ATTACHMENT 6

JOINT INTERVENERS' PETITION TO INTERVENE FEB 6, 2009

ATTACHMENT 3

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February 6, 2009

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of	)	
	)	
PROGRESS ENERGY FLORIDA	)	
	)	Docket Nos. 52-029 COL
	)	52-030 COL
(Levy County Nuclear Station	)	
Units 1 & 2)	)	
	)	

PETITION TO INTERVENE AND REQUEST FOR HEARING
BY THE GREEN PARTY OF FLORIDA, THE ECOLOGY PARTY OF FLORIDA AND
NUCLEAR INFORMATION AND RESOURCE SERVICE

This is a petition to intervene filed under 10 C.F.R. § 2.309 and in response to a notice published by the Nuclear Regulatory Commission ("NRC" or "Commission") at 73 F.R. 74532 on December 8, 2008.[1] The Green Party of Florida, The Ecology Party of Florida and Nuclear Information and Resource Service (NIRS) hereby petition to intervene in the application by Progress Energy Florida ("PEF" or "the applicant") before the Commission for two combined construction and operating license ("COL") for two new nuclear power reactor units to be called Levy County units 1 and 2, located in Levy County, Florida. The Green Party of Florida, The Ecology Party of Florida and NIRS

[1] The application, submittal documents and reference documents are available at www.nrc.gov/reactors/new-reactors/col/levy.html

also request a hearing on the above captioned matter. As demonstrated below, The Green Party of Florida, The Ecology Party of Florida and NIRS (in aggregate the "co-petitioners") have representational standing through their members to make this request. This is a pro se Petition; none of the parties have counsel. Coordination of the Petition and subsequent communications will be provided by Mary Olson, NIRS Southeast Regional Coordinator. See attached authorization declarations from The Green Party of Florida (exhibit PI-1) and The Ecology Party of Florida (exhibit PI-2) and notice of appearance of Mary Olson, (exhibit PI-3).

This petition includes the details (with particularity) of the contentions that the co-petitioners find to be substantive and vital to NRC's consideration of the applicant's combined operating license application ("COLA"). The purpose of raising these issues is the protection of our members and their interest in this process. The contentions are that:

a. The design and operating procedures are not in the COLA.

b. The application should be refilled under part 50

b. The applicant does not meet financial qualification requirements

c. That the environment report fails to adequately assess aquatic and other environmental impacts

d. That the environment report omits several key alternatives to the proposal

e. That high-level waste generation and disposal must be considered

f. The applicant fails to offer a plan in absence licensed waste disposal options

g. The COLA is lacking consideration of key alternative options in the environment report

DESCRIPTION OF THE PROCEEDING

The COLA for the proposed Levy County Nuclear Station, Units 1 and 2 ("Levy") was filed pursuant to 10 C.F.R. Part 52 Subpart C by PEF on July 28, 2008 with a supplemental letter on September 12, 2008. The application also requests a limited work authorization pursuant to 10 CFR 50.10. On October 6, 2008[2] NRC accepted the COLA for docketing and a letter was sent to PEF. NRC published a notice of hearing and opportunity to petition to intervene at 73 F.R. 74532 on December 8, 2008. The COLA incorporates (by reference) 10 C.F.R. § 52 Appendix D which includes the Westinghouse AP1000 pressurized water reactor Design Control Document ("DCD") Revision 16.[3] It is important to note that the AP1000 DCD Revision 16 has been replaced by Revision 17 in Docket No. 52-006.

Co-Petitioners seek party status in this licensing action since there are specific, harms that our members would suffer if the concerns identified in this Petition by the Co-Petitioners and their experts are not addressed.

STANDING OF PETITIONERS

The Green Party of Florida

The Green Party of Florida (GPF) is a values-based political party with more than

[2] Published at 73 F.R. 60726 on October 14, 2008.

[3] The AP1000 DCD Revision 16 reference documents are also available at www.nrc.gov/reactors/new-reactors/col/levy.html

6,000 members statewide. The political perspective and platform of the GPF are rooted in the Green Party's Ten Key Values, which are: Social Justice, Community-Based Economics, Nonviolence, Decentralization, Future Focus-Sustainability, Feminism, Personal and Global Responsibility, Respect for Diversity, Grassroots Democracy, and Ecological Wisdom.

The GPF is affiliated with the Green Party of the U.S. (GPUS), with more that 200,000 members distributed across all regions of the U.S. GPUS is also affiliated with Green Parties worldwide through the Global Greens Network and other alliances. The international Green Party movement is one of the largest networks of political parties and grassroots activists that openly endorse a safe, sustainable, non-nuclear energy policy. The GPF business address is P.O. Box 1316 Key West, Florida 30041.

The Green Party of Florida is representing the interests of its members Michael Canney, Shawna Doran, Jennifer Sullivan, Gilman Marshall, Donze Parry, Joyce Tentor, Pablo Lopez Garcia, Jessica Burris, and Gabriela Waschensky, who live within 50 miles of the proposed reactor and whose declarations are attached (exhibits GP.Decl.01—GP.Decl.06).

There are viable options available to meet the energy needs of Florida that are clean, safe and sustainable alternatives to nuclear power. Construction and operation of the proposed Levy County Nuclear Plant would cause irreversible damage to the local environment, and it would pose risks to the health and safety of current and future generations of Florida residents, including members of the Green Party of Florida.

If an accident occurred at the facility it could result in radiological releases and environmental contamination that would adversely affect the health and well being of

Green Party of Florida members, as well as all living beings in the region. The licensing of this nuclear plant will result in the creation of a new, permanent repository for high level radioactive waste, with the costs of its safeguarding and maintenance to be borne by the public in perpetuity. The risks and costs associated with this technology are unacceptable to the GPF and its members, especially given the abundance of alternatives available.

The GPF seeks to avoid or minimize the risks posed by this nuclear plant by ensuring that the highest possible safety and environmental standards are imposed on the proponents of this project, and that all of these issues are fully and thoroughly addressed in the NRC's licensing proceeding for the proposed Levy County units 1 and 2.

The Ecology Party of Florida

The Ecology Party of Florida is a Florida political party which holds that environmental destruction is the most important issue facing America today. The goals of the party are: to have elected officials who place environmental issues at the top of their agendas, to inform voters on issues related to the environment, and to use legal means to protect the ecosystem. The Ecology Party was founded in 2007, and is headquartered at 641 SW 6th Ave, Ft Lauderdale, FL. It currently has approximately 125 members, some of whom are customers of PEF or a PEF client. Others live, work, play, or travel near the site of the proposed Levy reactors. The Party has been actively involved in a variety of issues involving environmental quality in Florida. The Ecology Party is representing 4 members who live within 50 miles of the proposed new Levy

County units 1 and 2. They are: David Lee McSherry, December Duke McSherry, Emily Ann Casey, Frank Lockheart Caldwell. Declarations of these members in support of this petition are attached (exhibits EPF-01—EPF 04). Constructing and operating the proposed new Levy County nuclear power plant could create significant damage to the local environment, especially to Florida's sensitive wetlands and the aquifer which supplies drinking water for much of the state's population. The Ecology Party of Florida seeks to avoid or minimize those risks by ensuring that safety and environmental concerns are fully addressed in the NRC's licensing proceeding for the proposed Levy County units 1 and 2.

Nuclear Information and Resource Service (NIRS)

NIRS is a non-profit environmental advocacy organization with about 15,000 members distributed across all the 50 states including about 350 members in Florida Florida. NIRS headquarters are at 6930 Carroll Avenue in Takoma Park, Maryland; the organization has one regional office, based in Asheville, North Carolina ("NIRS Southeast" at PO Box 7586, Asheville, NC 28802). NIRS Southeast will coordinate NIRS participation in this petition and any subsequent hearing. NIRS is affiliated with World Information Network on Energy (WISE) and together the two groups are the world's largest network of grassroots activists focused specifically on nuclear energy and its radioactive waste. NIRS is an information and networking center for people and organizations concerned about the safety, health and environmental risks posed by nuclear power generation. NIRS has worked for 30 years to promote a healthy and just world and has been an advocate for safe and sustainable energy. Members of NIRS

are ratepayers of PEF and neighbors of the site of the proposed nuclear facility.

NIRS is representing the interests of NIRS members Emily Casey, Mandy Hancock, Rob Brinkman, Theodora Rusnak, Carol Gordon, Robert Tomashevsky, Connie Tomashevsky, and Frank Lockhart Caldwell, who live within 50 miles of the proposed reactor and whose declarations are attached (exhibit NIRS-01—NIRS-08).

An accident at the proposed nuclear power plant could result in radiological releases and environmental contamination that would adversely affect the health of NIRS' members, the value of their property, and their ability to conduct their business. NIRS seeks to avoid or minimize those risks by ensuring that safety and environmental concerns are fully addressed in the NRC's licensing proceeding for the proposed Levy County units 1 and 2.

Members of the co-petitioners live, work, travel, recreate, use and enjoy natural resources in the vicinity of the proposed nuclear facility. They breathe the air, drink and use the water, eat food grown in the vicinity of the proposed project. All are customers of electric power companies whose rates will be impacted directly, or indirectly, by this project.

Pursuant to 10 C.F.R. § 2.309, a request for hearing or petition to intervene is required to address (1) the nature of the petitioner's right under the Atomic Energy Act ("AEA") to be made a party to the proceeding; (2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding; and (3) the possible effect of any order that may be entered in the proceeding on the petitioner's interest.

Other standing requirements are found in NRC case law.[4] In *Diablo Canyon*, the Atomic Safety and Licensing Board noted that petitioners who live within 50 miles of a proposed nuclear power plant are presumed to have standing in reactor construction permit and operating license cases, because there is an "obvious potential for offsite consequences" within that distance.

Further record, as summarized by the Atomic Safety and Licensing Board ("ASLB"), on standing requirements are as follows:

> In determining whether a petitioner has sufficient interest to intervene in a proceeding, the Commission has traditionally applied judicial concepts of standing. See *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-83-25, 18 NRC 327, 332 (1983) (citing *Portland General Electric Co.* (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610 (1976)). Contemporaneous judicial standards for standing require a petitioner to demonstrate that (1) it has suffered or will suffer a distinct and palpable harm that constitutes injury-in-fact within the zone of interests arguably protected by the governing statutes (e.g., the Atomic Energy Act of 1954 (AEA), the National Environmental Policy Act of 1969 (NEPA)); (2) the injury can be fairly traced to the challenged action; and (3) the injury is likely to be redressed by a favorable decision. See *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plants), LBP-99-25, 50 NRC 25, 29 (1999). An organization that wishes to intervene in a proceeding may do so either in its own right by demonstrating harm to its organizational interests, or in a representational capacity by demonstrating harm to its members. See *Hydro Resources, Inc*. (2929 Coors Road, Suite 101, Albuquerque, NM 87120), LBP-98-9, 47 NRC 261, 271 (1998). To intervene in a representational capacity, an organization must show not only that at least one of its members would fulfill the standing requirements, but also that he or she has authorized the organization to represent his or her interests. See *Private Fuel Storage, L.L.C.* (Independent Fuel Storage Installation), LBP-98-7, 47 NRC 142, 168, *aff'd on other grounds*, CLI-98-13, 48 NRC 26 (1998).

Standing to participate in this proceeding is demonstrated by the attached Declarations of the above named members of the co-petitioners, people who live in Florida within 50

[4] *Pacific Gas & Electric Co.* (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), LBP-02-23, 56 NRC 413, 426 (2002).

miles of the proposed site and who have authorized one or more of the co-petitioners to represent their interests in this proceeding.

The attached Declarations declare that people who live near (within 50 miles, though some live much closer) the Levy County site, declare further that they are members of one or more of the co-petitioners and also that they support this petition. Thus, they have presumptive standing in this intervention by virtue of their support for the action and their proximity to the proposed nuclear plants that may be constructed on the site.[5]

In the case at hand the granting of a combined operating license ("COL") to Progress Energy Florida would permit the construction and operation of two new nuclear reactors, and therefore additional generation of radioactive waste and radioactive emissions in Levy County, Florida. The co-petitioner's members seek to protect their lives, health and safety and economic interests as customers and ratepayers (directly or indirectly) of PEF by opposing the issuance of a COL to PEF. The co-petitioners seek to ensure that no COL is issued by the Commission unless PEF demonstrates full compliance with the AEA, the National Environmental Policy Act ("NEPA") and all other applicable laws and regulations.

Further, determination of standing is based on three requirements: injury, causation and redressability. The co-petitioners hereby request to be made parties to the proceeding because: (1) construction and operation of two nuclear reactor units at

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[5] *Diablo Canyon, supra*, 56 NRC at 426-427, citing *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), LBP-01-6, 53 NRC 138, 146, *aff'd,* CLI-01-17, 54 NRC 3 (2001).

Levy County would present a tangible and particular harm to the health and well-being of the co-petitioners' members living within 50 miles of the site and who are ratepayers of the company; (2) the Commission has initiated proceedings for a COL, the granting of which would directly affect the co-petitioners and their members; and (3) the Commission is the sole agency with the power to approve, to deny or to modify a license to construct and operate a commercial nuclear power plant.

CONSIDERATIONS

The Commission is charged by the AEA with to forego actions that would be "inimical to the common defense and security or to the health and safety of the public."[6] Public safety is "the first, last, and a permanent consideration in any decision on the issuance of a construction permit or a license to operate a nuclear facility."[7] As detailed below in the co-petitioners' contentions, PEF's COLA fails to comply with the NEPA requirement that it fully address the environmental impacts of constructing and operating the proposed Levy County reactors.

The AEA sets minimum standards for the operation of nuclear facilities, while NEPA requires the Commission to consider and attempt to avoid or mitigate significant adverse environmental impacts of licensing those facilities. AEA and NEPA overlap to some extent; however they also establish independent requirements.[8] It is

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[6] 42 U.S.C. §2133(d).

[7] Petition for Emergency and Remedial Action, 7 NRC at 404, citing *Power Reactor Development Corp. v. International Union of Electrical Radio and Machine Workers*, 367 U.S. 396, 402 (1961).

[8] *Limerick Ecology Action v. NRC*, 869 F.2d 719, 729-30 (3rd Cir. 1989) ("*Limerick Ecology*

"unreasonable to suppose that [environmental] risks are automatically acceptable, and may be imposed upon the public by virtue of the AEA, merely because operation of a facility will conform to the Commission's basic health and safety standards."[9] NEPA requires NRC to go beyond the AEA, by requiring consideration of alternatives to the COLA and for reducing or avoiding adverse environmental impacts of NRC licensing actions.[10]

The NRC staff's responsibility in preparing an EIS under NEPA, and the Safety Evaluation Report under NRC regulations is to conduct a fair and independent analysis of the impacts of the proposed action on the environment, and compliance with NRC regulations, in order to give the decisionmaker a useful tool, based on solid scientific and technical data, to make a decision to grant or deny the COLA. Since neither of those documents is prepared until later in the process, the issues raised by the co-petitioners must also rise to that same level of import in the consideration of whether to grant or deny the applicant's COL.

Action") (holding that the AEA does not preclude NEPA).

[9] *Limerick Ecology Action*, quoting *Citizens for Safe Power v. NRC*, 524 F.2d 1291, 1299 (D.C. Cir. 1975).

[10] 10 C.F.R. § 51.71(d).

OVERVIEW OF THE CONTENTIONS

A COL is authorization from the NRC to construct and operate a nuclear power plant at a specific site. Before issuing a COL, the NRC staff is required to complete safety and environmental reviews of the application in compliance with the AEA and NEPA. The Green Party of Florida, The Ecology Party of Florida and Nuclear Information and Resource Service seek to intervene because operation of the two proposed nuclear reactors would endanger the health and safety and economic interests of their members and other people living within 50 miles of the proposed reactors. The costs and risks of the proposed reactors are unnecessary and wholly out of proportion to any possible benefit.

As determined by the ASLB, a contention is admissible when it meets the requirements in 10 C.F.R. § 2.309(f)(1):

> (1) A request for hearing or petition for leave to intervene must set forth with particularity the contentions sought to be raised. For each contention, the request or petition must:
> (i) Provide a specific statement of the issue of law or fact to be raised or controverted;
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> (ii) Provide a brief explanation of the basis for the contention;
>
> (iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding;
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> (iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding;
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> (v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the requestor/petitioner intends to rely to support its position on the issue; and

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

A thorough recitation of relevant case law regarding the admissibility of contentions was recently presented in Duke Energy Carolinas, LLC (William States Lee Nuclear Station, Units 1 and 2), LBP-08-17, 68 NRC ___ (slip op. at 4-10) (September 22, 2008).

A variety of contentions have been admitted by ASLBs at a number of the latest rounds of petitions on the adequacies of COLAs. See for example, Tennessee Valley Authority, (Bellefonte Nuclear Power Plant, Units 3 and 4), LBP-08-16, 68 NRC ___ (slip op.) (September 12, 2008).

For each contention offered here, the co-petitioners demonstrate that the issues raised are within the scope of the proceeding, that the issues are material to the Commission's licensing responsibilities, and that there exists a genuine dispute between the petitioners and the licensee. In its contentions, the co-petitioners present the specific issues of law or fact to be raised, the bases for the contentions and statements of fact or expert opinion in support of the contentions.

Contention 1 -- AP 1000

Contention 2 -- Part 50 Should Apply

Contention 3 -- Financial Qualification

Contentions 4-A – 4-O -- HydroEcology

Contention 5 – SAMA Analysis omits CREC

Contentions 6.A and 6.B – Waste Confidence and high-level waste

Contention 7 -- NEPA issues on “Low-Level” waste

Contention 8 -- Safety issues on “Low-Level” waste

Contention 9 – Omission of solar-thermal option

Contention 10 – Poor treatment of efficiency and omission as option

Contention 11 – Omission and failure to analyze distributed generation

CONTENTIONS

CONTENTION 1 (AP1000 is not certified and current revision is not adopted).

The COLA is incomplete because at the moment many of the major safety components and procedures proposed for the Levy County reactors are only conditionally designed at best. In its COLA, PEF has adopted the AP1000 DCD Revision 16 which has not been certified by the NRC and with the filing of Revision 17 by Westinghouse, Revision 16 will no longer be reviewed by the NRC Staff. PEF is now required to resubmit its COLA as a plant-specific design or to adopt Revision 17 by reference and provide a timetable when its safety components will be certified. Either the plant-specific design or adoption of AP1000 Revision 17 would require changes in PEF’s application, including the final design and key operational procedures. Regardless of whether the components are certified or not, the COLA cannot be reviewed without the full disclosure of all designs and operational procedures.

