

**STATE OF FLORIDA
DEPARTMENT
OF
ENVIRONMENTAL PROTECTION**



**Electric Power Plant Site Certification
Project Analysis Report**

**Florida Power & Light Company
Riviera Beach Energy Center**

**PA 09-54
DEP OGC Case No. 09-0262
DOAH Case No. 09-001003 EPP**

September 25, 2009

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1.0 INTRODUCTION

Florida Power & Light Company (FPL/applicant) is proposing to replace the two existing nominal 300 megawatt (MW) conventional units at the FPL Riviera Plant in Palm Beach County with a 1,250 MW combined cycle electric generating unit to be known as the Riviera Beach Energy Center. FPL submitted a Site Certification Application (SCA) to the Department of Environmental Protection's (DEP's) Siting Coordination Office (SCO) for the proposed project on February 13, 2009.

The procedures and requirements for granting or denying a certification to construct and operate an electric power generating facility in the state of Florida are set forth in the "Florida Power Plant Siting Act" (PPSA), Sections 403.501-518, Florida Statutes, and the "Power Plant Siting Rule", Chapter 62-17, Florida Administrative Code. The Department has been designated as the lead coordinating agency for the review and evaluation of SCAs and is charged with preparing a Project Analysis Report including a recommendation for granting or denying the requested certification. This report addresses the site and associated facilities and has been prepared as a fulfillment of specific PPSA requirements. There are no transmission lines associated with this project for which FPL is requesting certification. It should be noted that the scope of a certification under this act includes only state, regional and local requirements. All federal permits are processed separately from the SCA. Federal permits being sought in association with this project include a National Pollutant Discharge Elimination System permit and an Air Construction Permit.

2.0 SITE AND FACILITIES OVERVIEW

The following overviews of various project aspects are as proposed and described in the SCA and additional information submitted by the applicant.

2.1 Site Location

The Riviera Beach Energy Center (RBEC) is located on a 46 acre site primarily in the City of Riviera Beach with a small portion in the City of West Palm Beach. The site is southwest of the Lake Worth Inlet and Peanut Island, across the Intracoastal Waterway from Palm Beach, Florida. The site includes 39 acres on the east side of U.S. Highway 1 and is bordered on the north by the Port of Palm Beach and on the south by 59th Street. Seven acres of the site are located on the west side of U.S. Highway 1. Refer to Figure 1 for the general site location.

2.2 Area Land Use

The existing Riviera Plant (in operation since 1946) is occupied by electric power generating facilities, buildings, parking lots, and other infrastructures and is located in a densely developed industrial and residential area.. Land uses near and adjacent to the site are predominantly industrial/maritime/utilities to the north, residential/commercial/institutional to the west, and residential to the south. According to the applicant, the nearest residences are within the Northwood Harbor and Northwood Neighborhoods to the south of the site and are within 500 feet of the site boundary.

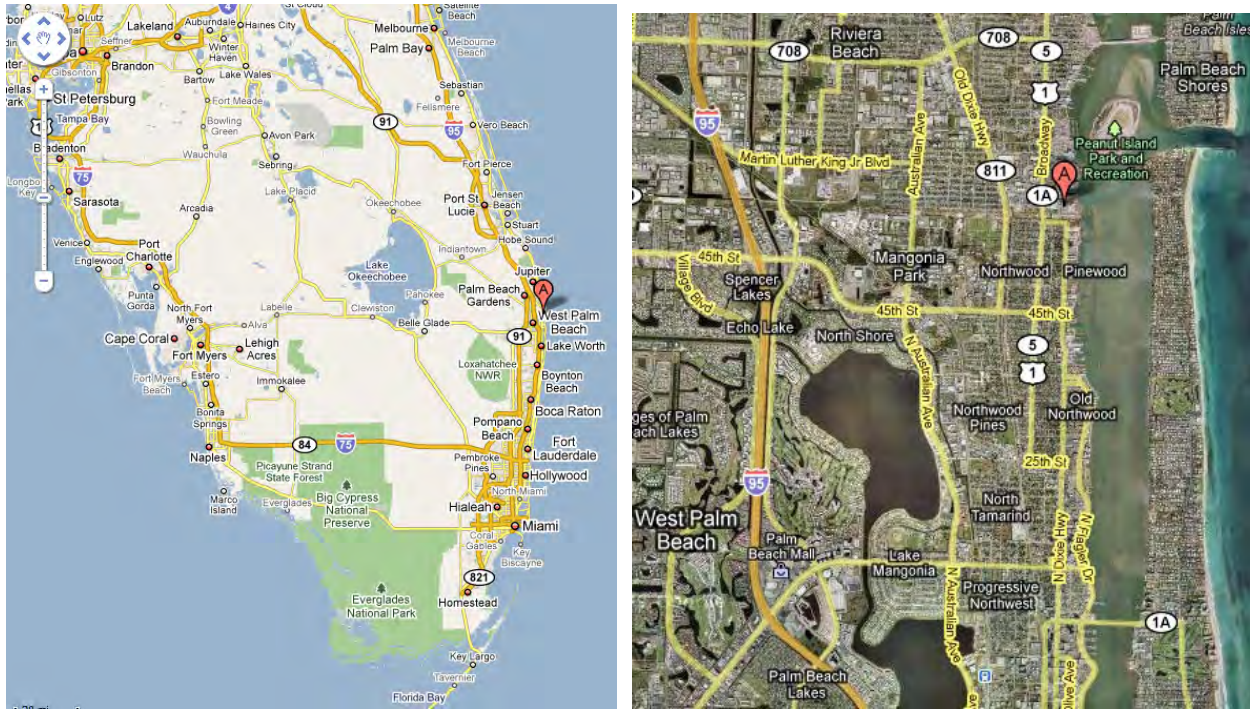


Figure 1. RBEC Property Location (© 2009 Google Maps)

2.3 Proposed Project Description

The Riviera Plant has been in operation since 1946. Units 1 and 2 began operation in 1946 and 1953 respectively and have each been retired and removed from the site. Units 3 and 4 are conventional steam boilers (nominal 300 MW each) permitted to burn No. 6 fuel oil, and No. 2 fuel oil, and/or natural gas and began operation in 1962 and 1963, respectively. Onsite support facilities include service buildings, an administration building, fuel oil tanks, water treatment facilities, once-through circulating water intake, discharge and outfall structures, wastewater treatment basins, a system switchyard and substation, and a staging area currently used by Palm Beach County for the County's artificial reef program.

The applicant plans to largely demolish the existing plant and construct a nominal 1,250 MW 3-on-1 combined cycle gas-fired power plant. According to the applicant, the new plant will use 33 percent less fuel than the existing plant to produce the same amount of electricity.

