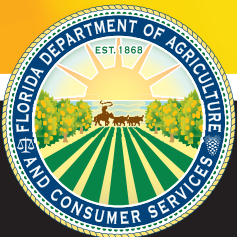


2017 OFFICE OF ENERGY ANNUAL REPORT



Florida Department of Agriculture and Consumer Services
Adam H. Putnam, Commissioner



Dear Governor Scott, President Negron and Speaker Corcoran,

I am pleased to provide you with the 2017 Annual Report of the Florida Department of Agriculture and Consumer Services' Office of Energy. This report highlights the office's accomplishments during 2017 that help Floridians use electricity and fuel more efficiently and generate more renewable energy.

During the 2017 calendar year, the Office of Energy:

- Provided 193 energy and water audits to farmers in Suwannee County area and invested more than \$2.65 million to implement the resulting recommendations under the Farm Energy and Water Efficiency Realization Program.
- Published the Multifamily Retrofit Demonstration Projects Data Analysis Report. The report provides an analysis of the energy savings achieved under two Multifamily Retrofit Demonstration Projects. The first project achieved an average decrease in daily energy usage of 13.34 percent and the second project 30.4 percent.
- Supported Hurricane Irma Response efforts at the State Emergency Operations Center.
- Partnered with Drive Electric Orlando to provide consumers with the experience of driving an all-electric vehicle. In 2017, program participants drove nearly 58,000 electric miles.

We look forward to continuing to work with you to advance energy policies that support Florida's businesses, consumers and education infrastructure.

Sincerely,

Adam H. Putnam
Commissioner of Agriculture

**FLORIDA DEPARTMENT OF AGRICULTURE
AND CONSUMER SERVICES**

OFFICE OF ENERGY

2017 ANNUAL REPORT

Adam H. Putnam, Commissioner

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1. Executive Summary

The Florida Department of Agriculture and Consumer Services' Office of Energy (FDACS OOE) is the legislatively designated state energy policy and program development office within Florida. The FDACS OOE evaluates energy related studies, analyses and stakeholder input in order to recommend to the Governor and Legislature energy policies and programs that will move Florida toward a more diversified, stable, reliable and resilient energy portfolio. Further, FDACS OOE uses available state and federal funds to develop and manage energy efficiency, renewable energy and energy education programs throughout the state.

This report reflects FDACS OOE activities during the 2017 calendar year and highlights programs that help prepare Florida to meet the growing demand for energy in a diverse, reliable and sustainable manner. This report is submitted as required in Section 377.703(2)(f), Florida Statutes (F.S.).

In 2017, FDACS OOE offered programs in each of the following areas related to energy:

- Transportation;
- Energy efficiency;
- Energy education; and
- Renewable energy.

The FDACS OOE Annual Report also provides information on Florida's current energy landscape, as well as our participation with state and national organizations and upcoming activities.

2. Florida's Energy Landscape

This section summarizes Florida's energy profile, including information on fuel diversity, electric generation, transportation fuels and renewable resources. In addition to providing a summary of Florida's energy landscape, this section provides an outlook on potential areas of opportunity for the state.

Florida's Overall Consumption of Energy (Electricity and Transportation Fuel)

Florida's transportation and residential sectors drive energy consumption. In terms of electric generation and transportation fuel, Florida is heavily reliant on natural gas and petroleum.

Electricity

- According to the United States Department of Energy's Energy Information Administration (EIA), Florida ranks 46th in the nation, consuming 210 million BTU¹s per person.
- The Florida Public Service Commission (FPSC) stated in its *Review of the 2017 Ten-Year Site Plans of Florida's Electric Utilities* that Florida has 8,786,683 residential electric customers using 53.4 percent of all electricity consumed in the state, with the remaining 46.6 percent of electricity being consumed by commercial and industrial users.
- According to EIA, natural gas continues to be the dominant fuel source for traditional electricity generation. Floridians consumed 112,613 million cubic feet of natural gas in 2017, or 71.6 percent of its total utility-scale electric generation.

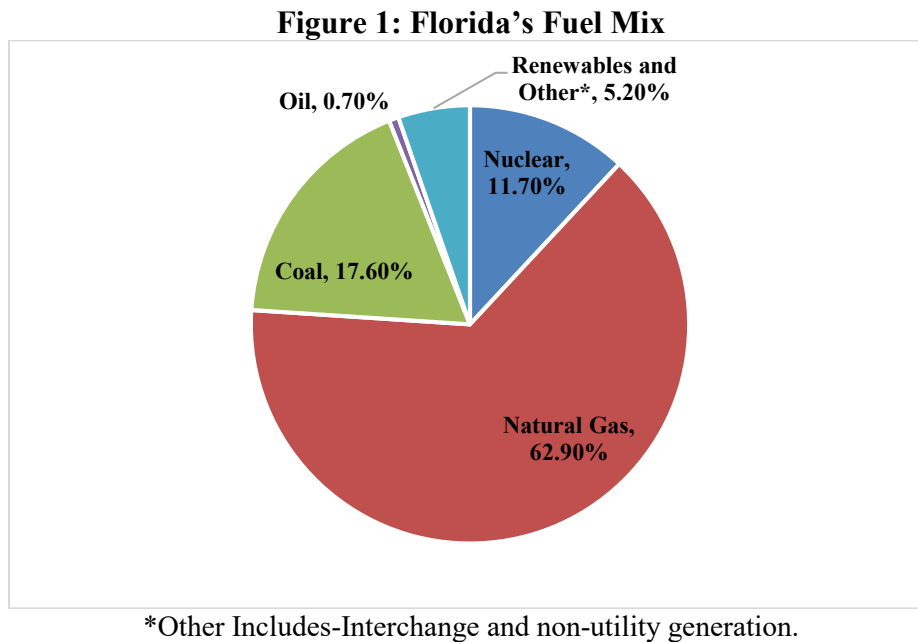
Transportation

- According to EIA, Florida is ranked third in the nation in terms of all types of transportation fuel consumption, using 1,517 trillion BTUs; this accounts for approximately 5.6 percent of the total United States' share of transportation fuel.

