BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 110009-EI
FLORIDA POWER & LIGHT COMPANY

MARCH 1, 2011

TURKEY POINT 6&7 - 2009 & 2010
EXTENDED POWER UPRATES - 2010

TESTIMONY & EXHIBITS OF:

NILS DIAZ

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

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DIRECT TESTIMONY OF NILS J. DIAZ

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Q. Please state your name and business address.

A. My name is Nils J. Diaz. My business address is 2508 Sunset Way, St. Petersburg Beach, Florida, 33706.

Q. By whom are you employed and what is your position?

A. I am the Managing Director of The ND2 Group (ND2). ND2 is a consulting group with a strong focus on nuclear energy matters. ND2 presently provides advice for clients in the areas of nuclear power deployment and licensing, high level radioactive waste issues, and advanced security systems development.

Q. Please describe your other industry experience and affiliations.

A. I presently hold policy advising and lead consulting positions in government and industry, as well as board memberships in National Labs and private institutions. I previously served as the Chairman of the United States Nuclear Regulatory Commission (NRC) from 2003 to 2006, after serving as a Commissioner of the NRC from 1996 to 2003. Prior to my appointment to the NRC, I was the Director of the Innovative Nuclear Space Power and Propulsion Institute for the Ballistic Missile Defense Organization of the U.S.

Department of Defense, and Professor of Nuclear Engineering Sciences at the University of Florida. I have also consulted on nuclear energy and energy policy development for private industries in the United States and abroad, as well as the U.S. Government and other governments. I have testified as an expert witness to the U.S. Senate and House of Representatives on multiple occasions for the last 25 years. I recently served as Commissioner, Florida's Energy and Climate Commission. Additional details are provided in my Summary Resume, which is attached as Exhibit NJD-1.

Q. Are you sponsoring any exhibits in this case?

A. Yes. I am sponsoring Exhibits NJD-1 through NJD-5, which are attached to my direct testimony.

Exhibit NJD-1	Summary Resume of Nils J. Diaz, PhD
Exhibit NJD-2	NRC Combined Licensing Processes
Exhibit NJD-3	New Reactor Licensing Applications
Exhibit NJD-4	Nuclear Power Plant Technology Evolution
Exhibit NJD-5	NRC Letter to FPL Regarding Withdrawal of EPU LAR for St. Lucie Unit 1

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to provide a summary of the role of the NRC in licensing FPL's Turkey Point Units 6 and 7 and to discuss issues important to the continuing project decision-making process. I arrive at the conclusion that FPL's management approach to the Turkey Point 6 & 7 project and related decisions is consistent with the overriding objective of minimizing

nuclear power plant cost and schedule risks, in accordance with the U.S. system of regulation of nuclear power and with best management practices. I also address one issue related to FPL's pursuit of NRC licensing approval for the Extended Power Uprate project at its St. Lucie Nuclear Plant, Unit 1.

Q. Please describe how your testimony is organized.

A. My testimony includes the following sections:

1. Roles and Responsibilities of the NRC
2. Statutory Responsibilities of the NRC
3. New 10 CFR Part 52 Reactor Licensing Framework
4. Generation III+ Reactors and AP1000 Design Certification Status
5. Spent Fuel Disposition and Waste Confidence Decision
6. FPL's Project Management Approach to Turkey Point 6 & 7
7. FPL's Pursuit of NRC Licensing Approval for St. Lucie Unit 1 Extended Power Uprate

Q. Please summarize your testimony.

A. My testimony addresses the NRC's role and responsibility to conduct an effective and efficient licensing process for new nuclear power plants, as well as other regulatory and oversight activities in which the NRC engages to accomplish its safety objectives. The testimony discusses opportunities for public participation in NRC licensing, and the protection afforded by employee concerns programs that were encouraged by NRC policy statements. The NRC, as the successor to the Atomic Energy Commission (AEC), is endowed by the Atomic Energy Act of 1954, as amended, with

exclusive jurisdiction over nuclear safety and by the additional enacted laws forming the statutory frame for protection of public health and safety and the environment. Next, a summary discussion is provided for the primary nuclear power plant regulation, 10 CFR Part 50, and the enhanced licensing process codified in 1989 by the NRC at 10 CFR Part 52. Then, I discuss the risk minimization advantages and benefits implemented by the combined licensing process of Part 52, including a brief description of the synergy between a Combined Operating License Application (COLA) and a Design Certification. The status of the Turkey Point 6 & 7 COLA is addressed within the context of the Generation III+ AP1000 technology advantages and its design certification. A brief update is then provided on the spent nuclear fuel (SNF) disposition program and the NRC Waste Confidence Decision, again placed in the context of the ongoing licensing proceedings for the Turkey Point COLA. I review FPL management decisions for the deployment of their nuclear power plants. Based on my experience, a review of FPL's decisions leads me to conclude that the stepwise approach to licensing and project scheduling for the Turkey Point new units, and its decision to extend their target operation dates, is prudent and reasonable. Finally, I conclude that FPL's decision to withdraw and refile the NRC's License Amendment Application for St. Lucie Unit 1 was prudent.

Roles and Responsibilities of the NRC

Q. What are the responsibilities and mission of the NRC?

A. The NRC was created as an independent agency by the Energy Reorganization Act of 1974, which abolished the AEC and transferred its regulatory functions to the NRC. The Atomic Energy Act of 1954, as amended, provides the foundation for regulating the nation's commercial nuclear power industry. The Act imposes on the NRC the obligation to protect the public health and safety and to ensure that all civilian nuclear materials are used in a safe and proper manner. The NRC's mission is to license and regulate the nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, promote the common defense and security and protect the environment. The NRC achieves its mission by imposing and regulating a series of safety objectives that enables the safe and secure use and management of radioactive materials and nuclear fuels for beneficial civilian purposes.

Q. What primary NRC activities are conducted to accomplish its safety objectives?

A. The NRC conducts multiple primary activities to accomplish its safety objectives, including: developing regulations and guidance related to the uses of nuclear materials; licensing or certifying applicants to use nuclear materials, operate nuclear facilities, and decommission facilities; inspecting and assessing licensee operations and facilities to ensure that licensees comply

with NRC requirements and taking appropriate enforcement action when necessary; evaluating operational experience of licensed facilities, activities and events; conducting research, holding hearings, and obtaining independent reviews to support regulatory decisions; and conducting activities related to the common defense and security, specifically controlling access to nuclear materials and coordinating with international efforts to control the proliferation of nuclear materials.

Q. How is NRC's radiological safety oversight exercised?

A. The NRC sets the rules that users of radioactive materials must follow to prevent or minimize radiation exposure, with 10 CFR Part 20 as the primary set of standards and regulations. The NRC's regulations are intended to protect workers using radioactive materials and the general public from the potential hazards of radioactivity. In fact, radiological protection is the primary objective for achieving the NRC mission of protecting public health and safety. Therefore, NRC regulations are constantly reviewed and updated to improve radiological protection, including efforts to minimize exposure below regulatory standards. Changes to the regulations and new regulations are implemented using standard federal practices, based on recommendations from the NRC staff, industry organizations and academia, and interested members of the public to improve radiological protection for individuals and the public. The radiological protection record of workers and the public at nuclear power plants continues to surpass conservative regulatory requirements.

