

**Beyond Nuclear**  
**Seacoast Anti-Pollution League**  
**New Hampshire Sierra Club**

October 20, 2010

Annette Viette-Cook, Secretary  
Office of the Secretary  
United States Nuclear Regulatory Commission  
Washington, DC 20555-0001  
[Electronically filed by NRC Digital Certificate]

**Request for a Public Hearing and Petition for Leave to Intervene in the Matter of NextEra's Application to Relicense the Seabrook Nuclear Power Plant (Docket No. 50-443-LR)**

Ms. Viette-Cook:

As noticed by Federal Register of July 21, 2010 [Volume 75, Number 139, Page 42462-42464], *“Notice of Acceptance for Docketing of the Application and Notice of Opportunity for Hearing Regarding Renewal of Facility Operating License No. NPF-86 for an Additional 20-Year Period; Nextera Energy Seabrook, LLC; Seabrook Station Unit 1,”* we are providing the agency with the following submission.

Please find attached the Request for Public Hearing and Petition for Leave to Intervene as filed by Beyond Nuclear, Seacoast Anti-Pollution League and New Hampshire Sierra Club in the matter of NextEra's license renewal application for the Seabrook Nuclear Power Station located in Seabrook, New Hampshire.

Sincerely,

/Signed by Paul Gunter/

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October 20, 2010

UNITED STATES OF AMERICA  
BEFORE THE NUCLEAR REGULATORY COMMISSION  
OFFICE OF THE SECRETARY

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In the Matter of )  
)  
NEXTERA ENERGY SEABROOK (LLC) )  
[Also Known As FLORIDA POWER & LIGHT] )  
)  
SEABROOK NUCLEAR POWER PLANT )  
)  
Regarding the Renewal of Facility Operating License )  
No-NFP-86 for a 20-Year Period ) DOCKET NO. 50-443-LR  

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BEYOND NUCLEAR, SEACOAST ANTI-POLLUTION LEAGUE AND NEW  
HAMPSIRE SIERRA CLUB REQUEST FOR PUBLIC HEARING AND  
PETITION TO INTERVENE

Now comes Beyond Nuclear, Seacoast Anti-Pollution League and the New Hampshire Sierra Club, hereafter referred to as the “Petitioners,” and hereby make their REQUEST FOR PUBLIC HEARING AND PETITION FOR LEAVE TO INTERVENE in the above captioned matter, pursuant to Federal Register July 21, 2010, [Volume 75, Number 139, Page 42462-42464] “Notice of Acceptance for Docketing of the Application and Notice of Opportunity for Hearing Regarding Renewal of Facility Operating License No. NPF-86 for an Additional 20-Year Period; Nextera Energy Seabrook, LLC; Seabrook Station Unit 1,” and in accordance with the provisions of 10 CFR § 2.174 and §2.309. By Orders

of the Secretary dated September 17 and September 20, 2010 the filing deadline was extended by thirty (30) days to October 20, 2010.

In support of the Request for Hearing and Petition to Intervene, said Petitioners as Intervenors further state as follows;

1. Beyond Nuclear is a not-for-profit organization based in Takoma Park, Maryland with over 6,000 members of whom a number reside, work and recreate within the fifty (50) mile Emergency Planning Zone for the Seabrook Nuclear Power Station (hereinafter referred to as “Seabrook”). The central office of Beyond Nuclear is located at 6930 Carroll Avenue, Suite 400, Takoma Park, Maryland, 20912, Tel 301-270-2209, [www.beyondnuclear.org](http://www.beyondnuclear.org).

2. The Seacoast Anti-Pollution League (SAPL) is a not-for-profit organization based in Portsmouth, New Hampshire that has worked since 1969 to protect the health, safety and general well-being of the New Hampshire Seacoast community from nuclear pollution and other threats to the environment. Most of SAPL's members live and work within fifty miles of the NextEra Seabrook Nuclear Generating Station. It has previously intervened in NRC licensing of the Seabrook plant and New Hampshire Decommissioning Commission proceedings. SAPL makes its place of business through P.O. Box 1136, Portsmouth, New Hampshire, 03802, Tel. 603-431-5089.

3. The New Hampshire Sierra Club is a not-for-profit organization based in Concord, NH that consists of over 4,000 active members across the Granite State. The Club is involved

in legislative and regulatory issues on the local, state and national levels. Our members and supporters are working together to protect our environmental quality, and working for a clean renewable energy future for our communities in New Hampshire and beyond. The New Hampshire Sierra Club's principle office is located at 40 North Main Street, Concord, New Hampshire.

4. The Petitioners, as intervenors seeking representational standing, believe that their members' interests will not be adequately represented without this course of action and intervention, and without the opportunity to participate as full parties in this proceeding. If the Seabrook license is extended by twenty (20) years without first resolving the Petitioners' concerns, this nuclear power generating station may operate unsafely and pose an undue and unacceptable risk to the environment and jeopardize the health, safety and welfare of the Petitioners' members who live, recreate and conduct their business in the vicinity of the nuclear power plant.

