



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

December 1, 2010

Mr. Larry Meyer  
Site Vice President  
NextEra Energy Point Beach, LLC  
6610 Nuclear Road  
Two Rivers, WI 54241-9516

SUBJECT: POINT BEACH NUCLEAR PLANT (PBNP), UNITS 1 AND 2 – DRAFT ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT RELATED TO THE PROPOSED EXTENDED POWER UPRATE (TAC NOS. ME1044 AND ME1045)

Dear Mr. Meyer:

Enclosed is a copy of the Draft Environmental Assessment and Draft Finding of No Significant Impact related to your request for an amendment dated April 7, 2009, as supplemented on May 13 and July 15, 2010 (on environmental issues) for PBNP. The proposed amendment would authorize increasing the maximum thermal power from 1,540 megawatts thermal (MWt) to 1,800 MWt, which is an increase of approximately 17 percent over the current licensed thermal power, and approximately 18 percent from the original licensed thermal power.

The assessment is being forwarded to the Office of the *Federal Register* for publication.

Sincerely,

A handwritten signature in black ink, reading "Terry A. Beltz", with a long horizontal flourish extending to the right.

Terry A. Beltz, Senior Project Manager  
Plant Licensing Branch III-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-266 and 50-301

Enclosure:  
Draft Environmental Assessment

cc w/encl: Distribution via Listserv

UNITED STATES NUCLEAR REGULATORY COMMISSION  
NEXTERA ENERGY POINT BEACH, LLC  
DOCKET NOS. 50-266 AND 50-301  
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2  
DRAFT ENVIRONMENTAL ASSESSMENT AND  
DRAFT FINDING OF NO SIGNIFICANT IMPACT  
RELATED TO THE PROPOSED LICENSE AMENDMENT  
TO INCREASE THE MAXIMUM REACTOR POWER LEVEL

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 51.21, the U.S. Nuclear Regulatory Commission (NRC) has prepared a draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) as part of its evaluation of a request by Florida Power & Light (FPL) Energy (the licensee) (now NextEra Energy Point Beach, LLC (NextEra)) for a license amendment to increase the maximum thermal power at the Point Beach Nuclear Plant (PBNP), Units 1 and 2 from 1,540 megawatts thermal (MWt) to 1,800 MWt for each unit. This represents a power increase of approximately 17 percent over the current licensed thermal power, with a net increase of electrical output from 519 megawatts-electric (MWe) to 607 MWe for each unit, and approximately an 18 percent increase from the original licensed power level of 1,518 MWt. In 2003, PBNP received approval from the NRC to increase their power by 1.4 percent, to the current power level of 1,540 MWt. The NRC staff did not identify any significant environmental impact associated with the proposed action based on its evaluation of the information provided in the licensee's extended power uprate (EPU) application and other available information. The draft EA and draft FONSI are being published in the *Federal Register* with a 30-day public comment period ending January 8, 2011.

## ENVIRONMENTAL ASSESSMENT

### Plant Site and Environs:

The PBNP site is located approximately 6 miles (10 kilometers) east-northeast of the town of Mischot on the western shore of Lake Michigan, midway along the western shore, near the northeastern corner of Manitowoc County, Wisconsin. The City of Green Bay is located approximately 25 miles (40 kilometers) northwest of PBNP, and the Kewaunee Nuclear Plant is located approximately 4 miles (6 kilometers) north of PBNP on the shore of Lake Michigan. The PBNP site is comprised of approximately 1,260 acres (510 hectares), with 104 acres (42 hectares) that includes the two nuclear reactors, parking and ancillary facilities. Approximately 1,050 acres (425 hectares) are used for agriculture, and the remaining land is a mixture of woods, wetlands, and open areas. Each of the two units at PBNP use Westinghouse pressurized water reactors.

### Identification of the Proposed Action:

By application dated April 7, 2009, the licensee requested an amendment for an EPU for PBNP to increase the licensed thermal power level from 1,540 MWt to 1,800 MWt for each unit, which represents an increase of approximately 17 percent above the current licensed thermal power and approximately 18 percent over the original licensed thermal power level. This change in core thermal level requires the NRC to amend the facility's operating license. The operational goal of the proposed EPU is a corresponding increase in electrical output for each unit from 519 MWe to 607 MWe. The proposed action is considered an EPU by NRC because it exceeds the typical 7 percent power increase that can be accommodated with only minor plant changes. EPUs typically involve extensive modifications to the nuclear steam supply system.

The licensee plans to make extensive physical modifications to the plant's secondary side to implement the proposed EPU over the course of two refueling outages currently scheduled for the Spring 2011 and the Fall 2011. The actual power uprate, if approved by the NRC, would occur in two stages following the 2011 refueling outages.