The RBEC will be located completely within the existing Riviera Plant site. Refer to Figure 2 for the proposed Site boundaries. Prior to the construction of the RBEC combined cycle unit, the existing units and equipment will be decommissioned and dismantled. Certain components, including the cooling water intake and discharge infrastructure, and the transmission facilities will be left for use with the converted plant.

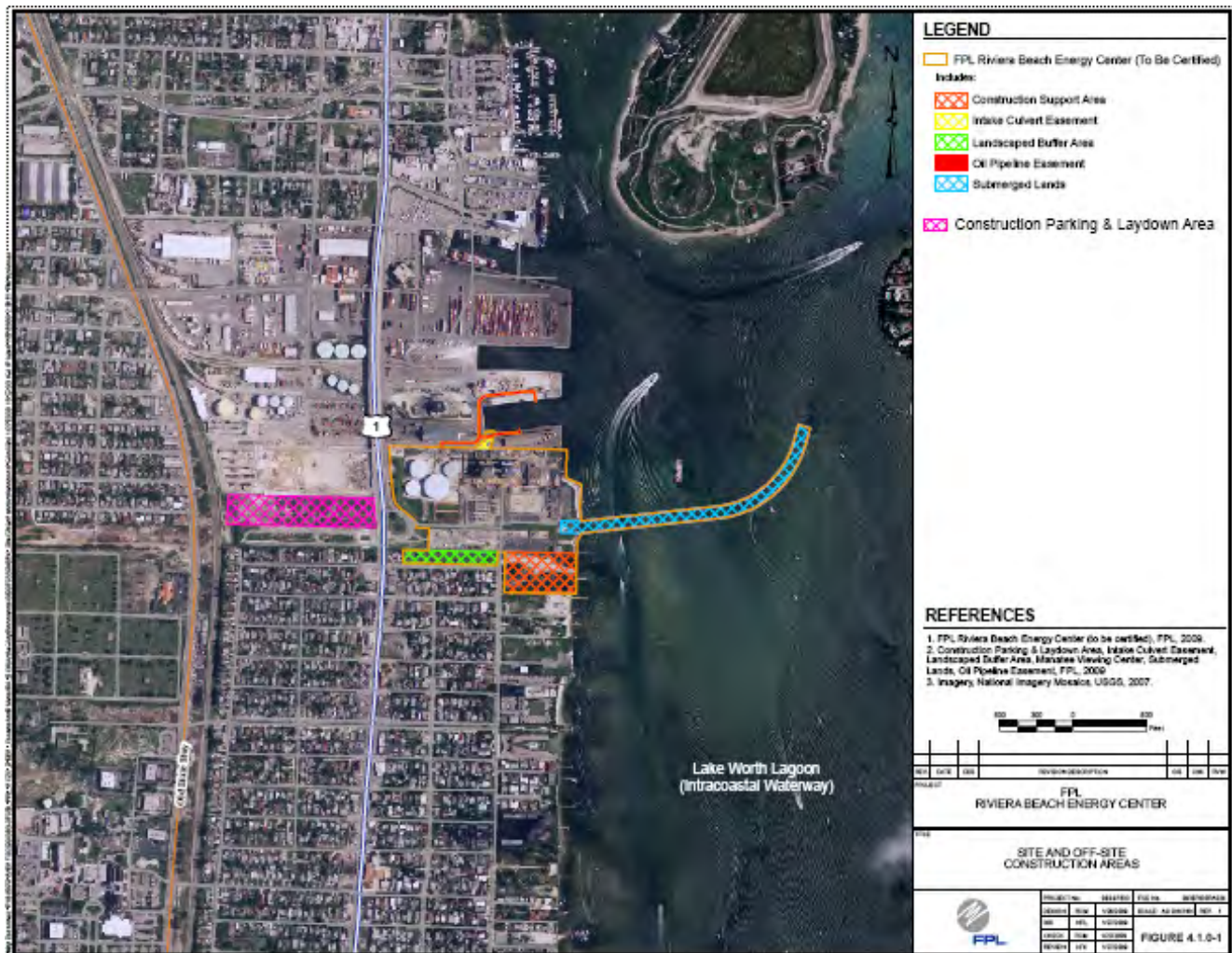


Figure 2. FPL RBEC Proposed Site Boundary. (FPL RBEC SCA, Figure 4.1.0-1)

The project will include the expansion of the existing 230-kV switchyard and the relocation (on-site) of a 138-kV switchyard. No new transmission lines are required to connect the RBEC to the existing transmission network. As part of the project, FPL may add onsite gas compressors and a new onsite gas yard and onsite gas pipeline. The project will also include the construction of a manatee viewing area. Dismantlement is anticipated to begin in the fall of 2010, with commercial operation expected to commence June 1, 2014. A computer generated rendering of the new plant is shown below in Figure 3.



Figure 3. Conceptual View of the Completed RBEC. (provided by FPL)

2.4 Combustion Turbine Combined Cycle Operation¹

The RBEC project includes the construction of a natural gas-fueled 3-on-1 combined cycle unit with a nominal rating of 1,250 megawatts (MW) referenced to International Standards Organization (ISO) conditions of 59 °F and standard humidity and pressure. The combined cycle Unit 5 will consist of: three nominal 265 MW combustion turbine-electrical generators (CTG) with evaporative inlet cooling systems and a common nominal 500 MW steam turbine-electrical generator (STG); three supplementary-fired heat recovery steam generators (HRSG) with selective catalytic reduction (SCR) reactors and a maximum 460 million Btu/hour, lower heating value (mmBtu, LHV), gas-fired DB with three 149 foot exhaust stacks.

FPL is considering three different models of the Mitsubishi Power Systems (MPS) G Class CTG. These include the MPS 501G1, the MPS 501G1+, and the MPS 501G3. FPL is also considering the recently developed Siemens H CTG. The latter would need to be resized (from the European version) and optimized for the 60-hertz (Hz) U.S. market. The final rating of the selected MPS or Siemens model will be between 250 and 280 MW at ISO depending upon the model selected.

A combustion gas turbine is an internal combustion engine that operates with rotary rather than reciprocating motion and that is coupled to an electrical generator. Ambient air is drawn into the multistage compressor where it is compressed to a very high pressure ratio. The compressed air is then directed to the combustor section, where fuel is introduced, ignited, and burned.

¹ Florida Department of Environmental Protection, Division of Air Resource Management, Bureau of Air Regulation, New Source Review Section – *Technical Evaluation & Preliminary Determination for the FPL RBEC*, April 17, 2009.

Flame temperatures in a typical combustor section can reach 3,600 degrees Fahrenheit (°F). The hot combustion gases are then diluted with additional cool air and directed to the turbine (expansion) section. Energy is recovered in the turbine section in the form of shaft horsepower, of which typically more than 50 percent is required to drive the internal compressor section. The balance of recovered shaft energy is available to drive the external load unit such as an electrical generator. Turbine exhaust gas is discharged at a temperature greater than 1,125 °F and high excess oxygen and is available for additional energy recovery.