Support for contention. The most significant elements of the proposed reactors, i.e., the design and operational practices, are lacking in the COLA. The DCD for the

AP1000 Revision16 has been adopted by reference for the proposed Levy County reactors and is, as such, part of the application.[11] Westinghouse submitted its AP1000 DCD Revision 15 to the NRC in March 2002, and although the NRC issued a final rule certifying the design in January 2006, Westinghouse then submitted Revision 16 in 2007, with an estimated completion date for certification that was extended until at least mid-2011.[12] However, Westinghouse recently filed a new revision, Revision 17, on September 22, 2008.[13] With the submittal of Revision 17, there is now no estimated completion date for the certification of the AP1000 reactors and at the same time, the proposed Levy County reactors remain tied to Revision 16.

It is impossible to conduct a meaningful technical and safety review of the COLA without knowing the final design of the reactors as they would be constructed by PEF. On its face, the DCD is incomplete; even after the certification of several "Tier 1" components in December 2005, there remain a number of serious safety inadequacies in the AP1000 Revision 16 design that have not been satisfactorily addressed. For example, in the January 18, 2008, letter to Westinghouse docketing AP1000 revision 16[14], there was discussion of an incomplete recirculation screen design, i.e., the "sump

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[11] Appendix D to 10 C.F.R. Part 52 and the AP1000 DCD Revision 16.

[12] www.nrc.gov/reactors/new-reactors/new-licensing-files/new-rx-licensing-app-legend.pdf (October 22, 2008). For discussion of AP1000 DCD Revision 16 process, see www.nrc.gov/reactors/new-reactors/design-cert/amended-ap1000.html.

[13] The cover letter to Revision 17 was not entered into the ADAMS system until approximately October 17, 2008. ADAMS Accession No. ML082380866. Revision 17 was not entered into ADAMS until the week of November 22, 2008. ADAMS Accession No.ML083230868. Revision 17 is now available at www.nrc.gov/reactors/new-reactors/design-cert/amended-ap1000.html.

[14] ADAMS Accession No. ML073600743.

problem," a necessary component to the emergency cooling system that will affect the design for the proposed Levy County reactors.[15] The AP1000 reactors also have unresolved instrumentation and controls problem is that will ultimately impact the safety of the facility.

Even the so-called "certified" components that have been approved depend on the interaction with non-certified components. These non-certified "Tier 2" components are not trivial, but run the gamut of containment, control room set up, seismic qualifications, fire areas, heat removal, human factors engineering design, plant personnel requirements, operator decision-making, alarms and piping. These non-certified components interact with Tier 1 components and each other to a significant degree. During the certification process, any or all of these may be modified by the Commission, and as a result, require the applicant to modify its application. These lead to one of the basic problems for all reviewers of the COLA for PEF and other utilities; it is impossible to conduct the probabilistic risk assessment ("PRA") for the proposed Levy County reactors without a final design and operations procedures.

On its face, Revision 17 demonstrates that the DCD, and as a result, the COLA, is incomplete and that there remain a number of serious safety inadequacies in the AP1000 design that have not been satisfactorily addressed. In addition to the still

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[15] Union of Concerned Scientists, "Regulatory Malpractice: The NRC's Handling of the PWR Containment Sump Problem," October 2003. Available at http://www.ucsusa.org/clean_energy/nuclear_safety/regulatory-malpractice-nrcs-handling-of-the-pwr-containment-sump-problem.html

unresolved issues in Revision 16 presented above, the uncertified components specifically addressed in Revision 17, include turbine design changes, physical security, human factors engineering, responses to seismic activities and adverse weather conditions, radiation protection measures, technical specifications for valves and piping, accident analyses, and aircraft impact. During the Revision 17 certification process, any or all of these may be modified by the Commission, and as a result, require the applicant to modify its application.

The Commission in denying a motion in another licensing proceeding to indefinitely postpone the notice of hearing because of the lack of certified design and operational components under Revision 16, stated that

> If the Petitioners believe the Application is incomplete in some way, they may file a contention to that effect. Indeed, the very purpose of NRC adjudicatory hearings is to consider claims of deficiencies in a license application; such contentions are commonplace at the outset of NRC adjudications.

Progress Energy Carolina, Inc. (Shearon Harris Nuclear Power Plant, Units 2 and 3), CLI-08-15, 68 NRC ___ (slip op.) (June, 23, 2008). The validity of this contention does not depend on whether the ultimate design or operational procedures are certified or not; the COLA is incomplete and cannot be reviewed by the NRC staff or affected petitioners. It is clear that the missing components and procedures are crucial in assessing the safety and impacts of the proposed reactors.

Compounding the lack of final designs and operational procedures in the COLA, there is presently no timetable for resolution of these issues. When Westinghouse submitted its AP1000 Revision 16 to the NRC in March 2002, the estimated completion date for full certification was expected to be 2008, although this was extended until mid-

2011.[16] There has been no announced timetable for the completion of Revision 17, and the co-petitioners have no confidence that several of the fundamental issues can be resolved.

An assessment of risk is required for a COLA review, and that depends on the ultimate design of the reactor and how all of the components interact with each other. Likewise, the Environment Report culminates in the assessment of Design Basis Accidents, and then the severe accidents to develop the severe accident mitigation analysis (SAMA) and design. The NRC staff's Environmental Assessment on the AP1000 Revision 15 was *conducted in 2005*, prior to the submittal of the Levy County application, and cannot be relied upon for Revisions 16 and 17, or the Levy County COLA. Without having the current configuration, design and operating procedures in the application, the risk assessment and SAMAs cannot be determined. Until major components are incorporated into the COLA for a full review, much of the interaction between the various components cannot be resolved.

Conclusion. Without having the current configuration, design and operating procedures in the application, the risk assessment and SAMAs cannot be determined. Until major components are incorporated into the COLA for a full review, much of the interaction between the various components cannot be resolved. The deficiencies in the Levy County units 1 and 2 COLA are manifold with much of the technical descriptions of major components of the plant subject to change. Regardless of

[16] www.nrc.gov/reactors/new-licensing/design-cert/amended-ap1000.html www.nrc.gov/reactors/new-licensing/new-licensing-files/new-rx-licensing-app-legend.pdf (May 29, 2008).

whether the reactor components would be certified or not at some time in the future, the COLA does not contain the necessary information on major design and operational components, nor is there any timetable for when these components may be certified.

CONTENTION 2: PEF Should Withdraw the COLA Until the AP 1000 Certification is actually complete, or Apply under Part 50

> **§ 52.1 Definitions.**
> (a) As used in this part— *Combined license* means a combined construction permit and operating license with conditions for a nuclear power facility issued under subpart C of this part.
>
> *Standard design* means a design which is sufficiently detailed and complete to support certification or approval in accordance with subpart B or E of this part, and which is usable for a multiple number of units or at a multiple number of sites without reopening or repeating the review.
>
> *Standard design approval* or *design approval* means an NRC staff approval, issued under subpart E of this part, of a final standard design for a nuclear power reactor of the type described in 10 CFR 50.22. The approval may be for either the final design for the entire reactor facility or the final design of major portions thereof.
>
> *Standard design certification* or *design certification* means a Commission approval, issued under subpart B of this part, of a final standard design for a nuclear power facility. This design may be referred to as a certified standard design.
>
> **§ 52.79 Contents of applications; technical information in final safety analysis report.**
> (a) The application must contain a final safety analysis report that describes the facility, presents the design bases and the limits on its operation, and presents a safety analysis of the structures, systems, and components of the facility as a whole. The final safety analysis report shall include the following information, at a level of information sufficient to enable the Commission to reach a final conclusion on all safety matters that must be resolved by the Commission before issuance of a combined license….

CONTENTION 3 The Applicant Does Not Meet the Financial Qualification Requirements of 10 CFR § 50.33

THE COMPANY

Progress Energy of Florida ("PEF") is a wholly owned subsidiary of the holding company Progress Energy, Inc., ("PEI"), which also owns Progress Energy of the Carolinas ("PEC").

PEI owns five (5) nuclear generating units as identified in the application. PEI has applied for four (4) new units: 2 new units at Harris owned by PEC; and 2 new units at a greenfield site in Levy County, Florida, owned by PEF. With these additions, PEI seeks in one single instance to quadruple *[confirm!]* its existing regulated rate base.

THE BUSINESS CASE FOR PEF'S NUCLEAR ADDTIONS HAS NOT MATERIALIZED

The standard of proof in this matter is stated in 10 CFR § 50.33(f), which provides in pertinent part:

> (f) Except for an electric utility applicant for a license to operate a utilization facility of the type described in § 50.21(b) or § 50.22, information sufficient to demonstrate to the Commission the financial qualification of the applicant to carry out, in accordance with regulations in this chapter, the activities for which the permit or license is sought. As applicable, the following should be provided:
>
> (1) If the application is for a construction permit, the applicant shall submit information that demonstrates that the applicant possesses or has reasonable assurance of obtaining the funds necessary to cover estimated construction costs and related fuel cycle costs. The applicant shall submit estimates of the total construction costs of the facility and related fuel cycle costs, and shall indicate the source(s) of funds to cover these costs.
>
> (2) If the application is for an operating license, the applicant shall submit information that demonstrates the applicant possesses or has reasonable assurance of obtaining the funds necessary to cover estimated operation costs for the period of the license. The applicant shall submit estimates for total annual operating costs for each of the first five years of operation of the facility. The applicant shall also indicate the source(s) of funds to cover these costs. An applicant seeking to renew or extend the term of an operating license for a power reactor need not submit the financial information that is required in an application for an initial license. Applicants to renew or extend the term of an operating license for a nonpower reactor shall include the financial information that is required in an application for an initial license.
>
> (3) If the application is for a combined license under subpart C of part 52 of this chapter, the applicant shall submit the information described in paragraphs (f)(1) and (f)(2) of this section.

PEF has submitted a combined application for construction and operating license, which

fails to demonstrate this standard of proof in at least three respects: (i) total construction costs for this project are not fully stated and subject to a high level of uncertainty; (ii) the inputs to determine operating and maintenance ("O&M") costs are uncertain; and (iii) there is not a favorable financial market to acquire the funding necessary to complete the project.

First, it is important to note a vital factor in PEF's application; Florida's early cost recovery statutes. The Florida Legislature created Section 366.93, Florida Statutes, in 2006 requiring regulators to address nuclear construction costs annually. This provision allows pass-through recovery of early costs of nuclear power development which are tied to site selection, deposits for large equipment, costs to file for a construction and operating license with the U.S. Nuclear Regulatory Commission, as well as interest. These costs are being collected now, and if the legal authorization continues, will be expanded annually for the projected seven (7) years before Levy Units 1 and 2 become operational.

A. Construction Costs

PEF has opted to omit public disclosure of projections of the construction costs for Levy Units1 and 2, and the basis of those projections, in this application. This is a critical omission because of the degree of uncertainty which has characterized these projections throughout the regulatory process.

General construction cost estimates of new nuclear plants have spiraled out of control to gargantuan proportions since the time that Levy Units 1 and 2 were first announced, and they remain highly volatile. Any reasonable assessment of the projected capital costs for a project such as proposed by PEF must conclude the industry is presently unable to derive firm total estimates. The volatility remains because inputs to nuclear plants are being driven by a world-wide development of plants, and the economic competition and demand for such inputs. In its previous filings of estimated costs, PEF underestimated the impact of the enormous inflation occurring in construction of nuclear

generating plants over the last few years.

A study prepared by the Massachusetts Institute of Technology in 2003 estimated the overnight cost17 of the reactor design chosen by PEF, the AP1000, in 2007 dollars at $3,882 per kW, or $7,664 in all-in costs. The Nuclear Power Joint Fact-Finding, an independent effort funded by several nuclear plant operators and other interested parties including General Electric and the Nuclear Electric Institute, and, hosted by the Keystone Center, found expected costs to be in the $3,600-$4,000 per kW range, based on a 5-6 year construction cycle, without costs of transmission expansion.18 Four months after this report was published, Moody's Investor Services projected new nuclear unit construction costs at $5,000-6,000 per kW.

Florida Power & Light in its October 2007 application for 2 new nuclear units to the FPSC estimated busbar costs at between $3,643 and $4,587 per kW in 2007 dollars, or roughly the equivalent of between $5500 and $8,100 all-in. In evaluating FPL's application, the FPSC acknowledged the lack of recent cost information for nuclear power plant construction and endorsed an analysis in which, FPL departed from a traditional revenue requirement analysis and performed a break-even analysis.

When the U.S. Department of Energy announced the applications for Loan Guarantees for nuclear plant construction, it estimated that construction of 21 reactors would cost $188 billion, or approximately $9 billion per unit, all-in.

PEF construction cost estimates in the FPSC proceedings were expressly submitted as nonbinding estimates. At the time these estimates were submitted to the FPSC and, at the time of PEF's submittal of its application to the NRC on July 30, 2008, and, as of the

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17 "Overnight costs" as used here takes a meaning consistent with the costing of construction as if the plant could be built overnight; it does not include escalation or interest costs during construction.
Source: Joskow, Paul, "Prospects for Nuclear: A US Perspective," Presentation at University of Paris, Dauphine, May 2006.
18 Keystone Center, *Nuclear Power Joint Fact-Finding*, June, 2007; www.keystone.org .

time of the FPSC decision on August 12, 2008, there was no contract with the reactor vendor by which to verify any estimates.

Official cost estimates submitted by PEF to the FPSC for Levy Units 1 and 2 reached $14.089 billion, plus an approximate $3 billion for transmission system upgrades necessary to accommodate 2,200 MWs of additional nuclear base-load capacity on this greenfield site. This was three times the estimate announced by PEF when it originally proposed Levy Units1 and 2. Though on January 9, 2009, PEF did enter into a, engineering, procurement and construction contract with Westinghouse Electric, LLC, and the Shaw Group, Inc., for Levy Units 1 and 2, there is nothing in the record before this Commission, or available in any prior regulatory proceeding which indicates that these estimates are in any way complete or final. The PEF press release announcing the EPC contract states:

> "..the cost of the two new nuclear units is based on a contract price of $7.65 billion, plus forecasted inflation, owner costs and contingencies."

Company officials have acknowledged publically that total costs could exceed $20 billion. In fact the Florida estimates presumed that Levy Unit 1 would enter commercial service as scheduled in mid-2016 at a capacity cost of $7,615/kW, and that Levy Unit 2 would enter commercial service within 12-18 months of the in-service date for Unit 1, at a capital cost savings of approximately 30% (i.e., $5,287/kW Unit 2 total cost), if Unit 2 could be completed within 18 months of Unit 1. These construction estimates have escalated so dramatically due not just to sharply higher steel, copper, nickel, and cement prices, but also due to an atrophied global infrastructure for making, building, managing, and operating reactors. In the industry's flagship new development, a Finnish project led by France's top builder, has gone at least 24 months behind schedule and $2 billion over budget.

PEF estimates that the ratepayer impact to add Levy Units 1 and 2 could exceed 30% of present bills by the time the plants are completed, primarily for costs of construction

and transmission. The transmission expansion to support Levy Units 1 and 2 is the largest such project in the state's history. This level of rate increase will cause shock to PEF customers, and substantially increase the regulatory risk of the project. Florida's ratepayers are reeling in this economic downturn, and their sensitivity to energy related expenditures is exceptionally high. This sensitivity is becoming a real factor in regulatory policy affecting Florida's utilities.19

Circumstances surrounding the early cost recovery provisions offer a preview of the likely regulatory impact this rate shock might have. In October, 2008, the FPSC approved recovery of $220.5 million by FPL of its early costs to expand output at four existing FPL nuclear reactors, and to build two new reactors in South Florida. An FPL customer using 1,000 kilowatt-hours of electricity each month began paying about $2.13 more a month for the nuclear additions. FPL has announced estimates exceeding $1.8 billion for recovery in the next cycle under the nuclear cost recovery rule.

PEF was approved to recover more than $418 million toward the uprate at its existing Crystal River reactor, and some early site costs of Levy Units 1 and 2. Progress customers saw a monthly increase of $12.14 beginning in December, 2008, a more than 25% increase.

The public response to these decisions was immediate and severely critical.20 There is now an active legislative discussion of the repeal of this provision in Florida.21 A repeal of the early nuclear cost recovery statute would throw the status of Levy Units 1 and 2 into total chaos, and likely require revisiting the need determination.

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19 *FPL Customers Dispute Deposit Policy*, Bradenton Herald, February 5, 2008 (FPSC inundated with consumer complaints over FPL $212 deposit requirement for late payments); *Drop in Electricity Consumption Fuels Rate Debate,* International Energy, January 4, 2009, http://en.in-en.com/article/News/Electricity/html/200901049054.html;

20 *Fasano Seeks to Curb Electric Rate Increase*, Tampa Tribune, December 13, 2008; *Progress Energy Rate Hike Generates Controversy*, Hernando Today, December 15, 2008; *Drop in Electricity Consumption Fuels Rate Debate,* International Energy, January 4, 2009, supra note 3.

21 *Large Electric Rate Hike Inspires Legislation*, Suncoast News, January 14, 2009.

B. O&M Costs

PEF has also opted to omit public disclosure of projections of the O&M costs for Levy Units1 and 2 in this application. This is again a critical omission because of the degree of uncertainty which has characterized these projections throughout the regulatory process.

- Florida's Economy and Uncertain Demand

PEF argued that there is a need for Levy Units 1 and 2 because of an expected growth of over 20 percent in the demand for electricity in its service area over the next ten years.

Florida's economic growth has been fueled principally by population growth through migration into the state. PEF's business has benefited in the past because much of the migration has occurred in the Central Florida area where the core of its service territory lies.

The most recent economic reports and forecasts confirm that Florida's economy is decline.22 First, it is clear that Florida's population growth has slowed severely. The projections for 2008 were reduced almost in half, and the present economic conditions appear to reflect population losses to other states. With expected delays in retirements due to the economic conditions, migration of retirees to the state will suffer also, leaving the economy in line for a long, slow recovery.

As further evidence of a drop-off in Florida's economy, the Florida Economic Estimating conference reports double-digit reductions in housing starts throughout 2008, with only modest rebound of housing starts in 2009. This is the essential driver for electricity demand in Florida. Another driver of economic metrics in Florida is tourism. The state's reliance on tourism is in serious jeopardy as well, with projections of visits to the state

22 S. Smith; S. Rayer, *Projections of Florida Population by County: 2007-2035*, Bureau of Economic and Business Research, University of Florida, Warrington College of Business Administration (March, 2008).

showing little or no growth for more than a year.

