



Affordability Pathways through Energy Efficiency in Florida

Prepared for the Environmental Defense Fund (EDF)

September 2023

William D. Bryan, Ph.D.

Director of Research, Southeast Energy Efficiency Alliance (SEEA)

Grace Parker

Research Associate, Southeast Energy Efficiency Alliance (SEEA)

Summary

Florida is at a key crossroads for improving energy affordability. Electric utility rates and fixed fees – despite being comparatively low – have steadily increased over the last few years, contributing to utility bills that strain household finances for low- and moderate-income Floridians.¹ Inefficient housing and outdated systems are common and require residents to spend more money while experiencing less thermal comfort and safety than people who live in more efficient housing. The state’s lower-than-average incomes are vulnerable to bills that can suddenly spike because of extreme weather and provide little available capital to invest in home improvements that could reduce costs in the long term. All of this has contributed to affordability challenges for millions of Floridians. Unless preventative measures are taken, predicted extreme heat increases will hit households already struggling to afford their energy bills the hardest.

Energy efficiency strategies are a proven means to reduce household energy bills, putting more money back into the pockets of Floridians while also contributing to safer and healthier housing, grid stability through peak load reduction, good-paying trade jobs, and decreased greenhouse gas (GHG) emissions from power generation. Currently, there are unprecedented opportunities to advance energy efficiency through federal funding and other emerging funds.

This study was initiated at the request of the Environmental Defense Fund (EDF). In this whitepaper, we identify cost-effective pathways for improving affordability for residents of Florida, particularly considering historic federal investment opportunities. Additionally, we outline key opportunities for Florida communities and the Florida Department of Agriculture and Consumer Services’ (FDACS) Office of Energy (OOE) to advance residential energy efficiency.

Energy Affordability in Florida: An Overview

At first glance, utility costs in Florida appear more affordable than in many Southern states. A 2021 study by the Southeast Energy Efficiency Alliance (SEEA) found that the typical household in the state pays \$1,919 every year for energy, less than the average in the Southern region and the United States. This study determined that the average energy burden for all households in Florida was 5%, lower than most Southern states and on par with the national average (5.1%).² Yet, as that report notes, statewide averages mask high energy burdens faced by many low- and even moderate-income (LMI) households across Florida. SEEA estimates that nearly 2 million

¹ Table 5.6.A. Average Price of Electricity to Ultimate Customers by End-Use Sector, Electric Power Monthly, Form EIA-861M (formerly EIA-826), Monthly Electric Power Industry Report, United States Energy Information Administration (EIA).

² Cyrus Bhedwar, William D. Bryan, Wesley Holmes, and Joy Ward. *Energy Insecurity in Florida* (Atlanta: SEEA, 2021), 20.

LMI households are at risk for energy insecurity across Florida, particularly residents of single-family residences, mobile homes, or recreational vehicles in the lowest income brackets. Residents of central or Panhandle Florida are particularly vulnerable.³

Florida's energy affordability challenges are reiterated in other recent studies. A 2021 study of energy equity in Florida conducted for FDACS by the Balmoral Group estimates that 1.9 million LMI households face energy burdens that average nearly 9% of household income. These burdens are typically highest for renters – who are difficult to reach with energy efficiency assistance.⁴ The American Council for an Energy-Efficient Economy (ACEEE) concludes in a 2020 study that despite relatively low median energy burdens, more than half of all LMI households in Jacksonville, Orlando, Miami, and Tampa have energy burdens that exceed 7.2%. In Tampa, for instance, an estimated 249,000 households (21% of all households in the city) face energy burdens over 6%, while an estimated 477,000 households in Miami (23% of all) face energy burdens exceeding this threshold.⁵

These findings echo two 2023 reports from Greenlink Analytics, which show that hundreds of thousands of residents of Orlando and Jacksonville are burdened by high energy costs despite a downward trend in energy burdens over time. In Jacksonville, Greenlink estimates that the top 5% of census tracts with the highest energy burdens experience burdens 3.2x higher than the national average, and 172,000 households face energy burdens over 6%. In Orlando, the top 5% of tracts face energy burdens that are 2.4x the national average, and 208,000 households have energy burdens greater than 6%.⁶

These studies all underscore a key point: energy may appear affordable in Florida compared to other states, but there are millions of households in the state who struggle to pay their bills due to high costs and cost burdens. We expect that these people – who often sacrifice necessities like food and medicine to keep up with their bills – will be disproportionately harmed as Florida experiences increasingly regular periods of extreme heat over the next few decades.⁷

³ Bhedwar, Bryan, Holmes, and Ward, *Energy Insecurity in Florida*.

⁴ *A Study of Energy Equity Within Florida: Final Report* (Tallahassee: Florida Department of Agriculture and Consumer Service, 2021).

⁵ *Impacts of Energy Burden for Jacksonville* (Atlanta, GA: Greenlink Analytics, 2023), 2-3; *Impacts of Energy Burden for Orlando* (Atlanta, GA: Greenlink Analytics, 2023), 2-3.

⁶ Ariel Dreihobl, Lauren Ross, and Roxana Ayala. *How High Are Household Energy Burdens?: An Assessment of National and Metropolitan Energy Burden Across the United States* (Washington, DC: American Council for an Energy-Efficient Economy, 2020), 56.

