



United States Nuclear Regulatory Commission

Protecting People and the Environment

NUREG-2176
Supplement 1

Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Nuclear Plant Units 6 and 7

Supplement 1

**U.S. Nuclear Regulatory Commission
Office of New Reactors
Washington, DC 20555-0001**

**U.S. Army Corps of Engineers
Jacksonville District
Jacksonville, Florida 32232-0019**



**US Army Corps
of Engineers®**

AVAILABILITY OF REFERENCE MATERIALS IN NRC PUBLICATIONS

NRC Reference Material

As of November 1999, you may electronically access NUREG-series publications and other NRC records at NRC's Library at www.nrc.gov/reading-rm.html. Publicly released records include, to name a few, NUREG-series publications; *Federal Register* notices; applicant, licensee, and vendor documents and correspondence; NRC correspondence and internal memoranda; bulletins and information notices; inspection and investigative reports; licensee event reports; and Commission papers and their attachments.

NRC publications in the NUREG series, NRC regulations, and Title 10, "Energy," in the *Code of Federal Regulations* may also be purchased from one of these two sources.

1. The Superintendent of Documents

U.S. Government Publishing Office
Mail Stop IDCC
Washington, DC 20402-0001
Internet: bookstore.gpo.gov
Telephone: (202) 512-1800
Fax: (202) 512-2104

2. The National Technical Information Service

5301 Shawnee Rd., Alexandria, VA 22312-0002
www.ntis.gov
1-800-553-6847 or, locally, (703) 605-6000

A single copy of each NRC draft report for comment is available free, to the extent of supply, upon written request as follows:

Address: **U.S. Nuclear Regulatory Commission**
Office of Administration
Publications Branch
Washington, DC 20555-0001
E-mail: distribution.resource@nrc.gov
Facsimile: (301) 415-2289

Some publications in the NUREG series that are posted at NRC's Web site address www.nrc.gov/reading-rm/doc-collections/nuregs are updated periodically and may differ from the last printed version. Although references to material found on a Web site bear the date the material was accessed, the material available on the date cited may subsequently be removed from the site.

Non-NRC Reference Material

Documents available from public and special technical libraries include all open literature items, such as books, journal articles, transactions, *Federal Register* notices, Federal and State legislation, and congressional reports. Such documents as theses, dissertations, foreign reports and translations, and non-NRC conference proceedings may be purchased from their sponsoring organization.

Copies of industry codes and standards used in a substantive manner in the NRC regulatory process are maintained at—

The NRC Technical Library

Two White Flint North
11545 Rockville Pike
Rockville, MD 20852-2738

These standards are available in the library for reference use by the public. Codes and standards are usually copyrighted and may be purchased from the originating organization or, if they are American National Standards, from—

American National Standards Institute

11 West 42nd Street
New York, NY 10036-8002
www.ansi.org
(212) 642-4900

Legally binding regulatory requirements are stated only in laws; NRC regulations; licenses, including technical specifications; or orders, not in NUREG-series publications. The views expressed in contractor-prepared publications in this series are not necessarily those of the NRC.

The NUREG series comprises (1) technical and administrative reports and books prepared by the staff (NUREG-XXXX) or agency contractors (NUREG/CR-XXXX), (2) proceedings of conferences (NUREG/CP-XXXX), (3) reports resulting from international agreements (NUREG/IA-XXXX), (4) brochures (NUREG/BR-XXXX), and (5) compilations of legal decisions and orders of the Commission and Atomic and Safety Licensing Boards and of Directors' decisions under Section 2.206 of NRC's regulations (NUREG-0750).

DISCLAIMER: This report was prepared as an account of work sponsored by an agency of the U.S. Government. Neither the U.S. Government nor any agency thereof, nor any employee, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for any third party's use, or the results of such use, of any information, apparatus, product, or process disclosed in this publication, or represents that its use by such third party would not infringe privately owned rights.

Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Nuclear Plant Units 6 and 7

Supplement 1

Manuscript Completed: December 2016
Date Published: December 2016

**Division of New Reactor Licensing
Office of New Reactors
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001**

**Regulatory Division
Jacksonville District
U.S. Army Corps of Engineers
Jacksonville, Florida 32232-0019**



**US Army Corps
of Engineers®**

**Final Environmental Impact Statement for Combined Licenses (COLs)
for Turkey Point Nuclear Plant, Units 6 and 7, Supplement 1**

Lead Agency: U.S. Nuclear Regulatory Commission
Cooperating Agency: U.S. Army Corps of Engineers, Jacksonville District
Contact: Alicia Williamson, Environmental Project Manager
 Environmental Projects Branch
 Division of New Reactor Licensing
 Office of New Reactors
 U.S. Nuclear Regulatory Commission
 Washington, DC 20555-0001
 Telephone: 301-415-1878
 e-mail: Alicia.Williamson@nrc.gov

ABSTRACT

This report supplements NUREG-2176, “Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Nuclear Plant Units 6 and 7,” Final Report (EIS), dated October 2016. The U.S. Nuclear Regulatory Commission (NRC), in cooperation with the U.S. Army Corps of Engineers (USACE), Jacksonville District, prepared the EIS to document its environmental review of an application submitted to the NRC in June 2009 by Florida Power & Light Company (FPL) for combined construction and operating licenses for two new nuclear power units (Units 6 and 7) that FPL proposes to construct and operate at its Turkey Point site. The National Park Service (NPS) participated in the environmental review as a cooperating agency by providing special expertise for the areas in and around the adjacent national parks (Biscayne and Everglades National Parks). The NPS’s participation in the environmental review does not imply NPS concurrence in the final EIS or its conclusions. All impact determinations made in the EIS should not be attributed to the NPS, but only the NRC and USACE, also referred to as the review team. The final EIS documents the review team’s analysis, which considers and weighs the environmental impacts of constructing and operating two new nuclear units at the Turkey Point site and at alternative sites, including measures potentially available for reducing or avoiding adverse impacts.

The NRC issued NUREG-2176 in draft form in February 2015, and solicited comments on the draft EIS. Appendix E to the final EIS identifies and responds to the comments received on the draft EIS. However, 59 comment letters that were submitted to the NRC during the comment period on the draft EIS were inadvertently not included in Appendix E to the final EIS. The 59 comment letters were discovered after the publication of the final EIS in October 2016. This supplement to NUREG-2176 considers and responds to these 59 comment letters. This supplement documents the review team evaluation of each comment letter not included in the final EIS. While the comments do not provide new and significant information regarding the project or its environmental impacts, the NRC staff is of the opinion that, in view of the circumstances described above, and in accordance with 10 CFR 51.92(c), preparation of a supplement to the final EIS will further the purposes of the National Environmental Policy Act of 1969, as amended (NEPA).

Supplement 1

On the basis of the information documented in the final EIS (NUREG-2176) and this supplement, the review team finds that the comment letters not included in the final EIS did not provide information that would change the analysis in the final EIS or the NRC staff's recommendation to the Commission the COLs be issued as proposed. This recommendation is based on (1) the application, including the Environmental Report (ER), submitted by FPL; (2) consultation with Federal, State, Tribal, and local agencies; (3) the review team's independent review; (4) the consideration of public comments received on the environmental review; and (5) the assessments summarized in the EIS and this supplement, including the potential mitigation measures identified in the ER and the final EIS.

CONTENTS

ABSTRACT	iii
CONTENTS	v
FIGURES	vii
TABLES	vii
EXECUTIVE SUMMARY	ix
INTRODUCTION	1
BACKGROUND	2
OVERVIEW	3
DISPOSITION OF COMMENTS	3
S.1 Comments Concerning Process – NEPA	12
S.2 Comments Concerning Land Use – Site and Vicinity	13
S.3 Comments Concerning Land Use – Transmission Lines	14
S.4 Comments Concerning Geology	19
S.5 Comments Concerning Hydrology – Surface Water	21
S.6 Comments Concerning Hydrology – Groundwater	27
S.7 Comments Concerning Ecology – Terrestrial	30
S.8 Comments Concerning Ecology – Aquatic	33
S.9 Comments Concerning Socioeconomics	33
S.10 Comments Concerning Meteorology and Air Quality	34
S.11 Comments Concerning Health – Nonradiological	35
S.12 Comments Concerning Health – Radiological	37
S.13 Comments Concerning Accidents – Severe	43
S.14 Comments Concerning the Uranium Fuel Cycle	52
S.15 Comments Concerning Transportation	58
S.16 Comments Concerning the Need for Power	58
S.17 Comments Concerning Alternatives – No-Action	59
S.18 Comments Concerning Alternatives – Energy	60
S.19 Comments Concerning Alternatives – System Design	76
S.20 Comments Concerning Alternatives – Sites	77
S.21 Comments Concerning Benefit-Cost Balance	79
S.22 Comments Concerning Climate Change	80
S.23 General Comments in Opposition to the Licensing Action	82
S.24 General Comments in Opposition to Nuclear Power	88
S.25 General Comments in Opposition to the Existing Plant or the Applicant	93
S.26 Comments Concerning Issues Outside Scope – Miscellaneous	94

Supplement 1

S.27	Comments Concerning Issues Outside Scope – NRC Oversight	95
S.28	Comments Concerning Issues Outside Scope – Safety	95
SUMMARY	100
REFERENCES	101

FIGURES

ES-1	The Turkey Point Site and Affected Environment	xi
ES-2	Location of Sites Considered as Alternatives to the Turkey Point Site	xvii

TABLES

ES-1	Environmental Impact Levels of the Proposed Turkey Point Units 6 and 7	xiii
ES-2	Cumulative Impacts on Environmental Resources, Including the Impacts of Proposed Turkey Point Units 6 and 7	xiv
ES-3	Comparison of Cumulative Impacts at the Turkey Point and Alternative Sites	xv
ES-4	Summary of Environmental Impacts of Construction and Operation of New Nuclear, Coal-Fired, and Natural-Gas-Fired Generating Units and a Combination of Alternatives.....	xviii
S-1	Individuals Whose Comments are Addressed in this Supplement	4
S-2	Comment Categories.....	6
S-3	Comment Categories in Order of Presentation	7

EXECUTIVE SUMMARY

This environmental impact statement (EIS) presents the results of a U.S. Nuclear Regulatory Commission (NRC) environmental review of an application for a combined construction permit and operating license (combined license or COL) for two new nuclear reactor units at a proposed Turkey Point site in Miami-Dade County, Florida. The U.S. Army Corps of Engineers (USACE) participated in the preparation of the EIS as a cooperating agency and as a member of the review team, which consisted of the NRC staff, its contractor staff, and the USACE staff. The National Park Service (NPS) participated in the environmental review as a cooperating agency by providing special expertise for the areas in and around the adjacent national parks (Biscayne and Everglades National Parks). The NPS does not have a request to take any specific regulatory actions related to the proposed COLs before it. Due to this unique set of circumstances, all impact determinations made in this EIS should not be attributed to NPS, but only to the NRC and USACE (also referred to as the review team). The NPS's participation in connection with this EIS does not imply NPS concurrence.

Background

On June 30, 2009, the Florida Power & Light Company (FPL) submitted an application to the NRC for a combined construction permit and operating license (combined license or COL) for Turkey Point Units 6 and 7.

Upon acceptance of FPL's application, the NRC review team began the environmental review process by publishing a Notice of Intent to prepare an EIS and conduct scoping in the *Federal Register* on June 15, 2010. As part of this environmental review, the review team did the following:

- conducted public scoping meetings on July 15, 2010 in Homestead, Florida
- conducted a site visit of the proposed Units 6 and 7 plant area on the Turkey Point site in June 2010
- conducted visits to alternative sites in July 2010
- reviewed FPL's Environmental Report (ER)
- consulted with Tribal Nations and other agencies such as the U.S. Fish and Wildlife Service (FWS), Advisory Council on Historic Preservation, Florida Fish and Wildlife Conservation Commission, National Marine Fisheries Service, Miami-Dade Office of Historic and Archaeological Resources, and Florida Division of Historical Resources
- conducted the review following guidance set forth in NUREG-1555:
 - “Standard Review Plans for Environmental Reviews for Nuclear Power Plants
 - Supplement 1: Operating License Renewal”
- considered public comments received during the 60-day scoping process from June 15, 2010 to August 16, 2010

- conducted public meetings on the draft EIS on April 22, 2015, in Miami, Florida, and on April 23, 2015, in Homestead, Florida
- considered public comments received during the comment periods for the draft EIS, which extended from March 5 to May 22 and from May 28 to July 17, 2016.

Proposed Action

FPL initiated the proposed Federal action by submitting an application for Turkey Point Units 6 and 7 to the NRC. The NRC's Federal action is issuance of COLs for two Westinghouse AP1000 reactors at the Turkey Point site near Homestead, Florida.

The USACE is a cooperating agency in preparation of this EIS. The USACE's Federal action is its decision of whether to issue, deny, or issue with modifications a Department of Army (DA) permit pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 to authorize certain construction activities potentially affecting waters of the United States.⁽¹⁾

Purpose and Need for Action

The purpose of the proposed NRC action, issuance of the COL, is to provide for additional baseload electric generating capacity for use in the FPL service territory.

The USACE determines both a basic and an overall project purpose pursuant to the Clean Water Act Section 404(b)(1) Guidelines, 33 CFR § 230.10. The basic purpose is to meet the public's need for electric energy. The overall purpose is to meet the public's need for reliable increased electrical baseload generating capacity in FPL's service territory.

Affected Environment

The Turkey Point site is located in southeast Miami-Dade County, Florida, near Homestead (Figure ES-1). Turkey Point Units 6 and 7 would be located on the same site as the existing Turkey Point site, which has five other power plants, including two nuclear power reactors. Turkey Point proposed units would be located 25 mi south of Miami and 4.5 and 8 mi east of Homestead and Florida City, respectively. The primary source of cooling water would be reclaimed wastewater and the alternative source would be saltwater supplied from radial collector wells beneath Biscayne Bay. The ultimate heat sink for Turkey Point Units 6 and 7 would be the atmosphere, using three mechanical draft cooling towers per reactor.

(1) Waters of the United States" is used to include both "waters of the United States" as defined by 33 CFR Part 328 (TN1683) defining the extent of USACE geographic jurisdiction pursuant to Section 404 of the Clean Water Act and "navigable waters of the United States" as defined by 33 CFR Part 329 (TN4770) defining the extent of USACE geographic jurisdiction pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 403) (TN4768).

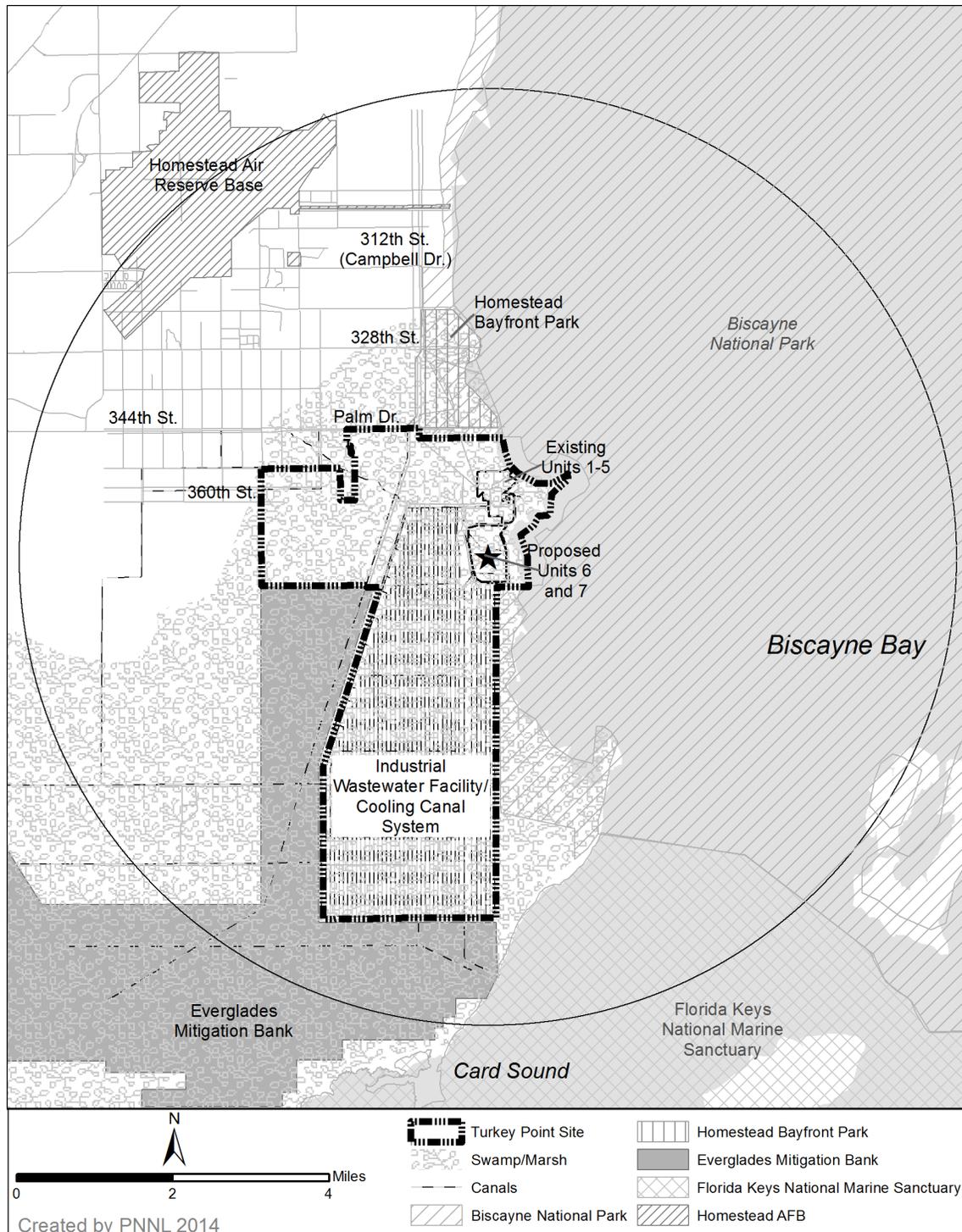


Figure ES-1. The Turkey Point Site and Affected Environment

Evaluation of Environmental Impacts

This EIS evaluates the potential environmental impacts of the construction and operation of the two new nuclear plants proposed for the Turkey Point site related to the following resource areas:

- land use
- air quality
- aquatic ecology
- terrestrial ecology
- surface and groundwater
- waste (radiological and nonradiological)
- human health (radiological and nonradiological)
- socioeconomics
- environmental justice
- cultural resources
- fuel cycle, decommissioning, and transportation

SMALL: Environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource.

MODERATE: Environmental effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource.

LARGE: Environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

The impacts are designated as SMALL, MODERATE, or LARGE. The incremental impacts related to the construction and operations activities requiring NRC authorization are described and characterized, as are the cumulative impacts resulting from the proposed action when the effects are added to, or interact with, other past, present, and reasonably foreseeable future effects on the same resources. A summary of the construction and operation impacts are outlined in Table ES-1. Table ES-2 summarizes the review team's assessment of cumulative impacts. The review team's detailed analysis which supports the impact assessment of the proposed new units can be found in Chapters 4, 5, and 7, respectively.

Table ES-1. Environmental Impact Levels of the Proposed Turkey Point Units 6 and 7

Resource Category	Preconstruction and Construction	Operation
Land Use	MODERATE (NRC authorized construction impact level is SMALL)	MODERATE
Water-Related		
Water Use – Surface Water	SMALL	SMALL
Water Use – Groundwater Use	SMALL	SMALL
Water Quality – Surface Water	SMALL	SMALL
Water Quality – Groundwater	SMALL	SMALL
Ecology		
Terrestrial Ecosystems	MODERATE (NRC authorized construction impact level is SMALL)	MODERATE
Aquatic Ecosystems	SMALL to MODERATE	SMALL
Socioeconomic		
Physical Impacts	SMALL (adverse) to MODERATE (beneficial)	SMALL (adverse) to MODERATE (beneficial)
Demography	SMALL	SMALL
Economic Impacts on the Community	SMALL	SMALL and beneficial
Infrastructure and Community Services	SMALL to MODERATE	SMALL to MODERATE
Environmental Justice	NONE ^(a)	NONE ^(a)
Historic and Cultural Resources	MODERATE (NRC authorized construction impact level is SMALL)	SMALL
Air Quality	SMALL	SMALL
Nonradiological Health	SMALL	SMALL
Nonradiological Waste	SMALL	SMALL
Radiological Health	SMALL	SMALL
Postulated Accidents	n/a	SMALL
Fuel Cycle, Transportation, and Decommissioning	n/a	SMALL

(a) A determination of "NONE" for Environmental Justice analyses does not mean there are no adverse impacts to minority or low-income populations from the proposed project. Instead, an indication of "NONE" means that while there are adverse impacts, those impacts do not affect minority or low-income populations in any disproportionate manner, relative to the general population.

Table ES-2. Cumulative Impacts on Environmental Resources, Including the Impacts of Proposed Turkey Point Units 6 and 7

Resource Category	Impact Level
Land Use	MODERATE
Water-Related	
Water Use – Surface Water	SMALL
Water Use – Groundwater Use	SMALL
Water Quality – Surface Water	MODERATE
Water Quality – Groundwater	SMALL
Ecology	
Terrestrial Ecosystems	MODERATE to LARGE
Aquatic Ecosystems	MODERATE
Socioeconomic	
Physical Impacts	SMALL (adverse) to MODERATE (beneficial)
Demography	SMALL
Economic Impacts on the Community	SMALL and beneficial
Infrastructure and Community Services	SMALL to MODERATE
Environmental Justice	NONE ^(a)
Historic and Cultural Resources	MODERATE
Air Quality	SMALL to MODERATE for criteria pollutants and MODERATE for GHGs
Nonradiological Health	SMALL
Nonradiological Waste	SMALL
Radiological Health	SMALL
Postulated Accidents	SMALL
Fuel Cycle, Transportation, and Decommissioning	SMALL

(a) A determination of “NONE” for Environmental Justice analyses does not mean there are no adverse impacts to minority or low-income populations from the proposed project. Instead, an indication of “NONE” means that while there are adverse impacts, those impacts do not affect minority or low-income populations in any disproportionate manner, relative to the general population.

Alternatives

The review team considered the environmental impacts associated with alternatives to issuing a COL for the two new nuclear units proposed by FPL for the Turkey Point site. These alternatives included a no-action alternative (i.e., not issuing the COL) and alternative energy sources, siting locations, and system designs.

The no-action alternative would result in the COL not being granted or the USACE not issuing its permit. Upon such a denial, construction and operation of new units at the Turkey Point site would not occur and the predicted environmental impacts would not take place. If no other facility would be built or strategy implemented to take its place, the benefits of the additional electrical capacity and electricity generation to be provided would also not occur and the need for baseload power would not be met.

Based on the NRC staff’s review of energy alternatives, the NRC staff concluded that, from an environmental perspective, none of the viable alternatives is environmentally preferable to building a new baseload nuclear power generation plant at the Turkey Point site. The NRC staff

eliminated several energy sources (e.g., wind, solar, geothermal, and biomass) from full consideration because they are not currently capable of meeting the needs of this project. None of the viable baseload alternatives (natural gas, coal, or a combination of alternatives) was environmentally preferable to the proposed Turkey Point units.

After comparing the cumulative effects of a new nuclear power plant at the proposed site against those at the alternative sites, the NRC staff concluded that none of the alternative sites would be environmentally preferable to the proposed site for building and operating a new nuclear power plant (Table ES-3). The four alternative sites selected were as follows (Figure ES-2):

- Glades
- Martin
- Okeechobee 2
- St. Lucie.

Table ES-3. Comparison of Cumulative Impacts at the Turkey Point and Alternative Sites

Resource Category	Turkey Point Site^(a)	Glades^(b)	Martin^(b)	Okeechobee 2^(b)	St. Lucie^(b)
Land Use	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE
Water-Related					
Surface-water use	SMALL	MODERATE	MODERATE	MODERATE	SMALL
Groundwater use	SMALL	SMALL	SMALL	SMALL	SMALL
Surface-water quality	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE
Groundwater quality	SMALL	SMALL	SMALL	SMALL	SMALL
Ecology					
Terrestrial and wetland ecosystems	MODERATE to LARGE	MODERATE	MODERATE	MODERATE	MODERATE
Aquatic ecosystems	MODERATE	MODERATE	MODERATE	MODERATE	SMALL to MODERATE
Socioeconomics					
Physical impacts	SMALL adverse except for MODERATE beneficial impacts on road quality	MODERATE adverse to SMALL beneficial impacts on road quality	MODERATE adverse to MODERATE beneficial impacts on road quality	MODERATE adverse to SMALL beneficial impacts on road quality	LARGE adverse to MODERATE beneficial impacts on road quality
Demography	SMALL	SMALL	SMALL	SMALL	SMALL, except for LARGE residential displacement impacts
Economic impacts on the community	SMALL and beneficial	SMALL and beneficial, except for LARGE and beneficial property tax revenues for Glades County and School District	SMALL and beneficial, except for MODERATE and beneficial property tax revenues for Martin County and School District	SMALL and beneficial, except for LARGE and beneficial property tax revenues for Okeechobee County and School District	SMALL and beneficial

Table ES-3. (contd)

Resource Category	Turkey Point Site^(a)	Glades^(b)	Martin^(b)	Okeechobee 2^(b)	St. Lucie^(b)
Infrastructure and community services	SMALL except for MODERATE adverse impacts on traffic	SMALL except for MODERATE adverse impacts on traffic	SMALL except for MODERATE adverse impacts on traffic	SMALL except for MODERATE adverse impacts on traffic	SMALL except for MODERATE adverse impacts on traffic
Environmental Justice	None ^(c)				
Historic and Cultural Resources	MODERATE	MODERATE	SMALL	MODERATE	SMALL
Air Quality					
Criteria pollutants	SMALL to MODERATE	SMALL	SMALL to MODERATE	SMALL to MODERATE	SMALL to MODERATE
Greenhouse gas emissions	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE
Nonradiological Health	SMALL	SMALL	SMALL	SMALL	SMALL
Radiological Health	SMALL	SMALL	SMALL	SMALL	SMALL
Postulated Accidents	SMALL	SMALL	SMALL	SMALL	SMALL

(a) Cumulative impact determinations taken from EIS Table 7-3.

(b) Cumulative impact determinations taken from EIS Table 9-28.

(c) A determination of "NONE" for Environmental Justice analyses does not mean there are no adverse impacts on minority or low-income populations from the proposed project. Instead, an indication of "NONE" means that while there are adverse impacts, those impacts do not affect minority or low-income populations in any disproportionate manner, relative to the general population.

Table ES-3 provides a summary of the cumulative impacts for the proposed and alternative sites. The NRC staff concluded that all of the sites were generally comparable, and it would be difficult to state that one site is preferable to another from an environmental perspective. In such a case, the proposed site prevails because none of the alternatives is environmentally preferable to the proposed site.

Table ES-4 provides a summary of the EIS-derived impacts for a new nuclear power plant in comparison with the energy alternatives. The NRC staff concluded that none of the viable energy alternatives is preferable to construction of a new baseload nuclear power-generating plant located within FPL's region of interest.

The NRC staff considered various alternative systems designs, including seven alternative heat-dissipation systems and multiple alternative intake, discharge, and water-supply systems. The review team identified no alternatives that were environmentally preferable to the proposed Turkey Point Units 6 and 7 systems design.

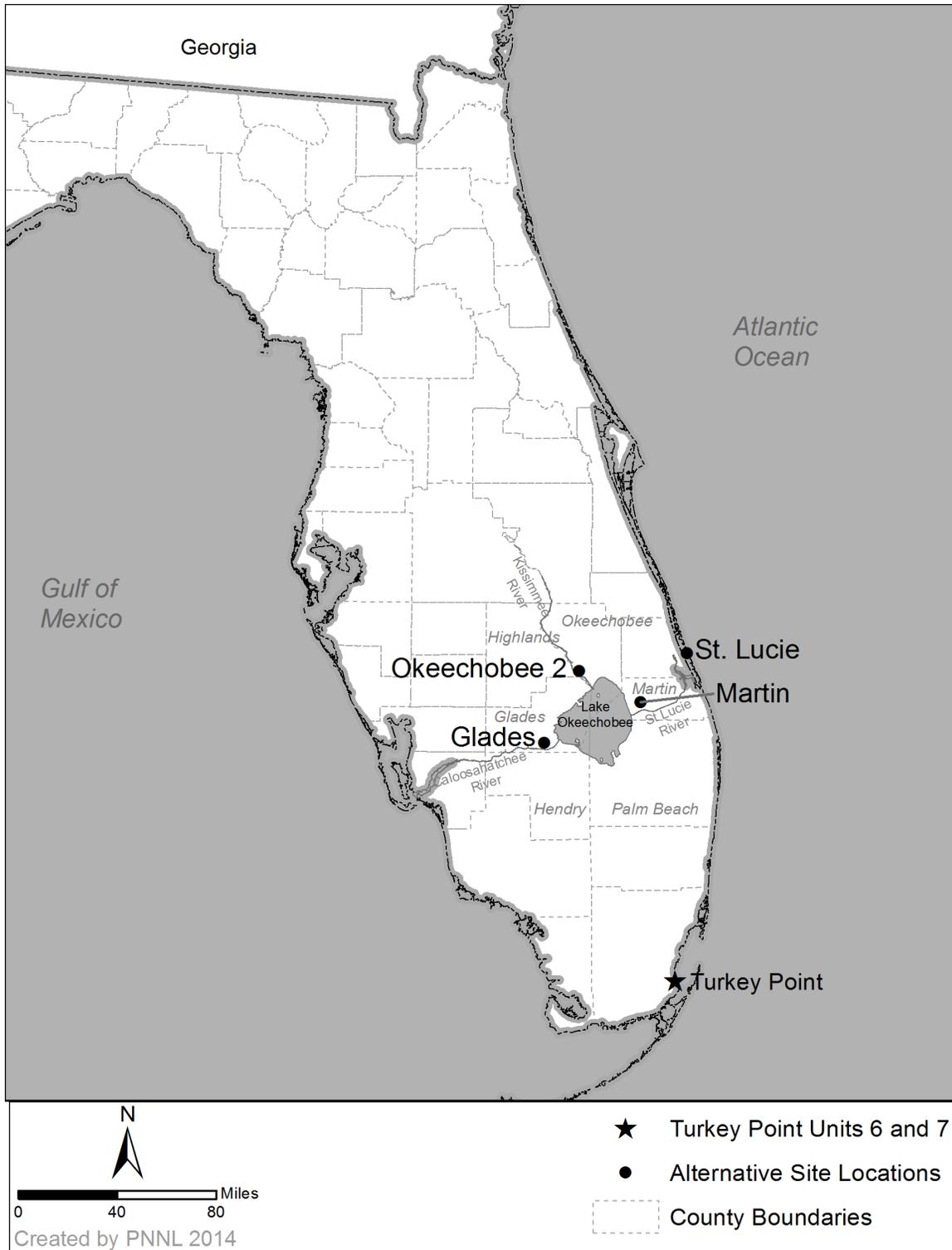


Figure ES-2. Location of Sites Considered as Alternatives to the Turkey Point Site

Table ES-4. Summary of Environmental Impacts^(a) of Construction and Operation of New Nuclear, Coal-Fired, and Natural-Gas–Fired Generating Units and a Combination of Alternatives

Impact Category	Nuclear	Coal ^(b)	Natural Gas ^(b)	Combination of Alternatives ^(b)
Land Use	MODERATE	MODERATE	MODERATE	MODERATE
Air Quality	SMALL	MODERATE	SMALL to MODERATE	SMALL to MODERATE
Water Use and Quality	SMALL	SMALL	SMALL	SMALL
Ecology	MODERATE	MODERATE	MODERATE	MODERATE
Waste Management	SMALL	MODERATE	SMALL	SMALL
Socioeconomics	MODERATE	MODERATE	MODERATE	MODERATE
	Beneficial to MODERATE	Beneficial to MODERATE	Beneficial to SMALL	Beneficial to MODERATE
	Adverse	Adverse	Adverse	Adverse
Human Health	SMALL	SMALL	SMALL	SMALL
Historic and Cultural Resources	MODERATE	MODERATE	MODERATE	MODERATE
Environmental Justice	NONE ^(c)	NONE ^(c)	NONE ^(c)	NONE ^(c)

(a) Impact levels for all alternatives are for construction and operation but do not reflect cumulative impacts. Thus, the nuclear impacts identified here may differ from those used to compare the proposed site to the alternative sites, which reflect cumulative impacts.

(b) Impacts taken from EIS Table 9-4. These conclusions for energy alternatives should be compared to NRC-authorized activities reflected in Chapters 4, 5, and Sections 6.1, and 6.2.

(c) A determination of “NONE” for Environmental Justice analyses does not mean there are no adverse impacts to minority or low-income populations from the proposed project. Instead, an indication of “NONE” means that while there are adverse impacts, those impacts do not affect minority or low-income populations in any disproportionate manner, relative to the general population.

Benefits and Costs

The NRC staff compiled and compared the pertinent analytical conclusions reached in the EIS. It gathered all of the expected impacts from building and operating proposed Turkey Point Units 6 and 7 and aggregated them into two final categories: (1) expected environmental costs and (2) expected benefits to be derived from approval of the proposed action. Although the analysis in Section 10.6 is conceptually similar to a purely economic benefit-cost analysis, which determines the net present dollar value of a given project, the purpose of the section is to identify potential societal benefits of the proposed activities and compare them to the potential internal (i.e., private) and external (i.e., societal) costs of the proposed activities. In general, the purpose is to inform the COL process by gathering and reviewing information that demonstrates the likelihood that the benefits of the proposed activities outweigh the aggregate costs.

On the basis of the assessments in this EIS, the building and operation of proposed Turkey Point Units 6 and 7, with mitigation measures identified by the review team, would accrue benefits that most likely would outweigh the economic, environmental, and social costs. For the NRC-proposed action (i.e., NRC-authorized construction and operation), the accrued benefits

would also outweigh the costs of preconstruction, construction, and operation of proposed Turkey Point Units 6 and 7.

Public Involvement

A 60-day scoping period was held from June 15, 2010, to August 16, 2010. On July 15, 2010, the NRC held two public scoping meetings in Homestead, Florida. The review team received many oral comments during the public meetings and 32 e-mails and 10 letters throughout the rest of the scoping period on numerous topics including energy alternatives, terrestrial ecology, ground and surface water, and socioeconomics. The review team's response to the in-scope public comments can be found in Appendix D. The Scoping Summary Report (Agencywide Documents Access and Management System (ADAMS) Accession No. ML103130609) contains all of the comments, even those considered out-of-scope (e.g., security, safety issues).

During the initial 75-day comment period on the draft EIS, which began on March 6, 2015, the review team held public meetings in Miami, Florida, on April 22, 2015, and in Homestead, Florida, on April 23, 2015. During the course of the comment period, the NRC received requests from members of the public, a Tribal government, and Federal agencies to extend the comment period. In response to these requests, the NRC reopened the comment period on the draft EIS on May 28, 2015, until July 17, 2015, allowing additional time for public comments. In total, approximately 68 people provided oral comments at the public meetings held in April, and the NRC received approximately 11,300 pieces of correspondence during the original and reopened comment period.

Recommendation

The NRC's recommendation to the Commission related to the environmental aspects of the proposed action is that the COL should be issued.

This recommendation is based on the following:

- the application, including the ER, submitted by FPL
- consultation with Federal, State, Tribes, and local agencies
- site audits and alternative sites audits
- consideration of public comments received during the environmental review
- the review team's independent review and assessment summarized in this EIS.