¹ British Thermal Unit (BTU) is a standard unit for measuring a quantity of heat. The unit is used to measure and compare the energy content of fuel.

Florida Sources of Energy in the Power Sector

Florida's power sector utilizes various fuel sources to address the state's electrical needs. Figure 1 shows the mix of fuel sources Florida uses to generate electricity.



Between 2017 and 2022, Florida's utilities plan is to retire 3,530 megawatts (MW) of generation capacity. The current installed capacity is 59,172 MW and the projected capacity in 2022 is 68,398MW.

Renewable Energy

According to the FPSC's *Review of the 2017 Ten-Year Site Plans of Florida's Electric Utilities*, Florida's renewable energy facilities currently provide approximately 2,206 MW of generating capacity, representing 3.8 percent of Florida's overall generation capacity.

- Of the 2,206 MW of renewable generation, approximately 705 MW are considered firm (consistent and reliable) based on either operational characteristics or contractual agreement.
- As of 2017, Florida has plans for an additional 4,204 MW of renewable energy by 2026, with the majority anticipated to come from solar projects.
- Solid biomass is the largest source of renewable energy in Florida. Florida has more biomass resources than any other state.
- Solar is Florida's second largest source of renewable energy with a capacity of 538 MW, which includes approximately 141 MW of customer owned renewable capacity from nearly 15,994 systems. The vast majority of future planned solar is expected to be utility installations totaling 4,204 MW.

- Municipal solid waste (MSW) is Florida's third largest source of renewable energy. As of 2017, MSW accounts for 446 MW of electrical capacity in Florida.

Transportation Energy

Florida's large population, evolving demographics and projected growth require the state to develop and maintain a reliable and conveniently accessible transportation system. Florida's tourism industry is one of the largest contributors to the state's economy, and a progressive and diversified transportation system is vital to the tourist industry.

Petroleum Use

- Per EIA, Florida has a total of 6,172 motor gasoline stations, accounting for 5.5 percent of the total US share.
- According to EIA reports, Florida consumed more than 286 million barrels of motor fuel in 2015.
- Florida has no in-state refineries to process crude oil; however, Florida produced 135 thousand barrels of crude oil in 2017, with most coming from Jay Field in Escambia County.

Florida's Alternative Transportation Use

- Many of Florida's private commercial fleet owners, as well as local governments and school boards, have begun the process of converting their fleets to natural gas fuel.
- According to the United States Department of Energy (US DOE) Alternative Fuels Data Center, the state of Florida has 1,413 total public and private alternative fuel stations, of which 58 are Compressed Natural Gas (CNG) stations, 140 are propane stations and 1115 public and private electric vehicle (EV) charging stations installed throughout the state.
- The Florida Department of Highway Safety and Motor Vehicles lists the number of registered electric vehicles in Florida as 85,083 as of January 28, 2018.
- Florida has four US DOE designated Clean Cities Coalitions' (CCCs): Southeast Florida, Central Florida, Tampa Bay and North Florida. The CCCs are responsible for promoting clean energy and alternative fuels for transportation throughout the state.
- The Electric Vehicle Transportation Center (EVTC) at the Florida Solar Energy Center is a five-year project funded through the United States Department of Transportation (US DOT) University Transportation Centers Program. The EVTC supports the US DOT's goal of integrating alternative fuel vehicles. The project ends September 2018.

New Trends

This past year, several new solar projects were announced that will also include energy storage. On a network level, renewable energy storage provides for network resiliency, transmission congestion relief and reduces the intermittency of renewable energy resources to provide firm power generation characteristics. Those projects include:

Florida Power & Light – In November of 2016, Florida Power & Light announced it would build a 50 MW pilot program to ‘enhance operations of existing and/or planned solar facilities, among other benefits.’

Duke Energy Florida – In August of 2017, Duke Energy Florida announced they will add 700 MW of solar PV and 50 MW of energy storage in Florida. Its previous experience includes a 100-kilowatt solar-battery system deployed with the University of South Florida St Petersburg in 2015.

JEA – In October of 2017, JEA announced the introduction of a battery storage incentive plan for residential customers. It would allow customers to receive a one-time 30 percent rebate on the purchase and installation of a household battery system, up to a maximum of \$2,000 per household. The battery rebate program is capped at \$1 million per year.

3. 2017 FDACS Office of Energy Accomplishments

The FDACS OOE offers programs to increase efficiency, install renewables, research new technologies and to increase the use of alternative fuels in transportation. This section highlights the programs that the FDACS OOE offered during the 2017 calendar year.

Farm Energy and Water Efficiency Realization (FEWER)

The FEWER program was a pilot program in Suwannee County that provided on-site energy and water audits to farms. The pilot program provided a 75 percent cost share, up to \$25,000, to area agriculture producers who participated in the audit and to implement some of the recommendations.

The FEWER program was open from 2015 to 2017, and provided \$3.9 million in state and federal funds, resulting in:

- 192 on-site water and energy audits;
- 132 projects to implement the recommendation of the on-site water and energy audits;
- 116,473 MMBtus of identified energy savings; and
- 45,3105 MMBtus of realized savings (this equates to approximately \$1.5 million in annual electric savings).



Poultry farm with PV installed

As a result of their participation in the FEWER program, one poultry farm wanted to use solar PV technologies in addition to their energy efficiency upgrades.

- Monthly utility bills could be as high as \$3,000. The first month following the installation of energy efficient measures and solar PV, their utility bill was \$25 (meter charge only). The same month during the previous year, their utility bill was \$1,200.

Rural Business Enterprise Grant (RBEG)

The availability of energy audits and renewable energy development assistance in many parts of rural Florida is limited. The RBEG enabled the FDACS OOE to provide affordable energy efficiency audits to eligible recipients (rural businesses/farmers/producers). The objective of the program was to conduct:

- On-site evaluations of the potential for energy efficiency;
- Renewable energy upgrades and water saving measures and practices on individual farms; and
- Help protect water resources and reduce energy consumption.