The Need for the Proposed Action:

The need for the additional power generation is based upon the goals and recommendations of Wisconsin's 2007 Final Report on "Strategic Energy Assessment Energy 2012" for maintaining a robust energy planning reserve margin of 18 percent. In this report, the State of Wisconsin, Public Service Commission, forecasted an annual growth rate of over 2 percent in demand for electricity. The proposed action provides the licensee with the flexibility to increase the potential electrical output of PBNP Units 1 and 2 from its existing power station, and to reduce Wisconsin's dependence on obtaining power from Illinois via a congested transmission grid connection. The additional 90 MWe provided by each unit would contribute to meeting the goals of the State of Wisconsin to provide efficient and stable nuclear electrical generation.

Environmental Impacts of the Proposed Action:

As part of the licensing process for PBNP Units 1 & 2, the NRC published a Final Environmental Statement (FES) in October 1970, for PBNP Unit 1, and in March 1973 for PBNP Unit 2. The two FESs provide an evaluation of the environmental impacts associated with the operation of PBNP Units 1 & 2 over their licensed lifetimes. In addition, in 2005, the NRC evaluated the environmental impacts of operating PBNP for an additional 20 years beyond its current operating license, and determined that the environmental impacts of license renewal were small. The NRC staff's evaluation is contained in NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plant, Supplement 23, Regarding Point Beach Nuclear Plant, Units 1 and 2" (SEIS-23) issued in August 2005 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML052230490). The NRC staff used information from the licensee's license amendment request, the FESs, and the SEIS-23 to perform its EA for the proposed EPU.

There will be extensive changes made to the secondary side of the PBNP related to the EPU action, but no new construction is planned outside of existing facilities, and no extensive

changes are anticipated to buildings or plant systems that directly or indirectly interface with the environment. All necessary modifications would be performed in existing buildings at PBNP. Modifications to the secondary side of each unit include the following: replacing the high-pressure side of the turbine; replacing all of the feedwater heaters, feedwater and condensate pumps and motors to operate at higher capacity; providing supplemental cooling for some plant systems; implementing electrical upgrades; other modifications to accommodate greater steam and condensate flow rates; and changing setpoints and modifying software.

The sections below describe the non-radiological and radiological impacts in the environment that may result from the proposed EPU.

#### Non-radiological Impacts

##### Land Use and Aesthetic Impacts:

Potential land use and aesthetic impacts from the proposed EPU include impacts from plant modifications at PBNP. While some plant components would be modified, most plant changes related to the proposed EPU would occur within existing structures, buildings, and fenced equipment yards housing major components within the developed part of the site. No new construction would occur outside of existing facilities and no expansion of buildings, roads, parking lots, equipment lay-down areas, or transmission facilities would be required to support the proposed EPU.

Existing parking lots, road access, equipment lay-down areas, offices, workshops, warehouses, and restrooms would be used during plant modifications. Therefore, land use conditions would not change at PBNP. Also, there would be no land use changes along transmission lines (no new lines would be required for the proposed EPU), transmission corridors, in switch yards, or in substations.

Since land use conditions would not change at PBNP, there would be no significant impact from EPU-related plant modifications on land use and aesthetic resources in the vicinity of PBNP.

Air Quality Impacts:

Air quality within the Point Beach area is generally considered good, with an exception occurring for a designated ozone nonattainment area. PBNP is located in Manitowoc County within the Lake Michigan Intrastate Air Quality Control Region (AQCR). With the exception of the 8-hour standard for ozone, the Lake Michigan AQCR is designated as being in attainment or unclassifiable for all air-quality criteria pollutants in the Environmental Protection Agency's 40 CFR 81.350.

There are approximately 650 people employed at the PBNP on a full-time basis, and 150 long and short-term contractors. This workforce is typically augmented by an additional 700 persons during regularly scheduled refueling outages. For the EPU work conducted during the Spring 2011 outage and the Fall 2011 outage, there will be approximately 1,200 more workers supplementing the typical 700 additional workers scheduled for refueling outages. The workforce numbers would be somewhat larger than for a routine outage and would take longer to complete, but would still be of a relatively short duration (approximately 68 days). A typical refueling outage typically requires 35 days to complete. During implementation of the EPU at PBNP, some minor and short duration air quality impacts would occur. The main source of the air emissions would be from the vehicles of the additional outage workers needed for the EPU work. An approximate 727 additional truck deliveries will be needed to support EPU modifications for the Spring 2011 outage, and approximately 774 additional truck deliveries will support the EPU modifications for the Fall 2011 EPU modifications.

The majority of the EPU work would be performed inside existing buildings and would not impact air quality. Operation of the reactor at the increased power level would not result in increased non-radioactive emissions that would have a significant impact on air quality in the region. Therefore, there would be no significant impact on air quality during and following implementation of the proposed EPU.

## Water Use Impacts

### Groundwater:

The PBNP is not connected to a municipal water system, and utilizes groundwater from the Silurian aquifer for potable and sanitary purposes withdrawn from five wells located within the plant yard. PBNP has approval from the Wisconsin Department of Natural Resources through the State's water appropriation permit program for groundwater withdrawal from wells with a combined withdrawal for over 10,000 gallons per day (gpd). Groundwater withdrawals from these five wells at PBNP have historically averaged about 6.5 gallons per minute (gpm) (9,300 gpd). While potable water in the vicinity of PBNP is drawn primarily from Lake Michigan, groundwater does provide potable water for smaller towns and rural residences in the plant region.

