A satellite night view of the state of Florida, showing the outline of the state and the glowing lights of major cities and urban areas. The lights are concentrated in the eastern and central parts of the state, with a prominent glow from the Orlando and Tampa areas. The background is dark, representing the night sky.

Florida Department of Agriculture and Consumer Services

Office of Energy

ANNUAL REPORT

2011

Adam H. Putnam, Commissioner



Dear Governor Scott, President Haridopolos and Speaker Cannon,

I am pleased to provide you with the first annual report of the Department of Agriculture and Consumer Services' Office of Energy.

Since assuming the responsibilities of the state's energy office on July 1, 2011, I've made it a priority for the department to fulfill its mission outlined by the legislature and its commitments to the people of Florida. Within the first three months, we reviewed every outstanding application for the state's solar rebate program and issued rebates to more than 8,800 approved applicants.

We've also initiated a review of renewable energy and energy efficiency projects supported by federal or state grants to ensure they are fulfilling their commitments to the taxpayers. The department's inspector general is evaluating each project to identify what projects have fulfilled their commitments and what projects have yet to reach their full potential. Projects in violation of their grant agreements will be held accountable.

In the last six months, the mission of the department's energy office has shifted from one that administers grants and rebates to an office focused on working with the legislature to develop a balanced energy policy for the state of Florida.

The department brought together key stakeholders in the energy industry, including energy producers, energy providers, academics, investors and public officials, to discuss the future of energy in Florida at the inaugural Florida Energy Summit, October 26 through 28 in Orlando. The latest innovations and forward-thinking ideas shared at the summit guided the development of the 2012 energy bill, the first comprehensive energy bill passed by the Legislature since 2008.

It is my hope that the modest measures of the 2012 energy bill, including tax incentives, business development and job creation, and the efforts by the Office of Energy moving forward will help Florida to secure a stable, reliable and diverse supply of energy.

Sincerely,

Commissioner Adam H. Putnam
Department of Agriculture and Consumer Services

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1. Executive Summary

As required in Florida Statutes 377.703(2)(f) the Department of Agriculture and Consumer Services (DACS) Office of Energy shall submit an annual report to the Executive Office of the Governor, the President of the Senate, and the Speaker of the House of Representatives reflecting its activities and making recommendations of policies for improvement of the state's response to energy supply and demand and its effect on the health, safety, and welfare of the people of Florida.

Florida's energy patterns are ever-changing. In recent years, there has been increasing reliance on natural gas for electric generation. Natural gas represents more than 50 percent of Florida's fuel source for electricity and it is expected to increase in the future. Dependence on oil and coal, the other fossil fuels, has been declining. There is the prospect of new nuclear based energy, but that is about 10 years away. It is vital that energy policy recognize the growing dependence on natural gas and seek to balance our portfolio.

Renewable energy sources have been given a lot of attention in recent years as an alternative to the traditional fossil fuel sources. Renewable energy sources include solar, wind, biomass and waste/energy sources. The advantages in promoting renewable energy include expanding fuel diversity and lessening environmentally harmful emissions. Unfortunately, renewable energy sources have not had a significant impact in the production of electricity, representing less than 2 percent of Florida's electric generation mix. We should continue to explore ways to enhance use of renewable energy taking into account all factors including costs, fuel diversity, impact on the economy, and environmental effects.

Energy conservation and energy efficiency measures are critical components to Florida's energy policy. In 2009, the Office of Energy was tasked with administering Federal Stimulus Grants relating to energy conservation and energy efficiency. The DACS manages 150 individual sub-grants in Florida. Most of these grants are in process and will expire in 2012. The office has already achieved significant success in energy savings associated with the now complete Florida Energy Star Program. This program provided rebates for the purchase of ENERGY STAR rated appliances and will save Florida consumers 12 million kilowatts of energy per year as a result of their new energy efficient purchases.

The least expensive form of energy is the energy not used due to conservation measures. Since the adoption of the Florida Energy Efficiency and Conservation Act (FEECA), Florida is expected to reduce its need for new generation facilities by 6,500 Megawatts and reduce energy use by 7,500 Giga watt hours as a direct result of the utilities' energy efficiency and conservation programs. This statute is administered by the Florida Public Service Commission.

The DACS will continue to explore policy options for the Governor and Legislature's consideration that will promote fuel diversity, enhance Florida's economy, and improve environmental conditions. It is critical that Florida have an energy policy that embraces these goals and is long term in nature. Florida's businesses and consumers should expect a consistent and predictable energy policy that will improve the lives of all Floridians.

2. Introduction

“Energy is the lifeblood of our economy and the basis for the upward trajectory of our nation’s quality of life.”

Commissioner Adam Putnam

The state energy office was originally created and organized on July 1, 1975, by the Florida Legislature. Since 1975, the office has been housed in several state agencies, including the Department of Administration, the Department of Community Affairs, the Department of Environmental Protection and the Executive Office of the Governor. Through the years the responsibilities and functions of the office have increased from emphasizing energy conservation and reducing the demand for petroleum allocation to policy advising and the administration of grant programs, both state and federal.

In the mid 2000s, the state began to focus more on energy issues and how to increase Florida’s energy independence, decrease its dependence on fossil fuel, and create a clean energy economy within the state. To accomplish these goals the legislature and the Governor’s office created two separate bodies to advise them on these issues and develop a plan to implement the policy actions recommended. In 2006, the Florida Energy Commission (FEC) was created by the Florida Energy Act. The following year, Governor Crist created the Governor’s Action Team on Energy and Climate Change.

As a result of FEC and Governor’s Action Team recommendations, HB 7135 was passed unanimously in 2008 by the Florida Legislature. The bill created the Florida Energy and Climate Commission (FECC) and consolidated staff from three different offices to create the Governor’s Energy Office (GEO) housed in the Executive Office of the Governor. On July 1, 2008, the GEO was formed and began working on policy issues and grants related to energy issues.

On July 1, 2011, the state of Florida’s Office of Energy was moved to the Florida Department of Agriculture and Consumer Services (DACCS). This action was initiated by the Florida Legislature during the 2011 Session in HB 2156. This move consolidated two of Florida’s energy efforts, the state energy office and DACCS’ Farm to Fuel Initiative, into one office.

STATE FUNDING

Historically, the Office of Energy received state funding annually to administer the state energy office including appropriations for state energy grant programs. With the current tight economic climate no state funds were included for state energy grant programs during the 2011 fiscal year. During the spring of 2011, the Office of Energy became fully funded through Federal grants from the United States Department of Energy (USDOE).

FEDERAL FUNDING

Historically, the Office of Energy received base funding through the USDOE State Energy Program (SEP) grants in the range of \$3 million.

ANNUAL FEDERAL ALLOCATION FOR STATE ENERGY PROGRAM

- **State Energy Program:** The state has annually received varying amounts of SEP funds since 1975. Federal funding in the amount of \$815,000 is used for program administration and to develop state strategies and goals to address the state’s energy priorities.

In February of 2009, the Federal Government announced that through the American Recovery and Reinvestment Act (ARRA), the state of Florida would receive approximately \$176 million in federal stimulus money. With this increase in funds the state energy office designed and developed programs to disburse the money to energy efficiency/conservation and renewable energy projects around the state. Since February of 2009, the primary focus of the state energy office has been the disbursement of the ARRA funds. The increase in funding is as follows:

ARRA

- **State Energy Program (SEP):** ARRA funding in the amount of \$126 million was received to develop energy efficiency and renewable energy projects.
- **Energy Efficiency and Conservation Block Grants (EECBG):** ARRA funding in the amount of \$30.4 million was provided to cities and counties as grants to be used for: reduction of fossil fuel emissions; reduction of total energy use of eligible entities; and improvement of energy efficiency in the building, transportation, and other appropriate sectors.
- **ENERGY STAR Appliance Rebate Program (Energy Star or SEEARP):** ARRA funding in the amount of \$17.585 million to be used for establishing and administering state ENERGY STAR appliance rebate programs.
- **Energy Assurance Grant Program:** ARRA funding in the amount of \$1.881 million to be used to strengthen and expand the state's energy assurance planning and resiliency efforts by incorporating response actions for new energy portfolios and Smart Grid applications and to build in-house energy assurance expertise.

Energy Policy

Under the leadership of Commissioner Putnam, the office is now focused on developing and implementing a statewide energy policy with the objective to secure a stable, reliable and diverse supply of energy for Florida. Stabilizing the price of fuel is key to keeping the price of energy predictable and affordable. Reliability is important to ensure that Floridians can count on a steady supply of electricity. Diversity is imperative to minimize price and outage risk to consumers, increase/improve energy security, ensure long-term sustainability and foster economic development. In working towards Florida's energy policy, the DACS will:

- Promote energy efficiency and conservation.
- Support investments in Florida's energy infrastructure.
- Foster the expansion of Florida's clean energy resources and new technologies.

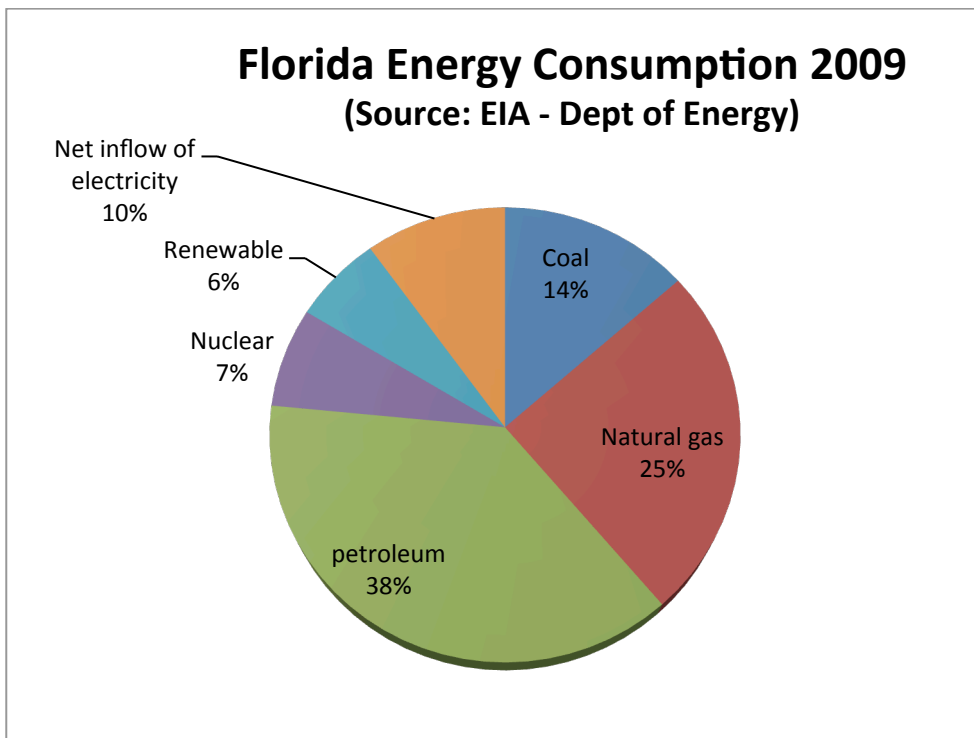
3. Florida's Energy Status Snapshot

“Less than two percent of electrical power produced in Florida is renewable. While that may not seem to be a significant piece of the overall energy pie, that’s a ten-fold increase over the last 12 years. There has been great progress in the renewable sector in Florida.”

Commissioner Adam Putnam

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

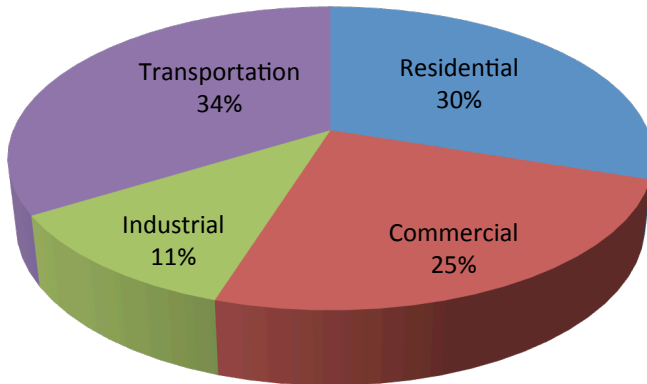
According to the USDOE Energy Information Administration, due to its large population, Florida's total electrical energy consumption is among the highest in the United States. Florida consumes 4.5 percent of the US total of 95 quadrillion BTUs. Florida is third highest in total energy consumption among states after California (12 percent) and Texas (8.5 percent). However, due to relatively low energy use by the industrial sector, Florida's per capita energy consumption is among the lowest in the country. While Florida is the fourth most populous state, Florida ranks seventh among all states in the consumption of energy per capita.



As referenced in the pie chart below, the two sectors of Florida's economy that use the greatest amount of energy are transportation and residential electric sectors. Florida's per capita residential electricity demand is among the highest in the country, due in part to high air-conditioning use during the hot summer months and the widespread use of electricity for home heating during the winter months. About nine-tenths of Florida households use electricity as their main energy source for home heating.

Florida Energy End Use Sectors

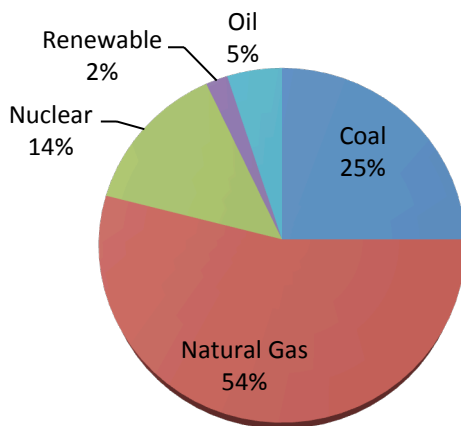
(Source: EIA - Dept of Energy)



Natural gas and coal are the leading fuels for electricity production in Florida, typically accounting for about 51 percent and 25 percent of net generation, respectively. Nuclear and petroleum-fired power plants account for much of the remaining electricity production within the state. Florida is a leading producer of electricity from municipal solid waste and landfill gas, although generation from those sources contributes only minimally to the electricity grid. There are no coal mines in Florida and coal-fired power plants rely on supplies delivered by railroad and barge, mostly from Kentucky, Illinois and West Virginia.

Florida Electricity Generation By Source Type (2008)

(EIA- Department of Energy)



Florida receives most of its natural gas supply from the Gulf Coast Region via two major interstate pipelines: the Florida Gas Transmission line, which runs from Texas through the Florida Panhandle to Miami, and the Gulfstream pipeline, an underwater link from Mississippi and Alabama to central Florida. With the completion of the Cypress Pipeline in May 2007, the Jacksonville area has also begun receiving supplies from the liquefied natural gas (LNG) import terminal at Elba Island, Georgia. Florida's natural gas consumption is high and has grown rapidly in recent years, due primarily to increasing demand from the electric power sector, which dominates state natural gas use.

Florida adopted energy standards that require major facility projects in the state to be constructed to high energy efficiency standards in order to reduce energy use. In addition, utilities in Florida are required to disclose their fuel sources and adopt net metering to credit customers' utility bills for electricity they provide to the grid from renewable sources.

To serve Florida's transportation sector Florida has no oil refineries and relies on petroleum products delivered by tanker and barge to marine terminals near the state's major coastal cities. Due in part to Florida's tourist industry, demand for petroleum-based transportation fuels (motor gasoline and jet fuel) is among the highest in the United States. Traffic at the international airports in Miami and Orlando is among the heaviest in the country.

ELECTRIC INDUSTRY

As stated previously, Florida relies on imported fossil fuels to power the majority of its electric generators. As of 2010, approximately 52 percent of Florida's electric generation was powered by natural gas and that amount is projected to increase based on the Ten Year Site Plans as presented yearly by the utilities to the Public Service Commission.

Florida Electric Generation Fuel Source Mix			
(Percent)			
Source	2010 Actual	2020 Projected	Projected Change
Natural Gas*	51.99	56.06	+4.07
Coal	24.81	25.07	+0.26
Nuclear	9.80	13.36	+3.56
Other	5.25	4.06	-1.19
Firm Inter-region Interchange	4.60	-0.36	-4.96
Oil**	2.39	.67	-1/72
Renewables	1.16	1.14	-0.02
Total	100%	100%	

Source: FRCC Load and Resource Plan July 2011, page S-19.

*This includes both utility and non-utility generation.

**This includes both residual and distillate

While Florida generates the vast majority of its electricity in state, it must rely on fuel sources from out of state. This out of state reliance on fuel leaves Florida in a vulnerable position if there are fuel shortages or great fluctuations in fuel prices. In the past to alleviate any economic harm that may come to the state as a result of this dependence on out-of-state fuel, Florida utilities attempted to maintain a balanced fuel mix of one third coal, one third nuclear, and one third natural gas. With this balanced fuel mix, if the state experienced a shortage of any one fuel source two thirds of the state electric generation would remain stable. Over time the utilities have moved away from that balance due to a number of factors that include:

- Cleaner and less expensive natural gas generation facilities.
- The high cost, and lengthy permitting and construction time of nuclear power.
- The high environmental cost of coal generation.

The direction of Florida's generation fuel mix is increasingly dependent on natural gas. Natural gas is a good clean fuel source; however, Florida's growing dependence on one fuel source makes the state vulnerable to swings in price as experienced in the winter of 2008 when natural gas prices rose rapidly. The price of natural gas is stable now, but it could rise again and drive all electric rates in Florida up with it. There is also the risk of pipeline disruption as both of Florida's natural gas pipelines come from the same source in Texas and run through the Gulf Coast.

Future Generation Facilities and Retirements

Florida's utilities plan for generation capacity, to serve their growing customer base, on a 10 year rolling basis. In addition, they plan on facility retirements or phase outs. Over the next 10 years the following facility changes are planned.

State of Florida: Electric Generation Proposed Changes			
Fuel Type	Unit Type	Summer Capacity Changes (MW)	
		2010 Forecast	2011 Forecast
		(2010-2019)	(2011-2020)
Natural Gas	Combined Cycle	5,232	7,846
	Combustion Turbine	623	1,379
	Steam	-276	-147
Coal	Steam	-45	23
	Integrated Coal Gasification	-15	0
Oil	Combustion Turbine & Diesel	-68	0
	Steam	-2,444	-696
Nuclear	Steam	1,658	631
Firm Purchases	Independent Power Producer	-482	-512
	Interexchange	-746	-754
	Non-Utility Generator	-234	-137
	Renewables	0	0
Net Capacity Additions		3,203	7,633

Source: *Review of the 2011 Ten-Year Site Plans for Florida's Electric Utilities, November 2011, page 37.*

Electric Transmission Service

The transmission lines that carry electricity from the generating facilities to customers within the state and across the nation are overseen by the Federal Energy Regulatory Commission (FERC) and the North American Electric Reliability Corporation (NERC). The NERC is certified by FERC to establish and enforce reliability standards for the bulk-power system and its mission is to ensure the reliability of the North American bulk power system.

