purchases - GREC Delivered	239,729	12%
Purchases Solar FIT	24,170	1.2%
Purchases Landfill Gas	16,604	0.8%
Fuel Oil	2,004	0%
Total MWh for 2017	2,034,929	100%

Source: GRU Correspondence March 13, 2018

The renewable component of GRU's fuel mix is anticipated to increase over 2018, with the acquisition of the GREC biomass plant in 2018. Staff understands that there may be increased production at the biomass plant and decreasing usage in coal fired plant. Energy Element Policy 5.2.1 specifically includes a goal for the purchase of renewable energy: *Policy 5.2.1. Alachua County shall purchase or produce renewable energy for at least 10% of total County government (cumulative) consumption by 2015, and 20% by 2020.* From GRU's fuel mix, the County is exceeding its goals relative to policy 5.2.1 purchasing 2,649 MWh in 2017.

ANALYSIS OF THE ISSUE

Standards for the handling, processing, disposal and recycling of MSW combustor ash are contained in Chapter 62-702, Florida Administrative Code. Ash is required to be disposed in a lined MSW: <https://floridadep.gov/waste/permitting-compliance-assistance/content/waste-energy>

This US EPA site references rules applicable with ash management of ash produced from WTE facilities in Florida: <https://www.epa.gov/smm/energy-recovery-combustion-municipal-solid-waste-msw>

Final Recycling Report - FDEP

https://floridadep.gov/sites/default/files/FinalRecyclingReportVolume1_0_0.pdf

STRATEGIES TO ADDRESS THE ISSUE

1. Revise LOS for solid waste and resource diversion to FDEP recommendations as appropriate, which include:
 - Evaluating the implications of shifting from a weight-based recycling goal to sustainable materials management processes.
 - Researching the concept of moving from a weight-based recycling goal of 75% by 2020, to

market specific goals such as a food diversion goal or an organics recycling goal.

- Engaging Florida's state universities and the Florida Department of Education to review potential K-12 curriculum programs emphasizing waste reduction and recycling practices.
 - Continuing to work with state agencies to identify recycling/cost saving measures specific to their operations. For example, exploring opportunities to reduce and recycle food waste within the Florida Department of Corrections or expanding the use of recycled glass as an aggregate replacement in Florida Department of Transportation projects.
 - Collaborating with the Hinkley Center for Solid and Hazardous Waste Management to analyze the ongoing recycling of materials to determine areas where assistance is in greatest need.
 - Providing counties not achieving the 2016 interim recycling goal with assistance in analyzing, planning and executing opportunities to increase recycling.
 - Increase construction and demolition debris recycling.
2. Review Energy Element Policies and revise as appropriate, to include standardized methodologies for measuring emissions, energy consumption, and renewable energy generation and consumption.

REFERENCE MATERIALS

Link to the State of the State of Recycling in Florida Hinkley Center Study:

<https://www.essie.ufl.edu/media/essieufledu/home/townsend/HC16Scope.pdf>

Link to map of Waste to Energy Facilities in Europe:

<http://www.cewep.eu/2017/09/07/waste-to-energy-plants-in-europe-in-2015/>

Report on WTE in the United States by the Energy Recovery Council:

<http://energyrecoverycouncil.org/wp-content/uploads/2016/06/ERC-2016-directory.pdf>

(This study also references how WTE reduces Greenhouse Gas emissions which is one of the main goals of the Energy element.)

EPA web page on Energy Recovery from Municipal solid Waste:

<https://www.epa.gov/smm/energy-recovery-combustion-municipal-solid-waste-msw>

Report by EPA on WTE as a renewable energy source:

<https://archive.epa.gov/epawaste/nonhaz/municipal/web/html/faq.html>

Alachua County Public Works Department – Fleet Division 20 by 2020 Fuel Reduction Update 2017

<http://alachuacofl.civicclerk.com/Web/GenFile.aspx?ad=4156>

COMPREHENSIVE PLAN POLICIES RELATING TO ISSUE

SOLID WASTE ELEMENT

GOAL 1

TO PROVIDE CLEAN, EFFICIENT, ECONOMICAL, AND ENVIRONMENTALLY SOUND MANAGEMENT OF SOLID WASTE RESOURCES IN ALACHUA COUNTY.

