

Energy

Goal

Minimize the energy sector's impact on climate change by transitioning from non-renewable energy fuels, purchasing from renewable energy sources, and accelerating progress towards net zero greenhouse gas emissions.

Introduction

Energy and Climate Change

The energy sector, through its reliance on fossil fuels, makes up the largest source of anthropogenic greenhouse gas emissions, primarily through electricity generation and demand for heating and cooling (Figure 2.1).

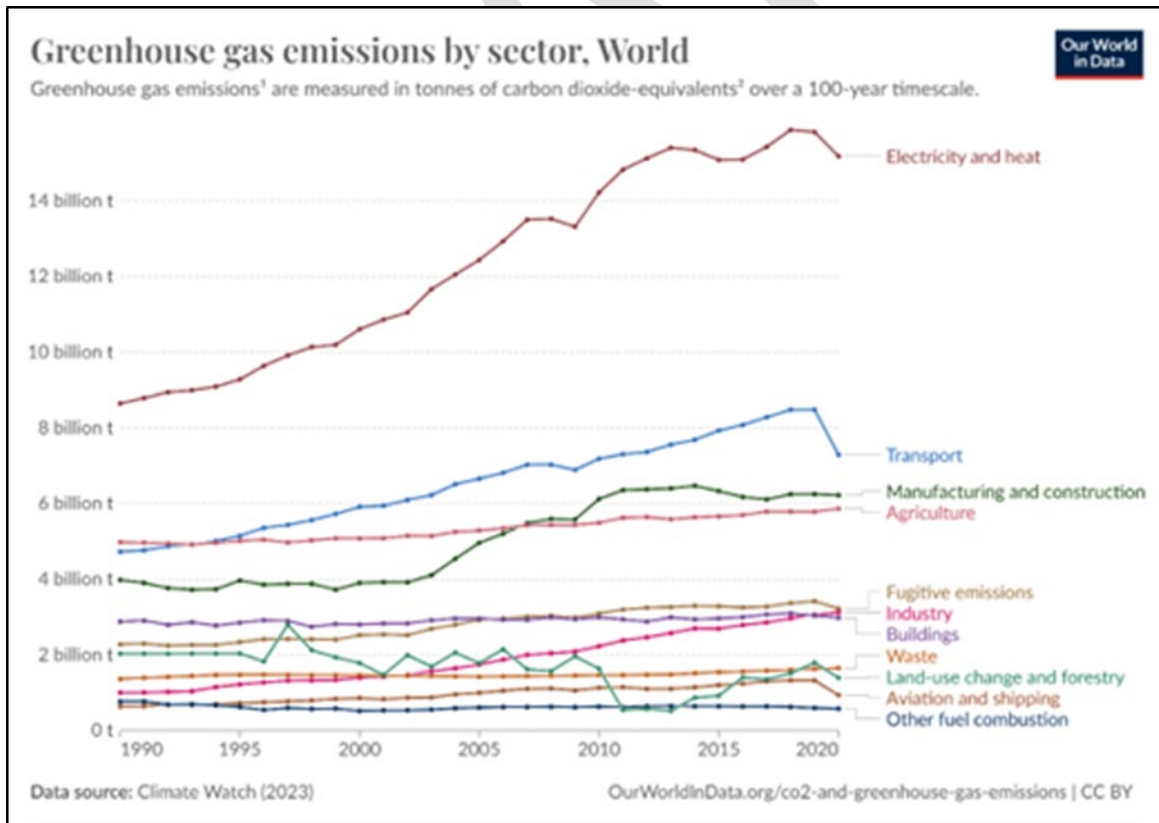


Figure 2.1: Greenhouse gas emissions by sector, worldwide from Our World in Data

According to the IPCC AR6, the two primary mechanisms for lowering energy demand and its associated emissions come from 1.) reduced use of energy, or energy efficiency, and 2.) generating new energy from non-fossil sources such as renewables.

Alachua County's Energy Context

The Alachua County government does not directly own or operate a utility company and is not considered a utility provider, instead choosing to work with local energy providers for residents' electricity needs (see Figure 2.2). In addition, the County faces certain challenges around local energy regulations due to state preemptions. For the purposes of this action plan, the County has chosen to focus instead on renewable energy, electrification, and energy efficiency, with energy use related to transportation addressed in a different chapter on Land Use and Transportation (although we do include electric vehicle infrastructure as part of our electrification strategies).

