Florida Electrical Power Plant Siting Act
Site Certification Application

Volume 2 of 3

Cane Island Power Park – Unit 4

Submitted by:
Florida Municipal Power Agency
Kissimmee Utility Authority

April 2008

Florida Municipal Power Agency
Community Power. Statewide Strength.

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10.0 Permit Applications

This section identifies the permits, approvals, and agreements that are required to construct and operate Unit 4. The permit applications for federal, state, and local authorizations are included for informational purposes and to support agency review of the Unit 4 Project. The site certification application and any final site certification constitute the sole license of the state and any regional or state agency for the construction and operation of Unit 4 in accordance with Section 403.511(1), Florida Statutes (FS).

10.1 Existing Federal Permits

10.1.1 Notice of Intent to Use Multi-Sector Generic Permit for Storm Water Discharge Associated with Industrial Activity

KUA holds a valid NPDES multi-sector permit for uncontaminated storm water discharges from the CIPP. A copy of that permit is included herein. The existing Storm Water Pollution Prevention Plan in effect at the CIPP will be revised to incorporate Unit 4. Copies of this plan are available from KUA.

10.1.2 Oil Pollution Prevention

The amount of reserve fuel oil stored at the CIPP requires KUA to comply with the EPA oil pollution prevention regulations. The existing CIPP Integrated Contingency Plan is in compliance with those regulations. This plan will be revised to incorporate Unit 4 facilities prior to operation. Copies of the plan are available from KUA.

10.2 Federal Permits Applications and Approvals

10.2.1 NPDES Applications

Florida has been delegated authority by the EPA to administer the NPDES wastewater and storm water programs in the state.

10.2.1.1 Wastewater Discharge to Surface Waters. In the event the Toho pipeline is out of service and unavailable for return of site wastewaters, FMPA and KUA request an NPDES wastewater permit to allow discharge of process wastewaters to the onsite storm water basins as a temporary disposal method. The discharge structures of the basins can be plugged to prevent the discharge of these wastewaters to the Reedy Creek Swamp; however, if the pipeline is out of service for any length of time (several days), the basins may require discharge. An NPDES permit application (Form 62-620.910(5) FAC; Form 2CS) for this emergency discharge is included herein.

10.2.1.2 Notice of Intent to Use Generic Permit for Storm Water Discharge from Large and Small Construction Activities. The Notice of Intent (NOI) form must be completed and submitted to the FDEP prior to Unit 4 construction activities at the CIPP site. A partially completed NOI [Form 62-621.300(4)(b), FAC] is included herein. FMPA will require the contractor responsible for the site earthwork to obtain this authorization prior to construction.

A Storm Water Pollution Prevention Plan for Storm Water Discharges from Construction Activities will be prepared by the contractor for Unit 4 construction. The Storm Water Pollution Prevention Plan is required to be onsite and implemented during the construction period.

10.2.2 Department of Energy Self-Certification

The primary and only fuel for Unit 4 is natural gas. FMPA has also requested LNG as a fuel for the existing units, Unit 4, and future units.

The Power Plant and Industrial Fuel Use Act requires FMPA to certify that, with the installation of additional equipment, Unit 4 would be capable of firing coal or another alternate fuel such as gasified coal or biomass as the primary energy source. A draft copy of the Self-Certification is included herein.

10.2.3 Federal Aviation Administration - Determination of No Hazard to Air Navigation

The FAA requires that structures over 200 feet in height or within a specified distance of an airport be marked and lighted in accordance with the standards of the FAA Advisory Circular AC 70/7460-1K Obstruction Marking and Lighting. Although the Unit 4 stack will be less than 200 feet in height, a construction crane, likely 200 feet or greater in height, will be onsite during construction. The application for a construction crane is completed on FAA Form 7460-1 is included herein.

10.2.4 Army Corps of Engineers and Fish and Wildlife Service Notification

The Corps of Engineers and the Fish and Wildlife Service were notified of the Unit 4 project in March 2008. Copies of the notification letters are included herein. No impacts to waters or wetlands, and no adverse impacts to threatened or endangered species are anticipated from construction or operation of Unit 4.

10.2.5 316 Demonstrations

Not required.

10.2.6 Hazardous Waste Disposal Application

Not required.

10.2.7 Environmental Resource Permit Application (Section 10 or 404 Permit)

The Corps of Engineers has the authority to review the potential environmental impacts associated with the construction and operation of Unit 4 and associated facilities. Although there will be no waters or wetlands impacts due to Unit 4 construction or operation, the Corps was notified of the project by letter in March 2008. A copy of this letter is included in Subsection 10.2.4 above.

10.2.8 Prevention of Significant Deterioration Permit Application

The construction and operation of Unit 4 will require a PSD air construction permit. The FDEP will review the PSD application in coordination with the EPA. The PSD Air Permit Application is attached under separate cover as Volume 3 of this SCA.

10.2.9 Title IV Acid Rain Part Application

Modification of the existing Title IV Permit will be required with the addition of Unit 4. Attachment 7 of Appendix A to SCA Volume 3 lists the Acid Rain Part Application.

10.3 Zoning Descriptions

A copy of the Osceola County Conditional Use/Site Development Plan Permit issued for Unit 3 and the zoning categories identified in the Osceola County Land Development Code applicable to the CIPP site are included herein.

