UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of	)	
	)	Docket No. 52-040 and 52-041
Florida Power & Light Company	)	
	)	
Combined License Application for Turkey Point Units 6 & 7	)	

PETITION FOR INTERVENTION

I. INTRODUCTION

Pursuant to 10 C.F.R. § 2.309, 10 C.F.R. § 52.85, and a notice published by the Nuclear Regulatory Commission ("NRC" or "Commission") at 75 Fed. Reg. 34,777 (June 18, 2010), Petitioners Mark Oncavage, Dan Kipnis, Southern Alliance for Clean Energy ("SACE"), and National Parks Conservation Association ("NPCA") (collectively, "Petitioners"), hereby submit their contentions regarding Florida Power & Light Company's ("FPL") application for a combined license ("COL") to construct and operate two new nuclear reactors ("Units 6 & 7") on the site of the Turkey Point Nuclear Facility located in Homestead, Florida ("Turkey Point"). As demonstrated below, these contentions should be admitted because they satisfy the NRC's admissibility requirements in 10 C.F.R. § 2.309.

Description of the Proceeding

This proceeding concerns an application by FPL for a COL to construct and operate two additional nuclear reactors on the Turkey Point site. FPL submitted its COL application on June 30, 2009. The application was accepted for docketing and published on October 7, 2009 in 74

Fed. Reg. 51,621. Then, on June 18, 2010, a Notice of Hearing and Opportunity to Petition for Leave to Intervene was published in 75 Fed. Reg. 34,777.

Description of Petitioners

Mark Oncavage is a resident of Miami, Florida who uses the area around Turkey Point for hiking, walking, canoeing, fishing, and snorkeling. Mr. Oncavage is also a member of Sierra Club, and as a member has invested significant time and resources to the protection of the natural area near and around Turkey Point. He also advocates for the advancement of the Comprehensive Everglades Restoration Plan, including the Biscayne Bay Coastal Wetlands rehydration project. Mr. Oncavage has been a party in past proceedings before the Atomic Safety and Licensing Board regarding the Turkey Point nuclear facility.

Dan Kipnis is a resident of Miami Beach, Florida who is a lifelong angler, fishing in Biscayne Bay and for many years near and around Turkey Point.

SACE is a non-profit, non-partisan, public interest membership organization that promotes responsible energy choices to solve global warming problems and ensure clean, safe, and healthy communities throughout the southeast. SACE has staff and members across Florida, including an office in Jacksonville and three board members that reside in Florida.

NPCA is a non-profit, non-partisan, public interest membership organization that is a leading voice of the American people in protecting and enhancing our National Park System. Since 1919, NPCA, its members, and partners have worked together to protect the park system and preserve our nation's natural, historical, and cultural heritage for present and future generations to come. By providing a voice to influence our government and the National Park Service, NPCA and its more than 300,000 members provide an invaluable resource to the nation. As the nation's only independent membership organization dedicated to protecting the park

system, NPCA and its hundreds of thousands of members and supporters are committed to preserving our nation's parks. NPCA and its members regularly advocate for the protection of Biscayne National Park and Everglades National Park and their natural, cultural and recreational resources. NPCA members in South Florida and nationwide regularly take advantage of the opportunities to visit Biscayne National Park and Everglades National Park and to access their facilities and resources for personal, professional, and aesthetic reasons.

Standing

> Pursuant to 10 C.F.R. § 2.309, a request for hearing must:
>
> > Set forth with particularity the interest of the petitioner in the proceeding, how that interest may be affected by the results of the proceeding, including the reasons why the petitioner should be permitted to intervene with particular reference to the factors set forth in [10 C.F.R. § 2.309 (d)(1)],[1] and the specific aspect or aspects of the subject matter of the proceeding as to which the petitioner wishes to intervene.

In the Matter of Pacific Gas & Electric Co. (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), LBP-02-23, 56 NRC 413, 426 (2002) ("*Diablo Canyon*").

In addition, the request for hearing must address: (1) the nature of the petitioner's right under the Atomic Energy Act to be made a party to the proceeding, (2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding, and (3) the possible effect of any order that may be entered in the proceeding on the petitioner's interest. 10 C.F.R. §2.309(d)(1). The Atomic Safety and Licensing Board in *Diablo Canyon* summarized these requirements as follows:

> In determining whether a petitioner has sufficient interest to intervene in a proceeding, the Commission has traditionally applied judicial concepts of standing. *See Metropolitan Edison Co.* (Three Mile Island Nuclear station, Unit l), CLI-83-25, 18 NRC 327, 332 (1983) (citing *Portland General Electric Co.*

[1] *Diablo Canyon* cites 10 C.F.R. § 2.714(d)(1), which was replaced by 10 C.F.R. § 2.309(d)(1) when the hearing regulations were amended in 2004. *See* 69 Fed. Reg. 2,182 (Jan. 14, 2004).

> (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610 (1976)). Contemporaneous judicial standards for standing require a petitioner to demonstrate that (1) it has suffered or will suffer a distinct and palpable harm that constitutes injury-in-fact within the zone of interests arguably protected by the governing statutes (e.g., the Atomic Energy Act of 1954 (AEA), the National Environmental Policy Act of 1969 (NEPA)); (2) the injury can be fairly traced to the challenged action; and (3) the injury is likely to be redressed by a favorable decision. *See Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plants), LBP-99-25, 50 NRC 25, 29 (1999). An organization that wishes to intervene in a proceeding may do so either in its own right by demonstrating harm to its organizational interests, or in a representational capacity by demonstrating harm to its members. *See Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), LBP-98-9, 47 NRC 261, 271 (1998). To intervene in a representational capacity, an organization must show not only that at least one of its members would fulfill the standing requirements, but also that he or she has authorized the organization to represent his or her interests. *See Private Fuel 3 Storage, L. L. C.* (Independent Fuel Storage Installation), LBP-98-7, 47 NRC 142, 168, *aff'd on other grounds,* CLI-98- 13,48 NRC 26 (1998).

Diablo Canyon 56 NRC at 426.

Petitioners' standing to participate in this proceeding is demonstrated by (1) declarations of the following individual Petitioners, or (2) declarations of the following members of Petitioner organizations, who have authorized Petitioners to represent their interests in this proceeding. *See* Exhibit 1.

Dan Kipnis
Mark Oncavage
Karen Beal, SACE member
Cara Cooper, SACE member
John Hammerstrom, SACE member
Joseph Naroditsky, SACE member
Jacqueline Crucet, NPCA member
Sara Fain, NPCA member
David Hartman, NPCA member
Paul Martin, NPCA member
Bruce Matheson, NPCA member

The attached declarations demonstrate that (1) Petitioners Kipnis and Oncavage live within 50 miles of the Turkey Point site, and (2) Petitioners SACE and NPCA have members who live within 50 miles of the Turkey Point site. Petitioners have presumptive standing by

virtue of their proximity to the new nuclear reactors that may be constructed on the Turkey Point site. *See Diablo Canyon*, 56 NRC at 426-7, citing *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), LBP-01-6, 53 NRC 138, 146, *aff'd,* CLI-01-17, 54 NRC 3 (2001).[2]

Petitioners SACE and NPCA seek to protect their members' health, safety, and lives, as well as the health and safety of the general public and the environment, through intervention in the Turkey Point COL proceeding. Petitioners Kipnis and Oncavage seek to protect these same interests for themselves. Each Petitioner seeks to ensure that no COL is issued by the NRC unless FPL demonstrates full compliance with the Atomic Energy Act, National Environmental Policy Act ("NEPA"), Clean Water Act, Endangered Species Act ("ESA"), Safe Drinking Water Act, and applicable Florida state law.

II. PRELIMINARY STATEMENT

One would be hard pressed to find a less compatible and more ecologically sensitive location in which to expand the operations of a nuclear power plant than Turkey Point. FPL's description of the vicinity in its Environmental Report ("ER") is reason alone to take pause and bears repeating. Within six miles of the site for Units 6 & 7 there is a state-managed aquatic preserve, an expansive wetlands habitat preserve, two national parks, and one national wildlife refuge. ER 2.2-10.

Immediately adjacent to the site is the 38-mile long, 11-mile wide Biscayne Bay. Id.; ER 2.3-7. This shallow, subtropical lagoon supports a "rich and diverse ecosystem of marine fauna

[2] In *Diablo Canyon,* the Atomic Safety and Licensing Board noted that petitioners who live within 50 miles of a proposed nuclear power plant are presumed to have standing in reactor construction permit and operating license cases because there is an "obvious potential for offsite consequences" within that distance. *Diablo Canyon*, 56 NRC at 426-7.

and flora" and "serves the coral reef and marine ecosystems of Biscayne National Park." ER 2.3-9. The Bay includes the 69,000-acre Biscayne Bay Aquatic Preserve, which has been designated by the state of Florida as an Outstanding Florida Water. ER 2.2-10.

Within three miles of the site is the Model Lands Basin, a state-owned expanse of fresh and salt-water wetlands that form a contiguous habitat corridor with the Everglades National Park and other designated lands in Miami-Dade County. ER 2.2-11.

To the north and east of the site is Biscayne National Park. Established in 1968 as a National Monument and expanded in 1980 to approximately 173,000 acres of water, coastal lands, and 42 keys, the park hosts thousands of visitors a year, who engage in a variety of recreational activities including boating, fishing, snorkeling, diving, camping, picnicking, and hiking. ER 2.2-11.

South of the site is Crocodile Lake National Wildlife Refuge, which is home to the federally protected American Crocodile. ER 2.2-11. Also south is Florida's crown jewel – Everglades National Park. Established in 1947, this 1.4 million acre national park is part of the largest wetland ecosystem in the continental United States. ER 2.3-3. With its headwaters in Shingle Creek just south of Orlando, the Everglades flows through the Kissimmee Basin into Okeechobee and south, eventually draining into Florida Bay. *Id.*

For the past 100 years, over half the original Everglades has been lost due to land reclamation for agriculture, the construction of levees and drainage canals for flood control, and urbanization. ER 2.3-2. In 2000, Congress embarked on an ambitious path to halt and, to the extent possible, reverse the destructive effects these practices are having on the imperiled south Florida ecosystem, and authorized the Comprehensive Everglades Restoration Plan ("CERP"). ER 2.3-5. CERP – the largest and most expensive ecosystem restoration plan the world has ever

seen – seeks to restore, protect, and preserve the water resources of central and southern Florida, including the Everglades, through the development and implementation of 68 individual projects. *See id.* Its mission is clear- to let the water flow.

It is in consideration of these imperiled places and the Nation's commitment to restoring them, that Petitioners, individuals and organizations who have dedicated a significant portion of their lives and organizational missions, respectively, to enjoying and protecting these national treasures, seek intervention. As this Petition will explain below, FPL's ER fails to sufficiently identify, let alone explain, the many destructive environmental impacts construction and operation of Units 6 & 7 will have and leaves just as many questions as it does answers concerning such critically important issues as water supply, saltwater intrusion, wetland loss, harm to endangered and threatened species, impediments to CERP, and sea level rise. In a place where in many ways, it is all about the water, FPL's plan to expand its operations and consume even more water must be examined.

III. CONTENTIONS

Specific Aspects of the Subject Matter As To Which Petitioner Seeks to Intervene

Persons whose interest may be affected by a proceeding and who desire to participate as a party must file a written request for hearing and specify the contentions which they seek to have litigated. 10 C.F.R. § 2.309(a). Pursuant to 10 C.F.R. § 2.309(f)(1), a hearing request or petition to intervene "must set forth with particularity the contentions sought to be raised." Each contention must:

(i) Provide a specific statement of the issue of law or fact to be raised or controverted;

(ii) Provide a brief explanation of the basis for the contention;

(iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding;

(iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding;

(v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the requester/petitioner intends to rely to support its position on the issue; and

(vi) Provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact. This information must include references to specific portions of the application (including the applicant's environmental report[3] and safety report) that the petitioner disputes and the supporting reasons for each dispute, or, if the petitioner believes that the application fails to contain information on a relevant matter as required by the law, the identification of each failure and the supporting reasons for the petitioner's belief.

10 C.F.R. § 2.309(f)(1)(i)-(vi).

As required by law, Petitioners set forth below the specific aspects of the subject matter of this proceeding as to which they wish to intervene:

1. Whether FPL failed to adequately address in its ER the direct, indirect, and cumulative impacts of constructing and operating radial collector wells on salinity levels in groundwater and surface water, and the resulting impacts to wildlife.

2. Whether FPL failed to adequately address in its ER the direct, indirect, and cumulative impacts of the reclaimed wastewater system on groundwater, air, surface water, wetlands, and CERP.

[3] Every application for a COL must be accompanied by an ER, which shall discuss: (1) the impacts of the proposed action; (2) adverse environmental effects that cannot be avoided; (3) alternatives to the proposed action; (4) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and (5) any irreversible and irretrievable commitments of resources associated with the proposed action. 10 C.F.R. § 51.45(b). The ER "shall include an analysis that considers and balances the environmental effects of the proposed action, the environmental impacts of alternatives to the proposed action, and alternatives available for reducing or avoiding adverse environmental impacts ... The environmental report must also contain an analysis of the cumulative impacts of the activities to be authorized by the … [COL] in light of the preconstruction impacts described in the environmental report." 10 C.F.R. § 51.45(c). Further, the environmental analysis "shall, to the fullest extent practicable, quantify the various factors considered." *Id.* The ER is intended to aid the Commission in complying with Section 102(2) of NEPA. 10 C.F.R. § 51.14(a).

3. Whether FPL failed to adequately address in its ER the direct, indirect, and cumulative impacts of constructing and operating the transmission lines associated with Units 6 and 7 on wetlands, wildlife, and CERP.

4. Whether FPL failed to adequately address in its ER the direct, indirect, and cumulative impacts of constructing and operating the access roads associated with Units 6 & 7 on wetlands and wildlife.

5. Whether FPL failed to adequately address in its ER (1) all reasonable alternatives to the proposed transmission line corridors and associated access roads, and (2) how FPL will avoid and/or minimize impacts to wetlands caused by construction and operation of these transmission line corridors and associated access roads.