⁷ Kristina Dahl, et. al., *Killer Heat in the United States: Climate Choices and the Future of Dangerously Hot Days*. (Cambridge, MA: Union of Concerned Scientists, 2019), 16.

Energy Efficiency Potential Studies

Despite these issues, energy efficiency is a proven way to lower household energy bills and improve home comfort and safety. Several recent studies have concluded that efficiency has significant potential energy- and cost-savings that can benefit Florida residents and utilities.

In a 2019 study, the Electric Power Research Institute (EPRI) estimated that by 2040 Florida has a total of 33,935 GWh in potential savings through energy efficiency across residential, commercial, and industrial sectors. This is a potential savings of 12.1% of all state sales of energy, giving Florida the highest energy efficiency potential of any state in the nation. The majority (55%) of savings (18,647 GWh) are available through efficiency in the residential sector. EPRI outlines several key component-level strategies, including the installation of residential air source heat pumps, high-efficiency central air conditioning units, and efficiency upgrades to residential water heaters.⁸

Using the ResStock modeling tool, in 2017 the National Renewable Energy Laboratory (NREL) estimated that 23% of single-family energy end use in Florida could be saved through cost-effective energy efficiency packages. Key energy savings measures include the installation of smart thermostats, switching to ENERGY STAR appliances like clothes washers and refrigerators, and the widespread use of LED lightbulbs.⁹

Several studies of energy burdens have estimated the benefits possible through efficiency improvements. The Balmoral Group's study of energy equity for FDACS found that a 1% increase in efficiency utility spending could save \$5.1M for LMI households.¹⁰ Another study estimated that LMI households could save 22.3% compared to a baseline bill through a slate of energy efficiency measures.¹¹

Several large electric utilities in Florida conducted utility energy efficiency potential studies in 2019 that were focused on their program and customer footprint. These studies found that potential savings are relatively small, likely because they were conducted as part of a proceeding on energy savings requirements. Florida Power & Light (FPL) estimated that between 2019 and 2029, the utility could save an expected 196 GWh across residential, commercial, and industrial sectors. For that same time period, JEA, a municipal utility in

⁸ *U.S. Energy Efficiency Potential Through 2040: Summary Report*. EPRI, Palo Alto, CA: 2019.

⁹ Eric Wilson, Craig Christensen, Scott Horowitz, Joseph Robertson, and Jeff Maguire, *Energy Efficiency Potential in the U.S. Single Family Housing Stock* (Golden, CO: National Renewable Energy Laboratory, 2017), 108.

¹⁰ *A Study of Energy Equity Within Florida: Final Report*.

¹¹ Eric J. H. Wilson, Chioke B. Harris, Joseph J. Roberston, and John Agan, "Evaluating energy efficiency potential in low-income households: A flexible and granular approach," *Energy Policy* 129 (June 2019): 710-37.

Jacksonville, estimated that the utility could save 1,025 GWh of electricity, or 0.007% of their annual generation. Nexant estimated that over the same decade each of the seven utilities subject to the Florida Energy Efficiency and Conservation Act (FEECA) could save an overall 48,125 GWh across residential, commercial, and industrial sectors, or .02% of total annual generation.¹²

The upshot of most of these studies is that there are significant energy savings available through efficiency, benefiting utility customers through reduced bills while providing utilities with improved demand response, particularly during peak events. However, utility potential studies underline that fully realizing these savings requires thinking beyond the utility sector and considering strategies for braiding utility programs with other policies, programs, and funding sources to advance efficiency and affordability for residents of Florida.

Component-Level Energy and Affordability Savings

There are energy and bill savings opportunities available through energy efficiency, a least-cost resource. This analysis identifies cost-effective pathways to improve affordability. It is primarily focused on electric sector energy savings, which dominate compared to savings available with other fuels. This is largely because most of the state's housing units are all-electric.

Table 1 provides an overview of household-level bill savings available through key energy efficiency upgrades, based on NREL data that SEEA analyzed. Replacing baseboard heating at the end of life with high-efficiency ductless heat pumps has the largest bill savings potential, at almost \$1,000 a year using current electric rates. This equates to a bill savings of more than \$80 a month, on average. Installing a high-efficiency heat pump in place of an inefficient electric furnace is another opportunity for deep savings, which we estimate at \$673 a year, or \$56 a month. Several measures, including high-efficiency heat pumps and heat pump water heaters, provide opportunities for more than \$1B in bill savings across the state. It is important to note that not all of these measures can be stacked for additional savings (i.e. different HVAC systems). Additionally, duct sealing and insulation may have less potential savings but is required to realize the full savings from other measures, like ducted heat pumps.

¹² Florida Public Service Commission, Docket No. 20190015-EG: Commission Review of Numeric Conservation Goals (Florida Power & Light), 2019; Florida Public Service Commission, Docket No. 20190020-EG: Commission Review of Numeric Conservation Goals (JEA), 2019. JEA and Nexant used economic potential, or the total savings available through cost-effective programs compared to energy generated by the utility. FPL used achievable potential, which is more limited because it includes factors that may limit the ability of the utility to deliver possible savings.

Table 1: Potential household and state-level savings through efficiency upgrades, for cost-effective households.