NERC works with eight regional entities to improve the reliability of the bulk power system. Two of the regional entities that report to NERC have utilities within the state of Florida. Those two regional entities are the Florida Reliability Coordinating Council (FRCC) and the SERC Reliability Corporation (SERC).

All electric utilities from Pensacola in the far northwestern portion of Florida's panhandle east to the Apalachicola River report to SERC. This territory in the Panhandle of Florida has strong transmission interconnections north with Alabama through the Southern Company. The panhandle of Florida can pull power down from other southern states if needed.

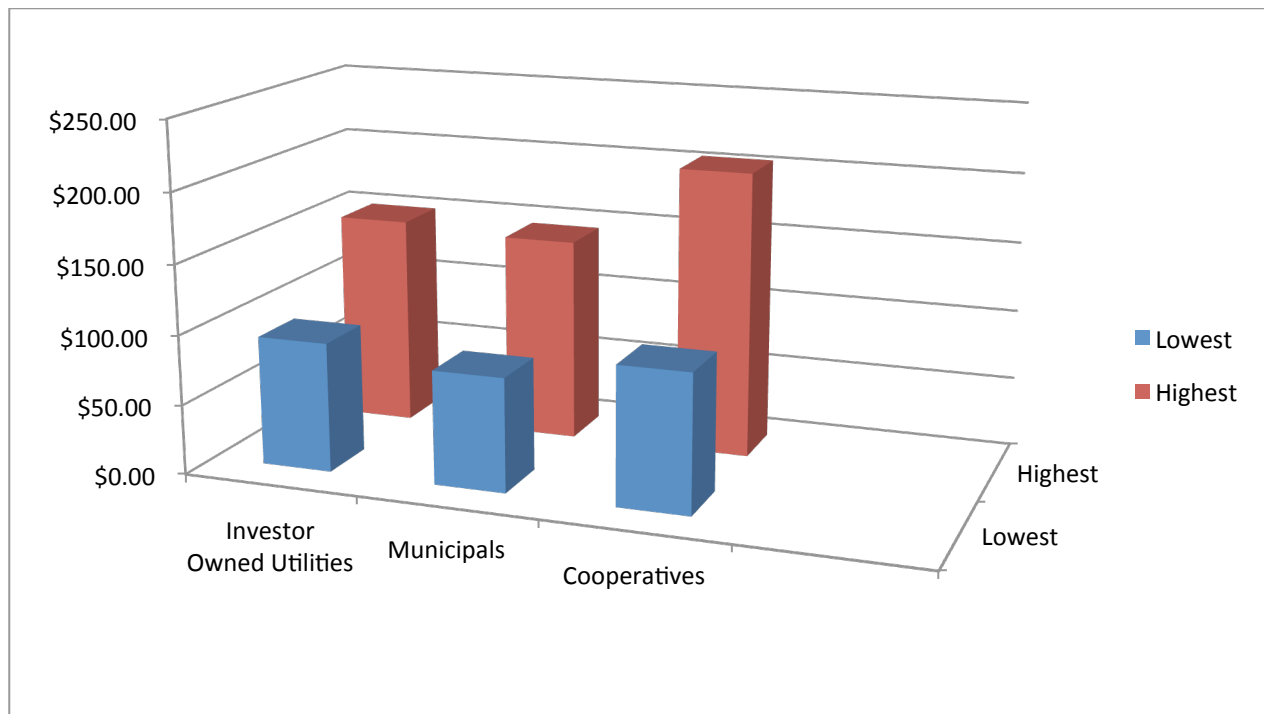
All electric utilities from east of the Apalachicola River around Tallahassee down to Key West including all of peninsula Florida report to the FRCC. This territory in peninsula Florida does not have strong transmission ties north to Georgia. There is one large transmission line that runs up the east coast into Georgia that could at most deliver nine percent of the power peninsula Florida needs on a daily basis.

The Florida Public Service Commission is responsible for determining the need for certain transmission lines within the state. The Florida Department of Environmental Protection is responsible for the siting and path of the new transmission lines.

Electric Utility Rates

According to the USDOE Energy Information Administration (EIA) state electricity statistics, the average retail price for a kilowatt hour (kWh) of electricity in Florida is 11.49 cents. That average rate times 1,000 kWh would be \$114.90 (1,000 x \$0.1149 = \$114.90). The table below illustrates the wide range of rates charged in Florida from the different utilities. The vertical column on the left represents the price for 1,000 kWh.

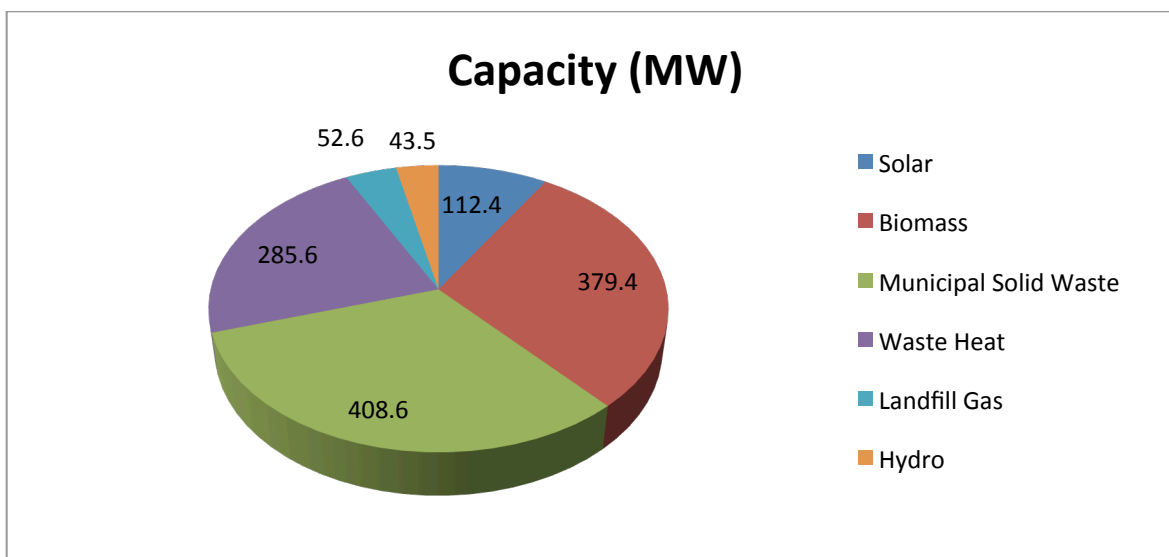
Electric Utility Rates Range for 1,000 kWh Residential



The rates for residential customers in Florida vary from utility to utility based on many factors including the number of customers they serve, whether they generate their own power (or purchase it from another utility), and what type of fuel source provides their electricity (natural gas, nuclear, or coal). According to the Public Service Commission Comparative Rate Statistics as of December 31, 2010, the lowest rates in Florida for a residential customer paying for 1,000 kilowatt hours of energy was \$81.48 and the highest was \$205.00.

Renewable Power Generation

According to the USDOE EIA website, in 2008, Florida ranked 11th in overall renewable energy capacity. Based on the Florida Reliability Coordinating Council (FRCC) 2011 Load and Resource Plan, the renewable energy mix for Florida is as follows:



Florida utilities purchase 384.3 megawatts (MW) of firm renewable energy and 732 MW of non-firm (sporadically available) renewable energy (2011 FRCC cite). Solar is an example of non-firm energy because it is only available when the sun is out. Florida utilities currently own 83.5 MW of renewable energy.

Consumer owned renewable generation accounts for 20.4 megawatts of capacity which accounts for 2,833 connections of distributed generation (2011 FRCC cite).

Renewable Energy by Technology

There are many different types of technologies that produce renewable forms of energy and not all technologies are effective in Florida. In 2008, a Florida Renewable Energy Potential Assessment study was conducted by Navigant Consulting (Navigant) under a sub-contract from the Lawrence Berkeley National Laboratory and funded by the USDOE. That study was updated in June of 2010. According to Navigant, Florida's biggest renewable energy potential, with current technology, is biomass and photovoltaics; the technical potential is more than 40,000GWh and more than 150,000GWh respectively. Offshore wind also has technical potential but it requires extensive permitting, technology, and installed price. The following is a brief synopsis of each technology and its relation to Florida.

Biomass Energy

Biomass is defined in Section 366.91, F.S., as a power source that is comprised of, but not limited to, combustible residues or gases from forest products manufacturing; waste, byproducts, or products from agricultural and orchard crops; waste or co-products from livestock and poultry operations, waste or byproducts from food processing; urban wood waste, municipal solid waste, municipal liquid waste treatment operations, and landfill gas. By that definition, Florida currently has 840.6 MW (2011 FRCC cite) of capacity from biomass with the potential capacity of more than 6,000 MW (Navigant). Current barriers include permitting and capital costs to construct a biomass facility.

Geothermal Energy

Generally, geothermal power is produced by pumping water deep enough into the ground to extract heat at which point it is pumped back to the surface as steam or hot water to run a turbine. Florida lacks the extreme temperature variations needed to produce geothermal electricity but it does have a constant ground temperature of 72 degrees which helps cut electric cost by assisting in cooling in the summer and heating in the winter. The principle barrier to geothermal energy is the lack of geothermal resources and capital costs of installation.

Hydro Energy

Hydro power is power derived from the force of falling water; there is one hydro power facility, Jim Woodruff Dam, located in Florida with a capacity of 43.5 MW (2011 FRCC cite). The future potential for hydro power in Florida is very limited with the principal barrier being Florida's topography.

Ocean Energy

Generating power from the ocean includes tidal power, wave power, ocean thermal energy conversion, and ocean currents. The most significant potential for Florida is ocean current and ocean thermal energy conversion. The principle barriers are permitting and the need for advances in ocean energy turbine technology.

Photovoltaic/Solar Energy

Photovoltaic cells convert solar radiation into direct current electricity using semiconductors. Florida has significantly expanded its solar capacity in recent years due to the solar rebate program and several large utility scale installations by Florida Power & Light (FPL) and JEA. Florida's current solar capacity is 112.4 MW and it has the potential of 89,000 MW of capacity (Navigant). Current barriers to the expansion of solar installations include permitting, financing mechanisms, regulatory mechanisms, and the capital cost of installation.

Waste Heat/Combined Heat and Power

Generating electricity from waste heat is a matter of redirecting waste heat/steam from a process such as chemical or mechanical manufacturing back into a turbine to produce electricity. The process of redirecting this heat is generally a large undertaking and requires many industrial sized pipes. Currently, there are a few WH/CHP installations which include one at the University of Florida and one at the Mosaic Company (phosphate mining). The potential for waste heat is 140 MW (Navigant).

Wind Energy

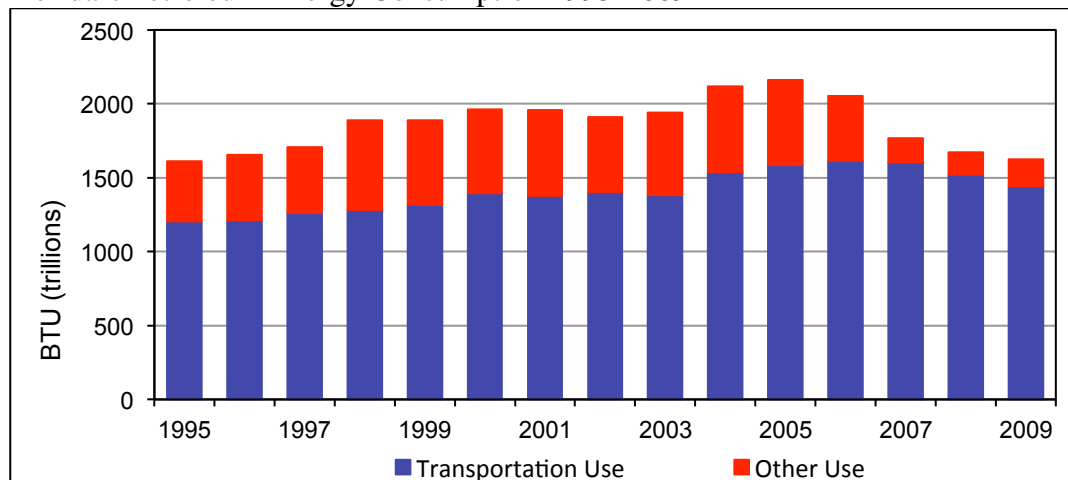
Wind power is the conversion of wind energy into a useful form of energy, such as using wind turbines to make electricity. Currently, there have been some small scale wind turbines installed in the panhandle and along the Florida turnpike but the in-shore wind resource for the state is very limited making the installation of wind turbines too expensive to justify. In addition, resource assessments have shown little in-shore wind potential for the state. Off-shore wind does represent a significant possibility with a technical potential of 40,311 MW at depths greater than 60 meters (Navigant).

TRANSPORTATION FUELS

Petroleum Use

Florida's transportation accounts for more than a third of the total energy used in the state and is the second largest energy use sector, behind electricity. Florida imports almost all of its supply of oil and gasoline. Over the last 10 years, the state consumed 9.8 billion gallons of gasoline and diesel fuel per year and average annual consumption is growing by 59 million gallons.

Florida's Petroleum Energy Consumption 1995-2009



Source: Department of Transportation

In 2008, the Florida Legislature passed House Bill 7135. In that bill the legislature mandated the Florida Renewable Fuel Standard (FRFS). The FRFS stated that by December 31, 2010, all gasoline sold in the state of Florida must be a 9 to 10 percent blend of ethanol. There were several exemptions to this mandate for boats, off-road vehicles, and jets.

All of the ethanol used for the FRFS is imported corn ethanol from the Midwest. It is blended with petroleum and then distributed to retail stations.

Since 2006, the state of Florida has invested more than \$40 million in projects to produce biofuels within the state. There are several projects that are in the construction process and once complete and in full production should produce more than 50 million gallons per year of biofuel.

Florida's Transportation Infrastructure

Florida has an extensive transportation system. The state owns 6,638 bridges and 12,085 miles of highway. Local and federal government entities or the private sector own and operate nearly 107,400 miles of local roads; 5,000 local bridges; 29 fixed route transit systems; 2,800 miles of rail; 14 deepwater seaports; and more than 800 active aviation facilities within the state.

A decline in travel demand within Florida has been observed in recent years. Slower population growth, economic recessions and higher fuel prices all contribute to the decline.

FLORIDA'S ENERGY EFFICIENCY AND CONSERVATION EFFORTS

Weatherization

Florida's energy conservation efforts are twofold. First the Department of Community Affairs Weatherization Office (now in the Department of Economic Opportunity) administers the Federal Weatherization Assistance Program to assist low income citizens by improving the energy efficiency and comfort of their homes. Second, all Florida electric utilities have energy efficiency and conservation programs to assist their customers in reducing wasted energy and thus cutting their costs.

Like the Office of Energy, the Weatherization Office received a large amount of American Recovery and Reinvestment Act (ARRA) funds to use in Florida. Historically, Florida's USDOE Weatherization Program allocation is approximately \$1.9 million. For ARRA, Florida received \$175,984,474. The Weatherization Office estimates that more than 19,000 homes will be weatherized before the ARRA

Weatherization program ends in 2012 and normal funding levels resume. As of November 30, 2011, the Weatherization Office had spent around 75 percent of the funding. In order to capture the energy and financial savings resulting from this once in a lifetime program, the Weatherization Office contracted with the University of Florida's Program for Resource Efficient Communities to track and report on the results of this program. Their report dated October 5, 2011, states that low-income citizens saved on average 2,805 kWh per home in one year. That translates into approximately \$348 per home in savings in one year as a result of Florida's weatherization program.

In order to achieve those savings, the Weatherization Office had retrofitters complete one or more of the following types of assistance depending on what the house needed:

- Address air infiltration with weather stripping, caulking, thresholds, minor repairs to walls, ceilings and floors, and window and door replacement
- Install attic and floor insulation
- Install solar screens or film
- Install compact fluorescent light bulbs
- Seal or insulate ducts
- Replace inefficient refrigerators
- Repair or replace inefficient heating and cooling units
- Repair or replace water heaters

Florida Energy Efficiency and Conservation Act

Chapter 5 of this report provides the Executive Summary of the Public Service Commission's annual Florida Energy Efficiency and Conservation Act (FEECA) report. That report details the energy efficiency and conservation efforts by Florida's utilities. The Florida Legislature implemented FEECA during the mid 1980s when petroleum was scarce, prices were high, and reducing energy demand and consumption was important. Those goals are still important today. From FEECA's enactment to 2010, demand side management programs are projected to have reduced winter peak demand by an estimated 6,500 MW and annual energy by an estimated 7,500 gigawatt hours.

FLORIDA'S ENERGY FUTURE

Florida's population trend is changing. According to the United States Census statistics, Florida's population increased 23.5 percent from 1990 to 2000 for a population of 15,982,378. The next census, 2000 to 2010, the population grew to 18,801,310 for a 17.6 percent rate of increase. Beginning in 2008, the economic crash and real estate bust considerably slowed Florida's population growth. According to researchers, that trend is expected to change. According to University of Florida's Bureau of Economic and Business Research, Florida's population is expected to increase about 250,000 a year between 2010 and 2020. The Florida Legislature's Office of Economic and Demographic Research projects Florida's population will be at 20 million in as early as 2015.

There has been a shift in demographics as well. Fewer retirees are moving to Florida. However, this is being augmented in recent years by international immigrants who may be younger than Florida's traditional retirees. The state of Florida has now dropped three places to fifth in oldest population in the nation. This is significant because younger people use energy differently and are not typically at home during the day.

With respect to electric consumption, the underlying fuel source for electric generation is significantly changing in Florida. Florida is ranked 9th in the nation in use of natural gas on a per capita basis. From 2003 to 2008, use of natural gas for electric generation increased by 40 percent. Florida's use of

nuclear power ranks 25th and has experienced a modest decline of 4 percent over this same period. Florida's use of coal ranks 35th and its use decreased by 12 percent over the same period.

Energy efficiency standards have had a dramatic effect on energy consumption. Florida developed standards in the early 1980s and federal standards were introduced in 1990. As a result of federal and state efficiency standards, energy use by appliances has decreased. For instance, a freezer in 1990 used on average 645 kWh a year, whereas in 2000 its annual energy use dropped to 413 kWh. This represents a 36 percent decrease in energy use for a more energy efficient freezer.

In the average residential home in Florida heating, ventilation and cooling (HVAC) accounts for 31 percent of its energy use, making it the number one energy consuming appliance in the home. Although there have been significant efficiency upgrades for HVAC systems in recent years, these have been offset by the rise in the number of households that have central air conditioning systems. The number of households in Florida that have central air conditioning rose from 27 percent in 1980 to 55 percent in 2011.