The NRC's determination is independent of the USACE's determination of whether to issue, deny, or issue with modifications the DA permit application for the Turkey Point Units 6 and 7. The USACE will conclude its Clean Water Act Section 404(b)(1) Guidelines and public interest analyses in its Record of Decision.

INTRODUCTION

This document is a supplement to NUREG-2176, “Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Nuclear Plant Units 6 and 7,” Final Report (EIS), dated October 2016. NUREG-2176 documents the U.S. Nuclear Regulatory Commission (NRC) staff review of the Florida Power & Light Company (FPL) application for combined construction permits and operating licenses (COLs) for proposed Units 6 and 7 at the Turkey Point site, located in Miami-Dade County, Florida. The U.S. Army Corps of Engineers (USACE), Jacksonville District, and the National Park Service (NPS) cooperated with the NRC in preparing the EIS. The NPS participated in the environmental review as a cooperating agency by providing special expertise for the areas in and around the adjacent national parks (Biscayne and Everglades National Parks). The NPS’s participation in the environmental review does not imply NPS concurrence in the final EIS or its conclusions. All impact determinations made in the EIS should not be attributed to the NPS, but only the NRC and USACE, also referred to as the review team. This supplement to the final EIS considers and responds to 59 comment letters that were inadvertently not included in the final EIS.

The NRC issued NUREG-2176 in draft form in February 2015. On March 5, 2015, the NRC published a *Federal Register* notice (FRN) to announce the availability of the draft EIS and open a 75-day comment period, which began March 6, 2015 (80 FR 12172). The FRN afforded members of the public an opportunity to comment on the results of the environmental review documented in the draft EIS. The draft EIS public comment period closed on May 22, 2015, but the NRC reopened it to allow more time for members of the public to develop and submit comments (80 FR 30501). The reopened comment period closed on July 17, 2015. In Appendix E to the final EIS, the NRC staff identified and responded to comments received on the draft EIS. After publication of the final EIS on October 28, 2016, however, the NRC discovered 59 comment letters that were received before the draft EIS comment period closed but which were inadvertently not included in Appendix E to the final EIS.

The NRC staff has determined that none of the 59 comment letters provides new and significant information regarding the project or its environmental impacts. Accordingly, Title 10 of the Code of Federal Regulations 51.92(a) does not require supplementation of the final EIS. Nonetheless, the NRC staff is of the opinion that issuance of a supplement under the unique circumstances present here – primarily the length of the document due to the repetition of existing text from the final EIS for clarity and readability – will enhance the transparency of the NRC process for implementing the National Environmental Policy Act of 1969, as amended (NEPA), in regard to the action proposed in the FPL application, and will further the purposes of NEPA. Therefore, the NRC staff has prepared this supplement in accordance with 10 CFR 51.92(c).

The final EIS summarizes the results of the review team’s environmental analysis of the FPL COL application for compliance with the requirements of 10 CFR Part 51. On the basis of the information contained in the final EIS (NUREG-2176) and this supplement, the review team finds that the comment letters not included in the final EIS did not provide information that would change the analysis in the final EIS or the NRC staff’s recommendation to the Commission that the COLs be issued as proposed. This recommendation is based on (1) the application,

including the Environmental Report (ER), submitted by FPL; (2) consultation with Federal, State, Tribal, and local agencies; (3) the review team's independent review; (4) the consideration of public comments received on the environmental review; and (5) the assessments summarized in the EIS and this supplement, including the potential mitigation measures identified in the ER and the EIS.

BACKGROUND

By letter dated June 30, 2009 (FPL 2009-TN1229), as supplemented by a letter dated August 7, 2009 (FPL 2009-TN1230), FPL applied to NRC for two COLs for the proposed Turkey Point Units 6 and 7. The NRC and USACE review team's evaluation of the environmental impacts of the proposed action is based on the October 29, 2014, revision of the COL application (FPL 2014-TN4102), including the Environmental Report (ER) (FPL 2014-TN4058), responses to requests for additional information, and supplemental information. Documents supporting the review team's evaluation are listed as references where appropriate. The site proposed by FPL for the two new nuclear units is the Turkey Point site in southeastern Miami-Dade County, Florida. The Turkey Point site is an approximately 9,460 ac site that includes five existing power plants. Units 1 and 2 have been operated as natural-gas/oil steam generating units. Unit 2 has been converted to operate in synchronous condenser mode. Unit 1 will be converted to operate in synchronous condenser mode in late 2016 (FPL 2016-TN4579). In the synchronous condenser mode, the generators help stabilize and optimize grid performance but do not generate power. Units 3 and 4 are nuclear pressurized water reactors, and Unit 5 is a natural-gas combined-cycle steam-generating unit. The proposed plant area is south of Turkey Point Units 3 and 4 on approximately 218 ac of the Turkey Point site property (FPL 2014-TN4058). The proposed Turkey Point Units 6 and 7 would be owned by FPL (2014-TN4058). With the exception of the transmission systems needed to route power from the proposed units and the pipelines needed to bring reclaimed water to the Turkey Point site, all of the construction and operation related to proposed Turkey Point Units 6 and 7 would be completely within the confines of the Turkey Point site (FPL 2014-TN4058).

The granting of a COL is Commission approval of the construction and operation of a nuclear power facility. NRC regulations related to COLs are found primarily in 10 CFR Part 52, Subpart C. Section 102 of NEPA (42 U.S.C. § 4321 et seq.) requires the preparation of an EIS for a major Federal action that significantly affects the quality of the human environment. The NRC has implemented Section 102 of NEPA in 10 CFR Part 51. Further, in 10 CFR 51.20, the NRC has determined that the issuance of a COL under 10 CFR Part 52 is an action that requires an EIS. As stated above, this supplement has been prepared in accordance with 10 CFR 51.92(c) because the staff is of the opinion that preparation of a supplement under the unique circumstances present here will further the purposes of NEPA.

OVERVIEW

The NRC and the U.S. Army Corps of Engineers (USACE) (together referred to as the “review team”) solicited comments from the public on the draft EIS. As part of the process to solicit public comments on the draft EIS, the review team:

- placed a copy of the draft EIS at the Homestead Branch Library in Homestead, Florida and the South Dade Regional Library in Miami, Florida;
- made the draft EIS available in the NRC’s Public Document Room in Rockville, Maryland;
- placed a copy of the draft EIS on the NRC website at <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr2176/>.
- provided a copy of the draft EIS to the Turkey Point Nuclear Plant environmental review mailing list and any member of the public who requested one;
- sent copies of the draft EIS to certain Federal, State, Tribal, and local agencies;
- published a request for comment on the draft EIS in the *Federal Register* on March 5, 2015 (80 FR 12043);
- filed the draft EIS with the U.S. Environmental Protection Agency; and
- held three public meetings, one on Wednesday, April 22, 2015 in Miami, Florida, and two on Thursday, April 23, 2015 in Homestead, Florida.

All comment letters, regulations.gov posts, e-mail messages, and transcripts of the public meetings are available in the NRC’s Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible at <http://www.nrc.gov/reading-rm.html>. Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS should contact the NRC’s Public Document Room reference staff at 1-800-397-4209 or 301-415-4737. The ADAMS accession numbers for the comments received on the draft EIS, not including the 59 comment letters not included in the final EIS, are provided in Tables E-1 and E-4 through E-14 of NUREG-2176, Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Nuclear Plant Units 6 and 7, Volume 4-Appendix E. The ADAMS accession number for NUREG-2176 is ML16335A219. The ADAMS accession numbers for the 59 comment letters addressed in this supplement are provided in this supplement in the Disposition of Comments section. Table S-1 provides a list of commenter names and a unique identifier that is used throughout this supplement. Table S-2 provides an alphabetical index to the comment categories and lists the commenters and the specific comment identification number(s) that were included in each category.

DISPOSITION OF COMMENTS

Each set of comments from a given commenter was given a unique correspondence identifier, allowing each set of comments from a commenter to be traced back to the transcript, letter, or e-mail in which the comments were submitted. The review team considered and dispositioned

all comments received, assigned them to a specific subject area, and grouped similar comments together. Finally, responses were prepared for each comment or group of comments.

Some comments addressed topics and issues that are not part of the environmental review for this proposed action. These comments included questions about NRC's safety review, general statements of support or opposition to nuclear power, and comments on the NRC regulatory process in general. These comments are included, but detailed responses to such comments are not provided because they addressed issues that do not directly relate to the environmental effects of this proposed action and are, thus, outside the scope of the NEPA (42 U.S.C. § 4321 et seq.) review of this proposed action. Other comments, however, specifically addressed the scope of the environmental review, analyses, and issues set forth in the draft EIS.

Table S-1. Individuals Whose Comments are Addressed in this Supplement

Commenter	Affiliation (if stated)	Comment Source and ADAMS Accession #	Correspondence ID
Anderson, Ingrid		reg.gov (ML15294A345)	0737
Anonymous, A		Letter (ML15329A301)	0790
Anonymous, Anonymous		reg.gov (ML15293A409)	0751
Anonymous, Anonymous		reg.gov (ML15296A546)	0760
Anonymous, Anonymous		reg.gov (ML15296A548)	0762
Anonymous, Anonymous		reg.gov (ML15299A118)	0763
Anonymous, Anonymous		reg.gov (ML15299A120)	0764
Anonymous, Anonymous		reg.gov (ML15299A123)	0768
Anonymous, Gerardo		reg.gov (ML15299A178)	0777
Anonymous, Jennifer		reg.gov (ML15299A236)	0776
Anonymous, Michael		reg.gov (ML15294A355)	0743
Bazzone, Barbara		reg.gov (ML15296A547)	0761
Behar, Moises		reg.gov (ML15299A177)	0791
Blake, Frances		reg.gov (ML15294A350)	0788
Buck, Eric		reg.gov (ML15299A173)	0773
Buttles, Kate		reg.gov (ML15294A349)	0739
Carver, Jason		reg.gov (ML15293A410)	0752
Coates, Thomas		Letter (ML15329A302)	0790
Cooper-Lai, Christine		reg.gov (ML15294A391)	0747
Cortes, Alexandra Lange		reg.gov (ML15299A179)	0778
Cruz, Sarah		reg.gov (ML15293A415)	0784
Cruz, Sarah		reg.gov (ML15293A415)	0788
DeNunzio, Karen		reg.gov (ML15299A180)	0779
Deresz, Don		reg.gov (ML15294A377)	0782
Devlin, Marybeth		reg.gov (ML16326A174)	0785
Dia, Maureen		reg.gov (ML15299A124)	0769

Table S-1. (contd)

Commenter	Affiliation (if stated)	Comment Source and ADAMS Accession #	Correspondence ID
Eckert, Shelley		reg.gov (ML15294A346)	0786
Eckert, Shelley		reg.gov (ML15294A346)	0788
Ejem, Charlotte		reg.gov (ML15299A125)	0770
Falcone, Alex		reg.gov (ML15299A122)	0767
Fifield, Virginia		reg.gov (ML15294A347)	0738
Fisher, Norma and Woody		reg.gov (ML15294A353)	0741
Foley, Michael		reg.gov (ML15299A175)	0775
Gale, Michelle		reg.gov (ML15293A416)	0757
Galivan, Mary		reg.gov (ML15296A544)	0759
Gant, Katie		reg.gov (ML15299A174)	0774
Harlem, Peter		reg.gov (ML15294A356)	0744
Higgins, Eileen		reg.gov (ML15299A181)	0780
Johnson, Randy		reg.gov (ML15293A417)	0758
Karpa, Doug	Turtle Island Restoration Network	reg.gov (ML15294A359)	0746
Kendall, Samuel		reg.gov (ML15299A126)	0771
Kraskin, Madeline		reg.gov (ML15296A545)	0788
Kraskin, Madeline		reg.gov (ML15296A545)	0789
Malagodi, Stephen		reg.gov (ML15294A344)	0736
Meehan, Gene		Letter (ML15329A300)	0790
Mennel-Bell, Mari		reg.gov (ML15299A127)	0772
Merrill, Robin		reg.gov (ML15293A414)	0756
Murray, Keith		reg.gov (ML15294A351)	0740
Newman, Joyce Clark		reg.gov (ML15294A358)	0745
Northrop, Emily		reg.gov (ML15293A413)	0755
Peterson, Christina		reg.gov (ML15294A348)	0787
Peterson, Christina		reg.gov (ML15294A348)	0788
Polini, Bianca		reg.gov (ML15299A194)	0765
Romeo, Sean		reg.gov (ML15299A121)	0766
Ross, Kim		reg.gov (ML15295A098)	0749
Sandberg, Harlan		reg.gov (ML15293A408)	0750
Shobin, Evelyn		reg.gov (ML15293A411)	0753
Southern, Tom		reg.gov (ML15294A354)	0742
Steiner, Todd	Turtle Island Restoration Network	reg.gov (ML15294A359)	0746
Taylor, Wallace	Sierra Club Nuclear Free Campaign	reg.gov (ML15294A378)	0783

Table S-1. (contd)

Commenter	Affiliation (if stated)	Comment Source and ADAMS Accession #	Correspondence ID
Terrone, Roger		reg.gov (ML15294A376)	0781
Webb, David		reg.gov (ML15294A392)	0748
Webb, David		reg.gov (ML15294A392)	0788
Westberg, Jane		reg.gov (ML15293A412)	0754

Table S-2. Comment Categories

S.1	Comments Concerning Process – NEPA
S.2	Comments Concerning Land Use – Site and Vicinity
S.3	Comments Concerning Land Use – Transmission Lines
S.4	Comments Concerning Geology
S.5	Comments Concerning Hydrology – Surface Water
S.6	Comments Concerning Hydrology – Groundwater
S.7	Comments Concerning Ecology – Terrestrial
S.8	Comments Concerning Ecology – Aquatic
S.9	Comments Concerning Socioeconomics
S.10	Comments Concerning Meteorology and Air Quality
S.11	Comments Concerning Health – Nonradiological
S.12	Comments Concerning Health – Radiological
S.13	Comments Concerning Accidents – Severe
S.14	Comments Concerning the Uranium Fuel Cycle
S.15	Comments Concerning Transportation
S.16	Comments Concerning the Need for Power
S.17	Comments Concerning Alternatives – No-Action
S.18	Comments Concerning Alternatives – Energy
S.19	Comments Concerning Alternatives – System Design
S.20	Comments Concerning Alternatives – Sites
S.21	Comments Concerning Benefit-Cost Balance
S.22	Comments Concerning Climate Change
S.23	General Comments in Opposition to the Licensing Action
S.24	General Comments in Opposition to Nuclear Power
S.25	General Comments in Opposition to the Existing Plant or the Applicant
S.26	Comments Concerning Issues Outside Scope – Miscellaneous
S.27	Comments Concerning Issues Outside Scope – NRC Oversight
S.28	Comments Concerning Issues Outside Scope – Safety

Table S-3 is a list of the comment categories included in this supplement in the order in which they appear. This section presents the comments and responses organized by topic category. If the comments result in a change in the text of the draft EIS, the corresponding response refers the reader to the appropriate section of the EIS where the change was made. In the case

of this supplement, no changes to the final EIS were warranted. Additionally, for purposes of this supplement, DEIS and FEIS are abbreviations for draft EIS and final EIS.

All of the comments addressed in this supplement were similar to other comments received on the draft EIS. Accordingly, the majority of the responses to the comment letters not included in the final EIS relied wholly or in part on existing responses in Appendix E of the final EIS. Some responses, however, also relied on the analysis in the main body of the final EIS. As a result, the staff was able to tier from the information in the final EIS. As a general matter, each comment addressed in this supplement falls into one of four categories:

1. The comment is addressed by a response or combination of responses already documented in EIS Appendix E;
2. The comment is addressed by a response or combination of responses that are already documented in EIS Appendix E, but the NRC staff included additional text for clarity;
3. The comment is partially addressed by a response or combination of responses that are already documented in EIS Appendix E, but includes additional information not explicitly addressed in the existing responses, in which case the NRC staff has included additional text drawn from the analysis documented in the final EIS to respond to the additional information in the comment; or
4. The comment is not explicitly addressed in the existing responses in Appendix E, and the response is drawn from an existing response in Appendix E or the analysis documented in the final EIS or both.

Each response includes an introductory statement that identifies the category above into which the comment being addressed falls, where the existing response or responses can be found in Appendix E or the section of the final EIS from which the staff drew the response, and, in some cases, if minor changes (e.g., editorial) were made to the original response in Appendix E. For ease of reading, all original responses taken directly from Appendix E are indented and printed in italic font, as they were presented in Appendix E. A new response or text added to an existing response is printed in bold, standard (non-italic) font.

Table S-3. Comment Categories in Order of Presentation

Comment Category	Commenter (Comment ID)
Accidents-Severe	<ul style="list-style-type: none"> • Anonymous, Anonymous (0760-2) (0760-5) • Bazzone, Barbara (0761-3) • Devlin, Marybeth (0785-4) • Dia, Maureen (0769-1) • Fifield, Virginia (0738-2) • Harlem, Peter (0744-3) • Kendall, Samuel (0771-3) • Newman, Joyce Clark (0745-1) • Ross, Kim (0749-3)

Table S-3. (contd)

Comment Category	Commenter (Comment ID)
Alternatives-Energy	<ul style="list-style-type: none"> • Anonymous, A (0790-5) • Anonymous, Gerardo (0777-2) • Anonymous, Jennifer (0776-1) • Behar, Moises (0791-3) • Buck, Eric (0773-1) • Coates, Thomas (0790-5) • Cortes, Alexandra Lange (0778-7) • Devlin, Marybeth (0785-13) (0785-14) (0785-15) • Eckert, Shelley (0786-5) • Falcone, Alex (0767-4) • Fisher, Norma and Woody (0741-2) • Gale, Michelle (0757-3) • Meehan, Gene (0790-5) • Mennel-Bell, Mari (0772-2) • Merrill, Robin (0756-4) • Polini, Bianca (0765-5) • Romeo, Sean (0766-2) • Taylor, Wallace (0783-2-3) (0783-2-7) (0783-2-8) (0783-2-9) (0783-2-10) (0783-3-1) (0783-3-2) • Westberg, Jane (0754-4)
Alternatives-No-Action	<ul style="list-style-type: none"> • Devlin, Marybeth (0785-16)
Alternatives-Sites	<ul style="list-style-type: none"> • Blake, Frances (0788-2) • Cruz, Sarah (0788-2) • DeNunzio, Karen (0779-2) • Devlin, Marybeth (0785-11) • Eckert, Shelley (0788-2) • Kraskin, Madeline (0788-2) • Peterson, Christina (0788-2) • Sandberg, Harlan (0750-2) • Webb, David (0788-2)
Alternatives-System Design	<ul style="list-style-type: none"> • Buck, Eric (0773-2)
Benefit-Cost Balance	<ul style="list-style-type: none"> • Anonymous, Anonymous (0768-4) • Terrone, Roger (0781-2)
Climate Change	<ul style="list-style-type: none"> • Northrop, Emily (0755-1)
Ecology-Aquatic	<ul style="list-style-type: none"> • Carver, Jason (0752-1)
Ecology-Terrestrial	<ul style="list-style-type: none"> • Blake, Frances (0788-9) • Cruz, Sarah (0788-9) • Eckert, Shelley (0788-9) • Karpa, Doug (0746-1) • Kraskin, Madeline (0788-9) • Peterson, Christina (0788-9) • Sandberg, Harlan (0750-5) • Steiner, Todd (0746-1) • Webb, David (0788-9)
Geology	<ul style="list-style-type: none"> • Taylor, Wallace (0783-3-4)
Health-Nonradiological	<ul style="list-style-type: none"> • Anonymous, Anonymous (0751-3) • Blake, Frances (0788-4)

Table S-3. (contd)

Comment Category	Commenter (Comment ID)
Health-Radiological	<ul style="list-style-type: none"> • Cruz, Sarah (0788-4) • Eckert, Shelley (0788-4) • Gant, Katie (0774-2) • Kraskin, Madeline (0788-4) • Peterson, Christina (0788-4) • Webb, David (0788-4) • Anonymous, Anonymous (0760-4) (0764-1) (0768-3) (0768-5) • Devlin, Marybeth (0785-3)
Hydrology-Groundwater	<ul style="list-style-type: none"> • Devlin, Marybeth (0785-8) • Eckert, Shelley (0786-4) • Polini, Bianca (0765-4) • Taylor, Wallace (0783-3-5) • Webb, David (0748-2)
Hydrology-Surface Water	<ul style="list-style-type: none"> • Anonymous, A (0790-3) • Anonymous, Anonymous (0751-2) • Blake, Frances (0788-3) (0788-6) • Coates, Thomas (0790-3) • Cortes, Alexandra Lange (0778-2) (0778-3) • Cruz, Sarah (0788-3) (0788-6) • Devlin, Marybeth (0785-6) (0785-7) • Eckert, Shelley (0788-3) (0788-6) • Falcone, Alex (0767-3) • Harlem, Peter (0744-1) (0744-2) • Higgins, Eileen (0780-1) • Kendall, Samuel (0771-2) • Kraskin, Madeline (0788-3) (0788-6) • Meehan, Gene (0790-3) • Newman, Joyce Clark (0745-2) (0745-3) • Peterson, Christina (0788-3) (0788-6) • Polini, Bianca (0765-3) (0765-7) • Ross, Kim (0749-2) • Sandberg, Harlan (0750-3) • Webb, David (0788-3) (0788-6)
Land Use-Site and Vicinity	<ul style="list-style-type: none"> • Bazzone, Barbara (0761-2)
Land Use-Transmission Lines	<ul style="list-style-type: none"> • Anonymous, Gerardo (0777-1) (0777-4) (0777-5) • Bazzone, Barbara (0761-4) • Behar, Moises (0791-2) • Blake, Frances (0788-10) (0788-11) • Cortes, Alexandra Lange (0778-4) • Cruz, Sarah (0788-10) (0788-11) • DeNunzio, Karen (0779-3) • Deresz, Don (0782-2) • Devlin, Marybeth (0785-10) • Eckert, Shelley (0788-10) (0788-11) • Gant, Katie (0774-1) (0774-3) (0774-5) • Higgins, Eileen (0780-2) (0780-3) • Kraskin, Madeline (0788-10) (0788-11) • Merrill, Robin (0756-3)

Table S-3. (contd)

Comment Category	Commenter (Comment ID)
	<ul style="list-style-type: none"> • Peterson, Christina (0788-10) (0788-11) • Sandberg, Harlan (0750-4) • Webb, David (0788-10) (0788-11)
Meteorology and Air Quality	<ul style="list-style-type: none"> • Devlin, Marybeth (0785-9) • Harlem, Peter (0744-4)
Need for Power	<ul style="list-style-type: none"> • Anonymous, Anonymous (0768-1) • Foley, Michael (0775-1) • Kendall, Samuel (0771-4)
Opposition-Licensing Action	<ul style="list-style-type: none"> • Anderson, Ingrid (0737-1) • Anonymous, A (0790-1) (0790-7) • Anonymous, Anonymous (0751-1) (0760-6) (0763-1) • Anonymous, Jennifer (0776-2) • Anonymous, Michael (0743-2) • Bazzone, Barbara (0761-1) (0761-5) • Behar, Moises (0791-1) • Blake, Frances (0788-1) • Carver, Jason (0752-2) • Coates, Thomas (0790-1) (0790-7) • Cooper-Lai, Christine (0747-1) • Cortes, Alexandra Lange (0778-1) (0778-6) (0778-8) • Cruz, Sarah (0784-1) (0784-2) (0788-1) • DeNunzio, Karen (0779-1) • Deresz, Don (0782-3) • Devlin, Marybeth (0785-1) (0785-17) • Eckert, Shelley (0786-1) (0788-1) • Ejem, Charlotte (0770-2) • Fifield, Virginia (0738-3) • Fisher, Norma and Woody (0741-1) • Gale, Michelle (0757-1) (0757-4) • Galivan, Mary (0759-1) • Gant, Katie (0774-4) • Harlem, Peter (0744-5) • Johnson, Randy (0758-1) • Karpa, Doug (0746-2) • Kendall, Samuel (0771-1) • Kraskin, Madeline (0788-1) (0789-1) • Malagodi, Stephen (0736-1) • Meehan, Gene (0790-1) (0790-7) • Mennel-Bell, Mari (0772-1) • Merrill, Robin (0756-1) • Newman, Joyce Clark (0745-4) • Peterson, Christina (0787-1) (0788-1) • Polini, Bianca (0765-1) (0765-6) • Romeo, Sean (0766-1) • Ross, Kim (0749-1) • Sandberg, Harlan (0750-1) (0750-6) • Shobin, Evelyn (0753-1) • Southern, Tom (0742-1)

Table S-3. (contd)

Comment Category	Commenter (Comment ID)		
Opposition-Nuclear Power	<ul style="list-style-type: none"> • Steiner, Todd (0746-2) • Taylor, Wallace (0783-3-6) • Terrone, Roger (0781-1) (0781-3) • Webb, David (0748-1) (0788-1) • Westberg, Jane (0754-1) (0754-2) 		
	<ul style="list-style-type: none"> • Anonymous, A (0790-2) (0790-4) (0790-8) (0790-9) • Anonymous, Anonymous (0762-1) (0764-2) • Anonymous, Michael (0743-1) • Blake, Frances (0788-8) • Buttles, Kate (0739-1) • Coates, Thomas (0790-2) (0790-4) (0790-8) (0790-9) • Cruz, Sarah (0788-8) • Eckert, Shelley (0786-3) (0788-8) • Ejem, Charlotte (0770-1) • Falcone, Alex (0767-2) • Kraskin, Madeline (0788-8) • Meehan, Gene (0790-2) (0790-4) (0790-8) (0790-9) • Murray, Keith (0740-1) • Peterson, Christina (0788-8) • Taylor, Wallace (0783-1-1) (0783-2-5) (0783-2-11) (0783-2-13) • Webb, David (0788-8) 		
	Opposition-Plant	<ul style="list-style-type: none"> • Cortes, Alexandra Lange (0778-5) • Deresz, Don (0782-1) • Devlin, Marybeth (0785-5) (0785-12) • Gale, Michelle (0757-2) • Merrill, Robin (0756-2) 	
		<ul style="list-style-type: none"> • Taylor, Wallace (0783-2-12) 	
		Outside Scope-Miscellaneous	<ul style="list-style-type: none"> • Anonymous, Gerardo (0777-3)
			Outside Scope-NRC Oversight
		Outside Scope-Safety	
	Process-NEPA Socioeconomics	<ul style="list-style-type: none"> • Anonymous, A (0790-6) • Coates, Thomas (0790-6) • Fifield, Virginia (0738-1) • Meehan, Gene (0790-6) 	
		Transportation	<ul style="list-style-type: none"> • Devlin, Marybeth (0785-2)
			Uranium Fuel Cycle

Table S-3. (contd)

Comment Category	Commenter (Comment ID)
	<ul style="list-style-type: none"> • Eckert, Shelley (0786-2) (0788-7) • Falcone, Alex (0767-1) • Kraskin, Madeline (0788-7) • Peterson, Christina (0788-7) • Polini, Bianca (0765-2) • Ross, Kim (0749-4) • Taylor, Wallace (0783-2-1) (0783-2-2) (0783-2-6) (0783-3-3) • Webb, David (0788-7) • Westberg, Jane (0754-3)

S.1 Comments Concerning Process – NEPA

Comment: Purpose and Need

The alleged purpose and need for this project expressed in § 1.3 of the DEIS is the asserted increased demand for electrical power and the asserted need for additional baseload generation. But the DEIS does not question these assertions and instead simply accepts the assertions made by the utility. This is an abdication of the NRC's duty under NEPA. The agency has a duty under the law to exercise a degree of skepticism in dealing with self-serving statements, especially ones with no supporting data, from the prime beneficiary of the project. Simmons v. U.S. Army Corps of Engineers, 120 F.3d 664 (7th Cir. 1997).

The purpose and need statement is an important part of an EIS. The purpose and need statement "necessarily dictates the range of 'reasonable' alternatives." Carmel-By-The-Sea v. U.S. Dep't. of Transp., 123 F.3d 1142 (9th Cir. 1997). The courts will defer to the agency's statement of purpose and need if that statement is reasonable. A reviewing court must determine whether the agency's definition of the purpose and need is reasonable, whether the agency has discussed in detail the alternatives, and whether the discussion of the alternatives is reasonable, in light of the particular goals and objectives. Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190 (D.C. Cir. 1991). Furthermore:

[A]n agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency's power would accomplish the goals of the agency's action, and the EIS would become a foreordained formality. Nor may an agency frame its goals in terms so unreasonably broad that an infinite number of alternatives would accomplish those goals and the project would collapse under the weight of the possibilities.

Id. at 196.

It is our position that nuclear power is not the energy of the future. Renewable energy and greater energy efficiency will address our energy needs. We have already seen Significant decreases in the demand for energy, indicating that consumers are using energy more efficiently and obtaining it from renewable sources. There must be a discussion of the purpose and need for the Turkey Point licenses in light of these facts. (0783-1-2 [Taylor, Wallace])

Response: This comment is similar to other comments received on the draft EIS on this subject, but is not explicitly addressed in the existing responses in Appendix E. Therefore, the below response is drawn from the analysis documented in EIS Sections 1.3 and 9.2 and Chapter 8.

The NRC staff agrees that the purpose and need for the project, as established by the lead agency for the environmental review, is an important factor in the development of the environmental impact statement. However, the assertion in the comment that the NRC staff accepted the applicant's proposed purpose and need without question is wrong. The staff performed an independent review of the applicant's environmental report, including its proposed purpose and need as required by the regulations at 10 CFR 51.70(b). The staff also reviewed information from other sources, such as the Florida Public Service Commission, before developing the staff's statement of the purpose and need for the project. This approach is consistent with the requirements of NEPA. No changes were made to the EIS as a result of this comment.

S.2 Comments Concerning Land Use – Site and Vicinity

Comment: The Biscayne and Everglades National Parks are put at risk and be forever changed.

There will be negative impacts on human and other animals' environments. (0761-2 [Bazzone, Barbara])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-85. The existing response is reprinted below, but the NRC staff has included additional text for clarity.

The comment suggests that the ecological costs of the proposed action, in combination with the site's proximity to nearby public lands, are so high as to make the site unsuitable for nuclear power. The principal costs and benefits of the proposed action are summarized in Chapter 10 of the EIS. The summary is derived from careful assessment of ecological impacts across the terrestrial and aquatic environmental interfaces affected by the action during construction (Section 4.3) and during operations (Section 5.3). In addition, the cumulative terrestrial and aquatic ecologic impacts of the action are presented in Chapter 7. These impact discussions frame the assessment of overall project benefits and costs that are within the staff's scope to assess. The NRC staff determined that the overall benefits of the proposed action outweigh the expected environmental costs. No changes to the EIS were made as a result of this comment.

The above comment response addresses the possibility of ecological changes to the parks but the conclusions are similar regarding the social value of the parks. The new facilities close to Biscayne National Park would be situated in an area of existing industrial development associated with the existing energy generation facilities on the

Turkey Point site. The transmission lines close to Everglades National Park only pass near the perimeter of the park and follow existing disturbances associated with canals, levees, and past agricultural and mining development.

No changes were made to the EIS as a result of this comment.

S.3 Comments Concerning Land Use – Transmission Lines

Comment: Also, I am adamantly opposed to building new power lines for this. (0756-3 [Merrill, Robin])

Comment: The new power lines will not be built to South Floridas hurricane standards. FPL refused to invest in safer, underground transmission lines. These power lines will be running along US 1 all through Brickell and into Downtown Miami, very populated area. They are an eyesore which can depreciate our properties but even more important they are a threat to our health and well being. (0778-4 [Cortes, Alexandra Lange])

Comment: I am also against the proposed construction of power towers on the US1 corridor, It is 2015 and any decision for any type of power lines should be under ground and not above ground. (0779-3 [DeNunzio, Karen])

Comment: The thought of FPL poles dotting US 1 is unbearable. Haunting images in my head, I cannot understand how the poles would even be a consideration. We are the United States, one of the most advanced countries in the world. In other developed countries this issue is dealt by placing the cables underground. How is it possible that we, in the United States, would be taking a step forward with The Underline project and two steps back with how we deal with unsightly, antiquated, industrial-age ideas? (0791-2 [Behar, Moises])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-97. The existing response is reprinted below.

These comments express concerns regarding the proposed assemblage, capability, and placement of transmission lines to distribute power into Miami-Dade County from proposed Turkey Point Units 6 and 7. The review team considered the environmental impacts of electrical transmission in EIS Sections 4.1.2 and 5.1.2 for land use; 4.6 and 5.6 for historic and cultural impacts; 4.4 and 5.4 for socioeconomics impacts; and 5.8 for nonradiological health impacts. Electrical transmission, its siting and safety are outside the regulatory authority of the NRC and, in Florida, are regulated by the Florida Public Service Commission and appropriate state agencies. No changes were made to the EIS as a result of these comments.

No changes were made to the EIS as a result of this comment.

Comment: I refuse to raise my young family in our home, which is less than 25 meters from the intended path of the transmission lines.

Residential property values along the intended path, if the expansion is approved, would fall drastically. Even though we could not live in our home, we could probably never sell it for anything close to what we have put in to it. Who would choose to put their family at risk by living in a house so close to the transmission lines? When these lines were approved, the impact on residential neighborhoods along the path was not considered. Many people live within a 600 meter distance of the proposed path, which is the area of elevated health risks (Draper et al, 1997). (0774-3 [Gant, Katie])

Response: This comment is similar to other comments addressed in Appendix E of the EIS, but includes additional information not addressed in the existing response in Appendix E. Therefore, the below response is drawn from an existing response at Appendix E page E-313 and the additional text is drawn from the analysis documented in EIS Section 5.8.4.

This comment suggests that construction of the transmission lines for the proposed nuclear reactors would have a negative effect human health and on property values. In Section 5.8.4, the review team evaluated the literature on the chronic effects of electromagnetic fields and found that the scientific evidence regarding the chronic effects of such fields on human health does not conclusively link those fields to adverse health impacts. In Section 4.4.4.3 (Housing), the review team assessed the current literature on the effects of nuclear reactors and transmission lines on property values. The review team concluded that the current literature is inconclusive and that any potential adverse or beneficial impacts would be expected to be small. No changes were made to the EIS in response to this comment.

The comments provided no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of this comment.

Comment: The included powerlines running in the eastern end of Everglades National Park will bring an industrial environment visible for mile, completely incompatible with the purpose of the National Park. (0750-4 [Sandberg, Harlan])

Comment: Unsightly power lines should not spoil the Everglades. (0761-4 [Bazzone, Barbara])

Comment: [Three new sets of power lines will cause] changes to the hydrology of the Shark River Slough (the "crown jewel" of Everglades restoration) due to tower pads and road construction[.] (0788-10 [Blake, Frances] [Cruz, Sarah] [Eckert, Shelley] [Krasin, Madeline] [Peterson, Christina] [Webb, David])

Comment: [A] new, unsightly, industrial landscape -visible for miles -for visitors to ·one of our country;s most unique and popular wilderness areas. (0788-11 [Blake, Frances] [Cruz, Sarah] [Eckert, Shelley] [Krasin, Madeline] [Peterson, Christina] [Webb, David])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-100 but the staff included additional text for clarity. The response is reprinted below.