Groundwater samples taken from PBNP's supply wells as part of the PBNP site environmental monitoring program have shown no contamination. There are no discharges to groundwater from PBNP requiring permits by regulatory agencies, and discharge of wastewater to onsite retention ponds ended in 2002.

The EPU is not projected to increase groundwater use or liquid effluent discharges by PBNP during the operating life of the plant. As a result, local and regional groundwater users would not be affected by the proposed EPU. While potable water use would be expected to increase over the short term in association with the influx of the 1,200 additional workers supporting EPU implementation activities, this potential increase would be within the capacity of PBNP's wells and would be unlikely to have any effect on other groundwater users. Therefore, there would be no significant impact on groundwater resources following implementation of the proposed EPU.

### Surface Water:

The PBNP uses surface water from Lake Michigan for its once-through cooling system for both units for its plant condenser cooling, auxiliary water systems, the service water system,

and for fire protection. The cooling system removes waste heat from the condensers and other plant equipment, and discharges the water through separate flumes for each unit back into Lake Michigan. As described in the licensee's application and SEIS-23, cooling water is circulated through PBNP at 680,000 gpm, and will remain unchanged under EPU conditions. Thus, no change in PBNP's water use or on the availability of water for other Lake Michigan users is expected.

Main condenser cooling water is withdrawn from Lake Michigan at a depth of approximately 22 feet (7 meters) from an offshore intake located approximately 1,750 feet (533 meters) east of the shoreline. The plant has two discharges located about 200 feet (60 meters) from the shoreline. Non-radioactive chemical effluent discharges into Lake Michigan are regulated in accordance with a Wisconsin Pollutant Discharge Elimination System (WPDES) permit (WI-0000957-07). The applicant submitted an application for renewal to the State in December 2008. The current WPDES permit is valid until the new WPDES permit is issued. The licensee's evaluation stated that no significant changes in WPDES permit-regulated discharges to outfalls are expected from EPU-operations. Therefore, there would be no significant impact on surface water resources following implementation of the proposed EPU.

Aquatic Resources Impacts:

The potential impacts to aquatic biota from the proposed action could include impingement, entrainment, and chemical and thermal discharge effects. A permanent acoustic fish-deterrent system was installed around the intake structures at PBNP in 2002, to help reduce the influx of fish into the intake structure and to reduce potential impingement. The intake structures were originally constructed in areas of the lake devoid of fish spawning habitat or nursery grounds, which reduces the rate of entrainment. The proposed EPU will not result in an increase in water being withdrawn from Lake Michigan, nor will it result in an increase in the amount of water discharged to Lake Michigan. Therefore, there would be no potential increase in aquatic impacts from entrainment and impingement as a result of the proposed licensing

action. The potential impacts at PBNP would remain consistent with the NRC's conclusion in the SEIS-23, that the aquatic impacts as a result of PBNP operation during the term of license renewal would continue to be small.

However, the proposed EPU will result in an approximate 17 percent increase in the amount of waste heat discharged into Lake Michigan. According to a modeling study performed by the licensee in 2008, the temperature of the discharge water is expected to increase by a maximum of 3.6°F (2.0°C) as a result of the proposed EPU. While the cooling water thermal plume of PBNP is expected to be somewhat larger as a result of the proposed EPU, it is not expected to disrupt the balanced indigenous community of aquatic resources, and will have a negligible impact on Representative Important Species of Lake Michigan. The current WPDES permit for PBNP does not contain thermal effluent limitations. In addition, the NRC staff concluded in the SEIS-23 that PBNP was in compliance with its current WPDES permit, and was using the best available technology for the minimization of adverse environmental impacts from entrainment, impingement, and heat shock, and further mitigation measures would not be warranted.

The circulating water system and service water system for PBNP are treated with biocides, sodium hypochlorite, and an electrolytic system adding copper to control biofouling from zebra mussels (*Dreissena polymorpha*) and to control algal growth. The NRC staff concluded in the SEIS-23 that there are no significant impacts of discharge of chlorine or other biocides during the license renewal term. The chemicals used for the above treatments at PBNP are regulated through the PBNP WPDES permit. The licensee has noted that they will maintain compliance with the WPDES permit and all other licenses, permits, approvals or other requirements currently held by the plant as a function of the proposed EPU.

The State of Wisconsin Coastal Management Program (WCMP) informed the licensee on March 16, 2010, that the WCMP has no comments on the project and will not conduct a Federal consistency review for PBNP as part of their WPDES permit. Therefore, there would be

no significant adverse impacts to the aquatic biota from entrainment, impingement, thermal discharges, or from biocides for the proposed action.