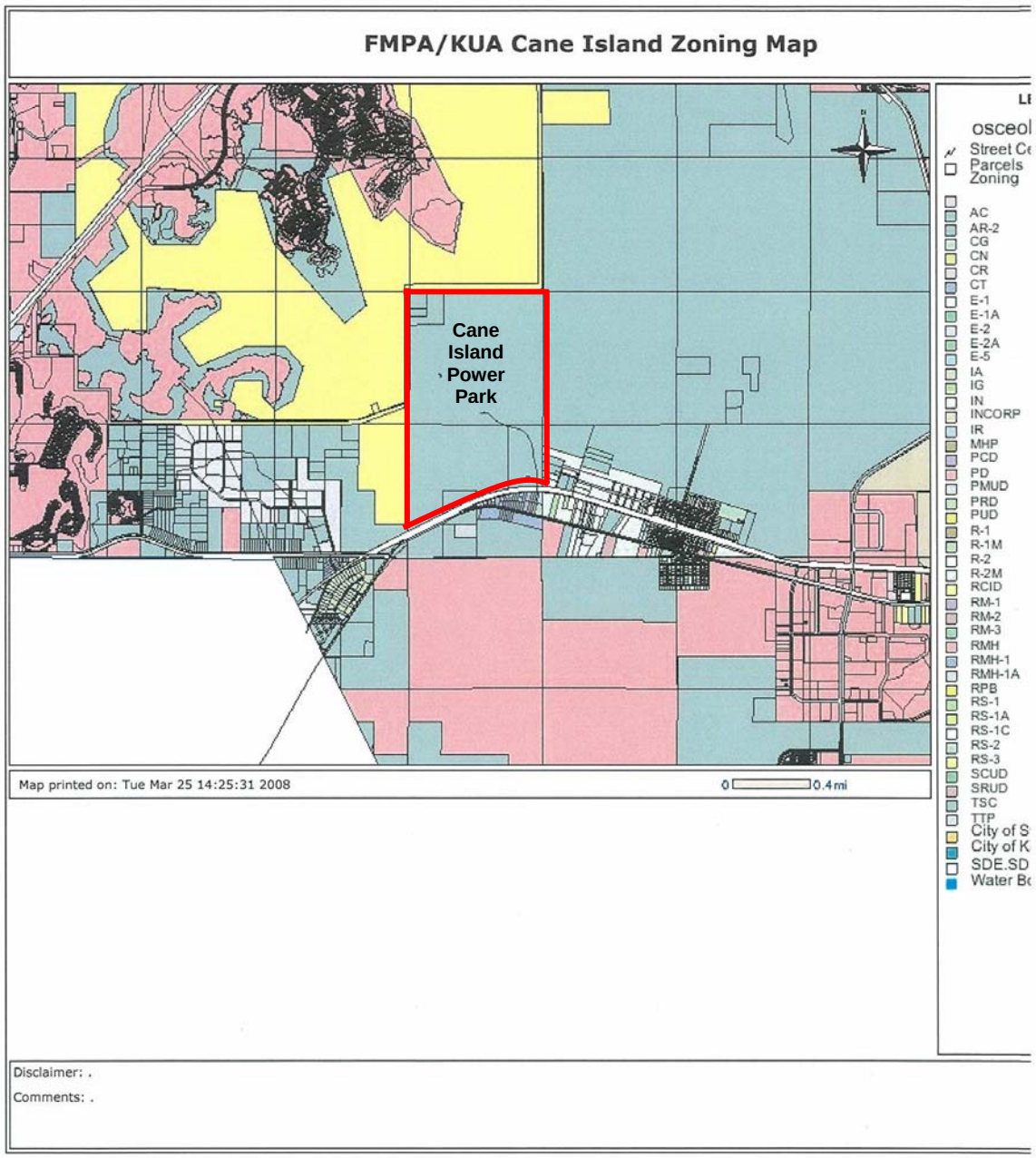
10.3.1 Conditional Use/Site Development Plan

CU/SDP 92-86 was issued to KUA by the Osceola Board of County Commissioners for development of the property as a power generating station. A copy of this permit is included herein. A completed CU/SDP application to incorporate Unit 4 into the County records is also included herein.

10.3.2 Building Permit Exemption

A Building Permit would normally be required from Osceola County to construct several of the Unit 4 facilities. However, the Site Certification process exempts the project from the need to obtain a Building Permit. The project will still have to meet county codes and regulations. The construction contractor will be required to meet with county building officials to ascertain their requirements prior to start of construction.