Component-Level Upgrade	Annual Household Savings	Monthly Household Savings	Annual Statewide Savings
Ductless heat pump	\$985	\$82	\$404,211,736
High-efficiency heat pump	\$673	\$56	\$3,175,011,424
ENERGY STAR Room AC (EER 12)	\$313	\$26	\$321,086,270
Heat pump water heater	\$293	\$24	\$1,082,649,139
Low-efficiency storm windows	\$282	\$23	\$317,652,890
Smart thermostat	\$234	\$19	\$599,170,444
LED lighting	\$155	\$13	\$683,073,874
R-38 attic insulation	\$147	\$12	\$331,239,113
SEER 18 Air Conditioning	\$130	\$11	\$681,710,227
Duct sealing and insulating	\$74	\$6	\$498,368,214

The average statewide monthly electric bill is approximately \$175, according to the Energy Information Administration (EIA). Our analysis suggests that the typical household could save nearly half of this typical monthly bill by installing a ductless heat pump, while the average household adopting a high-efficiency heat pump could save one-third of their typical monthly bill.¹³ In Table 2, we outline the estimated monthly bill savings for a typical month compared to the average Florida utility bill. Because not all these measures are complementary, we have not averaged these savings across all measures.

Table 2: Estimated monthly bill savings as a percentage of the average statewide utility bill.

Component-Level Upgrade	Avg. Monthly Bill Savings	Savings as a % of Avg. Statewide Bill
Ductless heat pump	\$82	47%
High-efficiency heat pump	\$56	32%
ENERGY STAR Room AC (EER 12)	\$26	15%
Heat pump water heater	\$24	14%
Low-efficiency storm windows	\$23	13%
Smart thermostat	\$19	11%
LED lighting	\$13	7%
R-38 attic insulation	\$12	7%
SEER 18 Air Conditioning	\$11	6%
Duct sealing and insulating	\$6	3%

¹³ See https://www.eia.gov/electricity/sales_revenue_price/pdf/table5_a.pdf.

Table 3 ranks each measure using a first cost-to-savings ratio, which compares the first cost of the upgrade to the annual energy bill savings derived from the first year of operation. Lower ratios indicate components where the energy savings after one year are comparable to the initial first cost, whereas high ratios indicate components where there is a high first cost and low annual energy savings.

Measure	Price to Savings Ratio
Smart thermostat	1.28
LED lighting	1.47
ENERGY STAR Room AC (EER 12)	1.83
High-efficiency heat pump	3.19
SEER 18 Air Conditioning	4.82
Heat pump water heater	5.11
Duct sealing and insulating	5.64
Ductless heat pump	6.53
Low-efficiency storm windows	6.78
R-38 attic insulation	12.23

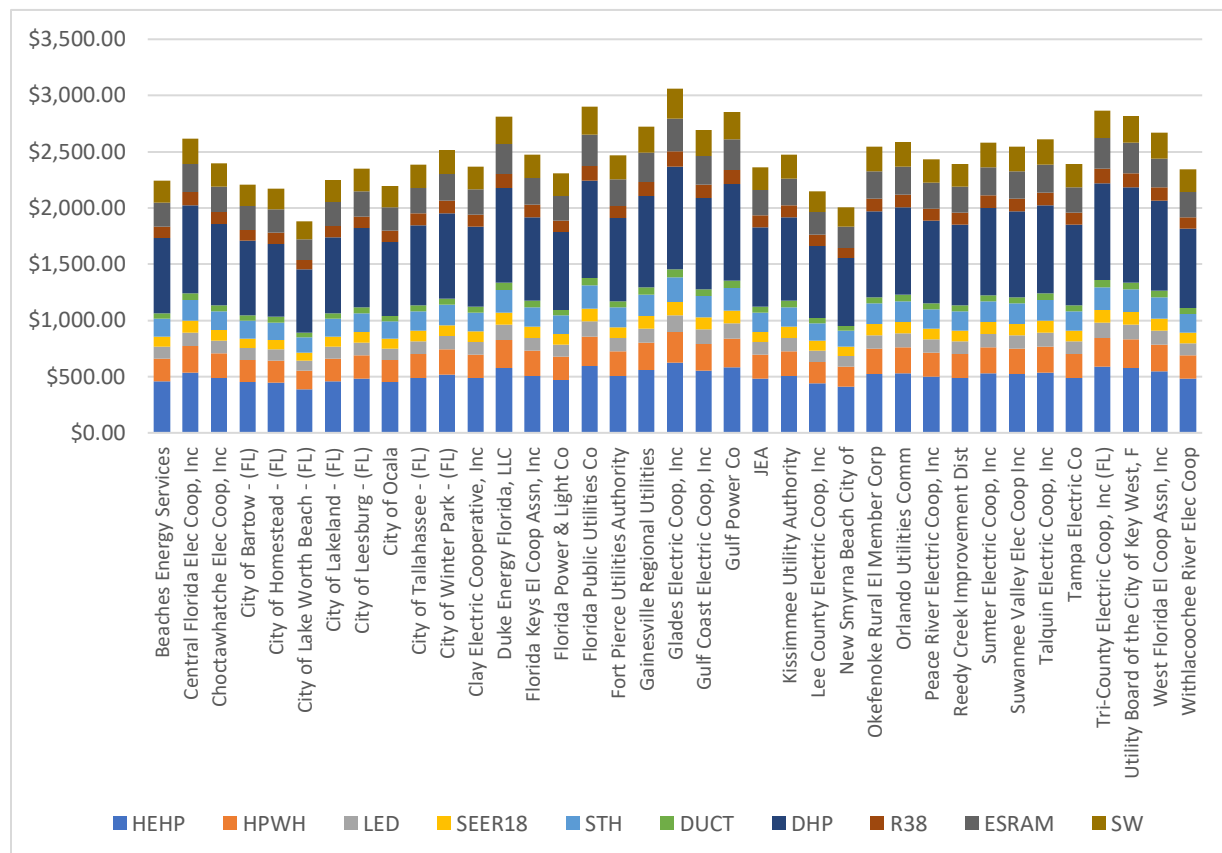
This data suggests that there are opportunities for energy savings even with relatively low-cost technologies, including the installation of smart thermostats and LED lighting upgrades. Typically under \$300 each, smart thermostats or LED lighting can result in potential first-year annual energy savings of \$234 and \$155 respectively, making the payback period for each measure less than two years. Upgrading existing window air conditioning units to ENERGY STAR (in this case, with an Energy Efficiency Rating of 12) units also has a low first cost of around \$500 but has predicted energy savings during the first year that are more than half of that first cost (\$313). Additionally, many of these measures are eligible for utility rebates in Florida that can further reduce first costs and hasten payback periods.¹⁴