The FDACS OOE funded 91 audits which led to the implementation of various energy efficiency measures at each location. Agricultural producers that implemented energy efficiency measures were eligible for cost-share reimbursement. Energy efficiency measures were implemented under the FEWER program. As a result of the audit, the recipients are now eligible to pursue Environmental Quality Incentive Program (EQIP) dollars from the USDA.

Multifamily Energy Efficiency Retrofit Demonstration Projects

In December 2017, the FDACS OOE released the Multifamily Retrofit Demonstration Projects Data Analysis Report. The report provides an analysis of the energy savings achieved following two retrofit projects conducted in 2015 at multifamily housing facilities in the Pinellas County Housing Authority and the West Palm Beach Housing Authority.

The 2015 Multifamily Demonstration Project allowed the public housing authorities to implement a range of unit-appropriate energy efficiency upgrades within their multifamily housing units based on targeted walk-through energy audits.

- In total, 320 multifamily units received a range of energy efficiency upgrades, such as high efficiency lighting, water heaters, increased attic insulation, and in some cases, ceiling fans, Heating Ventilation, and Air Conditioning (HVAC) systems, and ductwork repairs.
- Energy consumption data collected from one year before and one year after the project was then analyzed for this report.

Results of the energy usage data analysis show how targeted retrofits can have a significant impact on energy consumption in multifamily housing sector. The analysis indicates:

- An average decrease in daily energy usage of 13.34 percent in Pinellas County Housing Authority and 30.4 percent in West Palm Beach Housing Authority.
- Higher energy savings are realized when the large-scale multifamily retrofit project was applied to older construction where units were occupied by three or more tenants.
- Installation of an ENERGY STAR® HVAC system, along with repairs to leaks in ductwork, provided the greatest energy efficiency per investment and significantly reduced maintenance work hours for these property owners.

The report also provided recommendations for owners planning a multifamily retrofit project regarding project planning, benchmarking, funding, and tenant considerations.

Drive Electric Orlando

Drive Electric Orlando offers consumers an option to rent an electric vehicle in Orlando to increase consumer awareness of the benefits and capabilities of electric vehicles. The program:

- Uses a \$400,000 award from the U.S. DOE Clean Cities program, the FDACS OOE is working with the Electrification Coalition and the Central Florida Clean Cities Coalition to promote the Drive Electric Orlando project.
- Partnered with Orlando rental car agencies, hotels, restaurants and theme parks to offer consumers who participate in the program various incentives, including:
 - VIP treatment at Epcot's Test Track ride;
 - free valet parking;

- preferred parking spots;
- ample charging stations; and
- free three-month membership to CLEARLane Access which allows travelers to skip the identification check point at the airport and head straight to the physical screening.
- Since the program launched in October 2015:
 - 1,708 electric vehicle rentals with over 385,000 miles driven.
 - Over 250 rental car company employees were trained for the program.
- The program is scheduled to end in June 2018.

Natural Gas Rebate

The Natural Gas Fuel Fleet Vehicle Rebate Program (program) was authorized under Section 377.810 F.S., and became effective on July 1, 2013. The program was appropriated \$6 million annually for four years to incentivize commercial and government fleet entities to purchase, lease or convert to natural gas fueled vehicles. The maximum rebate under this program was \$25,000 per eligible vehicle, not to exceed 50 percent of eligible costs. Each applicant could receive up to a total of \$250,000 per fiscal year on a first-come, first-served basis.



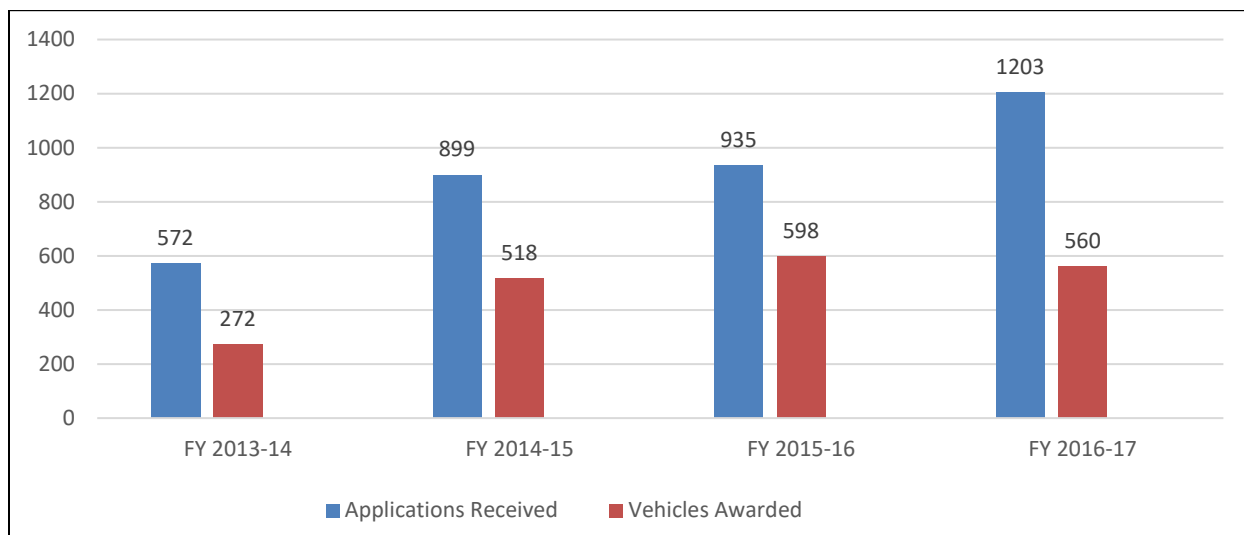
Natural gas fueled vehicle

Beyond the rebates provided to qualified participants, other benefits of the program include:

- Reduced fuel costs;
- Reduced transportation costs; and
- Increased freight mobility investments that will contribute to the economic growth of the state.