The major regulated utilities in Florida have acknowledged this economic reality in their reported financial statements,23 In addition to declining average consumption, PEF acknowledges a loss of approximately 2,000 customers in 2008.24

In the proceedings to determine the need for the plant, the Florida Public Service Commission ("FPSC") acknowledged the clear challenges in establishing electric demand to support the Levy Units 1 and 2. The FPSC ruled on this matter by finding:

> " ... although slower customer growth could reduce peak demand, the projected peak demands produced by the models used by PEF appear to be a reasonable extension of historical trends. Additionally, [PEF] witness Crisp testified that PEF's forecast accounted for recent trends of decreasing population growth. No party took issue with PEF's load forecast." 25

The NRC holds independent authority and responsibility to ascertain whether PEI/PEF can acquire adequate funds to complete this project. As discussed more fully below, the financial markets are experiencing particular challenges at this time that diminish prospects of funding this project. However, even in healthy markets, the financial projections offered by PEF do not establish sound revenue projections, and would not support capital requests for a massive project such as Levy Units 1 and 2, particularly when one considers the additional risks associated with the project.

The FPSC recognized the onerous burden of regulatory risk associated with this project,

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23 Florida Power & Light, SEC Quarterly Filing Form 10-Q, for September 30, 2008, at pg. 24 ("The decline in FPL's results for the three-month period was primarily due to lower retail customer usage and higher depreciation expense partly offset by lower other operations and maintenance (O&M) expenses, higher other revenues..."); Progress Energy, Inc., SEC Quarterly Filing Form 10-Q, for September 30, 2008 (The decrease in income from continuing operations as compared to prior year was primarily due to:.... unfavorable retail customer growth and usage at PEF); Tampa Electric Company, SEC Quarterly Filing Form 10-Q, for September 20, 2008 (Results for the quarter reflect lower retail energy sales, a total number of customers that was essentially unchanged and decreased sales to industrial customers).

24 *Drop in Electricity Consumption Fuels Rate Debate*, International Energy, January 4, 2009, http://en.in-en.com/article/News/Electricity/html/200901049054.html

25 Order No. 08-0518-FOF-EI, issued on August 12, 2008, in Docket No. 080148-EI, *In the Matter of: Petition for Determination of Need for Levy Units 1 and 2 Nuclear Power Plants, by Progress Energy Florida, Inc*.

and left this issue unresolved when it concluded that:

> ”We understand that the long lead time associated with the permitting and construction of a nuclear plant means that many details of the project may not be known at the time a utility files for a determination of need. However, recent legislation recognizing the unique nature of nuclear power plants urges us to approach a determination of need from a slightly different perspective. Unlike more traditional need determination proceedings, the annual nuclear cost recovery proceedings will provide a forum for us to continue to gather and review additional information as it becomes available.
>
> We recognize the significant impact that Levy Units 1 and 2 will have on customer rates. Although long term benefits may be reduced, PEF should continue to pursue joint ownership opportunities in an effort to further mitigate the initial rate impacts associated with the proposed project. We would encourage PEF to seek pro rata cost sharing during joint ownership discussions. Updates regarding joint ownership discussions shall be provided during annual nuclear cost recovery proceedings." 26

Thus far the in the regulatory process, no joint applicants have been identified, and no additional financial capacity has been offered to support Levy Units 1 and 2. The net effect of these events is an inordinate increase in the regulatory risk of Levy Units 1 and 2, as reflected in the ongoing reviews to determine final costs, the uncertainty of the true, total capital requirements, and the clear deficiency in fiscal guarantees for the project. It goes without saying that nothing in Florida law can obstruct the NRC's statutory obligation to ensure the fiscal responsibility of this project.

- Financial Market RISKS ARE UNACCEPTABLE

The challenges faced by Florida utilities are symptomatic of the most prolific economic downturn in the US for decades. The third quarter of 2008 saw the sharpest decline in consumer spending in over 28 years. This drop in the gross domestic product translates directly to the bottomline of utilities. Nationwide, power generation and distribution were both down 3% in the third quarter from the year-ago period; gas distribution was down 5%, according to statistics compiled by Energy Performance

26 id.

Review. Duke Power reported a nearly 6% decline in power sales in the Midwest from last year's third quarter. Duke's utilities in the Carolinas saw a decline of 4.3%. Power consumption among customers of American Electric Power's utilities declined 3.3%.

In the context of this downturn in the business basics for the electric generation business, PEF's endeavor to build two new nuclear units on a greenfield site defies sound financial logic. According to Moody's, companies that build new nuclear plants will see marked increases in their business and operating risks because of the size and complexity of these projects, the extended time they take to build, and their uncertain final cost and cost recoveries in the context to present market conditions.27 An official of Moody's comments that:

> "To the extent that a company develops a financing plan that overly relies on debt financing, which has an effect to reduce the consolidated key financial credit ratios, regardless of the regulatory support associated with current cost recovery mechanisms, there is a reasonably high likelihood that credit ratings will also decline."

When combined with the other numerous challenges companies face in constructing nuclear plants, including: (i) potential skills shortages; (ii) decommissioning costs; (iii) long-term waste management concerns; (iv) supply chain constraints; and (v) licensing and regulatory uncertainties, the challenges facing PEF are prohibitive. PEF will incur additional challenges by having to develop a new site, and build the most extensive transmission addition in the history of the state. It seems clear by the sheer attention having been placed on this topic by the major rating agencies that PEF's credit ratings will face major scrutiny throughout the construction and operating life of Levy Units 1 and 2.

In its 2003 Annual Energy Outlook, the Energy Information Administration (EIA) projected that production from new nuclear power plants would not be cost-competitive with other power sources until after 2025. EIA in 2003 also reported that while

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27 Moody's Investor Service - Corporate Finance, *New Nuclear Generation in the United States: Keeping Options Open vs Addressing An Inevitable Necessity,* Special Comment (October, 2007);

construction costs could diminish significantly as a new generation of nuclear plants are built, a new nuclear power plant starting construction in 2011 would have a construction cost of at least $2,300 per kilowatt of capacity (this estimate now exceeds $7,000). By 2011, this 2003 cost would result in capital costs that are 40 percent to 250 percent above the cost of capital for electricity plants using gas and coal. The CBO report goes on to state:

> "Because the cost of power from the first of the next generation of new nuclear power plants would likely be significantly above prevailing market rates, we would expect that the plant operators would default on the borrowing that financed its capital costs."

PEI/PEF acknowledges this by stating:

> “anticipating extensive capital needs for new generation, transmission and distribution facilities, and environmental compliance expenditures. Funding these capital needs could increase our leverage and present numerous risks including those addressed below...
>
> In the event our leverage increases such that we approach the permitted ratios, our access to capital and additional liquidity could decrease. A limitation in our liquidity could have a material adverse impact on our business strategy and our ongoing financing needs.”28

PEF has estimated the value of the EPACT production tax credits for customers at only $88 to $167 million if Levy Units 1 and 2 are brought on line by 2016 and 2017.

C. Levy County is an uncompetitive addition for PEF/PEI

Nuclear is the costliest option among all resource expansion options for PEF, whether using PEF's estimates, using MIT's authoritative but now low 2003 cost assessment, using the Keystone Center's mid-2007 update, or later and even higher industry estimates.

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28 cite PEF 10-k

PEF fails to properly evaluate the risk of choosing a single technology, instead choosing two extremely large, risky construction projects. A more reasonable approach would be to seek a more modular approach made up of a greater variety of resource options allowing a greater opportunity to change course during implementation of the plan, in the event that risks, known to be potential and those that are not now foreseeable, develop into real difficulties during implementation, and in the event that other superior opportunities become realistic.

Renewable energy and efficiency are "distributed resources," located near where energy is used. Therefore, they don't incur the capital costs and energy losses of the electric grid, which links large power plants and remote wind farms to customers. Wind farms, like solar cells, also require "firming" to steady their variable output, and all types of generators require some backup for when they inevitably break.

End-use efficiency lets customers wring more service from each kilowatthour by using smarter technologies. Efficiency provides the same or better services with less carbon, less operating cost, and often less up-front investment. The investment required to save a kilowatt-hour averages about two cents nationwide, but has been less than one cent in hundreds of utility programs (mainly for businesses), and can even be less than zero in new buildings and factories—and in some retrofits that are coordinated with routine renovations.

In the FPSC deliberations, PEF explained the uncompetitive decision to build Levy Units 1 and 2 by suggesting there will be contract partners to share in this uneconomic, risky venture. PEF suggests that, depending upon the terms and conditions of any joint ownership agreement, a joint ownership arrangement might provide benefits to PEF's customers by, among other things, spreading the capital risks associated with a project of this magnitude. PEF argued for joint ownership of up to 20 percent.

As to renewable energy and other alternatives to this massive capital investment, PEF blatantly stresses uncertainties associated with establishing a diverse energy mix, while assuming incorrectly that the AP1000 units will have no design or operational

uncertainties. This disparate treatment reflects an unwillingness to take alternatives seriously.

The FPSC's decision regarding Levy Units 1 and 2 offers a skewed analysis by concluding that:

> "... the addition of Levy Units 1 and 2 will allow PEF to meet its base-load needs almost entirely with coal and nuclear generation, thus deferring the use of natural gas as base-load generation. Such a scenario would provide benefits, as previously discussed, to PEF's system and ratepayers.
>
> The evidence reflects that the proposed high availability rate of Levy Units 1 and 2 means that these units would represent a substantial amount of base-load capacity on its system. The record indicates that renewable generation and DSM available today or in the foreseeable future cannot provide enough base-load capacity to avoid the need or mitigate the need that would be met by the addition of Levy Units 1 and 2."

The financial community fully recognizes the critical juncture at which PEF and other members of the industry find themselves. This recognition is yet another indication of the financial and regulatory risk PEF faces by virtue of its disproportionate consideration of alternatives to Levy Units 1 and 2. In a recent publication, Moody's concluded that:

> "Nuclear power does not exist in a vacuum. It is one of several sources of electric power, and competes with other fossil-fueled generation (such as coal), other renewables (such as wind and solar) and other demand-side technologies (designed to reduce volume). In choosing to build a nuclear plant, a utility is making a long-term bet on a technology that has locked in a design (currently being reviewed by the Nuclear Regulatory Commission) and where construction costs are rising rapidly (primarily associated with labor and commodities). As a result, market and technology risks might emerge that position a new nuclear plant as uneconomic over the course of construction. These developments, in turn, could put a significant amount of pressure on legislators and regulators to protect rate-payers from incorporating the full cost of a new nuclear plant into rates at the expense of a less costly alternative, even if the alternative is developed (or materializes) in the future..... From a back-end regulatory disallowance risk perspective, our concerns reside in the fact that nuclear generation has a fixed design where construction costs are rising rapidly, while other renewable technologies are still experiencing significant advancements in terms of

energy conversion efficiency and cost reductions. "29

This is precisely the issue in Florida, where demand-side and renewable energy alternatives have been dramatically underutilized, and therefore offer an exceptional, economic opportunity.

CONTENTIONs 4.A – 4.O Omissions, misrepresentations and failures of proposed Levy Nuclear Plant (LNP) environmental report (ER) TO ADDRESS ADVERSE DIRECT, INDIRECT AND CUMULATIVE Environmental impacts

4.A Direct, indirect and cumulative environmental impacts – The LNP Units 1 and 2 COL Application Part 3, Environmental Report (ER) failed to address adverse direct, indirect and cumulative environmental impacts of the proposed LNP facility.

Explanation of basis

Addressing direct, indirect and cumulative environmental impacts – In 1997, the U.S. Council on Environmental Quality (Council) published a report defining and describing the approach for addressing adverse direct, indirect and cumulative effects (aka impacts), as required by federal law. The title of the report is “Considering Cumulative Effects Under the National Environmental Policy Act.” A synopsis of the Council’s report, relevant to the scope of this proceeding is attached hereto as Bacchus

29 Moody's Investor Service - Corporate Finance, *New Nuclear Generating Capacity: Potential Credit Implications for U.S. Investor Owned Utilities,* Special Comment (May, 2008); http://massimobray.italianieuropei.it/080527MoodysNewNukeGenCapacity.pdf

Exhibit B. The citation for the report is: Council on Environmental Quality. 1997. Considering Cumulative Effects Under the National Environmental Policy Act. Executive Office of the President; What are Cumulative Impacts? Synopsis of the U. S. Council on Environmental Quality. The executive summary of that report is available at: http://ceq.hss.doe.gov/nepa/ccenepa/exec.pdf .

Statement of facts and opinions supporting the dispute and deficiencies within the scope of this proceeding

Direct, indirect and cumulative environmental impacts in site vicinity and region– Llong-term knowledge of both the "vicinity" (9.7 km (6 mi) radius) and "region" (extending from the vicinity perimeter to 80 km (50 mi)) of the proposed 1,257 hectare (3,105 acre) LNP site, as defined on page 1-viii of the Environmental Report (ER). long-term knowledge of the Withlacoochee River, extending from the headwaters in the Green Swamp to the Gulf of Mexico and designated as an Outstanding Florida Water (OFW), as defined on page 1-ix of the Environmental Report (ER). Research and numerous site inspections in those areas as well as the ER report for the proposed LNP, including, but not limited to, Chapters 1, 4, 5, 6 and 10 indicates the ER has failed to address significant adverse direct, indirect and cumulative environmental impacts that would occur if the proposed LNP is constructed and operated as proposed.

Examples of specific omissions, misrepresentations and failures – By comparing the Council's approach for addressing adverse direct, indirect and cumulative impacts and the impacts described in the following sections, specific examples of the significant omissions, misrepresentations and failures to address environmental impacts are

apparent in Table 4.6-1 of the LNP ER (page 4-90 through 4-97). A summary of the adverse impacts during construction of the proposed LNP project, identified by the LNP ER, is provided below. The only impacts addressed in that LNP ER table are characterized as "SMALL" impacts, with the exception of a ranking of "SMALL-MODERATE" for the two subsections noted by an asterisk:

Land Use Impacts

Land Use Category
Long-Term Land Use Restrictions and Physical Changes of Site and Vicinity – for Levy County
Short-Term Physical Changes in Land Use and Mitigation – associated with access roadway upgrades
Construction Impacts on the Geologic Environment – impacts on mineral resources
Transmission Corridors – for 3 new transmission corridors, 3 new substations and a 500-kV switchyard
Off-Site Areas – on nearby structures and roadways
Historic Properties – on or near archeological or historic properties

Water-Related Impacts

Erosion/Sediment, Surface Water, Groundwater and/or Water Use Categories
Freshwater Streams – at the LNP site, transmission corridors and pipeline routes
Lakes and Impoundments – on surface water bodies, including impoundments
Cross Florida Barge Canal – impacts on the CFBC
Groundwater – Hydrologic alterations from construction of the LNP
Wetlands - Hydrologic impacts from construction in wetlands
Freshwater Water Bodies – impacts on CFBC and other surface water bodies
Wetlands – impacts at the LNP site
Groundwater Use – impacts on groundwater use

Ecological Impacts

Terrestrial Ecosystem and/or Aquatic Ecosystem Categories
Plant Site – impacts on terrestrial ecology associated with the LNP site*
On-site Pools – impacts of LNP construction on aquatic ecosystems in the LNP site
Cooling Water Intake Structure – impacts on the CFBC shoreline on aquatic ecology
Cooling System Blowdown Discharge Pipeline –pipeline corridor construction impacts on aquatic ecology

Socioeconomic Impacts

Noise, Air Quality, Traffic, Socioeconomic and/or Other Categories
Air Quality – impacts from construction activities on air quality
Visual Aesthetic Disturbances – impact of construction activities on visual aesthetic disturbances [sic]
Social Structure – impacts on social structure
Housing – impacts on housing availability from construction
Educational System – impacts to educational systems from construction
Recreation – impacts of construction to recreational facilities and opportunities
Public Services and Facilities – impacts of construction to public services and facilities
Security Services – impacts on site security and access restrictions
Water and Wastewater Services – impacts on water and wastewater services
Transportation Facilities – “SMALL” impacts on primary transportation routes providing access to the site

‘MODERATE” impacts on traffic related to construction of the LNP*

Distinctive Communities – impacts on special or distinctive communities
Minority Populations – impacts on racial, ethnic, and special groups in the region
Low Income Populations – impacts on low income populations
Radiation Exposure to Workers
Effluents/Wastes and “Rad Exp to Const Wkrs” Categories
Radiation Protection and ALARA Program – impacts on construction workers from direct radiation and to radioactive effluents from LNP routine operation

Granting a combined license (col) to Progress Energy Florida (PEF) to construct and operate proposed levy county units 1 and 2 (LNP) would result in THREATS TO WETLANDS, FLOOD PLAINS, special aquatic sites and waters DUE TO FAILURE TO CONSIDER ADVERSE DIRECT, INDIRECT AND CUMULATIVE IMPACTS

CONTENTION 4.B Constructing in flood plains - The LNP ER failed to address adverse direct, indirect and cumulative environmental impacts of constructing the proposed LNP facility within flood plains and on wetlands, special aquatic sites and

waters.

Explanation of basis

Increasing elevations - Figure 4.1-4 and page 4-6 of the LNP ER's "Environmental Impacts of Construction" chapter confirm that the proposed nuclear units 1 and 2 would be constructed in the 100-year flood zone. See Bacchus Exhibit C. In fact, LNP Figure 4.1-4 confirms that the majority of the site and the 6-mile radius "vicinity" of the proposed LNP are within the 100-year flood zone. Page 4-6 of the ER further confirms that during the proposed construction, the ground elevation would be raised to a level up to 2.7 m (9 ft) higher than the existing level. The "plant site" is described in the ER as "approximately 121 ha (300 ac.) near the center of the LNP site" (page 1-viii).

Statement of facts and opinions supporting the dispute and deficiencies within the scope of this proceeding

Fill for proposed LNP construction site in flood zone - Based on the proposed impacts described under "Explanation of basis," above, approximately 2.7 m (9 ft) of aggregate material (aka "fill") would be placed over "approximately 121 ha (300 ac.)" at the proposed LNP site in the flood zone. The ER fails to identify the source of this significant aggregate fill. The most logical sources for this aggregate fill are the existing and proposed mines in Levy and Citrus Counties. Existing mines include the Cemex Inglis Quarry mine, in northwest Citrus County). Proposed mines include the Tarmac (aka Titan King Road) mine, approximately 5 km (3 mi) northwest of the proposed LNP

site, and the Nature Coast Mine in northwest Citrus County.