While the lowest-cost measures will not result in the deepest energy savings, they are critical strategies to reduce energy use and bills for Florida households with a short payback period and small upfront payment.

¹⁴ See North Carolina Clean Energy Technology Center, Database of State Incentives for Renewables and Efficiency (DSIRE). Available at: <https://www.dsireusa.org/>

Florida’s utilities play a key role in developing and delivering energy efficiency opportunities to the state’s residents. Household bill savings will be the greatest in utility territories with the highest rates, where energy savings carry the most financial value. Using EIA data from 2021 (the most recent available), we estimate that household level savings will be highest – for the same measures – for members of Glades Electric Cooperative, Tri-County Electric Cooperative, and customers of Florida Public Utilities Company and Gulf Power.¹⁵ Overall potential savings are concentrated with investor-owned utilities and municipal utilities that have the most customers, including Florida Power & Light, Duke Energy Florida, TECO, Gulf Power, JEA, and the Orlando Utilities Commission.

Figure 1: Household-level bill savings for Florida utilities by measure.



Bill savings cannot be the only concern that must be considered in developing policies and/or programs to advance efficiency. Table 4 ranks the top component-level upgrades by three factors: overall statewide electric savings, household-level bill savings, and the number of

¹⁵ Table 5.6.A. Average Price of Electricity to Ultimate Customers by End-Use Sector, Electric Power Monthly, Form EIA-861M (formerly EIA-826), Monthly Electric Power Industry Report, United States Energy Information Administration (EIA).

households where each measure can be cost effective statewide. Colors have been kept consistent for each measure to make it easy to quickly identify patterns across categories.

Table 3: Measure upgrades compared by overall savings, bill savings, and applicable households.

	Statewide Electric Savings (kWh)	Household Bill Savings	Number of Applicable Households
1	High-efficiency heat pump	Ductless heat pump	Duct sealing and insulating
2	Heat pump water heater	High-efficiency heat pump	SEER 18 Air Conditioning
3	LED lighting	ENERGY STAR Room AC	High-efficiency heat pump
4	SEER 18 Air Conditioning	Heat pump water heater	LED lighting
5	Smart thermostat	Low-efficiency storm windows	Heat pump water heater
6	Duct sealing and insulating	Smart thermostat	Smart thermostat
7	Ductless heat pump	LED lighting	R-38 attic insulation
8	ENERGY STAR Room AC	R-38 attic insulation	Low-efficiency storm windows
9	R-38 attic insulation	SEER 18 Air Conditioning	ENERGY STAR Room AC
10	Low-efficiency storm windows	Duct sealing and insulating	Ductless heat pump

A ductless heat pump, for instance, may bring about the most household-level bill savings, but this must be balanced with the fact that it is cost-effective for the smallest portion of the housing stock. Additionally, duct sealing and insulating may have less impact on reducing household bills, but it is cost-effective in two-thirds of all applicable residential buildings in Florida and can be paired with HVAC upgrades to achieve deeper savings.