According to the United States EIA, electric consumption for home electronics, particularly color TVs and computer equipment, is expected to grow significantly over the next two decades. For instance, a plasma TV is estimated to have an annual energy cost of \$159.76, a computer would cost \$34.21 and a laptop would cost \$15.96. A major part of the energy cost associated with home electronics is when it is not being used but remains plugged in and on. This is sometimes referred to as "Energy Vampire" since energy is being sucked into the appliance whether it is being used or not. Many appliances are in stand-by mode drawing energy even when not in use. "Energy Vampire" is expected to cost US consumers \$3 billion a year in wasted energy.

There are three technologies under development that could radically change Florida's electric energy sector. Those three technologies are battery storage, ocean energy, and advances in wind energy. These technologies are being researched both throughout the United States and within Florida's university system.

- **Battery Storage:** A major hindrance for many renewable energy technologies is their intermittent nature. Wind and solar only produce energy at certain times and those times do not always equate to when the energy is needed. Storage of energy is a major factor that has the potential to revolutionize the renewable energy industry.
- **Ocean Energy:** The State of Florida benefits greatly from its proximity to the Gulf and Atlantic oceans and the energy industry is no different. The Gulf Stream comes within 8 miles of the southeast coast and represents a significant potential in base load capacity with an estimated potential energy capacity of 4 to 10 gigawatts. Currently, studies are being conducted to determine a more precise estimate of potential capacity for ocean energy but even if a small amount of this potential is harnessed it is estimated to become a major provider of energy within Florida.

Technological advances are necessary in order to harness this potential. Florida Atlantic University was appointed as the Southeast National Marine Renewable Energy Center in 2010; it is one of three such centers in the United States. The result is that FAU has received federal funding and is currently establishing a testing facility in the Gulf Stream which will be available to private companies to test prototype ocean turbines. In addition, the State of Florida awarded a grant to Aquantis Energy, LLC to develop and test a prototype ocean energy turbine which is expected to be tested in late 2012. Depending on the public and private investment ocean energy is expected to become a viable energy source by 2020.

- **Wind:** Florida's inshore wind potential is very low. Advances in low speed turbines will make small scale generation a possibility. There are pockets of offshore wind potential in the

northeast and northwest of Florida. Currently, the technology for offshore wind is too expensive to make a cost competitive wind farm.

4. DACS Energy Grants Activities

“For any given technology, if the business model is viable then the technology should be allowed to flourish.”

Commissioner Adam Putnam

As mentioned in Section 2, the DACS received Federal Stimulus Grants within the State Energy Program, Energy Efficiency and Conservation Block Grant program, and ENERGY STAR Appliance Rebate program. Through these Federal grants the office has executed and is administering 150 individual sub-grants around the state. With the administration of this large amount of grants the state has the unique opportunity to examine a variety of different energy saving and renewable energy development projects to determine how beneficial they would be for the state. This chapter examines the variety of different grants the Office of Energy is administering and identifies those grants that are beneficial to the state and those that have not been successful. This chapter is broken into five sections:

1. A general description of DACS’s grant management responsibilities.
2. The **Green** section identifies those grant projects that have been successfully completed and have met or exceeded the proposed accomplishments and objectives of the program; complied with all applicable requirements and regulations relating to the program and maximized the use of public dollars.
3. The **Yellow** section identifies those grant projects currently underway and being carried out in accordance with the program requirements and regulations. All individual grant benefits fall into one or more of five categories and they are organized this way:
 1. Promoting renewable energy,
 2. Promoting energy conservation,
 3. Promoting energy efficiency,
 4. Assisting local governments in their efforts to promote energy efficiency, and
 5. Promoting economic development through renewable energy, energy efficiency, and conservation
4. The **Red** section is a discussion on the reasons why some projects had to be terminated or are under scrutiny. These are projects that failed to comply with the requirements applicable to the sub-recipient’s grant agreement (noncompliance), or failed to comply with the program objectives and/or the laws, rules and regulation applicable to the source of funding.
5. The final section is a brief End-of-the-Year report on how much of the grant funds have been encumbered, how much have been spent, how much needs to be spent, and when the grants will end.

4.1 Grant Management

The primary role of the DACS is ensuring that federal and state funds are expended in a timely manner for the purpose for which they were made available; ensuring that programs are carried out in accordance with applicable laws, rules and regulations; and minimizing opportunities for fraud, waste and mismanagement. DACS has the responsibility for developing, administering and managing state and federally funded energy programs. Over the past year the DACS has executed and managed 150

federal and state sub-awards in the form of grants to various entities including, local governments, universities and for-profits.

Upon execution of a grant award, the grant manager completes a Risk Assessment Worksheet for the sub-recipient. Then, based on certain criteria, a sub-recipient may be determined to be Green (low risk), Yellow (medium risk) or Red (high risk). This determination will decide the minimum amount of on-site visits, how often the grant manager will make phone contact with the sub-recipient, and how often staff will conduct a desk monitoring of the sub-recipient.

The DACS staff members conduct desk monitoring and schedule on-site monitoring visits with sub-recipients to review program performance. Monitoring may be a comprehensive program evaluation or focus on specific areas of a program. In either case, sub-recipients must make available all records and files pertaining to the program.

At the conclusion of the on-site monitoring, DACS staff members conduct an exit interview with the sub-recipient's program staff, elected officials, and other interested parties in order to discuss findings or problematic issues. If findings have resulted due to programmatic problems or from the sub-recipients inability to locate, recognize, or interpret existing documentation, it will be clarified during the exit interview and the sub-recipient will be given an opportunity to correct the deficiencies before ending the visit. However, if these corrective efforts are unsuccessful, it may be necessary for the DACS to take appropriate remedial actions in accordance with applicable regulations.

When monitoring project progress, the DACS staff members review the regularly maintained records of the sub-recipient. Other records (i.e., DACS records, consultant records, records of contractors or participating parties) may be used for clarification purposes, but the sub-recipient is always responsible for maintaining a complete set of grant records.

If the DACS staff members detect deficiencies in the program, the monitoring report to the sub-recipient will outline both the "findings" and the actions needed to correct the deficiencies. The report may also contain "concerns" or general comments on areas which require action, but are not a violation of the law or regulation. Since the monitoring report becomes part of the DACS's official record, sub-recipients should attempt to prevent or minimize the number and scope of negative findings.

At the conclusion of administering each Florida grant project, the Office of Energy will conduct an analysis of the program to determine if the projects were successful in achieving their goals, if the results were worth the investment, and what was learned both positively and negatively from the project.

4.2 Completed Grant Projects

This section provides information on two completed rebate programs: the Florida ENERGY STAR Appliance Rebate Program Phase I and Phase II (ENERGY STAR HVAC Rebate Program) and the Florida Solar Rebate program.

Description of the Florida ENERGY STAR Appliance Rebate Program (Phase I and II)

Florida received a USDOE ARRA Stimulus Grant of \$17,585,000 to be used exclusively for ENERGY STAR appliance rebate programs. The State Energy Efficiency Appliance Rebate Program (SEEARP) was awarded in the fall of 2009. Florida's ENERGY STAR Rebate Programs was designed to focus on replacing those appliances in the Florida home that provided the greatest savings in energy and water.

In Phase I, Florida focused on providing rebates for ENERGY STAR refrigerators, freezers, dish washers, clothes washers, room air conditioners, and gas tank-less water heaters. Customers were able to receive a rebate for 20 percent of the value of their appliance. In addition, in Phase I the program provided an added bonus of \$75 to customers to recycle their old appliances, especially refrigerators which consume excessive energy while sitting in hot un-air conditioned garages.

At the conclusion of the Phase I ENERGY STAR Appliance Rebate Program, Florida had approximately \$2.5 million in SEEARP funds remaining. Florida received a letter from USDOE to consider using SEP funds as additional rebate programs. Florida made the decision to add SEP funds to the remaining SEEARP funds and hold another rebate program for air conditioning appliances that had not been offered during Phase I. As a result, Florida held a Phase II ENERGY STAR HVAC Rebate program during the fall of 2010. Phase II used \$2,531,143 of SEEARP funds and \$3,933,857 of SEP funds.

In Phase II, Florida focused on ENERGY STAR residential central air conditioners, air source heat pumps, and geothermal heat pumps. Customers received a rebate of \$1,500 for a combination of replacing their old appliance with one that met the Federal Energy Tax Credit Standards (higher than ENERGY STAR), had a duct test completed on their home, and had the home test-out at no more than 15 percent leakage to the outside. For Phase II there was an emphasis placed on repairing leaky air conditioning ducts in attics at the same time as replacing the HVAC systems. Leaking ducts waste a large amount of energy and are a significant problem in Florida. In the past air conditioning ducts were sealed with tape but as the tape heated, cooled, and was exposed to humidity in Floridian's attics the tape adhesive would release. The once formally secured sections of duct would come loose and allow conditioned air to escape into the attic and other un-conditioned spaces. The new process of ceiling ducts involves using a paste type sealant called mastic to secure the duct sections to the air handler and to each other.

Program Goals and Successes

With Phase I and Phase II Florida had seven program goals:

- (1) To provide an economic incentive to residential customers to replace their old energy inefficient appliances with new ENERGY STAR appliances.
- (2) To provide an economic incentive to residential customers to replace their old water inefficient appliances with new water efficient appliances.
- (3) To stimulate retail sales of appliances in order to aid that portion of Florida's economy harmed by the decline in the housing industry.
- (4) To stimulate manufacturing and retail jobs.
- (5) Raise awareness of recycling within the state and where customers can go to recycle old appliances.
- (6) To raise awareness of the energy savings associated with ENERGY STAR appliances.
- (7) To raise awareness of the problem of leaking air conditioning ducts within home attics.

The benefits of this program met all our goals and had the added benefit of encouraging many municipalities and utilities to initiate their own ENERGY STAR rebates. By watching the state's success, other cities and utilities learned that rebates can be successful and customers will respond positively. Further, there is always a large demand for consumer rebates.

One of the greatest objective indicators of this program's success came from a report released by the University of Florida Business School in May of 2010. The report stated that Florida's economic indicators improved dramatically during the month of April 2010 and directly credited the improvement to Florida's ENERGY STAR Appliance Rebate Program, Phase I.

According to the Florida Retail Federation its members saw an increase in purchases of ENERGY STAR appliances, as opposed to non-ENERGY STAR appliances, beyond just the program time frame. This demonstrated that there was an increased awareness of the ENERGY STAR criteria.

While the stories were anecdotal, Florida's Office of Energy received numerous calls and emails from grateful retailers thanking us for the program and stating they had the best sales month during April 2010 ever. Some of the smaller stores indicated it help keep them from going out of business. The Florida Office of Energy received many calls from senior citizens saying they needed a new appliance but would not have been able to afford it without the state rebate. Because the state worked with the Florida Retail Federation to design the program many of its members developed sales and marketing programs to coincide with the state rebate. Not only did consumers receive the state rebate but many also received manufacturers' and store discounts as well.

Air conditioner contractors had been hard hit by the decline in new housing construction. For Phase II, offering a rebate on air conditioner replacements helped increase their business during the fall of 2010. In addition, several years earlier many new home builders received specialized training and certification in Green Building, energy testing and Leadership in Energy and Environmental Design (LEED) standards but with the decline in the housing market most were not using those skills. The Phase II Florida ENERGY STAR HVAC Rebate program helped put many of those contractors back to work testing and repairing air conditioning duct works in conjunction with new air conditioning replacement.

There were many positive benefits of the rebate programs:

- (1) In less than one year the Florida ENERGY STAR Appliance Rebate programs issued more than \$21 million in ENERGY STAR appliance rebates to Florida residents which resulted in direct sales of appliances and air conditioners of more than \$100 million. More than \$100 million is stated because while washing machines and dish washers qualified for the rebate, many homeowners also purchased clothes dryers and ovens at the same time and those appliances were not captured by the statistics.
- (2) This program resulted in the sale of more than 64,000 appliances and 4,600 HVAC systems. In Phase I, the greatest number of appliances purchased were refrigerators (39 percent) followed by dishwashers (30 percent) and clothes washers (26 percent). The final 5 percent were purchases of freezers, room air conditioners and gas tank-less water heaters. This investment in new ENERGY STAR appliances helped many retailers who normally serve the new housing market. "In 2 days (Friday and Saturday) we grossed \$160,000 in sales. I believe that is more than we have ever done in one month during our 62 years of existence, let alone in 2 days!," said Bob Hurst of The Appliance Center in Panama City. Because the new housing market in Florida has been in decline over the past several years, retailers of kitchen and laundry appliances traditionally referred to as "white goods" had weak sales. In addition, it allowed them to keep their staff or hire extra help during the rebate program. Many retailers gave interviews to the media saying Florida's Rebate program gave them the best one day sales ever and helped them make their sales quotas for the year. For example in a Tallahassee.com article dated April 17, 2011, Peggy Monroe, co-owner of Mays-Monroe, stated "This will probably be the biggest day in sales for Mays-Monroe history. With the economy being what it has been in the past few years, this is certainly welcome."
- (3) A conservative estimate of the amount of economic stimulus to the Florida economy, based on the Phase I sale of ENERGY STAR appliances, is \$51 million which generated at least \$3.6 million in tax revenues for the state.
- (4) A conservative estimate of the amount of economic stimulus to the Florida economy, based on the Phase II application receipt price of the 4,268 HVAC and geothermal systems purchased in order to receive a rebate was \$26,745,889. In addition, assuming each Floridian only paid \$300 per required duct test, another \$1.28 million was invested in green jobs through energy efficiency testing. For every one dollar spent by the state on the HVAC rebate program, consumers invested approximately five dollars into their local economy.

- (5) The rebate programs increased consumer awareness of the ENERGY STAR label, of where to recycle old energy inefficient appliances, of the state requirement to pull a building certificate to replace an air conditioner, of the need to complete a Manual J to correctly size an air conditioner, and to have air conditioning ducts checked concurrent with replacing the air conditioning unit.
- (6) Based on the USDOE energy savings calculator, Floridians will save 12 million kWh of energy per year as a result of their new purchases of ENERGY STAR appliances and air conditioners.
- (7) Based on the USDOE water savings calculator, Floridians will save 123.6 million gallons of water per year as a result of their new purchases of ENERGY STAR appliances.
- (8) As a result of Florida's ENERGY STAR Appliance Rebate Program, Floridians recycled 51,167 old energy inefficient appliances.
- (9) At least one person from every county in Florida participated in the Florida ENERGY STAR Appliance Rebate program. The five counties in Florida with the highest rebate program participation are in order: (1) Broward, (2) Palm Beach, (3) Miami-Dade, (4) Hillsborough, and (5) Pinellas. The same counties also recycled the most appliances.

Program Challenges and Lessons Learned

The Florida DACS learned many lessons in the process of administering the Florida ENERGY STAR Appliance Rebate programs Phases I and II. For example, Florida's rebate customers were not paid their rebates as quickly as desired by customers or as initially planned by the state. It took five months from the time customers applied for the rebates in April of 2010 until the last customers were shipped their rebate cards in mid-September. The delay occurred as a result of Florida's advanced payment system. Florida needed to send the rebate processor funds to pay for the rebates through an advanced payment process. Florida's Department of Financial Services requires that advance payments can only equal a modest percentage of the contract and only one advanced payment will be issued at a time. As a result, all the rebates could not be mailed out at the same time. The state had to issue the rebate payments in batches and each batch had to be mailed out and verified before the next batch of warrants could be issued. This added several months to the process that was not anticipated and could not be avoided. If Florida were to hold another rebate program in the future, and an outside rebate processor were used, the same situation would occur.

An additional challenge Florida faced was a function of how many citizens live in the state only in the winter. Those winter residents were at home in Florida during April when the program was launched but not in July, August or September when the rebate cards were mailed out. Because the dollar amount was so great our rebate processor sent the cards confirmed receipt mail and when no one was there to sign for them they were returned to our rebate processor. In November, December, and January when all the winter residents returned to Florida they called the DACS by the thousands asking for their rebate cards to be reissued.

Also, many people do not read instructions. It did not matter how carefully the application was written or how detailed the website instruction, there were still many consumers that failed to follow the directions. Many consumers called the DACS, while they were on the program website, and complained that the state failed to provide information although it was addressed on the official rebate program home page. There is no remedy for customer's calling and asking questions instead of reading the materials and any future rebate program should plan for additional staff on the telephone to answer questions.

Offering a bonus for recycling "white goods" was a good idea; however, if we were to do it again recycling should be mandatory to capture the greatest energy savings from every dollar of recycling. If recycling were not made mandatory then the amounts offered should be different. Florida offered a

flat \$75 for any appliance recycled and for some that was too generous and for others it was not enough. If there is a next time, the DACS should visit several second hand stores and determine the after use market value and base the rebate on that information. For example, room air conditioners have little market value and the state could have offered a \$25 rebate, whereas refrigerators have a large after market value and the rebate should have been between \$100 and \$150.

A positive lesson staff learned was, after the state goals are established, to identify those segments of the economy that would most benefit from the rebate program and invite the stakeholders to help develop the rebate program design. If any type of expertise is needed, the stakeholders will have the expertise and they have the most to gain from the program being a success. Florida's ENERGY STAR rebate programs would not have been as successful without the stakeholders' involvement. The DACS should involve stakeholders in the design process of any future rebate program.

Florida was very fortunate to have had so many businesses, associations and governmental bodies provide assistance in developing its rebate programs. The following is a list of those that made contributions and how they contributed:

Businesses:

Florida Power & Light -

Progress Energy of Florida -

Tampa Electric Company -

Gulf Power Company -

Each of these utilities was actively involved in both the Phase I and Phase II rebate programs. They offered first hand information on their experience with these types of programs and shared energy data savings. Further they provided matching funds for the state through advertising and monthly mail-outs. Also, several of these entities created new rebate programs to complement the state program under development.

Associations:

Florida Retail Federation (FRF) – In Phase I, the FRF was critically important as the voice for retailers within the state. For any questions staff had FRF was able to provide answers and direction through their membership. They were extremely valuable in providing suggested dates, time frames, fraud prevention steps, and types of appliances. They also provided over a million dollars in matching funds through their membership. They coordinated advertising for their members and helped organize the training program with our rebate processor and all the state retailers whether they were members or not. Also, during the screening of applicants they were able to assist when any problems with receipts were encountered.

Florida Cooperative Association and Florida Municipal Association – These associations were involved in both the Phase I and Phase II rebate programs. They offered first hand information on their experience with these types of programs and shared energy data savings. Further they provided matching funds for the state through advertising and monthly mail-outs. Also, several municipalities and cooperatives created new rebate programs of their own to complement the state program.

Florida Association of County Building Officials (Building Officials) – In Phase II, they asked us to include, within our program, the requirement for customers to provide a copy of their Building Change-Out Permit. That requirement is state law but some HVAC contractors do not follow the law. By requiring it for this program, contractors were forced to comply and it raised the awareness of the law throughout the state. Further, it ensured that the contractor was a licensed Florida installer of HVAC equipment and that the work had been completed as specified on the invoice. This requirement helped both the Building Officials raise awareness and the state to add another layer of fraud prevention.