PRINT:FMPA/KUA Cane Island Zoning Map Page 1 of 1

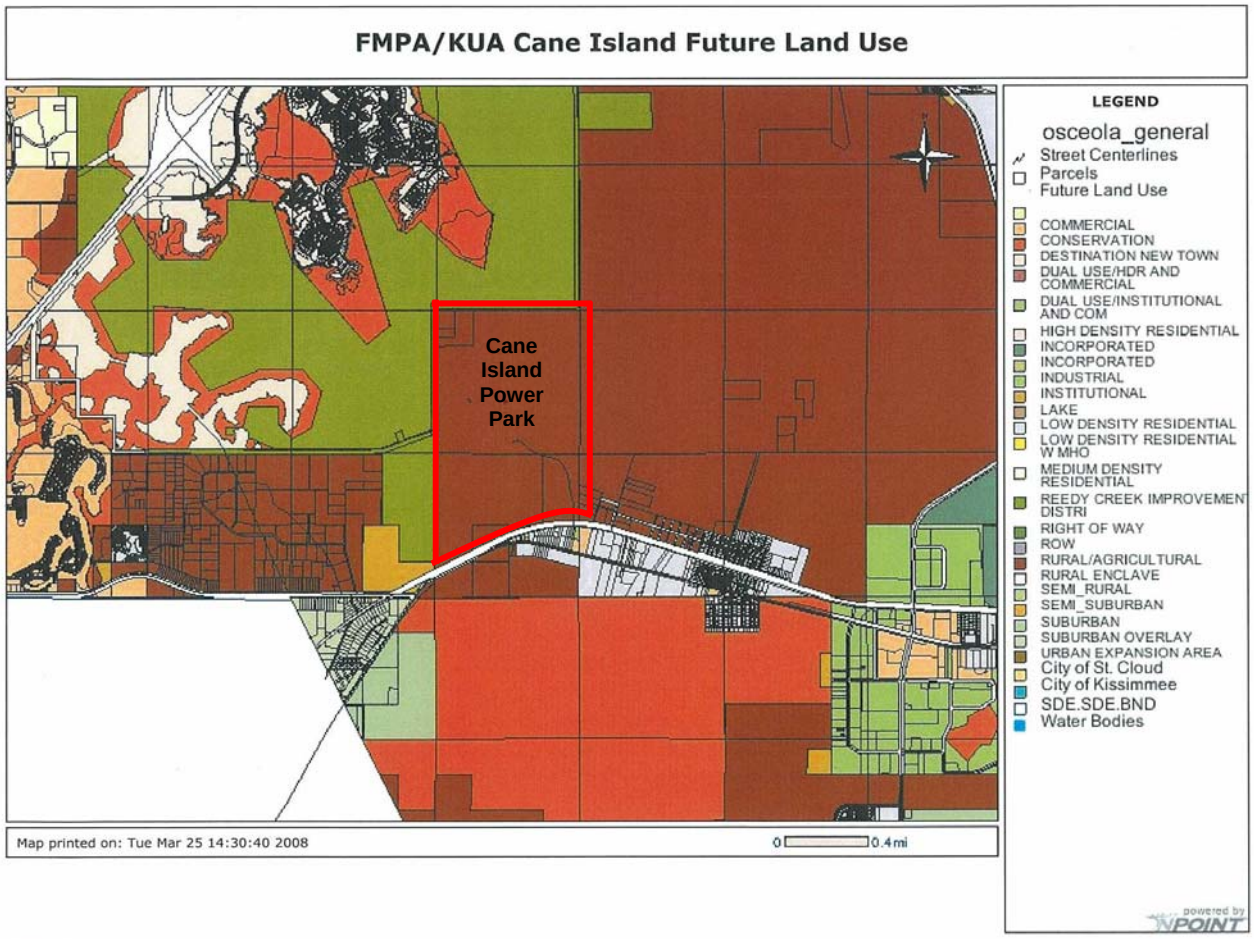


http://maps.osceola.org/public/onpoint 3/25/2008

10.4 Land Use Plan Descriptions

A copy of the Osceola County Future Land Use Designation element of the Comprehensive Plan of Osceola County applicable to the CIPP site is included herein.

PRINT:FMPA/KUA Cane Island Future Land Use



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10.5 State Permits and Applications

As an existing certified power plant site, KUA and FMPA hold an active Site Certification Order (PA 98-38) for the CIPP and associated facilities. Certification of Unit 4 and modification of the Conditions of Certification are required for installation and operation of Unit 4. The following applications have been prepared to support state agency reviews of these requests.

10.5.1 Environmental Resource Permit Application

FMPA and KUA will request that the construction, operation, and environmental impacts associated with Unit 4 be reviewed by SFWMD through interagency agreement with DEP during the certification process. The SFWMD has the complete storm water permitting history with the CIPP. An ERP Application demonstrating compliance with the state storm water permitting requirements is included herein to assist in this review.

No impacts to waters/wetlands, and no adverse impacts to threatened or endangered species are anticipated from construction or operation of Unit 4.

10.5.2 Application for Consumptive Uses of Water

Ground water withdrawals associated with operation of Unit 4 will be required for process/service water and emergency cooling water use. One new process service water well and four new emergency cooling water wells are requested to provide this water. These withdrawals and use will be reviewed through completion and review of SFWMD Application Form 0645-W01. This application is included herein.

10.5.3 Short-Term Dewatering Permit Application

Dewatering of ground water is considered a consumptive use of water and requires authorization from SFWMD. Dewatering will be required for the construction of Unit 4 including filling and stabilization of the site for placement of piping, electrical trenches, sumps, and foundations. Therefore, an Individual Dewatering Permit application has been prepared for review by the SFWMD. The permit application is prepared on SFWMD Form 0445 and is included herein. A detailed dewatering plan will be provided post-certification.

10.5.4 Florida Division of Historical Resources Review

In January 1992, in association with construction and operation of Units 1 and 2, the Florida Division of Historical Resources (DHR) was requested to review the CIPP site and project area for known or potential cultural resources. The DHR indicated in February 1992 that there were no known archeological or historical resources onsite or within the project area listed on the *National Register of Historic Place*, but requested a systematic survey of the site prior to any land disturbing activities.