Terrestrial Resources Impacts:

As discussed in the Plant Site and Environs section, the PBNP site consists of approximately 1,260 acres, with over 2 miles (3 kilometers) of shoreline on Lake Michigan. Approximately 104 acres are used for power generation and support facilities. Much of the remaining area (1,050 acres) is farmed, and approximately 100 acres consists largely of woods, wetlands, and open areas. As previously discussed in the Land Use and Aesthetic Impacts section, the proposed action would not affect land use at PBNP. Therefore, there would be no significant impacts on terrestrial biota associated with the proposed action.

Threatened and Endangered Species Impacts:

Correspondence between the licensee and the U.S. Fish and Wildlife Service (USFWS) in connection with the PBNP license renewal environmental review indicated that no Federally-listed endangered, threatened, or candidate terrestrial or aquatic species are likely to occur in the vicinity of the PBNP site. However, two species that are Federally-listed, the endangered piping plover (*Charadrius melodus*) and the threatened dune or Pitcher's thistle (*Cirsium pitcheri*) have been recorded in Manitowoc County. In addition, the dwarf lake iris (*Iris lacustris*) has been documented in Brown County, which is traversed by the PBNP transmission line. The USFWS determined that portions of the PBNP shoreline may be suitable nesting habitat for the piping plover. And there is critical breeding habitat designated for the piping plover at Point Beach State Forest, which is approximately 3 miles (5 kilometers) southeast of PBNP, although no piping plovers have been recorded as breeding at this location. The bald eagle (*Haliaeetus leucocephalus*) (now delisted, but still protected under the Bald and Golden Eagle Protection Act) has not been observed foraging on or near the plant area, but bald eagles have been observed foraging on smaller, interior water bodies that may be found near the transmission lines. Regardless, the planned construction-related activities related to the proposed EPU

primarily involve changes to existing structures, systems, and components internal to existing buildings within the plant, and would not involve earth disturbance. While traffic and worker activity in the developed parts of the plant site during the Spring 2011 and Fall 2011 refueling outages would be somewhat greater than a normal refueling outage, the potential impact on terrestrial wildlife would be minor and temporary.

Since there are no planned changes to the terrestrial wildlife habitat on the PBNP site from the proposed EPU, and the potential impacts from worker activity would be minor and temporary, there would be no significant impacts to any threatened or endangered species for the proposed action.

Historic and Archaeological Resources Impacts:

Records at the Wisconsin Historical Society identify several historic and archaeological sites in the vicinity of PBNP and three sites on PBNP property. None of these sites have been determined eligible for listing on the National Register of Historic Places (NRHP). There are a number of historic properties in Manitowoc County listed on the NRHP and the nearest, the Rawley Point Light Station, is within 6 miles (10 kilometers) of PBNP.

As previously discussed, all EPU-related plant modifications would take place within existing buildings and facilities at PBNP, including replacing two electrical transformers on an existing pad. Since no ground disturbance or construction-related activities would occur outside of previously disturbed areas and existing electrical transmission facilities, there would be no significant impact from EPU-related plant modifications on historic sites and to archaeological resources located on and within the vicinity of the PBNP.

Socioeconomic Impacts:

Potential socioeconomic impacts from the proposed EPU include temporary increases in the size of the workforce at the PBNP and associated increased demand for public services, housing, and increased traffic in the region. The proposed EPU could also increase tax payments due to increased power generation.

Currently, there are approximately 800 workers employed at the PBNP, residing primarily in Manitowoc County, Wisconsin. During regularly scheduled refueling outages the number of workers at PBNP increases by as many as 700 workers for 35 days.

The proposed EPU is expected to temporarily increase the size of the refueling outage workforce by approximately 1,200 additional workers. The refueling outage would last approximately 68 days during two refueling outages (one for each unit). The majority of the EPU-related modifications would take place during the Spring 2011 and Fall 2011 refueling outages. Once completed, the size of the refueling outage workforce at the PBNP would return to approximately 700 workers, with no significant increases during future refueling outages. After EPU-related plant modifications, the number of plant operations workers would return to approximately 800 workers.

Most of the EPU-related plant modification workers would relocate temporarily to Manitowoc County, resulting in short-term increases in the local population along with increased demands for public services and housing. Because plant modification work would be short-term, most workers would stay in available rental homes, apartments, mobile homes, and camper-trailers. According to the 3-year average estimate (2006 - 2008) for census housing data, there were nearly 3,200 vacant housing units in Manitowoc County that could potentially ease the demand for local rental housing. Therefore, a temporary increase in plant employment for a short duration would have little or no noticeable effect on the availability of housing in the region.

The additional number of refueling outage workers and truck material and equipment deliveries needed to support EPU-related plant modifications would cause short-term level of service impacts on access roads in the immediate vicinity of PBNP. Due to the short duration of the outages, increased traffic volumes during normal refueling outages typically have not degraded the level of service capacity on local roads. However, an additional 727 truck deliveries are anticipated to support implementation of the EPU modifications during the Spring 2011 outage, and an additional 774 deliveries are anticipated to support the Fall 2011 outage.