State agency concerns regarding mining impacts - Some of the significant and myriad concerns regarding adverse environmental impacts that would occur if those proposed mines are permitted are expressed in the Florida Department of Environmental Protection's letter to Tarmac America, dated November 19, 2008. A copy of that letter is incorporated herein as Bacchus Exhibit D.

Published literature describing environmental impacts from mining – The mechanisms by which mining irreversibly alters the natural hydroperiod in the vicinity surrounding mines are described in peer-reviewed, published literature, such as the paper titled, "Nonmechanical dewatering of the regional Floridan aquifer system." A copy of that publication is incorporated herein as Bacchus Exhibit E. That publication also describes irreversible adverse environmental impacts that occur as a result of natural hydroperiod alterations from mining. Those impacts are illustrated in the case study of four mining sites located throughout Florida. These adverse impacts occur to terrestrial ecosystems, as well as to wetlands, flood plains, special aquatic sites and other waters.

Unaddressed adverse impacts from mining of fill - the mining of the aggregate material to fill the proposed LNP site in the flood zone will result in the destruction and other irreversible adverse impacts to terrestrial ecosystems, as well as to wetlands, flood plains, special aquatic sites and other waters throughout and beyond the proposed plant site, vicinity and region, as described on page 1-viii of the ER. These hydroperiod and related adverse environmental impacts were not addressed in the ER.

CONTENTION 4.C Construction materials - The ER failed to address adverse direct, indirect and cumulative environmental impacts on flood plains, wetlands, special aquatic sites and waters from additional mining for the production of raw materials, such as aggregate for concrete, to construct the proposed LNP facility.

Explanation of basis

Concrete foundation, units and other structures – "Foundations and other structures will require substantial amounts of concrete" (LNP ER page 4-56). Concrete components of the proposed LNP project include the "cooling water intake structure" (LNP ER page 4-54). "The large volume requirements will require the installation and operation of a temporary concrete batch plant on the site during the construction period. While there will be air emissions from the concrete batch plant, they are expected to consist primarily of PM (from cement and aggregate handling and storage) and diesel exhaust emissions from trucks accessing the batch plant during operations" (LNP ER page 4-56). "The structures will be supported with engineered foundations. The foundations will normally consist of either direct buried structures with concrete backfill or reinforced concrete drilled piers" (LNP ER page 3-86). In addition, the LNP ER suggests the following related activities will be conducted prior to the "approval of the COLA" under a "Limited Work Authorization" (page 4-106, emphasis added):

Prepare nuclear island foundation surface with dental concrete
Place roller compacted concrete under the nuclear islands
Install mud mat under the nuclear islands
Install rebar in the nuclear island concrete foundations
Erect safety related concrete placement forms
Install Turbine Building foundation drilled shafts
Install Annex Building foundation drilled shafts

Install Radwaste Building foundation drilled shafts
Install circulating water piping between the cooling tower basins and the entrance point to the turbine building condensers
Install the raw water system intake structure and make-up line to the cooling tower basin.

Statement of facts and opinions supporting the dispute and deficiencies within the scope of this proceeding

Raw materials for concrete foundation, units and other structures - The ER fails to identify the source of the mined raw materials (aggregate) for the extensive concrete required to construct the proposed LNP project. The most logical sources for this mined raw material are the existing and proposed mines in Levy and Citrus Counties, listed above.

Mining impacts from raw materials for concrete – The concerns over the significant and myriad adverse environmental impacts that would occur if those proposed mines are permitted, as expressed in Bacchus Exhibit D, respectively, are valid regardless of whether those mines would be producing aggregate for fill or aggregate as a raw material to make concrete.

Published literature describing environmental impacts from mining – The mechanisms by which mining irreversibly alters the natural hydroperiod in the vicinity surrounding mines, as described in Bacchus Exhibit E, are the same, regardless of whether those mines would be producing aggregate for fill or aggregate as a raw material to make concrete. These adverse impacts occur to terrestrial ecosystems, as well as to wetlands, flood plains, special aquatic sites and other waters. A related scientific publication describing excessive loss of water through evaporation occurring from large bodies of water, such as mine pits, is:

Swancar, A., T.M. Lee and T.M. O'Hare. 2000. Hydrogeologic setting, water budget, and preliminary analysis of ground-water exchange at Lake Starr, a seepage lake in Polk Couty, Florida. U.S. Geological Survey Water-Resources Investigations Report 00-4030. 65 pp.

Unaddressed adverse impacts from mining raw materials for concrete - the mining of the aggregate material to make concrete for the proposed LNP foundation, units and other structures will result in the destruction and other irreversible adverse impacts to terrestrial ecosystems, as well as to wetlands, flood plains, special aquatic sites and other waters throughout and beyond the proposed plant site, vicinity and region, as described on page 1-viii of the ER. These hydroperiod and related adverse environmental impacts were not addressed in the ER.

CONTENTION 4.D <u>On-site mining and dewatering - The ER failed to address adverse direct, indirect and cumulative environmental impacts on flood plains, wetlands, special aquatic sites and waters of on-site mining (excavation) and dewatering to construct and operate the proposed LNP and all associated components.</u>

Explanation of basis

Embedment and related dewatering on site – Page 4-34 of the LNP ER's "Environmental Impacts of Construction" chapter confirms that on-site mining would occur to a depth of "approximately 75 ft." for the "embedment" and that the excavation depth for that embedment "is below the static water table." The LNP ER also confirmed that ground water "will need to be removed based on the embedment depth" and that

the dewatering will cause “groundwater depressions” (page 4-34). Page 4-33 of the LNP ER also states, “Hydrologic alteration will result from construction activities including a change in groundwater levels within the LNP site resulting from grading and construction of a series of stormwater drainage ditches” and that a “series of stormwater drainage ditches will be created around and within the construction area to direct stormwater away from LNP facilities” and “into three stormwater retention/infiltration ponds.” The LNP ER also acknowledges that the on-site mining and dewatering may alter water quality (page 4-34). The LNP ER further asserts that “excessive dewatering effects” can be prevented by installing and monitoring “[T]emporary groundwater wells” (page 4-34).

Dewatering from water use on site – “The LNP will require water for both plant cooling and operational uses. The plant will use two independent circulating water systems (CWSs) with seawater used for the CWS that cools the turbine-generator, and freshwater used for the service water system (SWS)…. Freshwater from the raw water system (RWS) will also be used for the other water services required for operation…. The RWS supply will be from supply wells installed into the freshwater aquifer at the site… The RWS supply will be from supply wells installed into the freshwater aquifer at the site…. Per Table 3.3-2, it is estimated that the normal consumptive water use from cooling tower evaporation is 2.3 m3/s (81.4 ft 3/sec) or 30,427 gpm. Consumptive water use from service water cooling tower evaporation is 0.08 m3/s (2.8 ft3/sec) or 1248 gpm (Table 3.3-2). Water consumption for fuel cycle activities would require approximately 43,067 million L (11,377 million gal.) of water (Table 10.1-2).” See LNP Application Part 3, 10.2.1.2. A copy of the Water Use Permit (WUP) application submitted on June 2,

2008 by Progress Energy Florida, Inc. to the Southwest Florida Water Management District (SWFWMD) for the proposed LNP project is incorporated herein as Bacchus Exhibit F. This application would allow maximum withdrawals of approximately 6 Million Gallons per Day (MGD) from the proposed LNP site. Groundwater withdrawals from Floridan aquifer "supply wells" would be allowed for fire protection, potable and sanitary needs of 800 workers/visitors. All (100% of the water withdrawn would be discharged/disposed of to another location. Four groundwater supply wells have been requested to be located at the proposed LNP site. See Bacchus Exhibit F. The precise locations of those proposed wells were not provided in the LNP ER. Page 4-34 of the LNP ER's "Environmental Impacts of Construction" chapter also confirms that groundwater withdrawals would occur on the proposed LNP site for the following purposes and rates:

Soil compaction – 300,000 gallons per day (gpd)
Dust and erosion control – 100,000 gpd
Concrete mixing – 100,000 gpd
Miscellaneous – 50,000 gpd

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Impacts of on-site excavations, water-use, cooling towers and other dewatering - Based on expert scientific research and professional experience of more than 30 years in evaluating adverse impacts to wetlands, flood plains, special aquatic sites and other waters, any of the proposed on-site water use, dewatering and excavations, including for embedment and stormwater ponds, whether considered individually or cumulatively, would result in irreversible destruction of the wetlands, flood plains, special aquatic sites

and other waters. The irreversible destruction would occur throughout and beyond the site and vicinity of the proposed LNP project, as described on page 1-viii of the LNP ER. Additionally, “excessive dewatering effects” cannot be prevented by installing and monitoring groundwater wells, regardless of whether those wells are temporary or permanent, as claimed in the LNP ER (page 4-34). Therefore, any of the proposed on-site water use, dewatering and excavations described above, whether considered individually or cumulatively, would result in “LARGE” rather than “SMALL” impacts to wetlands, flood plains, special aquatic sites and other waters throughout and beyond the site and vicinity of the proposed LNP project.

Cumulative impacts of evaporative loss - If the 30,427 gallons per minute of evaporative loss (identified in the LNP report) is multiplied by 60 minutes per hour and 24 hours per day, the total daily evaporative loss from the cooling towers is 43,814,880 gallons per day (gpd) or 43.8 MGD. See LNP Application Part 3, 10.2.1.2. That astronomical evaporative loss will include salt drift, which will be contaminating the surrounding wetlands, flood plains, special aquatic sites and other waters throughout and beyond the site and vicinity of the proposed LNP project. Damage from salt drift would be more significant at this proposed LPN facility because the LNP facility is proposed to be located inland, rather than on the coast. Based on all of the above, it is not possible to mitigate those “LARGE” impacts. See Bacchus Exhibit E and the following references for examples of peer-reviewed scientific publications and citations on dewatering in support of statements of fact, opinions and conclusions of these contentions:

Bacchus, S. T., D. D. Archibald, K. O. Britton, and B. L. Haines. 2005. Near

infrared model development for pond-cypress subjected to chronic water stress and *Botryosphaeria rhodina*. Acta Phytopathologica et Entomologica Hungarica 40(2-3):251-265

Bacchus et al. 2003. Near infrared spectroscopy of a hydroecological indicator: New tool for determining sustainable yield for Floridan aquifer system. Hydrological Processes 17:1785-1809.

Bacchus, S. T. 2000. Uncalculated impacts of unsustainable aquifer yield including evidence of subsurface interbasin flow. Journal of American Water Resources Association 36(3):457-481.

CONTENTION 4.E Wetlands connected to the Floridan aquifer system - The ER failed to address adverse direct, indirect and cumulative environmental impacts of constructing the proposed LNP facility within wetlands that are connected to the underlying Floridan aquifer system via relict sinkholes.

Explanation of basis

Preferential connections to the Floridan aquifer system – The LNP ER failed to acknowledge that the pond-cypress (Taxodium ascendens) wetlands and those associated with other natural waters on the site and within the vicinity and region of the proposed LNP project are connected to each other and the underlying Floridan aquifer system through a network of relict sinkholes.

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Adverse impacts beyond proposed site - The pond-cypress wetlands and those associated with other natural waters on the site and within the vicinity and region of the

proposed LNP project are connected to each other and the underlying Floridan aquifer system through a network of relict sinkholes. Therefore, adverse direct, indirect and cumulative impacts to pond-cypress wetlands proposed by the LNP project would result in adverse impacts beyond the proposed LNP site. See Bacchus Exhibit E and references provided above. Off-site wetlands, flood plains, special aquatic sites and other waters, such as Outstanding Florida Waters (OFW) and Shellfish Harvesting Areas (SHA), that would be irrevocably affected by the proposed LNP project would include, but not be limited to:

Levy Blue Spring and associated wetlands and uplands
Withlacoochee River (OFW) and associated wetlands and uplands
Waccasassa River (OFW) and associated wetlands and uplands
Waccasassa Bay (SHA) and associated wetlands and uplands
Gulf Hammock Wildlife Management Area
Big Bend Seagrasses Aquatic Preserve (SHA)
Waccasassa Bay Preserve State Park
Goethe State Forest
Big King Spring and associated wetlands and uplands
Little King Spring and associated wetlands and uplands
Turtle Creek and associated wetlands and uplands
Spring Run Creek and associated wetlands and uplands
Smith Creek and associated wetlands and uplands
Demory Creek and associated wetlands and uplands
Tomes Creek and associated wetlands and uplands
Ten Mile Creek and associated wetlands and uplands
Withlacoochee Bay (SHA) and associated wetlands and uplands

CONTENTION 4.F Outstanding Florida Waters - The ER failed to address adverse direct, indirect and cumulative environmental impacts of constructing and operating the proposed LNP project on “Outstanding Florida Waters” (OFW).

Explanation of basis

Dewatering of Outstanding Florida Waters – The LNP ER did not address the adverse direct, indirect and cumulative environmental impacts of the mining/excavations, water use and other dewatering required for the proposed LNP project, as referenced above, on OFWs, such as the Withlacoochee and Waccasassa Rivers and associated wetlands and uplands.

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Highest standard of protection violated – In Florida, the highest standard of protection are provided to "Outstanding Florida Waters." See Sections 62-302.700(9(a)(3), 9(b)(17) of 9 the Florida Administrative Code. The adverse direct, indirect and cumulative environmental impacts of the mining/excavations, water use and other dewatering required for the proposed LNP project, as referenced above, will dewater the Withlacoochee and Waccasassa Rivers and associated wetlands and uplands. These OFWs and associated wetlands and uplands are aquatic and terrestrial ecosystems, as referenced in the LNP ER, including Table 4.6-1. By dewatering these OFWs and associated aquatic and terrestrial ecosystems, the proposed LNP project would result in "LARGE" and irreversible adverse impacts, rather than the "SMALL" impacts reported in the LNP ER.

Granting a combined license (col) to Progress Energy Florida (PEF) to construct and operate proposed levy county units 1 and 2 (LNP) would result in irreparable harm to water quality from adverse DIRECT, INDIRECT AND CUMULATIVE IMPACTS

CONTENTION 4.G Alteration of nutrient concentrations - The LNP ER failed to

address adverse direct, indirect and cumulative environmental impacts of constructing and operating the proposed LNP project on nutrient concentrations in wetlands, flood plains, special aquatic sites and other waters resulting from dewatering.

Explanation of basis

Nutrient concentrations altered by dewatering – The LNP ER did not address the adverse direct, indirect and cumulative environmental impacts of the mining/excavations, water use and other dewatering required for the proposed LNP project, as referenced above, on nutrient concentrations in wetlands, flood plains, special aquatic sites and other waters.

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Imbalances in natural populations of aquatic flora and fauna – By dewatering the wetlands, flood plains, special aquatic sites and other waters throughout the site, vicinity and region of the proposed LNP project, all existing nutrient concentrations will increase relative to any water that remains, even in the absence of any new addition of nutrients. Therefore, the dewatering caused by the proposed LNP project would violate Florida's narrative water quality standard for nutrients. See Rule 62-302.530(47)(b), Florida Administrative Code, because the dewatering would result in imbalances in natural populations of aquatic flora and fauna in the wetlands, flood plains, special aquatic sites and other waters listed above, as well as in others not listed above, throughout the proposed LNP site, vicinity and region.

CONTENTION 4.H Destructive wildfires as a new source of nutrients - The LNP ER failed to address adverse direct, indirect and cumulative environmental impacts of constructing and operating the proposed LNP project on destructive wildfires in wetlands, flood plains, special aquatic sites and other waters and destructive wildfires as a new source of nutrients to those wetlands, flood plains, special aquatic sites and other waters.

Explanation of basis

Destructive wildfires caused by dewatering – The LNP ER did not address the scientific causal connection between dewatering of the type, nature and magnitude that would result from the proposed LNP project, as referenced above, on destructive wildfires in wetlands, flood plains, special aquatic sites and other waters. Additionally, the LNP ER failed to address the impacts of this new source of nutrients would have on the dewatered in wetlands, flood plains, special aquatic sites and other waters.

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New addition of nutrients from destructive wildfires – By dewatering the wetlands, flood plains, special aquatic sites and other waters throughout the site, vicinity and region of the proposed LNP project, those areas will be subjected to destructive wildfires that will destroy the trees and organic soils. As the trees and organic soils are consumed by the destructive wildfires, nutrients are released into the air and water.

This new source of nutrients, combined with water reductions in the wetlands, flood plains, special aquatic sites and other waters from the mining/excavations, water use and other dewatering associated with the proposed LNP project, will result in increased nutrient concentrations and subsequent imbalances in natural populations of aquatic flora and fauna. The following reference is an example of peer-reviewed scientific publications supporting these conclusions:

Bacchus, S. T. 2007. More inconvenient truths: Wildfires and wetlands, SWANCC and Rapanos. National Wetlands Newsletter 29(11):15-21.

CONTENTION 4.I Salt drift from cooling towers as a water quality contaminant- The LNP ER failed to address adverse direct, indirect and cumulative environmental impacts of constructing and operating the proposed LNP project, with cooling towers that would use coastal waters, at an inland location in and surrounded by freshwater wetlands, flood plains, special aquatic sites and other waters that would be adversely affected by dewatering from the construction and operation of the LNP project if it is licensed.

Explanation of basis

Water quality contamination caused by cooling-tower salt drift – The LNP proposes to use coastal waters for cooling towers located inland, in and surrounded by freshwater wetlands, flood plains, special aquatic sites and other waters that would be dewatered by the construction and operation of the proposed LNP. Yet the LNP ER failed to address: a) the adverse direct, indirect and cumulative environmental impacts of saltwater drift on inland water quality and b) the increased threat of inland water

quality contamination that would occur from new sources of saltwater contaminants via salt-drift deposition from the LNP cooling towers on inland waters, aquatic and terrestrial ecosystems that would be dewatered by the construction and operation of the proposed LNP.

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Unavoidable water quality contamination caused by cooling-tower salt drift – "Operation-Related Unavoidable Adverse Environmental Impacts" described in the LNP ER include "salt drift from cooling towers" (LPN page 10-26). The site and vicinity of the proposed LNP project is an inland, freshwater flood plain, with extensive freshwater wetlands, special aquatic sites and other waters, including freshwater aquatic ecosystems. See LNP ER Figure 4.1-4 and Bacchus Exhibit C, incorporated herein. Despite these facts LNP's conclusion regarding water quality impacts of these "Unavoidable Adverse Environmental Impacts" is "It is expected that normal releases of contaminants into the environment from the LNP will have negligible effects on surface and groundwater uses and will be in compliance with an approved NPDES permit issued by the Florida Department of Environmental Protection (FDEP)…" See LNP Application Part 3, 10.2.1.2.