There are three basic operating cycles for gas turbines. These are simple, regenerative and combined cycles. In the RBEC project, the unit will operate primarily in combined cycle mode, meaning that the gas turbine drives an electric generator while the exhausted gases are used to raise steam in a heat recovery steam generator (HRSG). The key components of a combined cycle unit (without duct firing) are shown in the figure below. The steam is then fed to a separate steam turbine, which also drives an electrical generator producing additional electrical power.

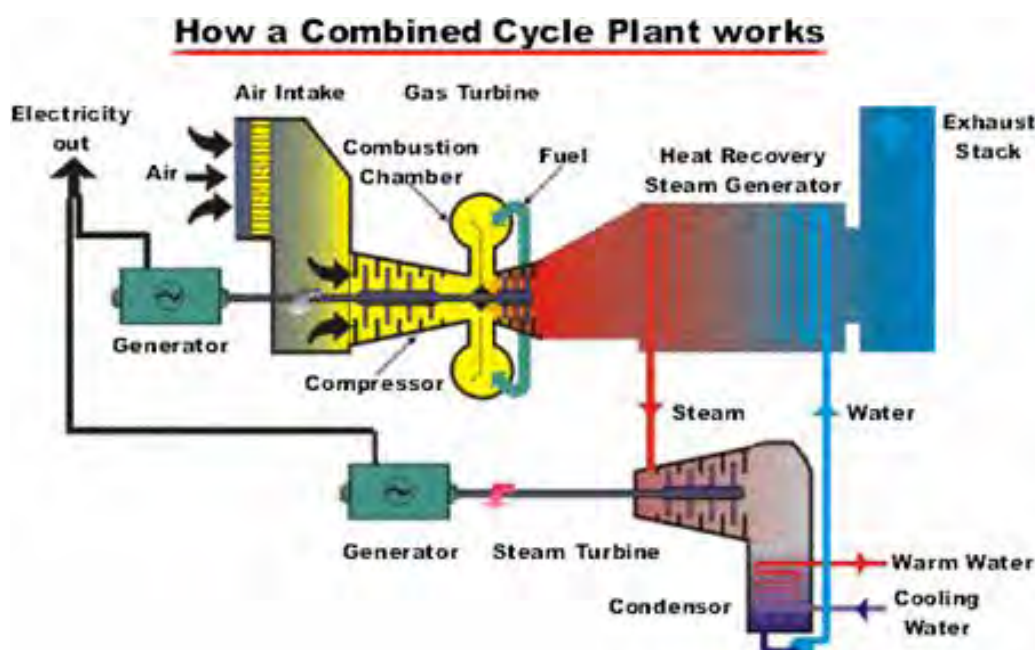


Figure 4. Components of a Combined Cycle Unit²

In combined cycle mode, the thermal efficiency of the most modern MPS G-Class CTG is approximately 58 percent (%) on the basis of LHV and about 53% based on the higher heating value (HHV). The Siemens H-Class CTG is expected to achieve approximately 60% thermal efficiency on the basis of LHV.

2.5 Fuel and Fuel Handling

According to the SCA, natural gas will be delivered to the site via a natural gas pipeline as the primary fuel used for the CTs, the HRSG duct burners, the auxiliary boiler, and fuel heater.

² Source Unknown.

Ultra low-sulfur light oil will be used as a backup fuel for the CTs, and as fuel for the emergency generators, and the fire pump engine. The ultra low-sulfur light oil will be delivered to the site by truck or by existing pipeline from the Port of Palm Beach and will be stored in a new 6.3 million gallon fuel oil storage tank.

2.6 Cooling System

As stated in the application, the converted plant will continue to use the existing plant's once-through cooling water intake structure for condenser and auxiliary cooling. Surface water is withdrawn from the Lake Worth Lagoon from the southwest corner of Slip Number 2 of the Port of Palm Beach via a 125-ft submerged culvert. Almost all of the cooling water is discharged through a 90-inch diameter buried pipe for each unit. The pipes carry the water about 1,941 feet offshore near the ship's channel for the Port of Palm Beach in the Lake Worth Lagoon. Because the design intake flow for RBEC will be the same as the existing plant and the existing intake structures are being used, FPL's design intake velocity will remain the same. The total discharge flow rate of about 415,000 gpm and overall temperature rise of about 13.7 degrees F are also expected to be the same as the existing plant according to FPL.

A small portion of the cooling water discharge is siphoned to the location of the manatee embayment to provide warm water for use by the manatees.

2.7 Stormwater Control

As proposed by the applicant, stormwater runoff from the RBEC site will be collected and controlled by a stormwater drainage system consisting of a series of catch basins, pipes, channels, swales and culverts located around the RBEC site that will convey runoff to stormwater detention ponds. Runoff in excess of the water quality treatment volume will be discharged to the Lake Worth Lagoon. Runoff from the power block and equipment areas, and from other potentially oil-contaminated areas will be routed through an oil/water separator and then to the stormwater ponds.

Existing stormwater is managed under a DEP Multi-Sector Generic Permit (MSGP) for Stormwater Discharge Associated with Industrial Activity. During construction FPL will seek coverage under DEP's Generic Permit for Stormwater Discharge from Large and Small Construction Activities. At completion of construction, FPL will submit a Notice of Intent to again be covered under the MSGP.

3.0 ENVIRONMENTAL AND SOCIAL IMPACTS

3.1 Local Air Quality Impacts

The Department's Division of Air Resource Management regulates major air pollution sources in accordance with Florida's Prevention of Significant Deterioration (PSD) program, as defined in Rule 62-212.400, F.A.C. For new major facilities, or for modifications to existing facilities, each regulated air pollutant is reviewed for PSD applicability based on emissions thresholds known as Significant Emission Rates (SERs).

Best Available Control Technology (BACT) review is required under FDEP and US Environmental Protection Agency (EPA) regulations pertaining to PSD. BACT is applicable to all pollutants for which PSD review is required and is pollutant specific. It is an emission limitation that is based on the maximum degree of reduction for each regulated pollutant, which is determined to be appropriate after taking into account energy, environmental, economic

impacts, and other costs. BACT cannot be any less stringent than the federal New Source Performance Standards (NSPS) applicable to the source under evaluation.

The project includes and requires the permanent shutdown and dismantling of the two 300 MW residual oil and gas-fueled units 3 & 4. Considering the offsets from the shutdown of the existing units, the project did not require a review under the rules for the prevention of significant deterioration of air quality (PSD) or a determination of best available control technology (BACT).