Based on this information and given that EPU-related plant modifications would occur during a normal refueling outage, there could be noticeable short term (during certain hours of the day) level-of-service traffic impacts beyond what is experienced during normal outages. During periods of high traffic volume (i.e., morning and afternoon shift changes), work schedules could be staggered and employees and/or local police officials could be used to direct traffic entering and leaving PBNP to minimize level of service impacts on State Route 42.

NextEra pays a lump sum “gross revenue” tax to the State of Wisconsin in lieu of property taxes. Portions of this tax are based on the “net book value” of the PBNP and the amount of megawatts generated. The annual amount of taxes paid by NextEra would increase due to increased power generation. Future tax payments would also take into account the increased net book value of the PBNP as a result of the EPU implementation and “incentive payments”, should megawatt production exceed negotiated annual benchmarks as power generation increases.

The proposed EPU would also increase local tax revenues generated by sales taxes and State and Federal income taxes paid by temporary workers residing in Manitowoc County. However, due to the short duration of EPU-related plant modification activities, there would be little or no noticeable effect on tax revenue streams in Manitowoc County. Therefore, there would be no significant adverse socioeconomic impacts from EPU-related plant modifications and operations under EPU conditions in the vicinity of the PBNP.

Environmental Justice Impacts:

The environmental justice impact analysis evaluates the potential for disproportionately high and adverse human health and environmental effects on minority and low-income populations that could result from activities associated with the proposed EPU at the PBNP. Such effects may include human health, biological, cultural, economic, or social impacts. Minority and low-income populations are subsets of the general public residing in the vicinity of

the PBNP, and all are exposed to the same health and environmental effects generated from activities at the PBNP.

The NRC staff considered the demographic composition of the area within a 50-mile (80-km) radius of the PBNP to determine the location of minority and low-income populations and whether they may be affected by the proposed action.

Minority populations in the vicinity of PBNP, according to the U.S. Census Bureau data for 2000, comprise 7.6 percent of the population (approximately 722,000 individuals) residing within a 50-mile (80-kilometer) radius of PBNP. The largest minority group was Hispanic or Latino (approximately 19,000 persons or 2.7 percent), followed by Asian (approximately 17,000 persons or about 2.4 percent). According to the U.S. Census Bureau, about 5.0 percent of the Manitowoc County population identified themselves as minorities, with persons of Asian origin comprising the largest minority group (2.0 percent). According to census data, the 3-year average estimate for 2006–2008 for the minority population of Manitowoc County, as a percent of total population, increased to 6.4 percent, with persons of Hispanic or Latino origin comprising the largest minority group (2.5 percent).

Low-income populations in the Vicinity of PBNP, according to 2000 census data, comprise approximately 7,300 families and 40,900 individuals (approximately 3.8 and 5.7 percent, respectively) residing within a 50-mile (80-kilometer) radius of the PBNP. These individuals and families were identified as living below the Federal poverty threshold in 1999. The 1999 Federal poverty threshold was \$17,029 for a family of four.

According to census data in the 2006–2008 American Community Survey 3–Year Estimates, the median household income for Wisconsin was \$52,249, with 10.7 percent of the State population and 7.0 percent of families determined to be living below the Federal poverty threshold. Manitowoc County had a lower median household income average (\$49,867) than the State of Wisconsin, but had lower percentages of county individuals (7.9 percent) and families (4.8 percent), respectively, living below the poverty level.

Environmental Justice Impact Analysis:

Potential impacts to minority and low-income populations would mostly consist of environmental and socioeconomic effects (e.g., noise, dust, traffic, employment, and housing impacts). Radiation doses from plant operations after the EPU are expected to continue to remain well below regulatory limits.

Noise and dust impacts would be short-term and limited to onsite activities. Minority and low-income populations residing along site access roads could experience increased commuter vehicle traffic during shift changes. Increased demand for rental housing during the refueling outages that would include EPU-related plant modifications could disproportionately affect low-income populations. However, due to the short duration of the EPU-related work and the availability of rental housing, impacts to minority and low-income populations would be short-term and limited. According to census information, there were approximately 3,200 vacant housing units in Manitowoc County.

Based on this information and the analysis of human health and environmental impacts presented in this environmental assessment, the proposed EPU would not have disproportionately high and adverse human health and environmental effects on minority and low-income populations residing in the vicinity of the PBNP.

Non-radiological Impacts Summary:

As discussed above, the proposed EPU would not result in any significant non-radiological impacts. Table 1 summarizes the non-radiological environmental impacts of the proposed EPU at PBNP.