Abnormal releases of contaminants into the environment – Although "salt drift from cooling towers" may constitute "normal releases of contaminants into the environment" for a nuclear facility, such facilities in Florida "normally" are located on the coast. For the proposed location of the LNP facility, in an inland, freshwater flood plain,

with extensive freshwater wetlands, special aquatic sites and other waters, including freshwater aquatic ecosystems and Outstanding Florida Waters, salt drift and deposition of that magnitude does not constitute “normal releases of contaminants into the environment.” The evaporative loss from the proposed LNP cooling would be 43,814,880 gallons per day (gpd) or 43.8 MGD. See LNP Application Part 3, 10.2.1.2. This magnitude of evaporative loss is equivalent to the volume of water in municipal water supply for moderately large communities throughout Florida. Adverse impacts from the release of excessive salt from the proposed LNP project would not represent the sole environmental impact from the proposed LNP project. Release of that contaminant by LNP would occur in freshwater wetlands, special aquatic sites and other waters, including freshwater aquatic ecosystems that would be dewatered from the construction and operation phases of the proposed LNP project.

Cooling-tower salt-drift contaminants into the environment would cause irreparable harm to water quality –the state NPDES permit application review process would be fatally flawed if it ignored the catastrophic adverse impacts to water quality throughout the site, vicinity and region of the proposed LNP’s aerial “discharge” of large volumes of saline water into those inland, freshwater ecosystems, including Outstanding Florida Waters. Outstanding Florida Waters reportedly are provided the highest standard of protection under Sections 62-302.700(9(a)(3), 9(b)(17) of 9 the Florida Administrative Code.

Despite the outcome of the state’s NPDES permit review process, the LNP ER was grossly negligent in ignoring the adverse direct, indirect and cumulative environmental impacts of saltwater drift on inland water quality and b) the increased

threat of inland water quality contamination that would occur from new sources of saltwater contaminants via salt-drift deposition from the LNP cooling towers on inland waters, aquatic and terrestrial ecosystems that would be dewatered by the construction and operation of the proposed LNP. The abnormal releases of cooling-tower salt-drift contaminants into the environment would cause irreparable harm to water quality throughout the site, vicinity and region of the proposed LNP project, including Outstanding Florida Waters.

Granting a combined license (col) to Progress Energy Florida (PEF) to construct and operate proposed levy county units 1 and 2 (LNP) would result in irreparable harm to the quality of the Nation's air resources from adverse DIRECT, INDIRECT AND CUMULATIVE IMPACTS, by releasing stored carbon, thus increasing global climate disruption and sea-level Rise

CONTENTION 4.J Prematurely killing trees by discharging cooling-tower salt drift, dewatering, cutting, herbicide application and other means releases stored carbon – The LNP ER failed to address adverse direct, indirect and cumulative environmental impacts to the nation's air resources resulting from the premature death of countless inland trees throughout the site, vicinity and region of the proposed LNP project due to: a) dewatering of the site, vicinity and region of the proposed LNP project; b) destructive wildfires from dewatering of the site, vicinity and region of the proposed LNP project; c) cooling-tower salt-drift contaminants discharged in freshwater wetlands, flood plains, special aquatic sites and other waters, including aquatic and terrestrial ecosystems; d) filling and other construction within the flood zone for the proposed LNP project, and e)

cutting, herbicide application and other means of prematurely killing trees in the transmission/utility corridors and other LNP areas in conjunction with the proposed construction and operation of the proposed LNP project.

Explanation of basis

Trees store carbon and compensate for greenhouse gases that cause global climate disruption – Trees represent a significant storage of carbon and are moderators of greenhouse gases that cause global climate disruption. See http://www.sciencedaily.com/releases/2008/09/080908185330.htm

Aerial discharges of cooling-tower salt-drift contaminants throughout the inland site, vicinity and region of the proposed LNP project would kill countless native trees. Dewatering of the site, vicinity and region of the proposed LNP project during construction and operation and destructive wildfires caused by the dewatering would kill countless native trees. Filling and other construction within the flood zone for the proposed LNP project would kill countless native trees. Cutting, herbicide application and other means of prematurely killing trees also are proposed in transmission/utility corridors and other areas in conjunction with the construction and operation of the proposed LNP project. The premature death of those trees would occur from each of those proposed activities independently and cumulatively during the construction and operation of the proposed LNP project, in conjunction with other adverse direct, indirect and cumulative environmental impacts on those trees. The premature death of those trees would be tantamount to significant releases of greenhouse gases in the vicinity of the proposed LNP project.

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Forests as carbon-storage solutions for climate stabilization - Scientists have estimated that natural forests can store an “average of 1,300 pounds of carbon per acre per year.” The estimated carbon storage capacity for forested areas in one state was determined to be “the equivalent of yearly emissions from about 225,000 cars.” Further, “the concept of using forests to store carbon has steadily gained attention among policymakers, especially since the Kyoto Protocol was adopted in 1997 as a global program to reduce greenhouse gas emissions.” See Bacchus Exhibit G, incorporated herein.

Premature tree deaths from construction and operation of the proposed LNP project equivalent to greenhouse gas emissions – The inland site, vicinity and region of the proposed LNP project is heavily forested with both upland and wetland trees. In fact, the proposed LNP site is in immediate proximity to the Goethe State Forest, the forested Gulf Hammock Wildlife Management Area and Wacasassa Bay State Preserve. The trees throughout the site, vicinity and region of the proposed LNP project are providing extensive carbon storage. See Bacchus Exhibit G. The preceding paragraphs include documentation describing extensive premature tree death that would occur throughout the inland site, vicinity and region of the proposed LNP project during construction and operation of the nuclear facility. The causes of the premature tree deaths described above include: a) filling and other construction within the flood zone for the proposed LNP project; b) dewatering of the site, vicinity and region of the

proposed LNP project; c) destructive wildfires from dewatering of the site, vicinity and region of the proposed LNP project; and d) cooling-tower salt-drift contaminants discharged in freshwater wetlands, flood plains, special aquatic sites and other waters, including aquatic and terrestrial ecosystems. In addition to those causes of premature tree deaths from the construction and operation of the proposed LNP project, described above, premature death of trees would occur from cutting, herbicide application and other means of prematurely killing trees in the transmission/utility corridors and other LNP areas in conjunction with the proposed construction and operation of the proposed LNP project. Page 4-12 of the LNP ER includes the following description under clearing right of ways:

Restrictive clearing will consist of the cutting and removal of all trees and growth with a mature height greater than 3.7 m (12 ft.), leaving all other vegetation in the ROW outside of the access road and structure pad areas. Trees will be cut to as low as possible or to existing water level. Stumps may be left in place to preserve the root mat, and treated with an approved herbicide to prevent regrowth.

The premature death of those trees will release stored carbon, comparable to releasing the “yearly emissions from about 225,000 cars” if the forests referenced in Bacchus Exhibit G were prematurely killed.

Nuclear generation produces greenhouse gas emissions – The following statement was included in the LNP ER, “The FPSC notes that nuclear generation is one generating technology that produces no greenhouse gas emissions” (p. 8-74). Because premature death of trees would occur throughout the site, vicinity and region of the proposed LNP project from construction and operation of the LNP project, release of

that stored carbon is equivalent to yearly emissions of greenhouse gases from cars. Therefore, that FPSC statement in the LNP ER is without factual basis.

Irreparable harm from release of stored carbon from LNP construction and operation– Significant air quality degradation is caused by the large-scale release of stored carbon due to the premature death of trees throughout the site, vicinity and region of the proposed LNP project. These carbon releases constitute irreparable harm to the quality of the Nation's air resources.

Release of stored carbon from LNP construction and operation increases climate disruption and sea-level rise –This increase in carbon releases from large-scale premature tree deaths also contributes to increased climate disruption, which increases sea-level rise. The LNP ER failed to address these and other adverse direct, indirect and cumulative environmental impacts to the nation's air resources resulting from the premature death of trees from the proposed LNP project. The magnitude and extent of existing and increasing sea-level rise in Florida, including some of the socioeconomic impacts, is described briefly in Bacchus Exhibit H, incorporated herein.

CONTENTION 4.K Additional air quality degradation from destructive wildfires - The LNP ER failed to address adverse direct, indirect and cumulative environmental impacts of constructing and operating the proposed LNP project on the release of particulate matter (PM) from destructive wildfires in wetlands, flood plains, special aquatic sites and other waters.

Explanation of basis

Increased particulate matter from destructive wildfires – The LNP ER did not address the causal relationship between increased particulate matter (PM) and the destructive wildfires that would be caused by the construction and operation of the proposed LNP project. The LNP ER also did not address the direct, indirect and cumulative adverse impacts of releases of stored carbon and PM on the Nation's air quality.

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Decreased air quality from increased airborne particulate matter – the destructive wildfires that would occur throughout the site, vicinity and region of the proposed LNP project due to the construction and operation impacts described above, would convert trees and organic soils into significant airborne particulate matter that cannot be controlled, reduced or mitigated by PEF. A significant amount of this particulate matter ultimately will be deposited into the surrounding waters, resulting in water quality degradation, in addition to air quality degradation. See Bacchus Exhibit E and the following peer-reviewed scientific publication:

Bacchus, S. T. 2007. More inconvenient truths: Wildfires and wetlands, SWANCC and Rapanos. National Wetlands Newsletter 29(11):15-21.

Granting a combined license (col) to Progress Energy Forida (PEF) to construct and operate proposed levy county units 1 and 2 (LNP) would result in irreparable harm to public lands AND WATERS AND PRIVATE PROPERTY OWNED BY various

interveners and other individuals, DUE TO adverse DIRECT, INDIRECT AND CUMULATIVE IMPACTS

CONTENTION 4.L Irreparable harm to public lands and waters and private property not owned by PEF - The LNP ER failed to address the adverse direct, indirect and cumulative environmental impacts, as described above, on public preserves, parks, forests, wildlife management areas, state sovereign lands, waters of the state and US and private property not owned by PEF from constructing and operating the proposed LNP project.

Explanation of basis

Zone of impact for irreparable harm to public and private property not determined – Because the LNP ER failed to address any of the adverse direct, indirect and cumulative environmental impacts of constructing and operating the proposed LNP project described above, the LNP ER likewise failed to identify the zone of environmental impact from the proposed LNP project. In fact, the LNP ER erroneously concluded that the environmental impacts from the proposed LNP project were insignificant or "SMALL" See Table 4.6-1 (LNP ER pages 4-90 through 4-97). Consequently, no attempt was made in the LNP ER to determine the zone of impact or the extent of irreparable harm for the proposed LNP project.

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Zone of impact for irreparable harm includes public preserves, parks, forests, wildlife management areas, state sovereign lands, waters of the state and US and private property – The LNP ER erroneously concluded that the environmental impacts from the proposed LNP project were insignificant or "SMALL." See Table 4.6-1 (LNP ER pages 4-90 through 4-97). This conclusion was made without consideration of the adverse direct, indirect and cumulative environmental impacts of constructing and operating the proposed LNP project described above. Based on the adverse impacts described above, all of the environmental impact categories addressed in Table 4.6-1 (LNP ER pages 4-90 through 4-97) should have been recorded as "LARGE." Those adverse impacts also are irreparable and incapable of being mitigated. Because the LNP ER failed to address any of the adverse direct, indirect and cumulative environmental impacts of constructing and operating the proposed LNP project described above, the LNP ER likewise failed to identify the zone of environmental impact from the proposed LNP project. The zone of impact and extent of irreparable harm for the proposed LNP project includes private property owned by various interveners and other individuals in Levy, Marion, Citrus and Alachua Counties. The zone of impact and extent of irreparable harm for the proposed LNP project also includes, but is not limited to the following public preserves, parks, forests, wildlife management areas, state sovereign lands, waters of the state and waters of the US:

Goethe State Forest
Levy Blue Spring and associated wetlands and uplands
Withlacoochee River (OFW) and associated wetlands and uplands
Waccasassa River (OFW) and associated wetlands and uplands
Waccasassa Bay (SHA) and associated wetlands and uplands
Gulf Hammock Wildlife Management Area
Big Bend Seagrasses Aquatic Preserve (SHA)

Waccasassa Bay Preserve State Park
Big King Spring and associated wetlands and uplands
Little King Spring and associated wetlands and uplands
Turtle Creek and associated wetlands and uplands
Spring Run Creek and associated wetlands and uplands
Smith Creek and associated wetlands and uplands
Demory Creek and associated wetlands and uplands
Tomes Creek and associated wetlands and uplands
Ten Mile Creek and associated wetlands and uplands
Withlacoochee Bay (SHA) and associated wetlands and uplands
Crystal River Preserve State Park
Florida Springs Coastal Greenway

Zone of impact implications – Because the LNP ER failed to address the adverse direct, indirect and cumulative environmental impacts, as described above, and erroneously concluded that the environmental impacts from the proposed LNP project were “SMALL,” Rather than “LARGE” and irreparable, the impacts to other categories must be reconsidered. For example, other categories of impacts addressed in Table 4.6-1 (LNP ER pages 4-90 through 4-97) included: Land Use Impacts and Socioeconomic Impacts. The irreparable environmental problems described above will result in “LARGE” rather than “SMALL” Land Use and Socioeconomic Impacts.

Granting a combined license (col) to Progress Energy Florida (PEF) to construct and operate proposed levy county units 1 and 2 (LNP) would result in irreparable harm to AND JEOPARDIZE SURVIVAL AND RECOVERY OF FEDERALLY LISTED SPECIES, FROM ADVERSE MODIFICATION OF CRITICAL HABITAT AND UNPERMITTED TAKING DUE TO FAILURE TO CONSIDER ADVERSE DIRECT, INDIRECT AND CUMULATIVE IMPACTS

CONTENTION 4.M Jeopardized survival and recovery of federally listed species - The LNP ER failed to address the adverse direct, indirect and cumulative environmental impacts, as described above, on the survival and recovery of federally listed species.

Explanation of basis

Zone of impact for irreparable harm to and jeopardized survival and recovery of federally listed species – Because the LNP ER failed to address any of the adverse direct, indirect and cumulative environmental impacts of constructing and operating the proposed LNP project described above, the LNP ER likewise failed to identify the zone of environmental impact from the proposed LNP project on federally listed species. In fact, the LNP ER should have concluded there were "LARGE" adverse impacts on numerous federally listed species.

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Federally listed species on public lands and waters **-** The public lands and waters listed above, within the zone of impact for the proposed LNP project, support federally listed species and/or habitat critical to survival and recovery, including, but not limited to:

Eastern indigo (threatened)
Florida scrub jay (threatened)
Green turtle (endangered)
Manatee (endangered)
Red-cockaded (woodpecker)
Wood stork (endangered)

Habitat critical for survival and recovery of listed species – Irreparable harm to the natural hydroperiod in Florida ultimately results in irreparable harm to habitat critical for the survival and recovery of species, such as wood storks, red cockaded woodpeckers and Eastern indigo snakes. Wood storks (Mycteria americana) and red cockaded woodpeckers (Picoides (=Dedrocopos) borealis) are listed as endangered by the U.S. Fish and Wildlife Service (USFWS). Eastern indigo snakes (Drymarchon corais couperi) are listed as threatened by the USFWS. See "South Florida Multi-Species Recovery Plan" prepared for USFWS Southeast Region, Atlanta, GA, May 18, 1999.

Depressional wetlands as habitat critical to the survival and recovery of wood storks – Wood storks in Florida rely on natural depressional wetlands such as pond-cypress domes and sloughs and wet prairies for both foraging and nesting. Natural depressional wetlands in Florida are among the most sensitive wetlands to hydroperiod alteration. The adverse direct, indirect and cumulative impacts of the proposed LNP project would result in irreversible destruction of significantly more than ten acres of natural depressional wetlands which could be used by wood storks for foraging and nesting. See preceding paragraphs and Bacchus Exhibit E. Pond-cypress wetlands occur throughout the site, vicinity and region of the proposed LNP project. See LNP ER Appendix 2.2-2.

Natural pine forests as habitat critical to the survival and recovery of red cockaded woodpeckers –Successful nesting and reproduction of red cockaded woodpeckers require older growth stands of live native pine trees. Native species of pines are among the most sensitive native trees to hydroperiod alteration. The adverse

direct, indirect and cumulative impacts of the proposed LNP project would result in irreversible destruction of significant stands of natural pine that could be used by red cockaded woodpeckers for nesting. See preceding paragraphs and Bacchus Exhibit E.

Seagrass beds as habitat critical to the survival and recovery of green turtles – Green turtles feed in seagrass beds in coastal areas within the zone of impact from the proposed LNP project. The adverse direct, indirect and cumulative impacts of the proposed LNP project would result in irreversible destruction of significant areas of seagrass beds that could be used by green turtles for survival and recovery. See preceding paragraphs and Bacchus Exhibit E.

Violations of Sections 7 and 9 of the Endangered Species Act –Section 7 and Section 9 consultations with the U. S. Fish and Wildlife Service should be initiated for the species references above, pursuant to the Endangered Species Act for the site, vicinity and zone of impact. Such consultations cannot be initiated until the entire zone of impact from the proposed LNP project has been determined for these habitats. In the absence of those consultations, the adverse direct, indirect and cumulative impacts of the proposed LNP project would result in the unlawful taking of federally endangered and threatened species, in violation of Sections 7 and 9 of the Endangered Species Act.

Granting a combined license (col) to Progress Energy Florida (PEF) to construct and operate proposed levy county units 1 and 2 (LNP) would result in IRREVERSIBLE AND irretrievable commitments of resources and the inability to mitigate adverse environmental impacts DUE TO FAILURE TO CONSIDER ADVERSE DIRECT, INDIRECT AND CUMULATIVE IMPACTS

CONTENTION 4.N Irreversible and irretrievable commitments of resources and inability to mitigate adverse environmental impacts – The LNP ER's failure to address the adverse direct, indirect and cumulative environmental impacts, as described above, would result in the irreversible and irretrievable commitments of resources and inability to mitigate adverse environmental impacts if the proposed LNP project is constructed and operated as proposed.

Explanation of basis

Irreversible and irretrievable commitments of resources and inability to mitigate adverse environmental impacts – The LNP ER's failure to address any of the adverse direct, indirect and cumulative environmental impacts of constructing and operating the proposed LNP project described above, precluded them from identifying the zone of environmental impact from the proposed LNP project. Without a determination of the zone of impact, bona fide mitigation of the adverse environmental impacts cannot occur.