The program gained popularity after the first fiscal year (FY); the number of received applications increased from 572 in FY 2013-14, to 1,203 in FY 2016-17 (Figure 2). All funding for FY 2016-17 was exhausted.

Figure 2. Program Utilization



At the end of each fiscal year, an analysis is conducted to determine the utilization and economic impact of the program. During the FY 2016- 2017 of the program, the annual assessment indicated that:

- Use of the incentivized vehicles will save rebate recipients an estimated \$8.1 million in annual fuel costs.
- The Natural Gas Fuel Fleet Vehicle Rebate Program incentivized an investment from private and public sector entities in the amount of \$144.8 million.
- An estimate of 765 jobs with an average pay of \$56,816 were created or retained as a result of the Program.
- The total contribution to Florida’s Gross Domestic Product is estimated at \$240.6 million.

The Natural Gas Fuel Fleet Vehicle Rebate Annual Assessment is available at www.FreshFromFlorida.com/Forms-Publications/Publications/Energy-Reports-and-Publications.

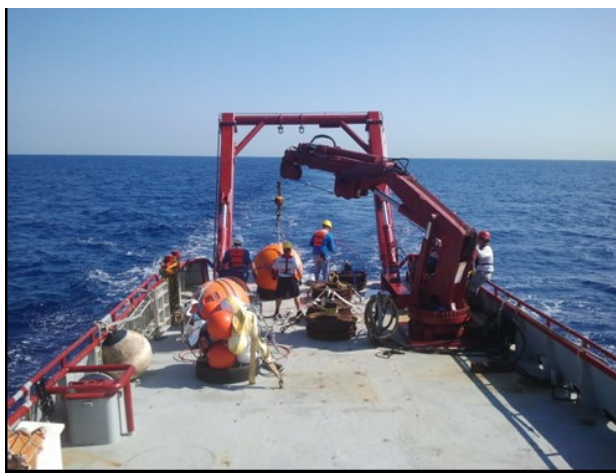
As of December 31, 2017, the program has awarded 1,948 vehicles a total rebate amount of \$20.9 million.

Renewable Energy and Energy Efficient Technologies Grant Program (REET)

The REET Grant Program was a competitive grant program designed to provide funding for projects to conduct demonstration, commercialization, research and development projects relating to renewable energy technologies and innovative technologies that significantly increase energy efficiency for vehicles and commercial buildings. The FDACS OOE awarded five successful applicants in March 2017. The awarded entities include:

- University of Central Florida — “Unlocking the High Efficiency Potential of Bifacial Silicon Solar Cells by Advanced but Simplified Techniques” — Grant Funds \$400,000;
- Florida Agricultural and Mechanical University — “Enhancing sustainable production of algal biofuels using electromagnetic field energy” — Grant Funds \$399,038;
- Florida Institute of Technology — “Demonstration of a Cost-Effective, Scalable Zero-Energy Commercial Building Design for Florida Climates” — Grant Funds \$282,008;

- Florida Atlantic University — “Demonstrating Technology Enhancements to Achieve Economic Competitiveness of Gulf Stream Electricity Production” — Grant Funds \$400,000; and
- University of Florida — “Self-running buildings: An autonomous system for reducing energy consumption and increasing demand flexibility of commercial buildings in hot-humid climates” — Grant Funds \$400,000.



FAU Gulf Stream Project

Clean Energy for Low Income Communities Accelerator (CELICA)

The FDACS OOE continues its participation in CELICA, a Better Buildings Initiative of US DOE. According to the US DOE, low income households spend an average of 15 to 20 percent of their income on energy bills. FDACS OOE is one of 51 CELICA partners across the county working to address the issue of high cost, low efficiency energy usage in low-income community sector.

The FDACS OOE uses information gleaned from stakeholders to consider strategies that aid communication between:

- Low income communities interested in making building efficiency improvements; and
- Businesses who specialize in upgrading existing buildings and financial institutions.

Florida Alliance for Accelerating Solar and Storage Technology Readiness (FAASSTeR)

FAASSTeR is a multi-partner, statewide effort to catalyze acceptance and strategies for the deployment of solar plus storage technologies, including the necessary infrastructure, in a cost effective way. Nhu Energy, Inc. is the prime recipient of a U.S. Department of Energy award. The FDACS OOE is a sub recipient. The goals of this project are to:

- Inform policy and regulation in the state to maximize consumer benefits from solar energy; and
- Foster the development of an additional 10 percent solar capacity within Florida Municipal Electric Association (FMEA) member utilities.

Energy Clearinghouse of Information

The Florida Energy Clearinghouse is a consumer-friendly portal to compare energy-saving technologies and educate about energy usage, energy production, renewable energy technologies and research being conducted in Florida. The FDACS OOE continues to host, update and expand the Florida Energy Clearinghouse in accordance with Section 570.0741, F.S.



My Florida Home Energy homepage

Initiative for Resiliency in Energy through Vehicles (iREV)

iREV was a multi-partner, national effort to encourage states, local governments and their partners to incorporate alternative fuel vehicles and fueling infrastructure into their emergency management planning and operations.

- The iREV Steering Committee focused primarily on four alternative fuels:
 - Biodiesel;
 - Natural gas;
 - Propane; and
 - Electricity.
- The National Association of State Energy Officials (NASEO) was the lead organization on this national effort.
- The FDACS OOE participated on the iREV Steering Committee, collaborating on outreach materials, strategies and technical assistance resources.

Case studies on the four types of alternative fuels and other resources, including the iREV Tracking Tool (a mapping application) are available online at www.NASEO.org/irev. The federal grant funding iREV ended in December 2017.