Q. Please explain how NRC licensing conditions are monitored at operating nuclear power plants.

A. An NRC license authorizes an applicant to operate a nuclear facility in accordance with very specific licensing conditions and referenced applicable regulations and standards. The license describes the approved conditions and technical basis the NRC relies on for the safety and security of the public, and therefore, the corresponding oversight to ensure compliance. The NRC conducts inspections during construction to ensure the plant is being constructed as licensed, and during operations to ensure the plant is operated as licensed and with adequate protection of public health and safety, and the environment. Both routine and special inspections are conducted, using "resident" inspectors at each of the nuclear power plant and major industrial facilities and inspection teams from any one of four NRC regional offices and from NRC headquarters. The objective of the inspection program during plant operation is to monitor performance in three key areas: (1) facility safety, achieved by avoiding accidents and reducing the consequences of accidents if they occur; (2) radiation safety for plant workers and the public, to avoid unnecessary radiation exposure during routine operations; and (3) safeguards, to protect plants against sabotage or other security threats. The NRC uses a risk-informed and performance-based approach for most of its monitoring programs. NRC inspections are focused on activities where the potential risks are greatest, and include a process for assessing licensee performance. The performance assessment uses objective measures in key areas referred to as

the "cornerstones" of safety and security. The associated enforcement process provides a systematic way to respond to violations in a consistent and predictable manner, in accordance with the potential safety impact.

Q. Please explain how the NRC investigates allegations and ensures that licensees implement effective employee concerns programs.

A. The NRC conducts investigations of allegations of wrongdoing or intentional violation of NRC regulations or license requirements, and has established practices to encourage concerned individuals to report potential safety or security issues, and a systematic process for evaluating allegations and investigation findings.

The NRC has a well-established and tested framework for protecting the rights of individuals to raise safety concerns without fear of retaliation. The Energy Reorganization Act of 1974 that created the NRC included provisions for "whistleblower protection." The NRC subsequently extended the principles of "whistleblower" protection to a process for managing the "differing professional opinions" of the NRC staff and to establish a policy expectation for licensees to establish "employee concerns programs" to promote an environment that encourages individuals to raise safety concerns.

In 1989, the NRC published its "Policy Statement on the Conduct of Nuclear Power Plant Operations" to clarify the NRC's expectations regarding personal commitment and accountability of all individuals engaged in any activity

affecting the safety of nuclear power plants. In 1996, the NRC published a policy statement, "Freedom of Employees in the Nuclear Industry to Raise Safety Concerns Without Fear of Retaliation," which sets forth its expectation that licensees and other employers subject to NRC authority will establish and maintain safety-conscious environments in which employees feel free to raise safety concerns, both to their management and to the NRC, without fear of retaliation. The NRC is currently considering regulatory action in the area of nuclear safety culture to enhance the commitment to a working environment and encourages individuals to raise safety and security concerns without fear of retaliation.

Q. How are public concerns addressed during the NRC licensing process?

A. The Atomic Energy Act of 1954 provides an opportunity for a hearing to any person whose interest may be affected by Commission proceedings on the granting, suspending, revoking or amending a reactor license. The NRC's regulations have established the process for conducting public hearings, in accordance with the federal administrative procedures. The NRC has established licensing boards, including appointed administrative judges, to implement the hearing process and establish a record for any subsequent litigation. The adjudicatory process is described in more detail below, under the discussion of the reactor licensing process.

Statutory Responsibilities of the NRC

Q. Please describe the responsibilities of the NRC.

A. The NRC is the independent Government oversight agency regulating the civilian uses of nuclear materials, with responsibilities for protection of public health and safety, the environment and the common defense and security. It is empowered by the Atomic Energy Act with exclusive jurisdiction over the safe operation of nuclear power plants. NRC's implementing regulations are contained in Title 10 of the Code of Federal Regulations (10 CFR).

Subsequent to enactment of the AEA, additional laws were enacted establishing the present NRC's statutory framework, and contributed to the establishment of the regulatory practices associated with the safe use of nuclear materials. These enacted laws are briefly summarized below.

- The Energy Reorganization Act of 1974 establishes the NRC as an independent agency responsible for the safety regulation of the civilian uses of nuclear materials. This statute gave the NRC its collegial commission structure and established its major offices. A later amendment to the Act also provided protections for employees who raise nuclear safety concerns.
- The Nuclear Waste Policy Act of 1982 establishes the federal government's responsibility to provide for the permanent disposal of high-level radioactive waste and SNF, and the industry's responsibility

to bear the costs of permanent SNF disposal. Amendments to this Act have mostly focused on the efforts of DOE to develop a national repository at Yucca Mountain, Nevada. The resolution of SNF disposal is now on hold and surely to be revised since the Executive Branch announced the termination of the Yucca Mountain project and the formation of a Blue Ribbon Commission to make recommendations on permanent SNF disposal options.

- The Low-Level Radioactive Waste Policy Amendments Act of 1985 gives the states the responsibility to dispose of low-level radioactive waste (LLW) generated within their borders and allows the states to form compacts to locate facilities to serve a group of states. This Act provides that LLW facilities will be regulated by the NRC or by states that have entered into agreements with the NRC under section 274 of the Atomic Energy Act.
- The Uranium Mill Tailings Radiation Control Act of 1978 establishes programs for the stabilization and control of mill tailings at uranium or thorium sites, both active and inactive, in order to prevent or minimize, among other things, the diffusion of radon into the environment. Title II of the Act gives the NRC regulatory authority over mill tailing at sites under NRC licenses on or after January 1, 1978.
- The Nuclear Non-Proliferation Act of 1978 seeks to limit the spread of nuclear weapons by, among other things, establishing criteria

governing U.S. nuclear exports licensed by the NRC and taking steps to strengthen the international safeguards system.

- The National Environmental Policy Act (NEPA) establishes that, for any major federal action that could significantly affect the quality of the environment, a detailed environmental impact statement must be prepared describing the environmental impacts of, and possible alternatives to, the proposed action. NEPA also provides that an environmental impact statement must accompany proposals involving major federal actions through the agency review process. NEPA also establishes the Council on Environmental Quality, which issues regulations on the preparation of environmental impact statements and on public participation in the preparation of the statements.
- The Administrative Procedure Act (APA in 5 U.S.C. Chapters 5 through 8) is the fundamental law governing the processes of federal agencies. Its original focus was on rulemaking and adjudication. It requires, for example, that affected persons be given adequate notice of proposed rules and an opportunity to comment on the proposed rules, to be published in the Federal Register. This Act gives interested persons the right to petition an agency for the issuance, amendment, or repeal of a rule. It also provides standards for judicial review of agency actions. The APA has been amended often and now incorporates several other acts that cover a range of administrative processes, including the Freedom of Information Act. The

Government in the Sunshine Act requires that collegial bodies such as the Commission hold their meetings in public, with certain exceptions for meetings on matters such as national security or personnel.

10 CFR Part 52 Reactor Licensing Framework

Q. Please describe the current NRC nuclear plant licensing structure.

A. It is appropriate to first review the regulatory framework for the licensing of nuclear power plants that was in place prior to 1989 to better understand the current licensing process. The original NRC licensing process for nuclear reactors, codified in section 189 of the AEA, was set forth with more specificity in Part 50 of Title 10 of the Code of Federal Regulations; it was used to license all power reactors presently operating in the United States. The main requirements for nuclear power plant regulation are, henceforth, established by Part 50 and the current licensing process and ensuing regulations are subjected to its implementation, with the notable exceptions of the issuance of a combined construction and operating license and other licensing improvements effected by Part 52.

The original Act imposed a two step licensing process on an applicant for an operating license, as regulated by Part 50. First, the applicant was required to obtain a construction permit. The construction permit application was a significant undertaking, requiring the preparation of a Preliminary Safety

Analysis Report, demonstrating the reactor technology and site suitability, and preparation of an Environmental Report to satisfy NEPA requirements. Section 189 of the AEA then required the NRC to hold a mandatory hearing for all construction permit applications, regardless of whether any interested party sought to contest the application. In the second step of the process, after securing the construction permit, the applicant was required to obtain an operating license to authorize plant operations, after construction was completed. To complicate matters, plant construction was started before the design was substantially completed and regulatory reviews of technical issues continued during construction. The operating license application was also a significant undertaking, the goal of which was to enable the NRC to make the findings required by the AEA and NEPA. The applicant was required to submit a Final Safety Analysis Report and an Environmental Report with the operating license application. Section 189 of the AEA requires the NRC to provide an additional hearing opportunity at the operating license stage. Numerous operating license proceedings were challenged at this stage, after significant investments were made and plant construction was substantially completed. Extensive delays in nuclear plant licensing became common and costly.