Florida Association of Energy Raters – In Phase II, they worked extensively with state staff to include the duct testing requirement and design a method to ensure a sufficient number of raters were

available. They also provided the required form to ensure that all raters were performing the same tests. During eligibility screening they made themselves available to answer questions or provide information if our rebate processor encountered problems.

Florida Builders Association – In Phase II, they provided good first hand information on duct testing and provided guidance on implementation.

Government Bodies:

Florida’s Department of Environmental Protection – In Phase I, they provided extensive information on Florida’s requirement to recycle white goods, provided lists of contacts of all solid waste and landfill facilities in the state, and sent out regular communiqués to their field offices apprising them of the upcoming rebate program.

Florida’s Department of Community Affairs – In Phase II, their Office of Building Standards participated in several meetings on the problem of duct leakage in Florida and what minimal standards should be enforced as well as providing educational information.

Gainesville Regional Utilities (GRU) – In Phase II, GRU has an ongoing duct leakage repair program and they graciously spent significant time with staff explaining the aspects of the program, what is successful, and what would be realistic to expect.

Florida Solar Rebate Program

In 2006, the Florida Legislature passed SB 888 which created the Florida Solar Rebate Program and appropriated \$2.5 million. That amount was expended in 11 months.

FY 2006	Number of Rebates Paid	Jobs Created/ Retained	Approximate Annual Savings
Photovoltaic Rebates	118	10	\$1,153,289
Solar Domestic Hot Water Rebates	1,555	48	\$2,276,520
TOTAL	1,673	58	\$3,429,809

In July 2007, the Florida Legislature appropriated an additional \$3.5 million to the Solar Rebate Program. That amount was expended in 7 months.

FY 2007*	Number of Rebates Paid	Jobs Created/ Retained	Approximate Annual Savings
Photovoltaic Rebates	236	20	\$2,519,865
Solar Domestic Hot Water Rebates	2,153	66	\$6,305,448
TOTAL	2,389	86	\$8,825,313

*FY2007 amounts were derived as an average between FY2006 and FY2008

In July 2008, the Florida Legislature appropriated \$5 million to the Solar Rebate Program. That amount was expended in 11 months.

FY 2008	Number of Rebates Paid	Jobs Created/ Retained	Approximate Annual Savings
Photovoltaic Rebates	354	31	\$3,886,440
Solar Domestic Hot Water Rebates	2,752	85	\$4,028,928
TOTAL	3,106	116	\$7,915,368

In September 2009, the Florida Legislature approved the spending of \$14.4 million of USDOE SEP – ARRA funds on the Solar Rebate Program. By 2009 the Solar Rebate Program had developed a backlog and these funds were used to pay off backlogged rebates up to June 2009.

FY 2009	Number of Rebates Paid	Jobs Created/ Retained	Approximate Annual Savings
Photovoltaic Rebates	544	50	\$6,270,152
Solar Domestic Hot Water Rebates	3,824	118	\$5,598,336
TOTAL	4,368	168	\$11,868,488

In June 2010 the Florida Solar Rebate Program’s statute expired . By that time Florida had received \$45 million in unfunded applications.

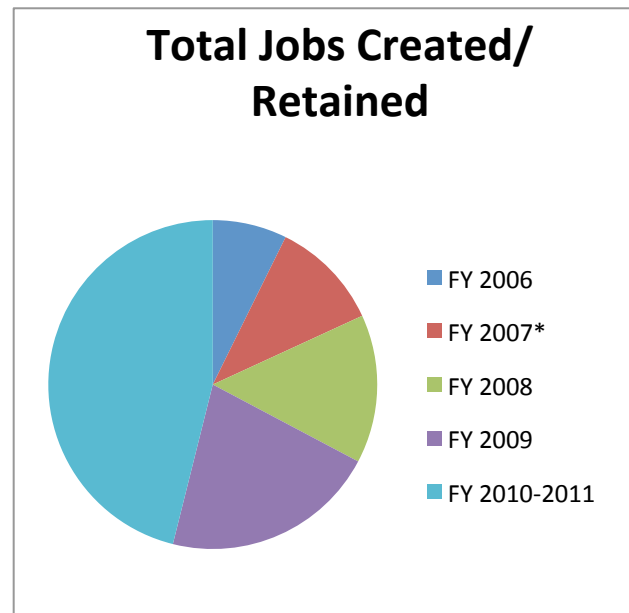
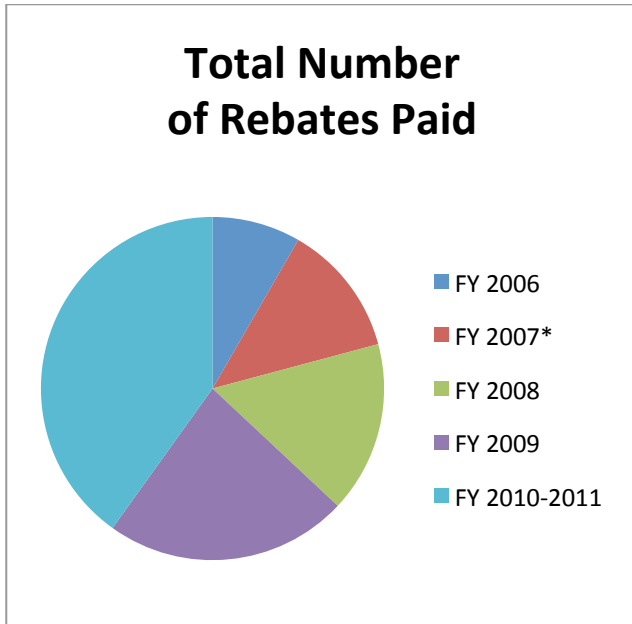
In November 2010, the Florida Legislature passed HB 15A which provided additional funding to the HVAC and Solar Rebate Program to ensure that all eligible applicants were rewarded something for their investments. The Legislature directed that all HVAC rebates be paid first and then all remaining funds be divided among the eligible Solar Rebate applicants. The final HVAC rebates were paid out in April of 2011; leaving approximately \$25 million to be awarded to the unfunded solar rebates.

FY 2010 - 2011	Number of Rebates Paid	Jobs Created/ Retained	Approximate Annual Savings
Photovoltaic Rebates	1,525	175	\$16,271,845
Solar Domestic Hot Water Rebates	6,206	191	\$10,047,435
TOTAL	7,731	366	\$26,319,280

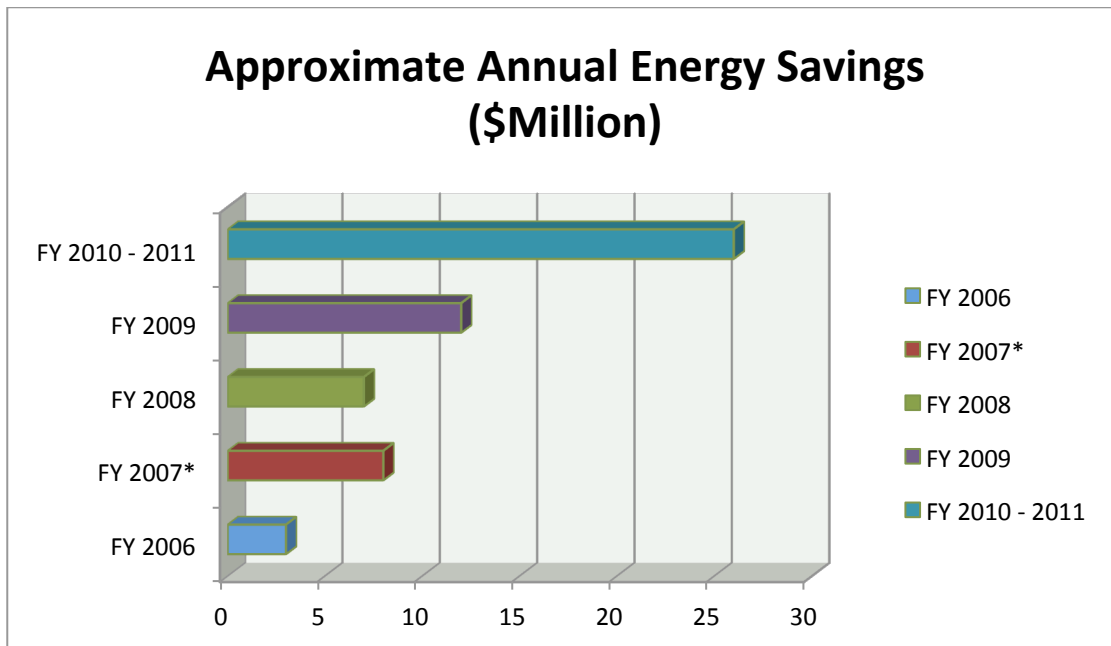
During the 2011 Legislative session, the responsibilities of the State Energy Office were transferred from the Office of the Governor to the Florida Department of Agriculture and Consumer Services (DACS). Since July 1, 2011, when the state's Office of Energy was transferred to DACS, DACS has completed its review of approximately 12,000 solar rebate applications and made payments to all the eligible applicants in less than 4 months time. Checks were mailed to all eligible applicants on October 7, 2011. As directed by House Bill 15A, each eligible applicant received a payment for approximately 52 percent of their requested rebate amount.

Solar Rebate Program FY 2006-2011	Number of Rebates Paid	Jobs Created/Retained	Approximate Annual Savings
Photovoltaic Rebates	2,777	285	\$30,101,591
Solar Domestic Hot Water Rebates	16,490	507	\$28,256,667
TOTAL	19,267	792	\$58,358,258

For all the above information, the calculations were based on information from the following sources: the Photovoltaic data was gathered from information from Florida Solar Energy Industries Association (FlASEIA) and the Solar Domestic Water Heater data was gathered from information from U.S. Department of Energy (U.S. DOE).



*FY2007 amounts were derived as an average between FY2006 and FY2008



4.3 Grants Currently Underway

Promoting renewable energy, bioenergy and alternative fuels (for a complete listing please see Attachment A)

The DACS is currently administering approximately 54 grants that include renewable energy projects. Using a rather broad definition of renewable energy they include:

- Install photovoltaic systems
- Upgrade and retrofit gas stations to increase use of B20 and E85 fuels
- Install solar street lights and traffic signals
- Install solar thermal (hot water) systems
- Install wind energy systems
- Install a waste to energy conversion system
- Develop ocean current (Gulf Stream) technology
- Capture and recover waste heat for energy
- Install compressed natural gas conversions
- Grow crops for or produce bio-fuel/bio-energy

The most frequent investment undertaken was to install photovoltaic systems on local government office roof tops to reduce energy expense. Seventeen different local governments pursued this opportunity. There were also grants that upgraded and retrofitted seventeen E85 and B20 locations around the state to increase capacity and use of these fuels. The next most frequent investments were in solar lighting for parks and traffic control, and then for solar thermal (water heaters). There are approximately five projects underway to develop feed stocks and ethanol and bio-diesel facilities. The other items have one or two projects each underway.

Promoting energy conservation (for a complete listing please see Attachment B)

In an effort to promote conservation within their communities, approximately 32 local governments have contracted to have either energy efficiency and conservation strategies developed, energy audits conducted, or energy efficiency educational programs implemented. The majority of the local governments have hired consultants to evaluate their communities and recommend a plan of action to pursue conservation efforts. These plans may include an inventory of current sustainability programs and policies, to solicit stakeholder input, to identify goals and strategies, to recommend and prioritize tasks, to recommend targets, to develop a tracking system and monitoring protocol, and to develop a technical report.

A number of other communities have included a request to develop webinars or training programs for their citizens or commercial businesses to assist in educating them on conservation. One particular community, St. Johns County, included a requirement to conduct a travel time and delay study on their roadways in an effort to improve fuel consumption and reduce emissions of air pollutants from vehicles.

Promoting energy efficiency (for a complete listing please see Attachment C)

The largest amount of grants administered by the DACS is to directly improve the energy efficiency of local governments and some businesses. The types of energy efficiency projects are diverse and include:

- Purchasing all electric or hybrid vehicles
- Installing Energy Star HVAC systems
- Installing LED and Energy Star lighting
- Replacing inefficient systems at the waste water treatment plant
- Replacing inefficient chillers

- Installing smart meters
- Offering Energy Star rebates
- Replacing inefficient transportation signaling systems
- Retrofitting old buildings
- Installing an electric vehicle charging station
- Installing Energy Star windows
- Installing Energy Star thermostats and control systems
- Installing Energy Star roofs
- Building LEEDS certified homes

Most of the funding by local governments was related to the purchase of Energy Star appliances. There are over 30 separate projects installing new Energy Star HVAC systems and another 30 installing new Energy Star lighting systems. Other improvements included replacing chillers, improving efficiency at their waste water treatment plant and purchasing all electric or hybrid vehicles. These projects will help local governments reduce their energy consumption, improve safety, and most importantly reduce their monthly energy expense.

Assisting local governments (for a complete listing please see Attachment D)

Twenty one of the grants being administered by the DACS are being used by local governments to promote renewable energy, energy efficiency, and energy conservation. Some local governments have hired consultants to develop educational materials, websites, training programs, street fairs, community workshops, and videos to utilize within their community and to educate their citizens on energy efficiency and conservation. Many of the programs target either city residents or commercial contractors by posting information on the local government website and by providing training workshops on useful and easily implements energy efficiency fixes.

Promoting economic development through energy

Florida Opportunity Fund, Inc. (FOF) as staffed by Enterprise Florida was created by state legislation in 2007 as a non-profit organization (not an instrumentality of the state) and was authorized \$29 million in state funds to administer a fund-of-funds program to catalyze investment and venture capital into Florida. A request for proposal issued for an investment manager resulted in the selection of Florida First Partners. In 2009 the Governor’s Energy Office was creating programs in response to Florida’s \$127 million in SEP-ARRA funds, and proposed the Florida Energy Opportunity Fund as a \$36 million direct investment program, utilizing the same personnel and entities from the 2007 fund-of-funds model and with the goals as described below:

- Promote the adoption of commercially available energy efficiency and renewable energy products and services, with a focus on existing facilities
- Leverage private capital along with program funds to attract additional investment into Florida
- Result in overall energy savings of 15 percent among the projects funded by the program
- Result in job creation and retention on each project funded
- Create a return on loan and equity investments, to replenish the fund and sustain the program through multiple cycles of investing in Florida business

Florida’s Energy Opportunity Fund – (\$36,089,000) *The Florida Opportunity Fund – Clean Energy Investment Program* is a direct investment program created to promote the adoption of commercially available energy efficient and renewable energy products and technologies in Florida. The Fund will increase the availability of capital in Florida through both loan and equity investment instruments, and is designed to help Florida businesses and promote the adoption of commercially available energy efficient and renewable energy products and technologies. Fund investments must comport to the state Energy Program statute which requires that funds be used primarily for:

- Facility and equipment improvement with Energy Efficient and Renewable Energy products;
- Acquisition or demonstration of renewable energy products; and
- Improvement of existing production, manufacturing, assembly or distribution processes to reduce consumption or increase the efficient use of energy in such processes.

The Department is working with the Grantee – Florida Opportunity Fund (staffed by Enterprise Florida) – and their contracted investment manager Florida First Partners to administer the program. To date they have invested funds in three businesses:

- (1) Mustang Vacuum Systems – a company that builds complex equipment for vacuum materials in multiple industries including thin film solar manufacturing.
- (2) Fracture LLC – a company that manufactures artwork into framed glass gifts.
- (3) LS9 Inc. – a company that manufactures specialty renewable chemicals and biodiesel.

There are also three other companies under review for investments.

4.4 **Terminated Grants and Grants under Scrutiny**

Over the past few years the Office of Energy has had to terminate approximately a dozen grants. They include both Federal ARRA grants and state grants. The most common reason for termination was due to the grantee project being stalled, where no progress was made. Other reasons for termination include the grantee changed its Scope of Work, it no longer met the obligations of the grant, and outright fraud. There have been two incidents where the DACS has called in the Florida Department of Law Enforcement to bring criminal charges against a grantee that was clearly involved in a fraudulent activity.

Terminating a grant is the worst case scenario when a grantee is not following the terms of its contract. There are other grantees in the Red category that are of concern to staff but may still have the opportunity to salvage their project. Those grantees in the red category must be monitored more closely by staff and have stricter reporting requirements.

4.5 End of the Year Financial Report

The table below provides the amount of funds that were made available to the Office of Energy through United States Department of Energy grants. As mentioned earlier the Office of Energy received four grants:

- State Energy Program – American Recovery and Reinvestment Act (SEP-ARRA),
- Energy Efficiency and Conservation Block Grant (EECBG),
- The State Energy Efficient Appliance Rebate Program (SEEARP), and
- The Enhancing State Government Energy Assurance Capabilities and Planning for Smart Grid Resiliency (Energy Assurance).

Of these four grants only the SEEARP grant is completed.

ARRA OBLIGATIONS AND EXPENDITURES 2011							
	FEDERAL GRANT					Total	Percent
	SEP-ARRA	EECBG	SEEARP	Energy Assurance			
Status	Ongoing	Ongoing	Completed	Ongoing			
Award	\$ 126,089,000.00	\$ 30,401,600.00	\$ 17,585,000.00	\$ 1,881,676.00	\$ 175,957,276.00	100.00%	
Unobligated	\$500,000.00	\$ 311,412.50	\$ 5,978.79	\$ 164,227.73	\$ 981,619.02	0.006%	
Obligated	\$ 125,589,000.00	\$ 30,090,187.50	\$ 17,579,021.21	\$ 1,717,448.27	\$ 174,975,656.98	99.442%	

Expended	\$ 75,154,997.58	\$ 9,499,171.21	\$ 17,579,021.21	\$ 655,914.29	\$ 102,889,104.29	58.473%
Balance to Expend	\$ 50,934,002.42	\$ 20,902,428.79	\$ 5,978.79 Amount returned	\$ 1,225,761.71	\$ 73,068,171.71	41.526%
End Date	April, 2012	November, 2012	February, 2012	August, 2012		

As of December 2011, Florida has obligated 99.442 percent of total ARRA funding through rebates to Florida consumers and sub-grants to local governments, state colleges/universities, non-profit agencies or commercial organizations. A total of 58.473 percent of ARRA funding has been expended to date on allowable project costs on a cost-reimbursement basis where the consumers or sub-grant recipients expend the funds on eligible activities and are reimbursed by ARRA funding upon submission of sufficient supporting documentation. Significant additional expenditures are anticipated in the first quarter of 2012. The final 0.006 percent of total ARRA funding that is currently un-obligated has resulted from planned projects that did not materialize or which fell through during the negotiation process. The DACS is currently developing a Contingency Plan to re-purpose this funding.

Existing programs and grants are under field monitoring review, in part to determine if project(s) are not progressing in accordance with their approved budget and schedule. The DACS has the primary responsibility to ensure that all grant funds are expended by the end of the applicable grant period.