The Department made a preliminary determination that the proposed RBEC project will comply with all applicable state and federal air pollution regulations as conditioned by the Draft Permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, the draft emissions standards determinations, review of the air quality impact analysis, and the conditions specified in the draft permit.³

On June 10, 2009 the Department issued a final air construction permit (0990042-006-AC) pursuant to Chapter 403, F.S. (see: <http://www.dep.state.fl.us/air/emission/apds/default.asp>)

3.2 Air Quality Impacts (Carbon Dioxide Emissions)

In light of heightened concerns over global warming and Florida's recent commitment to *The Climate Registry*, it is appropriate to consider carbon dioxide (CO₂) emissions from the proposed project. The following summary is intended to put into perspective the projected CO₂ emissions from the RBEC project with respect to global CO₂ emissions and CO₂ emissions from other types of electrical generating facilities.

Current and Predicted Levels of Carbon Dioxide Emissions

The primary source of CO₂ emissions is the combustion of fossil fuels such as coal, natural gas, and oil. Florida ranks fifth in the nation for CO₂ emissions from fossil fuel combustion, contributing almost four and one-half percent to the nation's total emissions in 2005.⁴ Refer to Table 1 below for a comparison of 2005 CO₂ emissions.⁵

³ Florida Department of Environmental Protection, Division of Air Resource Management, Bureau of Air Regulation, New Source Review Section – *Technical Evaluation & Preliminary Determination for the FPL RBEC*, April 17, 2009.

⁴ U.S. Environmental Protection Agency. *State CO₂ Emissions from Fossil Fuel Combustion, 1990-2005*. Available at http://epa.gov/climatechange/emissions/state_energyco2inv.html

⁵ U.S. Environmental Protection Agency. *State CO₂ Emissions from Fossil Fuel Combustion, 1990-2005*. Available at http://epa.gov/climatechange/emissions/state_energyco2inv.html

Table 1. CO₂ Emissions Comparison

Emission Origin	2005 Total CO₂ Emissions (million metric tons)
Texas	663.87
California	390.64
Pennsylvania	277.0
Ohio	269.97
Florida	260.74
United States	5,966.04
World ⁶	28,193.00

Until recently the United States was the largest emitter of carbon dioxide emissions. According to preliminary estimates China has been the top emitter since 2006.⁷

The Energy Information Administration predicts emissions of CO₂ will reach almost 8,000 million metric tons in the U.S. by the year 2030.

Efficiency and Fuel Considerations

Emissions of CO₂ directly relate to the quantity of combusted fossil fuel. The more fuel consumed, the more carbon released into the atmosphere. As technologies improve, electric generating facilities of all types are constructed with greater and greater efficiencies. Higher efficiency units require less fuel for equal amounts of energy production. This translates to fewer overall carbon emissions from the more efficient units.

Carbon emissions are also dependent upon the types of fuels combusted. To produce the same amount of energy, more CO₂ is released when burning coal, than when burning fuel oil or natural gas. “Coal combustion emits almost twice as much CO₂ per unit of energy as does the combustion of natural gas, whereas the amount from crude oil combustion falls between coal and natural gas.”⁸ Carbon emission factors for different fuel types are shown in Figure 5 below as the amount of CO₂ emitted per heat energy unit (lb/MMBtu). There are no CO₂ emissions directly associated with the use of nuclear fuels.

⁶ U.S. Energy Information Administration. *International Energy Annual 2005* (EIA 2007b)

⁷ Sci-Tech Today (2006-06-21)

⁸ U.S. Energy Information Administration. *Emissions of Greenhouse Gases in the United States 1985-1990*, DOE/EIA-0573 (Washington, DC, September 1993), p. 16.

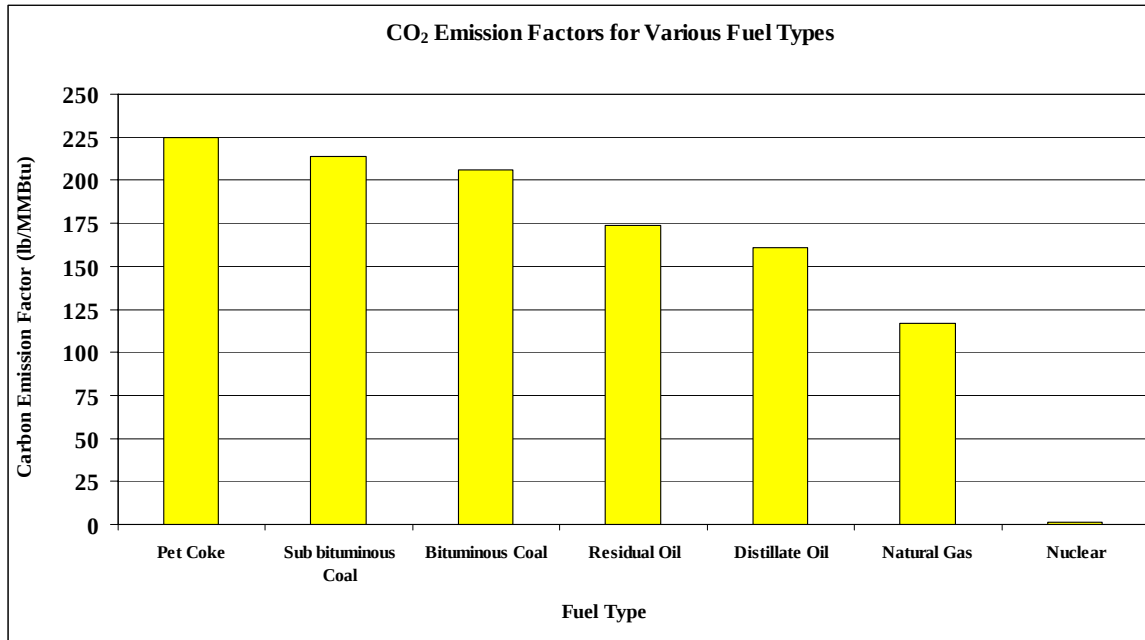


Figure 5. Carbon Dioxide Emission Factors (Energy Information Administration)

Carbon Dioxide Emissions Impacts from Riviera Beach Energy Center

According to the applicant, the maximum CO₂ emission rate after the conversion of the Riviera Plant will be about one-half the maximum CO₂ emission rate of the existing plant. The RBEC will also displace energy that would otherwise be produced by less efficient units in FPL's system, thereby reducing FPL's system CO₂ emissions. The CO₂ emission rate in pounds of CO₂ emitted per megawatt of energy produced per hour (lb/MW-hr), both prior to and following conversion, can be seen in Figure 7