These comments express concerns regarding the potential effects of the proposed transmission lines to support Turkey Point Units 6 and 7 on ecological resources including the Everglades National Park. Although electrical transmission and its safety and siting are outside the regulatory authority of the NRC, the review team considered the environmental impacts of electrical transmission, which are described in Sections 4.1.2 and 5.1.2 for land use; 4.3.1, 4.3.2, 5.3.1, and 5.3.2 for terrestrial and aquatic resources including the Everglades National Park; and 4.4 and 5.4 for socioeconomic impacts.

Regarding Everglades National Park, the NPS signed a ROD transferring 260 ac of land to FPL in exchange for 360 ac of FPL property within the East Everglades Expansion Area (EEEA)(NPS 2016-TN4532). The ROD incorporates the Conditions of Certification from the Final Order on Certification from the State of Florida Siting Board dated May 19, 2015 (State of Florida 2014-TN3637). As a result of this land exchange, no portion of any proposed power line corridor would fall within Everglades National Park. A description of the land exchange was added to Section 2.2. In addition, the designation of Everglades National Park as a Miami-Dade County designated area of critical environmental concern was added to Section 2.2. The status of the State of Florida site certification process was updated in Sections 1.0 and 2.2.

As discussed above, the FEIS was previously updated based on similar comments received on the draft EIS which expressed concern from impacts to Everglades National Park from transmission lines. This comment does not provide any information in addition to that already considered in the EIS. Therefore, no further changes to the FEIS were made as a result of the comment.

Regarding the status of the State of Florida site certification process, as stated in the final EIS (at page 1-2), on June 30, 2009, FPL submitted a Site Certification Application (SCA) to the State of Florida Department of Environmental Protection for the proposed Turkey Point Units 6 and 7 and ancillary facilities (FPL 2010-TN1231). The SCA process provides a Certification that encompasses all licenses and permits needed for affected Florida State, regional, and local agencies. It also includes any regulatory activity that would be applicable under these agencies' regulations for proposed Turkey Point Units 6 and 7 (FDEP 2013-TN2629). On May 19, 2014, the State of Florida issued final Conditions of Certification to FPL authorizing construction, operation, and maintenance of proposed Turkey Point Units 6 and 7 and associated facilities (State of Florida 2014-TN3637). The final Conditions of Certification issued are binding and subject to the requirements listed in State of Florida 2014-TN3637.

In the final EIS, the NRC staff noted that on April 20, 2016, a Florida court issued an opinion in which it ruled that the Florida Siting Board should have considered whether to require FPL to bury a portion of the transmission lines, and that the record was inadequate to support certain mitigation measures associated with transmission lines in the East Everglades. [State of Florida 2016-TN4781] Although the opinion remanded the Conditions of Certification to the Florida Siting Board for consideration of the possibility of burying a portion of the transmission lines and reconsideration of the specified

mitigation measures, the NRC staff noted that the court's opinion was not yet final as of October 3, 2016. Accordingly, for the purposes of the FEIS evaluation of impacts, the NRC staff considered the transmission line route and conditions reviewed and approved by the Florida Siting Board as the most current information regarding the transmission line and associated potential mitigation measures. The final EIS states that even if the Conditions of Certification are revisited, the NRC staff considers it reasonable to expect that Conditions of Certification similar to or no less effective than those originally issued will be in place before construction and operation of the proposed units begins.

On November 22, 2016, the Florida court denied an FPL motion for rehearing, and the April 20, 2016 decision is now final. Even if the Conditions of Certification are revisited on remand, it remains reasonable to expect that Conditions of Certification similar to or no less effective than those originally issued will be in place before construction and operation of the proposed units begins, as the NRC staff explained in the final EIS. Moreover, even in light of the remand, for the purposes of the FEIS evaluation of impacts, the transmission line route and conditions reviewed and approved by the Florida Siting Board remain the most current information regarding the transmission line and associated potential mitigation measures. In view of the foregoing, the NRC staff concludes that the November 2016 Florida court decision does not affect the staff analysis or conclusions set forth in the final EIS.

These comments did not provide any information in addition to that which the staff considered in its analysis in the EIS. No changes were made to the EIS as a result of these comments.

Comment: I live along the intended path of the high voltage power lines near Brickell. My husband and I bought our first home, a small older house in The Roads neighborhood, in 2009. We have spent a lot of time, effort, and money fixing it up. It still needs some work to be our dream home, but we love our house and the life we live in it. Our first child was born in October, and we spend a lot of time walking with her and our two dogs along the M-Path, which is less than 25 meters from our home. We are excited about the upcoming Underline project and use the M-Path daily to reach the metrorail for our daily commute. However, the intended path of the power lines runs along the M-Path in our area. I ask you to reject the Nuclear Power Plant expansion at Turkey Point for multiple reasons. (0774-1 [Gant, Katie])

Comment: I ask you to reject the expansion of the nuclear reactors at Turkey Point. Please side with the residents who have chosen to make South Florida their home. All we want is a safe place to raise our children, which would not be possible with the additional reactors and overhead high voltage transmission lines. (0774-5 [Gant, Katie])

Comment: I'm absolutely opposing both the 2 new nuclear reactors at Turkey Point and the proposal to run 45 foot tall and 5 foot wide poles through US 1. (0777-1 [Anonymous, Gerardo])

Comment: I'm a resident of South Miami (zip code 33143), and will be directly affected by allowing the installation of 451 tall poles to ruin US 1 esthetically and visually. This plus the added risk that having exposed High Voltage power lines provides during natural disasters like

hurricanes should be enough to reject this proposal. I'm attaching a picture of what is expected if FPL is allowed to use these poles. The US is the leader of the developed world, allowing overground exposed power lines should be seen as an absolute step back of the continued development of our country and Miami. If the nuclear reactors are allowed which is likely to happen even after resident rejections, any and all power lines should be UNDERGROUND. [Attached pictures may be viewed on original submittal, ADAMS Accession No. ML15299A178] (0777-4 [Anonymous, Gerardo])

Comment: I say NO to the expansion of Turkey Point, it's nuclear reactions, and especially NO to overground, exposed power lines. (0777-5 [Anonymous, Gerardo])

Comment: And, the idea that these giant electrical poles will create even more inconvenience to drivers, pedestrians, runners, walkers and cyclists along US 1 is unacceptable. If they want to expand, fine, but don't do it at the expense of one set of neighborhoods --the path where they intend to put the poles is scheduled to be Miami's first well organized pedestrian/cycling causeway linked to public transit so that commuters can bike safely to the train. But the design is barely functional with these towers in the way. Traffic in Miami has become the county's #1 issue affecting quality of life. (0780-2 [Higgins, Eileen])

Comment: We should not allow electrical poles to interfere with the county's plans to make Miami more bike and public transportation friendly. They must be buried. (0780-3 [Higgins, Eileen])

Comment: The proposed humongous transmission poles and wires requested to provide the functional infrastructure of nuclear reactors are an extreme affront to the visual environment of many residential communities within the hurricane-prone Miami-Dade County, located in south Florida. The poles are beyond a sensible scale of the adjacent landscape. (0782-2 [Deresz, Don])

Comment: [I have monitored the proceedings as FPL endeavored to ram through this ill-conceived project against the wishes of the community. So much about the project is wrong ---...] Adverse Social Impacts

* Transmission-line corridors displacing the linear parks that have been planned (0785-10 [Devlin, Marybeth])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-92. The existing response is reprinted below but may include minor changes.

These comments express concerns regarding the proposed assemblage and locations of transmission lines to distribute power into Miami-Dade County from proposed Turkey Point Units 6 and 7. The review team considered the environmental impacts of electrical transmission in EIS Section 4.1.2 and 5.1.2 for land use; 4.6 and 5.6 for historic and cultural impacts; 4.4 and 5.4 for socioeconomics impacts; and 5.8 for nonradiological health impacts. The siting of transmission lines is outside the regulatory authority of the NRC and, in Florida, is regulated by the Florida Public Service Commission and appropriate

state agencies. No changes were made to the EIS as a result of these comments.

The comments provided no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of these comments.

S.4 Comments Concerning Geology

Comment: Inadequate Analysis of Geologic Characteristics

Section 2.3.1.2 of the DEIS describes the geology at the Turkey Point site as permeable limestone and sandstone, with tectonic fault and karst collapse structures. This creates a serious safety risk that has been recognized by the NRC. In fact, the NRC does have guidance on siting nuclear reactors in karst terrain. A.G. Franklin, D.M. Patrick, D.K. Butler, W.E. Strohm, Jr., and M.E. Hynes-Griffin, Foundation Considerations in Siting of Nuclear Facilities in Karst Terrains and Other Areas Susceptible to Ground Collapse (May 1981). That document first describes the collapse mechanism of karst as follows:

An understanding of the mechanisms of sinkhole development and contributing or modifying factors is essential in evaluating the degree of hazard. The development of sinkholes, often by sudden collapse of the ground surface, is related to stratigraphy, groundwater lowering, and erosion of overburden soils into solution features Roof collapse of cavities near the bedrock surface by increased solution or increased roof loading results in dropout of shallow overburden. While solution enlargement of cavities and weakening of the roof structure is a relatively slow process, collapse occurs suddenly. Sinkhole enlargement, sometimes to several hundred feet in diameter, progresses rapidly by erosion of overburden soils into open voids by surface drainage, especially during heavy rains. However, the most common development of sinkholes endangering structures is the collapse of cavities in relatively thick cohesive soil overburden. Downward seepage causes progressive raveling and erosion of cohesive soils bridging solution slots or fissures in the limestone bedrock. Upward enlargement of the soil cavity, to a diameter sometimes larger than 100 ft in clays, continues as long as eroding soil is carried away by circulating groundwater in the bedrock openings. Otherwise, the process stops by clogging of openings with soft, wet soils. Roof collapse, forming a dropout, occurs when the roof load exceeds the shear strength of the roof soil. In sandy soils sand raveling into solution fissures progresses into funnel-shaped surface depressions that may be over 100 ft in diameter.

The guidance document then goes on to discuss the proper evaluation of the underlying geology before siting a nuclear reactor:

For major structures, a complete geologic profile, showing all solution features, quality and condition of overburden and bedrock, and groundwater conditions, is necessary in evaluating foundation problems and treatment alternatives. All cavities bridged by overburden should be either grouted or excavated and backfilled, depending on the depth of overburden. For shallow overburden where excavation is carried to the bedrock surface, the distribution of solid rock zones, compressibility and erosion resistance of infilling materials, and depth of infilling materials in solution-widened joints require evaluation to determine:

Supplement 1

- a. Required excavation and type of backfill to replace soft or compressible materials.
- b. Choice of foundation type, such as mat, spread footings, piles, or caissons (piers).
- c. Requirements for checking conditions exposed by the excavation and verifying soundness of rock below foundation elements after excavation.

For deep overburden, the type and amount of infilling materials in solution features require evaluation to determine whether grouting would be an effective treatment.

All solution features in the bedrock surface must be well defined and evaluated to determine the feasibility [sic] of treatment to provide a competent foundation. Cavities bridged by overburden, filled solution channels, soft soil zones between limestone pinnacles, and other solution features should be either grouted or excavated and backfilled with concrete or compacted soil, depending on the type of structure and foundation. Extensive surface and subsurface drainage control measures (drainage ditches, subdrains) may be required to prevent infiltration and downward migration of surface water.

The guidance document also warns that cavities below bedrock surface must be defined and evaluated to assess their effect on cavity stability. Natural cavities below bedrock surface can increase in size by dissolution of the carbonate rock, progressive spalling or fall-in of roof rock, or by erosion of infilling materials. In addition, cavities within the influence zone of structure loading should be evaluated for stability. There is no indication that any of this will be adequately considered prior to construction of the proposed Turkey Point reactors. (0783-3-4 [Taylor, Wallace])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-203. The existing response is reprinted below.

Extensive geological and geophysical studies were performed by the applicant to make sure that there were no caverns beneath the proposed plant structures that could collapse and create a sinkhole. The potential for sinkholes to affect plant structures is primarily a safety concern and is addressed in the applicant's Final Safety Analysis Report and the NRC's Safety Evaluation Report. An environmental impact might result from contaminated water entering the shallow aquifer by draining into a sinkhole if one were to develop during construction of facilities such as pipelines or power lines. FPL has committed to following BMPs designed to stop such contamination of both surface water and groundwater. Therefore, the staff determined that environmental impacts from potential sinkhole formation associated with building and operating proposed Units 6 and 7 would be negligible. No changes were made to the EIS based on this comment.

The comment provided no information in addition to that considered in the EIS analysis, and no changes were made to the FEIS as a result of this comment.

S.5 Comments Concerning Hydrology – Surface Water

Comment: [The Turkey Point Nuclear Plant expansion should not receive NRC approval, for the following reasons:] Turkey Point is located above the Biscayne Aquifer, the source of potable water for all residents of the Florida Keys. The geology underlying Turkey Point is porous limestone, enabling chemicals/contaminants in the cooling ponds to migrate close to the wellfields of the Florida Keys Aqueduct Authority and jeopardizing the drinking water for the Florida Keys. (0745-3 [Newman, Joyce Clark])

Comment: "Last summer, after the Nuclear Regulatory Commission agreed to allow operating temperatures to rise to 104 degrees, the hottest in the nation, FPL began looking for water to cool and freshen the canals. The company won temporary permission to pull water from the nearby L-31 canal between August and October, the utility pumped 1,135 million gallons or about four times what all of Miami-Dade County uses in a day. The utility hoped to find a more permanent solution by drilling six new wells to pump up to 14 million gallons of water a day from the Floridan aquifer, a source deep beneath the shallow Biscayne Aquifer that supplies most of the county's drinking water.

But local government officials and environmental groups have fought FPL's plans, filing appeals and arguing that diverting water to the plant could derail Everglades restoration efforts intended to revive Biscayne Bay, where increasing salinity threatens marine life. County staff also said adding freshwater could also worsen the movement of underground saltwater."

Read more here:

<http://www.miamiherald.com/news/local/environment/article21419787.html#storylink=cpy> (0778-3 [Cortes, Alexandra Lange])

Comment: While I am not necessarily opposed to nuclear power in general, I do believe that there is still work to be done to determine whether to proceed with this expansion. For example, the existing cooling canals have not been able to maintain the proper temperature, and climate change will continue to make this more difficult. The Biscayne Bay may already adversely affected enough by Turkey Point. (0780-1 [Higgins, Eileen])

Comment: [I have monitored the proceedings as FPL endeavored to ram through this ill-conceived project against the wishes of the community. So much about the project is wrong --...]

* Inadequacy of the canal-system for proper cooling of even the existing reactors (0785-6 [Devlin, Marybeth])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-169. The existing response is reprinted below.

The IWF (also called the cooling-canal system) is not a feature of the design of proposed Units 6 and 7. The IWF provides cooling for Units 3 and 4. The IWF also previously provided cooling for Units 1 and 2, both of which have been converted to function to stabilize the grid and no longer generate power. To the extent comments relate solely to the current state of the IWF and its operation in

connection with the existing Turkey Point units, the comments fall outside the scope of the EIS, which is the environmental impacts of the proposed new units. Nonetheless, the IWF is a feature of the site on which Units 6 and 7 are proposed to be constructed and operated. In describing the environmental setting for the proposed action, the review team disclosed that construction and operation of the IWF has affected the quality of shallow groundwater and the Biscayne Bay. Nothing in recent events has significantly altered the review team's understanding of the IWF. As discussed in the EIS, potential effects on the IWF from building and operating proposed Units 6 and 7 are very limited. These include effects resulting from: 1) discharge of groundwater from excavation dewatering and storm water to the IWF while building the plants, 2) runoff to the IWF from muck added to the berms, and 3) cooling tower drift deposition landing on the IWF. Analyses presented in the EIS show that these changes are expected to result in minor changes to the water levels or chemistry of the IWF. The EIS acknowledges that operation of the proposed RCWs installed beneath the Biscayne Bay could move hypersaline water from the IWF toward the RCWs. Any increase in volume and concentration of the seepage from the IWF to the underlying portion of the Biscayne aquifer is not expected to have a noticeable impact on the quality of groundwater in the areas of the Biscayne aquifer that meet USDW criteria for TDS. After publication of the draft EIS, because of potential changes in the future environmental baseline, the review team performed additional groundwater modeling of the interaction between the planned RCWs, the existing hypersaline plume, and the IWF using a two-dimensional cross section model and a limited extent three-dimensional model. These simulations were performed to determine whether the postulated changes in the environmental baseline would alter the review team's findings from the draft EIS regarding the effects of RCW pumping. The effects of climate related sea-level rise were also simulated. Model results were added to the Section 5.2 of EIS and details of the modeling and results are presented in EIS Appendix G.

As discussed above, the FEIS was previously updated based on similar comments received on the draft EIS which expressed concern regarding the impacts resulting from operation of the existing cooling canals. These comments do not provide any information in addition to that already considered in the EIS. Therefore, no further changes to the FEIS were made as a result of these comments.

Comment: After reviewing the EIS for Turkey Point 6 and 7 I found the analysis of future sea level rise to be inadequate for a nuclear power plant situated on the shore of Biscayne Bay. The attached maps showing various levels of ocean rise at mean higher high water (MHHW) clearly show that with little more than another 6 inches of sea level rise (SLR) that the un-elevated portions of the property will be inundated at regular high tides (monthly) and will remain under water for the full tide as the years go by. With the projected (National Climate Assessment of 2-4 feet of SLR by the end of the century and the likely possibility of significant Antarctic ice sheet collapse FPL is proposing to build a new reactor site in the ocean, not on land. The EIS does not clearly show this reality nor does it give significant credence to the problems such

levels will cause. The attache [sic] maps were made by me using locally available LiDAR elevation data and made following procedures outlined by NOAA for the SE Florida Regional Climate Compact. Similar maps can be viewed on NOAA's Floodmapper website(s) and on sites such as those offered by Climate Central. Failure to show this type of "bathtub" model is a major omission in the EIS as such maps have been readily available from such sources for several years. [See ADAMS, Accession No. ML15294A356 for attached maps showing 0.5, 1, 2, 3, and 4 ft of sea level rise] (0744-1 [Harlem, Peter])

Comment: Additionally the future SLR will threaten in the next 20 years the current cooling canals for units 4 and 5 compromising their design and function with no mention of this issue in the EIS and no explanation of how the older reactors will be kept cool for their extended lifetime.

The EIS refers to improved circulation as a possible outcome as the ocean becomes deeper (SLR) which may be true but it also means that the site will become prone to ocean wave erosion as Key Largo becomes inundated and no longer a block to wind driven wave forcing. A proper model of this reality should be made before any claim that increased water levels will improve circulation in the cooling canals is accepted [sic] by the NRC. (0744-2 [Harlem, Peter])

Comment: [The Turkey Point Nuclear Plant expansion should not receive NRC approval, for the following reasons:] Turkey Point is located at an extremely low elevation, vulnerable to impacts of sea level rise. In the years ahead, the necessary cooling ponds, contaminated by many chemicals, will become inundated by saltwater, either a result of storm surges from hurricanes, or raised levels of seawater, or both. (0745-2 [Newman, Joyce Clark])

Comment: The low-lying wetlands which surround Turkey Point contain some of the lowest elevations in South Florida. Even a half foot of sea level rise, a certainty in the near future, will be enough to inundate the 5,000 acres of canals used to cool the two reactors currently operating at this location. These new nuclear reactors will be sitting on islands in Biscayne Bay. (0749-2 [Ross, Kim])

Comment: Finally, the environmental impacts in future environments, particularly those for which there is very well-supported for them to occur (a range of SLR is predicted to occur), should also be included. (0765-7 [Polini, Bianca])

Comment: The low-lying wetlands which surround Turkey Point contain some of the lowest elevations in South Florida. Even a half foot of sea level rise will be enough to inundate the 5,000 acres of canals used to cool the two reactors currently operating at this location. They are filled with hot and extremely salty water -as well as chemicals used to kill a recent algae outbreak in the canals .. With scientists measuring ever-increasing sea level rise from the melting of our planet's remaining ice in addition to thermal expansion due to increased temperatures, those 6 inches of sea level rise are a virtual certainty. New nuclear reactors in this location will be sitting on islands in Biscayne Bay -quite possibly in the not so distant future. (0788-6 [Blake, Frances] [Cruz, Sarah] [Eckert, Shelley] [Kraskin, Madeline] [Peterson, Christina] [Webb, David])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-144. The existing response is reprinted below.

Appendix I of the EIS documents the review team's consideration of the potential changes in impacts that may occur as a result of the changes in the environment resulting from global climate change including sea-level rise. The changes that were considered include potential changes in temperature, rainfall and the occurrence of severe weather events. As discussed in Appendix I, the review team considered the assessment presented in the most recent National Assessment. The 2014 National Assessment was conducted by a team of more than 300 experts guided by a 60-member Federal Advisory Committee and extensively reviewed by the public and experts, including Federal agencies and a panel of the National Academy of Sciences. The review team has also considered more recent estimates of sea level rise. The review team has added mention of research into a localized sea-level rise in South Florida associated with changes in regional ocean currents.

The review team is aware that the sea-level rise of 1–4 ft by 2100 is not bounding. It is not implausible that sea level rise significantly in excess of 4 ft could occur by 2100. Such extreme sea-level rises would inundate much of South Florida making it uninhabitable. However, NEPA requires consideration of likely future scenarios not extreme future scenarios. However, the gradual increase in sea level and NRC's safety process protects the public health and safety.

Appendix I has been updated based on these comments.

Appendix I was previously updated based on similar comments received on the draft EIS which expressed concern regarding the potential impacts of sea level rise. These comments do not provide any information in addition to that already considered in the EIS. Therefore, no further changes to the FEIS were made as a result of these comments.

Comment: The powerful new reactors (1,117 MW each) are to be cooled primarily by 90 million gallons per day of recycled Miami-Dade County sewage and wastewater. This water will not be pure H₂O -and some will be released over Biscayne Bay and surrounding wetlands along with steam in the planned cooling towers. (0788-3 [Blake, Frances] [Cruz, Sarah] [Eckert, Shelley] [Kraskin, Madeline] [Peterson, Christina] [Webb, David])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, pages E-173. The existing response is reprinted below.

In Section 5.2.1.1 of the EIS, the review team disclosed that the chemicals in the reclaimed water include contaminants of emerging concern (CECs) and the review team has provided a representative calculation of the amount of the CECs available in the drift. The review team determined that the drift rate would be

small (8 gpm); chemicals in the water treatment process may degrade; there is some potential for volatilization of CECs in the cooling towers, so they would not be deposited locally as drift; mixing and dilution would occur as the chemicals combine with other surface water bodies; and given the ubiquitous presence of chemicals in the environment, the projected alterations to the water quality would likely be undetectable. The review team employed conservative estimates of wet deposition based on air quality models applied consistent with NRC guidance.

The review team disclosed the existence of CECs in the EIS and performed a conservative analysis to demonstrate the small amount of material being released to fully advise the public. NEPA does not require an encyclopedic characterization of all the possible CECs that may be in the reclaimed wastewater and even natural water bodies. As with any other constituent, if EPA changes existing standards or adds new standards such as for CECs, changes may be necessary in the future.

No changes were made to the EIS as a result of this comment.

Comment: The powerful new reactors (1,117 MW each) are to be cooled primarily by 90 million gallons per day of recycled Miami-Dade County sewage and wastewater. This water will not be pure H₂O and some will be released over Biscayne Bay and surrounding wetlands along with steam in the planned cooling towers. (0750-3 [Sandberg, Harlan])

Comment: National Parks such Biscayne and the Everglades will suffer the consequences, given that the water that will be used to cool the reactors will be permeated with dangerous chemicals, and this water will flow into these parks. Parks that residents, such as myself, admire for their beauty and purity. (0751-2 [Anonymous, Anonymous])

Comment: It [the draft EIS] also does not seem to correctly define the impacts on surface water and groundwater, with the use of hypersaline cooling water containing potentially hazardous materials as well. (0765-3 [Polini, Bianca])

Comment: There is also the possibility of rising seas in sea-level South Florida, but the Everglades cannot afford to have more fresh-water siphoned away for cooling reactors that already have problems cooling and the majority of citizens in the area are against nuclear energy expansion. (0767-3 [Falcone, Alex])

Comment: Public officials in South Florida have said that water for cooling these new units could consume up to ten percent of the water used in Miami-Dade county. Water availability has been reduced in California and Texas. Florida is currently dependent on the aquifer for fresh water. Diverting water destined for public use to cool a power plant is not in the public interest. (0771-2 [Kendall, Samuel])

Comment: FPL has difficulties cooling the two current nuclear reactors using recycled water sources, however when they run out they are using our Drinking Water. How will they cool two more nuclear reactors for a total of FOUR when they can barely cool the two existing? We cannot allow them to compromise our drinking water source. FPL currently uses 124 million

gallons to cool off these reactors and it isn't enough. It currently isn't in the plans to build a desalination plant to provide their own water for these reactors. Where is the water going to come from? (0778-2 [Cortes, Alexandra Lange])

Comment:

[I have monitored the proceedings as FPL endeavored to ram through this ill-conceived project against the wishes of the community. So much about the project is wrong --...]

* Drawdown of precious fresh-water resources in a time of drought

(0785-7 [Devlin, Marybeth])

Comment: Additionally, the nuclear reactors use an enormous amount of fresh water for cooling that makes the Biscayne Aquifer more susceptible to salt water intrusion. According to the Union of Concerned Scientists, nuclear fission is the most water intensive method of the principal thermoelectric generation options in terms of the amount of water withdrawn from sources. In 2008, nuclear power plants withdrew 8 times as much freshwater as natural gas plants per unit of energy produced, and up to 11 percent more than the average coal plant. Our water supply is a finite resource that we need to conserve in order to support our South Florida population. (0790-3 [Anonymous, A] [Coates, Thomas] [Meehan, Gene])

Response: These comments are similar to other comments received on the draft EIS on this subject, but are not all explicitly addressed in the existing responses in Appendix E. Therefore, the below response is drawn from an existing response at page E-159 and the analysis documented in EIS Sections 2.3, 4.2, 5.2 and 7.2.

Turkey Point Units 6 and 7 would rely primarily on treated wastewater for operation. Treated wastewater is not suitable for potable water or most restoration activities because of its water chemistry. NRC staff did not identify other current or likely future demands for treated wastewater that are likely to conflict with the volume of treated wastewater proposed to be used by Units 6 and 7. The treated wastewater, while "fresh" in terms of salinity, is still not suitable for most other uses including municipal, agricultural, and CERP wetland restoration because concentrations of other contaminants and nutrients are too high. If this treated wastewater is not used by the proposed plant it would likely be injected into the Boulder Zone, at which point it would be unavailable for any beneficial use. Accordingly, it would be inaccurate to characterize the treated wastewater as a percentage of fresh water available for drinking, agricultural use, or the like.

The Miami-Dade Water and Sewer Department (MDWASD) SDWTP has a capacity of about 300 MGD. The proposed plant would take about 73 MGD from the South District Plant. Under Florida law, MDC is required to end ocean discharge and, therefore, must substantially increase deep well disposal. Evaporation in the cooling towers of the proposed plant would

consume some of the wastewater volume before the remainder is injected into the Boulder Zone.

The impacts of the proposed Units 6 and 7 on water resources are discussed in Sections 2.3, 4.2, 5.2 and 7.2 of the FEIS. Additional supporting information may be found in Appendix G. No changes to the FEIS were made as a result of these comments.

S.6 Comments Concerning Hydrology – Groundwater

Comment: These are just some of the more obvious impacts from this expansion. When the first two nuclear reactors and fossil fuel plants were completed at Turkey Point, regulators failed to consider the impacts of dumping hot water (used for cooling the generators) directly into Biscayne Bay. When the 5,000 acres of cooling canals -likely the largest radiator on the planet (and clearly visible from space) -were carved out of natural mangrove habitat to correct the problem, regulators again failed to consider that the extremely hot salty water would drop through the surrounding limestone and degrade the underlying Biscayne Aquifer. The known risks from this project are bad enough -very hard to plan for the unknown and unconsidered risks as well as inevitable human error. (0748-2 [Webb, David])

Comment: When the first two nuclear reactors and fossil fuel plants were completed at Turkey Point, regulators failed to consider the impacts of dumping hot water (used for cooling the generators) directly into Biscayne Bay. When the 5,000 acres of cooling canals -likely the largest radiator on the planet (and clearly visible from space) -were carved out of natural mangrove habitat to correct the problem, regulators again failed to consider that the extremely hot salty water would drop through the surrounding limestone and degrade the underlying Biscayne Aquifer. The known risks from this project are bad enough -very hard to plan for the unknown and unconsidered risks as well as inevitable human error. (0786-4 [Eckert, Shelley])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-199. The existing response is reprinted below.

The salinity and total dissolved solids TDS in the water in the Biscayne aquifer in the vicinity of Turkey Point exceed USDW standards because of saltwater intrusion from the sea and intrusion of the CCS hypersaline plume. As a result, the Biscayne aquifer near the site cannot be used as a drinking water source without treatment. In south Florida, the amount of saltwater intrusion has increased over the past several decades for reasons unrelated to operations at Turkey Point, including the drainage of wetlands and groundwater pumping in inland areas. Seepage of hypersaline water from the CCS (cooling canal system) associated with the existing Turkey Point Units 3 and 4 has also resulted in areas of groundwater salinity higher than seawater near the CCS.

As discussed in the EIS, only the RCWs (radial collector wells), which are planned as a back-up cooling water source for Units 6 and 7, and limited inputs to the CCS while building the plants are expected to have any potential impact on the salinity of groundwater in the Biscayne aquifer. As discussed in the EIS, the

combined impacts of the planned discharge of groundwater from excavation dewatering and stormwater to the CCS while building the plants, and the chemical inputs to the CCS from muck spoils runoff and cooling tower drift during plant operations are expected to cause minor changes in the water levels, salinity, or other chemical concentrations of the CCS. As stated in the EIS, saline water drawn from the RCWs beneath Biscayne Bay would only be used when reclaimed treated wastewater is not available in sufficient quantity or quality, and for a maximum of 60 days per year as permitted under the Florida State COCs. The potential effects of operating the RCWs are described in Section 5.2.1.2 of the EIS. During the limited periods of RCW pumping, some water would be removed from the Biscayne Aquifer, which would potentially cause hypersaline water to move under Biscayne Bay toward the RCWs. The review team evaluated information about the reliability of the components of the reclaimed-water system and determined that the RCW supply system would be likely be called into use infrequently and for durations much shorter than 60 days. The review team determined that proposed use of the RCWs as a backup supply of cooling water for short periods of time is likely to have small impacts on groundwater users or on the extent of saltwater intrusion based on the FPL model analysis, USGS modeling analysis, the NRC review team's modeling of the CCS-RCW interaction, and the knowledge that environmental monitoring and potential mitigation measures are required under the COCs imposed by Florida State. The review team responded to similar comments in Section E.2.7, "Comments concerning hydrology – surface water."

These comments did not provide any information in addition to that which the staff considered in its analysis in the EIS. No changes were made to the EIS as a result of these comments.

Comment: Our aquifers are porous, and so leaked materials from the well can seep into it and travel. (0765-4 [Polini, Bianca])

Comment: [I have monitored the proceedings as FPL endeavored to ram through this ill-conceived project against the wishes of the community. So much about the project is wrong ---...]

* Dangerous levels of salt and other pollutants infiltrating the aquifer and Biscayne Bay (0785-8 [Devlin, Marybeth])

Response: These comments are similar to other comments received on the draft EIS on this subject, but is not explicitly addressed in the existing responses in Appendix E. Therefore, the below response is drawn from an existing response at page E-186.

The comments primarily focuses on two issues raised in connection with operation of the RCWs, namely, the possibility for intrusion of salt and other pollutants into the Biscayne aquifer, and the possibility for increasing the salinity of the water and the concentration of other pollutants in Biscayne Bay. To the extent the comments also raise other issues, such as the continued availability of reclaimed wastewater for cooling, those issues are addressed in separate responses. The impacts of the proposed

units on water availability and water quality in both groundwater and surface water, including Biscayne Bay, was evaluated in Sections 4.2 and 5.2 of the FEIS. Additional information describing the evaluation, including groundwater modeling that was performed, is located in Appendix G of the FEIS.

Using reclaimed wastewater as the primary source of cooling water for the proposed reactors which would not result in removal of water from Biscayne aquifer or Biscayne Bay. This would not increase the salinity of the aquifer or the Bay. In regard to the Biscayne aquifer, saltwater from the sea has already intruded into the groundwater in the Biscayne aquifer in the vicinity of the Turkey Point site, which has resulted in elevated salinity in that groundwater. This saltwater intrusion from the sea is unrelated to operations at Turkey Point. Because of its elevated salinity, groundwater from the Biscayne aquifer in the vicinity of the Turkey Point site cannot be used as a drinking water source without treatment. Seepage of saline water from the IWF cooling canals associated with the existing Turkey Point Units 3 and 4 has also resulted in locally higher groundwater salinity near the cooling canals. Analyses from the USGS groundwater-surface water model presented in the EIS show that in the absence of remediation of the IWF hypersaline plume, increases in groundwater salinity may occur inland from Turkey Point because of movement of the existing hypersaline plume. This would occur regardless of whether or not the proposed units are built and operated. The model-predicted increase in groundwater salinity is not caused by RCW pumping or other activities related to the proposed units. The model-predicted increase in groundwater salinity also does not reach the location of drinking water wells. The potential impacts of constituents other than salinity in the cooling water was evaluated as it results from drift from the cooling towers and deep well injection of plant effluents can be found in Section 5.2.

These comments did not provide any information in addition to that which the staff considered in its analysis in the EIS. No changes were made to the EIS as a result of these comments.

Comment: The structural stability of the Turkey Point reactors is not the only issue that must be addressed. The other problem caused by constructing a nuclear reactor on karst terrain is that leaks from the reactor are carried through the cavities in the rock formation into the groundwater. The contaminated groundwater would find its way to nearby water bodies. And leaks from nuclear reactors, especially of radioactive tritium, are common. Tritium, which is a radioactive form of hydrogen, has leaked from at least 48 reactor sites. Leaks from at least 37 of those facilities contained concentrations exceeding the federal drinking water standard, sometimes at hundreds of times the limit.

Tritium moves through the soil quickly, and when it is detected it often indicates the presence of more powerful radioactive isotopes that are often spilled at the same time. For example, cesium-137 combined with tritium at Fort Calhoun in 2007. Strontium-90 was discovered with tritium in 2005 at Indian Point. The primary cause of these leaks is the corrosion and degradation of underground pipes that have been buried under the reactors for 30-40 years.

When a 40-year license for Turkey Point is being proposed, the facts must be considered in the DEIS.

These issues must be examined more thoroughly in the DEIS. (0783-3-5 [Taylor, Wallace])

Response: The comment is similar to other comments received on the draft EIS on this subject, but is not explicitly addressed in the existing responses in Appendix E. Therefore, the below response is drawn from the analysis documented in EIS Sections 2.3, 3.2, 5.2, 5.9 and Appendix G.

As indicated in the comment, the proposed site is located within an area which is underlain by formations composed of limestone and dolomite. Extensive geological and geophysical studies were performed by the applicant and reviewed by the NRC to characterize the geology of the proposed site in the safety review. FPL has committed to following Best Management Practices designed to stop such contamination of both surface water and groundwater during construction and operation of the proposed Units 6 and 7. NRC performed a conservative evaluation of the environmental and human health impacts resulting from a potential accidental release of radiological constituents and determined that the resulting dose would remain below applicable regulatory limits. This evaluation is documented in section 2.4.12 of the Final Safety Evaluation Report which can be found in NRC's Agencywide Document Access System (ADAMS) at <http://www.nrc.gov/reading-rm/adams.html> using accession number ML16277A469. The potential impacts of planned and accidental releases of effluent are discussed in Sections 2.3, 3.2, 5.2, 5.9 and Appendix G of the FEIS.