5. 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://www.floridapsc.com/publications/pdf/electricgas/FEECA2011.pdf>

Reducing Florida's energy demand and consumption remains as important and relevant today as it was in 1980, when the Florida Energy Efficiency and Conservation Act (FEECA) was enacted. Located in Sections 366.80 through 366.85 and Section 403.519, Florida Statutes (F.S.), FEECA emphasizes reducing the growth rates of weather-sensitive peak demand, reducing and controlling the growth rates of electricity consumption, and reducing the consumption of scarce resources such as petroleum fuels. Section 366.82(2), F.S., requires the Public Service Commission (Commission or PSC) to set appropriate goals for each of the seven electric utilities¹ subject to the Act. The goals are expressed as annual electric peak demand and energy savings over a ten-year period. These utilities must submit for Commission approval cost-effective demand-side management (DSM) plans and programs designed to meet the goals.

The Commission is required by Section 366.82(10), F.S., to provide an annual report to the Legislature and the Governor summarizing the adopted goals and progress achieved toward those goals. Section 1 of this report provides a history of FEECA and highlights conservation achievements of the FEECA utilities. For context, Section 2 provides a current overview of Florida's electricity market. Finally, Section 3 provides an update on the current goal-setting process.

Conservation Achievements

While utility compliance with FEECA is important, consumer choice also plays an essential role in reducing the growth rates of electrical demand and energy in Florida. Smaller, more efficient homes; energy-efficient appliances; energy-efficiency improvements to existing homes and increased use of the most efficient and cost-effective demand-side renewable systems are areas in which customers may actively be involved with electric energy conservation. As power plant sites and transmission corridors grow scarce in Florida, utility efforts to defer future generating units and transmission lines become increasingly important. Building codes and appliance efficiency standards impact utilities' conservation programs by creating a baseline for the cost-effectiveness of any new program. As consumers become more educated on the cost of electricity and the benefits of conservation, DSM and renewable energy will continue to play important roles in conserving fossil fuels and reducing customer bills.

Consumer education is essential to energy conservation. The Commission's consumer education program (see Appendix 1) employs a variety of tools to educate consumers on daily conservation and energy efficiency activities. From January through December 2010, more than 126,000 people accessed the more than 560 consumer-oriented pages on the PSC Web site. The Commission also distributes conservation-related materials through partnerships with governmental entities, consumer groups, and many other organizations during community events and has placed increased emphasis on educating the youth about the benefits of energy conservation.

Since 1981, Florida's investor-owned electric utilities have recovered over \$5 billion of conservation program expenditures through the Energy Conservation Cost Recovery (ECCR) clause. In 2009, Florida's investor-owned electric utilities recovered over \$310 million in conservation program expenditures from ratepayers. Over the last decade, investor-owned utilities have recovered over \$2.5 billion dollars in conservation program expenditures. To date, Florida's investor-owned

¹ The seven utilities subject to FEECA include Florida Power & Light Company, Progress Energy Florida, Inc., Tampa Electric Company, Gulf Power Company, Florida Public Utilities Company, Orlando Utilities Commission, and JEA.

utilities have performed over 300,000 residential energy audits and offer over 100 conservation programs for residential and commercial customers (these programs are summarized in Appendix 2). Since FEECA's enactment, DSM programs are projected to reduce winter peak demand by an estimated 6,500 MW and annual energy by an estimated 7,500 GWh by 2010. The demand savings from these programs has deferred the need for over 40 typical 150 MW combustion turbine units.

Section 1 of this report compares demand and energy savings to goals that were established in 2004. When residential and commercial results are combined, FPL, PEF, TECO, JEA, and OUC met their annual and 2005 through 2009 cumulative demand and energy goals. FPUC only achieved 97 percent of its summer demand goal, primarily due to a lack of participation in the commercial sector. FPUC may wish to re-evaluate its marketing techniques in order to increase participation in the commercial sector. Gulf achieved 62 percent of its summer demand goal and only 48 percent of its winter demand goal. Gulf states that its goals were not met because the GoodCents residential program endured technical obstacles such as a shortage of equipment from the manufacturer and the reduction of new home construction in its service territory. Therefore, the reasons for Gulf not meeting its goals appear to be beyond the control of the company.

As discussed below, the Commission has set aggressive goals for the FEECA utilities for the period 2010 through 2019. Recent amendments to Section 366.82(8), F.S., provide the potential for rewards or penalties using these new goals as a baseline. The Commission will continue to monitor the utilities' performance regarding meeting these aggressive goals and take appropriate action, if necessary.

Goal Setting Activities

The FEECA statutes have remained relatively constant since their original adoption in 1980. During the 2008 Legislative session, the following changes were enacted: (1) establishing goals for demand-side renewable energy resources; (2) consideration of efficiency investments in generation, transmission, and distribution efficiency improvements; (3) clarification of the costs and benefits to be considered in the determination of cost-effectiveness; and (4) authorization to provide rewards and penalties for conservation achievements. During 2007, in preparation for the new goal-setting process, the Commission conducted five workshops regarding energy efficiency initiatives. On June 26, 2008, the Commission opened Dockets 080407-EG through 080413-EG to review numeric conservation goals for the utilities subject to FEECA. On November 13, 2008, the Commission staff contracted with GDS Associates, Inc. (GDS) to provide independent technical consulting and expert witness services during the conservation goal-setting proceeding. GDS was retained to review and critique the overall goals proposed by each utility and provide expert testimony and recommendations on alternative goals.

An evidentiary hearing in Dockets 080407-EG through 080413-EG was held on August 10-13, 2009. On October 15, 2009, staff filed its recommendation regarding the review of the FEECA utilities numeric goals. At the November 10, 2009 Commission Conference, the Commission directed staff to develop more robust goals for each utility.

At the December 1, 2009 Commission Conference, the Commission approved aggressive new numeric DSM goals for Florida Power & Light (FPL), Progress Energy Florida (PEF), Tampa Electric Company (TECO), Gulf Power Company (Gulf), and Florida Public Utilities Company (FPUC). The new goals were based on the Enhanced Total Resource Cost (E-TRC) test which includes estimated costs imposed by the potential regulation of greenhouse gas emissions, along with numeric adders associated with residential measures that have a two-year or less payback. In addition, the investor-owned utilities were authorized to spend up to 10 percent (approximately \$24 million) of their historic energy conservation cost recovery expenditures as an annual cap for solar water heating and solar photovoltaic pilot programs. The table below illustrates the proposed goals by the utilities in comparison to the Commission approved goals. Additional detail of the goal-setting process is discussed in Section 3.

2010-2019 Incremental Demand-Side Management Goals						
Utility	Summer Demand Goals (MW)		Winter Demand Goals (MW)		Annual Energy Goals (GWH)	
	Utility Proposal	Commission Approved Goals	Utility Proposal	Commission Approved Goals	Utility Proposal	Commission Approved Goals
FPL	607	1,498	338	605	878	3,082
PEF	521	1,183	560	1,072	614	3,488
TECO	82	138	41	109	202	360
Gulf	69	144	46	110	159	574
FPUC	0	4	0	2	0	13
OUC	0	12	0	9	0	36
JEA	0	44	0	30	0	290
Total	1,279	3,023	985	1,937	1,853	7,843

In 2010, the Commission approved DSM plans for Orlando Utilities Commission (OUC), JEA, FPUC, and TECO. However, FPL, PEF, and Gulf’s DSM plans have yet to be approved. The Commission is expected to vote on the proposed DSM plans in the beginning of 2011. A utility whose plans have not been approved may still be obligated to meet their annual goals, and an investor-owned utility could be subject to penalties as authorized by Section 366.82(8), F.S., should it fail to meet its annual goals.

Conclusion

Consumer education, building codes, and appliance efficiency standards impact utilities’ conservation programs by creating a baseline for the cost-effectiveness of any new program and decreasing the amount of incremental energy savings. Utility programs offer rebates and incentives for appliances that exceed minimum efficiency standards, thereby avoiding duplicate savings estimates. Staying current on building codes and appliance efficiency standards is highly important to the FEECA utilities’ DSM efforts. As consumers become more educated on the cost of electricity and the benefits of conservation, DSM and renewable energy will continue to play important roles in conserving fossil fuels and reducing customer bills.

Florida’s utilities traditionally have been successful in meeting the objectives of FEECA. Customer participation in utility-offered DSM and energy conservation programs, along with individual efforts to use electrical energy wisely, remain to be fundamental elements for reducing the demand for energy. The FEECA utilities, with the exception of Gulf, have substantially met their 2005 through 2009 Commission approved goals. However, the reasons for Gulf not meeting its goals appear to be beyond the control of the company. The Commission has set aggressive goals for the FEECA utilities for the period 2010 through 2019. Recent amendments to Section 366.82(8), F.S., provide the potential for rewards or penalties using these new goals as a baseline. The Commission will continue to monitor the utilities’ performance regarding meeting these aggressive goals and take appropriate action, if necessary.

In 2010, the Commission approved DSM plans for Orlando Utilities Commission, JEA, FPUC, and TECO. However, FPL, PEF, and Gulf’s DSM plans have yet to be approved. The Commission is expected to vote on the proposed DSM plans in the beginning of 2011. A utility whose plans have not been approved may still be obligated to meet their annual goals, and an investor-owned utility could be subject to penalties as authorized by Section 366.82(8), F.S., should it fail to meet its annual goals.

6. Recommendations

“What we need is an “all of the above” strategy. We need a strategy that will foster the development of all the options. We cannot be in the business of picking winners and losers in the race to explore renewable energy options. Our strategy must support research and development to explore all the options. Our strategy must rely on the market to determine what works and what does not.”

Commissioner Adam Putnam

The energy market is the most manipulated market in the world. Each new legislature, Congress, Governor, and President outlines new priorities and offers new incentives to advance the energy industry. This manipulation and inconsistency discourages private investment. Companies cannot invest resources into the development of renewable energy when the policy that fosters its development changes every couple of years. In order to build a strong energy policy, Florida must restore confidence in the state energy market by developing and implementing a long-term strategy, one that will adapt to changes in the market and new technology, but not change fundamentally with every shift in leadership. Policy makers should manage expectations.

It is the DACS suggestion that Florida recognize one statewide energy goal:

The state of Florida should secure a stable, reliable, and diverse supply of energy.

The following suggested strategies and objectives are a good launching point for discussions on how to ensure Florida either maintains their stability and reliability and how to develop a diverse supply of energy. It is recognized that in ten years these may also be made obsolete by the changing economy and new technologies.

Strategy 1: Promote energy efficiency and conservation.

- Floridians should have the opportunity to participate in programs aimed at increasing the efficient use of energy resources.
- Low-income Floridians should have access to programs designed to reduce the burden of electricity costs and to increase the efficiency of their homes to reduce energy consumption.
- Floridians would benefit from managing their consumption of electricity in a way that contributes to the efficient use of generating resources.
- Florida’s military installations can rely on a high quality and stable supply of in-state energy auditors and businesses that provide energy efficiency services to buildings.
- Buildings used to house state offices are energy efficient in order to reduce energy consumption and cost.
- Florida’s resources are used to decrease reliance on out-of-state fuel sources, making the state more self-reliant.
- Florida’s natural, agricultural, and waste resources are utilized efficiently for the production of bio-energy.

Strategy 2: Invest in Florida’s energy infrastructure.

- Floridians are adequately protected and enjoy stable prices for electricity.
- Floridians enjoy reliable electric service.

- Utility regulation is aimed at assuring proper incentives for minimizing costs, diversifying to ensure price stability, and ensuring operational efficiency and innovation. Florida's citizens and visitors have adequate access to alternative transportation fueling infrastructure such as electric vehicle recharging facilities.
- Florida's energy delivery system is flexible in accommodating new and alternative energy generation.
- Florida's existing infrastructure is modern and utilities have the incentive to deploy the updates to improve the efficiency, reliability and security of its transmission and distribution system.
- New technologies in power electronics and superconductivity should be applied in a cost effective manner to the transmission grid to achieve the ability to control actively the flow of energy and gain greater efficiency out of existing infrastructure.

Strategy 3: Expand Florida's clean energy sources and new technologies

- Increase renewable generation as a portion of the state's energy portfolio, including a reasonable mix of utility-scale installations, as well as customer-located installations.
- Expand Florida's distribution infrastructure to provide access and encourage wider adoption of renewable fuels for transportation
- Promote the adoption of existing renewable energy technologies, resulting in business attraction and expansion and bringing new employment opportunities.
- Encourage continued research, development and commercialization of new energy technologies (such as ocean and tidal energy), resulting in business attraction and expansion and bringing new employment opportunities.
- Utilize Florida's military installations as consumers of energy related technology, either produced or manufactured within the state, to expand emerging industries and attract new ones to Florida.
- Load-serving utilities have access to a diversified portfolio of energy resources, including demand-side and renewable resources, acquired through competitive means, with no over reliance on any particular fuel type, and with appropriate demand-side resources.

Strategy 4: Promote energy based public education and outreach

- Floridians will have access to information on alternative energy and fueling availability.
- Floridians will be knowledgeable about energy efficiency and have access to information that allows them to make informed decisions about the relative efficiency of energy consuming goods.

New Legislation

Over the past six months DACS has spoken with a number of stakeholders interested in stimulating the growth of renewable energy in the State of Florida and in creating more jobs and business opportunities. From those conversations several recommendations have been repeated and bear serious consideration by the Governor and Legislature. These recommended proposals fall into six categories:

- Infrastructure investment
- Reporting requirements
- Power Plant Need Determination process
- Public interest determination for renewable energy
- Energy efficiency
- Removing barriers to future investment

Infrastructure Investment:

Proposal 1 — Reinstate the following sales tax incentives at the recommended caps and clearly define eligible cost. Reinstatement of these tax incentives will promote the development of renewable energy

infrastructure which would give Florida an advantage over other states when investors are looking to build plants.

- Renewable Energy Technologies Sales Tax Exemption- \$1 million per year;
- Renewable Energy Technologies Investment Tax Credit - Increase current cap of \$6.5 million to \$10 million per year; and
- Renewable Energy Production Tax Credit - Remains the same at \$0.01 for each kilowatt-hour of energy produced and sold with a cap of \$5 million per year.

In order to avoid misinterpretations of which entities are eligible for tax credits, clarify that an “electric utility” refers to those utilities that sell electricity on a retail basis.

Reporting Requirements:

Proposal 2 — Require the Department of Agriculture and Consumer Services to develop a comprehensive statewide forest inventory analysis identifying where available biomass is located and ensuring forest sustainability.

Proposal 3 — Require the utilities, who file 10-year site plans with the Public Service Commission (PSC), to report the amount of renewable energy resources produced, purchased and proposed in Florida over the 10 year planning horizon and how it will impact present and future capacity and energy needs.

Power Plant (over 75 MW) Need Determination Process:

Proposal 4 — Require the PSC to take into account the need to diversify Florida’s energy generation fuel supply during a Need Determination proceeding. By placing value on fuel diversity, opportunities for alternative sources of energy improve, strengthening Florida’s energy security.

Public Interest Determination for Renewable Energy Projects:

Proposal 5 — Require the PSC to establish criteria for evaluating proposed renewable energy facilities or negotiated renewable energy power purchase agreements and establish reporting criteria. The requirement would create a consistent framework by which the PSC would evaluate renewable proposals and determine whether they are in the public interest, establish what information utilities must provide, and what criteria renewable projects will be evaluated against. Given this new framework, remove the current law that requires the PSC to adopt rules for a renewable portfolio standard.

Based on the criteria established in Proposal 5, require the PSC to set an investor-owned utility limit of 1 percent or 75 MW, whichever is less, of its overall generation capacity portfolio in any one year of approved renewable energy investments where those investment costs are above the least cost alternative. Placing a cap on the overall effect on the utilities’ generation portfolio will avoid unreasonable rate impacts on customers.

Proposal 6 — Allow a utility to invest in a PSC approved financing project with renewable energy facilities in Florida. Currently this type of utility financing project is allowed with government solid waste facilities, but not with private renewable energy facilities. A joint utility and private renewable energy financing project would allow the utility to recover its expenses and a reasonable profit. This would promote investment by utilities in renewable energy facilities, when such a contract is determined by the PSC to be in the public interest.

Energy Efficiency:

Proposal 7 — Require all buildings in the state building fleet, 5,000 square feet or more of conditioned space, to report their energy consumption, and requires the Department of Management Services to go to rule making in coordination with the DACS to establish standard and uniform benchmarking and reporting requirements. Currently this reporting is not standardized across state agencies making the reporting incomplete and inaccurate.

Proposal 8 —The legislature should direct the DACS’s Office of Energy in coordination with the Florida Energy Systems Consortium to evaluate methods to promote energy conservation and efficiency. Further, it should provide the consumer clear guidance on energy efficiency savings. The report should be completed by March 1, 2013, and presented to the Governor and the legislature. Also, the legislature should require the PSC to evaluate how the Florida Energy Efficiency and Conservation Act (FEECA) statutes provide conservation and efficiency programs that are in the public interest and without undue burden on the customer.

Removing Barriers to Future Investments:

Proposal 9 —Clarify that electric vehicle charging stations are a service to the public and not the retail sale of electricity. This ensures that government entities or businesses installing and providing this service are not subject to the undue burden of regulatory fees that may be instituted by the PSC if they were to be considered retailers of electricity.

- Would direct the Florida Building Commission in coordination with the DACS and the PSC to adopt rules to standardize the building and electric codes, permitting, and installation of the charging stations.
- Also would direct the DACS to adopt rules to address definitions, method of sale, labeling requirements and price posting requirements to allow for consistency for consumers and the industry.
- The PSC is also instructed to conduct a study of the effects of the charging stations on energy consumption in the state as well as the effects on the grid.

Proposal 10 — Require the DACS in consultation with the University of Florida/Institute for Food and Agriculture Sciences to determine whether a plant material is exempt from the regulatory permitting process based on scientific evidence and practical experience. This would streamline the permitting process for feedstock crops for biofuels.

Proposal 11 — Task the PSC to evaluate its current interconnection and net metering rules.

Conclusion

By creating a consistent energy policy for the state, Florida will benefit in many ways from our efforts to secure a stable, reliable, and diverse supply of energy. We will conserve Florida’s natural resources. We will lessen Florida’s dependence on foreign sources of energy. We will ensure Florida will have an adequate, affordable supply of energy to meet the needs and most importantly we will grow the energy industry that will yield critical job opportunities for Floridians.

ATTACHMENT A: Promoting Renewable Energy, Bio-energy and Alternative Fuels

The **Aquantis Project** is utilizing both grant and matching funds to assess the site-specific ocean current resource potential, the bottom contours and conditions for mooring systems, the initial environmental impacts at the site, test components of the future design, and fabricate and test in the Atlantic Ocean a 1/20th scale prototype of the Aquantis C-Plane in the Gulf Stream to demonstrate C-Plane stability and operating requirements.

BAMQ, LLC is utilizing both grant and matching funds to upgrade and retrofit their existing E85 station in order to increase capacity and use in Lee County.