6. Whether FPL failed to adequately address in its ER the cumulative impacts of constructing and operating Units 6 and 7 on salinity levels in groundwater, surface water, Biscayne Aquifer, and Biscayne Bay; wetlands; and wildlife.

7. Whether FPL failed to address in its ER the direct, indirect, and cumulative impacts of sea level rise on the construction and operation of Units 6 & 7 and the ancillary facilities.

8. Whether FPL failed to adequately address in its ER the need for power. In particular, whether the ER failed to consider the drop in electricity demand in FPL's service area since 2008, and relied upon erroneous claims that state and regional evaluations satisfy NUREG-1555.

9. Whether FPL failed to adequately address in its ER all reasonable demand side management ("DSM") and renewable energy alternatives to construction and operation of Units 6 & 7.

Contention NEPA 1: The ER fails to adequately address direct, indirect, and cumulative impacts of the radial collector wells on the Biscayne Aquifer and the Biscayne Bay Ecosystem.

The ER does not adequately address the adverse impacts of the proposed use of radial collector wells on the Biscayne Bay ecosystem. In particular, the ER does not assess: (1) the amount and frequency of water withdrawals via radial collector wells over the life of the project; (2) the insufficient aquifer testing and modeling used to support the ER's conclusion that neither the Biscayne Aquifer nor Biscayne Bay will be impacted by the radial collector wells; (3) the current species diversity, abundance, and habitat utilization in the vicinity of the proposed radial wells; (4) habitat conditions and habitat requirements in the project area; and (5) direct, indirect

and cumulative impacts of the radial collector wells. Thus, the ER does not "contain sufficient data to aid the Commission in its development of an independent analysis" of environmental impacts pursuant to NEPA. 10 C.F.R. § 51.45(b).

> **Contention NEPA 1.1**: **The ER provides insufficient data to aid the Commission in assessing the impacts of the radial collector well system to the Biscayne Bay ecosystem due to the ER's failure to specify the frequency and amount of water the radial collector wells will withdraw from the Biscayne Aquifer.**

Basis:

The ER states that during the operation of Units 6 & 7, waste heat would be dissipated by mechanical draft cooling towers. ER 1.1-3. Two sources of water are planned to replace cooling tower blowdown for Units 6 & 7. *Id.* The primary source would be reclaimed water from the Miami-Dade Water and Sewer Department ("MDWASD"), which would be conveyed via pipelines to the plant. *Id.* An onsite reclaimed water treatment facility would treat the reclaimed water for use in the cooling system. *Id.* When, however, reclaimed water cannot supply the quantity and/or quality of water needed for the circulating water system, a second source of water would consist of radial collector wells that would withdraw saltwater from under Biscayne Bay. *Id.*

Each of these four (4) radial collector wells would be constructed adjacent to Biscayne Bay and consist of a central reinforced concrete caisson extending below the ground level with horizontal laterals installed at a depth of 40 feet and projecting up to a distance of 900 feet from the caisson beneath the floor of Biscayne Bay. *Id.*; *see also* ER 2.3-2, 2.3-36, 2.3-46, and 4.2-10. These caissons would be located east of the exiting nuclear units. ER 1.1-3. FPL contends that the radial wells would withdraw saltwater from the Biscayne Aquifer. Water from Biscayne Bay then in turn would flow downward, recharging the aquifer, which in turn would recharge the

radial wells. ER 2.3-2 and 4.2-10. Each of these four wells would be capable of producing approximately 45 million gallons of water per day. ER 2.3-46.

Despite FPL's ambitious plans to construct an extensive radial collector well system underneath the floor of Biscayne Bay and withdraw water from the Biscayne Aquifer, FPL states that it cannot identify the ratio of water supplied by the two water sources because it would vary depending on the availability of reclaimed water from the MDWASD. ER 2.3-42. Although FPL estimates that the total makeup flow from the radial collector wells to be 86,400 gallons per minute (gpm)/ 124 million gallons per day (mgd), the actual amount of water used would depend on the quality and quantity of reclaimed water available from MDWASD. ER 2.3-45 and 5.2-8. Further, the ER does not explain what constitutes a "sufficient" quantity or quality of reclaimed water, nor does it indicate whether there actually is a written commitment by MDWASD to reserve 90 million gallons of reclaimed water a day or whether MDWASD has the capability to do so. Without any information on the amount of water that will be withdrawn and how often it will be withdrawn, FPL cannot provide the Commission with adequate information to assess the radial well's impacts to the Biscayne Bay ecosystem or whether there are other reasonable alternatives.

FPL appears to get around this lack of data by arguing that it does not matter just how much water is needed or when it is needed because any amount of saltwater used per day (up to 124 million gallons) compared to the size of the saltwater resource that would be available (Biscayne Bay) would be insignificant. ER 5.2-17. FPL argues that because Biscayne Bay provides an unlimited supply of saltwater to recharge the Aquifer (thereby recharging the radial wells), and the radial wells do not directly withdraw water or discharge water into Biscayne Bay, there will be minimal impacts to Biscayne Bay and no mitigation would be required. *Id.* FPL

further asserts that the operation of radial wells would have minor impacts to the salinity of the Bay based on the predicted amount of withdrawal versus the natural recharge. ER 5.2-21. As a result, there is no discussion in the ER of the radial well's potential impacts to the salinity regime of the Bay and the benthic flora and fauna that may be adversely affected by a disruption of this regime.

FPL's position however, is based on incorrect and unproven assumptions about the baseline conditions of the Biscayne Aquifer and Biscayne Bay and the extent to which the radial wells will impact the Aquifer and Bay. First, to support its argument that any amount of saltwater withdrawn from the Biscayne Aquifer will be recharged by a limitless supply of saltwater from Biscayne Bay (which then in turn recharges the radial wells), FPL assumes that both Biscayne Bay and the Biscayne Aquifer are saline. Neither the Bay nor the Aquifer, however, is at a constant salinity. While there is a semi-diurnal tidal phase in Biscayne Bay that is influenced by the ocean, the water that resides in Biscayne Bay in any one basin at any one time is greatly affected by groundwater inflow from the bay bottom and tributary discharges, wind patterns, and other variables. Salinities are typically lower for instance during the wet season. *See* Florida Department of Environmental Protection, Third Completeness Determination (Plant), FPL Turkey Point Units 6 & 7 SCA, p. 5 (June 4, 2010) (the "DEP Third Completeness Determination") (Exhibit 2). Biscayne Bay can best be described as a system with temporal and spatial variations in salinity and the ecosystem is extremely sensitive to the changes and timing of salinity. *See* Miami-Dade County Third Completeness Comments for Plant and Non-Transmission Line Portions of the FPL Site Certification Application – Turkey Point Units 6 & 7, p. 25 (May 28, 2010) ("MDC Third Completeness Comments") (Exhibit 3); *see also* Wingard, G. Lynn, *Application of Paleologic Methods to Coastal Resource Management: An*

Example from Biscayne National Park, Geodiversity and Geoconservation, volume 22, no. 3, p. 19 (2005) ("Wingard") (Exhibit 4). As the ER notes, the Turkey Point site is located on South Bay (or Lower Biscayne Bay) which is generally undeveloped and fringed by mangrove wetlands. ER 2.4-18. Salinities vary widely in South Bay, depending on the amount of rainfall and surface drainage reaching the coastal zone. *Id.* The Biscayne Aquifer also experiences ranges from fresh to saline salinities, and like the Bay, has temporal and spatial variations in salinity. MDC Third Completeness Comments at 25 (Exhibit 3).

The fact that both the Aquifer and the Bay have variable salinities is significant because it not only disproves FPL's assumptions about the salinities of the water being withdrawn from the radial wells, but also undermines FPL's position that the radial wells would not impact the Bay ecosystem. In fact, if the radial wells are withdrawing fresh water from the aquifer, the Bay, or both, this could have significant impacts to the Bay ecosystem, which is extremely sensitive to the changes and timing of salinity. These impacts may include impacts to the freshwater input to the Bay and impacts to flora and fauna that may be sensitive to disruptions in the Bay's salinity regime. *See* DEP Third Completeness Determination at 3 (Exhibit 2). Simply put, as more fresh water is being withdrawn from the aquifer, the Bay, or both, there may be less fresh water to replenish the system, thus impacting the Bay's resources. The Florida Department of Environmental Protection has previously raised these concerns by noting that at a depth of 40 feet, these radial collector wells may actually extract fresh water from the aquifer, which in turn could have impacts to the seabed and salinity of the bay. Florida Department of Environmental Protection Determination of Completeness, FPL Turkey Point Units 6 & 7, pg. 2 (August 10, 2009) ("DEP First Completeness Determination") (Exhibit 5). In view of the fact that Biscayne

Bay is an Aquatic Preserve, which is subject to the greatest protections under State law,[4] Biscayne National Park, and the subject of an ambitious CERP project aimed at restoring fresh water to the Bay's near shore areas, it is critical that the Commission be provided accurate information regarding the water that would be withdrawn via radial wells from underneath the floor of Biscayne Bay.

Further, FPL assumes that the water withdrawn from the radial wells will be drawn only from the Aquifer. As the ER recognizes, the upper zone of the Biscayne Aquifer is hydrologically connected to Biscayne Bay. ER 5.2-17. The Bay contains a fresher water lens. MDC Third Completeness Comments at 20 (Exhibit 3). There is the potential for this lens to be drawn into the proposed radial collector wells during pumping. *Id.* Should this occur, there would likely be impacts to the salinity of the Bay and the flora and fauna found therein. Miami-Dade County has expressed concern about the possibility of this occurring given the inadequacies of the modeling and testing that has been performed by FPL thus far. *Id.* Given these inadequacies in the modeling and testing, as discussed later, FPL's conclusion that the radial wells will only withdraw saltwater from the Biscayne Aquifer is unproven and premature.

In sum, FPL has failed to provide any information on the amount of water that will be withdrawn by the radial wells and at what frequency. This is a fundamental flaw in FPL's analysis because contrary to FPL's assertions, these are significant factors that must be considered given that the wells have the potential for withdrawing large quantities of freshwater from the Bay and/or the Aquifer and the loss of this freshwater could permanently disrupt the

[4] The project occurs within the boundaries of Biscayne Bay Aquatic Preserve, which was established to preserve Biscayne Bay in a natural condition so that its biological and aesthetic values may endure for the enjoyment of future generations. Section 258.397, Florida Statutes. Part of the "intent" behind designating the Biscayne Bay Aquatic Preserve was to preserve and promote seagrass habitat. Rule 18-18.001(f), Florida Administrative Code. The Aquatic Preserve is also a Class III Outstanding Florida Water, pursuant to Rule 62-302.700(9)(h)5 & 6, Florida Administrative Code. This rule provides that "It shall be the Department of Environmental Protection policy to afford the highest protection to Outstanding Florida Waters." The rule imposes a "no degradation of water quality" standard.

ecosystem's sensitive saltwater regime. FPL's failure to provide information on the project's impacts to the Bay's salinity regime runs afoul of 10 C.F.R. § 51.45(b), which requires a discussion of the potential negative impacts of the project. Further, the lack of a commitment by MDWASD to reserve 90 million gallons of reclaimed water a day and the uncertainty of whether MDWASD actually has the capability to do so, casts serious doubt upon FPL's assertions that the radial collector wells will be a feasible, secondary source of cooling water and compels the need for a discussion and assessment of alternative sources of cooling water as 10 C.F.R. § 51.45(b) requires. These alternatives may include a surface water intake from a canal connected to Card Sound, wells in the upper and/or lower Floridan Aquifer, and potentially other sources. These alternatives and their associated impacts have not been considered in the ER and thus, the Commission does not have sufficient information to perform an independent analysis of the environmental impacts and alternatives of the proposed action as required by 10 C.F.R. § 51.45.

Contention NEPA 1.2: The ER provides insufficient data to aid the Commission in assessing the impacts of the radial collector well system on the Biscayne Bay ecosystem due to the ER's failure to provide sufficient aquifer testing and groundwater modeling to support the ER's conclusions.

Basis:

The ER fails to provide sufficient data to aid the Commission in assessing the impacts of the radial collector wells to the Biscayne Aquifer and the Biscayne Bay ecosystem because the groundwater modeling and testing that has been performed by FPL to support its conclusions in the ER is inadequate.

(a) The lack of sufficient testing of the Biscayne Aquifer to determine the potential impacts to the Biscayne Aquifer and Biscayne Bay ecosystem.

In support of its position that there will not be impacts to Biscayne Bay and the Biscayne Aquifer from the radial collector wells, FPL relies on an Aquifer Performance Test ("APT").

MDC Third Completeness Comments at 21 (Exhibit 3); *see also* ER at 2.3-25. The APT was performed using a vertical well pumping at a rate of approximately 10 million gallons per day (mgd). MDC Third Completeness Comments at 21 (Exhibit 3). The radial collector wells, however, are proposed to be horizontal wells pumping at a rate of approximately 100 mgd. *Id.* FPL fails to discuss how the results of the APT will be utilized to account for the significantly larger scale at which the radial wells will be pumping. *Id.* The increase in pumpage for the radial wells by tenfold over the APT pumpage could result in major hydrologic effects (*id.*), but none of these effects are addressed by FPL in its ER.