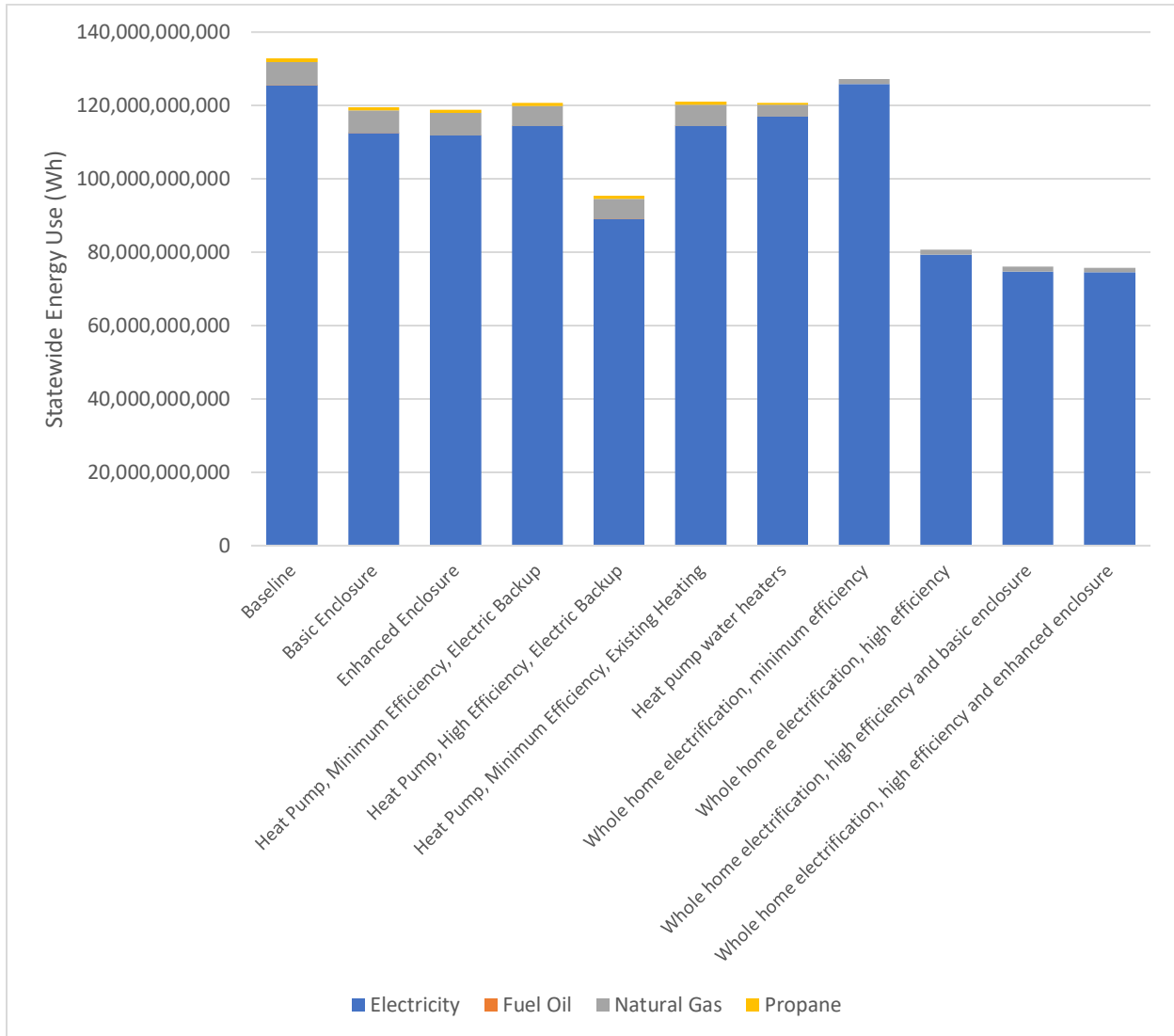
To effectively reduce energy bills, then, it is vital to consider energy efficiency packages that can address these multiple needs rather than single-measure upgrades. In the next section, we consider the impact of several promising efficiency packages.

Energy Efficiency and Affordability Packages

SEEA estimated the energy savings possible through various efficiency packages (i.e., a set of efficiency measures that go beyond a single upgrade). Figure 2 shows statewide energy usage across all residential buildings and the energy savings available through tiered energy efficiency

packages (in Wh), ranging from basic enclosure upgrades to whole home electrification with high-efficiency components and extensive building envelope improvements.

Figure 2: Statewide residential energy consumption for energy efficiency packages.



As this chart indicates, the deepest energy savings across Florida are available through whole-home electrification combined with high-efficiency components and aggressive building envelope upgrades. Components include the installation of a high-efficiency heat pump, a heat pump water heater, a ventless heat pump dryer, and an induction range and electric oven. Building envelope improvements in this scenario include the installation of attic floor insulation, air and duct sealing, drill and fill wall insulation, foundation insulation, and ceiling insulation.

This is no doubt an aggressive approach, but there are significant energy and cost savings possible through less extensive interventions as well. The installation of high-efficiency heat pumps in cost-effective households or heat pump water heaters alone has the potential to reduce energy use by 10% from the state’s baseline residential energy use each. We estimate that this can result in annual bill savings of \$673 and \$293 each year, respectively.

Although not quantified as part of this study, energy efficiency investments like these spur job growth and stability in the construction trades, particularly through jobs focused on providing energy-efficient retrofits, equipment, and other services. This can provide economic benefits that go beyond bill savings. As SEEA’s 2021 study of energy insecurity in Florida found, energy efficiency is the leading energy-related job sector in the state. In 2022, there were 118,904 people employed in energy efficiency across the state, 4.8% of the total national market. Between 2021 and 2022, the state added almost 5,000 energy efficiency jobs. Most energy efficiency workers were employed in jobs focused on ENERGY STAR products, efficient lighting, and advanced building materials and insulation.¹⁶