The comment provided no information in addition to that considered in the EIS analysis, and no changes were made to the FEIS as a result of this comment.

S.7 Comments Concerning Ecology – Terrestrial

Comment: In addition, we are deeply concerned that the DEIR has not analyzed the full ecological impacts of development and road construction in increasing the exposure of local ecosystems to invasive species. South Florida is already battling against a wider range of invasive species, and is now particularly vulnerable to impacts of these species. Consequently, the cumulative impacts of this project must be viewed as all the more significant given the dire existing conditions. Roads and development have been demonstrated to increase the susceptibility of ecosystems to invasive species,¹ such as fire ants² and invasive Melaleuca trees.³ Not only are disturbed areas uniquely susceptible to establishment of invasive species,⁴ but they also act as corridors to facilitate and accelerate ongoing invasions.⁵

[The following references were not delineated; full text is available from ADAMS, Accession No. ML15294A359]

1 Resasco, J., Haddad, N.M., Orrock, J.L. Shoemaker, D. Brudvig, L., Damnschen, E., Tewksbury, J. Levey, D. (2014) Landscape corridors can increase invasion by an exotic species and reduce diversity of native species. Ecology 95:2033-2039.

2 *Ibid.*, Forsy, E.A., Allen, C.R., and Wojcik, D. (2002) Influence of the proximity and amount of human development and roads on the occurrence of the red imported fire ant in the lower Florida Keys. *Biological conservation* 108:27-33.

3 Tsai, F., et al. (2005) Remote detection of invasive *Melaleuca* trees (*Melaleuca quinquenervia*) in South Florida with multispectral IKONOS imagery. *International Journal of Remote Sensing* 26: 1057-1063. DOI: 10.1080/01430060512331314119.

4 Stiles, J.H., and R.H. Jones (1998) Distribution of the red imported fire ant, *Solenopsis invicta*, in road and powerline habitats. *Landscape Ecology* 335:335-346.

5 Wilson, J.R.U., Dormontt, E., Prentiss, P.2., Lowe, A.J., and Richardson, D.M. (2009) Something in the way you move: dispersal pathways affect invasion success. *Trends in Ecology and Evolution* 24: 136-144. (0746-1 [Karpa, Doug] [Steiner, Todd])

Comment: Included in the project application are three new sets of powerlines (two of them will be 15 stories tall) to be run across and through the eastern section of what is currently Everglades National Park. Expected impacts include: increased electrocutions and collisions for birds (three federally threatened wood stork colonies are known to roost in the vicinity of the proposed lines); the spread of invasive plant species along a new, drivable access corridor[.] (0788-9 [Blake, Frances] [Cruz, Sarah] [Eckert, Shelley] [Krasnik, Madeline] [Peterson, Christina] [Webb, David])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, but includes additional information not addressed in the existing response in Appendix E. The existing response at page E-254 is reprinted below, and the NRC staff has included additional text to respond to the additional information in the comments. The additional text is drawn from the analysis documented in EIS Sections 4.3.1 and 7.3.1.

Sections 5.3.1.2 and 5.3.1.3 of the EIS discuss avian mortality caused by the proposed new transmission lines, including electrocutions and collisions by wood storks, Everglade snail kites, and other large birds. FPL is required to install flight diverters on those wires identified by the FFWCC as being the most likely to cause avian collision mortality. FPL is also required to fund a mitigation effectiveness study that includes mortality monitoring and observations of flight behavior of any birds crossing transmission lines. Study results are to be provided to the FFWCC for discussion and evaluation, which could include additional mitigation or monitoring. Sections 4.3.1.3 and 5.3.1.2 of the EIS provide discussion of potential introduction of invasive plants both onsite and offsite as an environmental impact of the proposed actions. No changes were made to the EIS as a result of this comment.

Although the response refers to invasive plants only, Section 4.3.1 of the EIS considers invasive species in general. Additionally, Section 7.3.1 of the EIS recognizes the cumulative impacts to the terrestrial ecology of south Florida that have resulted from decades of large-scale terrestrial and hydrological manipulations and the uncertain

possible effects of continued development. The EIS discussion recognizes that the terrestrial ecology resources in south Florida may have been destabilized, but also recognizes that the incremental effects of the Unit 6 and 7 project would not exacerbate that destabilization. EIS section 7.3.1 explains that part of that destabilization is the result of the introduction of invasive species to the landscape.

The comments did not provide any information in addition to that which the staff considered in its analysis in the EIS. No changes were made to the EIS as a result of these comments.

Comment: The powerline corridor will have negative impacts on bird rookeries, and likely accelerate the introduction of non-native species to the Everglades ecosystem. (0750-5 [Sandberg, Harlan])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, but includes additional information not addressed in the existing response in Appendix E. The existing response at page E-108 is reprinted below. Also, the response includes additional text to respond to the additional information referred to in the comment. The additional text is drawn from the analysis documented in EIS Sections 4.1.1 and 4.3.1.6.

Section 4.1.1 describes how FPL has worked to minimize land-use impacts from the transmission lines as part of its corridor selection process using Florida State criteria. The siting criteria include potential disruption to such areas as national, state, and county parks; wildlife refuges; estuarine sanctuaries; landmarks; and historical sites. Section 4.1.1 also describes how FPL would implement other mitigation measures for the transmission lines such as installing erosion-control devices, using matting and wide-track vehicles when working in wetlands, and restoring wetlands following temporary disturbances. Additionally, Section 4.3.1.6 of the EIS summarizes the review team's independent analysis of FPL's proposed mitigation for terrestrial ecology impacts, including installing avian protective measures on transmission lines and conducting wetland enhancement measures that would benefit nearby avian rookeries, specifically the wood stork. Finally, the USACE, a cooperating agency on the EIS, will identify the LEDPA for the Units 6 and 7 project prior to issuing a Department of the Army permit under Section 404 of the Clean Water Act. The LEDPA determination will include a consideration of various project alternatives possible, including alternative transmission line routes such as those noted in the comment. Appendix K of the EIS includes the USACE analysis of alternative transmission lines.

The staff also notes that the transmission lines that would be built close to Everglades National Park would be situated in areas within or close to previous development features such as canals, levees, roads, mining, and agriculture and would not provide inroads into areas of intact natural vegetation that would further the ability of invasive species to colonize new areas of the park.

No changes were made to the EIS as a result of this comment.

S.8 Comments Concerning Ecology – Aquatic

Comment: Are you kidding, Im sure it will be great and super helpful for the people of Miami but what about the environment. How can you possibly think a nuclear power plant in Biscayne Bay is not going to ruin the natural habitats around that area. (0752-1 [Carver, Jason])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-284. The existing response is reprinted below.

The commenters express general concern about the potential for adverse effects on ecological resources, protected species, and freshwater supplies as a result of the construction and operation of Units 6 and 7. The effects of construction and site preparation on the water use and quality of surface water and groundwater resources are described in Section 4.2, and the effects of operation in Section 5.2, and were determined to be SMALL. The effects of construction and site preparation on terrestrial and aquatic ecological resources and protected species are described in Sections 4.3.1 and 4.3.2, respectively, and were found to be MODERATE for Terrestrial resources and SMALL for Aquatic resources except to the American crocodile, which would sustain a MODERATE impact. Operational effects on terrestrial ecological resources (including wetlands and listed species) and aquatic resources and protected species were found to be MODERATE and are described in Section 5.3.1. Operational effects on Aquatic resources were found to be SMALL and are described in Section 5.3.2. Because the new units would use reclaimed water as a source of cooling water with RCWs as a backup water source, employ closed-cycle cooling, and dispose of station blowdown through deep-well injection, adverse effects on aquatic resources would be avoided. No changes were made to the EIS as a result of these comments.

The comment provided no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of this comment.

S.9 Comments Concerning Socioeconomics

Comment: People come from all corners of the world to visit South Florida. They don't come to visit FPL or nuclear power plants. They come to swim in the ocean, enjoy the clean air, soak up some sunshine, visit the Everglades, the Keys, Biscayne National Park, and a host of other activities that give them reasons to come back. (0790-6 [Anonymous, A] [Coates, Thomas] [Meehan, Gene])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-308. The existing response is reprinted below.

These comments express general opposition to new power plants and appreciation for environment-based tourism. No new information was provided regarding the environmental or socioeconomic impacts of the proposed plants. Therefore, no changes were made to the EIS as a result of these comments.

No changes were made to the EIS as a result of the comment.

Comment: I am opposed to the two new nuclear reactors proposed for the shores of Biscayne Bay. Florida is such a beautiful environment that many of us want to live and visit here. Our environment is the primary economic engine to our tourism economy. (0738-1 [Fifield, Virginia])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-306. The existing response is reprinted below.

These comments express concern about impacts on tourism through impacts on the environment. The review team analyzed environmental impacts from construction and preconstruction (Chapter 4) and from operations (Chapter 5) of the proposed nuclear reactors. Summaries of these impacts can be found in Section 4.12 (Summary of Construction and Preconstruction Impacts) and Section 5.12 (Summary of Operational Impacts). Because the site is already heavily industrialized and there is no indication industrialization has significantly affected current tourism the review team determined an incremental addition to the site should not have a noticeable effect. Impacts on recreational infrastructure are discussed in Sections 4.4.4.2 and 5.4.4.2 (recreation). No changes were made to the EIS in response to these comments.

The comment provided no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of this comment.

S.10 Comments Concerning Meteorology and Air Quality

Comment: And, Biscayne Bay is known to have storm seiches produced because the onset winds of any storm approaching from the SE can blow down the axis of Biscayne Bay pushing water onto and past Turkey Point. This happened [sic] in many past storms before the site was utilized and is documented in old issues of the Miami Herald. Storms in the 1920s, 1930s, and 1940s did this and closed the old US 1 highway route well before any low pressure induced surge hit the bay. This phenomenon occurred [sic] in 2005 but in the opposite direction and blew all the water from the bay around Convoy Point leaving the seagrass beds sitting out of the water (depth normaly [sic] 2-3 feet) and is documented in photos taken by the National Park Service at that time. Fortunately the winds in 2005 (because of the west to east storm direction) were blowing the water north or the site would have been put under 3 or more feet of water. Hurricane seiche behavior of Biscayne Bay is not in the current science literature but is documented in other sources so is not generally known to outside firms writing BIS statements for a site they have no real familiarity of. (0744-4 [Harlem, Peter])

Comment: [I have monitored the proceedings as FPL endeavored to ram through this ill-conceived project against the wishes of the community. So much about the project is wrong --...] Weather and Climate

* Likelihood of rising sea-levels inundating the coastal power-plant site

* Probability of a hurricane-induced storm-surge flooding the emergency diesel generators (0785-9 [Devlin, Marybeth])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-330. The existing response is reprinted below but the NRC staff has included additional text for clarity.

EIS Section 2.9.1.4 discusses the potential for severe weather events, including hurricanes, at the Turkey Point site. The historical record observed that three hurricanes make landfall per decade within 100 mi of the Turkey Point site. As part of the NRC's site safety review, the staff will consider whether the site is suitable based on the potential for flooding, storm surge, and the potential for tsunami. The results of this review will be found in the site Safety Evaluation Report. The safety evaluation report was issued on November 14, 2016 and can be found in NRC's Agencywide Document Access System (ADAMS) at <http://www.nrc.gov/reading-rm/adams.html> using accession number ML16277A469. This issue is not within the scope of the environmental review. No change was made to the EIS as a result of these comments.

S.11 Comments Concerning Health – Nonradiological

Comment: In addition, aerosol drift overflowing with pharmaceuticals, household chemicals, and bacteria, could potentially spread throughout the region. This could also endanger humans who suffer from chronic respiratory problems. (0751-3 [Anonymous, Anonymous])

Comment: Aerosol droplets known as "drift" can travel far and contain pharmaceuticals, cleaners, detergents and other household chemicals, as well as viruses and bacteria (which can grow inside the cooling towers themselves as bacterial slime). Impacts on the human environment as well as on dozens of endangered and threatened species in the vicinity are largely unknown. (0788-4 [Blake, Frances] [Cruz, Sarah] [Eckert, Shelley] [Krasnik, Madeline] [Peterson, Christina] [Webb, David])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-337. The existing response is reprinted below.

These comments express concern that the use of reclaimed wastewater for cooling of Turkey Point Units 6 and 7 could result in the release of additional etiological and chemical agents in the cooling-tower drift. Sections 5.3.1 and 5.3.2 discuss the relative deposition of a number of contaminants of concern that may be present in reclaimed wastewater and concluded that the expected trace amounts would have negligible effects due to the extremely low concentration

and dilution in receiving water bodies. The review team considered Florida requirements for reclaimed wastewater and concluded that compliance with Florida requirements for the treatment and use of reclaimed wastewater by FPL would be protective of public health. No changes were made to the EIS as a result of these comments.

No changes were made to the EIS as a result of these comments.

Comment: High voltage electric power transmission lines are unsafe. I am a researcher in biomedical engineering at The University of Miami, and I have done my research regarding the safety of transmission lines. The following studies (Theriault and Li, 1997, Occupational and Environmental Medicine; Draper et al, 2005, British Medical Journal; Kheifets et al, 2010, British Journal of Cancer) confirm an increased risk of leukemia and certain cancers among people who live within the vicinity of high voltage transmission lines. Of particular concern, children from 0-5 years of age have a fivefold increased risk of developing lymphoproliferative and myeloproliferative disorders (Lowenthal et al, 2007, Internal Medicine Journal) if they live within 300 meters of a high voltage power line. (0774-2 [Gant, Katie])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, but includes additional information not addressed in the existing response in Appendix E. The response is drawn from an existing response at page E-334 and additional text from the analysis documented in EIS Sections 5.8.3 and 5.8.4.

These comments relate to the impacts of the electromagnetic fields (EMFs) associated with the transmission lines and the applicable regulatory standards. As discussed in Sections 3.2.2.3 and 5.8.3 of the EIS, all transmission lines would comply with National Electric Safety Code (NESC) provisions, which are protective of human health.

As explained in Section 5.8.4 of the FEIS, operating power transmission lines in the United States produce EMFs of nonionizing radiation at 60 Hz, which is considered to be an ELF-EMF. Research on the potential for chronic effects of EMF from energized transmission lines was reviewed and addressed by the NRC in NUREG-1437 (NRC 1996-TN288). At that time, research results were not conclusive. The National Institute of Environmental Health Sciences (NIEHS) directs related research through the U.S. Department of Energy. An NIEHS report (NIEHS 1999-TN78; HPA 2006-TN1273) contains the following conclusion:

The NIEHS concludes that ELF-EMF exposure cannot be recognized as entirely safe because of weak scientific evidence that exposure may pose a leukemia hazard. In our opinion, this finding is insufficient to warrant aggressive regulatory concern. However, because virtually everyone in the United States uses electricity and therefore is routinely exposed to ELF-EMF, passive regulatory action is warranted such as a continued emphasis on educating both the public and the regulated community on means aimed at reducing exposures. The NIEHS does not believe that other cancers or non-cancer health outcomes provide sufficient evidence of a risk to currently warrant concern.

The review team reviewed available scientific literature on the chronic effects of ELF-EMF on human health published since the NIEHS report and found that several other organizations reached the same conclusions (HPA 2006-TN1273; WHO 2007-TN1272). Additional work under the auspices of the World Health Organization (WHO) updated the assessments of a number of scientific groups reflecting the potential for transmission line EMF to cause adverse health effects in humans. In the report by WHO, the authors summarized the potential for ELF-EMF to cause disease such as cancers in children and adults, depression, suicide, reproductive dysfunction, developmental disorders, immunological modifications, and neurological disease. The results of the review by WHO found that the extent of scientific evidence linking these diseases to EMF exposure is not conclusive (WHO 2007-TN1272).

The review team reviewed available scientific literature on chronic effects of EMF on human health and found that the scientific evidence regarding the chronic effects of ELF-EMF on human health does not conclusively link ELF-EMF to adverse health impacts.

No change to the EIS was made as a result of this comment.

S.12 Comments Concerning Health – Radiological

Comment: Constant raising of radiation exposure limits due to increasing background radiation levels is not a solution for safe environmental conditions with ever expanding radioactive waste dumps. Certainly within a 2 mile radius of a newly commissioned nuclear generating power reactor, the public will be blessed with new 'safe' levels of constant exposure of radioactive fallout expelled at various rates whether when producing electricity or not. (0768-3 [Anonymous, Anonymous])

Response: The comment is similar to other comments received on the draft EIS on this subject. Therefore, the below response is drawn from applicable sections of the existing response at page E-344.

The NRC's primary mission is to protect the public health and safety and the environment from the effects of radiation from nuclear reactors, materials, and waste facilities. The NRC's regulatory limits for radiological protection are set to protect workers and the public from the harmful health effects of radiation on humans and can be found in 10 CFR Part 20 (Standards for Protection Against Radiation). The limits are based on the recommendations of standards-setting organizations. Radiation standards reflect extensive scientific study by national and international organizations (International Commission on Radiological Protection [ICRP], National Council on Radiation Protection and Measurements [NCRP], United Nations Scientific Committee on the Effects of Atomic Radiation [UNSCEAR], and the National Academy of Sciences [NAS]) and are conservative to ensure that the public and workers at nuclear power plants are protected.

The amount of radioactive material released from Turkey Point Units 3 and 4 is well measured, well monitored, and known to be very small. Based on this operational experience and the new facility design, the NRC believes that the

amount of radioactive material to be released from the Turkey Point Units 6 and 7 would also be well measured and well monitored, and the NRC also believes the release would be very small. The total whole body dose from both ingested radionuclides due to liquid and gaseous releases and direct radiation from the Turkey Point site is and would be negligible compared with the public's exposure from natural background radiation, medical irradiation, and radiation from consumer products of more than 300 millirem per year.

The comment does not provide any information in addition to that already considered in the EIS. Therefore, no changes were made to the EIS as a result of this comment.

Comment: Children live near these reactors. Is nuclear power safe? Meltdowns happen often enough that it seems foolish to construct more of these types of electrical power plants. If you read the studies done by doctors at Chernobyl and Fukushima it is clear that nuclear is very dangerous to children in particular. Childhood thyroid cancers up 6100% in Japan! (0764-1 [Anonymous, Anonymous])

Response: The comment is similar to other comments received on the draft EIS on this subject, but is not explicitly addressed in the existing responses in Appendix E. Therefore, the below response is drawn from the analysis documented in EIS Sections 5.9 and 5.11.

As discussed in FEIS Sections 5.9 and 5.11, the NRC requirements for the design of nuclear power plants are such that the risks from an accident is very low. Additionally, in the unlikely event of a nuclear accident, NRC also requires emergency response actions that include the monitoring of potentially affected food production with interdiction and destruction of any contaminated food such as milk containing radioactive iodine. These actions are intended to prevent the consumption of contaminated food by people, including children, living near the plant. As a result of these further protective actions, health risks can be mitigated even in the unlikely event of a radiological release.

It is important to note that for both the Chernobyl and Fukushima accidents, international agencies such as the World Health Organization have studied the resulting radiation exposure to people, especially children.

In the case of Chernobyl, there was not an immediate interdiction of affected food production such as milk and water, which has resulted in about 6,000 thyroid cancer cases being detected among children who consumed milk in the immediate days after the accident. Ninety-nine percent of these children were successfully treated; Fifteen children and adolescents in three countries died from thyroid cancer by 2005 (UNSCEAR 2011).

In the case of Fukushima, the Japanese government immediately imposed controls on food production, especially for milk and water consumed by children. Given the exposure to radioactive iodine from the Chernobyl accident, the World Health Organization (WHO) specifically assessed the risk of thyroid cancer for the affected area

in the Fukushima prefecture (WHO 2016). The WHO understands there have been reports about thyroid cancer cases being diagnosed among children exposed to low doses of radioactive iodine as a result of the Fukushima accident and has examined this situation. The following summarizes the four essential points of the WHO report on this matter: First, the estimated thyroid doses in children due to the Fukushima accident were substantially lower than those due to the Chernobyl accident. Second, the prompt screening of children under 18 following the Fukushima accident used highly sensitive detection methods that would be expected to detect a large number of thyroid cysts and nodules, including cancers that would not otherwise have been detected. Third, similar rates of cysts and nodules were found in prefectures not affected by the Fukushima accident. Fourth, further analysis of the data being collected in Japan will be necessary to evaluate whether thyroid cancer diagnosed subsequent to the Fukushima accident can be attributed to radiation exposure.

The comment does not provide information regarding accident risks and radiological health impacts other than what the review team has already considered in the EIS. Accordingly, no changes were made to the EIS as a result of this comment.

References:

United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR). 2011. Sources and Effects of Ionizing Radiation. Scientific Annex D. Health Effects due to Radiation from the Chernobyl Accident. United Nations, New York. April 2011. http://www.unscear.org/docs/reports/2008/11-80076_Report_2008_Annex_D.pdf. Accessed on November 15, 2016

World Health Organization (WHO). 2016. FAQs: Fukushima Five Years On. http://www.who.int/ionizing_radiation/a_e/fukushima/faqs-fukushima/en/. Accessed on November 15, 2016.

Comment: This is not even considering public suffering from radiation poisonings since the NRC will not commission an independent study dealing with public radiation poisonings in proximity to operating nuclear reactors or confirm established European studies. (0768-5 [Anonymous, Anonymous])

Comment: [I have monitored the proceedings as FPL endeavored to ram through this ill-conceived project against the wishes of the community. So much about the project is wrong -- ...]

Hazards

* Increase of radioactive emission-releases during routine plant refueling (0785-3 [Devlin, Marybeth])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-344. The existing response is reprinted below.

The NRC's primary mission is to protect the public health and safety and the environment from the effects of radiation from nuclear reactors, materials, and waste facilities. The NRC's regulatory limits for radiological protection are set to protect workers and the public from the harmful health effects of radiation on humans and can be found in 10 CFR Part 20 (Standards for Protection Against Radiation). The limits are based on the recommendations of standards-setting organizations. Radiation standards reflect extensive scientific study by national and international organizations (International Commission on Radiological Protection [ICRP], National Council on Radiation Protection and Measurements [NCRP], United Nations Scientific Committee on the Effects of Atomic Radiation [UNSCEAR], and the National Academy of Sciences [NAS]) and are conservative to ensure that the public and workers at nuclear power plants are protected.

Health effects from exposure to radiation are dose-dependent. At low doses, radiation can be responsible for inducing cancers such as leukemia, breast cancer, and lung cancer. At very high doses (several hundred rem or higher) and dose rates, radiation has been known to cause prompt (or early, also called acute) effects, such as vomiting and diarrhea, skin burns, cataracts, and even death.

Currently, there are no scientifically conclusive data that unequivocally establish the occurrence of cancer following exposure to low doses, below about 0.1 Sv (10 rem). However, radiation protection experts conservatively assume that any amount of radiation may pose some risk of causing cancer and that the risk is higher for higher radiation exposures. Therefore, a linear, no-threshold dose response relationship is used to describe the relationship between radiation dose and cancer induction. Simply stated, any increase in dose, no matter how small, results in an incremental increase in health risk. The NRC accepts this theory as a conservative model for estimating health risks from radiation exposure and recognizes that the model probably overestimates those risks. On the basis of this theory, the NRC conservatively establishes limits for radioactive effluents and radiation exposures for workers and members of the public, as found in 10 CFR Part 20.

The amount of radioactive material released from Turkey Point Units 3 and 4 is well measured, well monitored, and known to be very small. Based on this operational experience and the new facility design, the NRC believes that the amount of radioactive material to be released from the Turkey Point Units 6 and 7 would also be well measured and well monitored, and the NRC also believes the release would be very small. The total whole body dose from both ingested radionuclides due to liquid and gaseous releases and direct radiation from the Turkey Point site is and would be negligible compared with the public's exposure from natural background radiation, medical irradiation, and radiation from consumer products of more than 300 millirem per year.

Although a number of studies of cancer incidence in the vicinity of nuclear power facilities have been conducted, there are no studies to date that are accepted by

the scientific community that show a correlation between radiation dose from nuclear power facilities and cancer incidence in the general public. Specific studies that have been conducted include:

- In 1990, at the request of Congress, the National Cancer Institute conducted a study of cancer mortality rates around 52 nuclear power plants and 10 other nuclear facilities. The study covered the period from 1950 to 1984 and evaluated the change in mortality rates before and during facility operations. The study concluded that there was no evidence that nuclear facilities may be linked causally with excess deaths from leukemia or from other cancers in populations living nearby.*
- In June 2000, investigators from the University of Pittsburgh found no link between radiation released during the 1979 accident at the Three Mile Island power plant and cancer deaths among nearby residents. Their study followed 32,000 people who lived within 5 miles of the plant at the time of the accident.*
- In January 2001, the Connecticut Academy of Sciences and Engineering issued a report on a study around the Haddam Neck nuclear power plant in Connecticut and concluded that radiation emissions were so low as to be negligible.*
- The American Cancer Society in 2001 concluded that although reports about cancer clusters in some communities have raised public concern, studies show that clusters do not occur more often near nuclear plants than they do by chance elsewhere in the population. Likewise, there is no evidence that links strontium-90 with increases in breast cancer, prostate cancer, or childhood cancer rates. Radiation emissions from nuclear power plants are closely controlled and involve negligible levels of exposure for nearby communities.*
- Also in 2001, the Florida Bureau of Environmental Epidemiology reviewed claims that there are striking increases in cancer rates in southeastern Florida counties caused by increased radiation exposures from nuclear power plants. Using the same data to reconstruct the calculations on which the claims were based, Florida officials were not able to identify unusually high rates of cancers in these counties compared with the rest of the state of Florida and the nation.*
- In 2000, the Illinois Public Health Department compared childhood cancer statistics for counties with nuclear power plants to similar counties without nuclear plants and found no statistically significant difference. No changes were made to the EIS as a result of these comments.*

The above response applies equally to routine plant refueling as to any other plant conditions. The comment does not provide any information in addition to that already considered in the EIS. Therefore, no changes were made to the EIS as a result of these comments.

Comment: [There are so many reasons any sane person should oppose the creation of yet more toxic radioactive waste, the cost of which will be subsidized by US taxpayers. New reactor applications should be denied and all existing reactor licenses should not be renewed for the following 8 reasons:]

4. Nuclear Power reactors release and leak radioactivity to the air and the water continually, even with no accident. These routine and intermittent releases of radioactivity are the industry's dirty secret, and should never be allowed by any federal regulator. It is not possible to run a reactor without such releases, which contribute to radiation exposures in communities both near and far from the site.

5. Every radiation exposure increases our risk of cancer. Low level exposure to radiation is no exception. (0760-4 [Anonymous, Anonymous])

Response: This comment is similar to other comments received on the draft EIS on this subject, but is not explicitly addressed in the existing responses in Appendix E. Therefore, the below response is drawn from existing responses at pages E-340 through E-343 and EIS Sections 2.11 and 5.96.

The NRC's primary mission is to license and regulate the Nation's civilian use of radioactive materials to protect public health and safety, promote the common defense and security, and protect the environment. The NRC's regulatory limits for radiological protection are set to protect workers and the public from the harmful health effects of ionizing radiation on humans. The limits are based on the recommendations of standards-setting organizations. The NRC radiation standards reflect extensive scientific study by national and international organizations and incorporate conservative assumptions and models to account for differences in gender and age so as to ensure that workers and all members of the public are adequately protected from radiation.

Although a number of studies of cancer incidence in the vicinity of nuclear power facilities have been conducted, there are no studies to date that are accepted by the scientific community that show a correlation between radiation dose from nuclear power facilities and cancer incidence in the general public. Specific studies accepted as scientifically valid include:

- In 1990, at the request of Congress, the National Cancer Institute conducted a study of cancer mortality rates around 52 nuclear power plants and 10 other nuclear facilities. The study covered the period from 1950 to 1984 and evaluated the change in mortality rates before and during facility operations. The study concluded that there was no evidence that nuclear facilities may be linked causally with excess deaths from leukemia or from other cancers in populations living nearby.
- In June 2000, investigators from the University of Pittsburgh found no link between radiation released during the 1979 accident at the Three Mile Island power plant and cancer deaths among nearby residents. Their study followed 32,000 people who lived within 5 mi of the plant at the time of the accident.

- In January 2001, the Connecticut Academy of Sciences and Engineering issued a report on a study around the Haddam Neck nuclear power plant in Connecticut and concluded that radiation emissions were so low as to be negligible.
- The American Cancer Society (ACS) in 2001 concluded that although reports about cancer clusters in some communities have raised public concern, studies show that clusters do not occur more often near nuclear plants than they do by chance elsewhere in the population. Likewise, the ACS report found no evidence that links strontium-90 with increases in breast cancer, prostate cancer, or childhood cancer rates. The ACS also found that radiation emissions from nuclear power plants are closely controlled and involve negligible levels of exposure for nearby communities.
- Also in 2001, the Florida Bureau of Environmental Epidemiology reviewed claims that there are striking increases in cancer rates in southeastern Florida counties caused by increased radiation exposures from nuclear power plants. Using the same data to reconstruct the calculations on which the claims were based, Florida officials were not able to identify unusually high rates of cancers in these counties compared with the rest of the state of Florida and the nation.
- In 2000, the Illinois Public Health Department compared childhood cancer statistics for counties with nuclear power plants to similar counties without nuclear plants and found no statistically significant difference.

As discussed in Sections 2.11 and 5.9.6 of this EIS, the amount of radioactive material released from nuclear power facilities is well measured, well monitored, and known to be very small. The doses of radiation received by members of the public as a result of exposure due to nuclear power facilities are very low (i.e., less than a few millirem). To put this in perspective, the average dose per individual in this country is approximately 360 millirems from natural sources of radiation (NCRP Report # 160 (NCRP 2009-TN420)). Radiation from natural and man-made sources is not different in its properties or effects. To ensure that the nuclear power plants are operated safely within radiation protection requirements, the NRC licenses the plants to operate, licenses the plant operators, and establishes license conditions for the safe operation of each plant. The NRC provides continual oversight of plants through its Reactor Oversight Process to verify that they are being operated in accordance with NRC rules and regulations.

The comment does not provide any information that was not already considered in the evaluation in the draft EIS, and no changes were made to the EIS as a result of this comment.

S.13 Comments Concerning Accidents – Severe

Comment: Due to the danger of Hurricanes these proposed nuclear reactors put all this [environment-based tourism economy] at additional at risk. (0738-2 [Fifield, Virginia])

Comment: Storm surge has been "blown off" by FPL using Hurricane Andrew as the model. Hurricane Andrew is a poor example of the storm threat to Turkey Point because the storm

passed north of the site and passed quickly. A storm that would produce maximum surge at Turkey Point will be one that passes to the NW on the south side of the site so storm analysis should include data from Hurricanes Donna and Betsy, not Hurricane Andrew. (0744-3 [Harlem, Peter])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-359. The existing response is reprinted below.

As discussed in Section 5.11 of this EIS the AP1000 reactor vendor considered extratropical cyclones, hurricanes up to Category 5 on the Saffir-Simpson scale, and tornadoes up to EF5 on the enhanced Fujita scale. The total contribution of high winds to CDF was reported to be 1.38×10^{-8} per year by the AP1000 reactor vendor (Westinghouse 2011-TN261), assuming that only safety systems are available. The more detailed analysis in the FSAR (FPL 2014-TN4069) specifically for Turkey Point site also estimated CDF probability from high wind on the order of 1.0×10^{-8} per year. The safety design features of the AP1000, lead warning time before the arrival of hurricane force winds, and NRC's oversight policies are all considered when assuring plant safety in case of hurricane events.

Similarly, for possible severe accidents due to external flooding, the EIS in Section 5.11 states that each new reactor application evaluates the natural phenomena that are pertinent to the site for the proposed reactor design by applying present-day regulatory guidance and methodologies. This includes a determination of the characteristics of flooding at the site. The plant design elevation accounts for high tides in Biscayne Bay, which, in combination with maximum storm surge plus sea-level rise, are controlling for external floods. ASE Section 2.4 assesses the maximum external flood as being within the design basis of the site (NRC 2016-TN4775). The associated severe accident risk due to external flooding is discussed in Section 5.11.2.4 of the EIS and also shown to be small.

The comments did not provide any information in addition to that already considered in the draft EIS. Therefore, no changes were made to the EIS as a result of these comment.

No changes were made to the EIS as a result of these comments.

Comment: [There are so many reasons any sane person should oppose the creation of yet more toxic radioactive waste, the cost of which will be subsidized by US taxpayers. New reactor applications should be denied and all existing reactor licenses should not be renewed for the following 8 reasons:]

6. Catastrophic failure cannot be remedied. The estimated cost of the consequences of Chernobyl to date is nearly a half trillion dollars, Fukushima remediation is estimated at trillions of USD. There is no foreseeable end in these cost streams for thousands of years. Both the

monetary costs and human deaths will increase over time as both have caused permanent contamination of the environment, including food and water. (0760-5 [Anonymous, Anonymous])

Comment: It is totally absurd, total lunacy to allow this to go forward. The danger exists to all of Miami and South Florida, even to the entire state if anything any-tiny accident were to occur. .it would cause so very much radiation to escape into the atmosphere and water-table and into the ocean too! This is far-far too risky, their scientists and lawyers are all paid off to say what they say --you cannot allow this to go forward! (0769-1 [Dia, Maureen])

Comment: Rising seas are already inundating some of South Florida's streets. Higher sea levels can cause greater storm surges in the event of a hurricane. It is almost certain that over the lifetime of these proposed plants a hurricane will be in the vicinity. I believe the risks to public safety are too great for the NRC to approve this application. (0771-3 [Kendall, Samuel])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-365. The existing response is reprinted below.

As discussed in Section 5.11 of the EIS, the severe accident risks listed in Table 5-18 include the population dose risk values. Specifically, the risk values include the risk to human health in terms of calculated cumulative doses to the general public residing within 50 mi of the site and estimated early fatalities and latent cancer fatalities in the exposed population; total economic costs from evacuation, rehabilitation, and land interdiction, condemnation and decontamination; estimated areas of surrounding farm lands requiring decontamination; and from water ingestion. The staff review applied the latest available census data of 2010, and accounted for the increasing population trend, and the property values for independently assessing the applicant's results as presented in the EIS. Thus, the staff considered the most recent information in evaluating severe accident risk for the proposed new reactors.

As discussed in Section 5.11.2 of the EIS, the environmental risks from various classes of severe accidents for the Turkey Point site were considered for the purpose of severe accident analysis Site-specific information appears in Table 5-18 as population dose risk (personrem/Ryr), offsite economic costs (\$/Ryr), and population dose risk from water ingestion (personrem/Ryr). The AP1000 design has several passive safety features to reduce the risk from severe accidents. For example, as described in the AP1000 DCD Appendix 19B, one of the key AP1000 severe accident design features is the capability to retain the core debris within the reactor vessel for a large number of severe accident sequences by flooding the reactor cavity and submerging the outer surface of the reactor vessel. The heat removal capability of the water on the external surface of the reactor vessel prevents the reactor vessel wall from reaching temperatures at which failure of the reactor vessel could occur. This has been termed in-vessel retention (IVR). The primary benefit of in-vessel retention of the core is that ex-vessel severe accident phenomena associated with relocation of core debris to the containment, which can be a dominant containment failure mechanism, are

physically prevented. Thus, retention of the core within the reactor vessel results in a significant reduction in the potential for large fission product releases to the environment for core damage accidents.