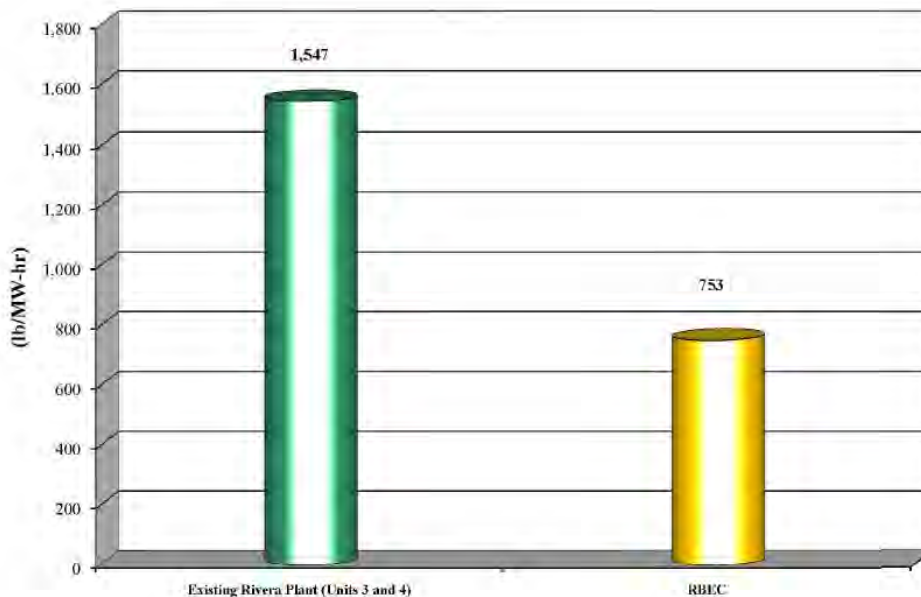


Figure 6. CO₂ Emission Rate Comparison of Existing Riviera Plant and RBEC (FPL RBEC SCA, Figure 4.4.2-1)

3.3 Industrial Wastewater Discharge Impacts

According to the applicant, the full-load discharge heat rejection rate and the total discharge flow rate of the RBEC are the same as the existing plant. FPL also states that the conversion of the existing plant will not increase the potential thermal loading to the Lake Worth Lagoon compared to the potential thermal loading from the existing plant.

The following wastewater streams will be discharged in addition to the once-through cooling water: HRSG blowdown and evaporative cooler blowdown; reverse osmosis reject/demineralizer regeneration water; and wash water and plant/equipment drain discharge wastewater.

The wastewater discharges for the existing Riviera Plant are permitted under DEP National Pollutant Discharge Elimination System (NPDES) permit No. FL0001546. FPL submitted an application for renewal of the current NPDES permit to the DEP Industrial Wastewater section on August 7, 2008. A draft permit was issued July 21, 2009. Additionally, FPL submitted an application for a modification to the NPDES permit for the RBEC concurrently with the SCA. That application is currently being reviewed for completeness by DEP staff and will be issued following issuance of the final permit renewal. Thermal impacts, water quality, and aquatic impingement and entrainment impacts by the RBEC will be addressed in the finalized NPDES permit modification.

3.4 Water Use Impacts

As stated in the application, primary water uses will include cooling water required for condenser cooling, auxiliary cooling, and cooling pump seal water, and process water required for CT inlet air cooling, NOx injection water, steam cycle makeup, service water, and fire protection. Other uses include intake screen wash water, potable water for employee use, and water for landscape irrigation.

The proposed total design intake flow capacity of the RBEC cooling system, including auxiliary cooling flows is the same as the existing plant (599 MGD). Water is withdrawn from the Lake Worth Lagoon via the cooling water intake structure (located just north of the plant on Port of Palm Beach property for which FPL must maintain an easement) and discharged east of the plant into the Lake Worth Lagoon via the discharge pipeline.

Potable water and process water will continue to be supplied by the City of Riviera Beach. Pump seal cooling water and irrigation water will be provided from three onsite surficial aquifer wells. According to FPL, the allocation required for the pump seal and irrigation will not exceed current allocations permitted by the South Florida Water Management District under General Water Use Permit No. 50-04187-W and 50-04188-W.

3.5 Wastewater Disposal

Sanitary wastewater from the RBEC will be routed to the City of Riviera Beach wastewater system for treatment and disposal using the existing connection. A small increase in sanitary wastewater flow is expected due to the addition of the manatee viewing center.

3.6 Solid and Hazardous Waste Disposal

Minimal quantities of primarily turbine inlet filters and municipal solid wastes are expected to be generated at the RBEC. According to the applicant solid wastes will be collected and disposed

of by a licensed waste disposal contractor and will be disposed of in appropriately licensed off-site landfills.

Hazardous wastes generated at the RBEC will be collected and disposed of by a licensed hazardous waste contractor. These wastes are expected to be minimal and may include spent solvents and HRSG chemical cleaning wastes.

3.7 Terrestrial Impacts

The existing site itself has been disturbed for construction of the existing site and has been used continuously for the past 60 years for plant operation. Because of the existing developed nature of the site, no adverse impacts to federal- or state-listed species or long-term change in populations of non-aquatic threatened or endangered species are expected during construction and operation of the RBEC. Additionally, noise and lighting impacts will be reduced with the new plant when compared to the existing Riviera Plant.

3.8 Impacts on Aquatic Species

The existing site is located on the west shore of the Lake Worth Lagoon which is the largest estuarine system in Palm Beach County and is connected to the Atlantic Ocean by two maintained inlets. The Lake Worth Lagoon is classified by FDEP as a Class III marine water. The South Florida Water Management District and Palm Beach County Department of Environmental Resources Management jointly maintain a water quality network in the Lake Worth Lagoon. Flushing provided by the inlet helps water quality within the Lagoon.

According to the applicant, because the offshore thermal plume is small, and the discharge is located in a relatively deep area directed toward the dredged shipping channel, there are no significant impacts expected to submerged aquatic vegetation and there should be no significant thermal blockage of transient aquatic organisms. Also as stated in the application, because the existing once-through cooling water system has been in operation for over 45 years without documented adverse impact to the values of the Lake Worth Lagoon, significant adverse impacts to aquatic life due to impingement or entrainment are not expected from its continued operation for the RBEC.

The Lake Worth Lagoon is within the US Fish and Wildlife Service designated Critical Habitat for the Florida manatee. FPL has committed to continue to provide a wintertime thermal refuge for manatees by releasing hot water to the manatee embayment area between November 15 and March 31 when the ambient water temperature falls below 61 degrees F pursuant to the Plant's Manatee Protection Plan. The Florida Fish and Wildlife Conservation Commission (FWC) expressed concerns regarding the manatees during the period between demolition and startup of the new unit. The FWC has included proposed Conditions in its Agency Report for protection of the manatees during that period. FPL has also included in its SCA the construction of a manatee viewing center on the southern portion of the existing site.

3.9 Transportation Impacts

A traffic impact analysis is provided in the SCA. The construction workforce for the RBEC project is expected to average approximately 290 workers from 2010 to 2014 with a peak workforce of about 650 workers in 2013. Intersection capacity/level of service analyses were performed for the critical signalized intersection of U.S. Highway 1 and the main entrance/exit driveway. FPL has proposed certain roadway improvements on U.S. Highway 1 and adjustment

of the signal timing of the intersection in order to maintain an acceptable level of service on the roadway during peak construction.