In 1989, the NRC adopted a streamlined, combined licensing process for nuclear power plants, embodied in Part 52 of NRC's regulations. This process was codified in Section 185(b) of the AEA by the Energy Policy Act of 1992,

to achieve straightforward objectives of plant standardization and financial risk minimization, with well-defined safety and environmental reviews as a backbone. Part 52 allows for a single license to be issued to an applicant, consisting of a combined construction permit and operating license, after fulfilling all pertinent safety requirements. In essence, the revised NRC licensing process still contains the elements needed to make the necessary reviews and safety determinations, including public involvement, safety review, independent review by the Advisory Committee on Reactor Safeguards (ACRS), environmental review, public hearing and continued NRC oversight, in a more efficient and effective package. Part 52 provides applicants with the opportunity to request early approval of sites for nuclear plants, in advance of an application to construct and operate a nuclear power plant, and to reference a Certified Design that has complied with safety requirements and is approved by NRC in a rulemaking proceeding.

Q. Please explain the advantages of the Part 52 Licensing Process.

A. The revised combined licensing using Part 52 shifts the burden of proof for Combined Operating License (COL) applicants to the front end, deferring and therefore reducing financial and construction risks until the licensing review is favorably advanced. Part 52 is a brief yet powerful addition to nuclear power plant regulations that should resolve many of the problems of the two-step Part 50 licensing process. Part 52 consists of three separate and interacting components, as shown on Exhibit NJD-2, which can be used independently or jointly: the Early Site Permit, the Standard Design Certification and the COL.

The most important aspect of Part 52 is the COL because it is the only license that allows plant construction and operation. The Part 52 approach allows early resolution of safety and environmental issues. The issues resolved by the design certification rulemaking process and during the early site permit hearing process are not reconsidered during the combined license review. However, the Part 52 licensing process allows for full public participation, so that the issues associated with the design and site can be resolved before construction begins.

Q. What are the benefits of using the Design Certification process for a COL?

A. The Standard Design Certification is a significant complement to the COL license. The benefits of referencing a certified standard design in the COL application is that plant design issues that were resolved by NRC in the design certification process are entitled to finality in the COL process. Therefore, a COL applicant that references a certified design reduces the scope and length of the safety review, minimizes risk and costs, and adds predictability to the process by placing the burden of reactor safety reviews on a rulemaking that is not subject to subsequent adjudication. Under Part 52, the NRC can certify a reactor design for 15 years through the rulemaking process, independent of a specific site. An application for a standard design certification must contain the technically relevant design information, a design-specific probabilistic risk assessment and proposed Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) which are necessary and sufficient to provide reasonable

assurance that the plant is built and will operate in accordance with the design certification. The issues that are resolved in a design certification rulemaking are subject to more restrictive change processes than issues that are resolved through the issuance of a license. Important certified design requirements can only be changed by rulemaking, and the rule describes limited circumstances for other changes, maintaining the stability and standardization characteristics demanded of the Design Certification Rule (DCR).

Q. What are the key features of a COL?

A. A COL authorizes construction and conditional operation of a nuclear power plant. The COL application must contain essentially the same information required in an application for an operating license issued under 10 CFR Part 50, including financial and antitrust information. The application must also describe the ITAAC that are necessary to ensure that the plant has been properly constructed and will operate safely. When the application references a standard design certification, the applicant must perform the ITAAC for the certified design and the site-specific design features.

After issuing a COL, the NRC verifies that the licensee has completed the required ITAAC, and that the acceptance criteria have been met before the plant can operate. The NRC will then publish notice of the successful completion of the ITAAC. At least 180 days before the scheduled initial fuel loading, the NRC will publish a notice providing an opportunity for members of the public to participate in a hearing conducted by the Atomic Safety and

Licensing Board. The NRC considers a request for a hearing only if the request demonstrates that the licensee has not met the acceptance criteria specified in the COL.

Q. What is the status of FPL's COLA?

A. FPL submitted its COLA for Turkey Point Units 6 and 7 on June 30, 2009, and it was docketed by the NRC on September 4, 2009. The estimated schedule for a typical COLA review is approximately 30 months and 12 months for the final mandatory hearing, for a total of 42 months for the process leading to a COL. Based on the projected schedule, NRC review of the Turkey Point Units 6 and 7 COLA should be completed in 2013. It is important to note that the NRC is reviewing COL applications based on the reactor technology cited in the application, and is using a "Design-Centered Review Approach" to expedite review and approval of already reviewed identical parts of an application. In this approach, a lead application is selected as a Reference COL (R-COL) and subsequent "identical" applications as surrogates. All issues reviewed and resolved for the R-COL are considered resolved for all subsequent applications that conform to the same requirements; one expert NRC staff team is formed to review each R-COL and the subsequent "identical" COLAs. Only the site specific information, including environmental features, water usage, electrical grid requirements, and others, are reviewed individually. There are efficiencies to be gained in the timely and cost-efficient reviews using this method by both the NRC and the industry. The Turkey Point COLA cites the AP1000 reactor

technology and its associated design certification, and now uses the Vogtle COLA submitted by Southern Nuclear Operating Company as the reference plant. The Turkey Point COL is therefore depending on the progress of these proceedings.

The NRC has received petitions to intervene and for a hearing on the Turkey Point Units 6 and 7 project. The proposed contentions have been briefed and argued and are pending before the NRC's Atomic Safety and Licensing Board. The Board's decision whether to admit one or more contentions for litigation is expected in February 2011. If a contested hearing is held on the Turkey Point Units 6 and 7 COLA, it could delay issuance of the COL by several months.

Generation III+ Reactors and AP1000 Design Certification Status

Q. What are Generation III+ reactors and what are their advantages?

A. Generation III reactors were the first generation of advanced nuclear reactors with standardized designs to be considered under the new NRC licensing regulations (Part 52) in the 1990s. They were light water reactors with significant evolutionary improvements over the types of reactors in service today. The next generation of nuclear power plants is called Generation III+ reactors, which offer additional improvements over Generation III reactors in the areas of safety, state-of–the-art advances in Instrumentation and Controls,

materials, technology and construction techniques, economics and operational simplicity. Shown on Exhibit NJD-4, is a graphic representation of the evolution of nuclear power plant technology as a function of time, beginning with the first demonstration commercial reactors, employing Generation I technology.

The design enhancements for Generation III+ reactors were focused on increased plant safety, ensuring improvements to core cooling, containment integrity, and the capability to prevent or mitigate the consequences of accidents which could result in potentially hazardous offsite radiation doses. There was a definite emphasis in simplification, standardization, and the use of inherent safety features to carry out the intended safety functions. The bottom line objective was clear: new reactors were to be measurably safer, simpler, more independent of operator actions, and easier to operate and maintain. A new measuring stick employing probabilistic risk assessments was used to establish the safety case, supported by better documented operational experience and models. What was sought, and eventually built into the Generation III+ advanced designs, was one to two orders of magnitude improvement in the key risk factors, relative to present reactors. The designs were to be standardized to secure the safety gains and the reliability and economic advantages.