There are several additional shortcomings associated with the APT. The geological interpretations of the Biscayne Aquifer provided by FPL do not describe the complex lithology of the Aquifer. *Id.* This is a result of a number of flaws in the exploratory drilling for the APT. First, the base of the Biscayne Aquifer is 115 feet below land surface. *Id.* The pilot hole drilled at MW-1 only went to a depth of 75 feet below land surface. *Id.* The pilot hole should have been drilled to the base of the aquifer for a complete lithological determination. *Id.* Further, the pilot hole used video surveying although optical borehole imaging is a more widely used and accurate means of defining the macroporosity of the Aquifer. *Id.* Rock cuttings were also used in monitoring wells MW-2 through MW-5 to determine the lithology of the area, even though preferential flow zones cannot be identified using rock cuttings. *Id.* Thus, the assumption of lithology across the site based on rock cuttings may not be an accurate approach. *Id.* Instead, the boreholes should have been logged to determine the vertical and horizontal extent of the preferential flow zones within the aquifer. *Id.* The geophysical interpretations contained in the report describes the lithologic features of the Aquifer but the logs do not adequately describe the

complexity of the Aquifer because it is not clear whether the zones are flow zones, or washout due to the drilling. *Id.* at 22. There is no identification of preferential flow zones. *Id.*

In addition, only two surface water monitoring points were installed at the site-one at the Industrial Wastewater Facility and the other near the mouth of the barge slip. *Id.* Miami-Dade County's Department of Environmental Management ("DERM") recommended more surface water monitoring reports prior to the construction of these wells. *Id.* Further, monitoring well MW-5 is located north of the dredged barge channel and is close to FPL pump operations. *Id.* These conditions may have overwhelmed any effects seen by the APT. *Id.* In addition, most of the monitoring wells were completed with open holds from an approximate depth of 22-47 feet below land surface and DERM has long contended that this number, location, and intervals are inadequate to evaluate the hydrologic behavior of the APT. *Id.*

Additional shortcomings of the APT include the lack of data showing seepage from the Bay into the Biscayne Aquifer. *Id.* at 23. This information is necessary to understand and quantify the seepage rate and the behavior of the site with respect to the region. *Id.* The APT also fails to provide adequate water quality sampling. The samples collected for the Bay at the selected time intervals may not be adequate to fully capture water quality changes to the Bay as a result of the pumping activities. *Id.* Sufficient samples need to be collected to address the entire scope of conditions: the baseline conditions, conditions during the APT, and conditions after the completion of the APT to determine the time for the system to return to the baseline conditions. *Id.* Tidal effects were also not taken into account and were not addressed by the limited water quality results. *Id.* Salinity data in MW-1 shows an increase in salinity after the APT but it is impossible to determine the source of the salinity. *Id.* No groundwater samples were collected from the monitoring wells during the APT and thus any quality fluctuations were not captured.

Id. Moreover, no effort was made to distinguish the water sources (Biscayne Bay water versus Biscayne Aquifer water). *Id.*

In view of the informational deficiencies contained in the APT, FPL has failed to provide sufficient information to support its assertions that the project will not have adverse impacts to the Biscayne Aquifer and Biscayne Bay. This lack of sufficient data renders the ER inconsistent with 10 C.F.R. § 51.45(b), which requires FPL to provide sufficient information for the Commission to perform an independent analysis of the environmental impacts of the proposed project.

(b) The lack of sufficient groundwater modeling to determine the potential impacts to the Biscayne Aquifer and Biscayne Bay ecosystem.

The lack of sufficient groundwater modeling to determine the potential impacts to the Biscayne Aquifer and Biscayne Bay further compounds the need for a comprehensive hydrologic study. The groundwater modeling FPL relies on is insufficient to support its conclusion that the project will not have adverse impacts to the Biscayne Aquifer and Biscayne Bay. ER at 5.2-8 – 5.2-9; FSAR Appendix 2.4.12-CC.

The groundwater model is a steady state, constant density three-dimensional representation of the Biscayne Aquifer. MDC Third Completeness Comments at 24 (Exhibit 3); *see also* South Florida Water Management District Second Completeness Review, FPL Turkey Point Units 6 & 7, Site Certification Application, Power Plant & Associated Facilities, p. 3 (January 6, 2010) ("SFWMD Second Completeness Comments") (Exhibit 6). The model was used to evaluate the origin of the water when the radial collector wells would be in operation and the resultant drawdown and velocities where the bay and aquifer meet. MDC Third Completeness Comments at 24 (Exhibit 3). It consists of nine layers, representing the Aquifer and has several boundary conditions including river boundaries (cooling canal system, L-31E, C-

107, Card Sound Canal, and Florida City Canal), constant head boundary (Biscayne Bay), recharge boundary, ET boundary, general head boundary, and no flow boundary. *Id.* The radial collector wells were simulated at a pump rate of approximately 124 mgd. *Id.*

The cooling canal system contains warm, hypersaline water; Biscayne Bay has varying salinity; and the Biscayne Aquifer ranges from fresh to saline salinities. *Id.* at 25; *see also* Browder et. al., *Biscayne Bay Conceptual Ecological Model*, Wetlands, vol. 25, no. 4, pp. 861-62 (Dec. 2005) ("Browder") (Exhibit 7). The cooling canal system may also be hydrologically connected to the Aquifer, and given that the cooling canal system has a salinity and temperature that is significantly greater than the natural salinities in the Aquifer and Bay, this may have an effect on the local hydrology as well as the flora and fauna occurring within the Bay. *Id.; see also* Roessler, M.A., *Environmental Changes Associated With a Florida Power Plant* (1970) (Exhibit 8). All of these conditions, however, cannot be simulated by the modeling, which assumes a steady-state constant-density of the area. *Id.*, *see also* FSAR Appendix 2.4.12-CC. Further, the Biscayne Aquifer contains preferential flow zones and a matrix porosity, which will dictate groundwater flow. *Id.* The hydrogeologic framework the model is based on, however, is deficient because it fails to account for these flow zones. *Id.* In addition, the steady state model was compared to the average of the monthly averages from June (start of the wet season) and December (start of the dry season) 2008. *Id.* As discussed earlier, however, the hydrology of the cooling canals, Aquifer, and the Bay have significant temporal differences that will affect radial well water sources. Thus, the average conditions at the start of the wet and dry season do not adequately assess the source water of the radial wells. *Id.* Finally, given that Biscayne Bay salinity varies temporally as well as spatially, the Bay ecosystem is extremely sensitive to the changes and timing of salinity. The model's assumption of a constant head, constant density,

and steady state, does not assess the changes in salinity over time and space in the Bay as a result of the radial wells. *Id.*[5]

In view of these deficiencies, FPL has failed to provide sufficient information to support its conclusions that the project will not have adverse impacts to the Biscayne Aquifer and Biscayne Bay. This lack of sufficient data renders the ER inconsistent with 10 C.F.R. § 51.45(b), which requires FPL to provide sufficient information for the Commission to perform an independent analysis of the environmental impacts of the proposed project.

Contention NEPA 1.3: The ER provides insufficient data on the current species diversity, abundance, and habitat utilization in Biscayne Bay, and particularly in the vicinity of the radial wells, to aid the Commission in assessing the impacts of the radial collector well system to the Biscayne Bay ecosystem.

Basis:

Despite the potential for significant impacts to the Biscayne Aquifer and Biscayne Bay as a result of the use of radial collector wells, the ER fails to provide sufficient data on the current species diversity, abundance, and habitat utilization in the vicinity of the proposed radial wells, to aid the Commission in assessing the impacts of the radial collector well system to the Biscayne Bay ecosystem. Biscayne Bay is a shallow, subtropical bay supporting seagrasses, sponges, coral reefs, and a variety of marine life. ER 2.4-16. Despite the tremendous wildlife that occurs in and around Biscayne Bay, and the potential for the proposed radial collector wells to impact these species, the ER contains no comprehensive, seasonally based biological studies on both wildlife utilization (including birds, insects, fish, reptiles, amphibians, mammals, and aquatic invertebrates) and plant cover and species abundance for the area within and surrounding the proposed radial wells. There is also no baseline survey of seagrass cover and benthic fauna

[5] The South Florida Water Management District has expressed similar concerns regarding the conceptualization and configuration, boundary conditions, parameterization, and calibration of the modeling conducted by FPL. SFWMD Second Completeness Comments at 3 (Exhibit 6).

in the vicinity of the proposed radial collector wells. The few reports FPL has prepared to support its ER fail to contain any information on bird utilization of the area surrounding the plant site during the April-June breeding season. *See* ER at 2.4-7 – 2.4-8; *see also* MDC Third Completeness Comments at 9-10 (Exhibit 3). There is no information on feeding, roosting, nesting, and breeding behavior for the numerous bird species that occur within the area. The bird surveys that are referenced in the ER reveal approximately 90 species of birds but provide no comprehensive seasonal data and largely consist of surveys from 1972 and a few more recent, but limited surveys between 2005-2009. ER at 2.4-7; Table 2.4-1. No surveys have been conducted to determine the extent to which the federally listed wood stork utilizes the site other than opportunistic observations. Such surveys and studies are needed to determine the use and value of the habitat in order to ascertain the potential impacts the radial wells will have on flora and fauna in the area, including any effects on federally or state protected species. The Florida Department of Environmental Protection has voiced concerns about the unknown impacts to the Bay's benthic flora and fauna. *See* DEP Third Completeness Determination at 3 (Exhibit 2). In particular, sensitive seagrasses could be significantly impacted by the loss of fresh water that currently provides nutrients to these communities. *See* SFWMD Second Completeness Comments at 3 (Exhibit 6); *see also* Browder at 863 (stating that seagrass and benthic communities require a consistent salinity regime and appropriate water quality; abundance, distribution, and composition of seagrasses will be determined, in part, by modifications of salinity patterns and water quality) (Exhibit 7).

Without comprehensive, seasonal surveys and studies of the flora and fauna both within the vicinity of the radial wells and within the Bay ecosystem, the ER cannot account for the impacts the radial wells could have on wildlife as a result of the disruption of the ecosystem's

salinity regime. For instance, sensitive seagrasses require a variable salinity regime with estuarine conditions. *See* Browder at 863 (Exhibit 7). Hypersaline conditions resulting from the withdrawal of freshwater via radial wells may adversely affect those seagrass communities. *Id.* Without this data, the ER fails to establish an environmental baseline that is the basis for evaluating impacts and alternatives.

Contention NEPA 1.4: The ER provides insufficient data on the habitat conditions and habitat requirements in the Biscayne Bay, and particularly in the vicinity of the radial wells, to aid the Commission in assessing the impacts of the radial collector well system to the Biscayne Bay ecosystem.

Basis:

In addition to the lack of any comprehensive, seasonal studies and/or surveys of plant and wildlife species within the vicinity of the radial wells and the Bay, there is insufficient data on the habitat conditions and habitat requirements in the vicinity of the radial wells and within Biscayne Bay, to aid the Commission in assessing the impacts of the radial collector well system to the Biscayne Bay ecosystem. *See generally,* ER at 2.4-14 – 2.4-31. Such data is necessary to determine the extent to which the radial wells' disruption of the Bay's salinity regime may impact specific species and their habitats. For instance, sensitive seagrasses require a variable salinity regime with estuarine conditions. Hypersaline conditions resulting from the withdrawal of freshwater via radial wells may adversely affect those seagrass communities. Without this data, the ER fails to establish an environmental baseline that is the basis for evaluating impacts and alternatives.

Contention NEPA 1.5: The ER provides insufficient data on the direct, indirect and cumulative impacts of the radial collector wells.

Basis:

The ER must describe and analyze the environmental impacts of issuing FPL a COL for Units 6 & 7. *See* 10 C.F.R. § 51.45(b). Impacts that must be discussed include direct and indirect impacts, and cumulative impacts of the proposed reactors. Cumulative impacts result from the "incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." 40 C.F.R. § 1508.7.

As discussed earlier, the ER fails to assess the potential impacts to groundwater (Biscayne Aquifer) and surface water (Biscayne Bay) resources. There is no discussion of the wells' potential disruption of the saltwater regime and its effects on the benthic flora and fauna. *See* Browder at 864 (stating that "benthic communities are directly impacted by the volume and intensity of freshwater inflow and the range and rapidity of its variation") (Exhibit 7). There is no discussion of the potential for the radial wells to disturb the overlying benthic community (seagrass, hard bottom communities, etc.) during installation, the potential for a frac-out and the potential impacts to the submerged bottoms, whether sediments fauna, and biota could enter the well, and whether sediments and nutrients could be depleted in the surrounding area due to a downward flow of water in the area. *See* DEP First Completeness Determination at 13 (Exhibit 5).

Also absent from the ER is any mention of the existing hyper-saline plume emanating from the current cooling canal operations associated with Units 3 & 4. *See* MDC Third Completeness Comments at 27 (Exhibit 3). The radial collector wells would be located within or adjacent to this groundwater plume, which contains high levels of chlorides. *Id.* Portions of this

plume contain heated water but the underground directional travel of the heated water has not been established. *Id.* The ER contains no information regarding the delineation of this plume and the extent to which this plume would be affected by the proposed groundwater withdrawals via the radial collector wells. There is no information on how the wells could capture, redirect, or otherwise affect groundwater from the existing plume and no discussion of the potential impacts of inducing ground water flow towards the proposed radial wells.

The ER further fails to discuss how the radial wells may adversely affect the successful implementation of CERP, and specifically the Biscayne Bay Coastal Wetland ("BBCW") Project. As noted above, in 2000, Congress passed the Water Resources Development Act, authorizing CERP. Water Resources Development Act of 2000, Pub. L. No. 106-541, § 601. "The overarching objective of the [CERP] is the restoration, preservation, and protection of the South Florida ecosystem while providing for water related needs of the region, including flood protection and water supply." *Id.* § 601(h). CERP contains 68 project components aimed at restoring more natural flows of water, including sheetflow; improving water quality; and establishing more natural hydroperiods in the South Florida ecosystem. Central and Southern Florida Project, Comprehensive Everglades Restoration Plan, Revised Final Draft, *Programmatic Regulations* (July 2007) (Exhibit 9). Improvements to fish and wildlife habitat are expected to occur as a result of the restoration of hydrologic conditions. *Id.*

The use of radial wells as a cooling water source could be detrimental to CERP objectives of restoring more fresh water flow to Biscayne Bay. *See* Florida Department of Environmental Protection, FPL Turkey Point 6 & 7 Completeness Determination (Plant), p. 4 (Jan. 13, 2010) ("DEP Second Completeness Determination") (Exhibit 10). As the Florida Department of Environmental Protection has noted, at a depth of 40 feet these radial wells may

extract fresh water from the aquifer, "thus counter acting CERP projects intended to deliver fresh water to the Bay's littoral zone." *See* DEP First Completeness Determination at 2 (Exhibit 5).