In accordance with the Commission policy statement on severe reactor accidents (50 FR 32138) (TN4519), the severe accident risks of the proposed new reactors are presented in Table 5-18 of Section 5.11.2 of this EIS in terms of risk values per reactor-year, which are the product of the probability of a severe accident and its consequences. The NRC considers these risk values to represent the most meaningful way to place the risk in context and inform the environmental assessment process.

The NRC carries out its mission to protect public health and safety by specifying licensing and operational requirements that nuclear power plants must meet and by inspecting and enforcing compliance with these requirements. The NRC staff does not claim that the risk from a severe accident is zero or that a severe accident "cannot happen here," or that there would not be impacts to tourism or other economic activities. Rather, the NRC staff estimates the risk from a severe accident as described above and uses the estimates in the environmental analysis. The risk values include selected measures that are used for comparative analyses of societal risks and benefits. Specifically, the population dose and economic costs are used for assessing viable severe accident mitigation alternatives, or design alternatives, as explained in Section 5.11.3 of the EIS. The average individual fatality risk for the Turkey Point site, as shown in Table 5-19 and discussed in Section 5.11.2.1, are well below the Commission's safety goals (51FR 30028) (TN594). The comments provided no information in addition to that considered in the draft EIS analysis, and no changes were made to the EIS as a result of these comments.

No changes were made to the EIS as a result of these comments.

Comment: Storm surge on top of sea-level rise adds additional risk. In 1992, the two existing nuclear reactors at Turkey Point took a direct hit from Hurricane Andrew. According to the NRC's own report: "The onsite damage included loss of all offsite power for more than 5 days, complete loss of communication systems, closing of the access road, and damage to the fire protection and security systems and warehouse facilities....the high water tank collapsed onto the fire water system, rendering the fire protection system inoperable. In addition, the storm threatened safety-related equipment (e.g., potential collapse of the damaged Unit 1 chimney onto the diesel generator building)." With climate change causing more intense storms, a hit of a major storm during the life of these reactors is also a virtual certainty. (0749-3 [Ross, Kim])

Response: The comment is similar to other comments received on the draft EIS on this subject, but is not explicitly addressed in the existing responses in Appendix E. Therefore, the below response is drawn from existing responses at pages E-358 and 361. Also, the NRC staff has included additional text for clarity.

*The NRC has years of experience with hurricanes and other severe storms. Nuclear facilities were affected by Hurricane Andrew in Florida in 1992, by Katrina in Louisiana in 2005, and by Sandy along the East Coast in 2012, among others. **None of these events led to any radiological impacts to the surrounding environment.** Lessons learned from each hurricane are examined and enhancements to safety are made if deemed necessary. Since hurricanes have long lead warning times (on the order of days), plant shutdowns are commenced long before a hurricane arrives along with other protective measures and actions. In response to lessons learned from previous weather events, emergency planning and evacuation notification systems have been enhanced (e.g., see NRC Information notices 93-53 and 97-05 for Hurricane Andrew). Additionally, as part of the NRC's Fukushima lessons learned actions and orders, Turkey Point Units 3 and 4 have undergone additional analyses, including for hurricane events (NRC 2014-TN4738). The site is also part of the industry's FLEX initiative to address mitigation strategies for beyond design basis external events.*

EIS Appendix I indicates that nuclear power plants must be designed to withstand natural events. General Design Criteria 2 of 10 CFR Part 50 Appendix A requires nuclear power plants to be designed to withstand the effects of natural phenomena without loss of capability to perform their safety functions. A plant's design must reflect appropriate consideration of the most severe natural phenomena events that have occurred at or near the proposed site, with margin to account for uncertainty. In addition, the EIS does recognize that the safety review assesses the plant's capability to withstand external flooding, which is part of the design basis for proposed Turkey Point Units 6 and 7. As discussed in the staff's ASE Section 2.4 (NRC 2016-TN4775), the plant design elevation accounts for high tides in Biscayne Bay, which, in combination with maximum storm surge plus sea-level rise, are controlling for external floods. Therefore, with the information in Section 5.11.2.4 of this EIS and the safety finding that the plant at this site would meet all necessary regulatory requirements, the associated severe accident risk due to external flooding is small.

Climate change in general and rising sea level are expected to be gradual. Under 10 CFR 50.54(f), the NRC could determine whether or not a license should be modified based on a review of the impact of climate change on plant operation and adaptation, emergency preparedness, and the availability of nearby structures used for plant operation and safety. If the NRC determines that additional safety enhancements are necessary based on information obtained in accordance with 10 CFR 50.54(f), the NRC can require that such enhancements be implemented in a timely manner to assure adequate protection of the public within the current NRC regulatory process.

The comment does not provide any information in addition to that already considered in the EIS. Therefore, no changes were made to the EIS as a result of this comment.

Comment: The Turkey Point Nuclear Plant expansion should not receive NRC approval, for the following reasons: Turkey Point is located on the southeastern coast of Florida, in a setting vulnerable to hurricane damage. As a resident of the Florida Keys for forty years, I remember that Hurricane Andrew (1992) heavily damaged Turkey Point, raising grave concerns over nuclear contamination in nearby waters and jeopardizing lives of human and animal neighbors. (0745-1 [Newman, Joyce Clark])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists in Appendix E at page E-358. Therefore, the existing response is reprinted below, but the NRC staff has included additional text for clarity.

*The NRC disagrees with the comment concerning Hurricane Andrew effects on Turkey Point Units 3 and 4. The NRC has years of experience with hurricanes and other severe storms. Nuclear facilities were affected by Hurricane Andrew in Florida in 1992, by Katrina in Louisiana in 2005, and by Sandy along the East Coast in 2012, among others. **None of these events led to any radiological impacts to the surrounding environment.** Lessons learned from each hurricane are examined and enhancements to safety are made if deemed necessary. Since hurricanes have long lead warning times (on the order of days), plant shutdowns are commenced long before a hurricane arrives along with other protective measures and actions. In response to lessons learned from previous weather events, emergency planning and evacuation notification systems have been enhanced (e.g., see NRC Information notices 93-53 and 97-05 for Hurricane Andrew). Additionally, as part of the NRC's Fukushima lessons learned actions and orders, Turkey Point Units 3 and 4 have undergone additional analyses, including for hurricane events (NRC 2014-TN4738). The site is also part of the industry's FLEX initiative to address mitigation strategies for beyond design basis external events.*

As discussed in Section 5.11.2.4 of the EIS, the AP1000 reactor vendor considered extratropical cyclones, hurricanes up to Category 5 on the Saffir-Simpson scale, and tornadoes up to EF5 on the enhanced Fujita scale in the AP1000 design proposed for Turkey Point Units 6 and 7. The safety design features of AP1000, lead warning time before the arrival of hurricane force winds, and NRC's oversight policies are all considered when assuring plant safety in case of hurricane events.

The comment does not provide any information in addition to that already considered in the EIS. Therefore, no changes were made to the EIS as a result of this comment.

No changes were made to the EIS as a result of this comment.

Comment: Hurricanes may severely damage them. (0761-3 [Bazzone, Barbara])

Response: The comment is similar to other comments received on the draft EIS on this subject. Therefore, the below response is drawn from an existing response at page E-358.

The NRC has years of experience with hurricanes and other severe storms. Nuclear facilities were affected by Hurricane Andrew in Florida in 1992, by Katrina in Louisiana in 2005, and by Sandy along the East Coast in 2012, among others. Lessons learned from each hurricane are examined and enhancements to safety are made if deemed necessary. Since hurricanes have long lead warning times (on the order of days), plant shutdowns are commenced long before a hurricane arrives along with other protective measures and actions. In response to lessons learned from previous weather events, emergency planning and evacuation notification systems have been enhanced (e.g., see NRC Information notices 93-53 and 97-05 for Hurricane Andrew). Additionally, as part of the NRC's Fukushima lessons learned actions and orders, Turkey Point Units 3 and 4 have undergone additional analyses, including for hurricane events (NRC 2014-TN4738). The site is also part of the industry's FLEX initiative to address mitigation strategies for beyond design basis external events.

As discussed in Section 5.11.2.4 of the EIS, the AP1000 reactor vendor considered extratropical cyclones, hurricanes up to Category 5 on the Saffir-Simpson scale, and tornadoes up to EF5 on the enhanced Fujita scale in the AP1000 design proposed for Turkey Point Units 6 and 7. In regard to the estimated risk for proposed Turkey Point Units 6 and 7, calculated with PRA techniques, the total contribution of high winds to CDF was reported to be 1.38×10^{-8} per year by the AP1000 reactor vendor (Westinghouse 2011-TN261), assuming that only safety systems are available. The more detailed analysis in the FSAR (FPL 2014-TN4069) specifically for Turkey Point site also estimated CDF probability from high wind on the order of 1.0×10^{-8} per year. The safety design features of AP1000, lead warning time before the arrival of hurricane force winds, and NRC's oversight policies are all considered when assuring plant safety in case of hurricane events.

The comments provided no new information or challenges to the proposed new reactors not considered in the draft EIS; therefore, no changes were made to the EIS in response to these comments.

No changes were made to the EIS as a result of this comment.

Comment: [There are so many reasons any sane person should oppose the creation of yet more toxic radioactive waste, the cost of which will be subsidized by US taxpayers. New reactor applications should be denied and all existing reactor licenses should not be renewed for the following 8 reasons:]

2. The industry and federal regulators continue to minimize the probability and consequence of significant geomagnetic disturbances (GMD) and have failed to adequately institute safeguards

to protect the nations power grid and nuclear power plant cooling systems from catastrophic failure resulting from grid collapse. In the past 152 years; Earth has been struck roughly 100 solar storms causing significant geomagnetic disturbances (GMD), two of which were powerful enough to rank as extreme GMDs. If an extreme GMD of such magnitude were to occur today, in all likelihood it would initiate a chain of events leading to catastrophic plant failures across the country, quite similar in nature to the disasters at both Chernobyl and Fukushima, but multiplied by hundreds of times. (0760-2 [Anonymous, Anonymous])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-365. The existing response is reprinted below.

As discussed in Section 5.11 of the EIS, the severe accident risks listed in Table 5-18 include the population dose risk values. Specifically, the risk values include the risk to human health in terms of calculated cumulative doses to the general public residing within 50 mi of the site and estimated early fatalities and latent cancer fatalities in the exposed population; total economic costs from evacuation, rehabilitation, and land interdiction, condemnation and decontamination; estimated areas of surrounding farm lands requiring decontamination; and from water ingestion. The staff review applied the latest available census data of 2010, and accounted for the increasing population trend, and the property values for independently assessing the applicant's results as presented in the EIS. Thus, the staff considered the most recent information in evaluating severe accident risk for the proposed new reactors.

As discussed in Section 5.11.2 of the EIS, the environmental risks from various classes of severe accidents for the Turkey Point site were considered for the purpose of severe accident analysis Site-specific information appears in Table 5-18 as population dose risk (personrem/Ryr), offsite economic costs (\$/Ryr), and population dose risk from water ingestion (personrem/Ryr). The AP1000 design has several passive safety features to reduce the risk from severe accidents. For example, as described in the AP1000 DCD Appendix 19B, one of the key AP1000 severe accident design features is the capability to retain the core debris within the reactor vessel for a large number of severe accident sequences by flooding the reactor cavity and submerging the outer surface of the reactor vessel. The heat removal capability of the water on the external surface of the reactor vessel prevents the reactor vessel wall from reaching temperatures at which failure of the reactor vessel could occur. This has been termed in-vessel retention (IVR). The primary benefit of in-vessel retention of the core is that ex-vessel severe accident phenomena associated with relocation of core debris to the containment, which can be a dominant containment failure mechanism, are physically prevented. Thus, retention of the core within the reactor vessel results in a significant reduction in the potential for large fission product releases to the environment for core damage accidents.

In accordance with the Commission policy statement on severe reactor accidents (50 FR 32138) (TN4519), the severe accident risks of the proposed new reactors

are presented in Table 5-18 of Section 5.11.2 of this EIS in terms of risk values per reactor-year, which are the product of the probability of a severe accident and its consequences. The NRC considers these risk values to represent the most meaningful way to place the risk in context and inform the environmental assessment process.

The NRC carries out its mission to protect public health and safety by specifying licensing and operational requirements that nuclear power plants must meet and by inspecting and enforcing compliance with these requirements. The NRC staff does not claim that the risk from a severe accident is zero or that a severe accident “cannot happen here,” or that there would not be impacts to tourism or other economic activities. Rather, the NRC staff estimates the risk from a severe accident as described above and uses the estimates in the environmental analysis. The risk values include selected measures that are used for comparative analyses of societal risks and benefits. Specifically, the population dose and economic costs are used for assessing viable severe accident mitigation alternatives, or design alternatives, as explained in Section 5.11.3 of the EIS. The average individual fatality risk for the Turkey Point site, as shown in Table 5-19 and discussed in Section 5.11.2.1, are well below the Commission’s safety goals (51 FR 30028) (TN594).

The comment provides no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of this comment.

Comment: [I have monitored the proceedings as FPL endeavored to ram through this ill-conceived project against the wishes of the community. So much about the project is wrong --...]

* Risk of catastrophic meltdown as with Fukushima (0785-4 [Devlin, Marybeth])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-353. The existing response is reprinted below, but the NRC staff has included additional text for clarity.

The first several pages of Section 5.11 of the EIS discusses the actions taken by NRC to enhance the safety of U.S. reactors based on specific lessons learned from the event at Japan’s Fukushima Dai-ichi Nuclear Power Plant. On March 12, 2012, the Commission issued three Orders and a Request for Information (RFI) under 10 CFR 50.54(f) to holders of U.S. commercial nuclear reactor licenses and construction permits. The first Order (EA-12-049) requires a three-phase approach for mitigating beyond design-basis external events that employs installed structures, systems, and components (phase 1), onsite portable equipment (phase 2), and offsite support (phase 3). For the AP1000 passive design, passive means assure the cooling for the core, spent fuel pool, and containment are assured in the first 72 hours after an accident or external event. The AP1000 design includes ancillary diesel generators and features to provide make-up water after 72 hours and up to 7 days to the passive systems, such as the passive containment cooling water ancillary storage tank, and

ancillary diesel generators. This equipment is protected from external hazards including the safe-shutdown earthquake (SSE). The third Order (EA-12-051) requires reliable spent fuel pool level instrumentation (77 FR 16082) (TN1424). The AP1000 containment design differs from those identified in the second Order; therefore, the actions addressed in the second Order are not applicable to Turkey Point Units 6 and 7. The NRC staff, with the Commission's approval, implemented a plan to address the requirements in the Orders and the RFI for pending COL applications.

*In regard to the Turkey Point COL application, the NRC staff issued RAIs to FPL requesting information to address the requirements of the first Order on mitigation strategies for beyond design basis accidents and the third Order on spent fuel pool instrumentation, respectively, and information sought in the first RFI for a seismic reevaluation and the fifth RFI in regard to emergency preparedness (NRC 2012-TN3239). FPL addressed the first and third Orders along with the fifth RFI by proposing license conditions that would require action before initial fuel loading for proposed Units 6 and 7 (FPL 2014-TN4058; FPL 2014-TN4103). The NRC's evaluation of FPL's responses are addressed in the NRC's advanced safety evaluation (ASE). In particular, ASE Section 2.4 documents the staff evaluation of the potential effects of hurricanes on the proposed new units (NRC 2016-TN4775), and ASE Section 9.1 documents the staff evaluation of the spent fuel pool design (NRC 2016-TN4803). **The NRC staff's Final Safety Evaluation Report for the proposed units was published in November 2016. The Final Safety Evaluation Report can be found in NRC's Agencywide Document Access System (ADAMS) at <http://www.nrc.gov/reading-rm/adams.html> using accession number ML16277A469.** As discussed in Section 5.11.2.4 of the EIS, the AP1000 reactor vendor considered extratropical cyclones, hurricanes up to Category 5 on the Saffir-Simpson scale, and tornadoes up to EF5 on the enhanced Fujita scale in the AP1000 design. The total contribution of high winds to core damage frequency (CDF) was reported to be 1.38×10^{-8} per year by the AP1000 reactor vendor (Westinghouse 2011-TN261), assuming that only safety systems are available. The more detailed analysis in the FSAR (FPL 2014-TN4069) specifically for Turkey Point site also estimated CDF probability from high wind on the order of 1.0×10^{-8} per year. The safety design features of the AP1000, lead warning time before the arrival of hurricane force winds, and NRC's oversight policies are all considered in the NRC evaluation of plant safety in case of hurricane events. The common concern raised by the comments is already considered in Section 5.11 of the EIS; therefore, there were no changes made to this EIS.*

No change was made to the EIS as a result of this comment.

S.14 Comments Concerning the Uranium Fuel Cycle

Comment: There is a lack of safe storage area for dangerous radioactive materials. (0754-3 [Westberg, Jane])

Comment: [There are so many reasons any sane person should oppose the creation of yet more toxic radioactive waste, the cost of which will be subsidized by US taxpayers. New reactor applications should be denied and all existing reactor licenses should not be renewed for the following 8 reasons:]

3. Every nuclear power reactor makes massive amounts of radioactive waste. Nuclear powers waste is deadly, causes cancer, genetic mutations, and numerous documented chronic diseases. There is no known way to permanently contain, dispose or neutralize it. There are no permanent repositories. All claims to the contrary are unfounded. Nuclear waste will be hazardous for hundreds of thousands of years. (0760-3 [Anonymous, Anonymous])

Comment: The draft EIS did not account for enough of the human impacts of increased nuclear power, including the radiological impact on future generations who happen to recover radioactive spent fuel. (0765-2 [Polini, Bianca])

Comment: The final price is does not reflect fuel rods remaining radioactive for millions of years, and the costly security and safety measures that such waste sites require. Waste can end up in the wrong hands, or the facility experience a disaster and leak, leading to an uninhabitable portion of Florida (see Chernobyl quarantine zone and the Fukushima Daichi region). Not worth the risk, and I think the majority of voters and scientists would agree. (0767-1 [Falcone, Alex])

Comment: Producing radioactive waste i.e. spent fuel rods, daughter and byproducts of nuclear elements, new manmade radioactive elements, etc., should be suspended until a plausible plan for long term safe storage of radioactive waste is implemented. (0768-2 [Anonymous, Anonymous])

Comment: Radioactive Spent Fuel

The GEIS improperly relies on the legally deficient Continued Spent Fuel Storage Rule and Continued Spent Fuel Storage GEIS.

Pursuant to the remand in New York v. NRC, 681 F.3d 471 (D.C. Cir. 2012), the NRC has promulgated a rule on the continued storage of spent nuclear fuel. The agency also issued a generic environmental impact statement (GEIS) in connection with that rule. The rule and the GEIS have been challenged by several parties in the United States Court of Appeals for the District of Columbia Circuit. The Sierra Club is an amicus curiae in that proceeding.

Because of the inadequacies of the continued storage rule and GEIS, the NRC lacks a lawful basis under NEPA for licensing the Turkey Point reactors. The rule and the GEIS suffer from the following failures:

* In blatant violation of NEPA and the Court's decision in New York v. NRC, 681 F.3d 471 (D.C. Cir. 2012), the Continued Storage GEIS fails to examine the probability and consequences of failure to site a repository. Instead of examining the risk of failing to site a repository, the GEIS rationalizes the risk away by arbitrarily assuming that spent fuel will be protected by "institutional controls" for an. infinite period of time at reactor sites. This assumption is not only absurd and

inconsistent with the Nuclear Waste Policy Act, but it also defeats the Court's purpose of forcing the NRC to reckon with the environmental consequences of its failure to site a repository.

* The GEIS fails to acknowledge that the Continued Storage Rule is a licensing action, and therefore, it distorts the statement of purpose and need for the rule as relating to administrative rather than environmental concerns. As a result, the GEIS also mischaracterizes the alternatives that must be considered. Instead of evaluating alternatives related to storage and disposal of spent fuel, the GEIS examines alternatives related to the administrative question of how to prepare an EIS. The result is a farcical cost-benefit analysis that utterly fails to address alternatives for avoiding or mitigating the environmental impacts of storing spent fuel or siting a repository.

* The GEIS' analysis of the environmental impacts of extended spent fuel storage ignores the fact that the NRC knows very little about the behavior of spent fuel in long-term or indefinite storage conditions, especially the potentially significant effects of long-term dry cask storage on high burnup fuel integrity. In violation of NEPA, the NRC makes no attempt to quantify these uncertainties.

* The GEIS fails to fully consider the environmental impacts of spent fuel pool leaks and fires. In violation of NEPA, the GEIS relies on incomplete data, adopts a flawed concept of risk and ignores a range of causes for accidents.

* In violation of NEPA, the GEIS makes no attempt to show how the environmental impacts associated with the Continued Storage Rule will be quantified and incorporated into cost-benefit analyses for nuclear reactors. Although spent fuel disposal and long-term storage costs are high enough to tip the balance of a cost-benefit analysis for reactor licensing away from licensing, nowhere does the NRC explain how it will take these costs into account in reactor licensing decisions.

* In violation of NEPA, the GEIS fails to support the limited conclusions in the Continued Storage Rule and GEIS regarding the technical feasibility of spent fuel disposal.

* The NRC has splintered the analysis of environmental impacts associated with storage and disposal of spent fuel into an array of safety findings and environmental analyses. While the issues covered by these separate findings and analyses overlap and involve cumulative impacts, the NRC refuses to integrate them. The NRC also refuses to correct inconsistencies between them. (0783-2-1 [Taylor, Wallace])

Comment: The DEIS should also discuss the impacts and benefits of hardened on sight storage (HOSS). Although HOSS is not the perfect solution to the radioactive waste problem, it is the best solution to a bad situation. There actually is no permanent solution to the existence of approximately 70,000 tons of radioactive waste currently stored at reactor sites. But HOSS is a much better alternative than the groundless hope expressed in the Continued Storage Rule that this waste can be stored in pools and dry casks essentially forever. Therefore, a discussion of HOSS in the GEIS is required. (0783-2-2 [Taylor, Wallace])

Comment: Finally, conventional nuclear power produces radioactive waste, which must be stored for thousands of years, raising technical and long-term cost questions. (0783-2-6 [Taylor, Wallace])

Comment: Unavoidable Impacts

Chapter 10 of the DEIS purports to examine the unavoidable impacts of constructing Turkey Point reactors 6 and 7. Obviously, one of the unavoidable impacts of constructing a nuclear reactor is the production of radioactive waste in the form of spent nuclear fuel, as discussed previously in these comments.

The DEIS characterizes the impact of the radioactive waste as "SMALL." DEIS, Table 10-2 at p. 10-12. It is clear that no one else considers the impact to be small.

Radioactive waste in the form of spent fuel is a dangerous long-term problem. As the court described it in New York v. NRC, supra, at 474:

After four to six years of use in a reactor, nuclear fuel rods can no longer efficiently produce energy and are considered "spent nuclear fuel" ("SNF"). Blue Ribbon Commission on America's Nuclear Future, Report to the Secretary of Energy 10-11 (2012). Fuel rods are thermally hot when removed from reactors and emit great amounts of radiation -enough to be fatal in minutes to someone in the immediate vicinity. Id. Therefore, the rods are transferred to racks within deep, water-filled pools for cooling and to protect workers from radiation. After the fuel has cooled, it may be transferred to dry storage, which consists of large concrete and steel "casks." Most SNF, however, will remain in spent-fuel' pools until a permanent disposal solution is available. Id. at 11.

Even though it is no longer useful for nuclear power, SNF poses a dangerous, long-term health and environmental risk. It will remain dangerous "for time spans seemingly beyond human comprehension." Nuclear Energy Inst., Inc. v. EPA, 373 F.3d 1251, 1258 (D.C. Cir. 2004) (per curiam). Determining how to dispose of the growing volume of SNF, which may reach 150,000 metric tons by the year 2050, is a serious problem. See, Blue Ribbon Commission, supra, at 14.

And it is clear that no one really knows what to do with that waste. Again, quoting from New York v. NRC, supra, at 474:

The delay [in finding a permanent repository] has required plants to expand storage pools and to pack SNF more densely within them. The lack of progress on a permanent repository has caused considerable uncertainty regarding the environmental effects of temporary SNF storage and the reasonableness of continuing to license and relicense nuclear reactors. (emphasis added).

In addition, the Blue Ribbon Commission on America's Nuclear Future has said that we may already be at a point where more than one permanent repository is necessary. As noted in New York v. NRC, at this point there is no possibility of finding even one permanent repository in sight. Thus, as we continue to make more spent fuel, the problem becomes worse. The only

sensible course of action is to stop making more spent fuel. This is the context in which the analysis of unavoidable impacts should have been conducted. (0783-3-3 [Taylor, Wallace])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-371. The existing response is reprinted below, but the NRC staff has included additional text for clarity.

These comments are concerned with Continued Storage and long term disposal of high-level waste. While a repository for final disposal of spent nuclear fuel has yet to be constructed, the Commission has, through rulemaking, considered the environmental impacts of spent fuel disposal in light of the current national policy regarding spent fuel. Specifically, on August 26, 2014, the Commission issued a revised rule at 10 CFR 51.23 and an associated Generic Environmental Impact Statement (GEIS) for Continued Storage of Spent Nuclear Fuel (NUREG-2157). Continued Storage is defined as the storage of spent fuel after the end of the licensed life for operations of a nuclear reactor and before final disposal in a permanent repository. The revised rule adopts the generic impact determinations made in NUREG-2157 and codifies the NRC's generic determinations regarding the environmental impacts of continued storage of spent nuclear fuel beyond a reactor's operating license. In June of 2016, the U.S. Court of Appeals for the District of Columbia Circuit denied petitions for review of the Continued Storage Rule. See New York v. NRC, 824 F.3d 1012 (June 3, 2016).

As directed by 10 CFR 51.23(b), the impacts assessed in NUREG-2157 are deemed incorporated into this EIS in Section 6.1.6. Section 6.1.6 also explains that current national policy mandates that high-level and transuranic wastes are to be buried at deep geologic repositories and that no release to the environment is expected to be associated with deep geologic disposal. The comments provided no information in addition to that considered in the draft EIS analysis and NUREG-2157. Accordingly, no change was made to the EIS as a result of these comments.

No change to the EIS was made as a result of these comments.

Comment: In addition to the highly dangerous nuclear fuel in the reactor cores -thousands of pounds of spent fuel rods have already piled up on the shores of Biscayne Bay. There is no long term safe storage on the horizon. With the two new reactors having a much larger power capacity than the existing ones, increasing amounts of spent nuclear fuel containing uranium-235, plutonium, and other dangerous radioactive materials will be accumulating in a flood and hurricane prone location for many years to come. (0749-4 [Ross, Kim])

Comment: Already thousands of pounds of spent fuel rods (nuclear waste) have already piled up on the shores of Biscayne Bay. There is no long term safe storage on the horizon. With the two new reactors having a much larger power capacity than the existing ones, increasing amounts of spent nuclear fuel containing uranium-235, plutonium, and other dangerous radioactive materials will be accumulating in storm areas. (0786-2 [Eckert, Shelley])

Comment: In addition to the highly dangerous nuclear fuel in the reactor cores -thousands of pounds of spent fuel rods (nuclear waste) have already piled up on the shores of Biscayne Bay. There is no long term safe storage on the horizon. With the two new reactors having a much larger power capacity than the existing ones, increasing amounts of spent nuclear fuel containing uranium-235, plutonium, and other dangerous radioactive materials will be accumulating in a flood and hurricane prone location for many years to come. (0788-7 [Blake, Frances] [Cruz, Sarah] [Eckert, Shelley] [Kraskin, Madeline] [Peterson, Christina] [Webb, David])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-374. The existing response is reprinted below, but the NRC staff has included additional text for clarity.

These comments are concerned with Continued Storage, long-term disposal of spent fuel, and how climate change may affect spent fuel storage at the Turkey Point site. While a repository for final disposal of spent nuclear fuel has yet to be constructed, the Commission has, through rulemaking, considered the environmental impacts of spent fuel disposal in light of the current national policy regarding spent fuel. Specifically, on August 26, 2014, the Commission issued a revised rule at 10 CFR 51.23 and an associated Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel (NUREG-2157). Continued Storage is defined as the storage of spent fuel after the end of the licensed life for operations of a nuclear reactor and before final disposal in a permanent repository. The revised rule adopts the generic impact determinations made in NUREG-2157 and codifies the NRC's generic determinations regarding the environmental impacts of continued storage of spent nuclear fuel beyond a reactor's operating license. In June of 2016, the U.S. Court of Appeals for District of Columbia Circuit denied petitions for review of the Continued Storage Rule. See New York v. NRC, 824 F.3d 1012 (June 3, 2016). As directed by 10 CFR 51.23(b), the impacts assessed in NUREG-2157 are deemed incorporated into this EIS in Section 6.1.6. Section 6.1.6 also explains that current national policy mandates that high-level and transuranic wastes are to be buried at deep geologic repositories and that no release to the environment is expected to be associated with deep geologic disposal. In particular, NUREG-2157, Section 4.17 and Appendix E, describes the effect of long-lived isotopes including those mentioned in the comments.

Climate change, including future sea-level rise, is addressed in Chapter 2, Chapter 7, and Appendix I of the EIS. NRC-licensed spent fuel storage facilities are evaluated to ensure that the performance of their safety systems, structures, and components is maintained during flooding events, and they are monitored when in use. The NRC safety oversight process includes collection and analysis of information regarding changes in the severity or frequency of natural hazards, such as flooding from storm surge and sea level rise, as discussed in SECY-15-0137 (TN4731). When warranted, the NRC can request licensee study and analysis of changing natural hazards, and can impose additional design or operation requirements to address those changing hazards. The comments provided no information in addition to that considered in the draft EIS analysis

and NUREG-2157. Accordingly, no change was made to the EIS as a result of these comments.

No change to the EIS was made as a result of these comments.

S.15 Comments Concerning Transportation

Comment: I have monitored the proceedings as FPL endeavored to ram through this ill-conceived project against the wishes of the community. So much about the project is wrong --

Hazards

* Radioactive materials and waste transported through our community (0785-2 [Devlin, Marybeth])

Response: This comment is similar to other comments received on the draft EIS on this subject, but is not explicitly addressed in the existing responses in Appendix E. Therefore, the below response is drawn from the analysis documented in EIS Section 6.2.

Section 6.2 of the EIS addresses both the radiological and nonradiological environmental impacts from normal operating and accident conditions resulting from (1) shipment of unirradiated fuel to the Turkey Point site and the alternative sites, (2) shipment of irradiated (spent) fuel to a monitored retrievable storage facility or a permanent repository, and (3) shipment of low-level radioactive waste and mixed waste to offsite disposal facilities. The analysis presented in Section 6.2 does consider the impacts of routing such shipments through the local area and beyond. Shipments of fresh fuel, spent fuel, low-level radioactive waste, and mixed waste would meet applicable U.S. Department of Transportation and NRC regulations, including NRC requirements for certification of spent fuel shipping casks. The normal transportation dose analysis result in dose estimates that are a small fraction of doses due to natural background radiation.

No change was made to the EIS as a result of this comment.

S.16 Comments Concerning the Need for Power

Comment: Unnecessary waste of time, money and effort to add another energy source to the grid when power consumption is either already in balance with current power production or in overproduction as in excess in the foreseeable future. (0768-1 [Anonymous, Anonymous])

Comment: Has the applicant proven that this much power will be necessary in the future? Appliance efficiencies are continually being upgraded. New homes and buildings are constructed with higher efficiencies. The public has a greater understanding of the need and is willing to conserve energy. Can the applicant save ratepayers money by teaching and promoting more about energy efficiency? The money and resources consumed in the construction of these plants will be wasted if the electricity generated is unnecessary in the future. (0771-4 [Kendall, Samuel])

Comment: Please reevaluate the need for this project... the power is not needed, the proposed plant is outdated and the power lines are ugly and harmful. We do not want this. (0775-1 [Foley, Michael])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-389. The existing response is reprinted below.

The review team followed its Need for Power guidance found in NUREG-1555, the Environmental Standard Review Plan. Some of these comments generally suggest that the State's Determination of Need process implemented by the FPSC, upon which NRC relies pursuant to Section 8.4 of NRC's Environmental Standard Review Plan (NUREG-1555), is flawed, outdated, or relies upon faulty logic or assumptions. The FPSC process requires FPL to provide an annual update to its feasibility assessment of Units 6 and 7. The FPSC has approved the FPL process through its 2015 independent review of FPL's planning assumptions, cost estimates, feasibility analysis, and other considerations, which FPL must annually report to FPSC. New information regarding the planning assumptions and feasibility of Units 6 and 7 was made public through this process and updates have been made to Chapter 8 and Section 10.6 of the EIS to reflect this new information. The FPSC's 2015 approval of Docket 15009 EI reaffirms the State's 2008 determination that Units 6 and 7 are needed and remain viable (FPSC 2015-TN4521). The review team reviewed the most recent FPSC proceedings in this regard and finds that the process for annually updating the feasibility and associated analyses was (1) systematic, (2) comprehensive, (3) subject to confirmation, and (4) responsive to forecasting uncertainty. Other comments in this set challenge the need for the two new nuclear units in favor of other sources of electricity, primarily conservation and solar power generation. These alternatives are discussed in detail in Sections 9.1 (No-Action Alternative), 9.2.1 (Alternatives Not Requiring New Generating Capacity), and 9.2.3 (Other Alternatives). No changes were made to the EIS because of these comments.

These comments provided no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of these comments.

S.17 Comments Concerning Alternatives – No-Action

Comment: Therefore, I support adoption of the NO-ACTION alternative, which the DEIS identified as the first of five categories of alternatives to the proposed Federal actions. (0785-16 [Devlin, Marybeth])

Response: This comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-391. The existing response is reprinted below, but the NRC staff has included additional text for clarity.

*The impacts of a no-action alternative are discussed in Section 9.1 of the EIS. Selecting the no-action alternative would mean a license would not be issued for the proposed reactor and impacts from its construction and operation would not occur. Such a decision would also mean, however, that the purpose and need of the proposed action (to provide additional baseload electrical generation capacity for use in the FPL service territory) would have to be satisfied by other means. The environmental impacts of meeting the need for power by these other means are discussed in Section 9.2, and the review team concluded that none of the feasible alternatives was environmentally preferable to the proposed action. The comments did not provide any information that would change the review team's conclusions. **To the extent specific information regarding the environmental impacts of the proposed action was identified, that information is addressed in other resource areas responses to comments.** Therefore, no changes to the EIS were made as a result of these comments.*

No change to the EIS was made as a result of this comment.