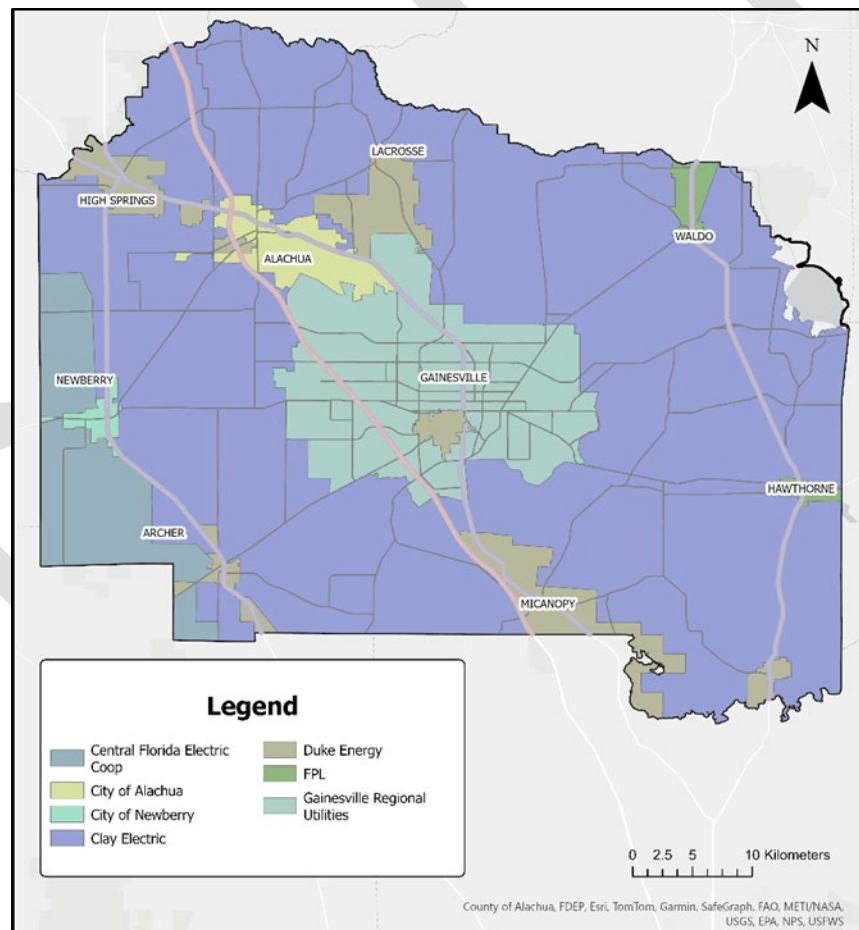


Figure 2.2: Utility Providers in Alachua County

Alachua County's Comprehensive Plan has a chapter devoted to energy, which establishes the following 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.”

The Plan lays out three priorities as part of its reduction strategy:

1. Practice energy conservation
2. Maximize energy efficiency
3. Promote and invest in renewable energy production

Energy conservation refers to reducing energy use by changing behaviors and habits. This work involves education and information campaigns directed at the public, as well as Alachua County employees to reduce energy usage internally. Energy efficiency involves using technology to achieve the same process functionality using less energy. This can involve things like building upgrades, as well as integrating passive design principles into new construction and major renovations. Finally, renewable energy refers to energy generation through renewable sources such as solar and biomass.

Energy Infrastructure, Efficiency, and Affordability

Due to aging infrastructure and the cost premium of many energy-efficient products, Alachua County's lowest-income residents regularly generate the highest energy usage and utility bills. This phenomenon, known as “energy burden” occurs when a household is spending over 6% of their income on energy bills, and a severe energy burden is when a household spends over 10%.^[1] Twenty-two (22) Census Tracts in Alachua County are considered to have a “high” or “severe” energy burden, with residents in these communities paying a higher percentage of their income towards utilities than 85% of other Americans. Seven (7) of these Census Tracts pay more than 95% of their fellow Americans (Figure 2.3).