Statement of facts and opinions supporting the dispute and deficiencies within the scope of this proceeding

Irreversible and irretrievable commitments of resources and inability to mitigate adverse environmental impacts - constructing and operating the proposed LNP project would result in irreversible and irretrievable commitments of resources throughout the site, vicinity and region of the proposed LNP project. Environmental harm described above, that would occur from constructing and operating the proposed LNP project

cannot be repaired or mitigated.

CONTENTION 4.O Alternatives without adverse environmental impacts of proposed LNP – The LNP ER failed to address alternatives to the proposed LNP that are readily available and that would avoid the adverse direct, indirect and cumulative environmental impacts described above.

Explanation of basis

Alternatives without adverse environmental impacts of proposed LNP – Chapter 9 of the LNP ER addressed alternatives to the proposed action. Although solar power was addressed on page 9-13, that alternative was summarily dismissed as, “too large to construct at the LNP site.” The LNP ER’s “Alternatives to the Proposed Action” failed to address the decoupling alternative.

Statement of facts and opinions supporting the dispute and deficiencies within the scope of this proceeding.

“Footprints” of solar alternative and proposed LNP – The LNP ER addressed solar power alternatives on page 9-13, but summarily dismissed solar alternatives, based on the statement below. This statement presumes a “footprint of approximately 28,600 ha (71,500 ac.) for PV and 13,200 ha (33,000 ac.) for solar thermal systems” and concludes those footprints are “much too large to construct at the LNP site.” The subsurface “footprint” of the proposed LNP (e.g., hydroperiod impacts) would exceed the site and vicinity of the proposed LNP and simply would “take” surrounding public and private lands and waters, without compensation, for construction and operation of the proposed LNP.

Construction of solar power generating facilities has substantial impacts on wildlife habitat, land use, and aesthetics. As stated in the GEIS, land requirements are high: 14,000 ha (35,000 ac.) per 1000 MWe for PV and approximately 6000 ha (14,000 ac.) per 1000 MWe for solar thermal systems. This would require a footprint of approximately 28,600 ha (71,500 ac.) for PV and 13,200 ha (33,000 ac.) for solar thermal systems to produce a 2200-MWe baseload capacity. Both of these are much too large to construct at the LNP site.

Solar alternative with smaller footprint than proposed LNP – The Florida Solar Energy Center promotes the approach of utility companies constructing and/or maintaining solar collectors on existing residential and commercial roof tops for power generation rather than constructing the solar collectors on land in a natural state, farmlands or other land use. California has a similar program. See Bacchus Exhibits I-1 and I-2, incorporated herein. This approach is contrary to what was evaluated and summarily dismissed in the "Solar Power" alternatives section of the LNP ER, in part, due to "substantial impacts on wildlife habitat, land use, and aesthetics. The approach promoted by the Florida Solar Energy Center would have a far smaller physical and environmental impact "footprint" - zone of impact - than the proposed LNP, would require no water and would result in none of the adverse environmental impacts of the proposed LNP described in the preceding paragraphs. Furthermore, the "wildlife habitat, land use, and aesthetics" impacts of the proposed LNP project far exceed those of the roof-top solar collectors alternative promoted by the Florida Solar Energy Center.

Decoupling alternative without adverse environmental impacts of proposed LNP – The LNP ER failed to address the decoupling alternative. The decoupling alternative

is described by Dr. Joe Romm, senior fellow with the Center for American Progress, in Bacchus Exhibit J, incorporated herein. The decoupling alternative would have a far smaller “footprint” – zone of impact – than constructing and operating the proposed LNP project. Furthermore, the decoupling alternative would have none of the adverse environmental impacts of the proposed LNP described in the preceding paragraphs.

Granting a combined license (col) to Progress Energy Florida (PEF) to construct and operate proposed levy county units 1 and 2 (LNP) would be inconsistent with 40 CFR § 230

CONTENTION 4.N Proposed LNP is inconsistent with 40 CFR § 230 – The LNP ER failed to address the inconsistencies of the proposed LNP project with 40 CFR § 230.

Explanation of basis

Inconsistencies of proposed LNP is with 40 CFR § 230 – The proposed LNP project is inconsistent with 40 CFR § 230 regarding at least the following, as described in the remaining paragraphs:

Productive and valuable public resources
Food chain production and general habitat and nesting sites for aquatic or land species
Study of the aquatic environment, sanctuaries and refuges
Natural drainage characteristics, salinity distribution, and other environmental characteristics
Natural storage areas for storm and flood waters
Natural groundwater discharge and recharge and water purification
Uniqueness
Failure to consider relevant information
Injury to property, invasion of other rights and superseding the rights and interests of the public

Statement of facts and opinions supporting the dispute and deficiencies within the scope of this proceeding

Examples of inconsistencies of proposed LNP is with 40 CFR § 230 – The LNP ER failed to acknowledge that the construction and operation of the proposed LNP would be inconsistent with 40 CFR § 230, including 40 CFR § 230.41(b) and other provisions of 40 CFR § 230, as described below.

When disruptions in flow and circulation patterns occur, apparently minor loss of wetland acreage may result in major losses through secondary impacts. Discharging fill material in wetlands as part of municipal, industrial or recreational development may modify the capacity of wetlands to retain and store floodwaters and to serve as a buffer zone shielding upland areas from wave actions, storm damage and erosion. (See 40 CFR § 230.41(b))

Productive and valuable public resources - Based on knowledge, site inspections and review of historic and current documents of the site, vicinity and region of the proposed LNP project, the wetlands, flood plains, special aquatic sites and other waters that would be destroyed or otherwise affected directly, indirectly and cumulatively by all aspects of the proposed LNP project are a "productive and valuable public resource," as referenced in 40 CFR § 230.10.

Food chain production and general habitat and nesting sites for aquatic or land species –the wetlands, flood plains, special aquatic sites and other waters within the site, vicinity and region of the proposed LNP project perform functions important to the public interest, which include at least: food chain production and general habitat and

nesting sites for aquatic or land species, as described by 40 CFR § 230.10.

Study of the aquatic environment, sanctuaries and refuges - Some of those wetlands, flood plains, special aquatic sites and other waters, have been set aside for study of the aquatic environment or as sanctuaries or refuges, as described in 40 CFR § 230.10. Examples include Outstanding Florida Waters (OFW) and Shellfish Harvesting Areas (SHA), such as, but not limited to, those in or associated with the following:

Goethe State Forest
Levy Blue Spring and associated wetlands and uplands
Withlacoochee River (OFW) and associated wetlands and uplands
Waccasassa River (OFW) and associated wetlands and uplands
Waccasassa Bay (SHA) and associated wetlands and uplands
Gulf Hammock Wildlife Management Area
Big Bend Seagrasses Aquatic Preserve (SHA)
Waccasassa Bay Preserve State Park
Big King Spring and associated wetlands and uplands
Little King Spring and associated wetlands and uplands
Turtle Creek and associated wetlands and uplands
Spring Run Creek and associated wetlands and uplands
Smith Creek and associated wetlands and uplands
Demory Creek and associated wetlands and uplands
Tomes Creek and associated wetlands and uplands
Ten Mile Creek and associated wetlands and uplands
Withlacoochee Bay (SHA) and associated wetlands and uplands
Crystal River Preserve State Park
Florida Springs Coastal Greenway

Natural drainage characteristics, salinity distribution, and other environmental characteristics – Construction of the proposed LNP project would result in the destruction or irreversible alteration of wetlands, flood plains, special aquatic sites and other waters that, in turn, would result in detrimental affects on natural drainage characteristics, salinity distribution, or other environmental characteristics, contrary to 40 CFR § 230.10.

Natural storage areas for storm and flood waters - Those wetlands, flood plains, special aquatic sites and other waters would be destroyed or altered as a result of the proposed LNP project are preventing both erosion and storm damage and serve as valuable storage areas for storm and flood waters, as described in 40 CFR § 230.10. Those benefits no longer would be provided in the vicinity and region of the proposed LNP.

Natural groundwater discharge and recharge and water purification - Those wetlands, flood plains, special aquatic sites and other waters would be destroyed or altered as a result of the proposed LNP project include areas that would not have a valid Individual Permit from the U.S. Corps of Engineers. Those wetlands, flood plains, special aquatic sites also are historic groundwater-discharge areas. Those areas maintained minimum baseflows important to aquatic resources and prime natural recharge areas, as described in 40 CFR § 230.10. Consequently, those environmentally sensitive natural areas also were serving significant water purification functions, as identified in 40 CFR § 230.10.

Uniqueness –those wetlands destroyed or adversely altered as a result of the proposed LNP project are unique in nature compared to wetlands in virtually all other states in the United States (See 40 CFR § 230.10). There is no indication that the ER addressed the uniqueness of those wetlands, or the fact that those wetlands are intimately linked with the Floridan aquifer system. Likewise, no indication that a comprehensive (or, in fact, any) analysis had been conducted of the myriad significant cumulative effects that would result from the proposed LNP project, as described in 40 CFR § 230.10. Finally, there is no evidence that the ER had addressed the "section

404(b)(1) guidelines," as described in 40 CFR § 230.10.

Failure to consider relevant information –there is no indication that the LNP ER addressed relevant information regarding the numerous adverse cumulative impacts that would occur in the vicinity and region if the proposed LNP project was constructed and operated as proposed. Categories in 40 CFR § 230.10 for consideration of information relevant to the cumulative impacts include fish and wildlife; water quality; historic, cultural, scenic, and recreational values; property ownership; activities affecting coastal zones; activities that may affect marine sanctuaries; compliance with other federal, state, or local requirements; floodplain management; water supply and conservation; energy conservation; environmental benefits; and economics. See all of the adverse impacts described in the preceding paragraphs related to those issues.

Injury to property, invasion of other rights and superseding the rights and interests of the public –construction of the proposed LNP project in the flood plain and wetlands will result in "injury to property or invasion of other rights" beyond the site and vicinity of the proposed LNP project, thus superseding the rights and interests of the public. The adverse direct, indirect and cumulative impacts would extend to property not owned by LNP, contrary to the provisions of 40 CFR § 230.10. The adverse direct, indirect and cumulative impacts would extend to environmentally sensitive land "protected" as public lands, including those listed above

SUMMARY

Proposed LNP inconsistent with state and federal regulations, including NEPA and ESA– In conclusion, the construction and operation of the proposed LNP project in

the flood plain and wetlands would be inconsistent with state and federal regulations, including NEPA and the Endangered Species Act. See all preceding paragraphs and Bacchus Exhibits and references, summarized in Bacchus Exhibit K.

CONTENTION 5 Proximity of Proposed Site to Crystal River Nuclear Power Station Not Assessed in SAMA Analysis

PEF relys on the Westinghouse probabilistic risk assessment ("PRA") which as cited in contention 1, was done in the Rev 15 phase of non-certified design. To date there is not an updated PRA for Rev 16 as incorporated in PEF's COLA, nor for Rev 17 that it appears has now supplanted Rev 16 in consideration for certification. Therefore the entire SAMA section does not appear to be relevant at this time. Nonetheless, there is a striking omission in the COL part 3, Environment Report, Chapter 7 on severe accidents, there is no consideration of the impact of a severe radiological accident at Crystal River Energy Complex ("CREC"). An accident at the nuclear unit at CREC could disrupt normal operations at Levy County units 1 and 2 and should be analyzed in the SAMA analysis for this COL. There is an additional concern that the safety provisions for control room operators at Levy County 1 and 2 if the AP 1000 is utilized, will presume that the source of any radiological disruption originates from an AP 1000. If however, the source of the radiological emergency is, in fact CREC, the protective measures supplied may not be sufficient due to the different assumptions for AP 1000s cited in section 7.2.1 of the PEF Environment Report.

CONTENTION 6 (in two parts): The application is deficient in its discussion of high-level radioactive waste that would be generated by Levy County units 1 and 2

6.A: Failure to Evaluate Whether and in What Time Frame Spent Fuel Generated by Levy County Units 1 and 2 Can Be Safely Disposed Of

The Environmental Report for the Levy County units 1 and 2 COLA is deficient because it fails to discuss the environmental implications of the lack of options for permanent disposal of the irradiated (*i.e,* "spent") fuel that will be generated by the proposed new reactors if built and operated. This waste is not "optional" it will be the certain result of reactor operation. Nor has the NRC made an assessment on which the applicant can rely, regarding the degree of assurance now available that radioactive waste generated by the proposed reactor "can be safely disposed of [and] when such disposal or off-site storage will be available." Final Waste Confidence Decision, 49 Fed. Reg. 34,658 (August 31, 1984), citing *State of Minnesota v. NRC,* 602 F.2d 412 (D.C. Cir. 1979). Accordingly, the ER fails to provide a sufficient discussion of the environmental impacts of the proposed new nuclear reactor, including extended (or permanent) storage of the irradiated fuel generated at this site, on this site.

Discussion

The ER for the proposed new reactor does not contain any discussion of the environmental implications of the lack of options for permanent disposal of the irradiated fuel to be generated by Levy County units 1 and 2. Therefore, it is fatally deficient. *State of Minnesota v. NRC,* 602 F.2d at 416-17.

In the Levy County units 1 and 2 COLA, at Part 3 of the Environmental Report at Chapter 5.7.6 about Uranium Fuel Cycle Impacts, the applicant states:

> "Federal Law requires that high level and transuranic wastes are to be buried at a repository and no release to the environment is expected to be associated with such disposal because it has been assumed that all of the gaseous and volatile radionuclides contained in the spent fuel are no longer present at the time of disposal of the waste. In NUREG-0116 (NRC, 1976), which provides background and context for the high level and transuranic Table S–3 values, the NRC indicated that these high level and transuranic wastes will be buried and will not be released to the environment.

The NRC has already concluded that for applicants seeking an Early Site Permit (ESP), these impacts are acceptable, and would not be sufficiently large to require a NEPA conclusion that the construction and operation of a new nuclear unit at the sites should be denied."

First, the U.S. Department of Energy recognizes that significant radioactivity releases from a Yucca Mountain repository would in fact occur over time. See, for example, U.S. DOE Office of Civilian Radioactive Waste Management, "NWTRB Repository Panel meeting: Postclosure Defense in Depth in the Design Selection Process," presentation for the Nuclear Waste Technical Review Board Panel for the Repository, January 25, 1999. Also, the U.S. Environmental Protection Agency's final Yucca Mountain radiation release regulations, requiring that such radiation release regulations extend out to a million years post waste burial, shows that such releases will continue for many hundreds of thousands of years into the future. EPA's proposed dose limit from Day 1 to Year 10,000 post burial is 15 millirems/year from all pathways of exposure. EPA's proposed dose limit from Year 10,000 to Year 1,000,000 post burial is 100 millirems/year from all pathways of exposure. Thus, the post Year 10,000 standard would allow for six to seven fold higher radioactivity doses to persons downstream than the pre Year 10,000 standard, a prima facie violation of the long established international

moral and ethical norm referred to as “intergenerational equity.” In summary, Yucca Mountain would experience significant radioactivity releases into the distant future, despite any applicant or NRC statements to the contrary. See United States. Environmental Protection Agency. "40 CFR Part 197: Public Health and Environmental Radiation Protection Standards for Yucca Mountain , Nevada : Proposed Rule." *Federal Register*, v.73, no. 200, October 15, 2008, pages 61256-61287.

Thus, the Levy County unit 1 and 2 COLA’s assertion that “no release to the environment is expected to be associated with such disposal” is obviously false. While Applicants may have intended to rely on the NRC’s Waste Confidence decision, issued in 1984, and most recently amended in 1999, that decision is inapplicable because it applies only to plants which are currently operating, not new plants. The second finding of the Waste Confidence Decision, as amended in 1999, is that the Commission has reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century, and that sufficient repository capacity will be available within 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of any reactor to dispose of the commercial high-level radioactive waste and spent fuel originating in such reactor and generated up until that time. Waste Confidence Decision Review: Status, 64 Fed. Reg. 68,005, 68,006 (December 6, 1999).

This finding revised the finding in the original decision that a mined geologic repository would be available by the years 2007 to 2009. Clearly, the Commission’s finding applies to any existing reactor, including reactors whose licenses are revised or

renewed. The Commission gives no indication that it has confidence that repository space can be found for spent fuel and other high-level radioactive waste from new reactors licensed after December 1999. Moreover, the revised second finding in the 1999 Waste Confidence review statement conspicuously fails to assert confidence in the likelihood that more than one repository will be licensed. In fact, the Commission has backtracked on its original 1984 "Nuclear Waste Confidence Decision," in which the Commission expressed confidence that "one or more" repositories would open between 2007 and 2009. Waste Confidence Decision, 49 Fed. Reg. at 34,673. The 1999 Status Report states merely that "at least one" repository will open by 2025. 64 Fed. Reg. at 68,006.

Although previous ASLBs have rejected similar intervention contentions against proposed new reactors, we urge that this contention be accepted for hearing based on the fact that the U.S. Nuclear Regulatory Commission has yet again re-opened the Nuclear Waste Confidence Decision to revision. This re-examination, currently still open for public comment, shows clearly that there is no regulatory certainty regarding the high-level radioactive waste dilemma. See Waste Confidence Decision Update. 10 CFR Part 51 [Docket ID-2008-0482]; 73 FR 59551, 10-9-08, online at http://edocket.access.gpo.gov/2008/pdf/E8-23381.pdf. See also the related Consideration of Environmental Impacts of Temporary Storage of Spent Fuel After Cessation of Reactor Operation. 10 CFR Part 51, RIN: 3150–AI47, [NRC–2008–0404] 73 FR 59547, 10-9-08, online at http://edocket.access.gpo.gov/2008/pdf/E8-23384.pdf.

The Applicant and the NRC itself should not be allowed to rely on the NRC

Commission's current re-appraisal of the Nuclear Waste Confidence Decision as constituting a safe, secure, and sound permanent solution for the high-level radioactive waste dilemma, for after all, the review is not completed. In fact, as of today, the proceeding is still open for public comment. Once the NRC has issued its proposed final version of this latest review of the Nuclear Waste Confidence Decision, we request the right to re-address this issue in this proceeding, in light of that yet to be released final decision, in the context of the specific circumstances of this new reactor proposal at Levy County 1 and 2.

Furthermore, it is also clear that the inventory of irradiated nuclear fuel and other high-level radioactive waste being generated by the *current* generation of nuclear reactors is far greater than what can be accommodated in the single repository in which the Commission seemingly places its confidence, Yucca Mountain, Nevada. The proposed Yucca Mountain repository can only accept 63,000 metric tons of commercial high-level radioactive waste and irradiated nuclear fuel, at least until a second national repository became operational.