The AP1000 Nuclear Power Plant, the reactor selected by FPL for Turkey Point 6 & 7, is a Generation III+ reactor with passive safety features. Westinghouse was issued a Final Design Certification for the AP1000 in 2006. Westinghouse filed an Amendment to update the Design Certification (DC), including major improvements to meet enhanced NRC aircraft impact design standards. The AP1000 Design Amendment received a favorable review by the NRC in December 2010, with the issuance of the Final Safety Evaluation Report and approval by the Advisory Committee on Reactor Safeguards, and is pending an expected September 2011 rulemaking. Two AP1000s are under construction in China and the technology has been selected by seven US utilities for deployment as base-load units. This passive reactor design relies on redundant safety systems using inherent or passive means to maintain core cooling and integrity, without active injection of coolant by pumps, for the dominant spectrum of postulated accident conditions. The AP1000 design leads to a significant reduction of pipes, pumps, valves and cables, and therefore, to simplicity in operation and maintenance.

In summary, the AP1000 reactor attributes include: passive safety with no active control or operator intervention needed to avoid accidents; low accident probability (less than one core damage event for 1 million years of operation); modular design and construction for fewer components, less materials and less welding; improved fuel design for higher fuel burnup; standardized certified

design to expedite licensing and reduce capital cost; aircraft crash resistance; higher availability and operating life of 60 years or more and better load-following capability. It presently appears to be a best reactor technology and overall leading nuclear power plant for FPL's time frame and economical considerations.

Q. What is the status and significance of the AP1000 design certification?

A. On January 27, 2006, the NRC issued the original DCR for the AP1000 design in the Federal Register (71 FR 4464). While there was enough information provided for the NRC to make a safety determination, there were several important design issues that were not completed or needed upgrades to the 2006 AP1000 design certification, including a more comprehensive seismic safety analysis, updated Instrumentation and Control, Control Room Habitability, redesigned fuel racks and improved fuel design. Furthermore, the NRC issued revised requirements in 2007 to enhance the protection against aircraft impacts, which resulted in significant changes to the AP1000 Shield Building Design.

On September 22, 2008, Westinghouse made an update to its application to amend the original AP1000 Design Control Document (DCD). The update, Revision 17, contains changes from those submitted in May, 2007, under Revision 16. Revision 17 is referenced in the FPL COLA for Turkey Point 6 & 7. The innovative Shield Building design of the AP1000 was evaluated during the review process by the new, strict NRC requirements for airplane

impacts and other external events, resulting on an October 15, 2009 NRC notice establishing the need for Westinghouse to demonstrate the Shield Building capabilities to withstand severe external events. These requirements included: the design of the entire structure to function as a unit during Design Basis Event (DBE), the connection between the major structural components that must function after a DBE, and that the design of the tension-girder must be supported by a confirmatory test or validated analysis. To conform to these requirements, Westinghouse further enhanced the Shield Building structures design and provided requisite analysis confirming its functionality. On December 1, 2010, Westinghouse submitted Revision 18 to complete the documentation required for issuance of the staff's final evaluation. The NRC staff subsequently issued its Advanced Final Safety Evaluation, and concluded the AP1000 meets all regulatory safety requirements. On December 21, 2010 the Advisory Committee on Reactor Safeguards, an independent body advising the NRC on reactor safety matters, accepted the AP1000 design as safe to build and operate. On February 11, 2011, the NRC published for comment the proposed rule that would amend Westinghouse's certified AP1000 reactor design for use in the United States. As shown on Exhibit NJD-3, the current NRC published schedule expects the AP1000 DC rulemaking to be issued by approximately September 2011.

It is important to note the significance of this complete design certification rulemaking for the licensing of COLAs referencing the AP1000, and

especially so for the lead applications, like Southern Nuclear's Vogtle and South Carolina Electric and Gas Company's Summer plant. Since the DC is cited in the COL applications for the leading reactor projects, the final or mandatory adjudication proceedings for the COL cannot be conducted until the DCR is finalized. Therefore, the expected issuance of the final DCR design for the AP1000 is one of the major considerations in the deliberate process that FPL is conducting for Turkey Point 6 & 7 licensing, including the fact that FPL will be using NRC's Design-Centered Review Approach to obtain schedule, costs and predictability improvements. Under this approach, all issues reviewed for the Reference COL are considered resolved for all subsequent applications that conform to the same requirements.

Spent Fuel Disposition and Waste Confidence Decision

Q. Please summarize the present status of the spent fuel disposition program for commercial operating reactors.

A. The United States Government has not fulfilled its statutory requirement to establish a permanent geologic repository for SNF from commercial nuclear reactors. Furthermore, DOE has announced that it seeks to terminate with prejudice the application to the NRC for a license to construct and operate a geologic repository at the Yucca Mountain Site in Nevada. On March 1, 2010, the Executive Branch filed with Congress an Advisory Committee Charter that sets the objectives and scope of activities for the "Blue Ribbon

Commission on America's Nuclear Future" (BRC). The stated purpose of the BRC is "to conduct a comprehensive review of the policies for managing the back end of the nuclear fuel cycle, including all alternatives for the storage, processing, and disposal of civilian and defense spent nuclear fuel, high-level waste, and materials derived from nuclear activities." The BRC is to provide advice, evaluate alternatives, and make recommendations on a variety of issues, including "options for permanent disposal of spent fuel and/or high-level nuclear waste, including deep geologic disposal." A draft report from the BRC is due in September 2011 and a final report is due in March 2012.

A factual review of the above occurrences, and of the history and realities of spent fuel disposition, reveals the long running political uncertainty as well as the bottom line: the U.S. will deal with SNF in a manner that protects public health and safety, the environment, and the common defense and security. SNF is safely and securely stored on-site in storage pools or dry casks, and can be safely transported as needed. Nevertheless, a comprehensive policy to address the disposition of commercial SNF is needed sooner rather than later to provide requisite predictability to this long-standing issue, and it should be made a national priority.

Q. How does the NRC's revised Waste Confidence Decision affect the Turkey Point Units 6 & 7 project?

A. On December 23, 2010, the NRC published its revised Waste Confidence rule.

This rule reaffirmed and amended the NRC's generic determinations regarding the environmental impacts of SNF storage at, or away from, reactor sites after the expiration of reactor operating licenses. The Commission (a) reaffirmed its finding of reasonable assurance that safe disposal of SNF in a mined geologic repository is technically feasible; (b) found reasonable assurance that sufficient mined geologic repository capacity will be available to dispose of SNF generated in any reactor when necessary; (c) found reasonable assurance that SNF will be managed in a safe manner until sufficient repository capacity is available to assure the safe disposal of all SNF; (d) found reasonable assurance that, if necessary, SNF can be stored safely and without significant environmental impacts at reactor sites for at least 60 years beyond the licensed life for operation of that reactor; and (e) found reasonable assurance that safe, independent onsite SNF storage or offsite SNF storage will be made available if needed. In my view, the revised Waste Confidence rule will enhance the viability of the licensing, construction, and operation of the Turkey Point 6 & 7 project by precluding litigation of SNF issues in the licensing proceeding for Turkey Point Units 6 and 7.

FPL's Project Management Approach to Turkey Point 6 & 7

Q. Has a national policy related to risk minimization for nuclear projects been articulated?

A. Yes. The 1992 Energy Policy Act contained three implied strategies to minimize financial and regulatory risk: 1) licensing decisions are to be finalized before major construction begins; 2) utilities would order plants after regulatory/financial risks are mitigated by satisfactory COL progress; and 3) limited site work could begin prior to COL issuance when warranted by effective project management. Furthermore, the 2005 Energy Policy Act (EPAC 05) established additional criteria and tools to enable the deployment of nuclear power reactors with reduced regulatory and financial risks.

Q. Was the Turkey Point licensing approach in the 2009-2010 timeframe consistent with the risk minimization and standardization purposes of the 1992 Energy Act?