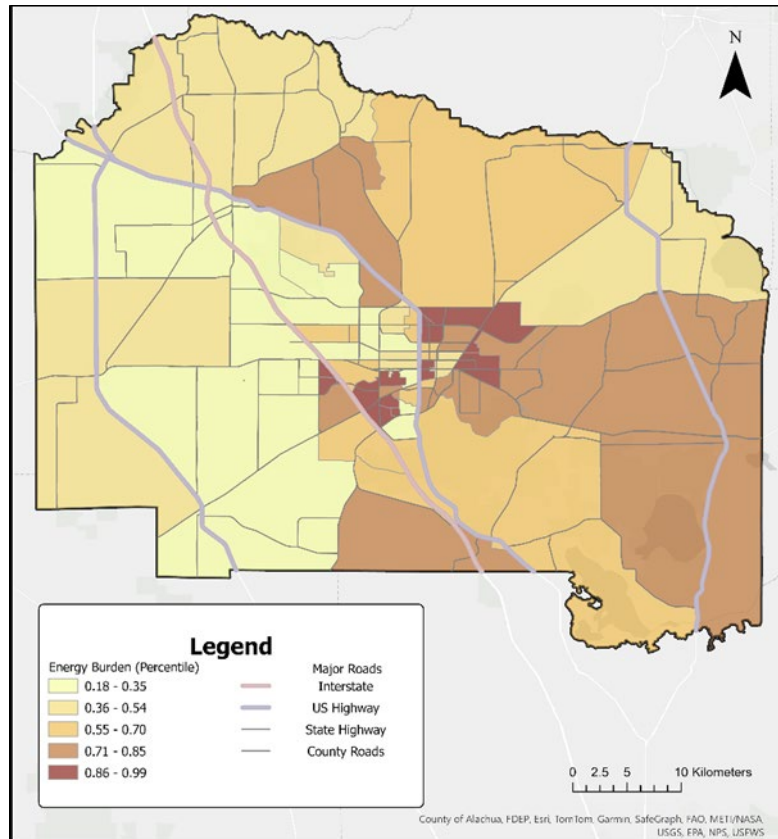


Figure 2.3: Energy burden by Census Tract, Alachua County, FL. Energy burdened percentile is relative to other Census Tracts nationally.

Energy burden can be addressed most effectively by increasing the energy efficiency in households, a mechanism which can decrease utility bills substantially (alleviating some financial strain) while also lowering greenhouse gas emissions (see the “Past and Current Efforts” section of this document, for more information on how Alachua County is helping with this). In addition, bringing down the cost of electricity, such as through increasing the amount of solar energy on the electrical grid (which has a consistent, low-cost of inputs compared to fossil fuel sources, and has become increasingly affordable to construct), can be a secondary, long-term goal of addressing these high energy burden communities.

Baseline & Targets

Baseline: Current Energy Use in Alachua County

The 2019 Alachua County Greenhouse Gas Inventory calculated the source of county emissions (Figure 2.4). Within the energy sector, “Transportation & Mobile Services” was the largest emitter (39%) and has warranted a separate chapter in this Climate Action Plan (see the chapter on Land

Use and Transportation). The next highest emitter, “Process & Fugitive Emissions” is primarily related to energy production. While the County has sent representatives when requested to Integrated Resource Planning (IRP) exercises with local utilities, the County’s influence on this sector is limited.

This chapter, then, focuses on the remaining 38% emission sources identified from commercial (20%), residential (14%), and industrial (4%) (for more on the 2% produced by Solid Waste, see the Chapter on “Waste Management and Resource Consumption”).

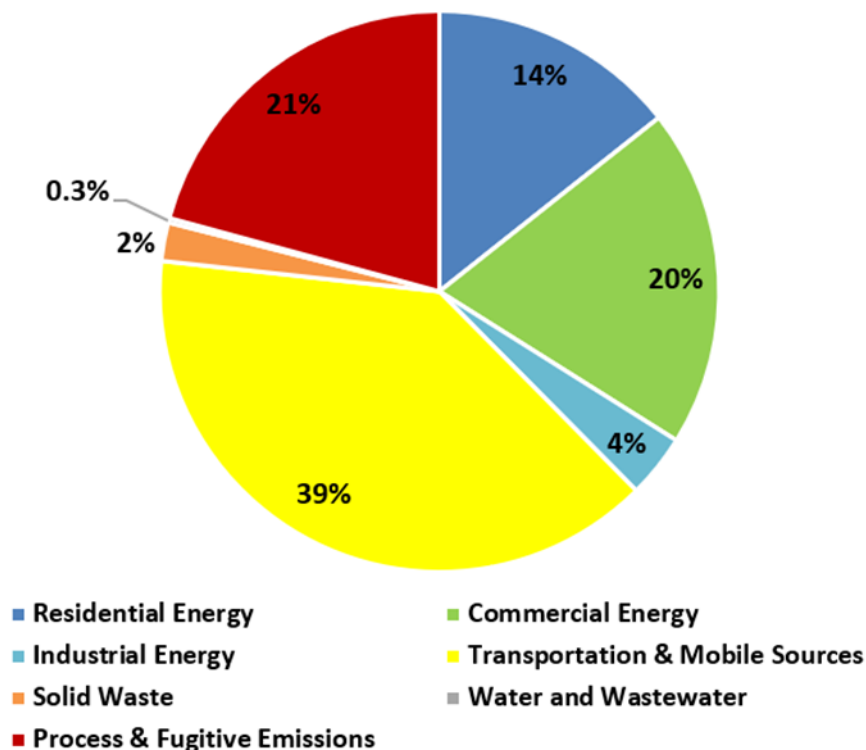


Figure 2.4: Countywide Emissions by Sector from the 2019 Greenhouse Gas Inventory

Alachua County’s influence is greatest over our own internal operations. Alachua County is dedicated to being a leader in climate mitigation and adaptation, and as such produced a second analysis in the 2019 Greenhouse Gas Inventory to understand our own contribution to the County’s overall emissions (Figure 2.5). The analysis identified our buildings and facilities as producing over half (53%) of total government operations emissions, attributed directly to electricity use. Second to that was the energy used to power the County fleet (25%), followed by the carbon price of employee commutes (20%).