The City of **Bartow** is utilizing both grant and matching funds to install one five kilowatt photovoltaic system on the Bartow Public Library.

Benzena Capital Enterprise, Inc. is utilizing both grant and matching funds to upgrade and retrofit their existing B20 and E85 station in order to increase capacity and use in Brevard County.

Boca Raton Museum of Art will be installing four ground mounted solar PV systems.

Broward County is utilizing both grant and matching funds to upgrade and retrofit their existing Compressed Natural Gas station in order to increase capacity and use.

The City of **Callaway** is utilizing both grant and matching funds to install a solar thermal installation at both the City Hall Building and the Planning Department Building.

The **City of Chipley** is utilizing grant funds to retrofit one traffic signal to operate entirely on solar power. The retrofit will include installation of a solar panel system and related wiring to change the power source of the light.

The **City of Clearwater** is utilizing both grant and matching funds to upgrade and retrofit their existing Compressed Natural Gas station in order to increase capacity and use.

The **City of Coleman** will be placing a ground mounted photovoltaic system, unit to be used by their water treatment control building.

The **City of Dania Beach** will install 164 solar powered street lights in areas that lack lights or the lighting is inadequate.

Dania Investment, Inc is utilizing both grant and matching funds to upgrade and retrofit their existing E85 station in order to increase capacity and use in Broward County.

Direct Fuel Spot, LLC is utilizing both grant and matching funds to upgrade and retrofit their existing E85 station in order to increase capacity and use in Dade County.

The **Town of Ebro** will replace the existing outdoor lighting at Obie T. Morrell Park with solar powered LED lighting

Florida Crystals Corporation is utilizing both grant and matching funds to establish a 120 acre eucalyptus energy plantation in marginal to poor soils and develop best management agronomic and harvesting practices in Martin County.

The **Florida Solar Energy Center (FSEC)** is utilizing both grants and matching funds to install 10 Kilowatt (kW) or larger battery back-up photovoltaic systems (PV) on 90 to 100 schools. These schools are throughout the state of Florida and are designated as emergency shelters.

Florida Thoroughbred Breeders' & Owners' Association is utilizing both grant and matching funds to create a waste to renewable energy system that will process approximately 50,000 tons/ year of animal waste (muck) and 50,000 tons/ year of wood/organic waste while producing approximately 10.5 MW of renewable energy that can be placed back on the electrical grid for power companies to use within the community.

Fort Pierce Petroleum is utilizing both grant and matching funds to upgrade and retrofit their existing E85 station in order to increase capacity and use in St. Lucie County.

Franklin County will be installing a 25kW solar system to the roof of the Franklin County Courthouse to reduce energy consumption and energy cost.

The City of **Freeport** is utilizing both grant and matching funds to install a 30kw photovoltaic system and replace existing outdoor lighting at the Freeport Regional Sports Complex with four (4) solar and wind powered outdoor lights.

The City of **Green Cove Springs** is utilizing both grant and matching funds to install a 10 kW renewable generation project using photovoltaic panels at the Electric Operations Complex.

Greenwave Biodiesel, LLC is utilizing both grant and matching funds to upgrade and retrofit their existing B20 station in order to increase capacity and use in Broward County.

Gulf County is utilizing both grant and matching funds to replace a minimum of 40 outdated and inefficient streetlights with highlight series solar-powered lighting. The retrofitted streetlights will operate from dusk until dawn through installation of either stand-alone or utility-grid-connected photovoltaic systems.

Highlands Ethanol, LLC is utilizing both grant and matching funds to design and engineer a cellulosic ethanol facility in Highlands County.

The **City of Hollywood** is utilizing both grant and matching funds to upgrade and retrofit their existing Compressed Natural Gas station in order to increase capacity and use.

Johnson & Johnson, Inc is utilizing both grant and matching funds to upgrade and retrofit their existing E85 station in order to increase capacity and use in both Leon and Lake County.

Keys Energy Service is utilizing both grant and matching funds to install a 34 Kilowatt (kW) Photovoltaic (PV) system on its warehouse on Stock Island and install two wind turbines totaling 4.8 kW.

Lamar Advertising is utilizing both grant and matching funds to install solar and wind technologies onto 1531 billboard structures throughout the state of Florida. The cumulative amount of power from all the bill boards will equal approximately one Megawatt (MW) of renewable energy. In addition, each of these distributed installations will be augmented by energy efficiency LED lighting in lieu of existing metal-halide lighting, and digital lighting controllers with online control capabilities in lieu of conventional timers or photocells.

Lee County Port Authority is utilizing both grant and matching funds to install a 160 kilowatt photovoltaic system on hanger roof at Page Field in Fort Myers, FL.

Leon County is utilizing both grant and matching funds to implement energy saving projects at the County's Green Demonstration Center. The Grantee will install a 55kW solar photovoltaic parking shade structure and 16.5 tons of geothermal heating and cooling.

Mid State Energy is utilizing both grant and matching funds to upgrade and retrofit their existing E85 station in order to increase capacity and use in both Sarasota and Lee County.

The **H. Lee Moffitt Cancer Institute** is utilizing both grant and matching funds to implement waste heat recovery energy efficient technology in the Central Energy Plant that provides utilities to H. Lee Moffitt Cancer Center and Research Institute. The project will reduce natural gas consumption by using waste heat from the boiler plant to heat hot water.

The City of **Mount Dora** is utilizing both grant and matching funds to install a 5 kW renewable generation project using photovoltaic panels at the Donnelly Park Building, a multipurpose facility adjacent to City Hall.

The City of **Newberry** is utilizing both grant and matching funds to install a 10 kW renewable generation project using photovoltaic panels at the Easton Newberry Sports Complex, the City's community and recreation center.

The **Town of Noma** will be replacing the existing outdoor lighting at Noma Town Park with solar powered LED lighting. The City will also install a Temp- Coat insulation system on Town Hall.

NPE Florida, LLC is utilizing both grant and matching funds to construct an 8 million gallon per year (mgy) commercial ethanol facility in Indian River County using gasification/fermentation technology.

Okaloosa Gas District is utilizing both grant and matching funds to upgrade and retrofit their existing Compressed Natural Gas station in order to increase capacity and use.

The Village of **Palmetto Bay** will use grant funds to bridge the gap between a base, code compliant building and a Net Zero energy facility. Grant funds will fund the purchase and installation of photovoltaic panels to the roof of the municipal building, solar-covered bicycle stations, walkways and bus shelters to generate energy for the municipal building.

Petro-Walton, LLC is utilizing both grant and matching funds to upgrade and retrofit their existing E85 station in order to increase capacity and use in St. Lucie County.

The **Philharmonic Center for the Arts** is utilizing both grant and matching funds to install a solar photovoltaic system on their facility to provide thermal water heating.

Protec Fuel Management is utilizing both grant and matching funds to upgrade and retrofit their existing E85 station in order to increase capacity and use in both Escambia and Duval County.

Residuary Trust is utilizing both grant and matching funds to upgrade and retrofit their existing E85 station in order to increase capacity and use in Leon County.

The **City of St Pete Beach** is utilizing both grant and matching funds to install a solar thermal hot water system on the police and fire station.

The City of **Seminole** is utilizing both grant and matching funds to determine the feasibility of adding a photovoltaic electric generation (PV) system to the existing city-owned building and how it can be incorporated into the existing electrical distribution system.

The City of **South Daytona** is purchasing and installing a solar hot water tank in the Fire Department at City Hall. The activity will include retrofitting the existing 120 gallon water tank in the Fire Station

with two, 4' x 8' solar water heating panes. Energy cost savings will be used to install additional solar technology at City facilities. In addition, it is purchasing and installing 7 LED solar lights in two parking areas at Reed Canal Park to provide safety lighting for participants using the facility.

South Pointe Petroleum is utilizing both grant and matching funds to upgrade and retrofit their existing E85 station in order to increase capacity and use in Dade County.

Southeast Renewable Fuels (SRF) is utilizing both grant and matching funds to develop a sweet sorghum to ethanol advanced bio-refinery Facility with a 20 Million Gallons Per Year (MGPY) name plate design capacity of fuel-grade ethanol in Hendry County.

The City of **Starke** is utilizing both grant and matching funds to install a 5 kW solar PV demonstration project at the newly constructed fire station that will provide renewable energy benefits to the city, while simultaneously offering community education in PV technology.

Super Stop 101, Inc is utilizing both grant and matching funds to upgrade and retrofit their existing E85 station in order to increase capacity and use in Broward County.

Super Stop 407, Inc is utilizing both grant and matching funds to upgrade and retrofit their existing E85 station in order to increase capacity and use in Orange County.

Super Stop Petroleum, Inc is utilizing both grant and matching funds to upgrade and retrofit their existing E85 station in order to increase capacity and use at 2 stations in Hillsborough County.

Town of Wausau will be performing an energy audit, replacing the existing outdoor lighting at Possum Park with solar powered LED lighting.

The **City of Williston** is utilizing grant funds to install 10 kW solar demonstration systems at the public library and conduct educational tours.

Wise Gas, LLC is utilizing both grant and matching funds to upgrade and retrofit their existing Compressed Natural Gas station in order to increase capacity and use in Broward County.

ATTACHMENT B: PROMOTING ENERGY CONSERVATION

The **City of Atlantic Beach** is utilizing both grant and matching funds to conduct energy audits on 11 City owned buildings to identify and prioritize the best ways to maximize energy efficiency.

The **City of Bartow** is utilizing both grant and matching funds to develop a strategy will include a formulation of energy efficiency, energy conservation, and energy usage goals as well as strategies to achieve these goals and methods to measure progress in achieving the goals. In addition, the City of Bartow is providing 100 investment grade energy audits to local businesses

Boca Raton Museum of Art will be replacing lights at the museum with LED lights, replace the 20 year old roof, install motion censored lights, upgrade and replace 5 HVAC systems.

Broward County is utilizing grant funds to develop the Broward County Climate Change Action Plan (BCCCAP).

The **Town of Century** is utilizing grant funds develop and implement an Energy Conservation Strategy.

The **City of Clewiston** will provide investment grade energy audits to commercial and industrial customers who are too small to qualify under standard energy service programs. The investment-grade audit (alternatively called a comprehensive audit, detailed audit, maxi audit, or technical analysis audit) provides a dynamic model of energy-use characteristics of both the existing facility and all energy conservation measures identified.

The **City of DeLand** is utilizing both grant and matching funds to develop a Financially Feasible 20 Year Energy Efficiency and Conservation Plan. The City of DeLand will also conduct 1,000 residential audits and an additional 500 energy audits for commercial property owners.

DeSoto County will use \$15,000 in EECBG funding to develop an Energy Efficiency and Conservation Strategy with a match of \$10,000 from the County. The EECS will include general strategies to promote energy efficiency and conservation, an implementation plan, coordination with other local governments such as the Central Florida Regional Planning Council, including accountable project metrics and strategies to continue to promote these goals after the EECBG funding has been expended.

First Coast Technical College is utilizing both grant and matching funds to conduct Energy Awareness Seminars to 200 businesses.

The **Florida Solar Energy Center (FSEC)** is utilizing both grant and matching funds to educate 180 teachers on renewable energy technologies and associated careers through professional development opportunities. Each teacher will receive a renewable energy learning kit to incorporate renewable energy into their curriculum.

Florida State College of Jacksonville (FSCJ) is utilizing both grant and matching funds to develop a campus wide energy strategy and conduct audits. FSCJ will utilize this information to modify their energy plan to optimize the usage of energy.

The **City of Freeport** is utilizing both grant and matching funds to perform an energy audit on City Hall.

The **City of Green Cove Springs** is utilizing both grant and matching funds to develop a strategy that will include a formulation of energy efficiency, energy conservation, and energy usage goals as well as

strategies to achieve these goals and methods to measure progress in achieving the goals. In addition, the City is providing energy audits to 400 commercial customers and 440 residential customers.

Gulf County is utilizing both grant and matching funds to develop a strategy that will include a formulation of energy efficiency, energy conservation, and energy usage goals as well as strategies to achieve these goals and methods to measure progress in achieving the goals.

Hardee County will select technical consultant services to assist in the development of both short and long-term strategies to reduce energy consumption and thereby GHG emissions. The strategy will include formulation of energy efficiency, energy conservation and energy usage goals; identification of strategies to achieve those goals through efforts to increase energy efficiency and reduce energy consumption; and developing a formal Energy Efficiency and Conservation Strategy for adoption by the County Commission. This strategy will include methods to measure progress in achieving the goals including annual public progress reports.

Keys Energy Service is utilizing both grant and match funds to conduct three training workshops on energy efficiency in commercial buildings for a total of 75 businesses. The workshops will be comprehensive covering subjects such as: general energy efficiency for commercial buildings, heating ventilation and air conditioning (HVAC) systems, and lighting efficiency in commercial buildings.

Leon County is utilizing both grant and matching funds to develop a strategy will include a formulation of energy efficiency, energy conservation, and energy usage goals as well as strategies to achieve these goals and methods to measure progress in achieving the goals.

Leon County Schools Board has developed a curriculum for grades K-12 to educate students and staff on energy efficiency, energy conservation, and renewable energy through surveys, reading materials and class activities.

Monroe County is utilizing both grant and matching funds to develop an energy efficiency, energy conservation and energy usage strategy. The strategy will identify the means to achieve goals, metrics for measuring progress, timelines for implementation, financing mechanisms and staff assignments. The EECS will ensure sustained benefits of the grant funds beyond the grant period.

The **City of Mount Dora** is utilizing both grant and matching funds to develop a strategy that will include a formulation of energy efficiency, energy conservation, and energy usage goals as well as strategies to achieve these goals and methods to measure progress in achieving the goals. In addition, the City will perform a power distribution system efficiency study that will evaluate technical, financial, environmental, and other critical aspects of the Grantee's current power distribution system and identify methods to increase efficiency. The City is also expanding its free building energy audit program to offer 500 additional residential energy audits, 300 commercial audits, and five industrial energy audits at no cost to the customers.

The **City of Newberry** is utilizing both grant and matching funds to develop a strategy that will include a formulation of energy efficiency, energy conservation, and energy usage goals as well as strategies to achieve these goals and methods to measure progress in achieving the goals. In addition, the City will perform a power distribution system efficiency study that will evaluate technical, financial, environmental, and other critical aspects of the Grantee's current power distribution system and identify methods to increase efficiency.

1000 Friends of Florida is conducting a series of webinars educating individuals on energy efficient measures and ways to conserve energy.

The **Town of Palm Beach** will develop a city-wide Energy Efficiency and Conservation Strategy (EECS) that addresses energy analysis and recommendations for both municipal and community components. The EECS will serve as a comprehensive guiding strategy for town energy efficiency and

conservation initiatives. This activity will be a collaborative effort between consultants selected through a competitive qualifications process and staff knowledgeable of town systems and members of the community. The consultants will conduct workshops, perform a baseline carbon footprint and develop specific initiatives, goals and objectives for both municipal operations and the community. They also will audit and retrofit five facilities including the North Fire Station, Public Works Garage, Recreation Center, South Fire Station, Public Works Offices and Public Works Warehouse.

The **City of St. Augustine Beach** is utilizing both grant and matching funds to develop a retrofit plan for energy efficient streetlights. The streetlight retrofit plan will prioritize streetlight replacement based on return of investment, public use, and environmental impact. In addition, the city is developing a strategy that will include a formulation of energy efficiency, energy conservation, and energy usage goals as well as strategies to achieve these goals and methods to measure progress in achieving the goals and a retrofit plan.

St. Johns County is utilizing both grant and matching funds to conduct a travel time and delay study on each roadway segment to determine fuel consumption and emission of air pollutants by recording travel time and delay before and after the implementation of new timing/synchronization plans. Recommended retiming and coordination plans will be compiled into an engineering report which will be used as a basis for implementing retiming/improvements or operating plan modifications.

The **City of St Pete Beach** is utilizing both grant and matching funds to work on developing a comprehensive energy efficiency and energy conservation strategy for the top six energy users among St. Pete Beach public facilities

The **City of South Daytona** is developing a comprehensive sustainability action plan for both government operations and a community assessment of South Daytona. The plan will include an inventory of current sustainability programs and policies; solicit stakeholder input; identify goals and strategies; prioritize strategies; recommend strategies and targets, develop urban sustainability indicator tracking system and monitoring protocol, and a technical report.

The **City of Starke** is utilizing both grant and matching funds to conduct energy audits for 20 commercial and four industrial customers. These investment-grade audits will provide a dynamic model of energy-use in each existing facility and will identify energy conservation measures that will reduce peak electrical loads. In addition, the City will map the utility's distribution system, identify where power flow inefficiencies are occurring, select a set of reasonable solutions, and utilize the plan to understand the magnitude and opportunity for improvement

The **City of Sweetwater** will utilize True North Consulting to develop an Energy Efficiency and Conservation Strategy to achieve efficiency, energy conservation and energy usage goals. This project will include conducting an inventory of greenhouse gas emissions of government operations and the community, setting reduction targets, designing measures and programs to meet the targets and providing a monitoring and evaluation mechanism to update and modify the plan as needed. The plan will also address broader sustainability topics including natural systems, the green job market and community well-being.

The **Town of Welaka** is utilizing grant funds to develop an Energy Efficiency and Conservation Strategy which will include a plan for decreasing the Grantee's energy consumption and CO2 emissions. It will conduct an energy audit of Town Hall. The energy audit will be utilized to determine necessary retrofits which will likely include the retrofit of three HVAC systems, additional insulation, new windows and the replacement of the existing fluorescent and incandescent lighting with more efficient lighting.

The **Town of Westville** is utilizing both grant and matching funds to develop an Energy Efficiency and Conservation Strategy. The Strategy will include a plan for continuing to decrease the Grantee's energy consumption and reduce CO2 emissions.

The **City of Williston** is utilizing grant funds to complete commercial, industrial, and institutional facility energy audits as well as residential property energy audits.

The **City of Zephyrhills** will develop and implement a local conservation strategy.

ATTACHMENT C: PROMOTING ENERGY EFFICIENCY

The **City of Atlantic Beach** is utilizing both grant and matching funds to replace 23 HVAC systems, replace recreational lighting with energy efficient lighting at two baseball fields, and purchase fully electric vehicles.

Avon Park will purchase 10 electronic vehicles for City employees to assist them in performing duties for the City in a more energy efficient way. Five of the vehicles would be of the heavy duty type for heavy payloads and five vehicles would be of the light duty type for workers who need to get around the City.

The **City of Bartow** is utilizing both grant and matching funds to retrofit 11 city-owned buildings with new energy efficient lights, energy efficient heating and air conditioning systems, and retrofit the building envelope. In addition, the City is replacing 100 existing high pressure sodium street light fixtures in the downtown area with high powered light emitting diodes (LED's).

The **Town of Bay Harbor Islands** will retrofit lighting systems at three facilities with more energy efficient lighting technology. A minimum of 325 fixtures will be removed from the Village Hall, Public Works Building and Toll Plazas and replaced with Light Emitting Diode (LED) light fixtures.