A Phase I cultural resources investigation of the CIPP and associated corridors was conducted by Janus Research/Piper Archaeology of St. Petersburg, Florida, in May 1992. The investigation discovered 13 previously unrecorded sites: seven prehistoric and six historic. It was the consultant's opinion that none of the sites were eligible for listing on the *National Register of Historic Places*. All of the historic sites were outside of direct impact areas. The Phase I report was submitted to the DHR for review in June 1992. On July 23, 1992, the DHR issued a clearance letter concurring with the consultant's opinion and approving the site for construction. The DHR was notified of the Unit 4 project by letter in March 2008 (copy included herein).

10.5.5 Florida Natural Areas Inventory Review

The Florida Natural Areas Inventory (FNAI) was notified of the Unit 4 project in March 2008. A copy of this notification letter is included herein.

10.5.6 Permit Application to Construct, Repair, Modify, or Abandon a Well

FMPA and KUA propose to construct five new ground water wells on the CIPP site. The permit application for well construction will be reviewed by the SFWMD. At this time, the detailed well design and well drilling contractor have not been selected. The partially completed application is included herein. The final application will be submitted post-certification.

10.5.7 Florida Fish and Wildlife Conservation Commission Review

The FFWCC is a statutory party to the certification process.

Gopher tortoises are the only known state threatened or endangered species confirmed onsite. A copy of the previously issued gopher tortoise Incidental Take Permit OSC-6 is included in Appendix D of the ERP application, Subsection 10.5.1. The FFWCC confirmed in March 2008 that this permit is still valid, which allows the CIPP staff to relocate tortoises onsite.

10.5.8 Coastal Zone Management Certification

The Coastal Management Act of 1978 (Section 380.21-380.25, FS) requires that the Coastal Zone Management Section of FDEP be responsible for certification of consistency with the Florida Coastal Management Program (FCMP) for all federal licenses, permits, activities, and projects listed in Section 380.23 (3)(c), FS, when such activities are subject to federal consistency review and affect land or water use, are seaward of the jurisdiction of the state, or there is no state agency with sole jurisdiction for such consistency review. The requirements related to Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act are addressed in Appendix 10.1.4. Issuance of the final Site Certification will demonstrate consistency with Section 307 of the Coastal Zone Management Act.

10.5.9 Public Drinking Water System Extension Permit Application

The existing drinking water system will require an extension to the Miscellaneous Services Building and Power Distribution Center associated with Unit 4 to supply eye wash stations. This extension will be reviewed through completion of Form 62-555.900(7), FAC. A partially completed application is included herein. A complete application will be submitted post-certification.

10.5.10 Industrial Wastewater Treatment and Disposal System Permit

Process wastewaters from Unit 4 will be treated and conveyed to a new onsite percolation pond for discharge to groundwater. Form 62-620.910(4) FAC (Form 2CG), and supporting documentation are included herein.

Additional process wastewaters will be treated and returned to the Toho reuse water pipeline. KUA and FMPA will work with Toho to address Unit 4 wastewaters consistent with the Effluent Delivery and Use Agreement (refer to Subsection 10.7.1).

10.6 Monitoring Programs

Several monitoring programs are in effect at the CIPP site. Unit 4 will be incorporated into these programs. No new monitoring programs are proposed at this time.

KUA and FMPA also request modification of the groundwater monitoring program as described in the Conditions of Certification Section XVIII – Groundwater. The request is to reduce the sampling schedule from quarterly to semi-annually, based on demonstrated performance and compliance of the existing percolation pond.

10.7 Toho Water Authority Agreements

10.7.1 Effluent Delivery and Use Agreement

An agreement between KUA and Toho was executed in 1993 for the delivery, use, and return of treated sewage effluent. A copy of the agreement is included herein. The reuse agreement indicates that KUA has the right of first refusal to reuse water.

10.7.2 Well Installation and Well Water Supply Agreement

The well water agreement between KUA and Toho was executed in 2003 and allows Toho to install up to five wells on the CIPP site (two wells currently exist). With the installation of Unit 4, Toho has the obligation to deliver up to 330,000 gpd of raw well water to the Cane Island facility. Toho well water may also be used for emergency cooling, as available, if reuse supply is interrupted. A copy of the agreement is included herein.

10.8 Carbon Reduction Activities

On July 13, 2007, Governor Crist issued Executive Order 07-127, entitled "Immediate Action to Reduce Greenhouse Gas Emissions within Florida." This order directs the Department of Environmental Protection (DEP) to adopt rules requiring carbon dioxide (CO_2) emission reductions from electric utilities. Although DEP has not yet adopted any rules in response to the Governor's Order, the All-Requirements Project (ARP) is committed to responsibly reducing its CO_2 emissions. This Section summarizes the ARP's historical CO_2 emissions, as well as actions the ARP has taken or may take that will help reduce the ARP's CO_2 emissions. Specifically, Section 10.8.1 summarizes the ARP's carbon footprint. Section 10.8.2 summarizes actions the ARP has taken that will reduce the ARP's CO_2 emissions. Finally, Section 10.8.3 summarizes future planned actions, including the addition of Cane Island Unit 4, as well as other potential actions that would reduce the ARP's carbon footprint.

10.8.1 The ARP's Carbon Footprint

The Governor's Executive Order 07-127 sets goals for utilities to reduce their greenhouse gas emissions to 2000 levels by 2017, to 1990 levels by 2025, and by 80 percent of 1990 levels by 2050. This section describes the CO_2 emissions inventory developed for 1990 and 2000 to determine the baseline carbon footprint of the ARP in those years.