In addition, the ER fails to discuss the potential impacts of sea level rise on the radial collector well system. During the last 100 years, the sea level in the vicinity of the Plant has risen about 9-12 inches. South Florida Water Management District, FPL Turkey Point Units 6 & 7, Site Certification Application, First Completeness Review pp. 34-35 (July 30, 2009)("SFWMD First Completeness Comments") (Exhibit 11). The Miami-Dade Climate Change Task Force has predicted that, by 2050, sea level rise could be between 1.5 to 5 feet. *Id.* The proposed location of the plant, however, is approximately at mean sea level. *Id.* The Biscayne Aquifer is extremely porous and the increased sea levels are likely to raise the general groundwater levels in the region. *Id.* A 2005 U.S. Geological Study on salinity found that sea level rise should be considered when evaluating the future health and salinity regime of Biscayne Bay. DEP First Completeness Determination at 24 (Exhibit 5), citing Wingard (Exhibit 4). The study reads in part:

> Sites in both central and southern Biscayne Bay show indications of increasing marine influence at the sites. These trends could be a result of rising sea level, of changes to the natural flow of fresh water or both, but the timing of chances at some of the near-shore sites suggests both factors are involved.

Wingard (Exhibit 4).

The study further states that "Biscayne Bay appears to be evolving toward a more marine environment and sea-level rise should be factored into the planning process." *Id.* Aside from the ER's complete failure to address how saltwater intrusion due to sea level rise could affect plant operations (an issue discussed later), the ER does not discuss how sea level rise could affect these radial well operations. This is an important issue given that the radial wells have the potential of withdrawing large amounts of freshwater from the Aquifer and/or the Bay during a

time when the ecosystem will be subject to increased saltwater intrusion. The ER's failure to discuss these issues and analyze the direct, indirect, and cumulative environmental impacts violates 10 C.F.R. § 51.45(b).

Contention NEPA 2: The ER fails to adequately address the direct, indirect, and cumulative impacts of the reclaimed wastewater system on groundwater, air, surface water, wetlands, and CERP.

Basis:

The ER states that during the operation of Units 6 & 7, waste heat would be dissipated by mechanical draft cooling towers. ER 1.1-3. The purported primary source of water to replace cooling tower blowdown for Units 6 & 7 would be reclaimed water from the MDWASD, which would be conveyed via pipelines to the reactors. *Id.* An onsite reclaimed water treatment facility would treat the reclaimed water for use in the cooling system. *Id.* Cooling tower blowdown discharge and other plant liquid effluents from Units 6 & 7 would be collected in a common blowdown sump and discharged into the Boulder Zone of the lower Floridan aquifer via twelve underground injection wells. *Id.* at 2.3-2; 5.2-9. The ER fails to address the direct, indirect and cumulative impacts of this reclaimed water system on groundwater, air, surface water, wetlands, and CERP as required by 10 C.F.R. § 51.45.

Contention NEPA 2.1: The ER fails to adequately identify, analyze, and discuss the potential impacts on groundwater quality of injecting polluted wastewater into the Floridan Aquifer via underground injection wells.

Basis:

The ER fails to adequately address the impacts associated with the disposal of plant liquid effluents, including chemical and radioactive waste, into the Lower Floridan Aquifer via Class I underground injection wells. Specifically, the ER fails to mention the potential for upward migration of injectate and infiltration of contaminants into the Lower Floridan Aquifer,

which is classified as an Underground Source of Drinking Water ("USDW") under the Safe Drinking Water Act. *See* 40 C.F.R. § 144.3. The ER presumes that the Boulder Zone of the Lower Floridan Aquifer in southern Florida is isolated from the overlying Upper Floridan Aquifer by thick confining units; however, the ER neglects to mention that in some parts of southern Florida, municipal wastewater injected into the Boulder Zone has moved upward into the overlying layers and, in some cases, into the Upper Floridan Aquifer. As a result, the ER fails to provide a complete characterization of the chemical and radiological constituents of each liquid waste stream (circulating water system, liquid radwaste treatment, sanitary waste treatment plant, service water system, low volume wastes). Likewise, the ER fails to analyze the fate and transport of the injected effluent into the Boulder Zone, and fails to assess health and environmental risks associated with the liquid effluent pathway. *See* ER 5.4-2

The ER fails to disclose and analyze the potential vertical migration of contaminated effluent from the Boulder Zone into the Upper Floridan Aquifer. Class I underground injection wells are commonly used in Florida for municipal waste disposal; however, in the early 1980's EPA found that some Class I municipal wells in Florida caused or may cause fluid movement into the Upper Floridan Aquifer. *See* 70 Fed. Reg. 70513-70532 (Nov. 22, 2005) (Exhibit 12). According to EPA:

> Movement of injected fluid into USDWs either has been confirmed or is suspected at eight facilities, as evidenced by levels of nitrates and ammonia, as well as significant changes in dissolved solids concentrations. (The preferential flow that leads to the movement of fluid with nitrates and ammonia can also lead to the presence of pathogens.) At an additional eight facilities, there is evidence of movement outside of the injection zone, though not into USDWs.

Id. at 70516.

Monitoring of municipal injection operations has shown that the Boulder Zone in some areas of South Florida provides less confinement than originally thought. As a result, in 2005

EPA revised the regulations governing Class I municipal disposal wells in certain counties in Florida (including Miami-Dade), requiring high-level disinfection prior to injection. *Id.*; *See also, Relative Risk Assessment of Treated Wastewater in South Florida* (EPA 816-R-03-010), available at: http://www.epa.gov/region4/water/uic/ra.html (last visited August 17, 2010) (the "EPA Risk Assessment") (Exhibits 13 and 14).

The ER fails to provide a complete and accurate assessment of the chemical and radiological constituents of the plant liquid waste streams. Liquid wastes from several systems are collected in a common blowdown sump for underground injection. Although the ER purports to characterize the various waste streams, it does not do so comprehensively and fails to identify the total amount of each chemical constituent of the effluent. There is, simply, no way to tell from the ER exactly what is in the effluent, and in what amount.

For example, the ER provides no information concerning pollutants in the reclaimed water supply, or their fate upon entering the reclaimed water treatment facility. According to the ER, the proposed reclaimed water treatment facility "would include pumps, trickling filters, clarifiers, deep bed filters, and solids-handling equipment to reduce the levels of iron, magnesium, oil and grease, total suspended solids, nutrients, and silica to usable levels for the circulating water system." ER 3.3-1. However, the ER fails to mention or discuss the myriad other chemical constituents of treated municipal wastewater, including arsenic, cadmium, copper, lead, manganese, mercury, nickel, silver, and zinc. EPA Risk Assessment, Table 2-2 at 2-13 (April 2003) (Exhibit 13). Sampling of treated wastewater from wastewater treatment plants in South Florida detected numerous chemical constituents in the effluent, including heptachlor, ethylbenzene, toluene, selenium, thallium, and tetrachloroethylene, to name just a few. *See id.* at Appendix 1, Table 1-1 and Table 1-2 (Exhibit 14). Additionally, pharmaceuticals

and personal care products ("PPCPs") are routinely found in treated municipal wastewater. Toxic chemicals, heavy metals, and PPCP's present in the reclaimed water and not removed at the reclaimed water treatment facility may remain in the circulating water system, where it may be discharged from the facility either as liquid effluent or cooling tower drift. The ER fails to analyze the presence of potential exposure pathways of hazardous contaminants present in the reclaimed water. *See Id.*

Similarly, ER Table 3.6-1 lists chemicals added to liquid effluent streams within the plant, but provides no information on the fate and transport of these chemicals after addition to various processes. ER 3.6-6. Proper water chemistry for plant operation requires the treatment of various water systems with hundreds of thousands of gallons of chemicals annually. *Id.* Many of these chemical treatments are identified as proprietary, and no further information about their formulation or toxicity is provided. *Id.* The ER does not discuss whether chemical additives from various plant processes are totally consumed or broken down during the process, or whether they will be present in the discharge to the Lower Floridan Aquifer. *Id.*

The ER fails to report all chemical and radiological constituents of the proposed discharge to the Lower Floridan Aquifer. Although Table 3.6-2 and 3.6-3 purport to identify the effluent waste stream constituents and concentrations in the blowdown sump from reclaimed water or saltwater, there is no discussion of how the data in these tables was derived, and whether they capture all streams of chemical and radiological contamination contained in the effluent. ER 3.6-7 – 3.6-8. Table 3.6-2 does not appear to capture all of the chemicals, heavy metals, and PPCPs typically found in reclaimed municipal wastewater. *Id.* Likewise, the tables do not include constituents of the liquid radwaste effluent, the sanitary waste treatment plant effluent, the circulating water system blowdown, the service water system blowdown, or other

miscellaneous waste streams. *See* Westinghouse Electric Company, LLC, *AP1000 Design Control Document*, Document No. APP-GW-GL-700, Tier 2 Material, Rev. 17 (Sept. 22, 2008) ("WEC 2008"), DCD Table 11.2-1.

The ER does not identify the radioisotopes present in the effluent, nor does it discuss potential impacts to groundwater quality of discharging radioactive materials into the Lower Floridan Aquifer. According to DCD Table 11.2-7, a single AP-1000 reactor discharges numerous radioactive nuclides, with a total (except tritium) release of 0.25623 curries per year. WEC 2008, DCD 11.2-37 – 11.2-38. Including tritium, two AP-1000 reactors will discharge 2020.5 curries per year. *Id.* As discussed above, the ER is based on a faulty assumption that no vertical migration of effluents from the Boulder Zone will occur. As a result, the ER fails to adequately discuss or analyze the potential environmental impacts of migration of radioactive effluent from the Lower Floridan Aquifer into USDWs or Biscayne Bay.

Contention NEPA 2.2: The ER fails to discuss the impacts associated with the construction of pipelines to convey the reclaimed wastewater to the plant's wastewater treatment facility.

Basis:

FPL plans on utilizing an approximately nine mile long corridor to accommodate the pipelines that will be used to convey the reclaimed water from the South District Water Treatment Plant. *See* FPL Site Certification Application, pg. P9-2, June 2009 (Exhibit 21). The area south of SW 256 Street contains large wetland expanses (*see* MDC Third Completeness Comments at 16) (Exhibit 3) and there is no discussion in the ER as to how the construction and operation of pipelines within this area will impact these wetlands, how FPL intends to avoid or minimize impacting these wetlands, or whether practical alternatives exist to siting the pipelines in these wetland areas. In addition, the ER fails to discuss how the construction and operation of

pipelines within the nearly 5 mile long segment of the corridor that is collocated with the existing FPL transmission right-of-way will impact the extensive mangrove wetlands in these areas. The ER does not discuss how FPL could avoid or minimize impacts to these mangrove wetlands and whether there are practical alternatives to siting the pipelines through these areas.

Further, the South Florida Water Management District will be constructing culverts on the east side of the L-31 E right-of-way for the CERP BBCW Project, but it appears that FPL is contemplating using this right-of-way to accommodate the proposed 42" wide, 3.75 mile long reclaimed water pipeline. There is no mention in the ER of the potential conflict the placement of these pipelines poses to the CERP BBCW Project. *See* South Florida Water Management District Third Completeness Comments, FPL Turkey Point Units 6 & 7, Site Certification Application Power Plant & Associated Facilities at 14 (June 4, 2010) (the "SFWMD Third Completeness Comments") (Exhibit 15).

Given the extensive loss of wetlands in the area around Turkey Point and Biscayne Bay and the federal and state government's commitment to restoring the wetland resources in these areas, it is important that the ER discuss how its construction and operation of approximately nine miles of pipelines will impact these resources and whether there are less damaging alternatives. The ER's failure to address these impacts violates 10 C.F.R. § 51.45.

Contention NEPA 2.3: The ER fails to discuss the impacts to CERP associated with the use of reclaimed wastewater to cool Units 6 & 7.

Basis:

The ER fails to discuss whether the reservation and use of reclaimed wastewater from the South District Water Treatment Plant would have adverse impacts to CERP, and specifically the BBCW restoration project. The objective of BBCW is to restore fresh water flows in and around the littoral zone of Biscayne Bay. *See* Central and Southern Florida Project,

Comprehensive Everglades Restoration Plan, Project Management Plan, Biscayne Bay Coastal Wetlands at11 (August 2002) (Exhibit 16). This would be accomplished by the conveyance of fresh water, including possibly treated wastewater from Miami Dade County via spreader canals. *See id.*; *see also* MWH Biscayne Bay Coastal Wetlands Rehydration Pilot Project, *Preliminary Engineering Report* (June 2009) (Exhibit 40). The ER fails to discuss the potential adverse impacts that would stem from using as many as 90 million gallons of reclaimed water per day, which otherwise could be used to supply fresh water to the BBCW project. *See id.* There is no discussion of what other available sources of water could be used instead of reclaimed water or what other sources of water might be available as a guaranteed, reliable source for the BBCW restoration project.

Contention NEPA 3: The ER fails to adequately address the direct, indirect, and cumulative impacts of constructing and operating the transmission lines associated with Units 6 & 7 on wetlands (including the Everglades), wildlife (including wading birds, migratory birds, and federally endangered and threatened species), and CERP.

Basis:

The ER narrows its discussion of the potential transmission line corridors to a Preferred East, Preferred West, Secondary East, and Secondary West corridors. ER at 3.7-3. The West Secondary Corridor includes an FPL owned, 7.4-mile long, 330-370 foot wide tract of wetlands and marl prairie land inside the boundaries of Everglades National Park (the "FPL West Secondary Tract"). *See* Valdemoro, Tania and Morgan, Curtis, "Everglades Land Swap May be Key to FPL Expansion Plans," *Miami Herald* (July 17, 2009) (Exhibit 17). In 1989, Congress enacted the Everglades National Park Protection and Expansion Act, expanding the Park by about 109,600 acres to the East. *See* 16 U.S.C. §§ 410r-5-410r-8. These National Park lands now surround the FPL West Secondary Tract.

It appears FPL is contemplating a "land swap" wherein the U.S. Department of Interior would acquire the FPL West Secondary Tract in exchange for another property on the eastern edge of the Park. This second piece of property is FPL's West Preferred Corridor for the placement of transmission lines. While this route occurs outside park boundaries, it borders the park's eastern boundary. It too is made up a number of wetlands, which will likely be filled. FPL is relying on the "Hole in the Donut" mitigation bank to offset these losses. Although the transmission line component of the project threatens to impact more than 300 acres of wetlands (*see* Florida Department of Environmental Protection Second Determination of Incompleteness, Transmission Lines, p. 1 (September 17, 2009) (the "DEP Second Completeness Determination, Transmission Lines)) (Exhibit 18), the ER fails to discuss the direct, indirect, and cumulative impacts of constructing and operating the transmission lines in these corridors.