Case Study: Energy Savings in Mobile Homes

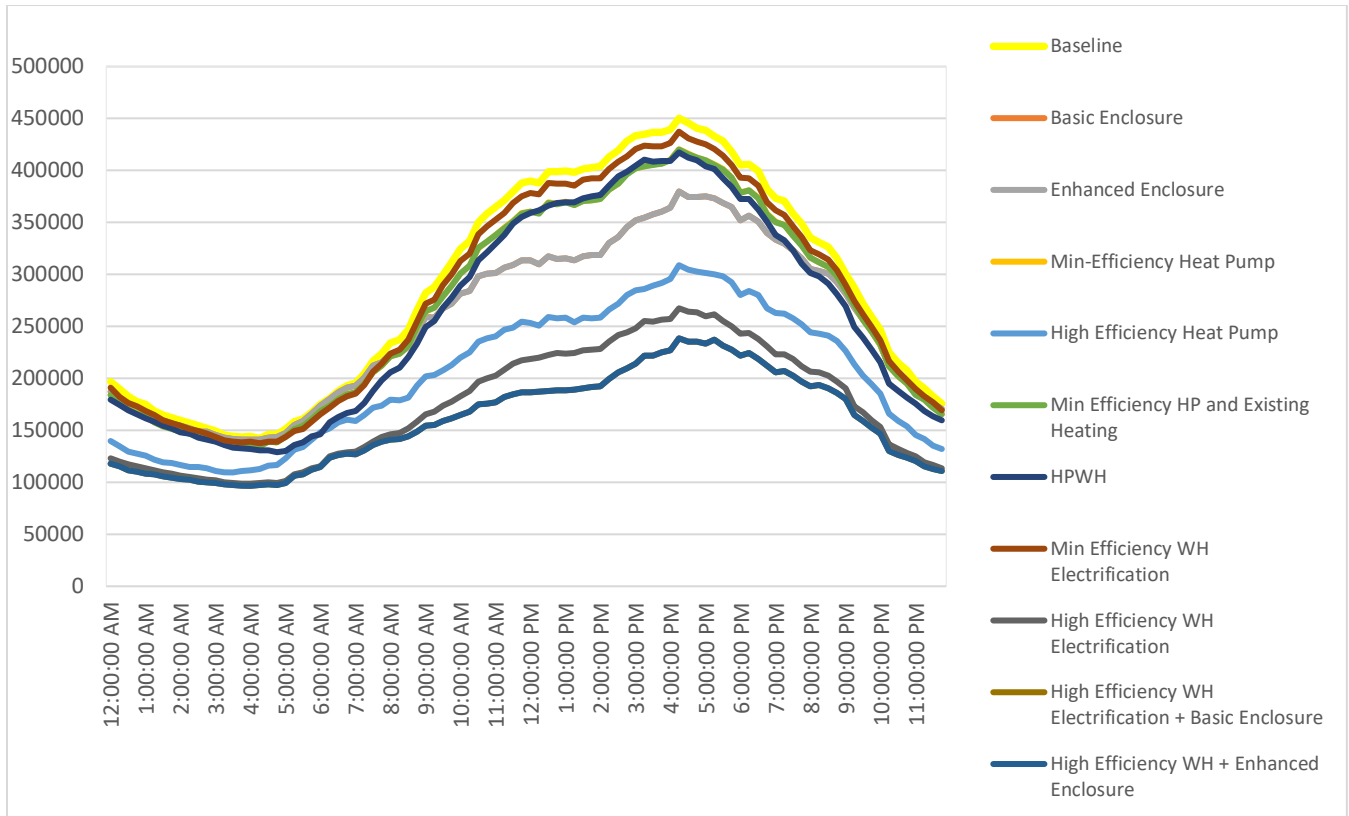
Mobile homes are a critical opportunity for energy savings and affordability gains in Florida. There are more than 800,000 mobile homes in the state that – at best – were built to a HUD efficiency standard that is three decades old. The result is that mobile homes have a higher energy use intensity than single-family detached buildings, making utility bills more expensive and undermining the potential affordability gains available from lower rent and purchase prices. Addressing efficiency shortfalls in this housing stock is critical to lowering utility bills for mobile home residents, who are often among the state’s most vulnerable communities.¹⁷

Figure 3 shows the summer energy load curve for a typical mobile home. The yellow line shows the baseline energy use, while other lines indicate energy use curves for different efficiency packages. Whole home electrification, the installation of high-efficiency equipment, and enhanced enclosure approaches can dramatically reduce energy usage during peak periods. Yet enhanced enclosure improvements and the installation of a high-efficiency heat pump offer other paths to reduce peak load and improve affordability. This data also suggests that minimum efficiency electrification measures have little impact on overall energy usage and may even increase energy bills through increased electric consumption if not paired with efficiency.

¹⁶ See also *United States Energy & Employment Report 2023, Energy Employment by State: 2023* (Washington, DC: United States Department of Energy, 2023).

¹⁷ See *Topic Briefs: Upgrading Manufactured Homes* (Washington, DC: American Council for an Energy-Efficient Economy, 2023).

Figure 3: Summer load curve for a typical mobile home in Florida.



The upshot is that mobile homes benefit from high-performing HVAC equipment, but that addressing inefficiencies in the building envelope is critical to ensure that HVAC upgrades and electrification result in reduced energy costs.