Table 1. Summary of Non-radiological Environmental Impacts

Land Use	No significant impact on land use conditions and aesthetic resources in the vicinity of the PBNP.
Air Quality	Temporary short-term air quality impacts from vehicle emissions related to the workforce. No significant impacts to air quality.
Water Use	Water use changes resulting from the EPU would be relatively minor. No significant impact on groundwater or surface water resources.
Aquatic Resources	No significant impact to aquatic resources due to impingement, entrainment, and chemical or thermal discharges.
Terrestrial Resources	No significant impact to terrestrial resources.
Threatened and Endangered Species	No significant impact to Federally-listed species.
Historic and Archaeological Resources	No significant impact to historic and archaeological resources on site or in the vicinity of the PBNP.
Socioeconomics	No significant socioeconomic impacts from EPU-related temporary increase in workforce.
Environmental Justice	No disproportionately high and adverse human health and environmental effects on minority and low-income populations in the vicinity of the PBNP.

Radiological Impacts

Radioactive Gaseous and Liquid Effluents, Direct Radiation Shine, and Solid Waste

PBNP uses waste treatment systems to collect, process, recycle, and dispose of gaseous, liquid, and solid wastes that contain radioactive material in a safe and controlled manner within NRC and EPA radiation safety standards. The licensee's evaluation of plant operation at the proposed EPU conditions shows that no physical changes would be needed to the radioactive gaseous, liquid, or solid waste systems.

Radioactive Gaseous Effluents

The gaseous waste management systems include the radioactive gaseous system, which manages radioactive gases generated during the nuclear fission process. Radioactive

gaseous wastes are principally activation gases and fission product radioactive noble gases resulting from process operations, including continuous degasification of systems, gases collected during system venting, and gases generated in the radiochemistry laboratory. The licensee's evaluation determined that implementation of the proposed EPU would not significantly increase the inventory of carrier gases normally processed in the gaseous waste management system, since plant system functions are not changing and the volume inputs remain the same. The analysis also showed that the proposed EPU would result in an increase (approximately 17.6 percent for noble gases, particulates, radioiodines, and tritium) in the equilibrium radioactivity in the reactor coolant, which in turn increases the radioactivity in the waste disposal systems and radioactive gases released from the plant.

The licensee's evaluation concluded that the proposed EPU would not change the radioactive gaseous waste system's design function and reliability to safely control and process the waste. The existing equipment and plant procedures that control radioactive releases to the environment will continue to be used to maintain radioactive gaseous releases within the dose limits of 10 CFR 20.1302 and the as low as is reasonably achievable (ALARA) dose objectives in Appendix I to 10 CFR Part 50.

#### Radioactive Liquid Effluents

The liquid waste management system collects, processes, and prepares radioactive liquid waste for disposal. Radioactive liquid wastes include liquids from various equipment drains, floor drains, the chemical and volume control system, steam generator blowdown, chemistry laboratory drains, laundry drains, decontamination area drains and liquids used to transfer solid radioactive waste. The licensee's evaluation shows that the proposed EPU implementation would not significantly increase the inventory of liquid normally processed by the liquid waste management system. This is because the system functions are not changing and the volume inputs remain the same. The proposed EPU would result in an increase

(approximately 17.6 percent) in the equilibrium radioactivity in the reactor coolant which in turn would impact the concentrations of radioactive nuclides in the waste disposal systems.

Since the composition of the radioactive material in the waste and the volume of radioactive material processed through the system are not expected to significantly change, the current design and operation of the radioactive liquid waste system will accommodate the effects of the proposed EPU. The existing equipment and plant procedures that control radioactive releases to the environment will continue to be used to maintain radioactive liquid releases within the dose limits of 10 CFR 20.1302 and ALARA dose standards in Appendix I to 10 CFR Part 50.

#### Occupational Radiation Dose at EPU Conditions

The licensee stated that the in-plant radiation sources are expected to increase approximately linearly with the proposed increase in core power level. To protect the workers, the plant's radiation protection program monitors radiation levels throughout the plant to establish appropriate work controls, training, temporary shielding, and protective equipment requirements so that worker doses will remain within the dose limits of 10 CFR Part 20 and ALARA.

In addition to the work controls implemented by the radiation protection program, permanent and temporary shielding is used throughout the PBNP to protect plant personnel against radiation from the reactor and auxiliary systems containing radioactive material. The licensee determined that the current shielding design, which uses conservative analytical techniques to establish the shielding requirements, is adequate to offset the increased radiation levels that are expected to occur from the proposed EPU. The proposed EPU is not expected to significantly affect radiation levels within the plant and therefore there would not be a significant radiological impact to the workers.

### Offsite Doses at EPU Conditions

The primary sources of offsite dose to members of the public from the PBNP are radioactive gaseous and liquid effluents. As discussed above, operation at the proposed EPU conditions will not change the radioactive gaseous and liquid waste management systems' abilities to perform their intended functions. Also, there would be no change to the radiation monitoring system and procedures used to control the release of radioactive effluents in accordance with NRC radiation protection standards in 10 CFR Part 20 and Appendix I to 10 CFR Part 50.