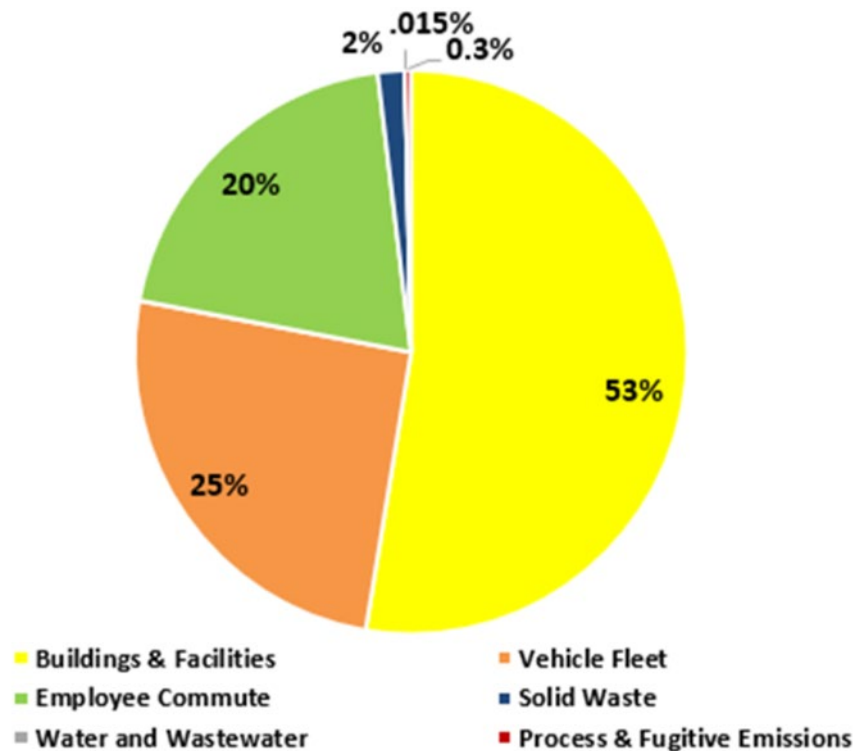


Figure 3.5: Alachua County Government Operations by Sector, 2019 Greenhouse Gas Inventory

Targets: County Comprehensive Plan 2019-2040

The County's Comprehensive Plan identifies a specific target relative to its energy use reduction objectives: to "reduce countywide greenhouse gas (GHG) emissions by 80% from 2009 baseline emissions by 2050" (Energy Element, Objective 1.1). To meet this goal, the Plan identifies target areas, the following of which will be addressed in this chapter:

- the built environment (including both the public and the impact of County government buildings);
- renewable energy generation;
- education and public information;
- intergovernmental and community collaborations.

For a full accounting of the County's energy-related policies and objectives, see the Energy Element of the Comprehensive Plan, available to the public on the Alachua County website.

Past and Current Efforts

The Built Environment: Energy Efficiency

Alachua County Energy Efficiency Program (ACEEP)

Alachua County leads the country in energy efficiency programming for low-income residents, having taken advantage of American Rescue Plan Act funding (also known as COVID-relief dollars) to develop an innovative program aimed at improving the home energy efficiency of the county's lowest-income residents: energy-burdened renters making 50% Area Median Income (AMI) or less. This program provides up to \$15,000 per unit for energy efficiency improvements including insulation, new HVAC systems, new water heaters, and certain new Energy Star appliances. In return, landlords sign an agreement with the County to not raise rent beyond inflation for up to 7 years, and to keep their rental unit on the market for the entirety of that time. The program was awarded a technical assistance grant from the American Council for an Energy-Efficiency Economy, which helped to develop the program with the help of national experts, using the best practices from similar programs across America.

After a two-year pilot, ACEEP was approved to move into a full program in November 2024. In addition to working with existing residents, the program allows small business owner landlords to bring new units onto the market through the program, helping to create new, energy-efficient affordable housing options locally.