Biofuels Infrastructure Partnership (BIP)

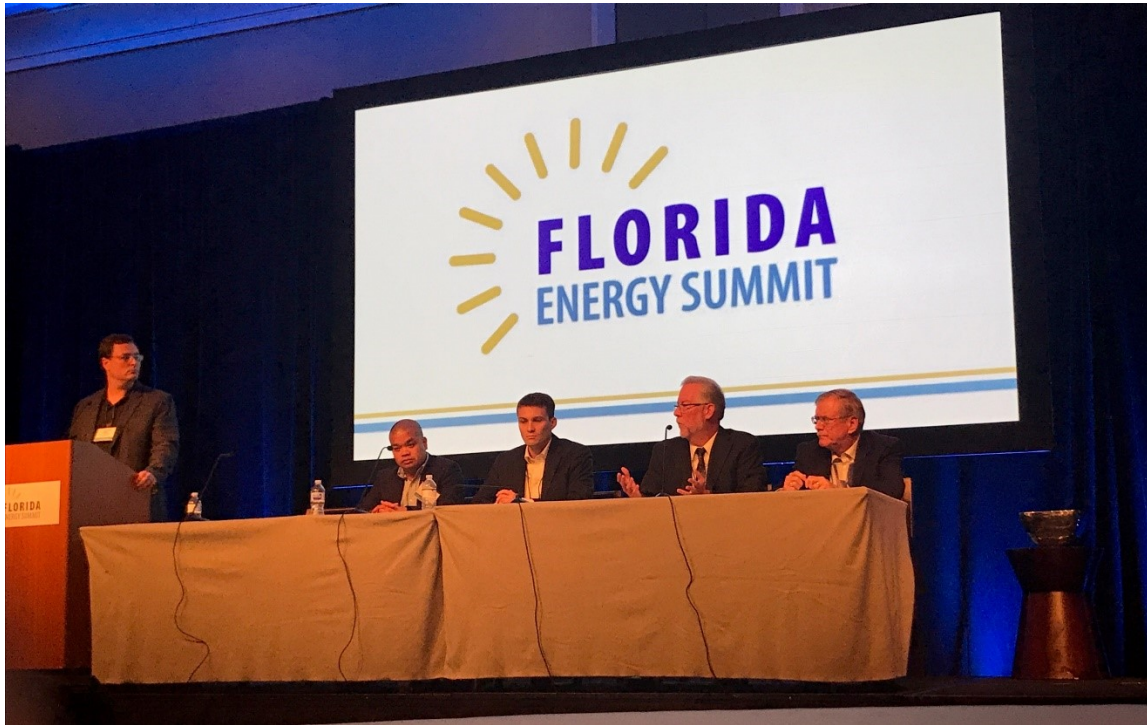
The FDACS OOE was awarded \$15.2 million from the U.S. Department of Agriculture (USDA) Commodity Credit Corporation to increase the availability of infrastructure capable of dispensing higher blends of biofuels. Eligible infrastructure under the BIP program includes:

- Installation of blender pumps, which are capable of dispensing biofuel blends in a range from 15 percent to 85 percent (E15 to E85);
- Dedicated E85 pumps, which dispense biofuel blends of 85 percent (E85); and
- Underground storage tanks designed to accommodate the biofuel necessary for the higher blends.

Proposed retrofits and station locations are submitted to USDA for environmental review and approval prior authorization. BIP retrofits began in May 2016. During 2017, there have been 106 blender pumps and two dedicated E85 pumps installed at a total of 32 fuel station locations in Florida.

2017 Florida Energy Summit

The FDACS OOE co-hosted the 2017 Florida Energy Summit with the Broward Workshop. Attendees gathered in Fort Lauderdale to hear from industry leaders, academia, and public officials on the future of energy in Florida. The 2017 Florida Energy Summit highlighted innovations in the energy sector and state and local collaboration.



Panel on Emergency Preparedness and Resiliency in the Energy Sector

Florida Renewable Efficiency Demonstration (FRED)

The FRED Program provides free energy evaluations valued up to \$4,500 to Florida agricultural producers. FRED also provides Florida agricultural producers grant reimbursement for 80 percent of the cost to implement the recommendations from the free energy evaluation up to \$25,000. These energy evaluations are conducted by three state universities, Florida A&M University, University of Central Florida, and University of Florida designated to provide Mobile Energy Lab services. In 2017, the FRED Program has received 76 applications, conducted 16 energy evaluations, and produced audit reports and processed payments from several applicants. This program ends September 1, 2018.



Energy efficient electric pumps irrigate a farm

State Heating Oil and Propane Program (SHOPP)

The SHOPP Program began in 2014, and continues to collect residential propane price information through a cooperative agreement with the EIA.

- Data is collected weekly from October through March.
- EIA aggregates the data and posts it to their website.
- Identities and company level data are confidential.
- The FDACS OOE will continue to participate through the heating season of 2020-2021.

Mapping the Energy Landscape of Water and Wastewater Treatment Facilities in Florida

The FDACS OOE has established a working group to identify the criteria for the upcoming survey of water and wastewater treatment facilities in Florida. Following the establishment of the criteria, the office will work to complete the survey in 2018. The survey will identify wastewater systems that may benefit from energy efficiency upgrades.

Energy Education

The Florida Solar Energy Center (FSEC) hosts the EnergyWhiz Olympics every year in May. The next one is scheduled for May 12, 2018. The 2017 EnergyWhiz Olympics attracted over 1,000 people with seven separate Science, Technology, Engineering and Mathematics (STEM) events, which included: Energy Innovations, Junior Solar Sprint, Energy Transfer Machine, Hydrogen Horizon Automotive Challenge, Bright House Solar Cook-Off, Critter Comfort Cottage and Electrathon. The most popular competitions are the Junior Solar Sprint (JSS) Challenge and the Solar Cook-Off.

The FDACS OOE works with FSEC annually to enhance the programing and participates in the event through sponsorships and judging. Additionally, FSEC and the FDACS OOE are working together to develop regional EnergyWhiz events. To date, events are held in Brandon, Orlando, Gainesville and Tallahassee.

State Energy Management Plan

In accordance with Section 255.257, F.S., the FDACS OOE continues to provide the department's building energy consumption and cost data to the Florida Department of Management Services (FDMS) for inclusion in the State Energy Management Plan Annual Summary Report. This report is designed to assist FDMS and other state agencies in the process of evaluating their energy conservation programs by measuring the ratio of annual energy consumption to square footage. Collected data from all state agencies is summarized annually.