Conclusions

Energy affordability is a concern of millions of Floridians, and energy efficiency strategies have the potential to provide hundreds of millions of dollars in bill relief to the state’s residents. Our analysis of affordability pathways finds that:

- Whole home electrification with high-efficiency components and building envelope upgrades offers the most significant cost and energy savings potential of any energy efficiency package. This is followed by whole-home electrification with the installation of high-efficiency equipment and basic enclosure improvements, whole-home electrification with the installation of high-efficiency equipment, and the installation of a high-efficiency heat pump. There are currently unprecedented opportunities to leverage outside funding to support these goals, as we explain below.

- Savings at a household level are greatest with HVAC upgrades, whether through the installation of a ductless heat pump, adoption of a high-efficiency heat pump, or installation of an ENERGY STAR room air conditioner, depending on what measure is appropriate for each household.
- Whole home electrification without consideration of the installation of high-efficiency equipment and/or building envelope upgrades has the potential to increase energy consumption and household bills.
- Mobile homes are a critical energy and affordability drain for occupants. Mobile homes can benefit from the installation of high-performing HVAC equipment, but addressing inefficiencies in the building envelope is critical to ensure that HVAC upgrades and electrification result in reduced energy costs.
- Household level savings will be highest across the same measures for members of Glades Electric Cooperative, Tri-County Electric Cooperative, and customers of Florida Public Utilities Company and Gulf Power, which have the highest residential electric rates in the state.
- Overall potential savings are concentrated with investor-owned utilities and municipal utilities with the most customers, including Florida Power & Light, Duke Energy Florida, TECO, Gulf Power, JEA, and the Orlando Utilities Commission.
- Utility programs in Florida cannot achieve scaled, deep residential savings on their own. These programs should be paired with programs and policies (federal, state, municipal, and market-based) to drive deeper levels of savings for residents, particularly to take advantage of federal incentives while available.

Below, we discuss pathways for achieving energy savings through these key measures.

Recommendations

There are unprecedented opportunities to leverage federal funding to support programs and market-based solutions that can dramatically reduce energy bills for millions of residents of Florida. Recent federal funding available through the Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA), among other sources, provide transformational resources that can be used to: develop energy efficiency plans; fuel new or existing energy efficiency programs administered by utilities, municipalities, and nonprofits; provide direct rebates that can lower the first cost of upgrades; reduce the cost of energy efficiency training and certification for

workers in the building trades; and, reduce the tax burden on Florida homeowners who invest in energy efficiency upgrades.¹⁸

There are several pathways available for OOE, city governments, and other stakeholders in the state to advance efficiency policies and/or programs, often by leveraging federal resources.

- Eligible municipalities can apply for funding through the Energy Efficiency and Conservation Block Grant (EECBG) Program that can support a range of energy efficiency and greenhouse gas (GHG) emission reduction activities. This funding can advance the pathways identified in this analysis through several approaches: funding the development of an energy efficiency plan at the municipal level, paying for energy audits of residential buildings to prioritize upgrades, providing financial incentives (rebates or loans) to help residents pay for energy efficiency improvements, or providing funding for nonprofit- or government-led weatherization programs.¹⁹

Eligible entities must submit a short pre-award information sheet by July 31, 2023 to qualify to receive the funding. Most Florida municipalities have already taken this step. Yet there are currently 12 city or county governments who still need to submit this information, representing almost two million dollars of potentially lost energy efficiency investments.²⁰

OOE and/or other interested stakeholders should engage with and support these cities/counties – potentially by convening a coalition of municipalities – to ensure that they secure this funding and have access to best practices for deploying it. This may include facilitating strategic partnerships with nonprofit organizations that can offer weatherization services, providing input on best practices for deploying financial incentives to reduce the cost of home upgrades, or supporting other programs focused on key housing needs addressed in this whitepaper.

- Tribal governments in Florida may have opportunities to distribute some of the \$225M in electrification and efficiency rebates available through the Inflation Reduction Act (IRA) that will soon become available nationally. These rebates can be used to reduce the first cost of many of the key electrification and efficiency measures outlined in this

¹⁸ Rewiring America, *Benefits of Electrification: Florida*. <https://map.rewiringamerica.org/states/florida-fl>

¹⁹ On uses of EECBG see EECBG Program Notice 23-01, “Guidance for eligibility of Activities Under the Energy Efficiency and Conservation Block Grant Program,” April 25, 2023. Available at: <https://www.energy.gov/scep/articles/energy-efficiency-and-conservation-block-grant-eligible-activities-and-program>.

²⁰ As of June 21, 2023, these cities and counties included Collier County (\$365,750), Okaloosa County (\$238,090), Hialeah (\$241,570), Miami Gardens (\$155,250), Daytona Beach (\$135,860), Ocala (\$132,740), Pinellas Park (\$118,390), Bonita Springs (\$116,540), Ocoee (\$76,560), Lake Worth Beach (\$76,410), Plant City (\$76,400), and Winter Springs (\$76,200).

whitepaper for tribal households. Specifically, these rebates can cover full costs for home upgrades for households making less than 80% of the area median income (AMI), and up to half of costs for households making 80-150% of AMI. The cost of upgrades identified in this whitepaper can be reduced through these rebates, as outlined below:

Electric heat pump HVAC system: maximum rebate of \$8,000

Electric heat pump water heater: maximum rebate of \$1,750

Insulation, air sealing, and ventilation: maximum rebate of \$1,600

These rebates also apply to electric appliances, including electric stoves, cooktops, ranges, or ovens (up to \$840) and electric heat pump clothes dryers (up to \$840), among others.