Under the Nuclear Waste Policy Act ("NWPA"), 63,000 metric tons is the legal limit for commercial waste storage that can be "disposed of" at Yucca Mountain, Nevada, at least until a second repository is operational elsewhere in the U.S. As the NWPA states at Section 114(d):

> The [NRC] decision approving the first such application [for a license to open and operate a repository] shall prohibit the emplacement in the first repository of a quantity of spent fuel containing in excess of 70,000 metric tons of heavy metal or a quantity of solidified high-level radioactive waste resulting from the reprocessing of such a quantity of spent fuel until such time as a second repository is in operation…" 42 U.S.C. § 10134(d).

By long-established DOE policy, the first 70,000 metric tons of irradiated nuclear fuel and solidified high-level radioactive waste "disposed of" at Yucca Mountain, Nevada would include 90% commercial nuclear reactor waste, and 10% DOE waste from the nuclear weapons production complex and nuclear energy research activities, as well as Department of Defense Nuclear Navy-related wastes. 90% of 70,000 metric tons means that only 63,000 metric tons of commercial irradiated nuclear fuel could be "disposed of" at Yucca Mountain, Nevada, at least until a second national repository is operational in the United States. ***See*** Yucca Mountain EIS at A-1.

Even assuming only 40 years of operations with no operating license renewals and no new nuclear reactors, the U.S. Department of Energy (DOE) has known since at least the mid-1990s—since before the most recent (1999) NRC review of its "Nuclear Waste Confidence Decision"—that by the year 2030 or so well over 80,000 metric tons of irradiated nuclear fuel generated at commercial nuclear reactors will exist in the U.S. U.S. Nuclear Waste Technical Review Board ("NWTRB") "Disposal and Storage of Spent Nuclear Fuel: Finding the Right Balance," Figure 2 at page 11 (March 1996). This is significantly in excess of the "disposal" capacity at Yucca Mountain.

As recently as March, 2008, at the U.S. Nuclear Regulatory Commission's Regulatory Information Conference, the director of the U.S. Department of Energy's Office of Civilian Radioactive Waste Management, Ward Sproat III, announced that 63,000 metric tons of commercial irradiated nuclear fuel—enough to fill Yucca to its legal limit—will exist in the U.S. by the spring of 2010. Therefore, new reactors such as the proposed Levy County 1

and 2 will generate waste, all of which will be in excess of the capacity at Yucca Mountain. He added more recently that the U.S. Department of Energy recognizes the need for a *second* repository, as called for by the Nuclear Waste Policy Act as Amended, *unless* the capacity limit at Yucca Mountain is done away with. Of course, changing the amount of high-level radioactive waste and irradiated nuclear fuel to be buried at Yucca Mountain would increase the environmental and public health risks and impacts downstream and downwind. Not only would a change in federal law be required, but new analyses to determine the extent of these increased impacts would be required. These analyses have not yet even been undertaken, much less completed. Given the many unknowns associated with requirements for changes in the law, new technical analyses, and additional regulatory proceedings associated with the proposal to expand Yucca's waste disposal capacity, any "confidence" in a waste solution for a new generation of reactors is entirely inappropriate.

NRC's now-routine approval of 20-year license extensions to old commercial nuclear reactors will only increase the quantity of high-level radioactive waste that exceeds the capacity limits at the proposed Yucca Mountain, Nevada repository. In its "Final Environmental Impact Statement for a Repository for Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada," (Feb. 2002) (hereinafter "Yucca Mountain EIS"), DOE predicted the generation of over 105,000 metric tons of commercial irradiated nuclear fuel by the year 2046. *Id.,* Table A-8, page A-16. While NRC's standard license extension term is 20 years, the DOE prediction assumed that the term of license extensions would be only 10 years. DOE also assumed

no new commercial nuclear reactors in the U.S. Thus, the high-level waste and irradiated fuel generated by the *current* generation of reactors will far exceed the capacity of the single repository that the NRC has identified as feasible and likely in the next several decades.

Experience also shows that the NRC has been overly optimistic about the opening of the first repository. It took from 1982 (the year the Nuclear Waste Policy Act was passed) until 2002 – 20 full years -- just for the DOE to recommend Yucca Mountain as "suitable" for repository development. This finding, however, has been consistently challenged by the State of Nevada, environmental groups, and numerous scientists. Even before DOE's suitability determination, the U.S. General Accounting Office (GAO) reported that a repository at Yucca Mountain, Nevada probably could not open to receive waste shipments till 2015 at the earliest, given nearly 300 unfinished scientific and technical studies. GAO-02-191, "Nuclear Waste: Technical, Schedule, and Cost Uncertainties of the Yucca Mountain Repository Project" (December, 2001).

DOE later admitted that 2017 was the "best achievable" date for opening Yucca. Currently, however, DOE has admitted that it has no projected opening date for the Yucca repository. *See, e.g.,* U.S. NWTRB, "Technical Report on Localized Corrosion" (November 25, 2003, and Allison M. Macfarlane and Rodney C. Ewing, "Uncertainty Underground: Yucca Mountain and the Nation's High-Level Nuclear Waste," the MIT Press, Cambridge, MA, 2006).

In addition, several legal challenges have been filed against the Yucca Mountain repository and the proposed standards for operation, including a successful State of

Nevada/environmental coalition challenge to the U.S. Environmental Protection Agency's radiation release regulations for the Yucca repository. On July 9, 2004, the U.S. Circuit Court of Appeals for the District of Columbia ordered EPA to revise its regulations, which EPA has only very recently done. See United States. Environmental Protection Agency. "40 CFR Part 197: Public Health and Environmental Radiation Protection Standards for Yucca Mountain , Nevada : Proposed Rule." *Federal Register*, v.73, no. 200, October 15, 2008, pages 61256-61287. However, even this EPA Final Radiation Release Rule has been legally challenged by the State of Nevada. See Petition for Review in the United States Court of Appeals for the District of Columbia Circuit, State of Nevada, Petitioner, versus United States Environmental Protection Agency; Stephen L. Johnson, Administrator; and United States of America, Respondents, October 10, 2008.

Accordingly, the irradiated nuclear fuel and other high-level radioactive wastes generated at the proposed new reactors, such as Levy County units 1 and 2, could not be "disposed of" at Yucca Mountain unless and until a second national repository is operating. But the Commission has not expressed confidence that a second repository will open. Any irradiated nuclear fuel or other high-level radioactive waste generated after the spring of 2010 (after 63,000 metric tons of commercial irradiated nuclear fuel has been generated) would have nowhere to go, would lack "disposal" space at a repository, unless and until a second repository is opened and operating in the U.S. somewhere other than Yucca Mountain, Nevada – a process that could very well take many decades, based on the experience of trying to open the first repository at Yucca Mountain, Nevada.

Moreover, Congress has not given the NRC any basis for assuming that a second repository will be opened. Section 161(b) of the NWPA provides that: "[t]he Secretary [of Energy] shall report to the President and to Congress on or after January 1, 2007, but not later than January 1, 2010, on the need for a second repository." 42 U.S.C. §10172a(b). Section 161(a) also states that: "The Secretary [of Energy] may not conduct site-specific activities with respect to a second repository unless Congress has specifically authorized and appropriated funds for such activities." 42 U.S.C. §10172a(a). The Department of Energy has not made an official finding that a second repository is needed, nor has Congress specifically authorized or appropriated funds for site-specific activities.

However, very recent statements by the Energy Department's Edward Sproat to Congress, as reported by the Associated Press's Joe Hebert, indicated that the 70,000-metric ton limit Congress put on the capacity of the proposed Yucca waste dump will fall far short of what will be needed and has to be expanded, or else another dump built elsewhere in the country. Sproat said within two years the amount of waste produced by the country's 104 nuclear power plants plus defense waste will exceed 70,000 metric tons. Sproat suggested that Congress scrap the limit, or else empower the Department of Energy to search for another site for a secondary facility. See "Should Yucca Mountain Hold More Than 77,000 Tons of Nuclear Waste, or None?" by Eliza Strickland in Discover's Environment Department, November 10, 2008, online at http://blogs.discovermagazine.com/80beats/2008/11/10/should-yucca-mountain-hold-more-than-77000-tons-of-nuclear-waste-or-none/

Whether or not Sproat's testimony before Congress constitutes the Nuclear Waste Policy Act's mandated report on the need for a second repository sometime between 2007 and 2010 in not clear. Any confidence that Congress will expand Yucca's capacity, or mandates a second repository elsewhere in the country, is premature until Congress actually acts. NRC should put no stock, and the applicant should take no credit, for such hypothetical eventualities.

The Nuclear Regulatory Commission's failure to express confidence that a second repository will be opened any time soon also implicates the third and fourth findings of the Waste Confidence Decision, *i.e,* that irradiated fuel and other high-level radioactive waste can be safely stored at reactor sites for up to 30 years. 64 Fed. Reg. at 68,006. If the Commission has no confidence that a repository will open at some reasonable time in the future, it must be assumed that irradiated fuel may sit at the proposed new Levy County units 1 and 2 reactor site for an indefinite period of time. The environmental impacts of such indefinite storage must be evaluated before a Combined Operating License can be granted.

6.B. Comment from the Co-Petitioners on the Waste Confidence Decision as it Applies to This Proceeding; Request for Reconsideration.

Even if the Waste Confidence Decision applies to this proceeding, it should be reconsidered, in light of significant and pertinent unexpected events that raise substantial doubt about its continuing validity, *i.e.,* the increased threat of terrorist attacks against U.S. facilities.

Discussion

In its 1999 “Nuclear Waste Confidence Decision” revision, NRC stated “the Commission would consider undertaking a comprehensive reevaluation of the Waste Confidence findings…if significant and pertinent unexpected events occur raising substantial doubt about the continuing validity of the Waste Confidence findings.” 64 Fed. Reg. at 68,007.

Clearly, the catastrophic terrorist attacks upon the United States on September 11th, 2001 constituted significant and pertinent unexpected events that raise substantial doubts about the continuing validity of the third and fourth findings of the revised Waste Confidence Decision.

These findings are:

> 3. The Commission finds reasonable assurance that high-level radioactive waste and spent fuel will be managed in a safe manner until sufficient repository capacity is available to assure the safe disposal of all high-level waste and spent fuel. (This finding is identical to the finding in the original Waste Confidence Decision in 1984).
>
> 4. The Commission finds reasonable assurance that, if necessary, spent fuel can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor at its spent fuel storage basin, or at either onsite or offsite independent spent fuel storage installations. (This finding is basically identical to that in the original Waste Confidence Decision with the addition of the consideration of license renewal and spent fuel storage 30 years beyond the licensed life for operation of a reactor). 64 Fed. Reg. at 68,006.

The terrorist threat to irradiated nuclear fuel and high-level radioactive waste – whether it is being stored on-site at commercial reactors in storage pools or dry casks; stored in away-from-reactor Independent Spent Fuel Storage Installations; or transported by truck, train, or barge between nuclear plants and off-site interim storage facilities – demands an evaluation of whether (a) it is appropriate to store irradiated nuclear fuel and other highly radioactive waste for 30 years or more pending availability of a permanent repository,

and (b) whether nuclear power should be phased out as quickly as possible as a matter of environmental protection, national security, public safety, and common defense.

The homeland security risks posed by indefinite temporary storage of irradiated nuclear fuel have been recognized by former Energy Secretary Spencer Abraham:

> "Yucca Mountain is an important component of homeland security. More than 161 million people live within 75 miles of one or more nuclear waste sites, all of which were intended to be temporary. We believe that today these sites are safe, but *prudence demands we consolidate this waste from widely dispersed, aboveground sites into a deep underground location that can be better protected.*

Statement of Spencer Abraham, Secretary of Energy, Before the Energy and Natural Resources Committee, U.S. Senate (May 16, 2002), (the full statement can be viewed and printed from: http://yuccamountain.org/abraham051602.htm)

It is undisputed that neither fuel storage pools nor dry storage facilities are designed to withstand the type of determined and sophisticated attack that was carried out on September 11, 2001. In fact, the U.S. National Academy of Sciences documented such security vulnerabilities in its report entitled "Safety and Security of Commercial Spent Nuclear Fuel," released on April 6, 2005.

To protect against and mitigate the impacts of terrorist attacks, the NRC has developed a system to maintain a constant state of alert, undertaken a comprehensive review of the adequacy of its safety and security regulations, and upgraded its security requirements for all operating nuclear facilities in the United States. Clearly, under NEPA it is also appropriate to consider whether the Commission continues to have a basis for expressing confidence that stored irradiated nuclear fuel and other high-level radioactive waste is safe from terrorist attacks.

Co-petitioners are aware that the Commission has ruled that environmental

impacts of terrorist attacks are not cognizable under NEPA. *See, e.g., Pacific Gas & Electric Co.* (Diablo Canyon Independent Spent Fuel Storage Installation), CLI-03-01, 57 NRC 1 (2003); *Private Fuel Storage, L.L.C.* (Independent Fuel Storage Installation), CLI-02-25, 56 NRC 340 (2002). Petitioners request that the Commission reconsider this policy, in light of (a) the obvious attractiveness and vulnerability of irradiated nuclear fuel to terrorist attack; (b) the Secretary of Energy's recognition of the relationship between homeland security and assured capacity for timely irradiated nuclear fuel disposal; (c) the Commission's explicit statement in the Waste Confidence status review that it would undertake a comprehensive reevaluation of the Waste Confidence findings if "significant and pertinent unexpected events" occur raising substantial doubt about the continuing validity of the Waste Confidence findings; and (d) the decision of the 9th Circuit U.S. Court of Appeals. June 2, 2006 ruling by the U.S. Court of Appeals for the Ninth Circuit in San Luis Obispo Mothers for Peace (SLOMFP) v. NRC, 449 F.3d 1016. Clearly, a Commission reconsideration is warranted.

Given that NRC *is* currently reviewing its Nuclear Waste Confidence Decision, and is soliciting public comment before issuing a final decision at some future unspecified date, it is inappropriate for NRC and applicants to rely upon the Nuclear Waste Confidence Decision as a justification for refusing to address the irradiated nuclear fuel dilemma that would be created by the Levy County unit 1 and 2 nuclear reactors. Such uncertainties about the irradiated nuclear fuel that would be generated at at this site and the risks it would pose to the Florida Nature Coast environment and the public health of neighboring communities, will persist at least until NRC issues its revised

Nuclear Waste Confidence Decision. Petitioners request the right to respond to any such final decision as an essential part of this COLA licensing proceeding.

Contention 7 Progress Energy Florida's (PEF) application to build and operate Levy County Nuclear Station Units 1 & 2 violates the National Environmental Policy Act by failing to address the environmental impacts of the waste that it will generate in the absence of licensed disposal facilities or capability to isolate the radioactive waste from the environment. PEF's environmental report does not address the environmental, environmental justice, health, safety, security or economic consequences that will result from lack of permanent disposal for the radioactive wastes generated.[30]

The issue of long-term radioactive waste management and disposal of Class B, C and Greater than C "low-level" radioactive waste is not adequately addressed in the Levy County Units 1 & 2 COLA. Some of the waste in these Classes remains radiologically hazardous for literally millions of years.

1. The Environmental Report in Section 3.1.1.5 simply describes a radioactive waste

30 Joint Petitioners recognize that this contention raises a challenge to the generic assumptions and conclusions in Table S-3. In NIRS et al comments on the radioactive waste confidence decision [U.S. Nuclear Regulatory Commission, "Waste Confidence Decision Update," *Federal Register* v. 73, no. 197 (October 9, 2008), pp. 59551 to 59570] submitted today February 6, 2009 to the NRC, we have asked the US NRC to prepare a comprehensive Environmental Impact Statement on the environmental impacts of the uranium/nuclear power fuel chain waste streams including revising table S-3. We respectfully submit that the information submitted in this contention constitutes new and significant information, not considered in any previous environmental impact statement ("EIS"), that must be considered in the EIS for the Levy County Units 1 & 2 because it would have a significant effect on the outcome of PEF's and the NRC's analyses of the environmental impacts of licensing the proposed plant. *Marsh v. Oregon Natural Resources Council,* 490 U.S. 360 (1989).
In the meantime, we seek admission of this contention in order to protect our right to ensure that any generic resolution of our concerns is made in a timely way and "plugged in" to the licensing decision in this particular case. *Baltimore Gas and Electric Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 101 (1983). *See also Commonwealth of Massachusetts v. NRC*, 522 F.3d 115 (1st Cir. 2008). In *Commonwealth of Massachusetts*, the First Circuit found that although the NRC may make generic determinations regarding the significance of environmental impacts and prohibit challenges to those generic determinations in individual proceedings, it nevertheless must "consider any new and significant information regarding environmental impacts before renewing a nuclear power plant's operating license." 511 F.3d at 127. Moreover, while the NRC may "channel" into a generic rulemaking the challenging party's concerns about the effects of new and significant information on an individual licensing decision, the NRC may not refuse to provide "at least one path by which the [challenging party] may establish a connection" between the rulemaking and the licensing proceeding, thereby ensuring that the result of the rulemaking proceeding will be applied in the individual licensing case. *Id*. at 128. In order to ensure that a "connection" is maintained between any rulemaking petition that the Joint Petitioners may bring and the Joint Petitioners' right to seek application of new and significant information to this proceeding, the Joint Petitioners request that this contention be admitted and held in abeyance pending the outcome of the

building with:

> "facilities for segregated storage of various categories of waste prior to processing, for processing by mobile systems, and for storing processed waste in shipping and disposal containers."

Section 3.5.3. Solid Waste Management System expands the description of the building and the management system, stating:

> The solid waste management system (WSS) is designed to collect and accumulate spent ion exchange resins and deep bed filtration media, spent filter cartridges, dry active wastes [DAW], and mixed wastes generated as a result of normal plant operation, including anticipated operational occurrences. The system is located in the auxiliary and radwaste buildings. Processing and packaging of wastes are by mobile systems in the auxiliary building rail car bay and in the mobile systems facility part of the radwaste building. The packaged waste is stored in the auxiliary and radwaste buildings until it is shipped offsite to a licensed disposal facility.