5. Representational standing of the Petitioners is provided through the attached declarations for Beyond Nuclear, Seacoast Anti-Pollution League and New Hampshire Sierra Club by their respective members all of whom reside within the Seabrook Emergency Planning Zone.

## **Contention**

Contention One. The NextEra Environmental Report fails to evaluate the potential for renewable energy to offset the loss of energy production from the Seabrook nuclear power plant and to make the requested license renewal action for 2030 unnecessary. In violation of the requirements of 10 C.F.R. §51.53(c)(3)(iii) and of the GEIS § 8.1, the NextEra Environmental Report (§ 7.2) treats all of the alternatives to license renewal except for natural gas and coal plants as unreasonable and does not provide a substantial analysis of the potential for significant alternatives which are being aggressively planned and developed in the Region of Interest for the requested relicensing period of 2030-2050. The scope of the SEIS is improperly narrow, and the issue of the need for Seabrook as a means of satisfying demand forecasts for the relicensing period must be revisited due to dramatically-changing circumstances in the regional energy mix throughout the two decades preceding the relicensing period.

## **Basis**

1. The National Environmental Policy Act (NEPA) requires honesty and completeness in disclosure of environmental impact assumptions and the basis for agency decisions. The purpose of NEPA is to protect the environment. *See, e.g., Weinberger v. Catholic Action of Hawaii/Peace Educ. Project*, 454 U.S. 139, 143 (1981) (NEPA's "twin aims" are "to inject environmental considerations into the agency's decision-making process" and "to inform the public that the agency has considered environmental concerns").

2. As part of the NEPA review for all major federal actions, the agency, in this case the United States Nuclear Regulatory Commission (NRC) must conduct a Supplemental Environment Impact Statement that includes a sufficiently complete evaluation of the alternatives to the requested action.

3. While it is established that the courts must not “*substitute their judgment of the environmental impact for the judgment of the agency, once the agency has adequately studied the issue,*” *Crouse Corp. v. Interstate Commerce Comm’n*, 781 F.2d 1176 (6th Cir. 1986), Petitioners contend that the pivotal words are “*adequately studied.*” The harm NEPA seeks to prevent is complete when the agency makes a decision without sufficiently considering information NEPA requires be placed before the decision-maker and public. *Sierra Club v. Marsh*, 872 F.2d 497, 500 (1st Cir. 1989). “*The injury of an increased risk of harm due to an agency's uninformed decision is precisely the type of injury {NEPA} was designed to prevent.*” *Comm. to Save the Rio Hondo v. Lucero*, 102 F.3d 445, 448-49 (10<sup>th</sup> Cir. 1996).

### **Environmental Review and Scoping**

1. The scope of the environmental review is defined by 10 C.F.R. Part 51, the NRC’s “Generic Environmental Impact Statement for License Renewal of Nuclear Plants” (NUREG 1437 (May 1996)), and the initial hearing notice and order. *See, e.g., Vermont Yankee*, 2006 NRC Lexis 201 (ASLB 9/22/2006). Some environmental issues that might otherwise be germane in a license renewal proceeding have been resolved generically for

all plants and are normally, therefore, “beyond the scope of a license renewal hearing.”

*Matter of Florida Power & Light Co.* (Turkey Point Nuclear Power Plant), CLI-01-17, 54 NRC 3, 15 (7/19/2001); *see* 10 C.F.R. § 51.53(c)(3)(i).

2. These “Category 1” issues are classified in 10 C.F.R. Part 51, Subpart A, Appendix B. Category 1 issues may be raised when a petitioner (1) demonstrates that there is new and significant information subsequent to the preparation of the GEIS regarding the environmental impacts of license renewal; (2) files a petition for a rulemaking with the NRC; or (3) seeks a waiver pursuant to 10 C.F.R. § 2.335. *See Turkey Point*, 54 NRC at 10-12; *see also* 10 C.F.R. § 51.53(c)(3)(iv) (new and significant information).

### **New and Significant Information Prompts SEIS**

1. The National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321-37, requires all federal agencies to examine environmental impacts that could be caused by their discretionary actions. NEPA’s twin aims are (1) obligating a federal agency to consider every significant aspect of the environmental impact of a proposed action and (2) ensuring that the federal agency will inform the public that it has indeed considered environmental concerns in its decision-making process. *Baltimore Gas & Elec. Co. v. Natural Resources Defense Council*, 462 U.S. 87, 97 (1983); *see also* 42 U.S.C. § 4332(2)(c) (identifying requirements of an EIS).

2. As a federal agency, the NRC must comply with NEPA. *Calvert Cliffs Coordinating*



*Comm. v. AEC*, 449 F.2d 1109 (D.C. Cir. 1971) (NEPA applies to NRC's predecessor).

Moreover, NEPA imposes continuing obligations on the NRC following completion of an environmental analysis. An agency that receives new and significant information casting doubt upon a previous environmental analysis must reevaluate the prior analysis. *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 374 (1989). This requirement is codified in NRC regulations at 10 C.F.R. § 51.92(a).