4. Response to Hurricane Irma

As a supporting agency, FDACS OOE supports the functions of ESF-12, Fuels at the Florida Department of Emergency Management State Emergency Operations Center.

State Emergency Operations Center

FDACS OOE currently employs 13 full time equivalents (FTE's), and all 13 FTE's worked in response and recovery during Hurricane Irma, in addition to the normal duties of the office. The FDACS OOE provided support to two mission critical functions for the State Emergency Operations Center, including:

- Procuring fuel and propane for governments, utility crews, first responders and mass care kitchens, and
- Facilitating the daily reporting of bulk fuel data for each port from private fuel vendors and reporting the fuel to be delivered in three and nine days.

The 13 FTE's of the FDACS OOE worked 534 hours during Hurricane Irma; three staff members moved into the State Emergency Operation Center to ensure an uninterrupted response; one staff member worked at the State Emergency Operations Center for 70 hours straight.

SunSmart Schools E-Shelters Program (IRMA)

Background

The FDACS OOE utilized American Recovery and Reinvestment Act of 2009 funds to implement the SunSmart Schools Emergency Shelter (E-Shelter) program. The E-Shelter program installed over one megawatt of solar power spread across Florida. The program outfitted 86 schools that double as emergency shelters with 10kW bimodal photovoltaic (PV) arrays with battery back-up. These systems provide power to critical loads during emergencies, while offsetting electricity costs during normal operation. With additional funds from utilities, the program expanded to 118 solar systems at schools in 46 of Florida's 67 counties.

SunSmart Schools E-Shelters Activation

Hurricane Matthew and Irma were the first real activation since the inception of the program. Initial feedback includes:

- 40 SunSmart Schools E-shelters were activated during Irma (34 percent):
 - 32 of the 40 schools lost power from the electric grid and utilized the solar system for backup power (80 percent of the activated schools).
 - Nine of those were without power from the electric grid for more than 10 hours (23 percent of the activated schools).

- One solar system was damaged during Hurricane Matthew and did not work properly; however, the remaining systems operated as designed.

The FDACS OOE is working with the Florida Solar Energy Center and the Department of Emergency Management to identify recommendations for future activations. Overall, the systems worked as intended and provided electricity for critical functions, such as operating a nebulizer, HAM radio, coffee maker and charging electronics.

5. National and Regional Participation

The FDACS OOE participates with state, regional and national organizations that can help fulfil the mission of the office. The FDACS OOE has a seat on boards in the following organizations.

National Association of State Energy Offices

NASEO is the association that represents energy officials from each of the 56 states and territories. Formed by the states, NASEO facilitates peer learning among state energy officials, serves as a resource for and about state energy offices, and advocates the interests of the state energy offices to Congress and federal agencies. NASEO aids in the oversight of \$7 billion in funds derived from ratepayers and state appropriations annually and in emergency response and mitigation related to energy infrastructure, liquid fuels, and cyber security. FDACS OOE serves as a Southeast Regional Representative to the NASEO Board.

Southern States Energy Board

Section 377.711, F.S., establishes Florida as a member of the SSEB. The SSEB is a nonprofit interstate compact organization created by state law in 1960, and consented to by Congress with a broad mandate to contribute to the economic and community well-being of the southern region. Its mission is to enhance economic development and the quality of life in the Southeast through innovations in energy and environmental policies, programs, and technologies. Florida is represented by Governor Rick Scott, Representative Mike La Rosa and Director Kelley Smith Burk.

Southeast Energy Efficiency Alliance

SEEA is the regional organization that promotes energy efficiency as a catalyst for economic growth, workforce development and energy security across 11 southeastern member states including Florida. Through stakeholder engagement, SEEA focuses its efforts to advance energy efficiency in four work areas: state, local and utility policy; the built environment; energy equity; and innovative finance. FDACS OOE serves as an SEEA Board member.

Florida Green Building Coalition (FGBC)

In January 2017, the FDACS OOE joined the FGBC, a leading certifier of green construction projects in Florida with nearly 17,000 “Florida Green” certified projects to date. FGBC is focused on promoting Florida-specific green building and sustainability techniques through regional education and certification program.

FDACS OOE staff participates on the FGBC Education Committee, which promotes student engagement and develops up-to-date training materials. Participation in FGBC helps keep FDACS OOE staff informed on current sustainability trends in today’s green construction industry.

Florida Energy Systems Consortium (FESC)

FESC was created in 2008 by Section 1004.648, F.S., and is unique in the United States; no other state has a statewide energy consortium involving all of its public universities. The concept combines the state's university resources into one statewide center to advance energy research, technology transfer/commercialization, energy education and outreach in this rapidly changing and critically important field.

The FESC director reports to the FDACS OOE and is supported by the FECS Associate Director, Industrial Advisory Board, Oversight Board, and Steering Committee members. The Oversight Board is formed by the Vice President of Research (VPR) of each member university. Steering committee members are assigned by the VPRs (one faculty from each university).

Florida Solar Energy Center (FSEC)

FESC was created by the Florida Legislature in 1975 to serve as the state's energy research institute. The main responsibilities of the center are to conduct research, test and certify solar systems, and develop education programs. FSEC's mission is to research and develop energy technologies that enhance Florida's and the nation's economy and environment and to educate the public, students and practitioners on the results of the research. FDACS OOE serves as a FSEC Board Member.

Southeast Partnership for Advanced Renewables from Carinata (SPARC)

Most recently, the Farm to Fuel initiative authorized under Section 570.954, F.S., funded six projects through the Research and Development (R&D) Bioenergy Grant Program.