Cenergistics

To help the County with our own internal energy use, Alachua County contracted with Cenergistics LLC to provide energy specialists to develop a customized energy conservation program for County facilities. This contract uses machine learning to analyze County energy use patterns and develop resources, and use that data to educate employees and the community about energy-saving practices and to encourage behavioral changes that can lead to significant reductions in energy consumption. Alachua County set a goal of a 10% energy reduction by 2025. By 2023, Alachua County buildings reached a 27% reduction in non-renewable energy use per square foot, also known as Energy Use Intensity (EUI), down from 2019 levels (our earliest data from Cenergistics tracking) (Figure 2.6). While some percentage of this increase can be attributed to the general shut down of County buildings during the COVID-19 pandemic, the lower rates of energy use remained stable in 2023, when County personnel had largely returned to the office.

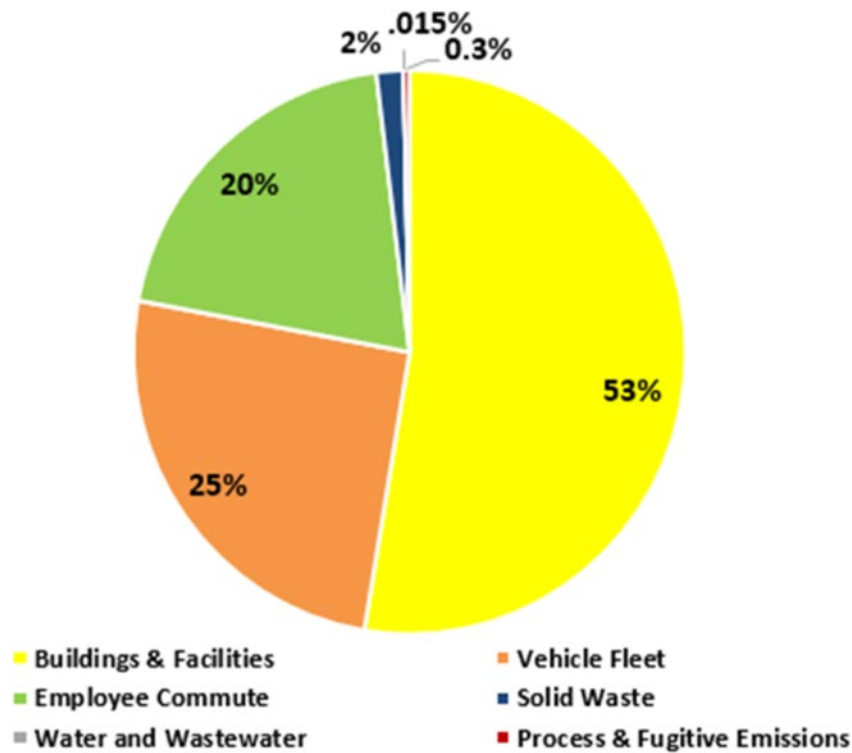


Figure 2.6: Alachua County Bi-Annual Energy Use Intensity (EUI) from Government Buildings, 2019 – 2024. EUI is calculated based on energy use per square foot for all County Government Buildings. EnergyCAP Database, via Cenergistics LLC

Cenergistics calculates the carbon dioxide emissions reduction of this effort to be 11,287 metric tons of CO₂ avoided, equivalent to the avoided burning of over 12 million pounds of coal.

Renewable Energy

The County's Comprehensive Plan outlines the following goal for renewable energy:

The County's goal by 2030 is that 100% of energy purchased or produced for County facilities be from solar photovoltaic sources, with an interim target of 50% by 2025.

Alachua County is currently pursuing two strategies for meeting this goal: constructing County-owned solar installations, via the Energy Conservation Investment Program (ECIP) and other funding sources, and working with energy providers to produce solar energy for purchase as part of the larger energy grid.

Current Solar Installations

Alachua County currently has eight (8) solar installations on or at our facilities, totaling 654.64 kW of installed solar (Figure 2.7).