The West Secondary Corridor would allow for the construction, operation, and maintenance of transmission lines within a vast expanse of wetlands that are part of northeastern Shark River Slough (within the boundaries of Everglades National Park) and across Water Conservation Area 3B. *See* South Florida Water Management District, FPL Turkey Point Units 6 & 7 Site Certification Application, Associated Electrical Transmission Line Corridors, *Preliminary Statement of Issues*, p 4 (October 15, 2009) ("SFWMD Preliminary Statement of Issues") (Exhibit 19); South Florida Water Management District, FPL Turkey Point Units 6 & 7 Site Certification Application, Associated Electrical Transmission Line Corridors, Third Completeness Review, pp. 3-4 (October 15, 2009) ("SFWMD Third Completeness Comments") (Exhibit 20). These areas are part of the Everglades Protection Area (as defined in the Everglades Forever Act) and are the subject of restoration efforts under CERP. *Id.* There is no discussion of the impacts from the construction, operation, and maintenance of the lines other

than general statements that the corridor would traverse wetlands and that these wetlands would be impacted. There is no discussion with respect to the specific impacts to these wetlands (including functional loss) impacts to sheet flow, impacts to vegetation, aquatic species (fisheries, amphibians, invertebrates), birds (including tree island rookeries), and other fauna. There is no discussion of the visual impacts to visitors of Everglades National Park. There is also no discussion of the potential impacts to federally listed species, including the wood stork, eastern indigo snake, and Florida panther. Wood storks are among the species with the highest risk of mortality from electrocution and collision with transmission lines. *Id.* Several migratory bird species may also be subject to the same risks. The ER fails to discuss these impacts. In addition, the proposed route may be in close proximity to tree islands, which serve as Wood Stork rookeries. *Id.* There is no discussion of the potential impacts to these rookeries either. A discussion and assessment of impacts to wood storks is extremely important given that the restoration of the wood stork population, along with other Everglades wading bird populations, is a primary CERP objective. *Id.* Regarding the eastern indigo snake, FPL has determined there is a high likelihood that the species occurs within the western secondary and preferred corridors. *See* Turkey Point Units 6 & 7, Site Certification Application, Section E9.3.7 and Table W9.3.7-5 (June 2009) (Exhibit 21). Yet, there are no surveys discussed in the ER estimating the population of indigo snakes within the corridors and no discussion of the potential impacts to this species as a result of constructing transmission lines within the corridors. In addition, there may be impacts to Florida panthers and other protected species as the presence of transmission lines could act as barriers disrupting the travel and behavioral patterns of panthers in and around Everglades National Park. Under the ESA, the Fish & Wildlife Service has developed a recovery plan for the panther, which indicates that habitat loss, degradation, and fragmentation

are the most significant threats to the continued survival of the panther throughout its range. *See* U.S. Fish and Wildlife Service, Florida Panther Recovery Plan, 3rd Revision at 31 (November 1, 2008) (the "Panther Recovery Plan") (Exhibit 22). The Panther Recovery Plan calls for the prevention of habitat fragmentation, the promotion of habitat connectivity, and the preservation of spatial extent within panther habitat. *Id*. at 99. It specifically calls for the identification, maintenance, enhancement, and restoration of habitat corridors to facilitate movements by resident panthers, promote dispersal, and prevent peripheral areas from becoming further isolated from habitat in the Primary Zone. *Id.* The ER fails to discuss the extent to which panthers and other species use the lands and wetlands that occur in either one of these corridors and the potential impacts to the panther and other protected species.

With respect to both the West Preferred Corridor and West Secondary Corridors, the project would impact a mosaic of wetland resources including wetland hardwoods, freshwater marshes, and wet prairies. *See* DEP Second Completeness Determination, Transmission Lines at 1 (Exhibit 18). The construction, operation, and maintenance of transmission lines could alter the hydrology and flood plain characteristics within these areas. *Id.* This may result in decreased stormwater capacity and altered surface water flows. *Id.* None of these impacts are considered. Further, the ER lacks sufficient vegetation and wildlife surveys and studies of the selected corridors to assess the baseline conditions of these areas. *See generally*, ER at 4.1-4; 5.10-2.

The siting of transmission lines within the Western Preferred Corridor may also adversely affect the CERP BBCW project. Alternative "O" of CERP calls for additional surface water flows east of U.S. 1 to be diverted southward through existing wetland slough systems to hydrate wetlands to the south, including wetlands in the South Florida Water Management District's

Model Lands Basin area, and possibly the Water Management District's Southern Glades Basin area. *See* SFMWD Preliminary Statement of Issues at 3 (Exhibit 19). FPL may construct fill roads in this area that may impede the implementation of Alternative O. *Id.* The ER fails to discuss the potential impacts of constructing fill roads in this area.

While FPL may be correct that a final corridor has not been selected for the construction of the transmission lines, and the final certification of a corridor is the subject of the Florida Power Plant Siting Act ("PPSA") process (*see* ER 1.1-3.), this does not excuse FPL from discussing the specific impacts of siting transmission lines in these corridors, nor does it excuse FPL from including this analysis in its ER.[6] The ER's failure to discuss the specific impacts of constructing, operating, and maintaining transmission lines in these corridors violates 10 C.F.R. § 51.45 because it fails to provide the Commission with the necessary information in which to make an informed decision of the impacts and alternatives of the project.

Contention NEPA 4: The ER fails to adequately address the direct, indirect, and cumulative impacts of constructing and operating the access roads associated with Units 6 & 7 on wetlands and wildlife.

Basis:

The ER fails to adequately discuss and analyze the impacts associated with the construction and operation of access roads. *See generally* ER 4.1.25. These roads will be located in and around a large expanse of conservation lands and wetlands, including areas within

[6] FPL may argue that final design plans for the access roads will not be completed until after completion of the Florida PPSA process. *See* Florida Department of Environmental Protection, Southeastern District Office, Environmental Resource Permit 0938-7652 Responses at 3 (Oct. 2009) (the "FDEP Permit Response") ("[D]esign details such as right-of-way location and within the corridor and wetland impacts cannot be finalized until after the corridors are certified. Each of these right-of-way location and design details potentially affect the transmission facilities' impacts on wetlands, if any. The specific information requested will be available during the post-certification review process, as authorized by Section 403.51113(2), Fla. Stat. and Section 62-17.191, F.A.C.")). This, however, does not excuse FPL from discussing and analyzing the potential range of specific impacts of transmission corridor siting in the ER. The NRC process is a federal licensing process independent of the PPSA and any other state law requirements. *See Calvert Cliffs Calvert Cliffs' Coordinating Committee, Inc. v. U.S. Atomic Energy Commission*, 449 F.2d. 1109, 1123 (D.C. 1971).

the Miami-Dade County Environmentally Endangered Lands program. *See* MDC Third Completeness Comments at 39. Their construction and operation will cause the disruption of ecological corridors, disruption of sheetflow, degradation of conservation lands (due to the disruption of management activities from access limitations), increased road-kill, increased colonization of invasive/exotic plant species, and increased dumping and all terrain vehicle/off road vehicle use (by providing access opportunities for unauthorized persons). *Id.* Instead of considering any of these impacts, as required by 10 C.F.R. § 51.45, the ER notes only that construction and operation of access roads, in addition to other construction activities, could result in "vegetation loss and temporary habitat destruction." ER 4.1-6. It then concludes, without any support or analysis – besides the bare assurance of local government approval, the granting of easements, and the use of best management practices – that "land use impacts from the improvements associated with the construction of Units 6 & 7 would be SMALL and not require additional mitigation." ER 4.1.-11.

Remarkably, there is also no information in the ER regarding the potential overlap of wildlife corridors with the proposed access roads.[7] Without this information, the Commission cannot determine whether the access roads will cross through commonly used migration routes, travel corridors between feeding and breeding or resting areas, and other types of travel corridors. *See* MDC Third Completeness Comments at 39. The ER also contains no information on types of species that would be affected by overlap with wildlife corridors, including state listed and federally listed endangered species such as the Eastern Indigo Snake and Florida Panther. *See id.* There is no discussion and analysis of the impacts to these species as a result of the construction and operation of access roads, nor discussion of whether certain wildlife

[7] Table 2.2-7 does indicate that the access road improvements will take place exclusively on areas used as forest land or wetland. ER 2.2-34.

protection measures could be incorporated into the design of the roads to protect these species.[8] *See id*. at 44. Moreover, although, reptiles are disproportionately represented in road-kill surveys for roads that have wetlands on both sides, there is no discussion of impacts to reptiles of construction and operation of the access roads. *Id.* And, the ER fails to consider the implementation of wildlife protection measures such as fencing, signage, reduced speed limits, and wildlife underpasses to eliminate or minimize mortalities from road-kill. *See id.* at 46.

The ER's failure to adequately discuss and analyze the impacts of constructing and operating the access roads violates 10 C.F.R. § 51.45(b), which requires the ER to include a discussion of environmental impacts.[9] Without this information, the NRC cannot comply with the mandates of section 102(2) of NEPA.

Contention NEPA 5: The ER fails to adequately address (1) all reasonable alternatives to the proposed transmission line corridors and associated access roads, and (2) how the applicant will avoid and/or minimize impacts to wetlands caused by construction and operation of these transmission line corridors and associated access roads.

Basis:

Background Law:

NRC regulations require the applicant, in its ER, to provide a discussion of alternatives to the proposed action that is:

[8] The Florida Panther Recovery Plan calls for the prevention and minimization of impacts to panther habitat by insuring that panther habitat needs are incorporated in the planning of new roads and road expansion projects, by identifying current and planned roads that could affect panthers, eliminating roads where possible, and retrofitting priority areas with crossings and fencing as appropriate to promote connectivity and dispersal. *See* Panther Recovery Plan at 100 (Exhibit 22).

[9] FPL may argue that final design plans for the access roads will not be completed until after completion of the Florida PPSA process. *See* FDEP Permit Response ("[D]esign details such as right-of-way location and within the corridor and wetland impacts cannot be finalized until after the corridors are certified. Each of these right-of-way location and design details potentially affect the transmission facilities' impacts on wetlands, if any. The specific information requrested will be available during the post-certification review process, as authorized by Section 403.51113(2), Fla. Stat. and Section 62-17.191, F.A.C."). This, however, does not excuse FPL from discussing and analyzing the potential range of specific impacts of access roads in the ER. The NRC process is a federal licensing process independent of the PPSA and any other state law requirements. *See Calvert Cliffs Calvert Cliffs' Coordinating Committee, Inc. v. U.S. Atomic Energy Commission*, 449 F.2d. 1109, 1123 (D.C. 1971).

> sufficiently complete to aid the Commission in developing and exploring, pursuant to section 102(2)(E) of NEPA, "appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." To the extent practicable, the environmental impacts of the proposal and the alternatives should be presented in comparative form.

10 C.F.R. § 51.45(b)(3). Thus, the ER aids the Commission in complying with its NEPA obligations. *See* 10 C.F.R. §51.14. These obligations include the preparation of an environmental impact statement (an "EIS"), allowing the Commission to "take a 'hard look' at [the] environmental consequences" of issuing a COL. *See Earth Island Inst. v. United States Forest Serv.*, 351 F.3d 1291, 1300 (9th Cir. 2003); 42 U.S.C. § 4332(C).

The EIS must contain, amongst other things, a detailed analysis of "alternatives to the [applicant's] proposed action." 42 U.S.C. § 4332(C). As required by NRC regulations, the alternatives analysis should address "the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for the choice among options by the decisionmaker and the public." 40 C.F.R. § 1502.14. The EIS must "rigorously explore and objectively evaluate all reasonable alternatives." 40 C.F.R. § 1502.14(a). This ensures "that no major federal project [will] be undertaken without intense consideration of other more ecologically sound courses of action, including shelving the entire project, or of accomplishing the same result by entirely different means." *Environmental Defense Fund v. Corps of Engineers*, 492 F.2d 1123, 1135 (5th Cir. 1974). Because of this important function, the Council on Environmental Quality describes the alternatives analysis as the "heart" of the EIS. 40 C.F.R. § 1502.14. And, while an agency is not obliged to consider every alternative to every aspect of a proposed action, due to the importance of the analysis, reviewing courts have insisted that the agency "consider such alternatives to the proposed action as may partially or completely meet the proposals goal." *Natural Resources Defense Council,*

Inc. v. Callaway, 524 F 2d. 79, 93 (2d Cir. 1975).

The EIS, and thus the ER, must also describe "any adverse environmental effects which cannot be avoided should the proposal be implemented." 42 U.S.C. § 4332(C); 10 C.F.R. § 51.45(c) ("The environmental report must include an analysis that considers and balances the environmental effects of the proposed action, the environmental impacts of alternatives to the proposed action, *and alternatives available for reducing or avoiding adverse environmental effects*.")(emphasis added). As the Supreme Court observed, this also requires analysis of ways to avoid or reduce environmental impacts:

> Implicit in NEPA's demand that an agency prepare a detailed statement on any adverse environmental effects which cannot be avoided should the proposal be implemented, is an understanding that the EIS will discuss the extent to which adverse effects can be avoided.

Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 351-52 (1989).

Thus, the NEPA requirements are clear. The agency in its EIS (and, accordingly the applicant in its ER) must consider alternatives to the proposed action that reduce or avoid adverse environmental impacts. This alternatives analysis must include a discussion of whether the alternatives will comply with all federal and state environmental quality standards and requirements. 10 C.F.R. § 51.45(d).

Discussion:

The ER estimates 330 acres of wetland impacts as a result of the construction of Units 6 & 7 and ancillary facilities. *See* ER 4.3-3; 4.3-9. The ER does not, however, specify the amount of wetland loss resulting from the construction of the transmission line corridors and associated access roads, although it notes that these corridors and roads "cross a variety of land use types, including various kinds of wetlands (marshes, forested wetlands, and canals)." ER 4.3-1. In the

PPSA proceeding, FPL indicated that the corridors and roads could impact more than 389 acres of wetlands.[10]

The ER fails to discuss impacts of transmission line corridor and access road construction on wetlands.