10.8.1.1 Methodology. Because DEP has not established any guidelines on reporting of greenhouse gases as of the date of this filing, the emissions inventory was performed using the guidelines set forth in the United States Department of Energy's (U.S. DOE) final "General Guidelines for Voluntary Reporting of Greenhouse Gases (1605(b)) Program" issued in April 2006, and "Technical Guidelines for Voluntary Reporting of Greenhouse Gases (1605(b)) Program" (the Technical Guidelines) issued in January 2007.[1]

The 1605(b) Guidelines categorize emissions for electric utilities as occurring from either direct or indirect sources. Direct emissions are those emissions that the utility is directly responsible for producing; that is, the utility produces these emissions through operation of its own generating units. Indirect emissions are those emissions associated with purchased power.

[1]The U.S. DOE initiated the Voluntary Reporting of Greenhouse Gases Program (the GHG Program) during 1994 in response to Section 1605(b) of the Energy Policy Act of 1992, which required the U.S. DOE to issue guidelines establishing such a program. The U.S. DOE developed both General Guidelines and Technical Guidelines for the GHG Program. The Technical Guidelines define the permissible methods of calculating and reporting emissions quantities and reductions under the GHG Program.

The collective 1990 and 2000 emissions for all 15 ARP Members[1] were developed using the equity share approach set forth in the 1605(b) Guidelines. Under this approach, a utility includes the percentage of the total emissions produced from a jointly owned facility that corresponds with its ownership percentage of that resource.

Where available, data from continuous emissions monitors (CEMs) were used to estimate direct emissions. However, as CEMS were not required to be installed on plants until after 1990, this data was not available for the 1990 computation. Additionally, some small generating units are not required to install CEMS, so CEMs data was not available for all generators for 2000. Where CEMs data was not available, emission factors provided in the 1605(b) Guidelines or other publicly available sources were used. Likewise, such publicly available emission factors were used to estimate emissions from purchase power.

10.8.1.2 Final Adjustments. The first step in determining the total emissions quantities for each year involved determining whether all energy sources had been captured for that year. The sum of all energy generated and purchased, net of wholesale energy sold to other entities, theoretically should be at least equal to the utility's energy requirements (some excess of energy sources above energy requirements may exist due to losses).

For computing total generation associated with direct emissions, the generation and consumption data from Global Energy Decisions' Velocity Suite was used for all units. This provided a consistent source of generation for all resources.

For both 1990 and 2000, however, the sum of the total energy sources amounted to less than the total energy requirements. For purposes of the analysis, CO_2 emissions were computed for the "missing" energy amount using the regional emissions factor for that year.

10.8.1.3 Emissions Totals. The total CO_2 emissions inventoried consist of the sum of the direct emissions, indirect emissions, and any adjustments. The computed total CO_2 emissions are shown in Table 10.8-1.

[1] The current ARP members are the City of Bushnell, the City of Clewiston, the City of Fort Meade, the Fort Pierce Utilities Authority, the City of Green Cove Springs, the Town of Havana, Beaches Energy Services (the electric department of the City of Jacksonville Beach), Keys Energy Services (also known as the Utility Board of the City of Key West), the Kissimmee Utility Authority, the City of Lake Worth, the City of Leesburg, the City of Newberry, the City of Ocala, the City of Starke, and the City of Vero Beach.

Table 10.8-1
Summary of ARP CO_2 Emissions in 1990 and 2000[1]

Item	Units	1990	2000
Total Energy Sources	GWh	3,142	6,426
Total Energy Requirements	GWh	4,663[2]	6,467
Surplus/(Shortfall)	GWh	(1,521)	(41)
Surplus/(Shortfall)	%	(32.6)	(0.6)
Direct CO_2 Emissions	000 Short Tons	1,442	2,538
Indirect CO_2 Emissions	000 Short Tons	836	2,139
Adjustments[3]	000 Short Tons	1,203	30
Total CO_2 Emissions	000 Short Tons	3,481	4,707

[1]Analysis performed as if all 15 current ARP Members were ARP Members in 1990 and 2000.
[2]Energy requirements estimated for 1990. Actual energy requirements for the ARP Members in 1990 were not available.
[3]Adjustments reflect CO_2 emissions computed for additional energy amounts necessary to balance total energy sources and total energy requirements and were computed using the regional emissions factor for Florida applicable to that year.

10.8.2 Historical Carbon Reduction Activities

10.8.2.1 Generation Efficiency. Historically, the ARP has consistently sought to improve the efficiency of its generating fleet, which can have the added benefit of reducing carbon intensity (quantity of CO_2 per unit of energy produced). The ARP's actions have displaced generation from older, Member-owned generating resources with newer, more efficient units. Table 10.8-2 contains a list of the units that either have been or are scheduled to be retired, the retirement year, and the average CO_2 emissions eliminated by retiring these resources. Additional member owned generation will be displaced with operation of Cane Island Unit 4.