This will hasten payback periods and put these upgrades within the reach of residents without upfront capital. The allocation of these funds is still to be determined. When more information is available, OOE and/or other stakeholders may have opportunities to encourage and support eligible tribal governments in distributing these rebates.

- The Internal Revenue Service (IRS) offers Energy Efficient Home Improvement tax credits of up to \$3,200 to homeowners on qualified expenses spent as part of energy efficiency upgrades, including: improvements installed since January 1, 2023, energy property expenses, and energy audit costs. These credits are available for the key efficiency measures we outline in this whitepaper, including building envelope upgrades, high-efficiency HVAC equipment, and energy audits. Individual Florida homeowners can take advantage of these deductions. OOE and other stakeholders can promote these opportunities and provide education for homeowners to enable them to make the maximum use of this deduction over multiple years. Additionally, OOE and/or other stakeholders like EDF could consider which utility incentives can be paired with these deductions to drive deeper savings and support homeowners in braiding incentives.
- The U.S. Department of Energy (DOE) State and Community Energy Programs (SCEP) office has announced that it will provide \$240M for states to improve training opportunities for contractors that can improve their ability to deliver energy efficiency and electrification upgrades. The Energy Auditor Training Grant Program offers grants to states to pay for energy auditor training fees by the state or third-party trainers, or to provide trainees with their wages during training. The State-Based Home Energy Efficiency Contractor Training Grants provide formula and competitive funds for states to reduce training costs or develop state-based energy efficiency training opportunities/programs. Expanding access to energy efficiency jobs can provide support for small businesses in Florida while making it easier for residents to upgrade their

homes. OOE can leverage formula funds to reduce the costs of training for contractors, particularly in communities that are underserved by providers, while applying for additional funds to ensure that these programs have maximum impact.

- The U.S. Department of Agriculture offers loans to rural electric cooperatives, municipal utilities, and other entities who run energy efficiency programs through the Rural Energy Savings Program (RESP) and Energy Efficiency and Conservation Loan Program (EECLP). Given the high energy burdens faced by many residents of rural Florida, OOE can work with rural utilities to raise awareness of these programs and help them secure loans that can be used to start and/or expand residential energy efficiency programs.
- The largest sources of funding in Florida for bill assistance and energy efficiency retrofits for LMI households are the federal Weatherization Assistance Program (WAP) and Low-Income Home Energy Assistance Program (LIHEAP). These programs exceed funding available through Florida's utility programs and are a critical means for income-qualified households to reduce and/or manage their bills. LIHEAP and WAP are administered by the Florida Department of Economic Opportunity (DEO), but the OOE can support DEO, community action agencies, and affiliated contractors by connecting them with other energy efficiency funding streams and opportunities that can be stacked with WAP and LIHEAP funds.
- The Environmental Protection Agency will offer a Greenhouse Gas Reduction Fund (GGRF), which will provide \$27B on a competitive basis to community development financial institutions (CDFIs). CDFIs will then competitively distribute the funds to communities for projects. The General and Low-Income Assistance Competition (\$20B) is focused on projects that can lower energy costs for vulnerable households and decrease pollution. The Zero-Emissions Technology Fund Competition (\$7B) is focused on advancing renewable energy, particularly in disadvantaged communities. Although program guidance is forthcoming, each of these funds will be able to be used for a range of energy efficiency, renewable, and weatherization work focused on improving affordability. OOE can raise awareness and facilitate partnerships among eligible organizations in Florida, while promoting program models and best practices.
- The U.S. Department of Housing and Urban Development (HUD) has announced funding for efficiency gains in HUD-assisted multifamily housing via the Green and Resilient Retrofit Program. These grants are available for building owners and can provide funds of up to \$750,000, \$10M, or \$20M per property on a competitive basis through three different funding pathways. OOE can convene and educate building owners – in cooperation with municipal housing agencies – to raise awareness of this opportunity



and help develop a strategy for addressing affordability shortcomings in Florida’s multifamily affordable housing stock.

Each of these opportunities provides pathways to lower energy bills for Florida residents in the long term by advancing energy efficiency. In the process, they can increase financial stability for vulnerable people, build equity and reduce tax burdens on homeowners, support small businesses in the building trades, improve thermal comfort and resilience in the face of extreme heat, and mitigate risks to the electric grid. OOE plays a key role in helping the state make full use of these opportunities, primarily by raising awareness, facilitating partnerships, and elevating best practices.

Appendix: Methodology

To develop the energy savings and affordability analysis, the project team used energy savings estimates developed by the National Renewable Energy Laboratory (NREL) through their ResStock data model. Using high-performance computing, ResStock models the entire U.S. building stock and provides best-in-class estimates of energy savings data across a range of housing types and geographies. The SEEA team used data models from ResStock to examine which measure and package-level upgrades have the highest energy and cost savings, all normalized by looking at 2021 utility rates from each of Florida's major utilities, the most recent rates that are available from the U.S. Energy Information Administration (EIA). ResStock uses 2017 housing counts, and we also updated all energy and cost savings figures by applying savings to the current housing stock.