S.18 Comments Concerning Alternatives – Energy

Comment: Go with solar, wind and water power! We have the ocean right at our door, harness its strength. Think out of the box! (0741-2 [Fisher, Norma and Woody])

Comment: Why hasn't solar power been given serious consideration and effort? (0754-4 [Westberg, Jane])

Comment: I prefer all new energy be Solar, Wind and Hydro. (0756-4 [Merrill, Robin])

Comment: When you add to these factors the fact that we already have the capability of obtaining the energy Floridians need from what Elon Musk has dubbed the handy fusion reactor in the sky, and that that's precisely the kind of energy Floridians are calling for, it becomes clear that it is completely unnecessary to play such a high-stakes game with so many lives. (0757-3 [Gale, Michelle])

Comment: I cannot imagine that going forward with the expansion would have more benefits than not. Ultimately there should be more implementation of small solar fields by FPL in or near the communities they will power, and larger fields in large areas of low ecological importance. (0765-5 [Polini, Bianca])

Comment: PLEASE invest in Solar & wind power. It is unbelievable to me that Florida, with all our sun, is not the leading state for solar power. Please explain! (0772-2 [Mennel-Bell, Mari])

Comment: This is FL. Is there a reason that solar power is just completely ignored here? Maybe FPL could invest in some Elon Musk's solar panels. At least then they can know exactly how much per unit the item will cost and the expected outcome. At this point their plan has no realized budget and is also toxic to the environment. (0776-1 [Anonymous, Jennifer])

Comment: Alternative energy sources, particularly solar energy is where this commission should be focusing. Florida is ripe for solar energy production, nonetheless, and thanks to lobbying by FPL, Florida offers the NO incentives to its population for installed solar energy in homes or businesses. FPL should be exploring ways to maximize energy generation through natural sources, solar primarily, given the excellent conditions presented in Florida. (0777-2 [Anonymous, Gerardo])

Comment: There are alternative sources of clean energy which are being ignored. We need to think of the future generation and move away from this type of energy source and start implementing cleaner energy throughout. (0778-7 [Cortes, Alexandra Lange])

Comment: Renewable energy has been making great strides in the last few years. It is fast becoming an increasing share of the energy mix and its cost is significantly decreasing. A recent publication describes the renewable energy landscape as follows:

The American investment in wind energy continues to pay off in the form of reduced costs, improved efficiency, and lower prices for consumers. The beginning of 2014 marked a record wave of new construction, and the American Wind Energy Association reported that wind power continues to lead the way in affordable, reliable renewable energy.

"In many parts of the country today [...] wind is the most economic form of new energy generation," as NextEra Energy Chief Financial Officer Moray P. Dewherst said in a recent earnings call.

Investments in technological advancements and stable policy have helped drive down the cost of wind energy by 43% in four years, and the industry remains on schedule to grow to supply 20% of the U.S. Power grid by 2030, and beyond.

Wind energy prices and wind energy costs have dropped sharply in recent years.... DOE Wind Technologies Market Report 2012 confirms that the cost of wind energy has declined by 43% over the last four years.

As the report explains:

1. The capital cost to develop wind power continues to drop
2. The average cost to purchase electricity provided by wind is falling
3. The productivity of wind turbines continues to increase
4. 70% of the value of wind turbines installed in the U.S. now carries a "Made-in-the-USA" label

Zero-fuel-cost wind energy directly displaces the output of the most expensive and least efficient power plants currently operating....

Significant water savings come along with those for fuel....

Supplement 1

More than a dozen studies conducted by independent grid operators, state governments, academic experts, and others have found that wind energy benefits consumers by reducing electricity prices, and utilities are taking note:

"Wind prices are extremely competitive right now, offering lower costs than other possible resources, like natural gas plants," David Sparby, President and CEO of Xcel Energy's Northern States Power, announcing 600 MW of new wind power contracts in 2013.

"The expansion is planned to be built at no net cost to the company's customers and will help stabilize electric rates over the long term by providing a rate reduction totaling \$10 million per year by 2017, commencing with a \$3.3 million reduction in 2015." MidAmerican Energy Co., 2013 press release, after the Iowa Utilities Board approved the addition of 1,050 MW of wind generation in Iowa.

Cost savings with wind power are apparent across the country. Newly released DOE data shows that consumers in the states that use the most wind energy have fared far better than consumers in states that use less wind energy.

[In 2013] [p]hotovoltaic (PV) installations continued to proliferate, increasing 41% over 2012 to reach 4,751 MW, and 410 MW of concentrating solar power (CSP) plants also came online. Solar was the second-largest source of new electricity generating capacity in the U.S., exceeded only by natural gas. And the cost to install solar fell throughout the year, with average system prices ending the year 15% below the mark set at the end of 2012.

Increasingly, solar is not bound by its cost, but rather by its role in the electricity sector. And as solar continues along its path toward the mainstream, its integration with the broader electricity market from a technical, market and regulatory perspective will become one of the most important issues in the industry.

Key Figures:

- * The U.S. installed 4,751 MW of solar PV in 2013, up 41% over 2012 and nearly fifteen times the amount installed in 2008.
- * There is now a total of 12.1 GW of PV and 918 MW of CSP operating in the U.S.
- * More solar has been installed in the U.S. in the last eighteen months than in the 30 years prior.
- * Solar accounted for 29% of all new electricity generation capacity in 2013, up from 10% in 2012. This made solar the second-largest source of new generating capacity behind natural gas.
- * The wave of concentrating solar power installations slated for completion at the end of 2013 into 2014 kicked off with the 280 MW Solana project and the Genesis Solar project's initial 125 MW phase. In early 2014, BrightSource's notable Ivanpah project also began operating and SolarReserve's Crescent Dunes began commissioning.

* Each year approximately 30,000 solar water heating and cooling (SHC) systems are installed in the U.S., generating an estimated \$435 million in annual revenue. There is currently 9 GWth of SHC capacity installed in the U.S., and the country ranks 36th in the world in installed capacity relative to its population.

For 2014, our forecast calls for 26% overall growth in the U.S. solar market.

American Council On Renewable Energy, *The Outlook For Renewable Energy in America*, 2014.

As further evidence of the viability of renewable energy, over half of the states have renewable electricity standards that require a certain amount of the power produced in the state to be generated by renewable energy. (0783-2-10 [Taylor, Wallace])

Comment: Another aspect of renewable energy should not be overlooked -distributed generation (DG). Distributed generation is the generation of electricity from sources near the point of consumption. American Council for an Energy-Efficient Economy, www.aceee.org/topics/distributed-generation. In almost all cases, distributed generation is an energy production facility, primarily solar and wind, owned by the entity consuming the power. Over the past few years the installation of distributed generation facilities has increased and the cost of those power sources, especially solar, has decreased. In addition, states have passed laws and regulations making distributed generation more affordable and more accessible.

The Department of Energy issued a report highlighting the benefits of distributed generation:

DG offers potential benefits to electric system planning and operations. On a local basis there are opportunities for electric utilities to use DG to reduce peak loads, to provide ancillary services such as reactive power and voltage support, and to improve power quality.

DG can also be used to decrease the vulnerability of the electric system.... There are many examples of customers who own and operate facilities in these sectors who are using DG to maintain operations when the grid is down during weather-related outages and regional blackouts.

Under certain circumstances, and depending on the assumptions, DG can also have beneficial effects on land use and needs for rights-of-way for electric transmission and distribution.

U.S. Department of Energy, [The Potential Benefits of Distributed Generation and Rate-Regulated Issues That May Impede Their Expansion](#), 2007.

States can do much to encourage and support distributed generation. These efforts would include tax credits, net metering requirements, and feed-in tariffs. States can adopt, and many states have adopted, interconnection standards that make it easier for distributed generation facilities to connect to the electric grid. (0783-3-1 [Taylor, Wallace])

Comment: Energy efficiency, likewise, has clearly demonstrated its reliability, efficacy and cost effectiveness. In fact, energy efficiency is the most readily available and least expensive way to reduce our dependence on fossil fuels and to meet energy capacity needs. R. Neal Elliott,

Rachel Gold, and Sara Hayes, Avoiding a Train Wreck: Replacing Old Coal Plants With Energy Efficiency, 2011.

A recent report by the International Energy Agency, Capturing the Multiple Benefits of Energy Efficiency, 2014, describes the viability of energy efficiency as follows:

As energy efficiency continues to gain attention as a key resource for economic and social development across all economies, understanding its real value is increasingly important. The multiple benefits approach to energy efficiency policy seeks to expand the perspective of energy efficiency beyond the traditional measures of reduced energy demand and lower greenhouse gas (GHG) emissions by identifying and measuring its impacts across many different spheres.

The term "multiple benefits" aims to capture a reality that is often overlooked: investment in energy efficiency can provide many different benefits to many different stakeholders. Whether by directly reducing energy demand and associated costs (which can enable investment in other goods and services) or facilitating the achievement of other objectives (e.g., making indoor environments healthier or boosting industrial productivity), recent research acknowledges the enormous potential of energy efficiency. [Energy efficiency has a] role as a major contributor to strategic objectives across five main themes: enhancing the sustainability of the energy system, economic development, social development, environmental sustainability and increasing prosperity.

Energy efficiency is taking its place as a major energy resource in the context of national and international efforts to achieve sustainability targets. This reflects a paradigm shift that is beginning to give credence to actions on both the supply and the demand side in the quest to achieve economic growth while supporting energy security, competitiveness and environmental sustainability.

In effect, attention to energy efficiency has begun to evolve, progressing from the lack of visibility inherent in its identification as "the hidden fuel" (i.e., measured and valued only as the negative quantity of energy not used) to an increasing recognition of its role as the "first fuel." Energy use avoided by International Energy Agency (IEA) member countries in 2010 (generated from investments over the preceding 1974 to 2010 period), was larger than actual demand met by any other single supply-side resource, including oil, gas, coal, and electricity making energy efficiency the largest or "first" fuel.

Another recent report by the American Council for an Energy-Efficient Economy was based on a study to assess the costs of energy efficiency programs and cost effectiveness of those programs from 2009 to 2012. Maggie Molina, The Best Value for America's Energy Dollar: A National Review of the Cost of Utility Energy Efficiency Programs, 2014. The study reviewed energy efficiency programs in 20 states. The finding was that each dollar invested by utilities and participants in energy efficiency measures yields \$1.24 to \$4.00 in benefits. The study concluded:

In summary, the results of this analysis clearly demonstrate that energy efficiency programs are the least-cost resource option available to utilities [E]lectricity efficiency programs, at a range

of about 2 to 5 cents per kWh and an average of 2.8 cents per kWh, are about one half to one third the levelized cost of alternative new electricity resource options.

All of this should have been discussed and analyzed in the DEIS. (0783-3-2 [Taylor, Wallace])

Comment: [I have monitored the proceedings as FPL endeavored to ram through this ill-conceived project against the wishes of the community. So much about the project is wrong ---...] Adverse Social Impacts

* Failure to convert to safe, clean, renewable energy-sources (0785-13 [Devlin, Marybeth])

Comment: This investment of more than 20 billion dollars makes no logical sense. Solar power was not considered a viable alternative by the NRC reviewers -even though no state in the eastern half of the U.S. has the solar potential of Florida -also known as the Sunshine State. FPL should drop this risky project and instead embrace a solar alternative that the company knows its customers want. Solar contains virtually none of the risk of its proposed Turkey Point expansion and will contribute to both the ecological and economic sustainability of our region for years to come. (0786-5 [Eckert, Shelley])

Comment: The DEIS seems to have based the proposed approval of the COLs in large part on the following rationale:

If no other facility would be built or strategy implemented to take its place, the benefits of the additional electrical capacity and electricity generation to be provided would also not occur and the need for baseload power would not be met.

However, while FPL decided not to offer another suitable facility or strategy, the lack thereof merely reflects FPL's determination to do things the way that best serves its continued growth in profitability. As NRC knows, there are many new technologies that use safe, clean, renewable -- and likely lower-priced -- power-sources. Those improved technologies would break FPL's grip on the local residents as the sole electricity-provider. (0785-14 [Devlin, Marybeth])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, but some were not explicitly addressed in existing responses in Appendix E. The below response is drawn from a response in Appendix E, page E-419 and the analysis documented in EIS Sections 9.2 and 8.2.1.

The NRC does not promote any particular form of energy generation, including nuclear. However, the NRC does examine energy alternatives as part of its NEPA responsibilities. The staff's evaluation of renewable alternative energy sources, including wind, solar, geothermal, fuel cells, and biomass, in Section 9.2 of the EIS describes potential impacts from these sources in comparison with the proposed action. In EIS Section 9.2, and as summarized below, the review team determined that none of these renewable energy sources could, by themselves, meet the purpose and need of the proposed action, i.e., to provide a target of 2,200 MW(e) of baseload power.

In regard to wind energy, (1) the wind resource in Florida is not optimal for utility-scale generation, (2) the DOE/EIA projects no growth in wind energy in Florida, (3) the capacity

factor of wind power is too low for baseload applications, and (4) the offshore area needed (and the associated environmental impacts) would be very large, as discussed in Section 9.2.3.2 of the FEIS. Further, in order to match the average annual generation expected from the proposed nuclear units (17,345 GWh) with wind power alone, more than 3,300 2 MW(e) wind turbines would have to be installed, coupled with energy storage on a very large scale. There is no such large-scale energy-storage mechanism available in Florida. Therefore, the NRC staff concluded that a wind-energy facility at the Turkey Point site or elsewhere within FPL's ROI would not be a reasonable alternative to construction of a 2,200 MW(e) nuclear power-generation facility that would be operated as a baseload plant.

In regard to solar energy, including distributed solar generation 1) the projections for growth in solar energy in Florida are limited, (2) the area needed (and the associated environmental impacts) would be very large, and (3) the capacity factor of solar power is too low for baseload applications, as discussed in Section 9.2.3.3 of the FEIS. Therefore, the NRC staff concluded that a solar-energy facility at or in the vicinity of the Turkey Point site would not be a reasonable alternative to construction of a 2,200 MW(e) nuclear power-generation facility that would be operated as a baseload plant.

Alternatives not requiring new generating capacity, including conservation and demand side management, are discussed in Section 9.2.1 of the EIS. Conservation and demand side management are also discussed in EIS Section 8.2.1. The staff concluded in the EIS that these technologies also did not represent reasonable alternatives to a large baseload power plant located at the Turkey Point site because they could not meet the purpose and need of the project, i.e., demand side management resources currently available or in the foreseeable future could not provide enough baseload capacity to avoid or mitigate the need that would be met by the proposed action.

The staff concluded in Section 9.2 of the EIS that none of the feasible alternative energy options were environmentally preferable to the proposed action. The comments did not present information appreciably different from that previously considered by the NRC staff in evaluating alternative energy sources in the EIS, and therefore did not change the staff's conclusions. In addition, as stated in EIS Section 8.2.1.4, neither renewable generation resources nor demand side management resources currently available or in the foreseeable future could provide enough baseload capacity to avoid or mitigate the need that would be met by the proposed action. The cost of energy alternatives was not considered in the EIS because the options were either not capable of meeting the purpose and need, or were not environmentally preferable.

No change to the EIS was made as a result of these comments.

Comment: FPL can easily deploy safer sources to supply customers power. There are no incentives to sell power back to FPL. Perhaps solar is-a better and cheaper long term choice. (0766-2 [Romeo, Sean])

Comment: The money used to expand the reactors could be used for safer and more logical energy sources such as hurricane-proof solar panels, wind turbines, or tidal power generators. I

have lived in South Florida for over 20 years, please look into safer technology that does not involve natural gas, coal, or nuclear. (0767-4 [Falcone, Alex])

Comment: My preference would be to fill the growing energy needs of South Florida through a near-term expansion of solar power generation and battery storage on the Turkey Point site and elsewhere in the area. For longer-term energy supply, development of tidal or ocean current power generation or new technology fail-safe nuclear power should be studied. Current nuclear fission electricity generation has not solved its operational safety or waste problems and should be phased out and new technology developed.

If an expansion of current technology is chosen with the addition of units 6 and 7, then strict controls and monitoring plans should be developed. Solar generation panels should be added on the existing site. (0773-1 [Buck, Eric])

Comment: Alternatives

An EIS must discuss reasonable alternatives "to the proposed action." 42 U.S.C. § 4332 (2) (C) (iii). The alternatives analysis is the "heart of the environmental impact statement." 40 C.F.R. § 1502.14. NEPA demands that the agency "rigorously explore and objectively evaluate all reasonable alternatives." 40 C.F.R. § 1502.14. The "existence of a viable but unexamined alternative renders an environmental impact statement inadequate." Resources Ltd. v. Robertson, 35 F.3d 1300, 1307 (9th Cir. 1994). An alternative can be reasonable if it avoids the environmental harm better than another alternative. Surfrider Foundation v. Dalton, 989 F. Supp. 1309 (S.D. Cal. 1998), *aff'd per curiam*, 196 F.3d 1057 (9th Cir. 1998).

A reasonable alternative to the construction of Turkey Point 6 and 7 is reliance on renewable energy and energy efficiency. The DEIS makes only passing, reference to energy efficiency, §9.2.1.3. Renewable energy is passed off with very little discussion as being unable to provide adequate power. §§ 9.2.3.2, 9.2.3.3. This is not the "substantial treatment" of alternatives required by 40 C.F.R. § 1502.14 (b).

In fact, renewable energy and energy efficiency are reasonable alternatives that would provide sufficient power.

Numerous studies have shown that renewable energy and energy efficiency can satisfy all of our electricity demand. In 2007, Mark Jacobson and Cristina Archer, from Stanford University, published an article showing how wind power, when interconnected with adequate transmission infrastructure, can replace conventional baseload power. Christina Archer and Mark Jacobson, Supplying Baseload Power and Reducing Transmission Requirements by Interconnecting Wind Farms, *Journal of Applied Meteorology and Climatology*, v. 46, Nov. 2007.

In 2009, Mark Jacobson reviewed solutions to global warming, air pollution and energy security. Mark Jacobson, Review of Solutions to Global Warming, Air Pollution, and Energy Security, *Energy & Environmental Science*, v. 2, p. 148-173, 2009. Professor Jacobson concluded that wind energy was the best solution, with other renewable sources coming in just below wind. Nuclear power was ranked lower than any of the renewable sources. It is important to note that Professor Jacobson was considering the impacts of energy sources on a number of

environmental values, such as global warming, air pollution, energy security, water supply, land use, wildlife, resource availability, thermal pollution, water pollution, nuclear proliferation, and undernutrition. This is an important point that underscores our previous comments that the EPA must consider the impacts of energy sources beyond just the carbon content of emissions from a specific source.

With respect to just climate-relevant emissions, however, the aforementioned article has this to say about nuclear power:

Nuclear power plant emissions include those due to uranium mining, enrichment, and transport and waste disposal as well as those due to construction, operation, and decommissioning of the reactors. We estimate the lifecycle emissions of new nuclear power plants as 9-70 g CO₂e kWh⁻¹, with the lower number from an industry estimate and the upper number slightly above the average of 66 g CO₂e kWh⁻¹ from a review of 103 new and old lifecycle studies of nuclear energy. Three additional studies estimate mean lifecycle emissions of nuclear reactors as 59, 16-55, and 40 g CO₂e⁻¹, respectively; thus, the range appears within reason. (0783-2-3 [Taylor, Wallace])

Comment: There were two related reports issued in 2011 by the American Council for an Energy-Efficient Economy. R. Neal Elliott, Rachel Gold, and Sara Hayes, [Avoiding a Train Wreck: Replacing Old Coal Plants With Energy Efficiency](#), 2011; Dan York and Martin Kushler, [The Old Model Isn't Working: Creating the Energy Utility for the 21st Century](#), 2011. These reports emphasized the benefits of energy efficiency in replacing fossil fuels. The first report made the following findings:

The untapped potential for increased efficiency savings is massive, with the projected range of available efficiency consistently falling within (or exceeding) the range of estimated capacity needed to address forecasted coal retirement.

[T]he average cost to a utility for energy efficiency measures is 2.5 cents per kWh, in comparison to new generation sources, which can range from 6 to 15 cents per kWh.

One...analysis estimated that by 2018 new energy efficiency programs could decrease summer peak capacity demand by 20,000 MW of the 40,000 MW that may be needed. An ACEEE meta-analysis of 48 studies on the potential for energy efficiency in the U.S. indicates that given the right choices and investments, the U.S. could cost-effectively reduce energy consumption by 20 to 30% or more over the course of the next 20 years.

States and localities that invest in efficiency profit from a range of secondary economic benefits as well. Energy efficiency investments directly reduce utility bills and operating costs for consumers. This effectively reduces dollars spent for the purchase of fuel and the costs of operating a coal plant, and redirects those dollars into new jobs in other sectors of the local economy. Most of these sectors create more local jobs than the fossil-fueled electric generating sector where significant dollars flow out of the local economy. In addition, utilizing energy efficiency resources to enable the retirement of older coal plants helps reduce risk by significantly reducing the amount of future costs that ratepayers would face if a policy to impose a cost for carbon emissions was enacted.

Efficiency can be deployed quickly.

The second ACEEE report describes how a new public utility model can implement energy efficiency programs for the benefit of all. So, energy efficiency is practical, achievable, and decreases the reliance on fossil fuels and nuclear power.

Another source considering the ability of renewable energy and energy efficiency to provide all needed electric power, is Arjun Makhijani, Carbon-Free and Nuclear-Free: A Roadmap for U.S. Energy Policy, 2007, available for download at www.ieer/carbon-free/. In that book Dr. Makhijani shows how:

It is technologically and economically feasible to phase out CO₂ emissions and nuclear power at the same time. The analysis in this report indicates that it can be done at reasonable cost by 2050.

Dr. Makhijani describes a nuclear-free and carbon-free energy future as follows:

The U.S. renewable energy resource base is vast and practically untapped. Available wind energy resources in 12 Midwestern and Rocky Mountain states equal about 2.5 times the entire electricity production of the United States. North Dakota, Texas, Kansas, South Dakota, Montana, and Nebraska each have wind energy potential greater than the electricity produced by all 103 [in 2007] U.S. nuclear power plants. Solar energy resources on just one percent of the area of the United States are about three times as large as wind energy, if production is focused in the high insolation areas in the Southwest and West.

Just the parking lots and rooftops in the United States could provide most of the U.S. electricity supply. This also has the advantage of avoiding the need for transmission line expansion, though some strengthening of the distribution infrastructure may be needed. Wind energy is already more economical than nuclear power. In the past two years, the costs of solar cells have come down to the point that medium-scale installations, ..., are economical in sunny areas, since they supply electricity mainly during peak hours.

The main problem with wind and solar energy is intermittency. This can be reduced by integrating wind and solar energy together into the grid - for instance, wind energy is often more plentiful at night. Geographic diversity also reduces the intermittency of each source and for both combined.

Finally, the book summarizes the analysis with 12 recommendations for a clean and renewable energy future:

1. Enact a physical limit of CO₂ emissions for all large users of fossil fuels (a "hard cap") that steadily declines to zero prior to 2060, with the time schedule being assessed periodically for tightening according to climate, technological, and economic developments. The cap should be set at the level of some year prior to 2007, so that early implementers of CO₂ reductions benefit from the setting of the cap. Emission allowances would be sold by the U.S. government for use in the United States only. There would be no free allowances, no offsets and no international sale or purchase of CO₂ allowances. The estimated revenues-approximately \$30 to \$50 billion

Supplement 1

per year - would be used for demonstration plants, research and development, and worker and community transition.

2. Eliminate all subsidies and tax breaks for fossil fuels and nuclear power (including guarantees for nuclear waste disposal from new power plants, loan guarantees, and subsidized insurance).
3. Eliminate subsidies for biofuels from food crops.
4. Build demonstration plants for key supply technologies, including central station solar thermal with heat storage, large-and intermediate-scale solar photovoltaics, and CO₂ capture in microalgae for liquid fuel production (and production of a high solar energy capture aquatic plants, for instance in wetlands constructed at municipal wastewater systems).
5. Leverage federal, state and local purchasing power to create markets for critical advanced technologies, including plug-in hybrids.
6. Ban new coal-fired power plants that do not have carbon storage.
7. Enact at the federal level high efficiency standards for appliances.
8. Enact stringent building efficiency standards at the state and local levels, with federal incentives to adopt them.
9. Enact stringent efficiency standards for vehicles and make plug-in hybrids the standard U.S. government vehicle by 2015.
10. Put in place federal contracting procedures to reward early adopters of CO₂ reductions.
11. Adopt vigorous research, development, and pilot plant construction programs for technologies that could accelerate the elimination of CO₂, such as direct electrolytic hydrogen production, solar hydrogen production (photolytic, photochemical, and other approaches), hot rock geothermal power, and integrated gasification combined cycle plants using biomass with a capacity to sequester the CO₂.
12. Establish a standing committee on Energy and Climate under the U.S. Environmental Protection Agency's Science Advisory Board.

The foregoing discussion makes it clear that there are numerous ways to get to a clean and renewable energy future without nuclear power. (0783-2-7 [Taylor, Wallace])

Comment: But the needs of the community for additional electrical capacity should not be restricted by the profit-goals of one company that insists on using old technologies in its self-interest. The issue is not whether more nuclear reactors should be constructed either at Turkey Point or elsewhere. The true issue is what our energy-future should be. The residents of Miami-Dade County are ready for solar, wind, wave, tidal, and fuel-cell technologies to be our energy-future. We want the nuclear reactors phased out and decommissioned. We want the freedom to choose how our electricity is provided and to escape enslavement to a monopolistic corporation. (0785-15 [Devlin, Marybeth])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, but some were not explicitly addressed in existing responses in Appendix E. The below response is drawn from a response at Appendix E, page E-421 and the analysis documented in EIS Sections 9.2 and 8.2.

The NRC does not promote any particular form of energy generation, including nuclear. However, the NRC does examine energy alternatives as part of its responsibilities under the National Environmental Policy Act (NEPA). The staff's evaluation of renewable alternative energy sources, including wind, solar, water-driven, geothermal, fuel cells, and biomass, in Section 9.2 of the EIS describes potential impacts from these sources in comparison with the proposed action. In Section 9.2 the review team determined that none of these renewable energy sources could, by themselves, meet the purpose and need of the proposed action, which is to provide a target of 2,200 MW(e) of baseload power. Each of these sources is wholly incapable of generating baseload power or are incapable of generating baseload power in the amount that the proposed Units 6 and 7 would generate.

In regard to wind energy, (1) the wind resource in Florida is not optimal for utility-scale generation, (2) the DOE/EIA projects no growth in wind energy in Florida, (3) the capacity factor of wind power is too low for baseload applications, and (4) the offshore area needed (and the associated environmental impacts) would be very large, as discussed in Section 9.2.3.2 of the FEIS. Further, in order to match the average annual generation expected from the proposed nuclear units (17,345 GWh) with wind power alone, more than 3,300 2 MW(e) wind turbines would have to be installed, coupled with energy storage on a very large scale. There is no such large-scale energy-storage mechanism available in Florida. Therefore, the NRC staff concluded that a wind-energy facility at the Turkey Point site or elsewhere within FPL's ROI would not be a reasonable alternative to construction of a 2,200 MW(e) nuclear power-generation facility that would be operated as a baseload plant.

In regard to solar energy, including distributed solar generation, (1) the projections for growth in solar energy in Florida are limited, (2) the area needed (and the associated environmental impacts) would be very large, and (3) the capacity factor of solar power is too low for baseload applications, as discussed in Section 9.2.3.3 of the FEIS. Therefore, the NRC staff concluded that a solar-energy facility at or in the vicinity of the Turkey Point site would not be a reasonable alternative to construction of a 2,200 MW(e) nuclear power-generation facility that would be operated as a baseload plant.

Alternatives not requiring new generating capacity, including conservation and demand side management, are discussed in Section 9.2.1 of the EIS. Conservation and demand side management are also discussed in EIS Section 8.2.1. The staff concluded in the EIS that these technologies did not represent reasonable alternatives because they also could not meet the need for 2,200 MW(e) of baseload power in the FPL service territory. The staff concluded in Section 9.2 of the EIS that none of the feasible alternative energy options were environmentally preferable to the proposed action because the environmental impacts of the alternatives were either similar to, or worse than, those of the proposed action.

Ocean and tidal technologies were evaluated in Section 9.2.3.4 and the NRC staff noted that both are being developed but are in their infancy and have not been used at utility scale. Therefore, the staff concluded that these technologies are not feasible alternatives within the FPL region of interest to the construction of a new nuclear power-generation facility that can generate 2,200 MW(e) of baseload power at the proposed site.

The comments did not present information appreciably different from that previously considered by the NRC staff in evaluating alternative energy sources in the EIS, and therefore did not change the staff's conclusions. In this regard, the staff notes that the information in the studies cited by the comments are not specific to South Florida, and does not add to the information the NRC staff considered in its evaluation. The staff notes that the cost of energy alternatives was not considered in the EIS because the options were either not feasible, or were not environmentally preferable.

Accordingly, no changes to the EIS were made as a result of these comments.

Comment: One final point needs to be made here. The electric utilities and energy companies assert that in order to provide baseload power they have to use coal, natural gas or nuclear power. The GEIS adopts this assertion. But baseload as viewed by the utilities and power companies is an outdated concept. They are stuck in the narrow view of electric power coming from power plants. But rather than referring to the term baseload we are really talking about energy and capacity. Energy is the total amount of electricity that is being supplied to consumers. Capacity is the highest level of electricity that can be supplied at any one time to meet peak demand. As discussed above, renewable energy and energy efficiency can supply the energy and capacity needed to serve our needs. (0783-2-9 [Taylor, Wallace])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, but is not explicitly addressed in existing responses in Appendix E. The below response is drawn from the analysis documented in EIS Sections 8.4 and 9.2.

Both FPL and the Florida Public Service Commission (FPSC) understand the integration of various forms of electricity generation (including renewables) into the grid. As discussed in Chapter 8 of the EIS, both FPL and the FPSC concluded that the addition of additional baseload capacity (generating units capable of operating continuously) was necessary to meet future needs in the FPL service territory. Specifically, as stated in Section 8.4 of the EIS, "The State of Florida has officially determined that there is a need for about 6,000 MW (e) of additional baseload electricity generation by 2020. Further, the State has determined that, for many reasons, the need should be filled by the proposed action of constructing and operating Turkey Point Units 6 and 7."

In Section 9.2 of the EIS, the NRC staff considered a wide range of possible approaches to meeting the future need, including energy efficiency and demand-side management, new central generating stations, and renewable sources. The staff concluded that energy efficiency and demand-side management, or renewable sources, by themselves could not meet the future needs in the FPL service territory. This conclusion is consistent with the findings of the FPSC, which stated that the record indicates that

renewable generation available today or in the near future cannot provide enough base-load capacity to avoid the need that would be met by the addition of Turkey Point 6 and 7. The NRC staff also evaluated in Section 9.2.4 of the EIS a combination of energy alternatives, which included conservation and demand-side management programs (beyond those currently planned), plus additions of solar and biomass renewable sources. Wind was not included because the Department of Energy is not projecting any growth in wind energy in Florida through the year 2040. The NRC staff concluded that none of the energy alternatives that was capable of meeting the purpose and need for the project (as defined by the NRC staff in Section 1.3 of the EIS) was environmentally preferable to the proposed action. The comment did not provide any information different from the information the NRC staff considered in its evaluation of renewable energy alternatives and energy efficiency in EIS Section 9.2. No changes were made to the EIS as a result of this comment.

Comment: The foregoing discussion also emphasizes that renewable energy requires expansion of the transmission grid. Expanded transmission is occurring right now. The Federal Energy Regulatory Commission (FERC) has over the past few years adopted policies to promote expansion of transmission lines. The most recent FERC action is Order 1000 adopted on July 21, 2011. The Order summarizes its contents as follows:

With respect to transmission planning, this Final Rule: (1) requires that each public utility transmission provider participate in a regional transmission planning process that produces a regional transmission plan; (2) requires that each public utility transmission provider amend its OATT to describe procedures that provide for the consideration of transmission needs driven by public policy requirements in the local and regional transmission planning processes; (3) removes from Commission-approved tariffs and agreements a federal right of first refusal for certain new transmission facilities; and (4) improves coordination between neighboring transmission planning regions for new Docket No. RM10-23-000 - 2 - interregional transmission facilities. Also, this Final Rule requires that each public utility transmission provider must participate in a regional transmission planning process that has: (1) a regional cost allocation method for the cost of new transmission facilities selected in a regional transmission plan for purposes of cost allocation; and

(2) an interregional cost allocation method for the cost of certain new transmission facilities that are located in two or more neighboring transmission planning regions and are jointly evaluated by the regions in the interregional transmission coordination procedures required by this Final Rule. Each cost allocation method must satisfy six cost allocation principles.

There are also regional transmission planning organizations that monitor and regulate access to the grid. These organizations can ensure that renewable energy is available from the sources that are producing power at a certain time. This will address the issue of intermittency.

The issues of grid coordination and intermittency were addressed in a report in 2010. George Crabtree and Jim Misewich, [Integrating Renewable Resources on the Grid](http://www.aps.org/policy/reports/popa-reports/upload/integratingelec.pdf), 2010, found at www.aps.org/policy/reports/popa-reports/upload/integratingelec.pdf. The report summarized its conclusions as follows:

The demand for carbon-free electricity is driving a growing movement of adding renewable energy to the grid. Renewable Portfolio Standards mandated by states and under consideration by the federal government envision a penetration of 20-30% renewable energy in the grid by 2020 or 2030. The renewable energy ultimately could grow well beyond these initial goals.

The grid faces two new and fundamental technological challenges in accommodating renewables: location and variability. Renewable resources are concentrated at mid-continent far from population centers, requiring additional long distance, high-capacity transmission to match supply with demand. The variability of renewables due to the characteristics of weather is high, up to 70% for daytime solar due to passing clouds and 100% for wind on calm days, much larger than the relatively predictable uncertainty in load that the grid now accommodates by dispatching conventional resources in response to demand.

Solutions to the challenges of remote location and variability of generation are needed. The options for DC transmission lines, favored over AC lines for transmission of more than a few hundred miles, need to be examined. Conventional high voltage DC transmission lines are a mature technology that can solve regional transmission needs covering one-or two-state areas. Conventional high voltage DC has drawbacks, however, of high loss, technically challenging and expensive conversion between AC and DC, and the requirement of a single point of origin and termination. Superconducting DC transmission lines lose little or no energy, produce no heat, and carry higher power density than conventional lines. They operate at moderate voltage, allowing many "on-ramps" and "off-ramps" in a single network and reduce the technical and cost challenges of AC and DC conversion. A network of superconducting DC cables overlaying the existing patchwork of conventional transmission lines would create an interstate highway system for electricity that moves large amounts of renewable electric power efficiently over long distances from source to load. Research and development is needed to identify the technical challenges associated with DC superconducting transmission and how it can be most effectively deployed.

The challenge of variability can be met (i) by switching conventional generation capacity in or out in response to sophisticated forecasts of weather and power generation, (ii) by large scale energy storage in heat, pumped hydroelectric, compressed air or stationary batteries designed for the grid, or (iii) by national balancing of regional generation deficits and excesses using long distance transmission. Each of these solutions to variability has merit and each requires significant research and development to understand its capacity, performance, cost and effectiveness. The challenge of variability is likely to be met by a combination of these three solutions; the interactions among them and the appropriate mix needs to be explored.

The long distances from renewable sources to demand centers span many of the grid's physical, ownership and regulatory boundaries. This introduces a new feature to grid structure and operation: national and regional coordination. The grid is historically a patchwork of local generation resources and load centers that has been built, operated and regulated to meet local needs. Although it is capable of sharing power across moderate distances, the arrangements for doing so are cumbersome and inefficient. The advent of renewable electricity with its enormous potential and inherent regional and national character presents an opportunity to examine the local structure of the grid and establish coordinating principles that will not only enable effective

renewable integration but also simplify and codify the grid's increasingly regional and national character. (0783-2-8 [Taylor, Wallace])

Response: The comment is similar to other comments received on the draft EIS on this subject, but is not explicitly addressed in the existing responses in Appendix E. Therefore, the below response is drawn from the analysis documented in EIS Section 9.2.

The comment discusses a number of technical and policy challenges facing renewable generating sources, as well as some of the possible policy changes that might affect the penetration of renewable sources onto the grid. The NRC staff was aware of these factors and considered them when it prepared Section 9.2 of the EIS. In order to address possible future growth of renewable generation in the FPL service territory, the NRC staff considered authoritative sources such as the Department of Energy's Energy Information Administration, which issues an annual energy outlook projecting the future growth (or reduction) of various energy sources in each part of the country. Based on the best available information, the NRC staff determined which electrical generating sources (individually or in combination) would be able to meet the purpose and need for the project. The NRC staff concluded that none of the feasible alternatives was environmentally preferable to the proposed action. No changes were made to the EIS as a result of these comments.