The number of employees at the converted plant will be similar to current conditions. Therefore, it is anticipated that the main signalized access driveway intersection is anticipated to continue to operate at an acceptable level of service during operation of the RBEC including the new manatee viewing center.

3.10 Socioeconomic Impacts

It is anticipated by the applicant that the RBEC project will result in positive economic benefits for the City of Riviera Beach, the City of West Palm Beach, and Palm Beach County and the surrounding area through employment opportunities during construction and increased revenue from direct local property tax payments and sales tax from the purchase of equipment and materials in support of construction activities.

3.11 Noise Impacts

Computerized noise modeling analyses were conducted for the RBEC site for both construction and operation. Based on the results of the analyses, FPL concluded that the maximum sound levels predicted during construction of the RBEC will not exceed maximum permissible sound levels of the City of Riviera Beach's Noise Ordinance. Additionally, it was concluded that sound pressure levels within the residential areas south and south west of the site will comply with the City of West Palm Beach's noise ordinance. However, there is a potential for the use of explosives during the deconstruction phase. This will result in elevated noise levels for very short durations. FPL has stated that such activities will be performed in accordance with all applicable regulations, and prior notice to nearby residences and businesses will be given. Additionally, specific requirements related to noise restrictions are included in the proposed conditions. (see Appendix I)

4.0 ARCHAEOLOGICAL AND HISTORIC SITES

FPL reported in the SCA that a cultural resource survey of the site concluded that there are no previously recorded archaeological sites, historic districts, historic cemeteries, or historic bridges, listed, potentially listed or potentially eligible for listing resources on the National Register of Historic Places. Several industrial forms found on the site were identified as newly identified historic resources during the field evaluation. As presented in the SCA, these forms are not individually significant architectural resources and are not considered eligible for listing in the National Register. On May 11th, 2009, following FPL's Response to Completeness Questions, the Department received a letter from the Florida Department of State, Division of Historical Resources stating that "the applicant has addressed potential indirect affects and historic properties or properties otherwise of significance. Because of the nature of the proposed improvements/renovations, we concur that the project will have no adverse effect on historic properties."

5.0 PUBLIC LANDS

This project will not displace any human populations. According to the applicant, project construction activities will be contained within the existing site and will not result in changes to the accessibility or use of nearby landmarks or sensitive areas.

The following are natural and scenic areas within 5 mi. of the RBEC site: one National Historic Landmark[the Whitehall (Henry M. Flagler House)]; three County Managed Areas/Conservation Lands (Winding Waters Natural Area, Lake Park Scrub Natural Area, and the Grassy Waters Preserve); Six County parks (Dyer Park, Ocean Reef Park, Westgate Park and Recreation Center, Schall Circle/Old Trail Park, Peanut Island Park, and Phil Foster Memorial Park); three estuarine habitat areas of concern identified by Palm Beach County (Snook Island Natural Area, Peanut Island, and Munyon Island]; one State park (John D. Macarthur Beach State Park).

6.0 LEASES AND EASEMENTS

As part of this project, certain easements/leases will need to be acquired. The existing once-through cooling water discharge pipeline extending into Lake Worth Lagoon utilizes 5.4 acres of sovereign submerged lands. A perpetual easement from the Division of State Lands is being sought in association with this certification. This easement will necessitate approval from the Board of Trustees (Governor and Cabinet) or the Acquisition and Restoration Council (ARC) and although not approved as of the issuance of this report, has been contemplated within the Conditions of Certification, Section B.II.

As stated earlier, surface water for the Riviera Plant is currently withdrawn from the Lake Worth Lagoon via the cooling water intake structure located on property owned by the Port of Palm Beach. FPL is proposing to use the same intake structure for the RBEC. A copy of this easement for the water intake will be supplied to the Department prior to commencing commercial operation of the RBEC. The Department understands that there exists some disagreement between the Port and FPL as to the validity of the existing easement related to the intake structure. The Department is not required to resolve such a disagreement during the licensing process, and has acknowledged the question of validity of the existing easement within the condition.

FPL also owns a fuel pipeline located on Port property. Given that the Riviera Plant will no longer be using residual fuel oil as its primary fuel, it is unlikely that an easement for the pipeline will be required. However, should such an easement be necessary the Department is requiring the submittal of copies of the obtained easement.

7.0 PUBLIC NOTICE

FPL has met all of the public notice requirements set forth in the PPSA statutes and rules. FPL directly notified approximately 59,000 local landowners and residences located within three miles of the site by mail of the proposed RBEC. Notices for the receipt of the application, and notices of the scheduled hearing before the administrative law judge were timely published in both the Florida Administrative Weekly and in The Palm Beach Post. An informational public meeting was held by the City of Riviera Beach on April 14, 2009.

8.0 REVIEWING AGENCY REPORTS

Although the DEP is designated as the agency to coordinate the process, many of the concerns that are to be addressed in the SCA impact assessment are within the typical jurisdiction of other agencies. Consequently, the Siting Act requires several other state agencies to participate in the review process. Each of these agencies is directed to review the SCA with regard to compliance with the statutory and administrative requirements of the reviewing agency. Each of these agencies is further directed to prepare a written report to the DEP explaining their findings and recommending any restrictions or requirements that should be included in the Conditions of

Certification. These agencies are: the Public Service Commission (PSC); the Department of Community Affairs (DCA); the Water Management District (WMD) with jurisdiction over the site; all local governments with jurisdiction over the site; the Fish and Wildlife Conservation Commission (FWCC); the Regional Planning Council with jurisdiction over the site; the Department of Transportation (DOT); and any other agency if requested by DEP.

The following are summaries of submitted agency reports. Agency reports in their entirety have been included in Appendix II. The descriptions herein do not necessarily reflect the Department's views or positions. The actual recommendations of the Department are described in a later section.

8.1 Public Service Commission

Chapter 80-65, Laws of Florida (1980) requires a formal "Determination of Need" be made by the Florida Public Service Commission (PSC) prior to certification of an electric power generating facility subject to the "Power Plant Siting Act" (sections 403.501-519, Florida Statutes). The issues evaluated in the PSC's determination proceedings include electric system reliability and integrity, including fuel diversity, the need for base-load generating capacity, the need for adequate electricity at a reasonable cost, and whether renewable energy sources and technologies, as well as conservation measures, are utilized to the extent reasonably available. Refer to the following language from 403.519(4), F.S.: *"In making its determination on a proposed electrical power plant using nuclear materials or synthesis gas produced by integrated gasification combined cycle power plant as fuel, the commission shall hold a hearing within 90 days after the filing of the petition to determine need and shall issue an order granting or denying the petition within 135 days after the date of the filing of the petition. The commission shall be the sole forum for the determination of this matter and the issues addressed in the petition, which accordingly shall not be reviewed in any other forum, or in the review of proceedings in such other forum. In making its determination to either grant or deny the petition, the commission shall consider the need for electric system reliability and integrity, including fuel diversity, the need for base-load generating capacity, the need for adequate electricity at a reasonable cost, and whether renewable energy sources and technologies, as well as conservation measures, are utilized to the extent reasonably available."*

Pursuant to 403.519(4)(d), F.S., once a determination has been made by the PSC that a facility is needed, these specific issues (including cost effectiveness and reliability, and whether renewable energy sources or conservation measures can be employed in lieu of building and operating the plant) not be "re-considered" as part of this approval process.