Despite the significant acreage of wetland habitat affected, the ER fails to discuss and analyze any specific impacts of transmission line corridor and access road construction on wetlands (*see* Contention NEPA 3, above) and instead summarily dismisses the issue. The ER concludes:

> Construction activities would result in the permanent loss of some wetland habitats and the potential temporary disturbance to other wetland habitats. The temporary disturbance would be SMALL and mitigated by standard industry construction practices, but the impacts resulting from Turkey Point Units 6 & 7 wetland loss would be MODERATE and may warrant mitigation.

ER 4.3-14-15.

The brief discussion regarding impact level not only fails to consider the specific impacts of constructing, operating, and maintaining transmission lines and access roads within wetlands – it also fails to address whether reasonable alternatives are available to avoid and/or reduce these impacts as required by 10 C.F.R. § 51.45(b)(3).

Instead of addressing the requirements set forth in NRC regulations, the ER suggests that the applicant need not provide a discussion and analysis of the specific wetland impacts resulting from the project because FPL has undertaken a route selection process to choose the transmission line corridors in accordance with the PPSA. ER 4.1-4. Under the PPSA, the state approves a corridor and the transmission line right of way is determined after state certification. The siting criteria used in the state certification process includes land use considerations to minimize potential impacts. *Id.*

[10] *See* FPL Third Round Plant and Non-Transmission Completeness Responses, FPL-Turkey Point Units 6 & 7 Certification Application, p. 99 (July 2010) (Exhibit 23).

The fact that the state may approve the siting of a transmission line corridor after the state certification process, however, does not excuse FPL from its current obligations to analyze the environmental impacts of siting transmission lines in these corridors or excuse FPL from considering additional alternative corridors that would avoid or reduce impacts to wetlands. The state process is a separate and distinct process from the NRC COL process. FPL cannot cite to the requirements or procedural differences and considerations under state law to excuse its noncompliance with federal law. *See e.g. Calvert Cliffs' Coordinating Committee, Inc. v. U.S. Atomic Energy Commission*, 449 F.2d. 1109, 1123 (D.C. 1971) ("*Calvert Cliffs*") (holding that an agency cannot abdicate its responsibilities under NEPA "to other agency certifications" because doing so "neglects the mandated balancing analysis. Concerned members of the public are thereby precluded from raising a wide range of environmental issues in order to affect particular Commission decisions. And the special purpose of NEPA is subverted."). *See also S. Fork Band Council of W. Shoshone v. United States DOI*, 588 F.3d 718, 726 (9th Cir. 2009)("A non-NEPA document-let alone one prepared and adopted by a state government-cannot satisfy a federal agency's obligations under NEPA.") (citing *Klamath-Siskiyou Wildlands Center v. BLM*, 387 F.3d 989, 998 (9th Cir. 2004)). Here, it appears FPL is attempting to delay, if not avoid, having to address the specific impacts posed by the potential siting of transmission lines within hundreds of acres of wetlands inside or in close proximity to Everglades National Park boundaries by relying on a state process that defers a final determination on the siting of transmission lines until after FPL receives state certification. NRC regulations clearly require FPL to discuss and analyze these impacts now, with the submittal of its ER, and any such attempt to postpone or evade these requirements violates 10 C.F.R. § 51.45. *See Calvert Cliffs* at 1128 ("By refusing to consider requirement of alterations until construction is completed, the

Commission may effectively foreclose the environmental protection desired by Congress … If irreversible and irretrievable commitments of resources have already been made, the license hearing (and any public intervention therein) may become a hollow exercise. This hardly amounts to consideration of environmental values to the fullest extent possible.") (internal quotations omitted).[11]

The ER fails to discuss mitigation of the impacts caused by transmission line corridor and access road construction on wetlands.

In addition, FPL appears to rely on conceptual mitigation plans to avoid having to discuss how environmental impacts from transmission line and access road construction could otherwise be avoided or minimized. The ER states only that a three-pronged approach to mitigation would be used: active mitigation, "land swapping," and the purchase of wetland credits from the Everglades Mitigation Bank. ER 4.3-9. Remarkably, the ER does not elaborate on any one of these. NRC regulations, however, require a full discussion of "alternatives available for reducing or avoiding adverse environmental effects;" cursory references to mitigation plans fall short of this mandate. 10 C.F.R. § 51.45(c).

The ER fails to adequately discuss alternative locations for the transmission line corridors and access roads as a means to avoid or minimize the impacts to wetlands.

Again deferring to the PPSA route selection process, the ER also fails to adequately analyze potential alternative locations for the transmission line corridors and access roads. Based on the PPSA, the ER considers only two potential locations for the western stretch of transmission lines. *See* ER 1.1-3; 2.2-14; 3.7-3; 4.1-4; 9.4.3; *see also* Contention NEPA 3. The

[11] Should the NRC adopt FPL's position and prepare an EIS that "tiers" to state certification documents for its analysis of these wetland impacts, this too would violate NEPA. *Klamath-Siskiyou Wildlands Center v. BLM*, 387 F.3d 989, 998 (9th Cir. 2004) (holding that an agency's reliance on a non-NEPA document cannot satisfy NEPA's requirements); *Kern v. BLM,* 284 F.3d 1062, 1073 (9th Cir. 2002) (holding that "tiering to a document that has not itself been subject to NEPA review is not permitted"); *Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800, 811 (9th Cir. 1999) (holding that it is impermissible under the NEPA regulations to tier an EIS to a non-NEPA "report" to cure the deficiencies in the cumulative impact analysis of the EIS) ("*Muckleshoot*").

ER provides a cursory, dismissive discussion of the need to avoid or minimize wetland impacts through consideration of additional alternative sites, suggesting that this has already been (or will eventually be) satisfied at the state level PPSA proceeding:

> FPL has undertaken a route selection process to choose the transmission corridors that will be submitted for approval under the Florida Electrical Power Plant Siting Act (PPSA; §403.501-518, F.S.). As part of the selection process, the state approves a corridor and the transmission line right-of-way is determined after state certification. The objective of the corridor selection process is to select a certifiable corridor that balances land use, socioeconomic, environmental, engineering, and cost considerations. The siting criteria included land use considerations to minimize potential disruption to such areas as national, state, and county parks; wildlife refuges; estuarine sanctuaries; landmarks; and historical sites. Also, the route selection process minimizes land use impacts by seeking opportunities to collocate with existing linear features (e.g., farm roads, canals, railroads, FPL transmission lines, other transportation rights-of-way, etc.).

ER 4.1-4.

The ER goes on to conclude, without any further justification that:

> Although impacts to wetlands could potentially occur, they would be limited by careful siting and construction practices to avoid and minimize adverse effects. Where wetland impacts do occur, compensatory mitigation, as required by state and federal agencies, would be provided. Given the careful consideration of land use in the route selection process (Subsection 2.2.2) and the availability of a viable method for mitigation, impacts to offsite land use would be SMALL.

ER 4.1-7.

The ER's discussion in the Chapter entitled "Alternatives to the Proposed Action" is no better. *See* ER 9.4.3. FPL once again asserts that approval of transmission line corridors is under authority of the PPSA, that a route study and corridor selection process has already been performed, and that there are only two potential western routes. ER 9.4.27-9.4.29. The analysis ends there. The ER contains no discussion of additional alternatives, the environmental impacts of those alternatives, and how those alternatives and their impacts compare to the corridors selected.

FPL's decision to consider only two corridors,[12] and its refusal to analyze the impacts of siting transmission lines in either one of these corridors, much less identify what steps can be taken to avoid and/or minimize these impacts, undermines NEPA and NRC regulations. Indeed, FPL effectively turns the alternatives and impacts analysis on its head, by pre-determining what alternatives will be considered instead of "providing a clear basis for choice among options by the decisionmaker and the public." 40 C.F.R. § 1502.14.

NEPA requires an agency to consider a full range of reasonable alternatives to its proposed action. *See Muckleshoot*, 177 F.3d at 813 (agency failed to consider an adequate range of alternatives when an EIS considered only a no action alternative along with two "virtually identical" action alternatives); *see also Environmental Protection Information Center v. U.S. Forest Service*, 234 Fed.Appx. 440, 443, 2007 WL 1417163 (9th Cir. 2007) ("A cursory dismissal of a proposed alternative, unsupported by agency analysis, does not help an agency satisfy its NEPA duty to consider a reasonable range of alternatives."). Instead of providing the full range of alternatives, FPL provides only two alternatives – labeling one "preferred." This falls short of the requirements of NEPA and will render the EIS nothing more than a *post hoc* rationalization to support FPL's preferred course of action. *See, e.g.*, *California v. Block*, 690 F.2d 753, 768 (9th Cir. 1982) (affirming the district court's rejection of an analysis that "consider[ed] from the outset only those alternatives leading to [the agency's desired] end result."); *Simmons United States Army Corps of Engrs*., 120 F.3d 664, 669 (stating that "an agency cannot restrict its analysis to those alternative means by which a particular applicant can reach his goals") ("*Simmons*"); *see also Curry v. U.S. Forest Service*, 988 F. Supp. 541, 553

[12] Although FPL may characterize one of its two "alternatives" as the "preferred" corridor, under NEPA, the agency, not the applicant, is charged with identifying and selecting the "Preferred Alternative." *See* 46 FR 18026-01 (March 23, 1981) ("CEQ 40 Questions Memo").

(W.D. Penn. 1997) (holding that an EA which only addressed a "no action" alternative and the "proposed action" alternative violated NEPA's mandate to consider a range of alternatives).

Moreover, NEPA requires a discussion and analysis of *all* alternatives, even those an applicant believes are outside its capability of implementing. As the Council for Environmental Quality explained in its "Forty Most Asked Questions" memorandum:

> Section 1502.14 requires the EIS to examine all reasonable alternatives to the proposal. In determining the scope of alternatives to be considered, the emphasis is on what is "reasonable" rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant.

CEQ 40 Questions Memo at 18027.

Further, FPL must analyze alternatives outside the jurisdiction or capability of the Commission:

> An alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS if it is reasonable. A potential conflict with local or federal law does not necessarily render an alternative unreasonable, although such conflicts must be considered. Section 1506.2(d). Alternatives that are outside the scope of what Congress has approved or funded must still be evaluated in the EIS if they are reasonable, because the EIS may serve as the basis for modifying the Congressional approval or funding in light of NEPA's goals and policies. Section 1500.1(a).

Id.

Despite these mandates, the ER fails to identify and discuss any number of reasonable alternative corridors that might exist and offers not so much as a sentence explaining why these areas were eliminated from further consideration. As courts have long recognized, "the existence of a viable but unexamined alternative renders an environmental impact statement inadequate." *Alaska Wilderness Recreation & Tourism v. Morrison*, 67 F.3d 723, 729 (9th Cir. 1995). *See, e.g.*, *Dubois v. U.S. Dept. of Agric.*, 102 F.3d 1273, 1288 (1st Cir. 1996). FPL's failure to discuss and analyze all reasonable alternative routes for the construction of

transmission lines, including those FPL has already dismissed for one reason or another prior to filing its ER, is – quite plainly – contrary to law.

FPL's failure may have serious environmental consequences. Wetlands account for more than half of all lands within both the preferred and secondary western corridors. For the second leg, the preferred western corridor is 82% wetlands and the secondary western corridor is 100% wetlands. ER 2.2-15. Thus, it is imperative that FPL discuss and analyze all other alternative routes for siting tranmission lines.

Conclusion

NEPA and NRC regulations require FPL to provide a comprehensive analysis of all reasonable alternatives to its current plans for impacting more than 380 acres of wetlands through construction and operation of transmission line corridors and related access roads. Moreover, FPL must describe what specific actions will be taken to avoid, then minimize, then if need be, mitigate such impacts. The ER fails to contain the requisite analysis and thus prevents the Commission from making an informed decision in preparing its EIS.

Contention NEPA 6: The ER fails to adequately address the cumulative impacts of constructing and operating Units 6 and 7 on salinity levels in groundwater, surface water, Biscayne Aquifer, and Biscayne Bay; wetlands; and wildlife.

Basis:

Perhaps the most significant issue facing Turkey Point, both currently and into the future with the proposed construction and operation of Units 6 & 7, is increased levels of salinity in a National Park ecosystem that is already plagued by too much salinity. As discussed earlier, the ER fails to address the existing plume of saltwater that is found underneath the plant as well as adequately address the potential for saltwater intrusion as sea levels rise. There is the potential that with the construction and operation of Units 6 & 7, this plume of saltwater will not only

expand in scope and continue its migration, but that the effects of construction and operation of Units 6 & 7, when coupled with the effects of the existing saltwater plume, will have the cumulative effect of increasing salinities in the project area. This could occur as a result of the cumulative effects of drift from the cooling tower operations, the use of radial wells that could extract freshwater from the Biscayne Aquifer and Biscayne Bay (thereby increasing salinity values in the Bay), the reservation of municipal wastewater that may otherwise be used to supply freshwater into the littoral zone of Biscayne Bay through the CERP BBCW project, the failure of FPL to elevate the entire project area and facilities to guard against the intrusion of saltwater from sea level rise and storm surge (to prevent the cooling canals from becoming essentially part of the Bay), and the use of injection wells that may result in increased salinities in the Floridan Aquifer.

There are also other actions that, when added to these effects, may intensify the existing problems posed by the groundwater plume. *See* Browder at 862 (discussing how the flow rate and distribution of freshwater inputs to Biscayne Bay have been altered by water management actions over time and how these practices have had negative effects on patterns of salinity distribution and salinity variability, which have resulted in a loss of estuarine habitat). NEPA defines cumulative impacts as those that result from the "incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." 40 C.F.R. § 1508.7. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. *Id.*

Other, past, present, and reasonably foreseeable future actions of persons include the water management operations of the U.S. Army Corps of Engineers and/or the South Florida

Water Management District (the "SFWMD"). Every year, water managers from the SFWMD conduct "fall agricultural draw downs" in Southern Miami-Dade County. The purpose of the seasonal draw down is to manipulate groundwater storage in Southern Miami-Dade County at the end of the wet season to support agricultural interests. To accomplish these objectives, the SFWMD releases large volumes of water each fall from two (2) South Florida Water Management structures – S20F on the C103 canal, and S21A on the C102 Canal- into Biscayne Bay. *See* South Florida Water Management District, *Miami-Dade Canal Agricultural Drawdown Study*, Power Point Presentation to Governing Board, (February 12, 2008) (noting the potential effects of FPL's expanding operations, mining activities and canal draw downs in the area) (Exhibit 25). These two structures were constructed in the 1950's pursuant to the 1954 Flood Control Act. While the purpose of these structures is to maintain adequate flood control levels, the SFWMD also relies on these structures to implement a periodic draw down of the C102 and C103 canals. These draw downs reduce the canal stages at a level far below what is necessary to control for flooding and are based on corresponding agricultural demands for lower groundwater stages at the end of the wet season to support the production of row crops such as potatoes. Farmers assert that lower groundwater levels are needed to assist farmers in reaching their farmlands by tractor to plant potatoes and other deep-rooted crops. These crops need lower water levels to grow. An average of 21.4 billion gallons (65,800 ac-ft) of freshwater are released each year from the Biscayne Aquifer via the C103 and C102 canals during the draw down in anticipation of the winter growing season. The National Park Service contends that these freshwater releases have a number of adverse impacts to Biscayne Bay.