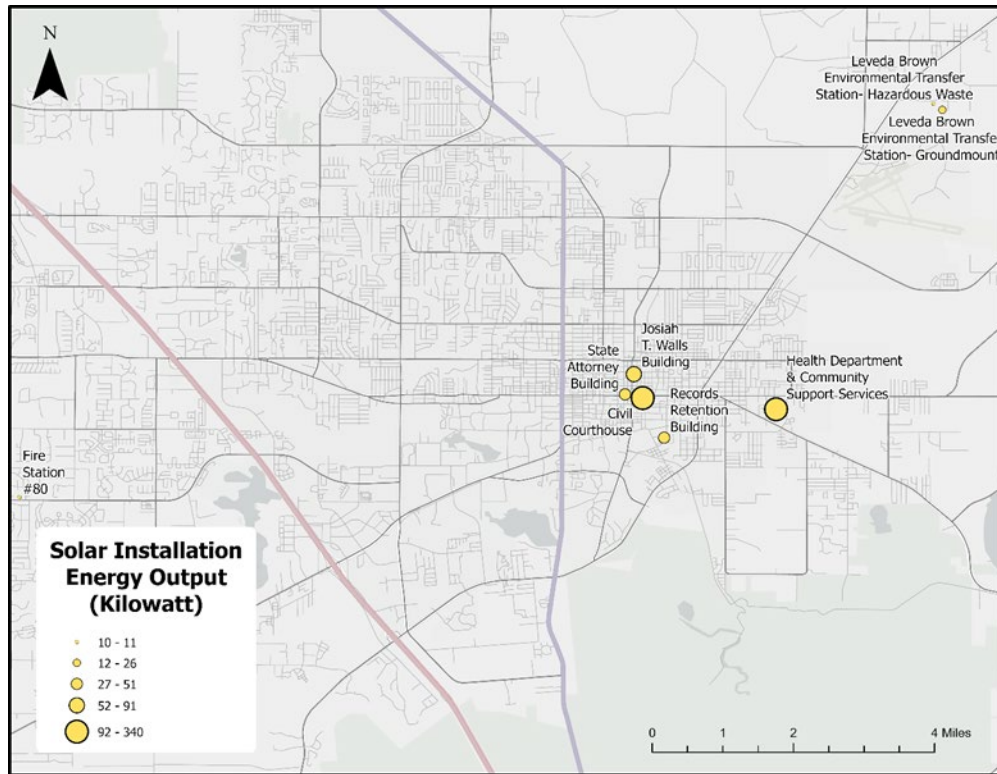


Figure 2.7: Current solar installations on County-owned buildings, including size of system (kW).

<i>Solar Location (Year Installed)</i>	<i>Solar Produced (MWh)</i>	<i>Energy Purchased from Utilities (MWh)</i>	<i>Total Use (MWh)</i>	<i>Percentage Solar</i>
Fire Station #80				
State Attorney Building				
Josiah T. Walls				
Civil Courthouse	114.25	1169.35	1283.60	9%
Records Retention				
Health Department/CSS	241.96	1178.33	1420.29	17%
Leveda Brown Environmental Transfer Station				

Energy Conservation Investment Program

The Energy Conservation Investment Program (ECIP) funds capital projects that meet the County’s energy and utility objectives as found in the Comprehensive Plan and Financial Policies. This program aggregates the utility savings from existing solar installations and uses them to fund

new solar installations. Currently, five (5) of the existing eight (8) installations were funded all or in part from ECIP funds.

The Inflation Reduction Act provides the option for local governments to receive rebates for solar installations. Currently, two of Alachua County's largest solar installations, the Health Department and Civil Courthouse, are eligible for this rebate in fiscal year 2024. The rebate, which would likely total 30% of project costs, would open the option to begin a new installation in the next few years.

Purchased Energy

Clay Electric

Clay Electric is a cooperatively-owned not-for-profit energy company that covers the majority of the unincorporated areas of Alachua County (see Figure 2.2). The company is one of nine co-ops which collectively own the Seminole Electric Cooperative, which generates the energy distributed by the company.¹ Per their website, Seminole Electric Cooperative retired one of their coal-fired power generation facilities in 2023,² but continue to generate 736 MW of coal-fired energy today as of this writing. They operate two (2) gas-powered combined-cycle facilities which produce approximately 1,970 MW of power, and one (1) 2.2 MW solar facility. In addition, Seminole has a Power Purchase Agreement with four (4) solar power installations named Columbia County Solar, Gadsden County Solar, Gilchrist County, and Tupelo Solar in Putnam County totaling 298 MW of renewable solar energy.³ Based on these numbers, Clay Electric customers on average receive approximately 10% of their electricity from solar energy.

Duke Energy

Duke Energy is the primary energy provider for several Alachua County small municipalities including High Springs, LaCrosse, parts of Alachua, Archer, and Micanopy, as well as providing electricity to much of the University of Florida (see Figure 2.2). Duke Energy produced around 750MW of solar for Florida counties from 2022 to 2024 through the creation of ten (10) solar energy sites in our State, with one of those sites, the High Springs Renewable Energy Center, completed in Alachua County in April 2023. The 74.9MW facility brings Duke Energy's total carbon-free energy production to 1.2GW nationwide.⁴

Gainesville Regional Utilities (GRU)

Because Gainesville Regional Utilities (GRU) is the primary energy provider for County facilities, their percentage of renewable energy impacts the County's sustainable use of energy. Renewables currently make up 31.4% of GRU's generated energy. The Deerhaven Renewable Generating Station produces the majority of this energy (30%) by using wood waste (biomass). GRU also captures landfill gas and converts into enough energy for 2,100 homes for a year. While this power

¹ <https://clayelectric.com/quick-facts>

² <https://www.seminole-electric.com/wp-content/uploads/2023-Year-in-Review.pdf>

³ <https://www.seminole-electric.com/facilities/generation/>

⁴ <https://www.mainstreetdailynews.com/news/duke-energy-cuts-ribbon-on-high-springs-solar-site>

is considered renewable, it is not “from solar photovoltaic sources” per the County’s goal in the Comprehensive Plan.