OBJECTIVE 1.1

Establish level of service standards for solid waste management in order to coordinate capital improvement planning with land use decisions to meet the requirement that adequate solid waste management facilities be available when needed for development concurrent with the impacts of development by implementing Policies 1.1.1 through 1.1.4.

Policy 1.1.1 The level of service (LOS) standard for solid waste disposal, used as the basis for determining availability of disposal capacity to accommodate the demand generated by existing and new development in Alachua County, is hereby established, at a minimum, at 0.73 tons per person per year in 1997 and thereafter.

OBJECTIVE 1.2

Provide for safe operation and maintenance of publicly owned solid waste management facilities, in compliance with all stipulations and conditions of Florida Department of Environmental Protection (FDEP) permits; and other applicable local, state or federal regulations; provide for protection of water, soil and air resources, in compliance with local, state, and federal permit requirements including monitoring of groundwater at all public landfill sites.

Policy 1.2.5 Due to the toxic nature of incinerator and mass burn facilities, no such facility will be included in the County solid waste system.

OBJECTIVE 1.5

The County shall develop and implement a waste reduction strategy that includes waste prevention, source reduction, reuse, recycling and biological disposition, resulting in a reduction of solid waste disposed per capita.

Policy 1.5.1 Annual per capita waste tonnage disposed at the County Leveda Brown Environmental Park and transfer station, or any Class I waste disposal site as designated by Alachua County, which is classified for disposal as Class I waste, will be recorded and measured on an annual basis. The annual change in tonnage disposed will act as a measure of waste reduction, waste prevention, reuse and recycling. The change from year to year will be used to monitor the effectiveness of the waste prevention strategy.

Policy 1.5.2 Achieve a diversion rate from disposal of 40% by December 31, 2012; 50% by December 31, 2014; 60% by December 31, 2016, 70% by December 31, 2018; and 75% by December 31, 2020. Special waste being recycled such as tires, appliances, yard trash and construction and demolition debris will be included. The calculation will be made annually by dividing the tons recycled by the sum of tons disposed plus tons recycled. In addition to changes in total waste diversion, the County shall track and report on indicators of improvements in waste diversion such as percentage of businesses in compliance with the mandatory commercial recycling program, percentage of residential users

voluntarily recycling, rates of recycled vs. disposed waste collected at rural collection centers, or similar measures.

Policy 1.5.3 The County shall maintain and improve the single family residential curbside recycling program in the Municipal Services Benefit Unit (MSBU) and offer drop-off recycling in the non-mandatory rural area by providing recycling containers at the Rural Collection Centers. The County shall explore the feasibility of a mandatory curbside recycling program throughout the County.

Policy 1.5.4 The County shall increase enforcement of the mandatory commercial recycling program that includes apartments, multi-family complexes, businesses, institutions and manufacturers for full compliance by the year 2020.

Policy 1.5.5 The County shall maintain recycling and waste reduction programs in all county offices. The County's purchasing policy shall foster purchase of goods made from recycled materials.

Policy 1.5.6 The County shall provide coordination and assistance to all local municipalities, the University of Florida and Santa Fe College and the local United States Postal Service to maintain effective and efficient recycling programs.

Policy 1.5.7 The County shall continue to promote waste prevention, source reduction, re-use, recycling, the purchase of goods made from recycled materials, composting and pollution prevention through public education programs. Such programs will be directed to schools, churches, civic organizations, service clubs, businesses, institutions and residents.

Policy 1.5.8 The County shall pursue available Federal or State grants and funding to maintain and promote expansion of the County's recycling, resource recovery, and source reduction programs.

SOLID WASTE ELEMENT DEFINITIONS

Disposal means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or upon any land or water so that such solid waste or hazardous waste or any constituent thereof may enter other lands or be emitted into the air or discharged into any waters, including groundwaters, or otherwise enter the environment.