The **City of Blountstown** is utilizing both grant and matching funds to replace strategic portions of the City's electric system in order to prevent line losses from old meters, undersized wire, and old undersized insulators. This project will result in an energy efficient storm hardened reliable distribution system prepared to meet the environmental and economic challenges of the next decade.

Broward County will provide rebates on energy efficient and water conserving devices designated by the EPA as Energy Star products. The rebate guidelines will be developed as part of the program. As a general guide, rebates will be provided as a flat rate for residential applicants and limited to 20 percent of equipment costs not to exceed \$1,000 for commercial applicants. Additionally, grant funds will be used to replace obsolete chillers at the Broward County West Regional Courthouse with new energy efficient chillers. The two existing 200-ton centrifugal water cooled chillers will be replaced with two new 200-ton centrifugal water cooled chillers. This project will reduce annual operating costs by 53 percent and the result in an annual savings of \$91,160. Also, they will upgrade air-conditioning systems in 43 county buildings. The upgrades include 61 central air-conditioning systems either packaged units or split units, 2 Mini-split units. The newer model air-conditioning systems will have a SEER of 14 -16 or higher. There will be a solar assistance feature on all units (Renewable energy component). Also, **Broward County** will utilize grant and match funds to integrate their new computerized signal system and associated communications infrastructure with a variety of Intelligent Transportation System (ITS) devices, and interfaced with one of the first Transportation Systems Management and Operations (TSM&O) projects in the state of Florida. This project is known as the Broward Central Corridors Project, which is a joint design-built effort between Broward County Traffic Engineering, Broward County Transit and the Florida Department of Transportation. The grant funds will be used to evaluate the performance of the new signal infrastructure in order to significantly improve the quality of the signal synchronization along major corridors within the network area, and allow the deployment of Transit Signal Priority. The study area is a congested corridor that contains 30.90 roadway miles, 185.4 lane miles and 89 traffic signals. The Grantee will select a qualified signal timing consultant to collect traffic counts, field conditions and perform baseline travel studies. The consultant will collect data and prepare a report documenting the improvement from baseline to newly implemented conditions.

The **City of Bunnell** is utilizing both grant and matching funds to replace eight pumps at the waste water treatment plant (WWTP) and 13 pumps at the water plant (WP) with more energy efficient models. The City will also replace the HVAC units at the WWTP and WP operations buildings.

The **City of Callaway** is utilizing both grant and matching funds to install five energy efficient HVAC units with a 20 seasonal energy efficiency ratio (SEER) rating, seal all duct work outside the conditioned building envelope and install ductless technology to reduce material used and energy loss, and apply thermal-white coating to reflect radiant heat on both the Planning Department Building and City Hall Building. In addition, the City will remove existing T-12 light fixtures and provide and install T-5 scotopic or induction lighting fixtures in the interior of the City Hall Building and the Planning Department Building as well as the exterior City Hall parking lot.

Canaveral Port Authority will complete lighting, heating, ventilating, and air conditioning HVAC retrofits in cruise terminals (5, 8, and 10). Also they will be conducting two energy efficiency training workshops for operations and maintenance personnel.

The **Town of Century** is utilizing grant funds to install 13 air conditioning units and replacing all existing T-12 lighting with T-5 lighting at the Grantee's Town Hall, Agricultural Building, and Helicopter Technologies Building.

The **City of Chipley** is utilizing grant funds to retrofit 122 existing downtown decorative street lights with high powered LEDs. The retrofit will include removing existing lights and globes, preparing the existing pole for LED technology, and installing the new LED light and globe.

Clean Fuels, LLC utilized both grant and matching funds to conduct energy efficient retrofits and equipment upgrades at their biodiesel plant, located in Lakeland Florida.

The **City of Clewiston** will identify applications such as street lighting, parking lot lighting, recreational lighting, and park areas for upgrades to energy-efficient outdoor lighting fixtures. Once the installation is complete, the city will collect data on the performance of the new fixtures and educate their customers to the energy savings, and cost saving benefits of energy-efficient lighting

The **City of Coleman** will be upgrading the HVAC system in city hall to lower power consumption.

The **Town of Cutler Bay** will retrofit its City Hall's interior and exterior lighting with more energy efficient lighting fixtures. In addition a electric vehicle charging station will be placed in the City Hall parking lot for public use.

The **City of DeLand** is utilizing both grant and matching funds to incorporated nine facilities into one Energy Management/Control system, to replace and/or upgrade HVAC, window and insulation at nine facilities, provide commercial sub-grants for energy efficiency retrofits followed by energy audits, and purchase of fully electric vehicles to replace current gasoline vehicles.

DeSoto County will use \$60,000 of the funding for a chiller upgrade at the County Courthouse. The existing system has reached the end of its useful life and is inefficient. The Grantee will also use \$100,000 of the funding for HVAC upgrade at the County Administration Building. The existing 17 HVAC systems have also reached the end of their useful life and are inefficient. The County also proposes to use \$20,000 of the funding for lighting efficiency upgrades at the County Administration Building. This will include replacing existing T-12 fluorescent lamps and magnetic ballasts with new low-mercury T-8 fluorescent lamps and high efficiency electronic ballasts. The T-8 fluorescent lamps utilize approximately one third of the energy of existing T-12 units. They will also upgrade their waste water treatment plant with Variable Frequency Drive (VFD) technology.

Town of Eatonville will replace existing lighting with energy efficient lighting, replace 10 existing HVAC systems, and make upgrades to windows and roof coating.

First Coast Technical College will utilize both grant and matching funds to retrofit lighting with efficient fixtures and retrofit outdoor lighting. First Coast Technical College will also install Campus

Controls and Variable Frequency Drives (VFDs) on existing HVAC units in conjunction with implementing an energy management system.

Florida Atlantic University is stalling new water-cooled chillers at the university and is promoting a new policy that all new construction projects must be Leadership in Energy & Environment Design (LEED) certified.

Florida Department of Agriculture and Consumer Services/Division of Forestry will retrofit 15 DOF district offices replacing old HVAC systems, window film, building weatherization, and replacement of energy-draining lighting with Energy Star products.

The **Florida Department of Management Services** is utilizing grant funds to retrofit a total of eight sites throughout the state of Florida with energy efficient systems including replacing ten chiller systems, replacing two air handler controls, installing a 195,000 kWh solar photovoltaic (PV) system, installing variable frequency drives (VFDs) and implementing new control strategies.

The **City of Freeport** is utilizing both grant and matching funds to replace existing pump motors at the City's water and waste water system with four 30 horsepower (HP) efficiency motors and three 100 HP efficiency motors along with adjustable speed drives.

The **City of Greenacres** is upgrading three existing heating, ventilating, and air conditioning (HVAC) systems, upgrading all existing lighting fixtures, and installing occupancy sensor light switches in all rooms and common areas at the City of Greenacres Public Safety Station.

The **City of Green Cove Springs** is utilizing both grant and matching funds to develop and implement outdoor lighting retrofit. Lighting projects will include street lighting, parking lot lighting, recreational lighting, and park lighting.

City of Gretna will conduct energy efficient retrofits to include the installation of Energy star rated windows and doors, and the installation of an energy efficient HVAC system.

Hardee County will replace a minimum of 110 existing thermostats with programmable and remotely controllable energy efficient thermostats at the Civic Center, Fire Department, Pioneer Park offices, Human Resources, Purchasing, Road & Bridge, Facilities Management, Courthouse, Courthouse Annex I, Courthouse Annex II, Emergency Operations Center, State Attorney's office, State Probation Office, Zoning, Tri-County Addictions, Property Appraiser, and Jail Complex. Also, they will replace at a minimum 480 inefficient T-12 magnetic ballast fixtures and incandescent lighting with high efficiency T-8 electronic ballast fixtures. The Grantee will use electricians employed by the County to replace the light fixtures at the Fire Department, Pioneer Park offices, Human Resources, Purchasing, Resthaven, Museum, Nickerson/Ullrich Building, Public Defender's office, Vehicle Maintenance Shop, Emergency Operations Center, State Attorney's office, State Probation Office, Zoning, Tri-County Addictions, Property Appraiser, and Jail Complex.

The **City of Inverness** is utilizing both grant and matching funds to install energy efficient outdoor sports lighting at two youth size baseball fields and four tennis courts at Whispering Pines Park.

Jewish Federation of Boca Raton will be replacing a chiller, changing light fixtures, and installing a PV system

The **Town of Juno Beach** is utilizing grant funds to retrofit the municipal lighting. They will also retrofit the air conditioning equipment at municipal buildings. Finally, they will retrofit the HVAC at the municipal buildings.

Keys Energy Service is utilizing both grant and matching funds to install a thermal storage unit at one of their service buildings and to install an energy management system to control lighting and cooling at

their headquarters. In addition, Keys Energy Service will provide 1,000 rebates for air conditioning units, heat pumps, room air conditioning units, programmable thermostats, duct work repairs, and energy efficient clothes washers, refrigerators, freezers, dishwashers, and dehumidifiers and conduct a minimum of 225 free residential energy audits which include an energy savings kit.

Lafayette County is utilizing both grant and matching funds to reduce greenhouse gas (GHG) emissions, demand for energy, and energy costs. The projects include performing energy efficient retrofits to six existing community centers throughout Lafayette County.

The **City of Lake Mary** is utilizing both grant and matching funds to install energy efficient outdoor sports lighting at two youth size baseball fields and four tennis courts at Whispering Pines Park.

The **City of Leesburg** through its own funding, the USDOE sponsored Smart Grid Investment Grant (SGIG), and EECBG funds, will be able to deliver electricity to residents and businesses using two-way digital technology to control appliances to save energy, reduce cost, and increase reliability and resiliency by installing utility communication, data management infrastructure and 23,000 smart meters.

Leon County utilized both grant and matching funds to select four energy conservation measures due to their quick return of investment and include: installing energy efficient light fixtures, installing occupancy control systems, installing vendor miser controls, and providing a chilled and hot water set point.

Liberty County is utilizing both grant and matching funds to make energy efficient retrofits to the existing County Courthouse, which was built in 1942. Retrofits will include energy efficient windows, insulation, tank less water heaters, and Heating, Ventilating, and Air Conditioning (HVAC) system. The Grantee will also replace the existing roof covering with Energy Star metal shingles, which will reduce the heat gain and the cooling load.

Lighthouse Point will remove and install LED lighting fixtures to 2 baseball field parks.

Marc Rutenberg Homes, Inc. is utilizing both grant and matching funds to build four net zero energy homes and create an integrated and systematic approach to the process of building zero energy homes that can be easily duplicated.

The **City of Marianna** is utilizing grant funds to reduce greenhouse gas emissions within the City of Marianna. The projects will replace the City's six antiquated heating ventilation and air conditioning (HVAC) units, with a more energy efficient geothermal unit within City Hall. In addition, the City plans to replace 137 antiquated light bulbs and fixtures with more energy efficient light fixtures with electronic ballast.

The **School Board of Marion County** is utilizing grant funds to reduce the demand for energy and energy costs. This project will replace 3,945 lamps with energy efficient LED's, also known as Solid-State Lighting. LED replacement lamps is estimated to use 67 percent less energy than the facilities existing lighting. As a result of this change the heat load will be reduced, which will also result in reduced cooling costs.

Monroe County will utilize both grant and matching funds to install solar hot water heaters in low to moderate income households, retrofit lighting in six public parks with new energy efficient light fixtures, replace lighting in Founders Park and the Administrative & Public Safety Headquarters parking lot located within the park, purchase hybrid vehicles to replace conventional gas-powered vehicles, and implement energy efficiency measures, based upon audit findings, at four Monroe County facilities, located in Key West which may include retrofit lighting, insulation, heating, ventilation and air-conditioning (HVAC) upgrades, training programs for operation and facility users and monitoring systems.

The **City of Mount Dora** is utilizing both grant and matching funds to upgrade 10 older air conditioning systems with new high-efficiency units at three buildings. In addition, the City is upgrading 10 parking lot lights at the W. T. Bland Public Library and 50 antique lights in Donnelly Park and in the downtown business district with LED streetlights.

The **City of Mulberry** is utilizing both grant and matching funds to replace at a minimum 300 inefficient T-12 magnetic ballast fixtures and incandescent lighting with high efficiency T-8 electronic ballast fixtures. Currently there are no occupancy controls in city-owned buildings. The Grantee will install 67 occupancy controls in five City-owned buildings. In addition, the City is replacing electric pumping motors in the water and wastewater treatment facilities. The City will select pumps based on maximum efficiency and consider the correct pump size, both constant and variable flow, head conditions, and system requirements. The City also will be installing a total of 13 high efficiency heating ventilation and air conditioning (HVAC) systems with a minimum rating of 16-18 seasonal energy efficiency rating (SEER) in six City-owned buildings.

The **City of Newberry** is utilizing both grant and matching funds to replace 20 streetlight fixtures with energy efficient fixtures.

Okeechobee County identified six projects to reduce greenhouse gas emissions (GHG) and energy consumption within the County. The six projects include replacing 33 heating, ventilating and air conditioning (HVAC) units at 11 County buildings, starting a mass media internet campaign, retrofitting a residential home, insulating 10 County buildings, installing energy efficient window at three County buildings, and installing energy efficient lighting at nine County Buildings.

The **City of Palmetto** will be installing HVAC systems in primary City-owned buildings. They will be installing variable frequency drives for the waste water treatment plant. Also, they have installed retrofit lighting in the streetlights in the downtown area and in the City Hall parking lot.

The **City of Parkland** will retrofit the lighting system at Terramar Park. Currently the park has 84 lighting fixtures. These 84 fixtures will be replaced with 56 green light fixtures resulting in a reduction in energy consumption and CO2 emissions of 55.8 percent. In order to reach these energy savings the Grantee will install new lighting fixtures, re-wire the existing electrical grid and integrate an internet based centralized control system.

The **Philharmonic Center for the Arts** is utilizing both grant and matching funds to install a new chiller system.

Pioneer Growers Cooperative is utilizing both grant and matching funds to replace three 60 ton (75HP) Freon compressor units with one 200 ton ammonia compressor, and replace an existing 13-ton condenser with a new evaporative condenser. The Grantee will also install a computer control system to operate the hydro-cooler at optimum energy usage.

Town of Ponce De Leon will be performing energy efficient retrofits to the gymnasium building and installing a liquid insulation roofing system on existing Town Hall building.

Rivian Automotive, Inc. is utilizing grant funds to design, development, and build of an affordable ultra fuel efficient vehicle in Brevard County, FL. This includes, but is not limited to the powertrain, frame, interior, exterior, suspension, aerodynamics, crash structures, supplier agreements, and manufacturing system.

Village of Royal Palm Beach is replacing existing lighting, installing a lighting control system, and conducting circuit reconfigurations to reduce energy costs and increase energy conservation for the Village.

The **City of St. Augustine** is utilizing both grant and matching funds to remove and properly dispose of 505 HPS lights currently installed and used at the Historic Downtown Parking Facility. The HPS lighting will be replaced with 505 LED fixtures. Upon completion of the project, an informational placard will be installed explaining the project and the energy and cost savings associated with the light fixture replacement.

St. Johns County is utilizing grant and matching funds to perform a heating, ventilation, and air conditioning (HVAC) retrofit, a chiller retrofit, an indoor lighting retrofit and installation of cool roof coatings. The retrofits will be performed at County-owned buildings: Old Jail, Sheriff's Administration, Main Library, Ponte Vedra Library, Bartram Library, Ketterlinus Gym, Cypress Maintenance Building, New Jail Isolation Corridor, Courthouse Annex, Council On Aging, Sheriff's Office, Newer Section of Jail, SR16 WWTP, Anastasia WWTP, Sawgrass WWTP, Animal Control Facility, Administration Building, Emergency Operations Center, Traffic Court Building and Sheriff's Annex.

St. John County's Housing Authority will implement energy management fundamentals, create energy efficient homes, and reduce fossil fuel consumption for some of those in their Affordable Housing program and St. John's county residents.

The **City of St Petersburg Beach** is utilizing both grant and matching funds to development of a comprehensive energy efficiency strategy for the top six energy users among St. Pete Beach public facilities. The City will also install a heating, ventilation, and air conditioning (HVAC) controls, with internet capabilities and remote programming, at six St. Pete Beach public facilities. The City will also replace three HVAC units with high efficiency HVAC units.

The **City of Satellite Beach** is utilizing both grant and matching funds to conduct energy audits of five city owned buildings and to make the retrofits. The specific changes to heating, ventilation and air conditioning (HVAC) systems and interior lighting included in this project will be based on the results. The upgrades will include the replacement of HVAC systems in the Civic Center and City Hall with Seasonal Energy Efficiency Ratio (SEER) 20 or higher systems. Based on audits, it is expected that the following retrofits will be conducted:

- The entire water-to-air HVAC system in the Civic Center (including condensers, air handler, ducts, and controls). As appropriate, replace the HVAC system's condensers and air handler in City Hall.
- In the Civic Center, replace indirect lighting fixtures with high-efficiency, direct lighting fixtures.
- Modify the controls on the HVAC chiller system to optimize performance. Modify components of the system, which uses chilled water-storage so that it will run only during periods of reduced electrical demand.

The **City of Seminole** is utilizing both grant and matching funds to retrofit sports lighting, replace a total of 1,548 existing non-efficient lights with LED lights, install occupancy control system installation, conduct a solar power study, and an energy audit for the heating, ventilating, and air conditioning system at the City Recreation Center. In addition, the City will replace an aging and inefficient heating, ventilating, and air conditioning (HVAC) system in the Magnum Recreation Center. The current HVAC system is responsible for 51 percent of the 47,000 square foot buildings energy consumption. The project consists of replacing two 100 ton air cooled chilled water plant with a new 200 ton water cooled chiller plant. In addition the HVAC controls will be upgraded to better control water supply, flow and air temperature.

Seminole State College will be replacing two 500 ton chillers rated at 0.72kW per ton with two high efficient chillers rated at 0.525kW per ton.

City of South Pasadena will replace current street lights with LED lighting within the community and retrofit buildings with air controlled measures. South Pasadena has already purchased propane lawn mowers to replace 2 old gasoline riding mowers.

The **City of Starke** is utilizing both grant and matching funds retrofit the wastewater treatment system to make the plant as energy efficient as possible. In addition, the City will replace five different HVAC compressors that are 20 years old with two 10 ton units, one 5-ton unit, one 3-ton unit, and one 1.5-ton unit.

Suwannee County will replace an old cooling system with an energy efficient HVAC system and install foam installation to the walls and roof of the existing coliseum.

The **City of Sweetwater** will reduce energy use by replacing air-conditioning units and ducts with more energy efficient heating, ventilation and air-conditioning (HVAC) systems. They will also utilize grant funds to retrofit six lights in the City-owned ball fields at Ronselli Park. The existing fixtures will be removed and replaced with Light Emitting Diode (LED) lighting which will result in a reduction in overall energy consumption.