403.519(4)(d), F.S.: The commission's determination of need for a nuclear or integrated gasification combined cycle power plant shall create a presumption of public need and necessity and shall serve as the commission's report required by s. 403.507(4)(a). An order entered pursuant to this section constitutes final agency action. Any petition for reconsideration of a final order on a petition for need determination shall be filed within 5 days after the date of such order. The commission's final order, including any order on reconsideration, shall be reviewable on appeal in the Florida Supreme Court. Inasmuch as delay in the determination of need will delay siting of a nuclear or integrated gasification combined cycle power plant or diminish the opportunity for savings to customers under the federal Energy Policy Act of 2005, the Supreme Court shall proceed to hear and determine the action as expeditiously as practicable and give the action precedence over matters not accorded similar precedence by law.

The need determination issued by the PSC serves as the report required as part of the power plant site certification proceedings. The Department of Environmental Protection (DEP) must balance the determination of need with the social and environmental impacts when preparing overall recommendations for final approval or disapproval of a SCA.

On September 12, 2008 the PSC issued their Final Order Granting Petition for Determination of Need for the proposed Riviera Beach Energy Center, Cape Canaveral Energy Center and West County Energy Center Unit 3. The following summary is an excerpt from the PSC's Final Order:

"FPL has demonstrated that its plan to build WCEC 3 and convert its existing Cape Canaveral and Riviera plants meets all of the requirements of Section 403.519, F.S. The new and converted units will provide nearly 2,300 MW of capacity needed through 2017, and ensure a 20 percent reserve margin. The assessments of various combinations of timings and generating resources used reasonable assumptions in demonstrating the proposed projects would provide adequate electricity at reasonable cost and, in fact, were the most cost-effective alternative. FPL demonstrated that use of all identified cost-effective conservation and reasonably available renewable generation will not provide the capacity or demand reduction necessary to mitigate the need for these projects."

The PSC's report is attached and incorporated as Appendix II-1.

8.2 South Florida Water Management District

The Department received a final Agency Report from the South Florida Water Management District (SFWMD or District) regarding certification of the RBEC via email on July 10, 2009. The following summary from the SFWMD report describes the various water sources and uses for the RBEC.

"The proposed source of cooling water for condenser and auxiliary cooling for the new generating facilities will continue to be the Intracoastal Waterway (Lake Worth Lagoon), which will provide once-through cooling water. This will also be the source of intake screen wash water. This source is exempt from the permitting requirements of Chapter 40-2, F.A.C., since the chloride concentration is greater than the SFWMD's regulatory threshold for seawater (19,000 mgll). The proposed source of process and service water for combustion turbine inlet air cooling, nitrogen oxide injection, steam cycle makeup, and fire protection, as well as potable water for employee use, will continue to be the City of Riviera Beach Utilities Department. The proposed source of water for landscape irrigation and water pump bearing cooling will continue to be the existing on-site Surficial aquifer wells. The existing withdrawals have been permitted by the SFWMD under permits 50-04187-W and 50-041 88-W."

The SFWMD concludes that, based on the information contained in the original application and the additional submittals, and assuming compliance with the intent of the SFWMD recommended certification conditions, the proposed project can be constructed consistent with the applicable statutes and rules. The SFWMD report is attached and incorporated as Appendix II-2.

8.3 City of Riviera Beach

On August 25, 2009, the City of Riviera Beach submitted its agency report to DEP. Pursuant to 403.5175(3), F.S., a land use and zoning determination is not required for an application under the PPSA if the applicant does not propose to expand the boundaries of the existing site or to add

additional offsite facilities. Because FPL is not proposing to expand the existing Riviera Plant site, a land use and zoning determination is not required for this project. Although no Land Use Determination was made, the City assessed in its agency report that for the portion of the plant within the city limits, the use of the RBEC as an electricity producing power plant is consistent with the current land use and zoning designations. On October 1, 2008, the City Council of the City of Riviera Beach approved (with conditions) a preliminary site plan for the proposed RBEC by Resolution 124-08.

The City recommended approval of the RBEC based on preliminary site plan approval, and the inclusion of a Condition of Certification requiring undergrounding of the electrical power lines along State Road 5/US Highway 1. The Department has included conditions from the preliminary site plan approval. However the aforementioned distribution lines are not associated facilities of the certified plant. As such, it was determined by the Department that such requirements were beyond the scope of this project and were not included.

A copy of the City of Riviera Beach final agency report is attached as Appendix II-3.

8.4 City of West Palm Beach

The Department received an agency report from the City of West Palm Beach on August 26, 2009 and its amended final agency report (including revised conditions) on September 24, 2009. As stated above, the land use and zoning determination under the PPSA is not required for the RBEC. Although no Land Use Determination was made, according to the City, the proposed use of the property included within the Riviera Beach Energy Center Site Certification that is located within the City of West Palm Beach falls into two separate Future Land Use and Zoning categories. The use of the property located on the east side of North Flagler Drive at the terminus of 59th Street as a Manatee Viewing Center will require approval equivalent to a Class B Special Use Permit prior to construction. The City recommends approval of the RBEC subject to proposed conditions including requirements for the Special Use approval.

A copy of the City of West Palm Beach final agency report is attached as Appendix II-4.

8.5 Florida Fish and Wildlife Conservation Commission

The Florida Fish and Wildlife Conservation Commission (FWC) submitted its agency report on August 26, 2009. In its report, the FWC described the Florida manatee as a potentially affected resource due to the dependence of manatees on the warm-water habitat provided currently by the Riviera Plant. FWC has included recommended conditions addressing an interim heating system and temporary warm-water refuge to be operated during the offline period of the plant's conversion.

FWC's recommended conditions have been included in the Proposed Conditions of Certification and the FWC report are is attached as Appendix II-5.

8.6 Treasure Coast Regional Planning Council

The Department received an agency report from the Treasure Coast Regional Planning Council (TCRPC or Council) on July 21, 2009. The purpose of Council's report is to contain recommendations that address the impact upon the public of the proposed electrical power plant, based on the degree to which the power plant is consistent with the applicable provisions of the Strategic Regional Policy Plan adopted pursuant to Chapter 186, Florida Statutes and other matters within its jurisdiction.