Generation means the act or process of producing either solid waste or a marketable fuel.

Resource recovery means the process by which materials, excluding those under control of the Nuclear Regulatory Commission, which still have useful physical or chemical properties after serving a specific purpose are reused or recycled, including use as an energy source.

ENERGY ELEMENT

GOAL

REDUCE GREENHOUSE GAS EMISSIONS AND FOSSIL FUEL CONSUMPTION; MITIGATE THE EFFECTS OF RISING ENERGY COSTS; AND PROMOTE THE LONG-TERM ECONOMIC SECURITY OF ALACHUA COUNTY THROUGH ENERGY CONSERVATION, ENERGY EFFICIENCY AND RENEWABLE ENERGY PRODUCTION.

STRATEGY

Priority 1
Practice energy conservation.

Priority 2
Maximize energy efficiency.

Priority 3
Promote and invest in renewable energy production.

1.0 REDUCTION GOALS

OBJECTIVE 1.1

Reduce countywide greenhouse gas (GHG) emissions by 80% from 2009 baseline emissions by 2050, with an intermediate goal of a 40% reduction by 2020 and a short term goal of 5% annual reduction.

Policy 1.1.1 The County shall implement a plan to reduce GHG emissions per Objective 1.1. To accurately monitor progress, the County shall measure GHG emissions for County operations and implement a method for estimating countywide emissions. Findings shall be released in an annual status report for County operations, with an estimate of community emissions reported biennially (i.e. every two years.) In addition to changes in total GHG emissions, reports shall include indicators of improvements in efficiency such as reductions in emissions per person, per employee or per square foot, improvements in building performance ratings, or similar measures.

Policy 1.1.2 The County shall work with other local governments, groups and organizations to achieve Objective 1.1 through coordinated reduction strategies, and to encourage adoption of a common method for estimating local and regional GHG emissions.

Policy 1.1.3 As water conservation contributes to the reduction of greenhouse gas emissions, reduce total water consumption in Alachua County by 10% from 2010 levels by 2020 through the policies of the Conservation and Open Space and Potable Water and Sanitary Sewer Elements. In addition to changes in total consumption, the County, in coordination with potable water suppliers, shall track and report on indicators of improvements in efficiency such as rates of participation in voluntary conservation programs like Florida Water StarSM, reductions in potable water use per capita, increased use of reclaimed water for irrigation purposes, or other similar measures.

OBJECTIVE 2.2 - COUNTY GOVERNMENT

The County shall explore new opportunities and adopt measures to conserve energy, maximize energy efficiency and use renewable energy in County facilities.

Policy 2.2.1 Weatherize all County buildings to the maximum extent practical.

Policy 2.2.2 The County shall incorporate into its annual Capital Improvements budget a category for energy conservation and efficiency projects for County facilities.

Policy 2.2.3 Construct all new County facilities to conform to a nationally recognized, high performance energy efficiency standard.

Policy 2.2.4 The County shall work with the School Board of Alachua County and other local governments to seek funding and develop strategies to build energy efficient schools, retrofit and upgrade existing schools to be more energy efficient, and use renewable energy sources for school facilities.

4.0 ENERGY EFFICIENT TRANSPORTATION SYSTEM

OBJECTIVE 4.1

Develop a diversified transportation system that reduces per capita and total fossil fuel consumption through mechanisms that reduce vehicle miles travelled, enhance walking, cycling and transit opportunities, and encourage renewable fuel vehicles.

Policy 4.1.1 Implement transportation mobility and capital improvements plans that promote compact, mixed use development patterns in accordance with Policies 3.1.1 of this Element. Plans shall include funding for transportation modes that provide an alternative to single occupant automobiles.

Policy 4.1.2 The County shall collaborate with other local governments to investigate the use of alternative fuel sources such as biofuel, methane, electric and/or solar in government fleets.

Policy 4.1.3 Work with other local governments and agencies to promote and expand use of fixed rail transportation.