At the time of writing, the leadership at GRU is being determined by the courts after a ballot initiative passed in November 2024 which would turn GRU leadership over to the City of Gainesville. Because this is an ongoing legal question, it is not possible to predict the organization’s future in renewable energy.

SolSmart Silver Awardee

In 2019, the County was recognized as a SolSmart Silver Awardee, signifying a commitment to reducing barriers to solar adoption. This designation reflects the County's efforts to streamline permitting processes, modernize zoning codes, and foster a supportive environment for residential and commercial solar energy.

Community Collaborations and Programming

Project EMPOWER

In order to minimize the energy sector’s impact on climate change, Alachua County has engaged actively with the community to promote sustainable energy resiliency. Through the Department of Energy’s Communities Local Energy Action Program (LEAP), Alachua County departments and residents developed the Energy Modernization for People Opportunity, Work, Equity and Renewables (EMPOWER) Coalition, a community-led project that “evaluates the benefits and challenges of developing solar project in low-income neighborhoods.” EMPOWER ensures that the voices of communities who are often unheard are amplified in conversations and policies surrounding sustainable energy. The EMPOWER Coalition recently received a second round of technical assistance through the DOE Communities LEAP Second Cohort.

Energy Services for Renters, ACEEE Technical Assistance Grant

The County’s work with the Alachua County Energy Efficiency Program caught national attention when we were awarded the American Council for an Energy-Efficient Economy (ACEEE) technical assistance grant. This grant has allowed the County and its contractors, Rebuilding Together North Central Florida and the Community Weatherization Coalition, to conduct survey work for both landlords and renters to get their feedback on the program and energy use more broadly. Additional focus groups with landlords were conducted to get more detail on the survey results in order to build a program build on best practices nationally.

Weatherization Coordination Task Force

Alachua County has been leading monthly conversations between organizations doing weatherization and energy efficiency improvements for County residents. This group includes representatives from the Community Weatherization Coalition, Gainesville Regional Utilities LEEP^{Plus} program, and the City of Gainesville Community Reinvestment Area. This regular

meeting has allowed the organizations to share ideas, develop outreach materials, and workshop strategies for addressing weatherization needs in the County.

Future Strategies and Action Items

An Energy Efficient Alachua County

Research shows that the most cost-effective way to reduce energy costs is to reduce the amount of energy used. Alachua County's first energy strategy is to reduce the amount of energy required to power our homes and buildings without sacrificing (and sometimes improving) convenience and comfort.

Table 2.1: Alachua County Energy Efficiency Action Plan Components

Action Plan Components	Jurisdiction	Pros	Cons
<u>Make County-owned buildings and facilities more energy efficient</u>	Local government, with federal government incentives	Quick returns on investment; federal rebates currently available	Residents individually see minimal benefit
<u>Make commercial buildings more energy efficient</u>	Private industry, State-level preemptions	Quick returns on investment; federal rebates currently available	Disconnect between property owner with authority to install upgrades & tenant beneficiary with lower utility bills
<u>Make high- to moderate-income residential homes more energy efficient</u>	Private owners	Quick returns on investment; federal rebates currently available	Limited public understanding of rebates
<u>Make low-income residential homes more energy efficient</u>	Private owners	Quick returns on investment; federal rebates currently available	Limited public understanding of rebates

Make high- to moderate-income <u>residential rentals</u> more energy efficient	Private industry, State-level preemptions	Quick returns on investment; federal rebates currently available for landlords	Disconnect between property owner with authority to install upgrades & tenant beneficiary with lower utility bills
Make low-income <u>residential rentals</u> more energy efficient	Private industry, State-level preemptions	Quick returns on investment; federal rebates currently available for landlords; Alachua County has existing energy efficiency incentive program (ACEEP)	Disconnect between property owner with authority to install upgrades & tenant beneficiary with lower utility bills

Electrification

More and more of the energy being produced in Alachua County is coming from low- to no-emission technologies. This slow but steady greening of the power grid means that movement towards full electrification of buildings and transportation can make a powerful impact on overall carbon emission production. The following are potential action plan components that can move Alachua County towards electrification and away from fossil fuels.