Table 10.8-2
Recent and Scheduled Retirements of Member-Owned Generating Resources

Unit Name	Owner	Fuel Type	Retirement Year	Annual CO_2 Emissions (Short Tons)[(1)]
Hansel IC 8, 14-20	KUA	No. 2 Oil	2005	1,800
Big Pine Key IC 1	Keys Energy Services	No. 2 Oil	2006	400
Cudjoe Key IC 2-3	Keys Energy Services	No. 2 Oil	2006	1,500
H. D. King CC 5/9	Fort Pierce	Natural Gas	2008	11,100
H. D. King ST 7-8	Fort Pierce	Natural Gas	2008	20,400
H. D. King IC 1-2	Fort Pierce	No. 2 Oil	2008	200
Total				35,400

[(1)]Based on the average annual tons of CO_2 emitted during the years 2001 through 2005.

As appropriate and cost effective, FMPA has also sought to replace energy obtained from purchased power with more efficient means. Emissions for purchased power that are not tied to specific generating plants or units can be much higher than the carbon intensity of energy produced by efficient, natural gas-fired resources. As examples, FMPA has either recently replaced or is planning to replace energy from purchases from the City of Lakeland, Progress Energy Florida (PEF), and Florida Power & Light Company (FPL) with new generating resources or purchases from specific, gas-fired facilities.

FMPA has added several new generating resources in recent years through both ownership and facility-specific purchased power contracts. These new resources provide CO_2 emission reduction benefits to the ARP by allowing the ARP (1) to displace the operation of other, less efficient owned generating resources, and (2) to reduce the amount of more carbon-intensive energy it purchases from other entities. These new resources are described in more detail below.

- **Cane Island CC3**--Cane Island CC3 commenced operation in 2002. This 246 MW, natural-gas fired, combined cycle facility is jointly owned by Kissimmee Utility Authority (KUA) and FMPA, with all of its output going to the ARP. During its first five years of commercial operation, Cane Island CC3 emitted an average of approximately 0.21 short tons of CO_2 per MWh less than other ARP generating resources and approximately 0.22 short tons of CO_2 per MWh less than all energy sources for the ARP.

- **Stanton Energy Center CCA**--Stanton Energy Center CCA commenced operation in 2003. KUA and FMPA each owns a 3.5 percent share of this 600 MW, natural-gas fired, combined cycle facility, and each also purchases an additional 6.5 percent share from Southern Company with the total 20 percent share going to the ARP. During its first three complete years of commercial operation, Stanton Energy Center CCA emitted an average of approximately 0.26 short tons of CO_2 per MWh less than other ARP generating resources and approximately 0.28 short tons of CO_2 per MWh less than all other energy sources for the ARP.
- **Calpine (Osprey) Purchase**--FMPA has a contract with Calpine that provided 75 MW in 2006. The purchase increased to 100 MW in 2007 and expires in 2009. During 2006, each MWh of energy purchased from Calpine produced approximately 0.19 short tons of CO_2 less than the average of the ARP generating units and approximately 0.23 short tons of CO_2 less than other purchases.
- **Stock Island CT4**--In 2006, the ARP commenced operation of its Stock Island GT4 in Key West. If operating at full load, every MWh of energy generated from Stock Island CT4 in lieu of other on-island resources can reduce FMPA's CO_2 emissions output by up to 0.17 short tons.
- **Southern Purchase**--FMPA has a contract to purchase 156 MW of new peaking power from Southern Company's Oleander plant beginning in December 2007. Since the unit has only been in operation since December 2007, actual emission data is not yet available; however, as a new efficient General Electric 7FA simple cycle combustion turbine, the Oleander purchase will reduce CO_2 emissions compared to other less efficient FMPA peaking resources or purchased power.

FMPA also currently receives renewable energy from two renewable resources. These resources also provide CO_2 reduction benefits to the ARP, as described below.

- **U.S. Sugar**--Energy purchased from the U.S. Sugar Corporation is considered carbon neutral because it uses renewable, carbon-neutral bagasse as its primary fuel source. Over the period 2000 through 2006, the U.S. Sugar purchase is estimated to have reduced CO_2 emissions for the ARP by an average of approximately 1,300 short tons per year. As U.S. Sugar utilizes its generating facility to serve its own energy requirements, the ARP indirectly avoids having to serve the U.S. Sugar load using more carbon intensive generating resources.

- **Landfill Gas (Stanton Energy Center)**--The Stanton Energy Center utilizes landfill gas to supplement the fuel requirements for the coal-fired Units 1 and 2. The reportable CO_2 content for landfill gas/municipal solid waste (MSW) varies based on the plastic content of the underlying waste product. The national average CO_2 emissions factor for MSW as provided by the U.S. DOE is 92 pounds of CO_2 per MMBtu of MSW consumed and is based on a plastic content of 16 percent. As the plastic content of the landfill gas burned by Stanton Energy Center Units 1 and 2 could not be obtained, the default factor was assumed. Based on this factor, CO_2 emissions for the ARP were estimated to have been reduced by approximately 19,700 short tons per year over the period 2001 through 2006 by consuming landfill gas instead of coal.

10.8.2.2 Demand Side Management. FMPA is a wholesale supplier of electricity to the fifteen ARP Member cities. As such, FMPA does not directly implement demand-side management (DSM) to retail customers. The individual ARP Members actually provide the DSM programs to their customers. Several ARP members offer various DSM programs including the following:

- Energy Audits.
- Energy Savings Tips.
- Energy Star® Programs.
- Green Energy Programs.
- Solar Projects and Net Metering.
- Solar Promotion.
- Appliance Rebates.
- Compact Fluorescent Bulb Promotions.
- ESCO Projects.
- City-Wide Energy Conservation.
- LED Traffic Signals.
- Low Income Energy Assistance.
- Load Profiling for Commercial Customers.
- Fix-Up Programs for the Elderly and Handicapped.