One of the six projects studied the feasibility and best management practices for growing carinata in the southeast United States. Carinata is an inedible seed whose oil can be turned into jet fuel. This project ended in June of 2016. Due to the initial success, the U.S. Department of Agriculture's National Institute of Food and Agriculture awarded the University of Florida Institute of Food and Agricultural Sciences (UF/IFAS) a \$15 million grant to further study carinata and develop the supply chain to commercialize the crop. Dr. David Wright, project lead and a professor in the UF/IFAS agronomy department, heads SPARC. SPARC project's goal is the commercialization of carinata as a biofuel crop that can be planted within existing crop rotations. The kick-off meeting was held on July 19, 2017, and the Carinata Summit was held in Panama City, FL on February 19-20, 2018.



Caranata field in Quincy, FL

6. Florida Building Commission (FBC)

In accordance with Section 553.74, F.S., FDACS OOE holds a seat on the FBC as well as participates on the Energy Technical Advisory Committee and the Education Product Oversight Committee. As a member of the FBC, FDACS OOE contributes to code development and other discussions relevant to building efficiency.

The FBC is responsible for updating the Florida Building Code every three years to provide energy-efficient construction and design guidelines for Florida's commercial and residential infrastructure. Other duties include approving building code training providers and courses, conducting rule making workshops, developing declaratory statements, approving product applications and reviewing accessibility waiver requests.

In 2017, the FBC released the 6th Edition (2017) Florida Building Code, including the Energy Efficiency Code for Building Construction, effective December 31, 2017.

7. In the Year Ahead

Florida Small Community Energy Efficient Lighting Grant

On January 12, 2018, the FDACS OOE released a Notice of Federal Funding Availability for the Florida Small Community Energy Efficient Lighting Grant Program. This competitive grant program is designed to provide funding to eligible local governments to make energy-efficient upgrades to indoor or outdoor lighting in publicly accessible, community-oriented facilities, such as libraries, museums, park, and community centers. Applications are due February 27, 2018. More information is available on <https://www.FreshFromFlorida.com/Energy/Energy-Programs/Florida-Small-Community-Energy-Efficient-Lighting-Grant-Program>.

Renewable Energy and Energy Efficient Technologies Grant Program (REET)

On January 12, 2018, the FDACS OOE made \$773,888 available through the REET Grant Program. The REET Grant Program is a competitive grant program designed to provide funding for projects to conduct demonstration, commercialization, research, and development projects relating to renewable energy technologies and innovative technologies that significantly increase energy efficiency for vehicles and commercial buildings. Grant applications are due March 9, 2018. More information is available on www.freshfromflorida.com/Business-Services/Energy/REET-Grant-Program.

Natural Gas Rebate Survey

In order to analyze the utilization, economic and total impact of the Natural Gas Fuel Fleet Rebate Program, the Office of Energy is conducting a survey that will circulate to all rebate recipients under the Natural Gas Fuel Fleet Rebate Program. The program was appropriated \$6 million for four years to help reduce transportation costs and encourage freight mobility investments that contribute to the economic growth of the state. The department's economist will record the responses as part of a statistical average and include those results in the final assessment report of the program, anticipated in the next fiscal year after the program concludes on June 30, 2018.

Efficiency and Renewable Improvements in Commercial Aquaculture (ERICA)

Tropical fish farming is the largest segment of Florida's aquaculture industry, located primarily in the southern part of the state, the industry relies on mild temperatures and readily available, high-quality water for production. The majority of facilities/farms rely on electricity provided by the grid for most

of their energy usage, with the exception of diesel for tractors and pumps, and propane heating in buildings and greenhouses in the winter.

The FDACS OOE currently provides grant funds to the Tropical Aquaculture Laboratory located at the University of Florida. This funding opportunity focuses on the reduction of cost to develop and demonstrate energy efficiency improvements for commercial tropical fish facilities/farms in Florida.

The research from this program will allow for rapid transfer of industry adoption and implementation of energy efficient technologies that are commercially available

Florida Low Income Rural Energy Efficiency (FLIREE)

This grant program is designed to assist eligible local government entities within Florida's Rural Areas of Opportunities that serve low income communities with implementing energy efficient upgrades to public-use facilities, traffic lighting, or street lighting.

Clean Energy Trainer Kits

Eleven Advanced Micro Grid Clean Energy Trainer Kits (CET Kits) will be distributed to school districts on a competitive basis. The CET KITS are provided under Section 377.6015, F.S., to increase school resources to support science, technology, engineering and math (STEM) education. CET Kits are education kits designed to provide hands-on STEM activities to students during school hours, camps or after school programs.

The CET Kit includes: wind generator, solar panel, electrolyzer, gas storage cylinders, 5-cell PEM fuel cell stack, load, and USB data monitor. All required cables, tubes and clamps are included, as well as a photometer and anemometer.

The program is anticipated to begin receiving applications in June of 2018 to coincide with the school calendar.

Executive Summary of the Florida Public Service Commission's Energy Efficiency and Conservation Act (FEECA) Report

The entire report as prepared by the Florida Public Service Commission, Annual Report on Activities Pursuant to the Florida Energy Efficiency and Conservation Act, can be found at: <http://floridapsc.com/Files/PDF/Publications/Reports/Electricgas/AnnualReport/2017.pdf>

Executive Summary

Purpose

Reducing the growth of Florida's peak electric demand and energy consumption became a statutory objective in 1980, with the enactment of the Florida Energy Efficiency and Conservation Act (FEECA). The Florida Energy Efficiency and Conservation Act emphasizes four key areas: reducing the growth rates of weather-sensitive peak demand and electricity usage, increasing the efficiency of the production and use of electricity and natural gas, encouraging demand-side renewable energy systems, and conserving expensive resources, particularly petroleum fuels. Section 366.82(2), F.S., requires the Florida Public Service Commission (FPSC or Commission) to establish goals over a ten year period for the FEECA utilities, and a re-evaluation review every five years. The utilities are required to develop and submit to the Commission for approval, cost-effective demand-side management (DSM) plans to achieve these goals.