Table 2.2: Alachua County Electrification Action Plan Components

Action Plan Components	Jurisdiction	Pros	Cons
Improve the electric vehicle (EV) infrastructure	All, some state-level preemptions	Charging stations can be placed in homes, in public and private places.	EVs are still expensive (limited used-vehicle marketplace), range anxiety and some public discomfort with the technology
Electrification of County buildings,	Local government, with federal		

facilities, and activities	government incentives		
Commercial electrification	Private industry	Energy-efficient electric appliances eligible for federal rebates	Limited government capacity for influence
Residential electrification: Homeowners	Private owners	Energy-efficient electric appliances eligible for federal rebates	Limited government capacity for influence

Renewable Energy in Alachua County

While energy efficiency is the most short-term, cost-effective solution for reducing carbon emissions, long-term energy planning requires a move to an energy-generation infrastructure that operates on fewer fossil fuels. The following are potential action plan components that can move Alachua County energy providers away from fossil fuels.

Table 2.3: Alachua County Renewable Energy Action Plan Components

Action Plan Components	Jurisdiction	Pros	Cons
Increase County-owned buildings and facilities use of renewable energy	Local government, with federal government incentives	County buildings have large roof decks for large installations; federal rebates currently available	Residents individually see minimal benefit
Increase access to renewable energy for residential properties	Private residents, with government regulations, utility restrictions, and/or incentive programs	Strong local business community of solar providers; federal rebates currently available	Utility restrictions reduce availability of benefits beyond a single meter; grid infrastructure capacity prevents entire neighborhoods from participating; longer ROIs reduce interest

			from short-term residents
Increase renewable energy on utility grids	Utilities; State-level through regulations	A clean grid reduces greenhouse gas emissions for everyone; renewables are increasing the cheapest energy production option, reducing utility bills for all residents	Difficulty in identifying land for utility-scale installations; large start-up costs; unreliability of renewable energy generation without more advanced battery technology

Lowering Your Emissions: What Can You Do?

Community Weatherization Coalition

All Alachua County residents, both homeowners and renters, can take advantage of energy tune-ups from the Community Weatherization Coalition (CWC). In addition to being the County's contractor for the Alachua County Energy Efficiency Program, the CWC provides free energy tune-ups which can reduce energy-related utility bills by more than 10% on average.^[2] Tune-up energy coaches focus on both behavioral and technological changes that can benefit residents, including walking through their utility bills to help residents understand their energy habits, and conducting an inspection to determine points of energy inefficiency. Coaches replace inefficient faucets and lightbulbs, insulate pipes, clean appliance cooling coils, and conduct other energy efficiency improvements free of charge. For those residents who are more handy, there is an option to do a DIY tune-up where you pick up the supplies and follow videos online.

For more information, see the CWC website: <https://communityweatherization.org/>

Alachua County Energy Efficiency Program

If you are a low-income renter (or a landlord with low-income renters) in the small municipalities or unincorporated areas of Alachua County, you may be eligible for ACEEP, which can provide weatherization and energy efficiency upgrades up to \$15,000. You can find more information about the program here:

<https://alachuacounty.us/Depts/Sustainability/Pages/ACEEP.aspx>

Financial Incentives for Energy-Efficiency and Renewables

- The Inflation Reduction Act provides a variety of ways to receive tax credits for purchasing renewable and energy efficient technologies. This is a new program with rules and regulations that can change over time. For the most up-to-date information, see the IRS website at <https://www.irs.gov/credits-deductions/home-energy-tax-credits>. Alachua County cannot provide tax advice regarding these incentives.
- The State of Florida has a Property Tax Abatement for Renewable Energy, which prevents increases in property taxes for several renewable energy sources (ex. solar, wind, geothermal heat pumps).
- The State of Florida has a sales tax exemption for solar energy systems which can reduce the upfront costs of a solar installation.
- The Solar and Energy Loan Fund (SELF), in partnership with Solar United Neighbors (SUN) and The Nature Conservancy in Florida, won \$156 million in Solar for All funds from the Environmental Protection Agency aimed at bringing solar and energy efficiency to low-income, energy burdened neighborhoods. The Solar for All funds will be distributed as grants versus loans based on the applicant's income level, allowing many residents who might not otherwise qualify for solar lending to access solar energy at a residential level.

References

- [1] American Council for Energy Efficient Economies. *Energy Burden Report*. 2020. <https://www.aceee.org/energy-burden>.
- [2] Community Weatherization Coalition. *Home Energy Tune-ups*. <https://communityweatherization.org/tune-up-application/>.