OBJECTIVE 4.2

Reduce vehicle miles of travel and increase non-automobile mode share in accordance with the policies of the Transportation Mobility Element.

Policy 4.2.1 Reduce vehicle miles traveled per capita within the Urban Cluster by 10% from 2010 levels by the year 2020.

Policy 4.2.2 Increase non-automobile transportation mode share to 5% in the Urban Cluster by 2020 and 10% by 2030.

Policy 4.2.3 To measure success in achieving the goals of this Objective, the County shall include analysis of vehicle miles traveled and non-automobile mode share within the Urban Cluster as part of the annual update of the Capital Improvements Element in accordance with Policy 1.1.6.1 of the Transportation Mobility Element.

Policy 4.2.4 The County shall work with the Metropolitan Transportation Planning Organization and other local governments to develop a baseline estimate of vehicle miles traveled and non-automobile mode share Countywide and adopt a long-term goal for reduction of vehicle miles traveled from the established baseline.

OBJECTIVE 4.3

Encourage alternative transportation options not dependent on fossil fuels.

Policy 4.3.1 Maintain and publish online a map that identifies where low speed, neighborhood electric vehicles can be legally driven.

Policy 4.3.2 Identify areas with barriers to multimodal connectivity in the Urban Cluster and work to eliminate those barriers.

5.0 COUNTY GOVERNMENT INITIATIVES

OBJECTIVE 5.1

Adopt and implement practices within Alachua County Government that contribute to the energy conservation goals of the Comprehensive Plan.

Policy 5.1.1 The County shall collaborate with other local government entities to share information and strategies on energy saving practices, and pursue joint funding opportunities.

Policy 5.1.2 The County shall pursue development of a program to mitigate for greenhouse gas emissions and develop project ideas to offset carbon impacts of County operation, such as energy conservation and efficiency projects, ecosystem restoration projects or the County's Tree Planting Program.

Policy 5.1.3 Alachua County shall develop a Utility Savings Reinvestment account using savings from conservation and efficiency enhancements to County facilities. These funds shall be reinvested in conservation enhancements through each year's capital improvements program.

Policy 5.1.4 The County shall develop and implement a plan to reduce fossil fuel use in the County fleet by 20% from 2010 levels by the year 2020.

Policy 5.1.5 Energy usage and costs shall be considered as part of the life cycle analysis required for capital project decisions by the County.

Policy 5.1.6 Promote the location and expansion of energy conservation, alternative energy, waste reuse/recycling-based and sustainable food production and processing industries as part of the County's economic development efforts.

Policy 5.1.7 Promote telecommuting and use of teleconferencing in County operations.

OBJECTIVE 5.2

Increase the use of renewable energy in County government.

Policy 5.2.1 Alachua County shall purchase or produce renewable energy for at least 10% of total County government (cumulative) consumption by 2015, and 20% by 2020.

Policy 5.2.2 The County shall incorporate renewable energy production into County facilities where appropriate.

Policy 5.2.3 Pursue funding to develop alternative energy facilities that would be capable of producing energy from anaerobic digestion, solar energy, biodiesel or other forms of sustainable energy resources.

7.0 RENEWABLE ENERGY

OBJECTIVE 7.1

Encourage renewable energy production and a countywide system of distributed residential and commercial power generation.

Policy 7.1.1 Encourage all utilities within Alachua County to retrofit existing systems to incorporate net metering and establish net metering agreements.

Policy 7.1.2 Alachua County shall pursue implementation of an efficiency and renewable energy financing program, such as a Property Assessed Clean Energy (PACE) program.