To the extent these measures help to reduce FMPA's energy requirements, they have a corresponding CO_2 reduction benefit to the ARP.

10.8.3 Future Planned and Potential Carbon Reduction Activities

10.8.3.1 Treasure Coast Energy Center. FMPA's Treasure Coast Energy Center Unit 1 (TCEC Unit 1) is scheduled to commence operation in May 2008. This approximately 300 MW, natural gas-fired combined cycle unit represents FMPA's largest self-owned generating project to date. It is estimated that TCEC Unit 1 will reduce FMPA's CO_2 emissions by approximately 305,000 short tons in 2009, the first full year of commercial operation, as summarized in Table 10.8-3.

As shown in Table 10.8-3, the largest reduction in CO_2 results from a reduction in purchased power. It is also anticipated that TCEC Unit 1 will displace the operation of less efficient generating resources.

The projections shown in Table 10.8-3 were developed based on output from FMPA's production simulation model. To the extent that future conditions vary from the inputs included in the model, the actual CO_2 emissions reductions experienced may differ.

10.8.3.2 Cane Island 4. Cane Island 4 also will significantly reduce FMPA's total future CO_2 emissions. Cane Island 4 will displace the operation of less efficient generating resources. By operating this more efficient unit, FMPA will reduce the average CO_2 emitted per MWh produced for its system. Additionally, Cane Island 4 will reduce FMPA's purchase power requirements and associated higher CO_2 emissions. The addition of Cane Island 4 is estimated to reduce FMPA's CO_2 emissions by approximately 262,000 short tons in 2012, the first full year of commercial operation, as summarized in Table 10.8-4.

As shown in Table 10.8-4, the largest reduction in CO_2 results from a reduction in purchased power. It is also anticipated that Cane Island 4 will displace the operation of less efficient generating resources. Additionally, the need for Cane Island 4 resulted from the cancellation of the Taylor Energy Center (TEC), the coal-fired project that was jointly proposed by FMPA, JEA, Reedy Creek Improvement District, and the City of Tallahassee. The CO_2 emissions rate for the TEC was estimated between 200 and 215 lb/MMBtu, or between 0.92 and 0.99 short tons/MWh based on the average heat rate of 9,238 Btu/kWh, depending on the type of coal consumed. By contrast, the estimated CO_2 emissions rate for Cane Island 4 of approximately 115 lb/MMBtu, or 0.43 short tons/MWh based on the average heat rate of approximately 7,420 Btu/kWh (including duct firing), is significantly lower.

The projections shown in Table 10.8-4 were developed based on output from FMPA's production simulation model. To the extent that future conditions vary from the inputs included in the model, the actual CO_2 emissions reductions experienced may differ from the amounts shown in Table 10.8-4.

Table 10.8-3
Projected Impact of TCEC Unit 1 on ARP CO_2 Emissions in 2009

Energy Source	CO_2 Increase/ (Decrease) (000 Short Tons)[1]
Treasure Coast Energy Center	593
Stanton Energy Center Coal	(25)
Stanton CC A [2]	(24)
Cane Island Plant	(130)
Hansel Plant	(14)
Indian River CT A-D	(11)
H.D. King Plant	(18)
Tom G. Smith Plant	(9)
Stock Island Plant	10
Vero Beach Plant	(22)
Net Market Transactions	(500)
Other Purchases [3]	(155)
Net Increase/(Decrease)	(305)

(1) Represents the projected increase or decrease in CO_2 emissions for each energy source resulting from the operation of TCEC Unit 1.

(2) Includes the portion of Stanton A that is purchased power.

(3) Other purchases include purchases from PEF, FPL, Calpine, and Southern.

Table 10.8-4
Projected Impact of Cane Island 4 on ARP CO_2 Emissions in 2012

Energy Source	CO_2 Increase/ (Decrease) (000 Short Tons) [1]
Cane Island 4	640
Stanton Energy Center Coal	(58)
Stanton CC A [2]	(26)
Treasure Coast Energy Center	(10)
Cane Island Plant (excludes Unit 4)	(95)
Hansel Plant	(3)
Indian River CT A-D	(2)
Tom G. Smith Plant	(2)
Stock Island Plant	6
Net Market Transactions	(688)
Other Purchases [3]	(23)
Net Increase/(Decrease)	(262)

[1]Represents the projected increase or decrease in CO_2 emissions for each energy source resulting from the operation of Cane Island 4.
[2]Includes the portion of Stanton A that is purchased power.
[3]Other purchases include purchases from FPL and Southern.

10.8.3.3 Nuclear Uprates. FMPA's capacity shares of the Crystal River 3 and St. Lucie 2 nuclear units will increase as a result of upgrades to the facilities being undertaken by PEF and FPL, respectively. FMPA or Members that own shares of these facilities will receive proportional increases in their capacity allotments based on their ownership percentage. The total planned incremental capacity increase for each unit and the ARP Members' allocation of these capacity increases are shown below.