Without the rapid drainage of freshwater by the SFWMD, large volumes of water would gradually leak into Biscayne Bay and its low-lying coastal wetlands, providing freshwater flows

well into the dry season. The rapid release of water within a few weeks of the end of the wet season on the other hand, brings about an artificially early start to the dry season, since flows to the coastline are suddenly curtailed when groundwater levels reach the target stage in the coastal zone. The dry season is thus unnaturally dry, leading to long periods of dry marshes and high salinities along the shoreline. The result is a loss of productive estuarine fish and shellfish habitat, increased predation of near-shore species by marine fish, establishment of exotic plant species within the coastal wetland zone, and loss of wading bird foraging habitat during nesting season. *See* Browder at 865 (stating that much of the existing habitat loss for estuarine fish communities stems from changes in freshwater inflow that have disturbed the natural correspondence of favorable salinity with favorable bottom and shoreline habitat for estuarine species). The practice also increases the risk of saltwater intrusion into the Biscayne Aquifer. *See generally*, Kearns, E.J., Renshaw, A., and Bellmund, S., *Environmental Impacts of the Annual Agricultural Drawdown in Southern Miami-Dade County, Everglades National Park and Biscayne National Park* (Exhibit 24).

The ER fails to discuss how these yearly draw-downs, when added to the existing saltwater plume (stemming from the operations of Units 6 & 7) and proposed operations of Units 6 & 7, will cumulatively impact local salinities levels within the Biscayne Aquifer and Biscayne Bay. Similarly, increased mining operations in the area could also accelerate the mixing of surface water and salt-intruded aquifers. *See* South Florida Water Management District, *Miami-Dade Canal Agricultural Drawdown Study*, Power Point Presentation to Governing Board, (February 12, 2008) (noting the potential effects of FPL's expanding operations, mining activities and canal draw downs in the area) (Exhibit 25). The ER fails to discuss these past,

present, and future activities and the cumulative effects these mining activities, canal drawdowns. and the operation of Units 6 & 7 could have on the Aquifer and Bay.

The potentially dramatic increase in salinity levels in and around the plant following the construction and operation of Units 6 & 7 could have profound impacts to the native ecosystem and the wildlife found therein. For instance, the federally listed American Crocodile is known to breed in and around the cooling canals and industrial wastewater facility at Turkey Point. *See* ER 2.4-8 – 2.4-10. These canals provide nesting habitat for female crocodiles (*see* ER 2.4-9, noting that between 21-26 crocodile nests have been documented at any given time during the nesting season in the industrial wastewater facility), but hypersaline conditions and high water temperatures in these canals may adversely affect hatchlings. *See* Gaines, Michael S., *Computer Simulation Modeling of Intermediate Trophic Levels for Across Trophic Level Systems Simulation of the Everglades/Big Cypress Region*, Abstract (USGS 2000), available at http://sofia.usgs.gov/projects/atlss/compsimabgeer00.html (last visited August 17, 2010) ("The most recent work has focused on creating a dynamic landscape dependent upon freshwater input. In support of this modeling effort, the American crocodile radio-tracking project seeks to test for salinity effects upon hatchlings. Based on the literature, it is expected that hatchlings would prefer freshwater and would lose weight in hypersaline habitats.") (Exhibit 26); *see also* Browder (stating that a habitat suitability model for juvenile crocodiles has been developed showing that salinity between 0 and 20 ppt provides the most suitable habitat while 40 ppt is the least suitable. The Browder study further notes that restoring freshwater flow to the coastal wetlands would benefit crocodiles.) (Exhibit 7). Because of these conditions, hatchlings may have to be relocated to increase their chance of survival. The ER fails to discusses these potential impacts nor does it provide a plan to mitigate these impacts. Because of the potential that hypersaline

conditions could reduce the survival of hatchlings and negate the otherwise successful nesting of female crocodiles, this issue must be addressed. Additional wildlife impacts that need to be discussed and analyzed are the cumulative impacts to the Bay's flora and fauna, sea grasses (which are sensitive to high salinities), and other marine life. The ER's failure to discuss the specific cumulative impacts of constructing, operating, and maintaining Units 6 & 7 on local salinity levels violates 10 C.F.R. § 51.45 because it fails to provide the Commission with the necessary information to make an informed decision of the impacts and alternatives of the project.

Contention NEPA 7: The ER fails to address the direct, indirect, and cumulative impacts of sea level rise on the construction and operation of Units 6 & 7 and the ancillary facilities.

Basis:

Turkey Point is located at or near sea level, with an existing elevation of -2.4 feet to 0.8 feet. ER 2.6-1. During the last 100 years, the sea level in the vicinity of Turkey Point has risen about 9-12 inches. *See* South Florida Water Management District, FPL Turkey Point Units 6 & 7, Site Certification Application, First Completeness Review at 34-35 (July 30, 2009) ("SFWMD First Completeness Review") (Exhibit 11). The Miami-Dade Climate Change Task Force has predicted that, by 2050, sea level rise could be between 1.5 to 5 feet. *Id.* With a COL valid for 40 years, Units 6 & 7 may still be in operation when these predictions become realities. *See* 10 C.F.R. § 52.140. Yet, the ER entirely fails to discuss and analyze the potential impacts of this 1.5 to 5 foot rise in sea level on Units 6 & 7.

While it appears that the new units would be constructed on an elevated pad between 19.0-25.5 NAVD 88 (ER 3.9-9; 3.9-16), there is no indication in the ER that the transmission line facilities, reclaimed water pipelines, industrial wastewater facilities, access roads, and other associated facilities would be located any higher than the current elevation of the plant. *See e.g.*

ER 3.9-15-16. Indeed, when the ER does discuss elevations of associated facilities, it notes that many – including the containment building, auxiliary building, and turbine building – will be located below plant grade. ER 3.9-13-15. The ER fails to contain discussion regarding the impacts of sea level rise on these facilities, which in turn could impact the operation of Units 6 & 7.

Further, given that the Biscayne Aquifer is extremely porous, an increase in sea level is likely to raise the general groundwater levels in the region. *See* SFWMD First Completeness Review at 34-35. There is no discussion in the ER of the impacts of this change in groundwater level and the resulting saltwater intrusion. In addition, with an increase in sea level rise, Units 6 & 7 are likely to be more susceptible to storm surge. *Id.* The ER wholly fails to discuss the impacts of such a surge.

The ER's failure to discuss and analyze the impacts of sea level rise violates 10 C.F.R. § 51.45(b), which requires the ER to include a discussion of environmental impacts.[13] Without this information, the NRC cannot comply with the mandates of section 102(2) of NEPA.

Contention NEPA 8: FPL fails to adequately address the need for power in its ER. In particular, the ER fails to consider the drop in electricity demand in FPL's service area since 2008, and it relies on erroneous claims that state and regional evaluations satisfy NUREG-1555.

An ER must include the benefits of a proposed action. 10 C.F.R § 51.45(c). As FPL recognized, "to accurately characterize the benefits associated with the proposed action, the NRC must assess the need for power." ER 8.1-1. The ER, however, does not contain the requisite

[13] To the extent that FPL may argue that final design plans for the ancillary facilities (including, but not limited to, transmission line facilities, reclaimed water pipelines, industrial wastewater facilities, and access roads) will not be completed until after completion of the Florida PPSA process, this does not excuse FPL from discussing and analyzing the potential range of specific impacts of access roads in the ER. The NRC process is a federal licensing process independent of the PPSA and any other state law requirements. *See, Calvert Cliffs* at 1123.

analysis of the power need. Without this analysis, the Commission cannot make the benefits determination required by its regulations and NEPA.

Contention NEPA 8.1: The ER provides insufficient data and an outdated energy demand forecast that do not aid the Commission in determining the need for power in FPL's service area.

Basis

FPL has proposed to construct and operate Units 6 & 7 to meet its customers' future demand for electricity. The need for Units 6 & 7 is a fundamental starting point for an ER and subsequent basis for an EIS. And, the need for the proposed nuclear reactors is a function of forecasted electricity demand. Despite the importance of the underlying need requirement to the ER, the electricity demand forecast provided by FPL will not aid the Commission in its decision to issue the COL because the forecast is critically outdated. A closer examination of more recent forecasted electricity use in FPL's territory does not support the need for the construction and operation of Units 6 & 7.

FPL has based its need for power on demand growth rate assumptions that are no longer valid. There has been a dramatic change in demand since FPL prepared its COL application. The nation has plunged into the worst recession since the Great Depression. Some even call it a depression. Moreover, there is a growing recognition that this change is not simply a severe dip in the business cycle, but rather a major shift in the economy. The spending binge the U.S. embarked upon for a decade, in which households and businesses became highly leveraged, is likely over. A massive amount of household wealth was destroyed when the housing market bubble burst and retirement accounts have been devastated by the collapse of the stock market. Florida has been one of the hardest hit states in real estate foreclosures (*See* South Florida Business Journal, *RealtyTrac: Florida a Leader in Foreclosures* (July 29, 2010), available at:

http://southflorida.bizjournals.com/southflorida/stories/2010/07/26/daily47.html (last visited August 17, 2010)) (Exhibit 27), especially South Florida, and the state lost population for the first time in 2009 (*see* Lew Hay, Chairman and CEO of FPL, *Sanford Bernstein and Company Strategic Decision Conference 2010*, slide 18 (June 2, 2010)) (Exhibit 39). FPL's ER does not reflect these economic impacts and consequential drop in electricity demand.

FPL's electricity demand forecast cites a need for electricity in 2008 (net energy load) of 118,357 GWh. ER 8.2-11. Yet, the actual electricity demand in 2008 was only 111,004 GWh. *See* FPL Ten Year Power Site Plan 2009-2018 at 44 (April 2009) (Exhibit 28). Additionally, FPL's forecast cites demand for electricity to be 121,852 GWh (net energy load) in 2009. ER 8.2-11. Yet, once again, actual electricity use amounted to a mere 111,304 GWh in 2009 – essentially remaining flat from the previous year. *See* FPL Ten Year Site Plan 2010-2019 at 44 (April 2010) (Exhibit 29). In other words, actual electricity use has been well below projected demand for several years. Actual energy use in FPL's territory represents over a 10,000 GWh underestimation of demand in just two years.

Thus, the information provided to the Commission in the ER runs in stark contrast to events on the ground. FPL maintains that it anticipates "a substantial load forecast for the ten-year reporting period [2008 – 2018]." ER 9.1-1. Yet, as explained by Dr. Mark Cooper in the attached declaration (the "Cooper Declaration") (Exhibit 30), excess capacity, caused by slowing demand, is already pushing the need for Units 6 & 7 further into the future. In FPL filings before the Florida Public Service Commission (the "FL PSC") to recover construction costs early for the proposed reactors, the reduction in peak demand forecasts between the 2008 and 2009 versions of the feasibility analysis is striking. In 2017, which is a crucial year in the 2008 analysis because that was the year the reserve margin hit the state limit of 20 percent, the 2009-

projected peak is 11 percent lower than the peak projected in 2008. *See,* Attachment 1 to Cooper Declaration at 9 (Exhibit 30). Under the 2009 projection, FPL does not reach the 2017 peak projected in 2008 until 2022, five years later. *Id.* By 2040, the projected peak is 20 percent lower. *Id.* This pushes the date for the reactors back to 2022, even before the consideration of increased state energy efficiency goals and pending federal regulations requiring more aggressive energy efficiency targets and greater utilization of renewable resources. *Id.* The ER fails to mention, let alone provide an adequate discussion of, this dramatic shift in need for the proposed reactors.

Even FPL has realized the drop in demand can no longer support the need for power on its original timeframe, and has announced that the in-service date of Units 6 & 7 will be pushed back to 2023 and 2024. *FPL Petition for Approval of Nuclear Power Plant Cost Recovery Amount for the Period January to December 2011*, FPSC Docket No. 100009 at 8 (May 3, 2010) (the "FPL Petition for Approval") (Exhibit 31). Yet, the ER makes no mention of the revised in-service dates. The ER fails to identify any elements that have contributed to diminished growth, such as population, number of households, per capita income, trends in size of households, or per household energy use trends. The ER's failure to not only to discuss and analyze economic and demographic trends, but even raise them as issues, violates 10 C.F.R. § 51.45 as it fails to provide the Commission with adequate information to make an informed decision.

Moreover, the ER fails to consider the effect that greater efficiency can have on demand. FPL's energy efficiency programs are relatively weak compared to leading utilities around the nation. FPL captures less than 0.25 percent of annual electricity demand through energy efficiency. *Testimony of PSC Staff Expert Witness Spellman*, Docket Nos. 080413-EG, July 17, 2009, Exhibit RFS-5 (Exhibit 32). Leading utilities are capturing more than 4 times that level of

energy savings though efficiency. *Id.* The FL PSC recently increased all goals for Florida investor-owned utilities, including FPL, in order to improve the results of utility-sponsored efficiency programs. *Order No. PSC-09-0855-FOF-EG*, FPSC Docket Nos. 080407 – 13 (December 30, 2009) (the "2009 FL PSC Order") (Exhibit 33). FPL assumes in its ER that its weak Demand Side Management ("DSM") plans, which incorporate efficiency measures, will be continued by the FL PSC at currently projected trends. ER 8.2-9. Yet the FL PSC has subsequently set higher DSM goals for FPL, thereby rendering the FPL assumption incorrect. *See* 2009 FL PSC Order. The ER provides no discussion, let alone an adequate analysis, on the new efficiency goals set by the FL PSC and how those goals will affect demand and subsequent need for power.