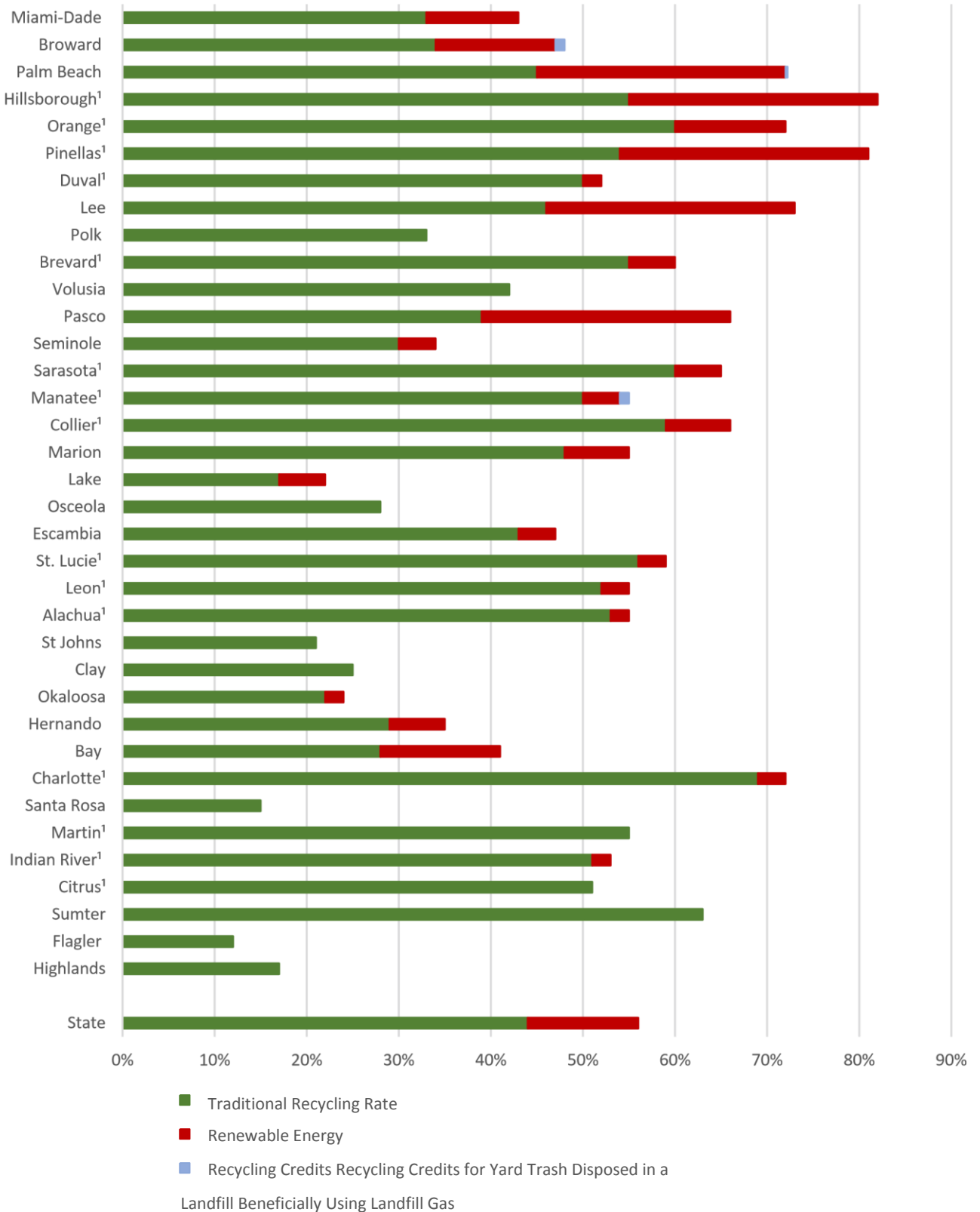
OBJECTIVE 7.2

Increase the use of solar and other forms of renewable energy by County residents, businesses and agricultural operations.

Policy 7.2.1 Encourage and provide incentives for installing solar arrays on rooftops and other impervious spaces, and remove any barriers to their installation in such areas.

Policy 7.2.2 Provide incentives for use of open space areas within Rural Clustered Subdivisions for renewable energy.

County Recycling Credits - Large Counties (2016)



County Recycling Credits - Small Counties (2016)