A. Yes. In fact, FPL's recognition of the need to achieve a higher degree of predictability in regulatory review schedules and outcomes, as well as commercial issues affecting deployment of the new nuclear projects is entirely consistent with the strategies identified in the 1992 Energy Act. FPL has consistently made project management decisions in accordance with the law and these intended purposes. For example, FPL made conscious decisions to defer certain long lead procurement decisions and has not entered into an Engineering, Procurement and Construction contract for the project. By choosing to reserve these expenditures until a later time, FPL will be able to make these decisions with more complete and mature information in the future. This naturally has an effect on the projected in-service dates. I believe the Turkey Point project management has been taking the enabling steps

necessary to maintain a project schedule and cost capable of delivering reliable, cost-effective and fuel diverse generation to FPL customers. Moreover, FPL continues to monitor the development and implementation of tools enacted by EPAC 05, which have been slowly evolving, for potential enhancement of project cost reduction and risk minimization strategies.

Q: Are FPL's decisions and approach consistent with best management practices for Generation III+ nuclear power projects?

Yes. I agree with FPL that the primary focus of the current stage of the project should be to obtain the necessary federal, state and local approvals for construction and operation of the Turkey Point 6 & 7 project. Our country has experienced financial turmoil, multiple major proposed national energy policy changes, electrical demand reduction, and fluctuations in the predicted cost of new nuclear generation and natural gas. The licensing of the lead nuclear power plants will serve as learning opportunities for the Turkey Point 6 & 7 project as those other projects progress. These developments, combined with the need for predictable and cost-effective detailed engineering, procurement and construction arrangements, lead me to conclude that FPL's stepwise approach to managing the Turkey Point Project is both prudent and reasonable.

FPL's Pursuit of NRC Licensing Approval for St. Lucie Unit 1 Extended Power Uprate

Q. Can you please explain the circumstances surrounding FPL's withdrawal of the License Amendment Request (LAR) for the St. Lucie Unit 1 Extended Power Uprate (EPU)?

A. Yes. FPL submitted its initial EPU LAR for St. Lucie Unit 1 on April 16, 2010. The NRC has an internal process for the Staff's processing of EPU requests called "LIC 109." Once the LAR is submitted, the NRC Staff can take up to about two months to perform a technical review to determine whether the LAR is acceptable for docketing, and the NRC has significant discretion to determine whether an application should be docketed. During the acceptance review the NRC Staff will often have questions in regard to some of the technical attributes of the LAR, since the LAR does not include every single supporting engineering analysis or calculation supporting its conclusions.

The NRC's technical analysis and regulatory reviews of proposed extended power uprates are about the most exacting and rigorous evaluations conducted for power reactors. Extended power uprates change the design basis for full power operations and impact many important safety issues. The NRC has established strict safety and analytical requirements for extended power uprate applicants. The NRC conducts these reviews pursuant to the NRC Review

Standard for extended power uprates. These applications and reviews often dwell into reactor-specific conditions that were not fully analyzed by reactor vendors and sometimes the NRC will venture outside its own review standard. Furthermore, extended power uprates are reviewed by the NRC under an efficiency standard established by the Commission, and therefore follow firm scheduling guidelines. The combination of these factors results in a demanding and exacting process; additional requirements or new information that could be considered safety-related will lengthen the schedule for review and approval. It has been demonstrated that it is eventually more expedient and effective to have the entire set of safety-related issues, including those new or additional issues raised by the NRC staff, on a complete package encompassing the full scope of reviewable conditions than with a break due to rejection for lack of additionally required analysis.

In this case, the NRC technical reviewers had unexpected questions in three technical areas: spent fuel criticality analysis, a reactor control rod withdrawal event, and then some clarification around an event called a station blackout event. However, the information requested was beyond the original design basis of the plant. These questions represent a change to the scope of the NRC technical staff's typical review of an EPU LAR to determine its acceptability for docketing, and FPL had no reason, from prior NRC Staff guidance or reviews of other uprate applications, to anticipate that analyses on these topics would be requested.

Q. What were FPL's options upon learning that the changing regulatory requirements required additional analyses?

A. FPL had two options: it could let the NRC reject its LAR for docketing, or it could withdraw the LAR, participate in public meetings with the NRC Staff to understand the Staff's issues, and then resubmit the LAR.

In this case, FPL chose to withdraw the LAR and did so on August 13, 2010. Following the withdrawal of the LAR, FPL then performed the requested analyses and resubmitted the LAR for docketing on November 22, 2010.

Q. In your opinion, is the need to withdraw and resubmit a LAR evidence that the LAR was prepared imprudently?

A. No. In this case, the need to withdraw and resubmit the LAR was driven by evolving NRC expectations.

Q. Do you believe that FPL's withdrawal of the St. Lucie Unit 1 EPU LAR on August 13, 2010 was a prudent course of action?

A. Yes. FPL wanted to obtain details from the NRC Staff on the specific additional information that was required to make the resubmittal of the LAR successful. In order to obtain these details quickly, FPL's decision was to withdraw the LAR on August 13, rather than let it be rejected and later learn the details necessary for resubmittal, both after further delay. This decision was prudent, even in hindsight, since NRC sent FPL a letter on August 13 – the same day as the withdrawal – detailing the information that would be required for FPL to submit a docketable LAR. This letter is attached to my

testimony as Exhibit NJD-5. FPL and NRC then held a meeting on August 18 at which FPL received additional technical details on the areas in question. If FPL had let the LAR be rejected or delayed the decision to withdraw, it could have substantially delayed the docketing and ultimate approval of the LAR.

Q. Does this conclude your direct testimony?

A. Yes.

NJD-1

Summary Resume Of Nils J. Diaz, PhD

Dr. Nils J. Diaz is the Managing Director of The ND2 Group, an expert and policy advisor group with a strong focus on the national and international nuclear power development and deployment arena, including new and existing plant licensing, regulatory, financial, policy and communications issues. The ND2 Group is presently or was recently engaged by governments developing new nuclear options and infrastructure, a major nuclear reactor vendor, US nuclear utilities, international engineering/ consulting firms, and the Department of Energy. He also provides developmental policy advice to OECD's Nuclear Energy Agency, and serves on three Boards of Directors. He served as a Commissioner, Florida Energy and Climate Commission, October 2008-October 2010.

Nils Diaz is a past Chairman of the U.S. Nuclear Regulatory Commission (NRC). Dr. Diaz was designated Chairman of the NRC by President Bush on April 1, 2003 and he served as such until his retirement from government service on June 30, 2006. As Chairman of the NRC, Dr. Diaz served as the principal executive officer of and the official spokesman for the NRC, and had ultimate authority for all NRC functions pertaining to an emergency involving an NRC license; he was directly responsible for all high level interactions with the US Executive Branch and the Congress, as well as the international relationships and the policy development under NRC's charter, including the nuclear security policies and implementation after 9/11. Dr. Diaz was first nominated by President Clinton and confirmed by the Senate as a Commissioner with the NRC in August 1996, nominated by President Bush and confirmed by the US Senate again in 2001, and exercised the responsibilities of the position until he assumed the Chairmanship of the Commission. As Chairman, he was responsible for the exercise and direction of the Commission's policy-making, licensing and regulatory functions, and employed practical managerial, technical, and entrepreneurial skills to effect changes that enhanced new reactor licensing, license renewal, reactor oversight, enforcement and licensing processes, security and adjudication.

Prior to his appointment to the NRC, Dr. Diaz was the Director (1985-1996) of a national consortium for advanced nuclear power and propulsion (INSPI) for the Ballistic Missile Defense Organization (BMDO), Department of Defense, Professor of Nuclear Engineering Sciences at the University of Florida (1969-1996, and Dean for Research at CSULB (1984-1986). As Director for BMDO, he exercised prime contractor management and Lead Scientist responsibilities for a diverse group of industries (including Aeroject, Boeing, Pratt& Whitney, Hughes Electronics, Rocketdyne and SRI), several national laboratories (including Los Alamos NL, Sandia

NL, and Lawrence Livermore NL) and seven major universities, under contracts with the Department of Defense, the Defense Nuclear Agency, the Department of Energy and NASA. From 1969 to 1996, Dr. Diaz held senior positions at universities, Boards and industry, and consulted for the U.S. Government and other governments on civilian nuclear energy development. He also owned six small corporations serving the nuclear industry and government during that period, and spent six years at nuclear utilities and reactor vendors, often troubleshooting technical and management performance issues. He lived in Europe in 1981-1982, while serving as Principal Advisor to Spain's Consejo de Seguridad Nuclear, and consulting for nuclear industries and vendors in other European countries.