Clearly off-site disposal of waste is part of the plan; however at this time, such off-site disposal is not available to waste generators in Florida. This section states that the system has a: "60-year design objective and is designed for maximum reliability, minimum maintenance, and minimum radiation exposure to operating and maintenance personnel." Neither the application nor the ER nor the FSAR indicate that the intent is to store Class B, C and Greater than C wastes for 60 years nor is there indication that the facilities could accommodate physically or otherwise such an accumulation. The intent is that the facility will prepare waste for routine shipment to a disposal site for 60 years while no such disposal site is currently available, let alone guaranteed available in future decades. The planning omits this essential information. Nonetheless, as stated above, the duration of potential hazard associated with this waste is considerably longer than 60 years. There are no regulations that specifically guide this situation. Reference is made

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generic proceeding.

elsewhere to NRC guidance for extended storage but not potentially permanent or very long term storage.

Applicant states that the systems are:

> "designed to minimize releases from reactor operation so values are as low as reasonably achievable (ALARA). The systems are capable of meeting the design objectives of 10 CFR 20 and 10 CFR 50, Appendix I."

These are the routine release levels and the applicant provides no detail regarding the ongoing onsite management and potential impact from permanent or very long term-storage of all the B, C and >C radioactive waste from operations on the site of generation. No explanation is offered for how the applicant will meet this plan in the absence of a licensed disposal site.

Applicants apparently assume that they will be able to send their Class B, C, and Greater-Than-Class-C radioactive waste offsite. No facility in the United States is licensed and able to accept for disposal, Class B, C or Greater-Than-C radioactive waste from the Levy County Units 1 & 2 nuclear power reactors. The applicant fails to offer a viable plan for disposal of Class B, C and Greater-than-C so-called "low-level" radioactive waste generated in the course of operations, closure and post-closure of Levy County Units 1 & 2.

The simple fact is that Applicants fail to address how so-called "low-level" radioactive waste from the operation and closure/dismantlement and decommissioning of Levy County Units 1 & 2 will be isolated from the environment and permanently disposed of.

There is no disposal site licensed for the Classes B and C or for Greater-than-C radioactive waste that would be generated by operation of Levy County Units 1 & 2. The only operating disposal sites that take Classes B and C waste (and possibly >C on a case-by-case basis) are in Richland WA and Barnwell SC and neither will accept radioactive waste from outside of the Northwest, Rocky Mountain and Atlantic Compacts. The recently licensed Texas site is limited to Texas and Vermont waste.

Processors could change the form of the waste, but the radioactivity will remain, requiring isolation and disposal. Although there are experiments at diluting or down-blending higher concentration wastes to lower concentrations, this is not an accepted routine and has not been analyzed nationally to consider the environmental, health and economic effects of making such a practice routine.

Thus it is reasonable to expect that all Class B, C and Greater-than-C radioactive waste from the proposed Levy County Units 1 & 2 nuclear reactor will remain onsite indefinitely. [Table S-3 assumes that these wastes will be disposed of at “land burial facilities,” however. As mentioned in footnote above petitioners are petitioning NRC to reassess S-3 in the context a comprehensive environmental impact statement on nuclear power and fuel chain wastes.]

The environmental impacts of leaving these wastes onsite must be addressed in order for the US Nuclear Regulatory Commission to comply with NEPA. It is imperative that the safety and security issues of extended onsite storage, de-facto disposal, be addressed prior to generation of the waste because the so-called “low-level” radioactive

waste for which there is no disposal available is the hottest, most concentrated [31] waste in the category. The Environmental Report does not but should also evaluate the impacts of licensing the site itself under 10 CFR Part 61 (licensed permanent radioactive waste disposal) or Florida's compatible agreement state regulations for Class B and C waste. The Environmental Report should also address the fact that Greater-than-C wastes require disposal requirements that are even more protective than Classes B and C in 10 CFR 61 and must be disposed of in a deep geologic repository unless a specific exemption is granted. For on-site disposal of Greater-than-Class C waste to be carried out, it will have to be shown that shallow land burial there would be equivalent to the more stringent requirements and protective intent of 10 CFR 61.55.

Onsite long-term storage and disposal could significantly increase the environmental, safety and security risks of the Levy County Units 1 & 2 site. Therefore serious consideration must be given to licensing the site itself under 10 CFR Part 61 (licensed permanent radioactive waste disposal) or Florida's compatible agreement state regulations for Class B and C waste. Greater-than-C wastes require disposal requirements that are even more protective than Classes B and C in 10 CFR 61 and must be disposed of in a deep geologic repository unless a specific exemption is granted. For on-site disposal of Greater-than-Class C waste to be carried out, it will have to be shown that shallow land burial there would be equivalent to the more stringent requirements and protective intent of 10 CFR 61.

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31 GAO report indicates some of this waste can give a lethal dose in 20 minutes if exposed unshielded. GAO-RCED-98-40R Questions on Ward Valley pages 49-52, 1998.

Since Applicants might argue that offsite storage and treatment are potential options, it should be noted that radioactive waste sent for offsite storage and processing could be returned to Levy County Units 1 & 2, under certain circumstances. This is not addressed in the COL.

PEF also claims that its systems are:

> "designed to minimize releases from reactor operation so values are as low as reasonably achievable (ALARA). These systems are designed and maintained to meet the requirements of 10 CFR 20 and 10 CFR 50 App. I."

These are the routine release levels and the applicant provides no detail regarding the ongoing onsite management and potential impact from storage of all the B, C and >C radioactive waste from operations on the site of generation.

The decommissioning planning appears to assume that the process-generated "low-level" radioactive will not be present onsite at time of closure. In Section 1.3.1, the decommissioning cost estimate does not reference the cost of Class B, C and Greater-than-C radioactive waste that may be stored on site at that point. Section 1.3.3 Decommissioning Costs and Funding – Status Reporting provides no recognition of the increased costs that may be associated with disposal of a cumulative total LLRW from operations in addition to the LLRW generated by dismantling the facility. Section 1.3.4 Recordkeeping Plans Related to Decommissioning Funding does not mention record

keeping for LLRW in the event that it is retained on-site up to the time of decommissioning.

In 5.9 Decommissioning, there is no consideration of the potential for cumulative total of operations waste (so-called "LLRW") being at the site. [32]

> "Decommissioning a nuclear power facility has a positive environmental impact. The major environmental impact, regardless of the specific decommissioning option selected, is the commitment of small amounts of land for waste burial in exchange for the potential re-use of the land where the facility is located."

The lack of permanent disposal for so-called "low-level" Class B, C and Greater-Than-C radioactive waste that would be routinely generated from Levy County Units 1 and 2, and the failure of the COL application to fully address potentially permanent on-site storage for those long lasting wastes violates environmental and safety and security requirements. There is no justification provided for producing long-lasting, intensely radioactive wastes for which no disposal exists. There is no realistic plan for isolation of the wastes or permanent disposal of the wastes. Considering the long history of failed so-called "low-level" radioactive waste disposal sites in the country, assumptions that new ones will be available are not justified.

Contention 8 A substantial omission in Progress Energy Florida's (PEF) COL application to build and operate Levy County Nuclear Station Units 1 & 2 is the failure to address the absence of access to a licensed disposal facilities or capability to isolate the radioactive waste from the environment. PEF's FSAR does not address an alternative

32 Levy County ER, Chapter 5.9 Decommissioning Rev 0, Page 5-146.

plan or the safety, radiological and health, security or economic consequences that will result from lack of permanent disposal for the radioactive wastes generated.

All citations and basis for the above CONTENTION 7 are incorporated, by reference in this contention.

Chapter 1 of the applicant's FSAR for Levy units 1 and 2 states:

> This Final Safety Analysis Report (FSAR) incorporates the Design Control Document (DCD) (as identified in Table 1.6-201) for a simplified passive advanced light water reactor plant provided by Westinghouse Electric Company, the entity originally sponsoring and obtaining the AP1000 design certification documented in 10 CFR Part 52, Appendix D. Throughout this FSAR, the "referenced DCD" is the AP1000 DCD submitted by Westinghouse as Revision 16 including any supplemental material as identified in Table 1.6-201. Unless otherwise specified, reference to the DCD refers to Tier 2 information.

11.4.6 is specifically referenced: COMBINED LICENSE INFORMATION FOR SOLID WASTE MANAGEMENT SYSTEM PROCESS CONTROL PROGRAM.

The Westinghouse AP1000 CDC Rev 16 includes the following COL Item in Section 11.4.6:

> The Process Control Program (PCP) describes the administrative and operational controls used for the solidification of liquid or wet solid waste and the dewatering of wet solid waste. Its purpose is to provide the necessary controls such that the final disposal waste product meets applicable federal regulations (10 CFR Parts 20, 50, 61, 71, and 49 CFR Part 173), state regulations, and disposal site waste form requirements for burial at a low level waste (LLW) disposal site that is licensed in accordance with 10 CFR Part 61.

The Westinghouse DCD describes, at the functional level, elements of the process Control Program (PCP). The Westinghouse PCP is incorporated by reference in

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the Levy County Units 1 & 2 FSAR, chapter 11, however the description ultimately assumes off-site disposal of so-called “low-level” waste will be available.

The COL, ER and FSAR indicate that thousands of curies in “low-level” radioactive waste will be generated from operation of Levy County Nuclear Station Units 1 & 2 but none provide analysis of the safety and security of Class B, C and Greater than C wastes that will accumulate at the site in absence of final disposal. Although there is discussion of the routine treatment and processing that would and could be carried out on-site there is not an assessment of the very long term economic, safety, security and environmental consequences of storing Class B, C and Greater than C radioactive waste (regardless of form) nor of the routine and potential accidental releases over time. For example, hurricane frequency and intensity has increased in recent history and “low-level” radioactive wastes are not intended to be stored in the containment building that houses the reactor, thus will not be as protected as other parts of the site. No estimates are made for additional emissions and doses from processing and storage of these long-lasting concentrated wastes.

Some so-called “low-level” radioactive waste can give high doses of radiation if one is exposed unshielded. According to the Government Accounting Office (GAO/RCED-98-40R Questions on Ward Valley, 5-22-98 pp. 49-52) some so-called ‘low-level’ radioactive waste can give a lethal dose at one meter, unshielded, in approximately 20 minutes. In addition, so-called ‘low-level’ radioactive wastes

"contain every radionuclide found in 'high-level' radioactive waste…low-level radioactive wastes constitute a very broad category containing many different types and concentrations of radionuclides, including the same radionuclides that may be found in high-level radioactive wastes."

These include plutonium-239 (hazardous life 250 to 500 thousand years), iodine-129 (hazardous life 170 to 340 million years), strontium 90 (hazardous life 280-560 years) and cesium-137 (hazardous life 300 to 600 years).

The PEF COL application, FSAR and ER fail to explain or address how safety and security issues of extended on-site storage/de-facto disposal of radioactive waste will be maintained with increasing amounts of waste without permanent offsite disposal. The Environmental Report in Section 3.5 simply describes the generation of waste during operations with the expectation of shipment offsite:

"Solid radioactive wastes are collected and packaged for temporary storage, shipment and offsite disposal."

Section 3.5.4. Solid Radioactive Waste System describes collection, processing and storage but does not address long term storage onsite. Reference is made elsewhere to NRC guidance for extended storage but not potentially permanent or very long term storage.

"Once the activity has reduced to a low enough level, the drums are transported to an offsite repository for

final disposal."

Despite mention in Chapter 11 of the FSAR "Radioactive Waste Management," the assumption appears to be that there will be a site that accepts the full range of waste generated at Levy County Nuclear Stations 1 and 2. The Process Control Program, while explaining temporary storage, does not explain how the application will comply with the need for permanent disposal of long-lasting radioactive in the absence of licensed disposal facilities for Classes B, C and Greater-Than-C waste. Even waste sent offsite to vendors, it could be returned for storage in the absence of permanent disposal. The unsubstantiated assumption is made that the vendor will render all waste suitable for some offsite disposal site. This is not addressed in the COL or supporting documents.

Contention 9 PEF environment report omits consideration of major renewable energy option: solar thermal hot water.

The PEF environment report has an omission in 9.2.2.3, Solar Power. Pursuant to 10 C.F.R. § 2.309(f)(1) the co-petitioners contend that PEF failed to consider small scale solar thermal applications in its review of solar thermal technologies. Unlike photovoltaics and centralized solar concentrator technology, solar domestic water heaters have the potential to displace base load over the entire 24 hour day because of the thermal energy storage aspect of the technology. This was not considered.

This contention incorporates by reference the information on Energy Efficiency provided in contention 10 since solar thermal water heating is a major source of

reduction in power consumption, averaging 20% of an all electric home's energy use, and therefore could significantly reduce need for power production.

Evidence for the factual basis of this contention can be found in numerous studies; a comprehensive report by the ACEEE, entitled Potential for Energy Efficiency and Renewable Energy to Meet Florida's Growing Energy Demand, report #E072 provided as exhibit Quillen-01.

A pilot program in Lakeland, Florida found that a group of Lakeland Electric utility customers were able to replace 8.3% of their energy consumption by installing thermal solar water heaters on their homes. That project received financial support from the Florida Energy Office and the U.S. Department of Energy (DOE) and technical assistance from the Florida Solar Energy Center (FSEC), and was implemented in partnership with Lakeland Electric Company. (See *Florida Sunshine — Natural Source for Heating Water, SEP Case Study, Florida, May 2004,* posted on-line at http://www.nrel.gov/docs/fy04osti/36054.pdf as of February 6, 2009)

Adopting a more expensive alternative energy source such as nuclear will be detrimental to the economic well being of ratepayers, and burdens the members represented by the co-petitioners with the potential for radiological consequences of accidents and events at the proposed Levy units 1 and 2.

CONTENTION 10 PEF has grossly underestimated the potential for conservation and efficiency in its environment report.

The PEF environment report has an omission in 9.2.1.1, Initiating Conservation

measures. Pursuant to 10 C.F.R. § 2.309(f)(1) the co-petitioners contend that PEF has grossly underestimated the potential for Energy Efficiency and Conservation in it's service areas. The current realities is that their conservation efforts are little more than rate payer financed public relation campaigns that make a half hearted effort at demand side management.

Evidence for the factual basis of this contention can be found in a study by ACEEE, “Potential for Energy Efficiency and Renewable Energy to Meet Florida's Growing Energy Demand,” report #E072 (provided as exhibit Quillen --01), as well as numerous other publications. In it's summary, this study states that with the proper incentives and leadership, 30% of Florida's energy needs could be met by conservation and renewable resources in 2023. There is no basis for claiming that the PEF service area is uniquely different and without similar potential.

In addition, aggressive conservation and efficiency would not require further transmission line construction. Long distance transmission lines carry many costs and risks that are not associated with increases in efficiency, such as large power outages in storms, high maintenance costs, and transmission losses that increases over distance.

In addition, energy efficiency does not increase the burden of water use / water consumption and water withdrawals, nor does it generate waste. These factors – both in terms of expense, environmental impact (or lack thereof) and human health and quality of life must be included in a full assessment of these omitted options.

Adopting a more expensive energy source such as nuclear will be detrimental to the economic well being of ratepayers and burdens the members represented by the co-

petitioners with the potential for radiological consequences of accidents and events at the proposed Levy units 1 and 2.

Contention 11 The basis for PEF's analysis of renewable energy options is inherently flawed since all options assessed are assumed to be centralized power production sites; PEF fails to assess distributed generation using renewable energy technologies.

Unique to fuel-free power generation (wind, solar, appropriate hydro) is the opportunity for safe installation of power generation at, or near, the point of power consumption. The inherent efficiency and scale of economy is lost if the analysis assumes that these technologies are installed in a central location and the power is then shipped on distribution lines.

Alternative energy resources such as solar are most effective when the power is produced at or near the point of use, i.e., decentralized and supplying energy at the each individual home and business site rather than produced in a large scale centralized plant and distributed over long distance transmission lines. Long distance transmission lines carry many costs and risks that are not associated with locally produced alternative energy, such as large power outages in storms, high maintenance costs, and increased loss of electricity over expanded distances.

In addition, decentralized energy infrastructure does not increase the burden of water use / water consumption and water withdrawals, nor does it generate waste.

These factors – both in terms of expense, environmental impact (or lack thereof) and human health and quality of life must be included in a full assessment of these omitted options.

PEF fails to include distributed power generation, for instance solar leasing (see Deutsch, “Sunny Side Up,” 2006, provided as exhibit Quillen-02), where PEF would install its solar PV equipment at the customer’s location, rather than a central location and the power customer would simply pay for the power produced. This business plan is being implemented in several parts of the country including utilities servicing rural Colorado and California as reported in Sunny Side Up.

Without analyzing renewable energy production on a decentralized basis, PEF has not adequately assessed its potential to deliver the needs PEF projects in a cost-effective envelope.

When assessed in the context of distributed energy infrastructure based on electronic interface (so-called “smart grid”) so that consumption is responsive to production capacity and efficient use of the electricity generated, then decentralized generation with renewable energy makes far more sense than a large thermal-power facility with its inherent challenges of security, safety, and probably most important, water consumption. Distributed generation with fuel-free renewable resources is the ultimate in “fuel diversification” and energy independence[33] since it removes the burden of ANY fuel supply whatsoever. The construction of another large scale base load nuclear plant, along with hundreds of miles of high voltage transmission lines, is not the best

investment we can make towards a clean,safe, sustainable and carbon neutral34, energy future; therefore the interests of members of the co-petitioning organizations will not be well served by this plan, and will, instead be subjected to unnecessary risks and hazards as outlined in this petition.

33 See S. David Freeman, 2007, Winning Our Energy Independence, Gibbs, Smith. Freeman was Senior White House advisor on energy to President Carter, and is completely serious that we can meet our energy needs in this existing society with renewable energy resources.

34 See, among others, Dr. Arjun Makjani, 2007. Carbon Free; Nuclear Free: A Roadmap for US Energy Policy IEER Press. The case is demonstrated that not only is it possible to meet our energy needs while phasing out BOTH coal and nuclear, it is cheaper than the Business as Usual model and achieves climate stabilization goals more quickly.

CONCLUSION

The Petitioners NIRS, The Ecology Party of Florida and The Green Party of Florida request that their petition to intervene and request for hearing be granted. The foregoing contentions should be admitted because they clearly satisfy all of the Commission's requirements in 10 C.F.R. § 2.309.

Respectfully submitted this the 6th day of February 2009.

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CERTIFICATE OF SERVICE

I hereby certify that copies of this PETITION FOR INTERVENTION AND REQUEST FOR HEARING BY THE GREEN PARTY OF FLORIDA, THE ECOLOGY PARTY OF FLORIDA AND NUCLEAR INFORMATION AND RESOURCE SERVICE was served on the following via email and via the EIE system:

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This 5th day of February, 2009,

_____signed_____
Mary Olson