In its report, Council stated that, "...it has recommended for many years that the existing Riviera Plant be upgraded because of issues related to soot and emissions from the facility. Furthermore, in the WCEC conditions of certification, Council included a special condition that recommended: Upon issuance of an affirmative determination of need by the Florida Public Service Commission for the Riviera Plant modernization project, the licensee shall take all prudent and commercially reasonable actions to convert the Riviera Power plant to natural-gas combined cycle generating technology by December 31, 2015. The Site Certification Application for the RBEC is consistent with the intent of this recommendation."

As part of its review, the TCRPC solicited comments from local jurisdictions. Comments were received from the Town of Palm Beach. The Department received the same comments from the Town of Palm Beach. These comments are addressed in a later section.

In conclusion, Council determined that the RBEC Project is not in conflict or inconsistent with the goals, strategies, and policies contained in the Strategic Regional Policy Plan, provided that the project is constructed and operated in compliance with the conditions of certification approved by the State of Florida.

Council recommended approval of the RBEC. The report is attached as Appendix II-6.

8.7 Department of Transportation

On August 26, 2009 the Florida Department of Transportation (DOT) submitted its agency report (attached in Appendix II-7). The DOT recommended approval contingent upon the applicant's compliance with recommended conditions. These conditions are included in the proposed Conditions of Certification.

8.8 Port of Palm Beach

The Department received an agency report from the Port of Palm Beach (the Port) on August 26, 2009 and a revised final agency report on September 9, 2009. The Port has jurisdiction to enact, adopt and establish rules and regulations for the complete and exclusive exercise of jurisdiction and control over all of the waters and harbors within the port district. The Port included proposed conditions for requirements during dismantlement and steam blows. Additionally, the Port referenced easements for an existing oil pipeline and water intake structure at the Port. FPL has since withdrawn the oil pipeline from the application.

The Port recommended approval subject to its proposed Conditions of Certification. The Port's recommended conditions have been included in the Proposed Conditions of Certification with edits, and the Port's agency report is attached as Appendix II-8.

8.9 Department of Community Affairs

On September 24, 2009, the Department received confirmation that the Department of Community Affairs (DCA) has no outstanding issues regarding the proposed RBEC. Furthermore, DCA accepts the SFWMD's review of this project.

9.0 AGENCY COMMENTS (OTHER THAN AFFECTED AGENCIES) AND COMMENTS FROM THE PUBLIC

9.1 Town of Palm Beach

On June 29, 2009 the Department received a letter from the Town of Palm Beach, Office of the Town Manager on behalf of the Town of Palm Beach (the Town) regarding issues of concern

pertaining to the RBEC. The Town's specific concerns relate to the transport of natural gas or fuel oil being received from: water based or subaqueous pipelines within the waters of the Atlantic Ocean, the Palm Beach Inlet and the Lake Worth Lagoon; any offshore based terminal; or a Liquefied Natural Gas tanker berthed at the Port of Palm Beach or the RBEC. In the Town's letter, the Governor and Cabinet were respectfully asked to prohibit such activities.

The Department acknowledges the Town's concerns. However, as stated in the TCRPC agency report, the scenarios discussed in the Town's letter are not being proposed by FPL in this SCA and are not part of the proposed project. The potential impacts of these scenarios will be evaluated through the certification process if and when they are ever proposed.

9.2 Comments from the Public

The Department received no written comments from the public regarding the RBEC.

10.0 VARIANCES

No variances from any applicable standards of any State, regional or local government agencies are being requested as part of this application.

11.0 CONCLUSIONS AND RECOMMENDATIONS

11.1 Construction Impacts

Construction of the proposed facilities necessary to implement the RBEC would have the following impacts:

- 1) The proposed project will entail the replacement of the two existing nominal 300 MW oil and gas-fired steam electric generating units with a nominal 1,250 MW combined cycle unit.
- 2) Based on the applicant's analysis, dismantlement of the existing plant and construction of the RBEC should have positive incremental socioeconomic impacts to the surrounding area through employment and associated tax revenues. During the peak period of construction, it is anticipated that approximately 650 jobs will be created. The RBEC is not anticipated to adversely impact the local or regional services or infrastructure.
- 3) Dismantlement is anticipated to begin in the fall of 2010 and project construction to conclude in the summer of 2014. The peak construction period is estimated to be mid-2013.

11.2 Operational Impacts

- 1) Completion of this project will result in increased power generation using less fuel, and without the use of additional water sources or transmission line rights-of-way.
- 2) The RBEC will result in a decrease in system-wide CO₂ emissions for FPL.
- 3) FPL will install a 30-MMBtu/hr electric heater to act as a temporary "manatee heating system" to discharge warm water while the plant is offline. Warm water will be discharged from November 15 through March 31 (to coincide with the time of greatest manatee abundance), if the ambient water temperature falls below 65°F.

11.3 Agency Conclusions

The following table includes the recommendations of approval or denial from each of the affected agencies.

Table 2. Agency Recommendations

AGENCY	APPROVAL	DENIAL
PSC	√	
SFWMD	√	
City of Riviera Beach	√	
City of West Palm Beach	√	
FWC	√	
TCRPC	√	
DOT	√	
Port of Palm Beach	√	
DCA	√	
DEP	√	

- 1) The Public Service Commission determined there is a specific need for the project
- 2) The South Florida Water Management District recommends approval subject to proposed Conditions of Certification regarding potential impacts to ground water.
- 3) The City of Riviera Beach determined that the RBEC site is consistent with the city's current land use and zoning designations. Approval of the project was recommended subject to proposed Conditions of Certification.
- 4) The City of West Palm Beach recommends approval subject to recommended conditions.
- 5) The Fish and Wildlife Conservation Commission identified additional monitoring requirements for potential impacts to the Florida manatee. Approval of the RBEC is subject to specific Conditions.
- 6) The Treasure Coast Regional Planning Council recommended approval of the project.
- 7) The DOT recommended approval contingent upon the applicant's compliance with recommended conditions.
- 8) The Port of Palm Beach recommended approval subject to its proposed conditions.
- 9) The Department of Community Affairs has no outstanding issues regarding the project.
- 10) Based on the application and subsequent submittals, the Department of Environmental Protection recommends approval subject to the proposed Conditions of Certification.

11.4 Overall Recommendation

The Department's recommendation is, at least in part, based upon recommendations included in the agencies' reports required by 403.507(2)(a), F.S. Neither the failure of any agency to submit a report nor the inadequacy of a report, are grounds to deny or condition certification. (403.507(6), F.S.)

If Florida Power & Light Company, as the applicant, agrees to abide by the Conditions of Certification, attached and incorporated herein Appendix I., the Department recommends certification of the Riviera Beach Energy Center

DONE AND ISSUED this 25th day of September 2009, at Tallahassee

A handwritten signature in blue ink that reads "Michael P. Halpin, P.E.".

Michael P. Halpin, P.E.

Siting Program Manager