Based on the above, the offsite radiation dose to members of the public would continue to be within regulatory limits and therefore, would not be significant.

### Radioactive Solid Wastes

Radioactive solid wastes include solids recovered from the reactor coolant systems, solids that come into contact with the radioactive liquids or gases, and solids used in the reactor coolant system operation. The licensee evaluated the potential effects of the proposed EPU on the solid waste management system. The largest volume of radioactive solid waste is low-level radioactive waste which includes sludge, oily waste, bead resin, spent filters, and dry active waste (DAW) that result from routine plant operation, refueling outages, and routine maintenance. DAW includes paper, plastic, wood, rubber, glass, floor sweepings, cloth, metal, and other types of waste generated during routine maintenance and outages.

As stated by the licensee, the proposed EPU would not have a significant effect on the generation of radioactive solid waste volume from the primary reactor coolant and secondary side systems since the systems functions are not changing and the volume inputs remain consistent with historical generation rates. The waste can be handled by the solid waste management system without modification. The equipment is designed and operated to process the waste into a form that minimizes potential harm to the workers and the environment. Waste processing areas are monitored for radiation and there are safety features to ensure worker

doses are maintained within regulatory limits. The proposed EPU would not generate a new type of waste or create a new waste stream. Therefore, the impact from the proposed EPU on radioactive solid waste would not be significant.

#### Spent Nuclear Fuel

Spent fuel from the PBNP is stored in the plant's spent fuel pool and in dry casks in the Independent Spent Fuel Storage Installation. The PBNP is licensed to use uranium-dioxide fuel that has a maximum enrichment of 5 percent by weight uranium-235. The typical average enrichment is approximately 4.8 percent by weight of uranium-235. The average fuel assembly discharge burnup for the proposed EPU is expected to be approximately 52,000 megawatt days per metric ton uranium (MWd/MTU) with no fuel pins exceeding the maximum fuel rod burnup limit of 62,000 MWd/MTU. The licensee's fuel reload design goals will maintain the PBNP fuel cycles within the limits bounded by the impacts analyzed in 10 CFR Part 51, Table S-3 - Table of Uranium Fuel Cycle Environmental Data, and Table S-4 - Environmental Impact of Transportation of Fuel and Waste to and from One Light-Water-Cooled Nuclear Power Reactor. Therefore, there would be no significant impacts resulting from spent nuclear fuel.

#### Postulated Design-Basis Accident Doses:

Postulated design-basis accidents are evaluated by both the licensee and the NRC staff to ensure that PBNP can withstand normal and abnormal transients and a broad spectrum of postulated accidents without undue hazard to the health and safety of the public.

On December 8, 2008, the licensee submitted License Amendment Request (LAR) number 241 (LAR 241) to the NRC, to update its design basis accident analysis. LAR 241 requests NRC approval to use a set of revised radiological consequence analyses using the guidance in NRC's Regulatory Guide 1.183, *Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors*. The analyses for LAR 241 are applicable for the power level in the proposed EPU. The NRC staff is evaluating LAR 241 separately from the EPU to determine if it is acceptable to approve. The results of the NRC's

evaluation and conclusion will be documented in a Safety Evaluation Report that will be publically available on the NRC's Agencywide Documents Access and Management System (ADAMS).

In LAR 241, the licensee reviewed the various design-basis accident (DBA) analyses performed in support of the proposed EPU for their potential radiological consequences and concludes that the analyses adequately account for the effects of the proposed EPU. The licensee states that the plant site and its dose-mitigating engineered safety features remain acceptable with respect to the radiological consequences of postulated DBAs, since the calculated doses meet the exposure guideline values specified in 10 CFR 50.67 and General Design Criteria 19 in Appendix A of 10 CFR Part 50.

The amendment is a change to a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The Commission previously issued a proposed finding in the *Federal Register* (74 FR 17230) that the amendment involves no significant hazards consideration, and there has been no public comment on such finding. The NRC staff must determine that the amendment involves no significant increase in the amounts, and no significant changes in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. Accordingly, the amendment will then meet the eligibility criteria for categorical exclusion as set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with issuance of the amendment.

Radiological Impacts Summary:

As discussed above, the proposed EPU would not result in any significant radiological impacts. Table 2 summarizes the radiological environmental impacts of the proposed EPU at the PBNP.

Table 2. Summary of Radiological Environmental Impacts

Radioactive Gaseous Effluents	Amount of additional radioactive gaseous effluents generated would be handled by the existing system.
Radioactive Liquid Effluents	Amount of additional radioactive liquid effluents generated would be handled by the existing system.
Occupational Radiation Doses	Occupational doses would continue to be maintained within NRC limits.
Offsite Radiation Doses	Radiation doses to members of the public would remain below NRC and EPA radiation protection standards.
Radioactive Solid Waste	Amount of additional radioactive solid waste generated would be handled by the existing system.
Spent Nuclear Fuel	Amount of additional spent nuclear fuel would be handled by the existing system.
Postulated Design-Basis Accident Doses	Calculated doses for postulated design-basis accidents would remain within NRC limits.