Comment: Please stop! Look at the big picture. I am certain you will find an alternative solution. Thank you. (0791-3 [Behar, Moises])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-417. The existing response is reprinted below.

The NRC does not promote any particular form of energy generation, including nuclear. However, the NRC does examine energy alternatives as part of its NEPA responsibilities. The staff's evaluation of renewable alternative energy sources, including wind, solar, geothermal, fuel cells, and biomass, in Section 9.2 of the EIS describes potential impacts from these sources in comparison with the proposed action. In Section 9.2 the review team determined that none of these renewable energy sources could, by themselves, meet the purpose and need of the proposed action; to provide a target of 2200 MW(e) of baseload power. Alternatives not requiring new generating capacity, including conservation and demand side management, are discussed in Section 9.2.1 of the EIS. The staff concluded in the EIS that these technologies also did not represent reasonable alternatives to a large baseload power plant located at the Turkey Point site because they could not meet the purpose and need of the project. The staff concluded in Section 9.2 of the EIS that none of the feasible alternative energy options were environmentally preferable to the proposed action. The cost of energy alternatives was not considered in the EIS because the options were either not capable of meeting the purpose and need, or were

not environmentally preferable. No change was made to the EIS as a result of these comments.

No changes were made to the EIS as a result of these comments.

Comment: If we were making better use of renewable energy (solar, wind, tide, etc.) at the neighborhood level, we could start to envision a state that doesn't need nuclear plants and their associated nuclear waste. Other nations around the world are already working on a new paradigm, so we need to focus our efforts on catching up to leading edge technology instead of continuing with an obsolete model. (0790-5 [Anonymous, A] [Coates, Thomas] [Meehan, Gene])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-421. The applicable portion of the existing response is reprinted below.

The NRC does not promote any particular form of energy generation, including nuclear. However, the NRC does examine energy alternatives as part of its responsibilities under the National Environmental Policy Act (NEPA). The staff's evaluation of renewable alternative energy sources, including wind, solar, water-driven, geothermal, fuel cells, and biomass, in Section 9.2 of the EIS describes potential impacts from these sources in comparison with the proposed action. In Section 9.2 the review team determined that none of these renewable energy sources could, by themselves, meet the purpose and need of the proposed action; to provide a target of 2,200 MW(e) of baseload power because they are incapable of generating baseload power, or (for alternatives such as biomass) 2,200 MW(e) of baseload power. Alternatives not requiring new generating capacity, including conservation and demand side management, are discussed in Section 9.2.1 of the EIS. The staff concluded in the EIS that these technologies did not represent reasonable alternatives because they also could not meet the need for 2,200 MW(e) of baseload power in the FPL service territory. The staff concluded in Section 9.2 of the EIS that none of the feasible alternative energy options were environmentally preferable to the proposed action because the environmental impacts of the alternatives were either similar to, or worse than, those of the proposed action. The cost of energy alternatives was not considered in the EIS because the options were either not feasible, or were not environmentally preferable.

No changes were made to the EIS as a result of the comment.

S.19 Comments Concerning Alternatives – System Design

Comment: The cooling system should be redesigned as a closed system to limit the effects of the existing and added functions of the plant on the local hydrology and associated marsh, mangrove, and near-shore biotic communities. (0773-2 [Buck, Eric])

Response: This comment is similar to other comments addressed in Appendix E of the EIS, and is not explicitly addressed in the existing responses in Appendix E. The below response is drawn from the analysis documented in EIS Sections 3.2 and 5.2.

The heat dissipation system proposed by FPL is considered a closed cycle cooling system, as discussed in Section 3.2.2.2 of the FEIS. Such a system recirculates water between the plant's main condenser and the cooling towers. However, water must be added to the system to make up for the water that evaporates in the cooling towers. During normal operations, that make-up water will originate from a wastewater treatment plant operated by the City of Miami and will not impact the water and ecological resources mentioned in the comment. In the unlikely event that water is not available from the City of Miami for more than a few days, make-up water for the plant would be obtained via the radial collector wells under Biscayne Bay, but these wells would be used for no more than 60 days per year. In Section 5.2 of the final EIS the NRC staff concluded that the limited operation of the radial collector wells would not have any noticeable impacts on hydrology and ecology. No changes were made to the EIS as a result of this comment.

S.20 Comments Concerning Alternatives – Sites

Comment: This is a massive project-there will be unavoidable and huge impacts on both Biscayne National Park and Everglades National Park. These parks are national treasures. The proximity of the proposed Nuclear Plants are, in my view, completely incompatible [sic] with National Parkland. (0750-2 [Sandberg, Harlan])

Comment: I am against any expansion of Nuclear energy in a very environmentally sensitive location. Another area less challenging should be considered. (0779-2 [DeNunzio, Karen])

Comment: [I have monitored the proceedings as FPL endeavored to ram through this ill-conceived project against the wishes of the community. So much about the project is wrong --...] Adverse Social Impacts

* Inappropriate siting between Biscayne Bay and Everglades National Parks (0785-11 [Devlin, Marybeth])

Comment: Two of South Florida's most important public lands and wildlife habitats -Biscayne and Everglades National Parks -will be put at risk and be forever changed by a project of this scale. Wherever you happen to live -South Florida or not-these special places (hotspots for our planet's biodiversity) are a part of your natural heritage. (0788-2 [Blake, Frances] [Cruz, Sarah] [Eckert, Shelley] [Kraskin, Madeline] [Peterson, Christina] [Webb, David])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-441 through E-443. The existing response is reprinted below.

Regarding the proposed site's proximity to National Parks and other public use features, commenters noted language from NRCs Site Suitability guidelines "Sites adjacent to lands devoted to public use may be considered"

unsuitable...{emphasis added}". The NRC's regulations applicable to an applicant's site screening process, 10 CFR Part 100, "Reactor Site Criteria," do not require that such a consideration be applied as an exclusionary screening criterion. Regulatory Guide 4.7 also notes that the context for evaluating impacts must be considered. However, the acceptability of sites for nuclear power stations at some future time in these areas would depend on the existing impacts from industrial, commercial, and other developments.

The NRC's consideration of Everglades and Biscayne National Parks, National Wildlife Refuges, aquatic preserves, and their associated ecosystems, and recreational users involved two basic steps. Using guidance in the Environmental Standard Review Plan (NUREG-1555), Section 9.3, the NRC first independently evaluated FPL's screening process to determine whether the screening process adequately implemented the site suitability requirements for nuclear power stations as defined in 10 CFR Part 100, "Reactor Site Criteria". Next the NRC considered the cumulative impacts that would occur at the Turkey Point site and compared those cumulative impacts to those that would result from construction and operation of two nuclear units at the alternative sites.

In its screening process from the region of interest to candidate areas, FPL excluded from consideration areas within (1) the boundaries of critical habitats for endangered species, (2) dedicated lands such as National Parks and Recreation Areas, (3) census block groups with population density > 300 persons per square mile, and (4) areas too distant from available cooling water. In subsequent screening steps, FPL applied additional environmental, population, and engineering criteria to its site selection process to narrow the range of alternative sites to a suite of sites that were representative of the licensable alternatives within FPL's service territory.

As documented in Section 9.3.1.7 of the EIS, the NRC staff evaluated the methodology used by FPL and concluded that the process was reasonable and consistent with the applicable regulations and guidelines. FPL conducted an adequate site selection study and chose Turkey Point as its proposed site. The review team found that the systematic alternative siting analysis demonstrated a logical selection process and application of screening and exclusionary siting criteria. The analysis enabled the evaluation of the likely environmental impacts associated with the respective sites, including the evaluation of suitability criteria, identified reasonable alternative sites, and clearly provided the mechanism for selection of the final proposed site.

Following its review of this site screening determination, the NRC -- in its independent review, as documented in Section 9.3 of this EIS -- first assessed the cumulative impacts that would occur at each of the alternative sites. The cumulative impact analyses combine the impacts of a proposed action with those that have already occurred in the past and present, or may occur in the foreseeable future. As discussed in Section 9.3, these cumulative impact

analyses considered impacts such as, but not limited to, land use, surface and ground-water, terrestrial and aquatic ecology, threatened or endangered species and their associated critical habitats, wetlands, recreational, visual, historic and cultural resources, and social and economic impacts.

As a part of the evaluation of cumulative impacts, Appendix I of the EIS documents the review team's consideration of the potential changes in impacts that may occur as a result of the changes in the environment resulting from global climate change including sea-level rise. The changes that were considered include potential changes in temperature, rainfall, and occurrence of severe weather events. The effects of sea-level rise were also considered in this analysis. The potential effects of climate change on resource areas including water and ecology are presented in the appropriate sections of Chapter 5 and the cumulative impacts in Chapter 7. In addition, in its evaluation of alternative sites, the NRC staff would only consider sites that appear to be licensable; i.e., sites for which it appears to be reasonable to expect that the applicant could obtain the necessary licenses and permits from the NRC and other agencies. The safety of the proposed site (including consideration of sea-level rise, storm surge, etc.) will be addressed in the staff's safety evaluation report. The site would not be licensed by the NRC unless the staff determines that it meets the NRC's safety requirements.

As documented in Section 9.3.6, and in Table 9-28, the NRC then undertook a site-by-site comparison of the cumulative impacts at the alternative sites with the cumulative impacts at the Turkey Point site to determine if any of the alternative sites were environmentally preferable to the proposed site. The NRC's review process used reconnaissance-level information to determine whether there were environmentally preferable sites among the alternative sites; however, none of the alternative sites proved to be environmentally preferable to the proposed Turkey Point site. No change was made to the EIS as a result of these comments.

No changes were made to the EIS as a result of these comments.

S.21 Comments Concerning Benefit-Cost Balance

Comment: A decision to proceed on this project obligates the citizens to liabilities and operating costs of many billions of dollars over the lifetimes of my generation and generations to come. These obligations and the awful negatives of more nuclear reactors here will be a drag, not an enhancement on our economy.

I live here, just 10 miles from the plant. Your decision affects my life and that of my family. Please here my voice on this. (0781-2 [Terrone, Roger])

Response: This comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-446. The existing response is reprinted below.

These comments reflect concern about the potentially high costs of plant construction or nuclear power plants in general. The costs and benefits of construction and operation of the proposed Units 6 and 7 are summarized in Chapter 10 of the EIS using the best information available to the review team. In Chapter 9, the EIS provides an analysis of the potential for alternative non-nuclear technologies to provide the electricity that could be generated by the proposed plant and the environmental impacts of those alternatives. Neither the NRC nor the USACE has the authority or responsibility by law or regulation to ensure that the proposed plant is the least costly alternative for providing energy services under any particular set of assumptions concerning future circumstances. The NRC is not involved in establishing energy policy. Rather, it regulates the nuclear industry to protect the public health and safety and the environment within existing policy. Therefore, comments regarding the potential effect of a particular nuclear power investment on the future development and implementation of alternative technologies, subsidies for nuclear power, and characterization of financial risks associated with such projects are not within the scope of this environmental review. No changes were made to the EIS as a result of these comments.

This comment provided no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of the comment.

Comment: Privatizing profits from nuclear power plant production and at the same time adding losses to public debt or to governmental deficits is a social agenda and not in the spirit of open market policies as only a few stand to gain while taxpayers bear the brunt of such an inefficient source of power generation, all things considered. (0768-4 [Anonymous, Anonymous])

Response: This comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-448. The existing response is reprinted below.

These comments express general opposition to the costs of power plant construction or raise societal issues that are not within the purview of NRC or USACE to address as part of the environmental review process. They did not provide new information related to the environmental effects of the proposed action. Therefore, no changes were made to the EIS as a result of these comments.

This comment provided no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of the comment.

S.22 Comments Concerning Climate Change

Comment: I am a graduate student studying Coastal Zone Management at the University of Miami's Rosenstiel School of Marine and Atmospheric Sciences. I conducted a GIS spatial analysis of the proposed Turkey Point expansion project in light of projected sea level rise and would like to share the report.

[Attached report is available from ADAMS, Accession No. ML15293A413] (0755-1 [Northrop, Emily])

Response: The comment is similar to other comments received on the draft EIS on this subject, but is not explicitly addressed in the existing responses in Appendix E. Therefore, the below response is drawn from the analysis documented in EIS Sections noted in the below.

The comment expresses concern about the potential for adverse effects on the American crocodile population near the Turkey Point site as a result of sea level rise and construction and operation of the proposed Turkey Points Units 6 and 7. Impacts on the American crocodile are discussed as part of Sections 4.3.2.3 and 5.3.2.3. A Biological Assessment (BA) was submitted to the FWS to address effects on protected species, such as the American crocodile, through consultation under ESA Section 7. The FWS may determine, as part of their ongoing formal consultation with the review team under ESA Section 7, that additional fencing requirements are necessary for crocodile protection. No changes were made to the BA as a result of this comment. Updates to ESA Section 7 consultation were made to Sections 4.3.1, 4.3.2, 5.3.1, and 5.3.2 of the EIS.

The report cited in the comment is a GIS study performed as part of a graduate school assignment to determine the amount of inundation that would occur near the Turkey Point site as a result of sea level rise. The report appeared to use a benchmark sea level rise of 3 feet at the Turkey Point site. Coastal inundation resulting from sea level rise will occur independent of the construction and operation of the plant. However, the review team did consider potential changes in impacts that may occur as a result of the changes in the environment resulting from global climate change including sea-level rise. This evaluation is included as part of Appendix I of the EIS. As discussed in Appendix I, the review team considered the assessment presented in the most recent National Assessment. The 2014 National Assessment was conducted by a team of more than 300 experts guided by a 60-member Federal Advisory Committee and extensively reviewed by the public and experts, including Federal agencies and a panel of the National Academy of Sciences. The review team has also considered more recent estimates of sea level rise, some of which exceed the 3 feet evaluated in the report associated with the comment. It is not implausible that sea level rise significantly in excess of 4 ft could occur by 2100. Such extreme sea-level rises would inundate much of South Florida making it uninhabitable. However, NEPA requires consideration of likely future scenarios not extreme future scenarios. However, the gradual increase in sea level and NRC's safety process protects the public health and safety.

Appendix I was previously updated based on similar comments received on the draft EIS which expressed concern regarding the potential impacts of sea level rise. This comment does not provide any information in addition to that already considered in the EIS. Therefore, no further changes to the FEIS were made as a result of this comment.

S.23 General Comments in Opposition to the Licensing Action

Comment: Putting 2 new reactors at Turkey Point is beyond stupid. It's unsafe, unsustainable and unneeded. Deny the permit. (0736-1 [Malagodi, Stephen])

Comment: Bad idea... Protect our environment. (0737-1 [Anderson, Ingrid])

Comment: We are residents of south florida for most of our lives. Please do not go ahead with building another nuclear reactor at Turkey Point. There are too many ways that this will be a disaster for the surrounding community. Learn from the past! (0741-1 [Fisher, Norma and Woody])

Comment: Please say "no", to the proposed new additions to the Turkey Point nuclear power plant. My reasons are the same as all the other people who detailed the legitimate reasons. (0742-1 [Southern, Tom])

Comment: 5-I am totally against more reactors being built EVER

The west coast is being bombarded by Fukushima radiation everyday. Have mercy on this beautiful state! (0743-2 [Anonymous, Michael])

Comment: NRC should not approve proposed expansion at the Turkey Point Nuclear Plant. The location is simply not right for two additional reactors and the additional cooling ponds they would require. (0745-4 [Newman, Joyce Clark])

Comment: I am a south Florida resident and an environmental scientist. I strongly oppose any new nuclear facilities in Biscayne Bay. The environmental and human-impacts are far too many (described below) to justify such an irresponsible move. (0748-1 [Webb, David])

Comment: This investment of more than 20 billion dollars of the rate-payers money for the new Turkey Point reactors does not fit with the needs of South Floridians nor the needs of the fragile ecosystem. (0749-1 [Ross, Kim])

Comment: I write in opposition to granting license for Turkey Point Nuclear Plant, Units 6 and 7. (0750-1 [Sandberg, Harlan])

Comment: I am vehemently OPPOSED to building new nuclear plants in Florida. (0756-1 [Merrill, Robin])

Comment: Please reject this ill-conceived proposal now. (0757-4 [Gale, Michelle])

Comment: This project should not be allowed to go forward. (0761-1 [Bazzone, Barbara])

Comment: When will enough be enough? When will we stop being greedy? If we don't soon alter our behavior all of our children, grandchildren and future generations will pay a huge price. I shall never vote for politician who is in favor of this project. (0761-5 [Bazzone, Barbara])

Comment: Dear Sirs and Madams, there are too many dangers lurking to conceive spending any time, money or energy to build the nuclear plants. There are no safety measures possible to

guarantee Fukushima will not happen here since we are right in the way of hurricanes. You, me, them and us need a clean environment to survive the future. My backyard doesn't need to be destroyed but preserved for our daily lives. Don't put us at risk. Thank you. (0763-1 [Anonymous, Anonymous])

Comment: STOP nuclear expansion at Turkey Point. The added transmission lines in the Everglades, excessive water use, and other adverse impacts makes the decision to stop this project obvious. (0766-1 [Romeo, Sean])

Comment: NO Nuclear plant, not here, not in any other place, stop it!! (0770-2 [Ejem, Charlotte])

Comment: I am very much against Units 6 & 7. At the rate that [people are moving to South Florida and with the current population, this is not far removed from the folly of proposing nuclear plants in Manhattan. We MUST keep our population SAFE. Also in such a hurricane prone area, this is a huge mistake. (0772-1 [Mennel-Bell, Mari])

Comment: Please Don't grant FPL's permits to expand Turkey Point.

FPL wont pay for the project. It will be costly for Floridians and profitable for FPL. The expansions cost-effectiveness is not certain, even by FPLs own projections. This is coming out of our Tax Dollars. (0778-1 [Cortes, Alexandra Lange])

Comment: As a resident of Miami, I am opposed the FPL's expansion plans for Turkey Point. I am against paying for something that has not been approved. (0779-1 [DeNunzio, Karen])

Comment: I have spoken to many people about the proposal. Every single person I mention this to is appalled at the idea that you would allow this to happen. There is another way to go that can provide long-term, scalable, non-carbon-power generation without nuclear. But this will only happen if you say no to the State and FPL on this issue. A yes condemns us to living under the shadow of all the negatives associated with nuclear. I urge you to deny the license application. (0781-3 [Terrone, Roger])

Comment: For the safety of our community, please do not authorize the expansion of nuclear power plants and the ugly transmission lines in south Florida. (0782-3 [Deresz, Don])

Comment: Licensing a new nuclear reactor is a serious commitment to a technology that is expensive, environmentally troubling, and not consistent with our energy future. The DEIS for Turkey Point Units 6 and 7 does not adequately address the issues that would properly focus the impacts of nuclear energy in relation to more beneficial sources of energy. For the reasons stated in these comments, the DEIS needs to be revised. (0783-3-6 [Taylor, Wallace])

Comment: I'm writing to voice my opposition to the two new nuclear reactors proposed for the shores of Biscayne Bay, directly adjacent to Biscayne National Park. This project blatantly ignores the certainty of sea level rise, the negative impact on Biscayne National Park and Everglades National park, and the safety of citizens, our water and ecosystem... all of which are critical components to our economy and way of life. (0784-1 [Cruz, Sarah])

Comment: Stop this project now. (0784-2 [Cruz, Sarah])

Comment: I submit these comments as an interested party -- and a local resident -- regarding the proposed addition of two more nuclear reactors at the Florida Power and Light Company (FPL) Turkey Point Nuclear Power Plant facility located in Miami-Dade County, Florida. I urge NRC-USACE to DENY the combined construction permits and operating licenses (combined licenses or COLs). (0785-1 [Devlin, Marybeth])

Comment: The question of whether nuclear power is good or bad is not the main issue here. Rather, the issue is whether this project in this particular location should be allowed to go forward. I think it should not. (0787-1 [Peterson, Christina])

Comment: [T]here should be no new nuclear plants! (0788-1 [Blake, Frances] [Cruz, Sarah] [Eckert, Shelley] [Kraskin, Madeline] [Peterson, Christina] [Webb, David])

Comment: I strongly oppose new units at Turkey Point Nuclear Plant[.] (0789-1 [Kraskin, Madeline])

Comment: I am extremely concerned about the proposal to add more nuclear reactors to the FP&L Turkey Point Site. There are much less risky solutions for meeting the energy needs of the area. (0790-1 [Anonymous, A] [Coates, Thomas] [Meehan, Gene])

Comment: Don't put our beautiful peninsula in jeopardy by approving more nuclear reactors. (0790-7 [Anonymous, A] [Coates, Thomas] [Meehan, Gene])

Comment: I cannot believe this is happening!! (0791-1 [Behar, Moises])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-487. The existing response is reprinted below.

These comments express opposition to the licensing of new nuclear reactors at the Turkey Point site. The NRC carefully reviewed the application against its regulations that are intended to protect public health and safety and the environment. These comments do not provide specific information related to the environmental effects of the proposed action, and no changes were made to the EIS as a result of these comments.

The comments provided no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of these comments.

Comment: For these reasons [sea level rise, storm surge, severe weather] I am opposed to putting any new reactors on this site based on my extensive knowledge of the region Biscayne Bay in particular, and experience with the local topography and associated geological processes. (0744-5 [Harlem, Peter])

Comment: What about Hurricanes and flooding. I think this is a very big problem and should not be done. We don't need another potential disaster just waiting in our backyard. One is enough! (0752-2 [Carver, Jason])

Comment: Two reactors on a shoreline sure to suffer worsening sea rise and storm damage? Please don't do this! (0753-1 [Shobin, Evelyn])

Comment: With the predicted rise in the ocean and with the high risks of hurricanes, expanding this nuclear facility in vulnerable coastlands is stupid! (0754-2 [Westberg, Jane])

Comment: I am strongly opposed to the construction of the two proposed nuclear reactors at Turkey Point. What happened at Fukushima should be all the reason we need to refrain from building any more nuclear reactors at Turkey Point. The steady rise in sea level that is being documented by scientists at the University of Miami and the worldwide increase in extreme weather events are the handwriting on the wall. (0757-1 [Gale, Michelle])

Comment: With rising sea levels blindingly obvious, this plan to expand nuclear close to sea level is a disaster waiting to happen. Bad idea. Horrible idea. (0758-1 [Johnson, Randy])

Comment: I would like to ask that the NRC reconsider their support of the Turkey Point nuclear plant expansion in the draft EIS. This expansion is not safe for our region, with the plant being vulnerable to coastal disturbances, such as storm surge, that can cause major consequences. The EIS presentation I saw did not touch on nearly enough of the ecological impacts. (0765-1 [Polini, Bianca])

Comment: If nuclear reactors must be built in South Florida for reasons beyond my knowledge, they should not be built in Turkey Point, or by any coast or otherwise vulnerable area. (0765-6 [Polini, Bianca])

Comment: The three immediate reasons I oppose these nuclear units are the stress they would cause for Miami-Dade water supplies, their location in regard to rising sea levels and their location in regard to hurricane trajectories. (0771-1 [Kendall, Samuel])

Comment: I truly believe that our state government is denying science and the very real implications of climate change in our area. Adding nuclear reactors at Turkey Point is an accident waiting to happen. With the high population density living within 50 miles of the reactor site, the reality of global warming, rising sea levels, and hurricanes, Turkey Point should not be considered an optimal site for additional reactors. Our state leaders should be laser focused on real science, not politics. Look at the long term data and trust the scientists, not the lobbyists. (0774-4 [Gant, Katie])

Comment: Who decides to build something that isn't even hurricane proof in a hurricane state? With no budget in mind - this will just be another one of Florida's great money sucking failures. Please don't allow this to happen for financial reason, environmental reasons and especially because the proposed project will not stand the test of time. (0776-2 [Anonymous, Jennifer])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-510. The existing response is reprinted below.

These comments express opposition to the licensing of new nuclear reactors at the Turkey Point site due to concerns about global climate change and rising sea

levels. Appendix I of the EIS documents the review team's consideration of the potential changes in impacts that may occur as a result of the changes to the environment resulting from global climate change including sea-level rise. The changes that were considered include potential changes in temperature, rainfall, and occurrence of severe weather events. The effects of sea-level rise were also considered in this analysis. No changes were made to the EIS in response to these comments.

The comments provided no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of these comments.

Comment: This proposed location is dangerous to our water, our air, our wildlife on the air and sea and ultimately to us. (0738-3 [Fifield, Virginia])

Comment: Given the significant ecological impacts of this project in addition to those elaborated upon in our other comment letter, it would be premature to issue any COLs for the proposed project. (0746-2 [Karpa, Doug] [Steiner, Todd])

Comment: I am strongly opposed to this Nuclear Facility! It will be detrimental to our environment and the oceans! (0747-1 [Cooper-Lai, Christine])

Comment: The issue is not Nuclear Power-it is granting license for Industrial development in the vicinity of pristine national parkland. I urge a denial of the licenses. (0750-6 [Sandberg, Harlan])

Comment: The proposed nuclear reactors along the shores of Biscayne Bay possess more cons than pros, as one well knows. Today, I will emphasize the detrimental effect such an endeavor will have on both the natural and human environment. To begin, a project of such magnitude will forever alter the region's biodiverse ecosystem, displacing many species, making them susceptible to habitat loss, and endangering them. (0751-1 [Anonymous, Anonymous])

Comment: Please do NOT go ahead with this dangerous proposal. Biscayne and Everglades National Parks will be put at risk. The water used to cool the new reactors will not be pure H2O and is likely to contain harmful chemicals etc. (0754-1 [Westberg, Jane])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-508. The existing response is reprinted below.

These comments identify general concerns about the ecology surrounding the proposed Turkey Point Units 6 and 7. They do not provide any specific information related to the environmental effects of the proposed action. Ecological impacts of building and operating the proposed units are described in Sections 4.3 and 5.3 respectively. No changes were made to the EIS as a result of these comments.

The comments provided no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of these comments.

Comment: I am sickened by your greed, a sonished [sic] at your lack of foresight, and saddened by your lack of compassion. I don't recall Anyone asking the residents of South Florida what type of energy we want. I would prefer almost anything over what you plan to do. I am 100% Against adding any nuclear reactors. I cannot fathom how you even got approval to build the First one on the shores of Biscayne National Park. You're going to destroy that ecosystem, and then destroy us. PLEASE STOP! DO NOT DO THIS. WE ARE AGAINST IT. (0759-1 [Galivan, Mary])

Comment: [There are so many reasons any sane person should oppose the creation of yet more toxic radioactive waste, the cost of which will be subsidized by US taxpayers. New reactor applications should be denied and all existing reactor licenses should not be renewed for the following 8 reasons:]

7. Nuclear power is being promoted on a partial prospectus. It is hopelessly uneconomic and cannot be sustained without the large public subsidies. It is the most expensive energy source that has ever been implemented at the industrial scale, and the fully loaded costs of the uranium lifecycle are rarely considered, with the unreasonable and audacious underlying expectation that taxpayers will subsidize waste management of irradiated fuel, insurance costs, etc. to benefit nuclear corporate profit margins. The licensing of new reactors is nothing more than an addition to taxpayer subsidized nuclear corporation welfare tab.

8. There are Other ways to make electricity that do not pollute for hundreds of thousands of years, cost far less than the fully loaded cost of nuclear power, do not cause cancer and the multitude of proven chronic illnesses, are not mutagenic, do not require monumental taxpayer subsidies to generate profits, and are AVAILABLE TODAY!!! Solar, wind and innovative low-impact hydro systems combined with efficient appliances, building design and construction that lower our energy requirements, and emergent energy storage systems can meet our needs now. At lower cost, with no toxic long lived nuclear waste!

The denial of these applications is the only sane choice. (0760-6 [Anonymous, Anonymous])

Comment: The new reactors increase the threat to our communities and our environment. Turkey Point currently sits in a Hurricane Corridor and Flood Zone; LETS NOT FORGET WHAT HAPPENED IN FUKUSHIMA! Nuclear Power Plants are a threat to our health and our environment. (0778-6 [Cortes, Alexandra Lange])

Comment: It was rubber stamped by the Florida state governor and cabinet in spite of objections from Miami-Dade County, the City of Miami, the City of South Miami, the Village of Pinecrest, U.S. Army Corps of Engineers and many people who resides in the area. (0778-8 [Cortes, Alexandra Lange])

Comment: Adding additional nuclear power generation to Turkey Point is a TERRIBLE idea. While the most advanced nations on the planet are actively moving away from nuclear, how can we, the richest, most dominant nation on earth, decide that another nuclear plant in a dense urban area is a righteous and wise decision?

When Florida decides to go with more acceptable alternative energy sources-and despite our current governor and his reactionary ideology, this WILL happen, this plant will be obsolete but we will be stuck with it, like a really bad penny. (0781-1 [Terrone, Roger])

Comment: The question of whether nuclear power is good or bad is not the main issue here. Rather, the issue is whether this project in this particular location should be allowed to go forward. We think it should not. (0786-1 [Eckert, Shelley])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-496. The existing response is reprinted below.

These comments provide general information in opposition to the proposed Turkey Point Units 6 and 7 based on opposition to nuclear power. They do not provide any specific information related to the environmental effects of the proposed action. No changes were made to the EIS as a result of these comments.

The comments provided no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of these comments.

Comment: I urge NRC-USACE to honor the will of the people of Miami-Dade County: to DENY the COLs. Please do so. (0785-17 [Devlin, Marybeth])

Response: This comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-487. The existing response is reprinted below, but the NRC staff has included additional text for clarity.

*These comments express opposition to the licensing of new nuclear reactors at the Turkey Point site. The NRC carefully reviewed the application against its regulations that are intended to protect public health and safety and the environment. **To the extent specific information regarding the environmental impacts of the proposed action was identified, that information is addressed in other resource areas responses to comments.** These comments do not provide specific information related to the environmental effects of the proposed action, and no changes were made to the EIS as a result of these comments.*

No change to the EIS was made as a result of this comment.

S.24 General Comments in Opposition to Nuclear Power

Comment: Solar, wind, tidal and gas are much better solutions for power needs. (0764-2 [Anonymous, Anonymous])

Comment: If we only invested in our free energy, coming from the sun and from wind. We have 365 days of sun shine why can we not invest in solar power and wind power. Fossil [sic] fuel,

natural gas and nuclear power are so doomed and old, why not be modern and clean? We are on a sure path to destroy [sic] our planet with nuclear power. I know we can not completely get rid of it, but we need to reduce and not build more! (0770-1 [Ejem, Charlotte])

Comment: In 2011, Mark Jacobson and another colleague carried their research further to show how all global energy needs can be supplied by renewable energy, referred to by Jacobson et al. as wind, water and sun (WWS). Mark Jacobson and Mark Delucchi, Providing All Global Energy with Wind, Water, and Solar Power, Part I: Technologies, Energy Resources, Quantities and Areas of Infrastructure, and Materials, Energy Policy, v. 39, p. 1154-1169, 2011; Mark Jacobson and Mark Delucchi, Providing All Global Energy with Wind, Water, and Solar Power, Part II: Reliability, System and Transmission Costs, and Policies, Energy Policy, v. 39, p. 1170-1190, 2011. Importantly, for our comments, the article had this to say about nuclear power:

For several reasons we do not consider nuclear energy (conventional fission, breeder reactors, or fusion) as a long-term global, energy source. (0783-2-11 [Taylor, Wallace])

Comment: [For several reasons we do not consider nuclear energy (conventional fission, breeder reactors, or fusion) as a long-term global, energy source.] Second, nuclear energy results in 9-25 times more carbon emissions than wind energy, in part due to emissions from uranium refining and transport and reactor construction, in part due to the longer time required to site, permit, and construct a nuclear plant compared with a wind farm (resulting in greater emissions from the fossil-fuel electricity sector during this period, and in part due to the greater loss of soil carbon due to the greater loss in vegetation resulting from covering the ground with nuclear facilities relative to wind turbine towers, which cover little ground. Although recent construction times worldwide are shorter than the 9-year median construction times in the U.S. since 1970, they still averaged 6.5 years worldwide in 2007, and this time must be added to the site permit time (~3 years in the U.S.) and construction permit and issue time (~3 years). The overall historic and present range of nuclear planning-to-operation times for new nuclear plants has been 11-19 years, compared with an average of 2-5 years for wind and solar installations. Feiversen (2009) observes that "because wind turbines can be installed much faster than could nuclear, the cumulative greenhouse gas savings per capital invested appear likely to be greater for wind." The long time required between planning and operation of a nuclear power plant poses a significant risk to the Arctic sea ice. Sea ice records indicate a 32% loss in the August 2010 sea ice area relative to the 1979-2008 mean. Such rapid loss indicates that solutions to global warming must be implemented quickly. Technologies with long lead times will allow the high-albedo Arctic ice to disappear, triggering more rapid positive feedbacks to warmer temperatures by uncovering the low-albedo ocean below. (0783-2-13 [Taylor, Wallace])

Response: These comments are similar to other comments received on the draft EIS on this subject, but is not explicitly addressed in the existing responses in Appendix E. Therefore, the below response is drawn from the analysis documented in EIS Sections noted in the below.

In Section 9.2.5 of the EIS the NRC staff compared the carbon dioxide emissions of the proposed action to those of the alternative energy sources that would be capable of meeting the purpose and need for the proposed action (coal, natural gas, and the

combination of alternatives). The emissions for the proposed action were orders of magnitude lower than those for the alternatives. As discussed in Section 9.2.5, the NRC staff did not perform a quantitative comparison of nuclear to those other alternatives (including wind and solar) that were not capable of meeting the purpose and need. The discussion and impacts of greenhouse gas emissions, or the carbon footprint, from the life-cycle of fuel production, construction, operation, and decommissioning of a nuclear unit were presented in Chapters 4, 5, 6, 7, and in Appendix J of the EIS.

No changes were made to the EIS as a result of these comments.

Comment: Nuclear Power Plants do not belong in Florida on the coast in particular with all of the hurricanes that occur there. Has anyone looked at Japan lately? Not only is their county fouled up but we are receiving nuclear waste fish in the Pacific Ocean. The Japanese people voted no more nuclear sites. (0739-1 [Buttles, Kate])

Comment: The tragedy of Fukushima should have been the last word on building nuclear plants. (0786-3 [Eckert, Shelley])

Comment: The tragedy of Fukushima should have been the last word on building nuclear plants in vulnerable coastal locations like this one. (0788-8 [Blake, Frances] [Cruz, Sarah] [Eckert, Shelley] [Krasin, Madeline] [Peterson, Christina] [Webb, David])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-526. The existing response is reprinted below, but the NRC staff has included additional text for clarity.

These comments and the attached statement provide general information in opposition to nuclear power. Some comments cite the Fukushima accidents as evidence that nuclear power is unsafe. They do not provide any specific information related to the environmental effects of the proposed Turkey Point Units 6 and 7. Issues related to safety are beyond the scope of the environmental review and will be evaluated in the NRC staff's safety evaluation report for the proposed units which is tentatively scheduled for publication November 2016. The NRC staff safety evaluation report was issued on November 14, 2016, and can be found in NRC's Agencywide Document Access System (ADAMS) at <http://www.nrc.gov/reading-rm/adams.html> using accession number ML16277A469.

No changes were made to the EIS as a result of these comments.