The **City of Treasure Island** is utilizing both grant and matching funds to perform energy efficient upgrades to lighting in city hall, public works, police, and fire buildings. These upgrades will include replacing current florescent lights with LED light bulbs, as well as installing lighting/occupancy sensors as recommended by an energy audit. The City will also replace all windows in city hall, public works, and community center facilities with double paned vinyl framed, with impact glass, clear in color with low-E and argon gas windows.

The **University of Florida** in partnership with Orlando Utility Commission (OUC) is utilizing grant funds to provide several rebates for large energy efficiency measure for multi-family housing units in the OUC territory. Retrofits may include Heating Ventilation and Air Conditioning (HVAC), windows, insulation, lighting, and other energy efficiency measures.

The **City of Venice** has installed HVAC systems in the city police department and has replaced the city street lights with the LED lights downtown Venice.

The **City of Vernon** will be installing energy efficient exit signs, indoor lighting, and heating, ventilating, and HVAC systems. The city will also install an energy efficient liquid insulation system to the existing roofs.

The **City West Melbourne** planned three projects to reduce greenhouse gas emissions and energy production within the City of West Melbourne (City). The first project will replace existing magnetic ballast and T12 light bulbs with high efficiency electronic ballast and T8 28 Watt bulbs at the Police Station, Community Center, and the Public Works Yard. The second project will replace one of the three 250-HP blower fan assembly units with two 125-HP blower fan assemblies at the Water Reclamation Facility. The final project will replace the existing air cooled Remote Terminal Unit (RTU) with water cooled (Geothermal Cooling) units at the Community Center.

The **Town of Westville** is utilizing both grant and matching funds to replace the street lights throughout the town with a complete solar LED lighting system. The Grantee shall replace 36 of the lights with a complete solar LED lighting system. In addition, the Town will conduct an energy audit and retrofit the existing Town Hall and Community Center. This project will include replacing the 34 existing fluorescent lights with LED lights equipped with new acrylic lenses, replace the eight existing incandescent lights with LED lights, and replace four exiting exit signs with LED exit signs. In addition, the existing HVAC units and hot water heaters will be replaced with newer, more energy efficient models.

The **City of Williston** is utilizing grant funds to conduct a series of retrofits to improve the energy efficiency of the waste water treatment plant and NW 5th Place Ejector Station. The Grantee will replace the Return Activated Sludge Pump and the Effluent Transfer Pumps at the waste water treatment plant with more energy efficient pumps. The City will also replace a pump in the Place Ejector Station.

The **City of Winter Park** is utilizing both grant and matching funds to replace a 40 year old chiller in the City Hall building with a high efficiency modular chiller and a variable speed pumping package, replace an old rooftop HVAC unit in the City Library with a new DX CDQ energy recovery unit, replace the current constant volume system in the City Hall building with a variable air volume (VAV) system, and install occupancy sensors at City Hall and the Public Safety building. In addition, the City will replace inefficient fluorescent lighting systems with T-8 lamps and energy efficient ballasts to reduce energy consumption in 20 public facilities and install an energy management system (EMS) and programmable thermostats to manage and control heating, ventilation and air conditioning (HVAC) equipment.

The **City of Zephyrhills** will conduct energy audits and retrofit two City buildings, purchase a hybrid vehicle.

ATTACHMENT D: ASSISTING LOCAL GOVERNMENTS COMMUNITY OUTREACH AND EDUCATION EFFORTS TO STIMULATE ENERGY CONSERVATION, AND ENERGY EFFICIENCY

The **City of Bartow** is utilizing both grant and matching funds to educate their residents about solar technology and energy efficient lighting by developing brochures and mailing stuffers on the five kilowatt photovoltaic installation the streetlight retrofit project in the downtown area and energy.

The **City of Blountstown** is utilizing both grant and matching funds to determine cost-effective retrofits that both homeowners and businesses can perform to conserve energy. Staff will also research best practices for managing energy usage and will develop and distribute a handout for both residential and commercial consumers on the importance of energy conservation along with affordable retrofit ideas.

Broward County will develop and implement a multi-media outreach campaign with support from contractors. The program will include promoting the need for and benefits of energy conservation, opportunities for improving energy efficiency at home, and the Grantee's energy-efficiency rebate program to help facilitate individual participation through improvements at home. Radio spots, internet, events, and print materials may be among the outreach tools used.

Broward County will work with the School Board of Broward County (SBBC) to expand an existing environmental partnership agreement focused on conservation and sustainability. The grant project is designed to provide additional greenhouse gas (GHG) reductions and encourage energy conservation practices through (1) installation of 10 KW photovoltaic (PV) systems at a local middle school selected to serve as focal point for students to learn about renewable energy and energy conservation in concert with the Florida SunSmart program (2) holding a Community Outreach event featuring the installed photovoltaic systems and education on the benefits of energy conservation to GHG reduction and (3) implementation of energy management plans and improvements at the selected school.

Broward County will design an outreach campaign geared toward increasing public awareness of the value of public transit (specifically Broward County Transit) as an affordable, efficient, and climate friendly transportation alternative. Messages will include the benefits of public transit as a viable, safe and economical alternative for traveling while saving energy. Campaign focus will include advertising/promotion via social media, other internet communications, radio, and print media. Participation at special events and community outreach opportunities for the sharing of information will also be a key component for the public outreach campaign.

The **Town of Century** will utilize match funds to develop and implement an education outreach program.

The **City of DeLand** is utilizing both grant and matching funds to conduct two green street fairs focusing on "Do it Yourself Projects", energy conservation, and education.

Desoto County will implement an education and community outreach plan to act as an information source to local businesses, residents and school children within the County. The education campaign will consist of three tasks including outreach to the business community through business members of the Chamber of Commerce, outreach to residents of DeSoto County and cooperation with the School District of DeSoto County. The education campaign will include a minimum of two workshops for the business community and residents of DeSoto County.

Florida's Division of Codes and Standards will contract with the state university Center that provides technical support to development of the Energy Code to develop a "Train the Trainer" program and to design and conduct the code compliance study. The FBC will utilize its contacts with

effected industry groups and local government code enforcement organizations to organize participation in these projects. Codes and Standards also will contract with the Florida Solar Energy Center at the University of Central Florida (FSEC) that provides technical support to the development of the Florida Energy Code. FSEC will design and conduct a code compliance study.

Town of Hypoluxo is awarding grants to their residents for installing Solar PV's and Hot Water Heaters.

Leon County is utilizing both grant and matching funds to demonstrate energy conservation practices that can be applied to the daily governmental operations through simple measures for County employees. This project will include training for County employees, informational brochures, and enhancements to the City's sustainability website. In addition, the County will install a public information kiosk which displays live energy production and consumption data and generate multi-media material as a component of the kiosk and educational materials such as photos, PowerPoint and/or video production.

Monroe County is utilizing both grant and matching funds to facilitate the production of a 15-minute video and radio segment for National Public Radio (NPR) to highlight the Keys Energy Conservation Initiative. The educational and outreach materials will be available on local government websites and television channels. The materials will be disseminated by CD, DVD and email. Additionally, the Grantee will hold 12 educational workshops for commercial and residential energy efficiency measures. Outreach components of this project will increase the number of Green Living and Education (GLEE) Certified Green Business Partnerships by 100 percent. Monroe County will also conduct residential and commercial energy audits and an energy audit for City facilities in the City of Marathon.

The **City of Newberry** is utilizing both grant and matching funds to develop and implement an energy efficiency and conservation education outreach program. This program will promote community involvement by adding energy efficiency awareness content to existing curriculum for elementary, middle, and high school students; updating the Grantee's Web site to provide an interactive and useful site with easily implemented energy efficiency and conservation tactics for city residents, as well as real-time tracking of the City solar demonstration project's energy savings; offering technical assistance on energy efficiency and conservation to City residents and businesses; and finally by providing informational workshops on energy efficiency and conservation .

The **Town of Palm Beach** will host and develop three community workshops to gauge interest in participation in community programs designed to encourage residents, business owners and non-profits to improve energy efficiency and deploy renewable energy on their properties. Each workshop will consist of at least 20 participants.

The **City of St. Augustine Beach** is utilizing both grant and matching funds to develop and implement an energy efficiency education outreach program. This program will target City residents by updating the City's Web site and providing training workshops on useful and easily implemented energy efficiency tactics.

St. Johns County is utilizing both grant and matching funds to provide 90 training workshops for residents and building professionals covering energy efficiency and conservation issues in the agriculture, commercial building, industrial, and institutional sectors.

St Lucie County is utilizing both grant and matching funds to provide loans for energy retrofits and solar enhancements. The financial model overcomes the high upfront cost of energy and efficiency improvements and will produce energy savings to offset the repayment of principal and interest on the loans.

The **City of Satellite Beach** is utilizing both grant and matching funds to provide energy education by disseminating information on energy conservation and its environmental and economic impacts. The City will publish this information in ten issues of the Grantee's bi-monthly newsletter, which is mailed to every address in the Grantee's area and reaches approximately 5,000 families and businesses.

The **City of South Daytona** is partnering with the Volusia Building Industry Association and the University of Florida Institute of Food and Agricultural Sciences (IFAS) to offer educational opportunities to residents and contractors in South Daytona and surrounding communities. Both organizations will provide instructional staff to offer training for local contractors and residents instructing them on the importance of energy conservation and green construction. The focus will be to promote the adoption of best design, construction, and management practices that measurably reduce energy and water consumption and environmental degradation in new residential community developments and commercial construction. It will also focus on measures to retrofit current buildings to make them more energy efficient

The **City of Sweetwater** will train all City employees in understanding energy efficiency and energy use and will provide opportunities to improve workforce skills in environmental best practices. True North Consulting will conduct training seminars using case studies, video presentations, guest presenters and lectures for all City employees based on functionality and level of decision making.

The **City of Winter Park** is utilizing both grant and matching funds to offer two energy awareness seminars for local businesses and residents. The first seminar is a Residential Energy Awareness Campaign (REAC) through which the City will distribute energy efficient compact fluorescent lamps along with educational materials. The second seminar, an Energy Conservation/LEED Training Program, is designed to involve commercial and industrial businesses involved in energy conservation. Approximately 100 people are expected to attend each seminar.

Attachment E: Glossary of Electric Utility Terms

Average Annual KWH Use per Customer – Annual kilowatt-hour sales of a class of service (see Classes of Electric Service for list) divided by the average number of customers for the same 12-month period (usually refers to all residential customers, including those with electric space heating). A customer with two or more meters at the same location because of special services, such as water heating, etc., is counted as one customer.

B20 - Blends of biodiesel and conventional hydrocarbon-based diesel are products most commonly distributed for use in the retail diesel fuel marketplace. Much of the world uses a system known as the "B" factor to state the amount of biodiesel in any fuel mix. 20 percent biodiesel, 80 percent petrodiesel is labeled B20.

BTU (British Thermal Unit) – The standard unit for measuring quantity of heat energy, such as the heat content of fuel. It is the amount of heat energy necessary to raise the temperature of one pound of water one degree Fahrenheit.

Capability – The maximum load which a generating unit, generating station, or other electrical apparatus can carry under specified conditions for a given period of time, without exceeding approved limits of temperature and stress.

Capacity – The load for which a generating unit, generating station, or other electrical apparatus is rated either by the use or by the manufacturer.

Coal – Average cost per (short) ton (dollars per ton) – includes bituminous and anthracite coal and relatively small amounts of coke, lignite, and wood.

Combined Cycle – Consists of three components: two combustion turbines, each with its own generator, and one steam boiler with associated steam turbine generator.

Cooperatives (Cooperatively-Owned Electric Utilities) – is a type of cooperative that is tasked with the delivery of a public utility such as electricity, water or telecommunications to its members. Profits are either reinvested for infrastructure or distributed to members in the form of "patronage" or "capital credits", which are essentially dividends paid on a member's investment into the cooperative. Most cooperatives have been financed by the Rural Electrification Administration.

Customer (Electric) – A customer is an individual, firm, organization, or other electric utility which purchases electric service at one location under one rate classification, contract, or schedule. If service is supplied to a customer at more than one location, each location shall be counted as a separate customer unless consumption is combined before the bill is calculated.

Demand – The rate at which electric energy is delivered to or by a system, part of a system, or a piece of equipment expressed in kilowatts, kilovolt-amperes, or other suitable unit at a given instant or averaged over any designated period of time. The primary source of "Demand" is the power-consuming equipment of the customers.

E85 - E85 is an abbreviation for an ethanol fuel blend of up to 85 percent denatured ethanol fuel and gasoline or other hydrocarbon (HC) by volume. E85 is commonly used by flex-fuel vehicles in the US, and Europe. Some of the benefits of E85 over conventional gasoline powered vehicles include the potential for localized production of fuel in agricultural areas.

Electric Utility Industry or Electric Utilities – All enterprises engaged in the production and/or distribution of electricity for use by the public, including investor-owned electric utility companies; cooperatively-owned electric utilities; government-owned electric utilities (municipal systems, federal

agencies, state projects, and public power districts); and, where the data are not separable, those industrial plants contributing to the public supply.

Energy, Electric – As commonly used in the electric utility industry, electric energy means kilowatt-hours.

Fuel for Electric Generation – Includes all types of fuel (solid, liquid, gaseous, and nuclear) used exclusively for the production of electric energy. Fuel for other purposes, such as building heating or steam, sales is excluded.

Gas –Includes natural, manufactured, mixed, and waste gas. Gas is frequently expressed as cost per therm (100,000 BTU). Additional, definition is a fuel burned under boilers by internal combustion engines and gas turbines for electric generation.

Gas-MCF – 1,000 cubic feet of gas.

Gas Turbine – An electric generating station in which the prime mover is a gas turbine engine.

Generating Station (Generating Plant or Power Plant) – A station with prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or nuclear energy into electric energy.

Geothermal – An electric generating station in which the prime mover is a steam turbine. The steam is generated in the earth by heat from the earth's magma.

Hydroelectric – An electric generation station in which the prime mover is a hydraulic turbine.

Internal Combustion – An electric generating station in which the prime mover is an internal combustion engine.

Generating Unit – An electric generator together with its prime mover.

Generation, Electric – This term refers to the act or process of transforming other forms of energy into electric energy, or to the amount of electric energy so produced, expressed in kilowatt-hours.

Gigawatt-Hour (GWH) – One million kilowatt-hours, one thousand megawatt-hours, or one billion watt-hours.

Gross – The total amount of electric energy produced by the generating units in a generating station or stations.

Investor-Owned Electric Utilities – Those electric utilities organized as tax-paying businesses usually financed by the sale of securities in the free market, and whose properties are managed by representatives regularly elected by their shareholders. Investor-owned electric utilities, which may be owned by an individual proprietor or a small group of people, are usually corporations owned by the general public.

Kilowatt (KW) – 1,000 watts.

Kilowatt-Hour (KWH) – The basic unit of electric energy equal to one kilowatt of power supplied to or taken from an electric circuit steadily for one hour.

Kilowatt-Hours per Capita – Net generation in the United States divided by the national population, or the corresponding ratio for any other area.

Load – The amount of electric power delivered or required at any specified point or points on a system. Load originates primarily at the power-consuming equipment of the customers.

Load Factor – The ratio of the average load in kilowatts supplied during a designated period to the peak or maximum load in kilowatts occurring in that period. Load factor, in percent, also may be derived by multiplying the kilowatt-hours in the period by 100 and dividing the product of the maximum demand in kilowatts and the number of hours in the period.

Loss (Line losses) – The general term applied to energy (kilowatt-hours) and power (kilowatts) lost in the operation of an electric system. Losses occur principally as energy transformations from kilowatt-hours to waste heat in electric conductors and apparatus.

Megawatt (MW) – 1,000 kilowatts.

Megawatt-Hour (MWH) – 1,000 kilowatt-hours.

Municipally-Owned Electric System – An electric utility system owned and/or operated by a municipality engaged in serving residential, commercial, and/or industrial customers, usually, but not always, within the boundaries of the municipality.

Net Energy for Load – A term used in Federal Energy Regulatory Commission reports and comprising:

1. The net generation by the system's own plants, plus
2. Energy received from others (exclusive of receipts for borderline customers), less
3. Energy delivered for resale to those Class I and II systems which obtain a part of their power supply from sources other than the company's system.

Nuclear Energy – Energy produced in the form of heat during the fission process in a nuclear reactor. When released in sufficient and controlled quantity, this heat energy may be used to produce steam to drive a turbine generator and thus be converted to electrical energy.

Nuclear Fuel – Material containing fissionable materials of such composition and enrichment that when placed in a nuclear reactor will support a self-sustaining fission chain reaction and produce heat in a controlled manner for process use.

Nuclear – An electric generating station in which the prime mover is a steam turbine. The steam is generated in a reactor by heat from the fissioning of nuclear fuel.

Oil – Includes fuel oil, crude and diesel oil, and small amounts of tar and gasoline.

Peaking – Generating capability normally designed for use during the maximum load period of a designated time interval.

Publicly Owned Electric Utilities (Government-Owned Electric Utilities and Agencies) – When used in statistical tables to indicate class of ownership, this term includes municipally owned electric systems and federal and state public power projects. Cooperatives are not included in this grouping.

Residential – A customer, sales, or revenue classification covering electric energy supplied for residential (household) purposes. The classification of an individual customer's account where the use is both residential and commercial is based on principal use.

Rural – A rate classification covering electric energy supplied to rural and farm customers under distinct rural rates.

Service Area – Territory in which a utility system is required or has the right to supply electric service to ultimate customers.

Summer Peak – The greatest load on an electric system during any prescribed demand interval in the summer or cooling season, usually between June 1 and September 30.

Steam Generation– An electric generating station in which the prime mover is a steam turbine. The steam is generated in a boiler by heat from burning fossil fuels.

System, Electric – The physically connected generation, transmission, distribution, and other facilities operated as an integral unit under one control, management, or operating supervision.

Thermal – A term used to identify a type of electric generating station, capacity or capability, or output in which the source of energy for the prime mover is heat. Additionally, another definition is the rating of a thermal electric generating unit or the sum of such ratings for all units in a station or stations.

Turbine (Steam or Gas) – An enclosed rotary type of prime mover in which heat energy in steam or gas is converted into mechanical energy by the force of a high velocity flow of steam or gases directed against successive rows of radial blades fastened to a central shaft.

Utility Rate Structure – A utility’s approved schedule of charges for billing utility service rendered to various classes of its customers.

Watt – The electrical unit of power or rate of doing work; also the rate of energy transfer equivalent to one ampere flowing under a pressure of one volt at unity power factor. A watt is analogous to horsepower or foot-pounds per minute of mechanical power. One horsepower is equivalent to approximately 746 watts.

Winter Peak – The greatest load on an electric system during any prescribed demand interval in the winter or heating season, usually between December 1 of a calendar year and March 31 of the next calendar year.

Sources:

Edison Electric Institute
Florida Electric Power Coordinating Group, Inc.
Florida Public Service Commission