Dr. Diaz is internationally recognized for his broad expertise and contributions to nuclear sciences, reactor systems and fuels, to the regulation of nuclear facilities and radioactive materials, to the development of nuclear policy and deployment infrastructure. He has worked extensively in the international arena, including interacting and contributing to major policy, fora and decision-making efforts.

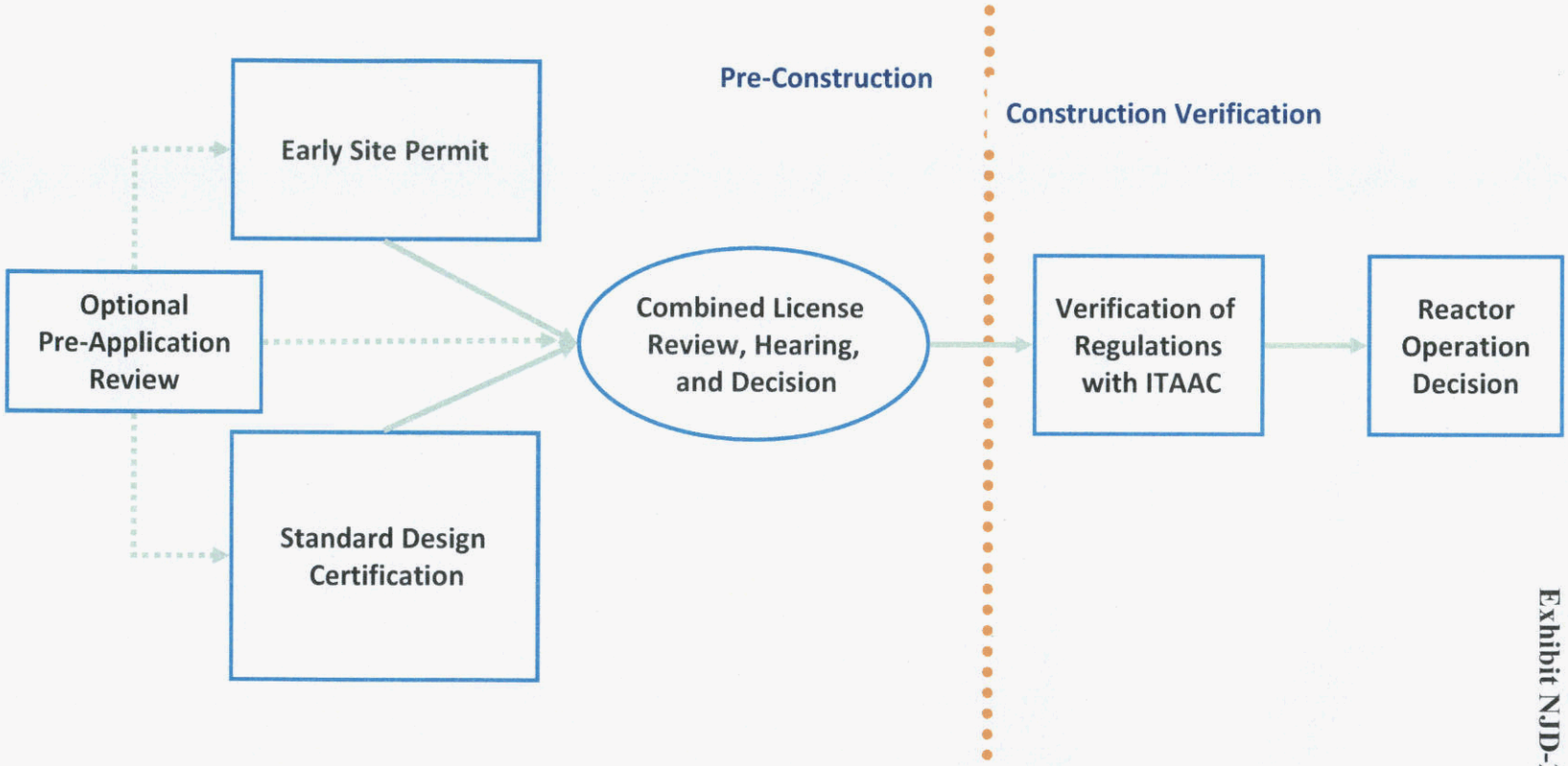
Dr. Diaz has published over 70 refereed technical articles and has participated in more than 200 international forums on nuclear energy, sciences and technology. He has been recognized worldwide for his statesmanship on nuclear affairs, including chairing the G8Nuclear Summit in Russia and leading the US Delegation to the International Atomic Energy Agency General Conference in 2005.He has received many national and international awards, including the Henry DeWolf Smyth 2008 Nuclear Statesman Award, awarded by the Nuclear Energy Institute, representing the nuclear industry, and by the American Nuclear Society. Dr. Diaz has been elected a Member of the Hispanic Hall of Fame and recognized as one of the top 50 Hispanics in Sciences and Engineering, and was named the National Hispanic Scientist of the Year for 2009.

Dr. Diaz holds a Ph.D. and M.S. in Nuclear Engineering Sciences from the University of Florida, and a B.S. Degree in Mechanical Engineering from the University of Villanova, Havana. He was licensed as a Senior Reactor Operator by the NRC and has formal training and practice in health physics, radiological sciences and nuclear medicine. He is a Fellow of the American Nuclear Society, the American Society of Mechanical Engineers, and the American Association for the Advancement of Sciences.