The Commission is required by Section 366.82(10), F.S., to provide an annual report to the Florida Legislature and the Governor summarizing the adopted goals and the progress made toward achieving these goals. Similarly, Section 377.703(2)(f), F.S., requires the Commission to file information on electricity and natural gas energy conservation programs with the Department of Agriculture and Consumer Services. Pursuant to Section 366.82(10), F.S., this report on conservation results achieved by the FEECA utilities is due to the Florida Legislature and Governor by March 1, 2018. This report reviews the 2016 annual goal results for each of the seven FEECA electric utilities and fulfills these statutory obligations.

The seven electric utilities currently subject to FEECA are:

- Five Florida Investor-owned utilities (IOUs), ranked in order of sales
 - Florida Power & Light Company (FPL)
 - Duke Energy Florida, LLC (DEF)
 - Tampa Electric Company (TECO)
 - Gulf Power Company (Gulf)
 - Florida Public Utilities Company (FPUC)
- Two municipal utilities, ranked in order of sales
 - JEA
 - Orlando Utilities Commission (OUC)

The Commission regulates the electric rates and energy conservation cost recovery of the five IOUs. In contrast, the Commission does not regulate the rates or conservation program costs of the two municipal utilities for which it sets DSM goals.

Report Layout

This report presents the FEECA utilities' progress towards achieving the Commission-established goals and the Commission's efforts in overseeing these conservation initiatives. This report details these efforts through the following five sections and appendices:

Section 1 provides a brief history of FEECA, and a description of existing tools for increasing conservation throughout the State of Florida.

Section 2 discusses the most recent Commission-established goals set for the FEECA utilities.

Section 3 reviews the utilities' goal achievements and progress towards Low-Income and Research and Development programs.

Section 4 provides an overview of the associated program costs recovered through the Energy Conservation Cost Recovery Clause for 2016.

Section 5 discusses methods the Commission has used to educate consumers about conservation during the prior period, including a list of related web sites.

Appendices 1 and 2 provide a list of the currently-offered conservation programs and a description of each program's purpose.

Goal Setting Process for the Current Period

On November 25, 2014, the Commission approved winter and summer peak demand and annual energy savings goals for the seven FEECA electric utilities beginning in 2015 through 2024. The approved goals were based on the Rate Impact Measure (RIM) cost-effectiveness test. This test was used to ensure that all ratepayers benefit from energy efficiency programs due to downward pressure on electric rates. The Commission identified fewer cost-effective energy efficiency programs as a result of more stringent building codes and appliance efficiency standards. The higher the current efficiency standards and codes, the less opportunity there is for utility-sponsored programs to be cost-effective. Additionally, reduced utility avoided costs resulting from relatively low natural gas prices have contributed to fewer programs being cost-effective. For these reasons, the 2014 approved DSM goals for the FEECA utilities were lower than the Commission-approved goals in 2009. The 2014 goal setting process is discussed further in Section 2.

The November 2014 hearing also resulted in the Commission mandating, in its 2014 Goals Order, that a focus be placed on energy efficiency for low-income consumers. The Commission ordered "When the FEECA utilities file their DSM implementation plans, each plan should address how the utilities will assist and educate their low-income customers, specifically with respect to the measures with a two-year or less payback."² Further discussion of the utilities' low-income programs can be found in Section 3.

² Order No. PSC-14-0696-FOF-EU, Docket Nos. 130199-EI through 130205-EI, In re: Commission review of numeric conservation goals, issued December 16, 2014.

Following the Commission's establishment of the goals in late 2014, the FEECA utilities filed DSM plans designed to meet the Commission's goals. In mid 2015, the Commission approved each DSM plan. Subsequently, in late 2015, the utilities filed program standards which provide details on how each program will be administered. At the end of 2015, the Commission approved the program standards, and the utilities implemented the new programs in late 2015 and early 2016. This report covers the first full year of the conservation programs in the utilities' 2015 DSM plans.

2016 Achievements and Related Program Costs

Since FEECA's inception, it is estimated that DSM programs offered by FEECA utilities have reduced summer peak demand by 7,813 megawatts (MW) and winter peak demand by 7,224 MW. In 2016, all of the FEECA utilities met the Commission's Annual goal of total reduction, with four utilities meeting the Commission's energy and demand savings goals for the residential and commercial/industrial (C/I) customer classes. Florida's FEECA electric utilities also performed over 190 thousand residential and commercial energy audits/evaluations and offered 110 residential and commercial programs focused on energy conservation.³ Additional detail on each utility's performance is described in Section 3.

The Commission has authority by statute to allow investor-owned utilities to recover prudently incurred costs related to conservation.⁴ The Commission has implemented this authority through the Energy Conservation Cost Recovery (ECCR) clause. The ECCR clause has been in existence since 1980. For 2016, Florida's investor-owned electric utilities recovered approximately \$317 million in conservation program expenditures.

Conclusion

The potential demand and energy savings from utility-sponsored DSM programs are affected by consumer education and behavior, building codes, and appliance efficiency standards. Consumer actions to implement energy efficiency measures outside of utility programs, as well as codes and efficiency standards, create a baseline for a new program's cost-effectiveness and reduce the potential incremental electric demand and energy savings available from DSM programs.

Utilities design DSM programs to encourage conservation that exceeds levels set by current building codes and minimum efficiency standards. The level of savings from these types of programs is uncertain because it requires voluntary participation and in some cases changes in customer behavior. Because all customers pay for the utility conservation programs as a portion of their monthly utility bills, the Commission focuses on ensuring that all customers benefit from utility-sponsored DSM programs. Overall, reducing Florida's electric demand and energy usage relies on customer education, and participation in, utility DSM programs, along with each individual's efforts to save electricity.

Conservation and renewable energy will continue to play an important role in Florida's energy future. The Commission is continuing its efforts to encourage cost-effective conservation that defers the need for new generating capacity and reduces the use of fuel. These initiatives support a balanced mix of resources that reliably and cost-effectively meet the needs of Florida's ratepayers.

³ 2016 FEECA utility demand-side management annual reports.

⁴ Section 366.82(11), F.S.