Alternatives to the Proposed Action:

As an alternative to the proposed action, the NRC staff considered denial of the proposed EPU (i.e., the “no-action” alternative). Denial of the application would result in no change in the current environmental impacts. However, if the EPU were not approved for the PBNP, other agencies and electric power organizations may be required to pursue other means, such as fossil fuel or alternative fuel power generation, to provide electric generation capacity to offset future demand. Construction and operation of such a fossil-fueled or alternative-fueled plant may create impacts in air quality, land use, and waste management significantly greater than those identified for the proposed EPU at the PBNP. Furthermore, the proposed EPU does not involve environmental impacts that are significantly different from those originally identified in the PBNP FES and the SEIS-23.

Alternative Use of Resources:

This action does not involve the use of any resources not previously considered in the FES.

Agencies and Persons Consulted:

In accordance with its stated policy, on November 19, 2010, the NRC staff consulted with the State of Wisconsin official regarding the environmental impact of the proposed action. The State official had no comments.

DRAFT FINDING OF NO SIGNIFICANT IMPACT

On the basis of the details provided in the draft EA, the NRC concludes that the proposed action of implementing the PBNP EPU will not have a significant effect on the quality of the human environment because no permanent changes are involved and the temporary impacts are within the capacity of the plant systems. Accordingly, the NRC has preliminarily determined not to prepare an environmental impact statement for the proposed action. A final determination to prepare an environmental impact statement or a final finding of no significant impact will not be made until the public comment period expires.

For further details with respect to the proposed action, see the licensee's application dated April 7, 2009, and supplements dated May 13, 2010, and July 15, 2010 (on environmental issues).

Documents may be examined, and/or copied for a fee, at the NRC's Public Document Room (PDR), located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland 20852. Publicly available records will be accessible electronically from the ADAMS Public Electronic Reading Room on the NRC Web site, <http://www.nrc.gov/reading-rm/adams.html>. Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS should contact the NRC PDR Reference staff at 1-800-397-4209, or 301-415-4737, or send an e-mail to [pdr.Resource@nrc.gov](mailto:pdr.Resource@nrc.gov).

DATES: The comment period expires January 8, 2011. Comments received after this date will be considered if it is practical to do so, but the Commission is only able to assure consideration of comments received on or before January 8, 2011.

ADDRESSES: Submit written comments to Chief, Rules and Directives Branch (RDB), TWB-05-B01M, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001, and should cite the publication date and page number of this *Federal Register* notice. Written comments may also be faxed to the RDB at 301-492-3446.

SUPPLEMENTARY INFORMATION: The NRC is considering issuance of an amendment to Renewed Facility Operating License Nos. DPR-24 and DPR-27, issued to NextEra Energy Point Beach, LLC, for operation of the Point Beach Nuclear Plant, Units 1 and 2, located in Manitowoc County, Wisconsin.

FOR FURTHER INFORMATION CONTACT: Terry A. Beltz, Office of Nuclear Reactor Regulation, Mail Stop O-8H4A, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001, by telephone at 301-415-3049, or by e-mail at [Terry.Beltz@nrc.gov](mailto:Terry.Beltz@nrc.gov).

Dated at Rockville, Maryland, this 1st day of December 2010.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert J. Pascarelli, Chief  
Plant Licensing Branch III-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

December 1, 2010

Mr. Larry Meyer  
Site Vice President  
NextEra Energy Point Beach, LLC  
6610 Nuclear Road  
Two Rivers, WI 54241-9516

**SUBJECT: POINT BEACH NUCLEAR PLANT (PBNP), UNITS 1 AND 2 – DRAFT ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT RELATED TO THE PROPOSED EXTENDED POWER UPRATE (TAC NOS. ME1044 AND ME1045)**

Dear Mr. Meyer:

Enclosed is a copy of the Draft Environmental Assessment and Draft Finding of No Significant Impact related to your request for an amendment dated April 7, 2009, as supplemented on May 13 and July 15, 2010 (on environmental issues) for PBNP. The proposed amendment would authorize increasing the maximum thermal power from 1,540 megawatts thermal (MWt) to 1,800 MWt, which is an increase of approximately 17 percent over the current licensed thermal power, and approximately 18 percent from the original licensed thermal power.

The assessment is being forwarded to the Office of the *Federal Register* for publication.

Sincerely,

**/RA/**

Terry A. Beltz, Senior Project Manager  
Plant Licensing Branch III-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-266 and 50-301

Enclosure:  
Draft Environmental Assessment

cc w/encl: Distribution via Listserv

DISTRIBUTION:

PUBLIC	RidsNrrLABTully Resource	RidsOgcRp Resource
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**ADAMS Accession Nos.**

Package: ML103200481  
Letter (NRR-106): ML103140297  
EA FRN (NRR-044): ML103140277

\* via e-mail dated November 4, 2010

\*\* with comments

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