January 2011

NJD-2

NRC Combined Licensing Processes



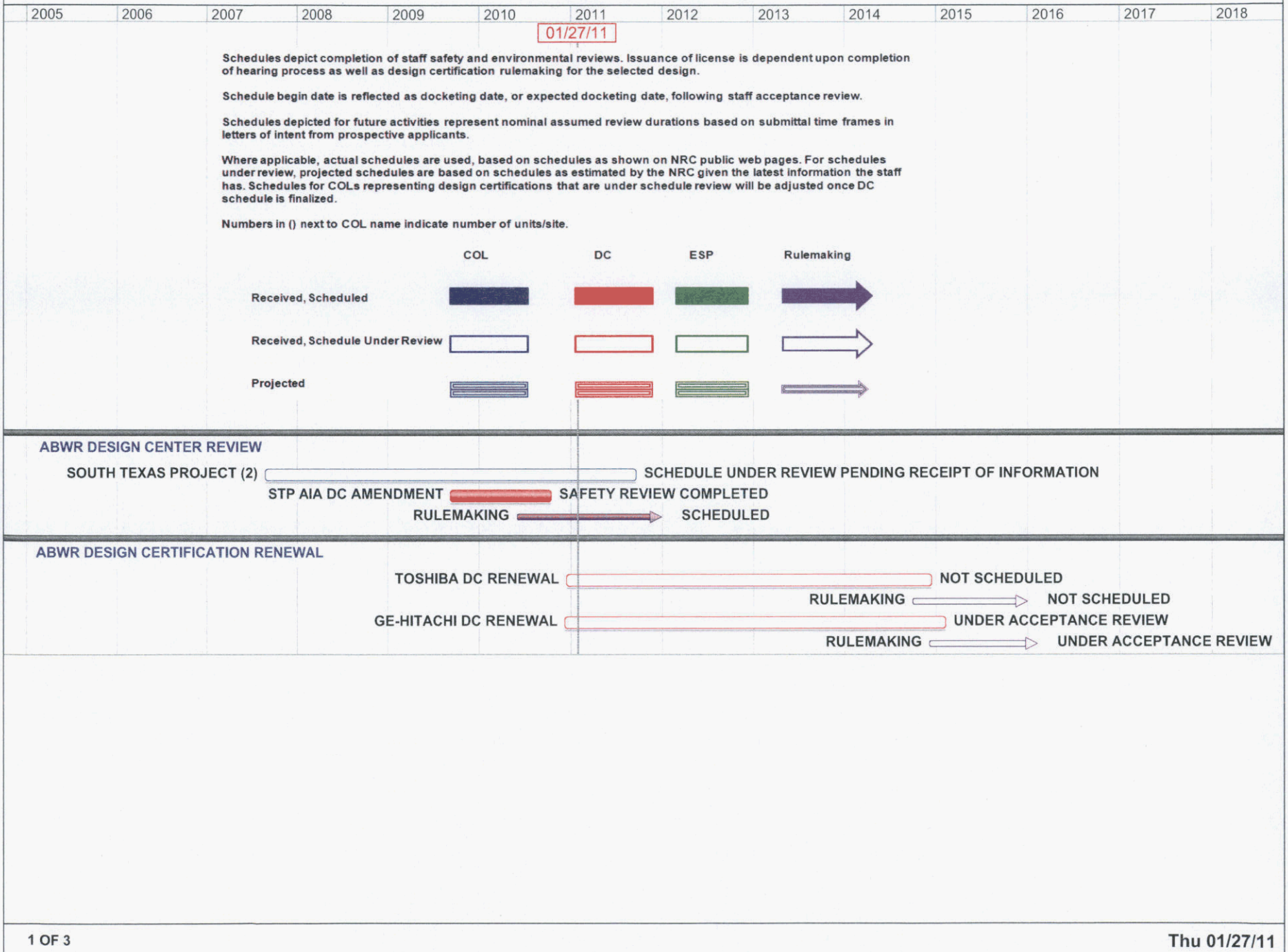
Source: USNRC

Docket No. 110009-EI
NRC Combined Licensing Processes
Exhibit NJD-2, Page 1 of 1

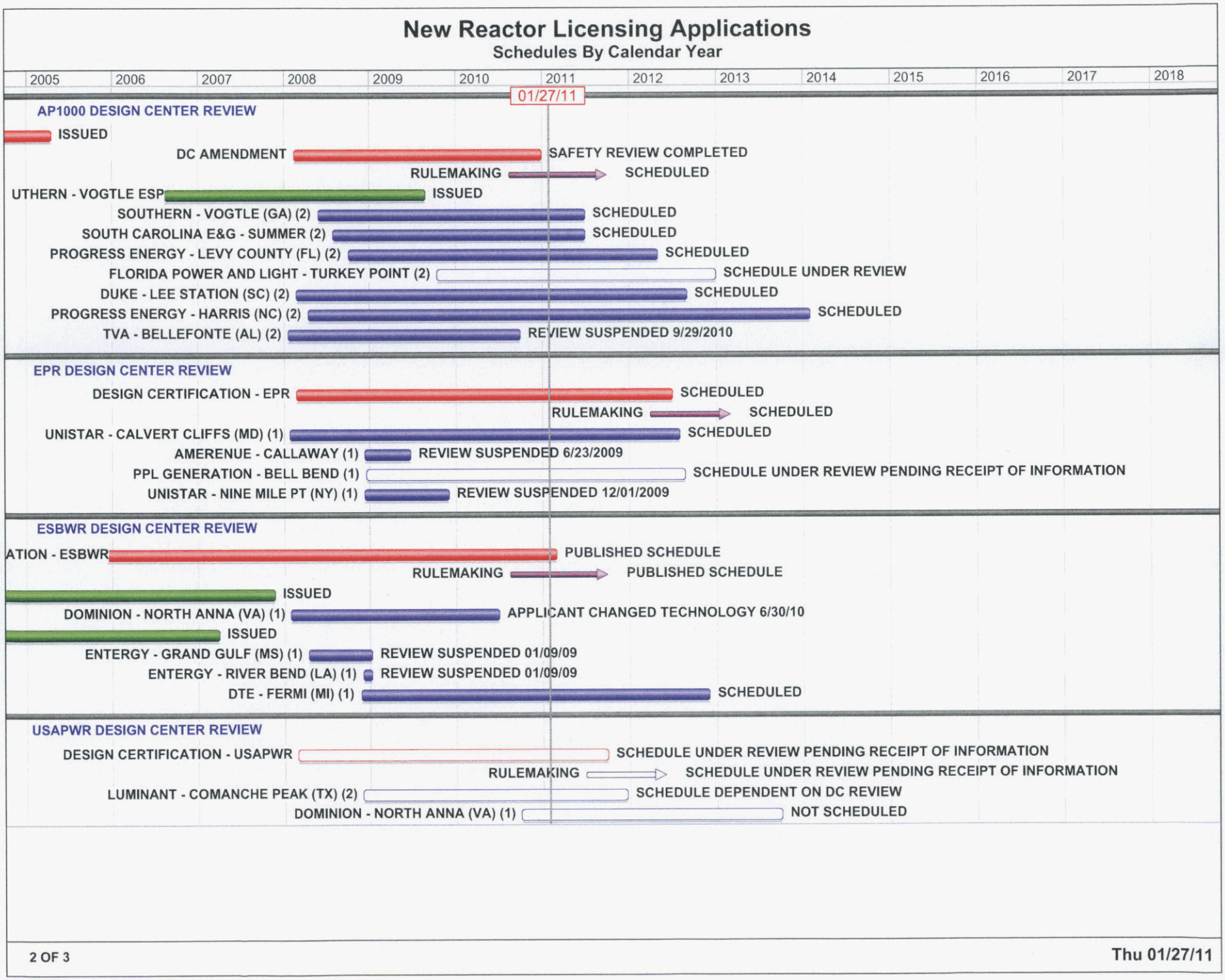
NJD-3

New Reactor Licensing Applications

Schedules By Calendar Year



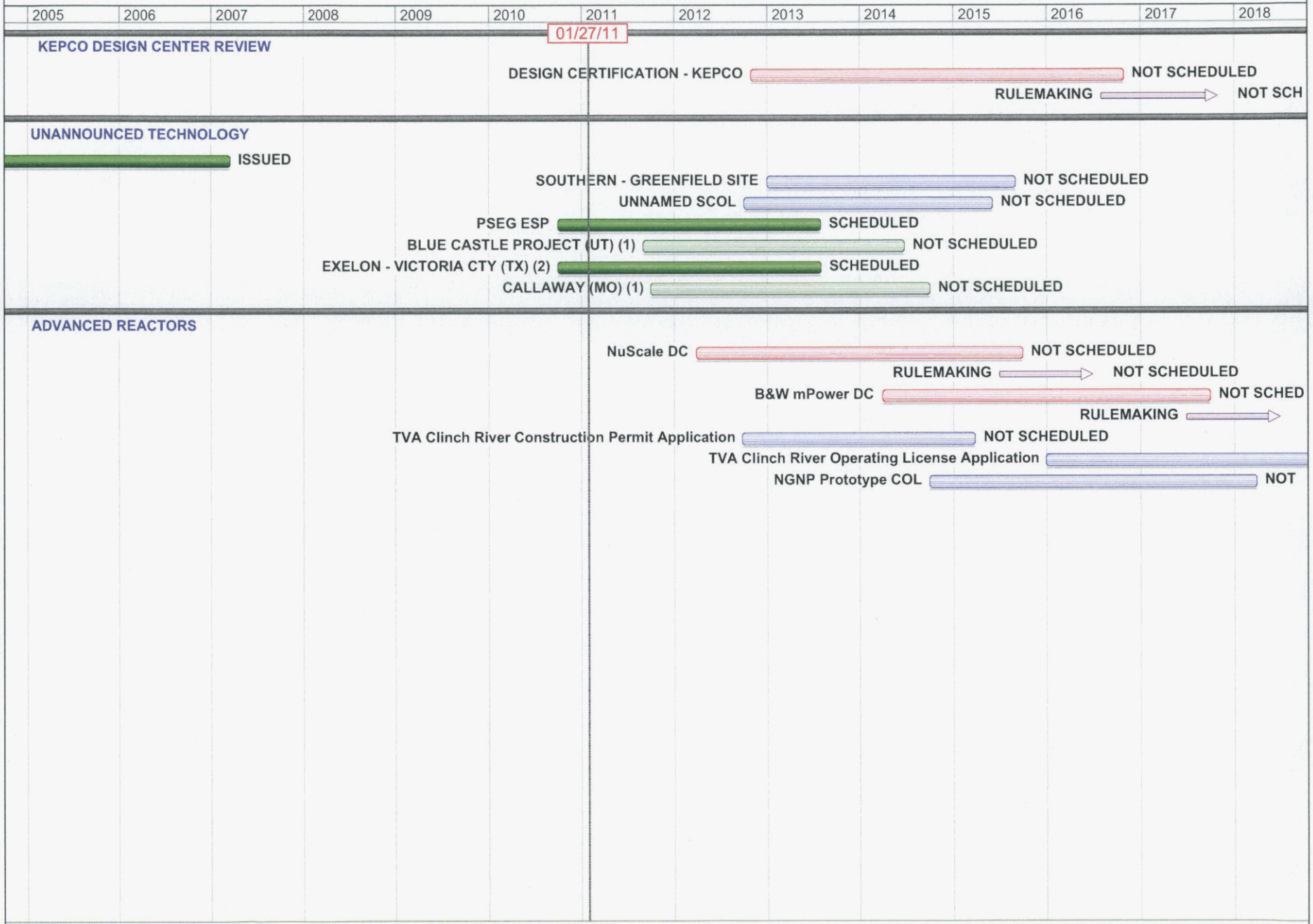
Thu 01/27/11



Docket No. 110009-EI
New Reactor Licensing Applications
Exhibit NJD-3,Page 2 of 3

New Reactor Licensing Applications

Schedules By Calendar Year



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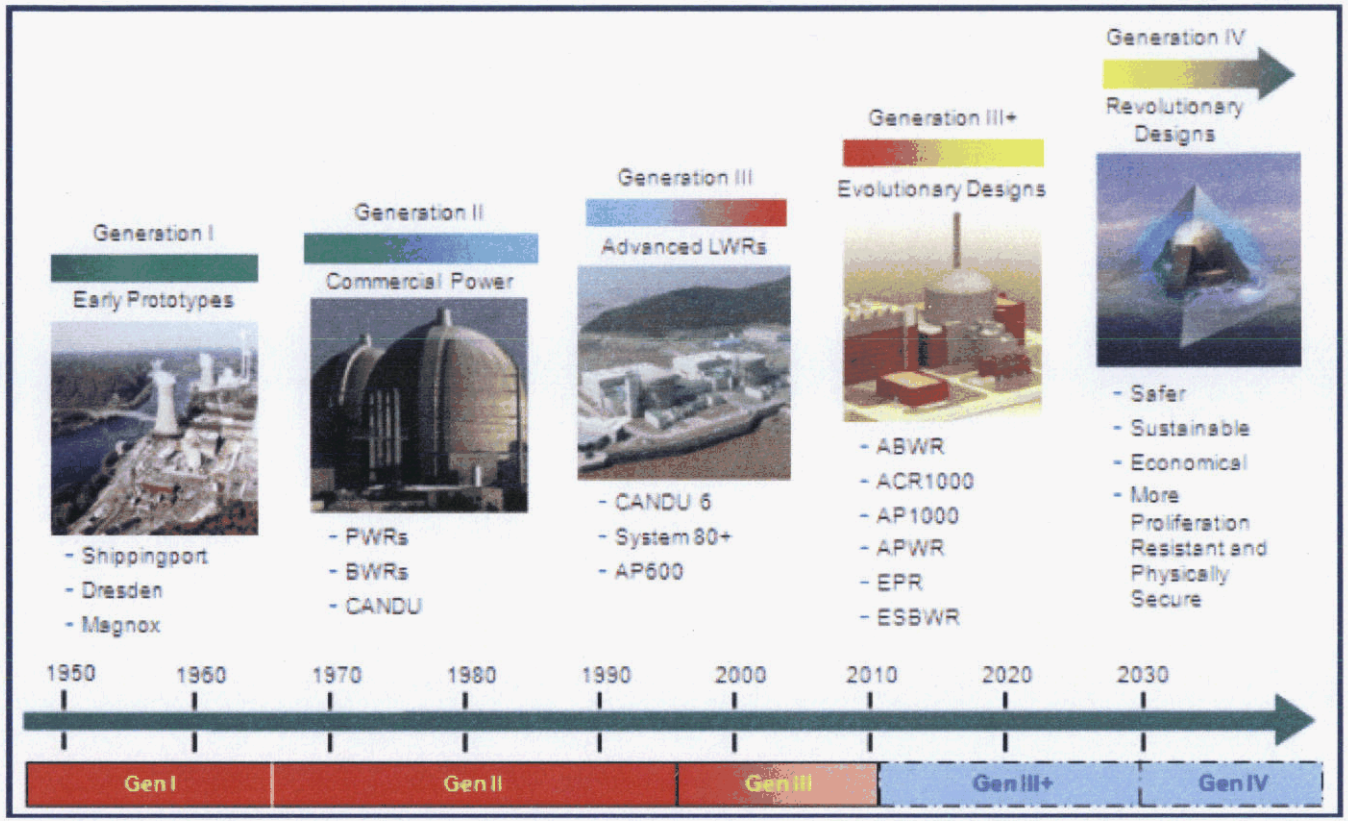
Docket No. 110009-EI
New Reactor Licensing Applications
Exhibit NJD-3,Page 3 of 3

NJD-4

Nuclear Power Plant Technology Evolution



Source of slide: DOE (http://nuclear.energy.gov/genIV/neGenIV1.html)

Docket No. 110009-EI
Nuclear Power Plant Technology Evolution
Exhibit NJD-4, Page 1 of 1

NJD-5

Florida Power & Light Company, 6501 S. Ocean Drive, Jensen Beach, FL 34957

August 13, 2010

L-2010-181
10 CFR 50.90

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Re: St. Lucie Plant Unit No. 1
Docket No. 50-335
Renewed License No. DPR-67
Withdrawal of Extended Power Uprate License Amendment Request

On April 16, 2010, Florida Power and Light Company (FPL) submitted the St. Lucie Unit 1 Extended Power Uprate (EPU) License Amendment Request (LAR) via FPL letter L-2010-078 for a proposed license amendment that would increase the licensed core power level from 2700 megawatts thermal (MWt) to 3020 MWt. On July 23, 2010, the Nuclear Regulatory Commission (NRC) formally requested FPL to provide supplemental information needed for the acceptance review of the LAR. FPL provided responses to the NRC's request for supplemental information via letter L-2010-144 dated July 23, 2010 and letter L-2010-162 dated July 30, 2010.

Based on a conference call with the NRC staff on August 10, 2010, FPL has decided to withdraw the St. Lucie Unit 1 EPU LAR submitted on April 16, 2010. FPL is evaluating the staff's positions and may resubmit a revised application at a future time.

Should you have any questions regarding the information provided in this transmittal please contact Mr. Chris Wasik at 772-467-7138.

Very truly yours,

Richard Anderson
Site Vice President
St. Lucie Plant

cc: Mr. William Passetti, Florida Department of Health