Comment: Hi State of Florida, I am a Canadian who will no visit any city within 50 miles of nuclear power plant. That is my economic choice. Yep same goes for NYC. I like to golf bUT [sic] won't go to palm beach. (0740-1 [Murray, Keith])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-529. The existing response is reprinted below.

These comments express opposition to the existing units at the Turkey Point site or to the applicant. They do not provide information related to the environmental review for the proposed action. No changes were made to the EIS as a result of these comments.

The comments provided no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of this comment.

Comment: The following comments are submitted on behalf of the Nuclear Free Campaign of the Sierra Club regarding the Draft Environmental Impact Statement (DEIS) for the combined operating license for the Turkey Point Nuclear Plant, Units 6 and 7. The Sierra Club is the nation's largest grassroots environmental organization with over 600,000 members. The Sierra Club supports sustainable energy alternatives (renewable energy and energy efficiency) that do not harm the environment. The Sierra Club opposes nuclear power because its fuel cycle from uranium mining to spent radioactive fuel poses grave dangers to the environment. In addition, reliance on nuclear power unjustifiably delays the beneficial transition to clean and renewable energy sources.

The current focus on energy policy that relies on clean, safe and renewable sources makes it imperative that NRC evaluate the environmental impacts of nuclear power reactors in a different way than has been done in the past. Our comments will address the DEIS in this context. (0783-1-1 [Taylor, Wallace])

Comment: Even if the risks of catastrophe are very small, they are not zero, whereas with wind and solar power, the risk of catastrophe is zero. (0783-2-5 [Taylor, Wallace])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-527. The existing response is reprinted below, but includes minor changes.

This comment identifies general concerns about alternative energies being used instead of the proposed Turkey Point Units 6 and 7. They do not provide any specific information related to the environmental effects of the proposed action. Alternative energies [...] were evaluated and are described in Section 9.2 (Energy Alternatives) of the EIS. No changes were made to the EIS as a result of these comments.

This comment provided no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of these comments.

Comment: What I have learned in the last 4 years after the on-going Triple meltdowns in Fukushima, Japan

1-nuclear power is deadly at the atomic level

2-The waste cannot be disposed of in anyway safely

3-Radioactivity never goes away, it only turns into to something more deadly.

4-Not to mention the hurricanes that florida receives over the years. (0743-1 [Anonymous, Michael])

Comment: There's always a risk with nuclear power plants. Please do not expand into that area. (0762-1 [Anonymous, Anonymous])

Comment: Japan has not turned on their reactors since 2011 and nuclear expansion in the United States has stalled. Nuclear power can easily be considered to be the most expensive (and dangerous) method of boiling water. (0767-2 [Falcone, Alex])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-528. The existing response is reprinted below, but includes minor changes.

This comment and the attached statement provide general information in opposition to nuclear power. Some comments cite the Fukushima accident as evidence that nuclear power is unsafe. They do not provide any specific information related to the environmental effects of the proposed Turkey Point Units 6 and 7. Issues related to safety are beyond the scope of the environmental review and will be evaluated in the NRC staff's FSER (Final Safety Evaluation Report) for the proposed units which was published in November 2016. The FSER can be found in NRC's Agencywide Document Access System (ADAMS) at <http://www.nrc.gov/reading-rm/adams.html> using accession number ML16277A469.

The comments provided no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of these comments.

Comment: Nuclear power comes with a dangerous byproduct, as well as the dangers of operating a nuclear facility. Although the risks have been mitigated with many safety features, the reality is there are still possibilities of a reactor failure due to human error, natural disasters, or even terrorism. (0790-2 [Anonymous, A] [Coates, Thomas] [Meehan, Gene])

Comment: The \$20 billion investment in two new reactors would be better spent developing a decentralized energy network that would be less prone to the failures associated with nuclear energy generation. (0790-4 [Anonymous, A] [Coates, Thomas] [Meehan, Gene])

Comment: Not in our backyard[.] (0790-8 [Anonymous, A] [Coates, Thomas] [Meehan, Gene])

Comment: not in anyone's backyard! (0790-9 [Anonymous, A] [Coates, Thomas] [Meehan, Gene])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-525. The existing response is reprinted below.

These comments provide general information in opposition to nuclear power. They do not provide any specific information related to the environmental

effects of the proposed action. No changes were made to the EIS as a result of these comments.

No changes were made to the EIS as a result of these comments.

S.25 General Comments in Opposition to the Existing Plant or the Applicant

Comment: I want the existing ones closed down for safety reasons. Sea level rise, hurricanes, and depleting water sources are my main concerns. (0756-2 [Merrill, Robin])

Comment: As it is, the existent reactors at Turkey Point and the spent fuel rods they're generating pose an unacceptable risk to the local population which numbers in the millions; the rare ecological jewels that are Biscayne and Everglades National Parks; the water supply of Southeast Florida, which will run dangerously low in the foreseeable future without the hydrological ramifications of two new reactors at the site; and the local economy, which depends primarily upon tourism. (0757-2 [Gale, Michelle])

Comment: FPL wants to save money and pressured plant employees to not follow safety procedures in order to save money, that's not admissible. Executives interfere in established technical protocol safety procedures, and put pressure on employees to cut corners and save money. FPL is only interested in its bottom line, not safety. (0778-5 [Cortes, Alexandra Lange])

Comment: Current electrical producing companies in south Florida use almost 50% of the potable water resources. The Turkey Point nuclear plant has recently required emergency additional water resources to cool down a problematic system that is generating unpredicted heat. Natural disasters around the globe this past decade have demonstrated that nuclear power plants, which were supposedly designed and built to withstand extreme conditions, are nevertheless, susceptible to gross calamity resulting in loss of property and life. (0782-1 [Deresz, Don])

Comment: [I have monitored the proceedings as FPL endeavored to ram through this ill-conceived project against the wishes of the community. So much about the project is wrong ---...] Adverse Social Impacts

* Forced continued dependence on the FPL monopoly (0785-12 [Devlin, Marybeth])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-529. The existing response is reprinted below.

These comments express opposition to the existing units at the Turkey Point site or to the applicant. They do not provide information related to the environmental review for the proposed action. No changes were made to the EIS as a result of these comments.

The comments provided no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of these comments.

Comment: [I have monitored the proceedings as FPL endeavored to ram through this ill-conceived project against the wishes of the community. So much about the project is wrong --...]

* Failure to decommission the aged and obsolete nuclear reactors at Turkey Point (0785-5 [Devlin, Marybeth])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-525. The existing response is reprinted below.

These comments provide general information in opposition to nuclear power. They do not provide any specific information related to the environmental effects of the proposed action. No changes were made to the EIS as a result of these comments.

No change was made to the EIS as a result of this comment.

S.26 Comments Concerning Issues Outside Scope – Miscellaneous

Comment: [For several reasons we do not consider nuclear energy (conventional fission, breeder reactors, or fusion) as a long-term global, energy source.] First, the growth of nuclear energy has historically increased the ability of nations to obtain or enrich uranium for nuclear weapons, and a large-scale worldwide increase in nuclear energy facilities would exacerbate this problem, putting the world at greater risk of a nuclear war or terrorism catastrophe. The historic link between energy facilities and weapons is evidenced by the development or attempted development of weapons capabilities secretly in nuclear energy facilities in Pakistan, India, Iraq, Iran and to some extent North Korea. Feiveson (2009) writes that "it is well understood that one of the factors leading several countries now without nuclear power programs to express interest in nuclear power is the foundation that such programs could give them to develop weapons. Kessides (2010) asserts, "a robust global expansion of civilian nuclear power will significantly increase proliferation risks unless the current nonproliferation regime is substantially strengthened by technical and institutional measures and its international safeguards system adequately meets the new challenges associated with a geographic spread and an increase in the number of nuclear facilities". Similarly, Miller and Sagan (2009) write, "It seems almost certain that some new entrants to nuclear power will emerge in the coming decades and that the organizational and political challenges to ensure the safe and secure spread of nuclear technology into the developing world will be substantial and potentially grave."

If the world were converted to electricity and electrolytic hydrogen by 2030, the 11.5 TW in resulting power demand would require ~15,800 850 MW nuclear power plants, or one installed every day for the next 43 years. Even if only 5% of these were installed, that would double the current installations of nuclear power worldwide. Many more countries would possess nuclear facilities, increasing the likelihood that these countries would use the facilities to hide the development of nuclear weapons as has occurred historically. (0783-2-12 [Taylor, Wallace])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-539. The existing response is reprinted below.

These comments are outside the scope of this review and do not provide specific information related to the environmental effects of the proposed action; therefore they will not be evaluated further. No changes were made to the EIS in response to these comments.

No changes were made to the EIS as a result of this comment.

S.27 Comments Concerning Issues Outside Scope – NRC Oversight

Comment: As a regulatory entity, your mission is to provide the appropriate regulations for the benefit of the greater population of the USA, and in this particular case, that of all residents from South Florida. (0777-3 [Anonymous, Gerardo])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-535. The existing response is reprinted below.

The NRC has carefully reviewed the application against its regulations that are intended to protect public health and safety and the environment. More information about the NRC's roles and responsibilities is available on the NRC's website at <http://www.nrc.gov/aboutnrc/regulatory.html>. No changes were made to the EIS in response to this comment.

The comment does not provide any specific information related to the environmental effects of the proposed action. Therefore, no changes were made to the EIS in response to this comment.

S.28 Comments Concerning Issues Outside Scope – Safety

Comment: Problems with the AP 1000

The reactors proposed for Turkey Point 6 and 7 are Westinghouse AP1000 reactors. The AP1000 design received approval from the NRC, but not without objection from the NRC technical staff and among the NRC Commissioners' themselves.

John Ma, a senior structural engineer at the NRC, after reviewing the plans for the AP1000, had the following comments:

The proposed connection and air inlet and tension ring have constructability problems, such as steel rod alignment, aggregate size, air entrapment, bleed water accumulation, and design implications, such as elongation in rods, shear friction transfer, and compression force transfer. The [NRC] staff has no confidence that a potential success of carefully mockup tests would be replicated during construction.

[T]here are major problems associated with the analysis and design of this shield building, such as the highly irregular configurations, stiffness variations, and unknown behavior of the SC modules. These problems cannot be easily eliminated or resolved. The single most important treatment for the problems is to design and build ductility into these SC modules so that it could compensate for, or overcome, these problems.

The ACI Building Code requires ductility to be designed into a structural module and a structure commensurate with the seismic risk or required seismic structure performance.... the [AP1000] submittal on the tornado missiles, and the staff's acceptance, are based on the assumption that the SC wall module behaved identical to RC wall modules and as ductile as RC wall modules, ... If the staff allows the brittle SC wall module to be used as part of the shield building wall, then the staff's evaluation on the adequacy of the wall for tornado missiles would have to be re-evaluated based on the actual brittle failure material property of the SC wall module #2.

10 C.F.R. 50.55a(a) (1) and 10 C.F.R. Part 50, Appendix A, GDC 1, "Quality Standards and Records," requires the shield building to be designed to quality standards commensurate with the importance of the safety functions to be performed. The AP1000 shield building, in addition to the shielding purpose, also performs a containment cooling function by using the 6.7 million pounds of water in the passive containment cooling water storage tank (PCCWST) on top of the shield building. However, the [NRC] lowered its acceptance standard for AP1000 shield building than for that of other types of shield buildings, which are designed in accordance with the ACI Code requirements. This action is not consistent with the intent or requirements of 10 C.F.R. 50.55a(a) (1) and 10 C.F.R. Part 50, Appendix A, GDC 1.

pbadupws.nrc.gov/ML1033/ML103370648.pdf. (0783-1-3 [Taylor, Wallace])

Comment: In addition, Edwin S. Lyman, a senior staff scientist at the Union of Concerned Scientists, said the following about the AP1000:

In the absence of regulatory requirements, new reactors simply will not be designed with a sufficiently robust capacity to withstand events beyond the current design basis, because if they were, they would likely be too expensive to compete with reactors that meet only minimum standards.

For example, Westinghouse has claimed that its AP1000 reactor would be able to withstand a station blackout for 72 hours. The AP1000 is a light water reactor with passive safety features, which means that its design-basis cooling functions do not require the use of active systems like motor-driven pumps, relying only on gravity-driven systems and natural convection cooling. The plant is able to maintain core cooling without electrical power because it has a large tank of water above the reactor vessel and other systems that passively provide coolant flow for 72 hours.

After 72 hours, however, the tank needs to be replenished - a task that requires electricity and operator actions. The AP1000 would not have been in a better position to withstand a 10-day station blackout than the Mark I boiling water reactors at Fukushima Daiichi. Also, Westinghouse was only required to show that the passive cooling systems would work in design-basis events, so there is no basis for assuming they would be able to work after a

beyond-design-basis natural disaster. And the NRC does not require the active equipment that would be needed after the 72 hour period to be safety-related, so there would be no guarantee that it would be available and reliable after either design-basis or beyond-design-basis events. The AP1000 or any other new design is only as robust as the set of requirements that it must meet.

Edwin S. Lyman, [Surviving the One-Two Nuclear Punch: Assessing the Risk and Policy in a Post-Fukushima World](#), Bulletin of the Atomic Scientists, at thebulletin.sagepub.com. (0783-1-4 [Taylor, Wallace])

Comment: Another expert, Arnold Gunderson, a nuclear engineer with Fairewinds Energy Education, issued a report in 2010 warning of the dangers with the AP1000. He expressed four concerns as follows:

- * Recent experience with the current generation of nuclear reactors shows that containment corrosion, cracking, and leakage are far more prevalent and serious than anticipated by the U.S. Nuclear Regulatory Commission (NRC) in establishing its regulatory program for the safe operation of nuclear reactors.

- * By design, the AP1000 containment has an even higher vulnerability to corrosion than containment systems of current reactor designs because the outside of the AP1000 containment is subject to a high-oxygen and high-moisture environment conducive to corrosion and is prone to collect moisture in numerous inaccessible locations that are not available for inspection.

- * By design, the AP1000 containment has an even higher vulnerability to unfiltered unmonitored leakage than the current generation containment system designs, and it lacks the defense in depth of existing structures. While the AP1000 is called an *advanced passive system*, in fact the containment design and structures immediately outside the containment are designed to create a chimney-like effect and draw out any radiation that leaks through the containment into the environment. Such a system will also facilitate the more efficient release of unfiltered, unmonitored radiation from any cracks or holes that might develop in the containment.

- * Finally, a leakage path exists that is not bounded by any existing analysis and will be more severe than those previously identified by Westinghouse in its AP1000 application and various revisions.

Mr. Gunderson concludes, therefore:

Four contributing factors will increase the consequences of an accident in which the containment leaks radiation directly into the annular gap.

- * First, more radiation is likely to be released than previously analyzed.

- * Second, radiation will be released sooner than in other scenarios because the hole or leakage path exists prior to the accident.

- * Third, radioactive gases entering this gap are not filtered or delayed.

* Fourth, moisture and oxygen, routinely occurring between the containment and the shield building in the AP1000 design, exacerbates the likelihood of larger than design basis containment leaks.

www.nonukesyall.org/20100407-ap1000-gundersen-containment-report.pdf.

The GEIS must include a fair discussion of the impacts of the defects in the AP1000. (0783-1-5 [Taylor, Wallace])

Response: These comments are similar to other comments received on the draft EIS on this subject, but is not explicitly addressed in the existing responses in Appendix E. Therefore, the below response is drawn from the response at Appendix E, pages 546 and 547.

Issues related to the safety of the application, including the design of the reactor, are evaluated in the NRC's safety review and are beyond the scope of the environmental review. These comments express concerns about the viability of the AP1000 reactor design. Certified reactor designs are subject to a rigorous NRC safety review, involving a detailed technical evaluation and an NRC rulemaking. The AP1000 reactor design referenced in the Turkey Point COL application underwent a lengthy and thorough safety review, resulting in issuance of the AP1000 Design Certification (DC) Final Rule in December 2011. The AP1000 DC website (<http://www.nrc.gov/reactors/new-reactors/design-cert/ap1000.html>) provides links to Westinghouse's license amendment application and the NRC's safety evaluation report. The safety aspects of the Turkey Point application other than those directly addressed as part of the AP1000 design certification are evaluated in the NRC staff's FSER for the proposed units, which was published in November 2016 and can be found in NRC's Agencywide Document Access System (ADAMS) at <http://www.nrc.gov/reading-rm/adams.html> using accession number ML16277A469. Furthermore, if combined licenses are issued, new reactor construction is verified by inspections, tests, analyses, and acceptance criteria prior to initial startup testing and plant operation.

These comments do not provide any specific information related to the environmental effects of the proposed action, therefore, no changes were made to the EIS in response to these comments.

Comment: There are so many reasons any sane person should oppose the creation of yet more toxic radioactive waste, the cost of which will be subsidized by US taxpayers. New reactor applications should be denied and all existing reactor licenses should not be renewed for the following 8 reasons:

1. The dangers of nuclear power cannot be engineered away. Fukushima and Chernobyl, the worst industrial accidents that ever occurred on this planet, and serve as prime examples of the results of hubris that ignore and underestimate both inevitabilities of human error and the forces of nature. The consequences of these nuclear debacles will last hundreds of thousands of years. Placing reactors in a hurricane prone area near densely populated areas is a terrible idea. (0760-1 [Anonymous, Anonymous])

Comment: In 1992, the two existing nuclear reactors at Turkey Point took a direct hit from Hurricane Andrew. According to the NRC's own report: 11 The onsite damage included loss of all offsite power for more than 5 days, complete loss of communication systems, closing of the access road, and damage to the fire protection and security systems and warehouse facilities ...the high water tank collapsed onto the fire water system, rendering the fire protection system inoperable. In addition, the storm threatened safety-related equipment (e.g., potential collapse of the damaged Unit 1 chimney onto the diesel generator building)." In other words -South Florida dodged a very big bullet in 1992. There is no need to build more risk in this hurricane-prone location. (0788-5 [Blake, Frances] [Cruz, Sarah] [Eckert, Shelley] [Kraskin, Madeline] [Peterson, Christina] [Webb, David])

Response: These comments are similar to other comments addressed in Appendix E of the EIS, and for which a response already exists at Appendix E, page E-546 and E-547. The existing response is reprinted below, but may include minor changes.

The NRC conducts a concurrent safety review of each COL application along with the environmental review; the results of the NRC's safety review of Turkey Point Units 6 and 7 will be published in a Final Safety Evaluation Report. The Final Safety Evaluation Report can be found in NRC's Agencywide Document Access System (ADAMS) at <http://www.nrc.gov/reading-rm/adams.html> using accession number ML16277A469. Regarding concerns about the viability of the AP1000 reactor design, approval of new reactor designs is contingent on the rigorous safety review of the design control document (DCD). New reactor construction is verified by inspections, tests, analyses, and acceptance criteria prior to initial startup testing and plant operation. The AP1000 reactor design underwent a lengthy and thorough safety review, resulting in issuance of the AP1000 Design Certification (DC) Final Rule in December 2011. The AP1000 DC website (<http://www.nrc.gov/reactors/new-reactors/design-cert/ap1000.html>) provides links to Westinghouse's license amendment application and the NRC's safety evaluation report.

The comments provided no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of these comments.

Comment: Third, conventional nuclear fission relies on finite stores of uranium that a large-scale nuclear program with a "once through" fuel cycle would exhaust in roughly a century. In addition, accidents at nuclear power plants have been either catastrophic (Chernobyl) or damaging (Three-Mile Island) [of course, this was before Fukushima], and although the nuclear industry has improved the safety and performance of reactors, and has proposed new (but generally untested) "inherently" safe reactor designs, there is no guarantee that the reactors will be designed, built, and operated correctly. For example, Pacific Gas and Electric Company had to redo some modifications it made to its Diablo Canyon nuclear power plant after the original work was done backwards, and French nuclear regulators recently told the firm Areva to correct a safety design flaw in its latest-generation reactor. Further, catastrophic scenarios involving terrorist attacks are still conceivable. (0783-2-4 [Taylor, Wallace])

Response: The comment is similar to other comments addressed in Appendix E of the EIS, and for which responses already exists at Appendix E, pages E-551 and E-553. The existing responses are printed below.

The NRC's principal responsibility is to protect the health and safety of the public when authorizing the use of radioactive material. The regulations governing the environmental review are set forth in 10 CFR Part 51, Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions, and the regulations covering the safety review are in 10 CFR Part 52, Licenses, Certifications, and Approvals for Nuclear Power Plants, and other regulations referenced therein. The NRC will only issue a license or permit if it can conclude that there is reasonable assurance (1) that the activities authorized by the license or permit can be conducted without endangering the health and safety of the public and (2) that such activities will be conducted in compliance with the rules and regulations of the Commission. Applicants must demonstrate they can meet the NRC established requirements before a license is issued. No changes were made to the EIS as a result of this comment.

Comments related to security and terrorism are safety issues that are not within the scope of the staff's environmental review. No changes were made to the EIS in response to this comment.

The comment provided no information in addition to that considered in the EIS analysis, and no changes were made to the EIS as a result of the comment.

SUMMARY

This supplement documents the review team's evaluation of 59 comment letters not included in NUREG-2176, "Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Nuclear Plant Units 6 and 7," Final Report. On the basis of the information contained in the final EIS and this supplement, the review team finds that the comment letters not included in the final EIS did not provide information that would change the analysis in the final EIS or the NRC staff's recommendation to the Commission, which is that the COLs be issued as proposed. This recommendation is based on (1) the application, including the Environmental Report (ER), submitted by FPL; (2) consultation with Federal, State, Tribal, and local agencies; (3) the review team's independent review; (4) the consideration of public comments received on the environmental review; and (5) the assessments summarized in the EIS and this supplement, including the potential mitigation measures identified in the ER and the EIS.

REFERENCES

- 33 CFR Part 328. *Code of Federal Regulations*, Title 33, *Navigation and Navigable Waters*, Part 328, "Definition of Waters of the United States." Washington, D.C. TN1683.
- 33 CFR Part 329. *Code of Federal Regulations*, Title 33, *Navigation and Navigable Waters*, Part 329, "Definition of Navigable Waters of the United States." Washington, D.C. TN4770.
- 50 FR 32138. August 8, 1985. "Policy Statement on Severe Reactor Accidents Regarding Future Designs and Existing Plants." *Federal Register*, Nuclear Regulatory Agency, Washington, D.C. TN4519.
- 51 FR 30028. August 21, 1986. "Safety Goals for the Operation of Nuclear Power Plants; Policy Statement; Republication." *Federal Register*, Nuclear Regulatory Commission, Washington, D.C. TN594.
- 77 FR 16082. March 19, 2012. "In the Matter of All Power Reactor Licensees and Holders of Construction Permits in Active or Deferred Status: Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Effective Immediately)." *Federal Register*, Nuclear Regulatory Commission, Washington, D.C. TN1424.
- 80 FR 12172. March 6, 2015. "Environmental Impact Statements; Notice of Availability." *Federal Register*, Environmental Protection Agency, Washington, D.C.
- 80 FR 30501. May 28, 2015. "Combined License Application for Turkey Point Nuclear Plant, Units 6 and 7 [Draft Environmental Impact Statement; Request for Comment; Reopening of Comment Period]." *Federal Register*, Nuclear Regulatory Commission, Washington, D.C.
- 33 U.S.C. § 403. U.S. Code Title 33, *Navigation and Navigable Waters*, Section 403 "Obstruction of Navigable Waters Generally; Wharves; Piers, etc.; Excavations and Filing in." TN4768.
- 42 U.S.C. § 4321 et seq. National Environmental Policy Act (NEPA) of 1969, as amended.
- Cunningham, K.J. 2014. *Integration of Seismic-Reflection and Well Data to Assess the Potential Impact of Stratigraphic and Structural Features on Sustainable Water Supply from the Floridan Aquifer System*. Open-File Report 2014–1136, U.S. Geological Survey, Davie, Florida. Accession No. ML14342A048. TN4051.
- Cunningham, K.J. 2015. *Seismic-Sequence Stratigraphy and Geologic Structure of the Floridan Aquifer System Near "Boulder Zone" Deep Wells in Miami-Dade County, Florida*. U.S. Geological Survey Scientific Investigations Report 2015-5013, Reston, Virginia. Accession No. ML16172A125. TN4574.
- FDEP (Florida Department of Environmental Protection). 2013. "Siting Coordination." Tallahassee, Florida. Available at <http://www.dep.state.fl.us/siting/default.htm>. TN2629.

Supplement 1

FPL (Florida Power & Light Company). 2009. Letter from M. Nazar to NRC, dated June 30, 2009, regarding "Application for Combined License for Turkey Point Units 6 and 7." L-2009-144, Juno Beach, Florida. Accession No. ML091830589. TN1229.

FPL (Florida Power & Light Company). 2009. Letter from M. Gettler to NRC, dated August 7, 2009, regarding "Supplemental Meteorological Data in Support of Application for Combined License." L-2009-146, Juno Beach, Florida. Accession No. ML092250585. TN1230.

FPL (Florida Power & Light Company). 2010. Letter from B. Linkiewicz to Florida Department of Environmental Protection, dated May 7, 2012, regarding "FPL Turkey Point Units 6 & 7 Project, Amendment to Site Certification Application (PA03-45A3)." FPLNNP-10-0125, Juno Beach, Florida. Accession No. ML14216A492. TN1231.

FPL (Florida Power & Light Company). 2014. *Turkey Point Plant, Units 6 and 7 COL Application, Part 3—Environmental Report*. Revision 6, Juno Beach, Florida. Accession No. ML14342A011. TN4058.

FPL (Florida Power & Light Company). 2014. *Turkey Point Plant, Units 6 and 7 COL Application, Part 2—Final Safety Analysis Report*. Revision 6, Juno Beach, Florida. Accession No. ML14311A247. TN4069.

FPL (Florida Power & Light Company). 2014. Letter from M.K. Nazar to NRC, dated October 29, 2014, regarding "Proposed Turkey Point Units 6 and 7 Combined License Application Submittal 13, Submittal of the Annual Update of the COL Application—Revision 6 and the Semi-Annual Update of the Departures Report." L-2014-316, Juno Beach, Florida. Accession No. ML14311A715. TN4102.

FPL (Florida Power & Light Company). 2014. *Turkey Point Plant, Units 6 & 7 COL Application, Part 1—General and Financial Information*. Revision 6, Juno Beach, Florida. Accession No. ML14311A173. TN4103.

FPL (Florida Power & Light Company). 2016. *Ten Year Power Plant Site Plan 2016–2025*. Miami, Florida. Accession No. ML16216A227. TN4579.

FPSC (Florida Public Service Commission). 2015. In re: Nuclear Cost Recovery Clause and In re: Fuel and Purchased Power Cost Recovery Clause with Generating Performance Incentive Factor: Order Denying Florida Industrial Power Users Group's Motion to Dismiss in its Entirety, Approving Duke Energy Florida, Inc.'s Request to End the Levy Nuclear Project Fix Rate Component, Declining to Take Action on Duke Energy Florida Inc.'s Request to Defer Collection Levy Nuclear Project Cost and Approving Duke Energy Florida Inc.'s Revised Tariff Sheet No. 6.105. Docket No. 150009-EI, Tallahassee, Florida. Accession No. ML16167A515. TN4521.

HPA (Health Protection Agency). 2006. *Power Frequency Electromagnetic Fields, Melatonin and Risk of Breast Cancer, Report of an Independent Advisory Group on Non-Ionising Radiation*. London, United Kingdom. Available at http://webarchive.nationalarchives.gov.uk/20140714084352/http://www.hpa.org.uk/webc/hpawebfile/hpaweb_c/1204286180274. TN1273.

McNeill, D.F. 2002. *A Geological Review of the Confining Capability of a Regional Dolomite Unit: Application to the MDWAS South District WWTP*. Coral Gables, Florida. TN4571.

NCRP (National Council on Radiation Protection and Measurements). 2009. *Ionizing Radiation Exposure of the Population of the United States*. NCRP Report No. 160, Bethesda, Maryland. Available at <http://app.knovel.com/web/toc.v/cid:kpIREPUS05>. TN420.

NIEHS (National Institute of Environmental Health Sciences). 1999. *NIEHS Report on Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields*. NIH Publication No 99-4493, National Institutes of Health, Research Triangle Park, North Carolina. Accession No. ML093240277. TN78.

NPS (National Park Service). 2016. *Record of Decision: Acquisition of Florida Power & Light Company Land in the East Everglades Expansion Area Environmental Impact Statement, Everglades National Park, Florida*. Homestead, Florida. Accession No. ML16167A522. TN4532.

NRC (U.S. Nuclear Regulatory Commission). 1996. *Generic Environmental Impact Statement for License Renewal of Nuclear Plants*. Volumes 1 and 2, NUREG-1437, Washington, D.C. Accession Nos. ML040690705, ML040690738. TN288.

NRC (U.S. Nuclear Regulatory Commission). 2012. Email from M. Comar to M. Nazar, dated May 1, 2012, regarding "Request for Additional Information Letter No. 58 Concerning Implementation of Fukushima Near-Term Task Force Recommendations for the Turkey Point Units 6 and 7 Combined License Application." Washington, D.C. Accession No. ML12122A973. TN3239.

NRC (U.S. Nuclear Regulatory Commission). 2014. Letter from R.F. Kuntz to M. Nazar, dated December 4, 2014, regarding "Turkey Point Nuclear Generating, Unit Nos. 3 and 4—Staff Assessment of Response to 10 CFR 50.54(f) Information Request—Flood-Causing Mechanism Reevaluation (TAC Nos. MF1114 and MF1115)." Washington, D.C. Accession No. ML14324A816. TN4738.

NRC (U.S. Nuclear Regulatory Commission). 2015. *Proposed Plans for Resolving Open Fukushima Tier 2 and 3 Recommendations*. SECY-15-0137, Washington, D.C. Accession No. ML15254A006. TN4731.

NRC (U.S. Nuclear Regulatory Commission). 2016. *Advanced Safety Evaluation for Turkey Point Units 6 and 7 Combined License Application, Chapter 2: "Site Characteristics"*. Washington, D.C. Accession No. ML15096A254. TN4775.

NRC (U.S. Nuclear Regulatory Commission). 2016. *Advanced Safety Evaluation for Turkey Point Units 6 and 7 Combined License Application, Chapter 9: "Auxiliary Systems"*. Washington, D.C. Accession No. ML15096A428. TN4803.

Supplement 1

State of Florida. 2014. "Final Order on Certification, In Re: Florida Power & Light Company Turkey Point Units 6 & 7 Power Plant Siting Application No. PA 03–45A3." State of Florida Siting Board, OGC Case No. 09–3107, Division of Administrative Hearings, Case No. 09–03575–EPP, Tallahassee, Florida. Accession No. ML14345A291. TN3637.

State of Florida. 2016. Third District Court of Appeal, Miami-Dade County, et al., vs. In Re: Florida Power & Light Company, etc., et al. Opinion Filed April 20, 2016, Appealing the Final Order on Certification. Accession No. ML161126A339. TN4781.

UNSCEAR (United Nations Scientific Committee on the Effects of Atomic Radiation). 2011. Sources and Effects of Ionizing Radiation. Scientific Annex D. Health Effects due to Radiation from the Chernobyl Accident. United Nations, New York. April 2011. http://www.unscear.org/docs/reports/2008/11-80076_Report_2008_Annex_D.pdf. Accessed on November 15, 2016.

Walsh, V.M. and R.M. Price. 2010. "Determination of Vertical and Horizontal Pathways of Injected Fresh Wastewater into a Deep Saline Aquifer (Florida, USA) using Natural Chemical Tracers." *Hydrogeology Journal* 18(4):1027–1042, New York, New York. TN3656.

Westinghouse (Westinghouse Electric Company LLC). 2011. *AP1000 Design Control Document*. APP-GW-GL-700, Revision 19, Pittsburgh, Pennsylvania. Accession No. ML11171A500. TN261.

WHO (World Health Organization). 2007. *Extremely Low Frequency Fields*. Environmental Health Criteria 238, Geneva, Switzerland. Available at http://www.who.int/peh-emf/publications/elf_ehc/en/. TN1272.

WHO (World Health Organization). 2016. FAQs: Fukushima Five Years On. http://www.who.int/ionizing_radiation/a_e/fukushima/faqs-fukushima/en/. Accessed on November 15, 2016.

BIBLIOGRAPHIC DATA SHEET

(See instructions on the reverse)

2. TITLE AND SUBTITLE

Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Nuclear Plant Units 6 and 7, Supplement 1

3. DATE REPORT PUBLISHED

MONTH	YEAR
December	2016

4. FIN OR GRANT NUMBER

5. AUTHOR(S)

See Appendix A of NUREG-2176 Volume 3

6. TYPE OF REPORT

Technical

7. PERIOD COVERED (Inclusive Dates)

8. PERFORMING ORGANIZATION - NAME AND ADDRESS (If NRC, provide Division, Office or Region, U. S. Nuclear Regulatory Commission, and mailing address; if contractor, provide name and mailing address.)

Division of New Reactor Licensing
Office of New Reactors
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

9. SPONSORING ORGANIZATION - NAME AND ADDRESS (If NRC, type "Same as above", if contractor, provide NRC Division, Office or Region, U. S. Nuclear Regulatory Commission, and mailing address.)

Same as above

10. SUPPLEMENTARY NOTES

Docket Nos. 52-040 and 52-041

11. ABSTRACT (200 words or less)

This report supplements NUREG-2176, "Environmental Impact Statement for Combined Licenses (COLs) for Turkey Point Nuclear Plant Units 6 and 7," Final Report (EIS), dated October 2016. The U.S. Nuclear Regulatory Commission (NRC), in cooperation with the U.S. Army Corps of Engineers (USACE), Jacksonville District, prepared the EIS to document its environmental review of an application submitted to the NRC in June 2009 by Florida Power & Light Company (FPL) for combined construction and operating licenses for two new nuclear power units (Units 6 and 7) that FPL proposes to construct and operate at its Turkey Point site. The National Park Service (NPS) participated in the environmental review as a cooperating agency by providing special expertise for the areas in and around the adjacent national parks (Biscayne and Everglades National Parks). The NRC issued NUREG-2176 in draft form in February 2015, and solicited comments on the draft EIS. Appendix E to the final EIS identifies and responds to the comments received on the draft EIS. However, 59 comment letters that were submitted to the NRC during the comment period on the draft EIS were inadvertently not included in Appendix E to the final EIS. The 59 comments letters were discovered after the publication of the final EIS in October 2016. This supplement to NUREG-2176 considers and responds to these 59 comment letters. This supplement documents the review team evaluation of each comment letter not included in the final EIS. While the comments do not provide new and significant information regarding the project or its environmental impacts, the NRC staff is of the opinion that, in view of the circumstances described above, and in accordance with 10 CFR 51.92(c), preparation of a supplement to the final EIS will further the purposes of the National Environmental Policy Act of 1969, as amended (NEPA).

12. KEY WORDS/DESCRIPTORS (List words or phrases that will assist researchers in locating the report.)

Turkey Point Units 6 and 7 Combined License Application
Turkey Point Units 6 and 7 COL
Turkey Point Units 6 and 7 Environmental Review
Final Environmental Impact Statement
NEPA
NUREG - 2176, Supplement 1
Supplement

13. AVAILABILITY STATEMENT

unlimited

14. SECURITY CLASSIFICATION

(This Page)

unclassified

(This Report)

unclassified

15. NUMBER OF PAGES

16. PRICE



Federal Recycling Program



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, DC 20555-0001

OFFICIAL BUSINESS



**NUREG-2176
Supplement 1**

**Environmental Impact Statement for Combined Licenses (COLs) for
Turkey Point Nuclear Plant Units 6 and 7**

December 2016