	Crystal River 3		St. Lucie 2	
	Total Uprate	ARP Allocation	Total Uprate	ARP Allocation
2008	12 MW	0.3 MW	--	--
2009	28 MW	0.8 MW	--	--
2010	--	--	--	--
2011	140 MW	4.0 MW	--	--
2012	--	--	100 MW	5.8 MW

This increase in nuclear capacity will provide a CO_2 emission reduction benefit to FMPA.

10.8.3.4 Future Nuclear Ownership. FMPA is currently investigating the feasibility of acquiring an ownership share in future nuclear resources proposed to be built in Florida. FMPA is currently in discussions with PEF concerning potential participation in the Levy County nuclear project. Since nuclear generation does not produce CO_2, acquiring additional nuclear ownership could bring significant CO_2 emission reduction benefits to the ARP as early as 2016.

10.8.3.5 System Loss Reduction. FMPA encourages the concept of asset management for both itself and Member utilities. Asset management involves investigating methods of utilizing existing assets to improve efficiency, lower costs, or improve revenue. CO_2 reductions can be obtained through management of the ARP's generating assets and aggregated electrical load.

Losses are an aggregated component of the electric load of the Member utilities. As losses are controlled and reduced, so is the need for additional electrical generation. Therefore, reducing losses reduces CO_2 emissions and can reduce or delay the need for additional generating resources to be constructed. FMPA is leading an effort among the Members to investigate losses and for Members to invest in loss reduction.

10.8.3.6 Potential Future Renewable Resources.

10.8.3.6.1 Potential Biomass Generation. As part of its efforts to reduce its overall CO_2 emissions, FMPA has issued requests for proposals (RFPs) for renewable resources. Based on the results of the RFPs, FMPA has decided to enter into negotiations for a purchase from a biomass facility. The biomass unit, which would utilize renewable, carbon-neutral resources, would reduce FMPA's CO_2 emissions by approximately 190,000 short tons per year. Because the cost of biomass energy is higher than FMPA's avoided cost, before committing to a biomass purchase, FMPA will need to examine the biomass resource to ensure that the costs are within a reasonably acceptable margin higher than FMPA's avoided cost. Furthermore, FMPA's ultimate commitment to utilizing biomass energy at its attendant higher cost as a means of its meeting CO_2 reduction targets will depend on whether the emissions inventory guidelines to be developed by FDEP confirm biomass as a carbon-neutral resource in Florida. FMPA will also need to examine the actions of other utilities in Florida in meeting their CO_2 reduction targets to ensure that FMPA's rates remain cost competitive. The time frame for implementation of the biomass resource would depend on the time necessary to complete negotiations and obtain all required regulatory approvals and permits.

10.8.3.6.2 Potential Solar Photovoltaic Project. FMPA has decided to enter into negotiations for the installation of 10 MW of solar photovoltaic (PV) technology on its Member systems. FMPA will additionally explore the feasibility of acquiring up to an additional 90 MW of PV systems. The average amount of CO_2 that could be reduced each year through PV resources ranges from approximately 9,000 short tons for 10 MW to 61,000 short tons for 100 MW. Before committing to the 10 MW PV project, FMPA will need to examine the PV resources to ensure that the costs are within a reasonably acceptable margin higher than FMPA's avoided cost. FMPA will also need to examine the actions of other utilities in Florida in meeting their CO_2 reduction targets to ensure that FMPA's rates remain cost competitive. FMPA's decision to pursue additional solar capacity beyond the initial 10 MW would depend on successful negotiation for and implementation of the initial 10 MW project. The time frame for implementation of solar capacity would depend on the time necessary to complete negotiations and obtain all required regulatory approvals and permits.

10.8.3.6.3 Potential Use of Bio-Fuels at Stock Island. FMPA is currently investigating the feasibility of operating several of the generating units at the Stock Island facility in Key West using bio-diesel fuel. These units currently operate using fuel oil. If ultimately implemented, the switch from fuel oil to bio-diesel fuel for these units could reduce FMPA's CO_2 emissions.

10.8.3.7 Potential Future Conservation Programs.

10.8.3.7.1 DSM Request for Proposals. In July 2007, FMPA issued an RFP for DSM activities. Four proposals were received, and three of the proposals have been short-listed for further evaluation. Discussions are proceeding with the proposers to examine the possibility of implementing demand-side programs. To the extent any of these measures, if ultimately implemented, help to reduce FMPA's future energy requirements, they would have a corresponding CO_2 reduction benefit to the ARP.

10.8.3.7.2 Potential ARP-Funded Energy Conservation Program. As a wholesale energy provider, FMPA does not directly implement demand-side conservation measures. However, FMPA is considering undertaking a program to assist its Members in implementing energy conservation measures. Under this program, FMPA could collect funds through its rates that would be allocated among the ARP Members. As an example, the Members could utilize these funds to purchase compact fluorescent light bulbs that could be distributed to retail customers at reduced or no cost. These measures would help to reduce FMPA's energy requirements, which would have a corresponding CO_2 reduction benefit to the ARP.

10.8.4 Conclusion

The ARP has demonstrated a strong track record in improving the efficiency of its generating fleet and it is committed to exploring new ways to improve efficiency and to reduce CO_2 emissions in a cost-effective manner. Because Cane Island Unit 4 will be one of the most efficient generating units in the state, it will enable the ARP to displace generation from less efficient units. As such, along with FMPA's other efforts, Cane Island Unit 4 will help the ARP to reduce CO_2 emissions consistent with the state's goals.