And, as discussed by Dr. Mark Cooper in the attached declaration, the ER fails to address how pending federal renewable and efficiency policy will impact the demand for power. Currently pending bill HR 2454 has passed the House of Representatives and intends to lower demand for nonrenewable generation resources. It would set a target of 20 percent renewable energy by 2022, but provides that 8 percent of the target can be met through energy efficiency. The ER is devoid of any discussion on how federal mandates might affect demand for non-renewable power.

In fact, FPL provides *no* discussion for the need for power from the proposed reactors; rather, FPL asks the Commission to rely on its interpretation of a state process that supports a claimed need, without ever making a case for the project on its merits. An agency must exercise independent judgment in defining the purpose and need of a project and cannot rely exclusively on the statements and opinions of the applicant. *See Simmons* 120 F.3d at 669.

Lastly, FPL has yet to make a decision on whether to finish construction Units 6 & 7. The FPL proposal before the NRC is speculative. FPL states in its FL PSC filings that construction of the plant is contingent on economics and state and federal energy policy.

> The developments at the national level, state level and project level needed for a clear path to construction have not achieved a high level of predictability. Therefore expenditures beyond those required to obtain the necessary licenses, permits and approvals would be premature in 2010 and 2011. . . Once this phase of the project is complete, FPL will be able to review the then-existing economics, the accumulated experience of other new nuclear projects and the state and federal energy policy environment in its consideration of project next steps.

FPL Petition for Approval at 8 (Exhibit 31).

It is clear that FPL has little assurance in the viability of the project without a further assessment in 2012 – three years after the submittal of its COL application. FPL makes no attempt in its application to shed light on factors that might kill the proposed project, but demand for power is most certainly a significant component in the determination to complete construction. In lieu of providing any information to the Commission on the need for power, FPL asks the Commission to rely on state process that is neither comprehensive nor responsive to forecasting changes, discussed more fully below. FPL's uncertainty over construction of the project begs the question: if the applicant admits that there may not be a need for the project, based presumably in part on a lack of need for power, why should this Commission trust a state process that has already granted a determination of need for the plant?

> **Contention NEPA 8.2: The state and regional evaluations of the need for power fail to satisfy the requirements for NUREG-1555's exclusion of NRC independent review because they are not: (1) systematic, (2) comprehensive, (3) subject to confirmation, or (4) responsive to forecasting uncertainty.**

Basis

Florida's state process for evaluating the need for power – described by FPL in Chapter 8 of the ER – is not integrated and is inherently unreliable in ensuring to the Commission that the

state determination is comprehensive or responsive to uncertainty. The planning process in Florida, more fully described below, is disjointed, leaving no mechanism in Florida to respond to forecast failure.

FPL nevertheless suggests in its description of the state process that the determination of need proceeding and the requirement to submit a ten year site plan is an integrated, comprehensive process, responsive to forecasting uncertainty. ER 8.1-1. Yet FPL's suggestion lacks detail on how the state planning processes works together to support the need determination for Units 6 & 7. The likely reason for the omission is that the state planning components are highly disjointed and not integrated in a way to ensure the Commission of accurate information regarding the need for power.

First, the "need" determination proceeding is the only FL PSC proceeding that can consider whether a need for power has been met, and grant a "determination of need" for a specific proposed facility. § 403.519, Fla. Stat. The need for a proposed project is based, among other criteria, on the need for power. There is no other statutorily prescribed state proceeding where a need determination can be challenged.

Second, the submittal of ten year site plans is merely a ministerial planning process action. The FL PSC does not have authority to change determinations of need after review of a ten year site plan. The FL PSC can only *suggest* alternatives to the plan. § 186.801(2), Fla. Stat. "It is recognized that 10-year site plans submitted by an electric utility are tentative information for planning purposes only and may be amended at any time at the *discretion of the utility* upon written notification to the commission." *Id.* (emphasis added). As such, a ten year site plan is not a detailed, integrated resources planning document; rather, it is a document based on limited information and no stakeholder input through evidentiary hearings. FPL states as much:

> Site plans are long-term planning documents and should be reviewed in this context. A site plan contains tentative information, especially for the latter years of the 10-year time horizon, and is subject to change at the discretion of the utility. Detailed evaluation of the need for power takes place during the second of the Florida three-component system, determination of need.

ER 8.1-3.

While a ten year site plan can forecast uncertainty in future years, the FL PSC is impotent to act on the uncertainty under existing Florida statutes. Florida law only permits "suggestions" to the utility's planning process. Moreover, the new FPL in-service dates of 2023 and 2024, places Units 6 & 7 well outside the 10 year Florida planning horizon. Construction on the first proposed reactor would not be complete until 14 years after FPL's submission of its ER. If the applicant admits that later years of its ten-year planning document are "tentative," then 14 years out can only be considered highly speculative. Regardless of the speculative nature of the project, the FL PSC has no statutory authority to rescind a determination of need once it is granted. Quite simply, the state process cannot respond to forecasting changes in a ten-year time span, let alone a 14 year time span.

The FL PSC also cannot halt construction of a nuclear reactor because it cannot make a finding of "imprudence" related to cost recovery, for any reason, if it is in furtherance of nuclear power plant construction. §366.93, Fla. Stat. Since the need proceeding is the only proceeding which can consider the "need for power" in Florida, the state process places all ability to reconsider the need for the plant wholly in the hands of the utility. It certainly cannot be the intent of the NRC to bestow so much deference to the applicant to self-determine the need for the project. Indeed, the NRC cannot rely exclusively on the statements and opinions of the applicant. *See Simmons*, 120 F.3d at 669.

A further example of the disjointed Florida planning process is the uncoordinated nature of FL PSC need determinations with FL PSC DSM goal setting. FL PSC goals are set at least

every five years. §366.82, Fla. Stat. (The DSM goals are set by the FPSC at least every five years for a duration of 10 years.). The determination of need granted in 2008 for the proposed projects did not consider the more aggressive DSM goals issued at the end of 2009 by the FL PSC. *See* 2009 FL PSC Order (Exhibit 33). Instead, the determination of need hearing in 2008 only considered significantly weaker DSM goals in 2005. This creates a situation where FPL will resist lower cost prospective efficiency programs in meeting customer demand because it has already garnered a determination of need for its nuclear reactors based on lower efficiency goals. The utility resistance to reducing the need for newly certified power plants is manifested in dismissing efficiency programs or renewable options in meeting electricity demand – as FPL has done it its ER.

FPL's attempt to protect its large proposed capital investment was evident at the recent 2010 DSM goal setting proceedings. FPL claimed it could not pursue more robust energy efficiency because it had been granted a determination of need for two nuclear reactors and, in essence, had no room for more energy efficiency.

The state proceedings for determination of need, the submittal of a ten year site plan, and the establishment of DSM goals, are simply not integrated or coordinated processes. Thus, the state determination should not be relied upon by NRC in reviewing the need for power.

Contention NEPA 9: FPL failed to adequately address in its ER all reasonable DSM and renewable energy alternatives to the construction and operation of Units 6 & 7.

Basis

The ER does not adequately address energy efficiency alternatives and renewable energy alternatives to the proposed project. For instance, in discussing the DSM alternative, FPL recites a litany of alleged successes in DSM and provides sweeping commentary that DSM "will continue to be an option to eliminate the need for additional capacity;" however, FPL concludes

that DSM will not be adequate to "eliminate the required increase in baseload capacity." ER 9.2-6. In making this proclamation, FPL fails to provide any discussion, let alone a rigorous discussion, of how its most recent L FPSC DSM goals will affect demand and mitigate the need for Units 6 & 7. *Id.* Even if FPL concluded that meaningful DSM could not totally supplant the need for Units 6 & 7, the ER must still consider how DSM could be used to mitigate impacts of the proposed action. "An alternative may not be disregarded merely because it does not offer a complete solution to the problem." *Citizens Against Toxic Sprays v. Bergland*, 428 F. Supp. 908, 933.

Moreover, the ER describes FPL's weak DSM goals as "aggressive," yet fails to discuss how much electricity demand the DSM goals are capturing (energy savings) annually or explore how the DSM plans could be improved to increase energy savings. *See* ER 9.2-6. As referenced above, FPL energy savings though DSM is relatively weak compared to leading utilities. FPL's references to its ten year site plan for past DSM achievements do not relieve its duty under 10 C.F.R. § 51.45(b)(3) to fully analyze the DSM alternative. ER 9.2-5.

FPL's broad generalizations about DSM's potential fall short of adequate analysis. The analysis must "*rigorously* explore and objectively evaluate *all* reasonable alternatives." 40 C.F.R. § 1502.14(a)(emphasis added). The purpose of this requirement is "to insist that no major federal project should be undertaken without intense consideration of other more ecologically sound courses of action, including shelving the entire project, or of accomplishing the same result by entirely different means." *Environmental Defense Fund v. Corps of Engineers*, 492 F.2d 1123, 1135 (5th Cir. 1974). Consideration of alternatives is "the heart of the environmental impact statement." 40 C.F.R. § 1502.14.

Additionally, FPL must expand its discussion and provide analysis on how major national research organizations' findings might affect the DSM landscape in Florida prior to the 2023 in-service timeframe for the first reactor. As further explained by Dr. Mark Cooper in his attached declaration, McKinsey & Company concluded that efficiency could cut energy consumption by 25 percent to 30 percent at costs that are far below the current and projected future cost of new energy generation, such as nuclear power. McKinsey & Company, *Unlocking Energy Efficiency in the U.S. Economy* at 7 (July 2009) (Exhibit 34). The American Council for an Energy-Efficient Economy (the "ACEEE") took a somewhat different approach by modeling the energy efficiency provisions in HR 2454. It found that, as passed, the bill would result in an 8 percent reduction in energy use nationwide by 2030. Gold, Rachel et al., *Energy Efficiency in the American Clean Energy and Security Act of 2009: Impacts of Current Provisions and Opportunities to Enhance the Legislation*, American Council for an Energy-Efficient Economy, p. 1 (September 2009) (Exhibit 35). The ACEEE study found that more aggressive efficiency policies would save a great deal more energy, approximately 27 percent, and produce much larger dollar savings. *Id* at 2-3, Appendix A. Another ACEEE study that was done specifically for Florida found that aggressive policies to reduce energy consumption could lower demand by 20 percent at a cost of less than the projected cost of conventional sources. Neal, Elliott. R. et al. *Potential for Energy Efficiency and Renewable Energy to Meet Florida's Growing Energy Demands*, American Council for an Energy-Efficient Economy, pp. 6 and 39 (June 2007) (Exhibit 36).

FPL's limited analysis of both DSM and renewable energy options takes place in a regulatory vacuum and inadequately addresses pending federal regulatory policy – especially considering the 14 year time lapse from application submission to the proposed in-service date of

the first reactor. Federal regulation, for instance, could radically alter the need for power and demand for alternatives. *See generally*, Cooper Declaration (Exhibit 30). HR 2454, which has already passed the U.S. House of Representatives, intends to lower demand for nonrenewable generation resources. The renewable energy targets set would be 20 percent by 2022 – also called a Renewable Energy Standard ("RES"). It allows states to meet up to 8 percent of the target with energy efficiency. Improvements in the building codes start quickly with a 30 percent reduction in consumption from new buildings by 2010 and build to a 50 percent reduction by 2014 for residential building and 2015 for commercial buildings. Additional improvements of 5 percent are called for every three years after 2017/2018. Revenue for retrofitting of existing buildings would begin when the allowances go into force. Appliance efficiency standards will unfold over time. The renewable energy standard would be on top of the building code, appliance standards, and retrofit impacts, pushing the theoretical total reduction of demand for nonrenewable generation past 25 percent, but there are a number of mechanisms that would lower that impact. On a national average basis, the Environmental Protection Agency projects a 10 percent reduction in demand and growth in renewables equal to 1.1 percent of demand. *See EPA Analysis of the American Clean Energy and Security Act of 2009 H.R. 2454 in the 111th Congress* at 26 (June 23, 2009) (Exhibit 37). An earlier analysis suggests the weatherization program in the American Recovery and Reinvestment Act would lower demand by 1.4 percent. *Id.*[14] The impact varies from state-to-state, however. In a state where so much efficiency is available at less than 2 2.5 cents per KWh, it would make sense to petition for the maximum efficiency contribution to the RES (8 percent) and develop as much

[14] *Contrast EPA Analysis of the American Clean Energy and Security Act of 2009 H.R. 2454 in the 111th Congress* at 26 (June 23, 2009) (Exhibit 36), with *EPA Preliminary Analysis of the Waxman Markey Discussion Draft: American Clean Energy and Security Act of 2009 H.R. 2454 in the 111th Congress* at 23 (April 20, 2009) (Exhibit 38); the former includes the effect of the American Recovery and Reinvestment Act in the reference case, the latter does not.

renewable energy as possible. A reasonable range for the impact on Florida would be a 10 to 20 percent reduction in the demand for non-renewable generation. Cooper Declaration, Attachment 1 at 22 (Exhibit 30).

That would have a major impact. Under the 20 percent scenario, FPL does not reach the peak for 2017 projected in the FL PSC Need Determination Docket until 2036. Attachment 1 to Cooper Declaration at 1 (Exhibit 30). Under the 10 percent scenario, FPL does not reach the peak projected in the Need Determination Docket for 2017 until 2028. *Id.* at MNC-7, page 2 (Exhibit 30). Pursuant to NEPA and NRC regulations, FPL must provide discussion of all new renewable generation capacity options under the above regulatory framework. 10 C.F.R. § 51.45(b)(3). FPL provides no discussion such discussion in its ER, let alone a rigorous analysis of how federal regulation might impact the criteria for alternatives – especially considering that FPL has admitted that completion of the proposed project is contingent, in part, on the federal regulatory landscape.

IV. CONCLUSION

For the foregoing reasons, the petition and contentions should be admitted.

Respectfully submitted this 17th day of August, 2010,

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