3. The NRC's license renewal application regulations repeat this obligation. 10 C.F.R. § 51.53(c)(3)(iv) provides that an ER must contain "any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware."

The Commission has concluded this applicant obligation extends to new and significant information even when such information pertains to a Category 1 issue. *See Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-14, 55 NRC 278, 290 (2002). In *Vermont Yankee*, 50-271-LR (9/22/2006) at 17-27, the Commission recognized ... that even generic findings sometimes need revisiting in particular contexts. Our rules thus provide a number of opportunities for individuals to alert the Commission to new and significant information that might render a generic finding invalid, either with respect to all nuclear power plants or for one plant in particular. In the hearing process, for example, petitioners with new information showing that a generic rule would not serve its purpose at a particular plant may seek a waiver of the rule. See 10 C.F.R. § 2.758; see also note 3, *supra*, and accompanying text. Petitioners

with evidence that a generic finding is incorrect for all plants may petition the Commission to initiate a fresh rulemaking. See 10 C.F.R. § 2.802. Such petitioners may also use the SEIS notice-and-comment process to ask the NRC to forgo use of the suspect generic finding and to suspend license renewal proceedings, pending a rulemaking or updating of the GEIS. See 61 Fed. Reg. at 28,470; GEIS at 1-10 to 1-11.

4. So the Commission foreclosed no options but has identified some of the several options available. A waiver of the generic rule is not a prerequisite, nor is such a conclusion obvious or necessary in light of the plain language of the regulation.

5. To the extent that Petitioners articulate significant or new information, it is aimed at rebutting statements made, and conclusions drawn by the Applicant, and to evidence some of the errors and omissions in the Environmental Report.

6. With respect to the remaining issues in Appendix B, "Category 2" issues, (1) the applicant must make a plant-specific analysis of environmental impacts in its Environmental Report, 10 C.F.R. § 51.53(c)(3)(ii), and (2) NRC Staff must prepare a supplemental Environmental Impact Statement, id. § 51.95(c). Contentions implicating Category 2 issues ordinarily are deemed to be within the scope of license renewal proceedings. See *Turkey Point*, 54 NRC at 11-13; *Matter of Amergen Energy Co.* (Oyster Creek), 50-0219-LP, 2006 NRC Lexis 195 (Feb. 27, 2006).

7. Similarly, the environmental review mandated by NEPA is subject to a rule of reason.

While it need not include all theoretically possible environmental effects arising out of an action, it draws direct support from the judicial interpretation of the statutory command that the NRC is obliged to make reasonable forecasts of the future. *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 & 2), ALAB-455, 7 NRC 41, 48, 49 (1978); *Hydro Res., Inc.*, LBP-04-23, 60 NRC 441, 447 (2004), *review declined*, CLI-04-39, 60 NRC 657 (2004).

8. In the context of the required NEPA review to include a reasonable forecast for less harmful alternatives to the proposed federal license extension of the Seabrook nuclear power station for the requested renewal period of 2030 to 2050, renewable energy alternatives are demonstrated to be unique when compared to the proposed Seabrook relicensing activity because the alternatives can be demonstrated to have significantly less adverse human environmental impacts. In large part, this unique quality is due to the fact that energy alternatives like wind and solar are abundantly available and do not have a carbon producing fuel cycle such as is the case with uranium as it pertains to the requested relicensing action.

### **Supporting Evidence**

1. A significant environmental feature of wind generated power over the extension of the operation of the Seabrook nuclear station is that scientific studies show that wind has a significantly smaller carbon footprint. Petitioners submit that wind power generation has

a value of 9 grams of carbon dioxide per kilowatt per hour when compared to both nuclear power generation at a mean value of 66 grams of carbon dioxide per kilowatt per hour and coal power generation at mean value of 960 grams of carbon dioxide per kilowatt per hour. Seabrook therefore has on average of in excess of seven (7) times more carbon emissions than wind power. [Petitioners' Exhibit #1, "Valuing the greenhouse gas emissions from nuclear power: A critical survey," Benjamin Sovacool, Energy Policy, Elsevier, February 2008, Table 8, page 2950]

2. Thus greater reliance upon renewable energy in the future particularly in wind energy development is argued to provide even a greater reduction in adverse human environmental consequences when compared to the proposed nuclear power relicensing action by fact that renewable energy generators such as wind turbines also do not require radiological emergency planning zones, constantly vigilant security perimeters and use-of-lethal-force security exclusion zones and the creation of national sacrifice areas to contain radioactive wastes as is the case with the uranium fuel chain beginning with the uranium mines and ultimately leading to the still unresolved issue of long-term nuclear waste management.

3. The Petitioners contend that without fulfilling the NEPA standards, the NRC cannot effectively make decisions as to the wisdom and merit of the requested federal relicensing action in light of reasonable energy alternatives that are demonstrably less

harmful to the human environment as required by NEPA in comparison with the requested relicensing action beginning in 2030.

4. The Petitioners contend that the Applicant's Environmental Report as currently written is significantly and unacceptably deficient and does not meet the requirements of NEPA to rigorously discuss and provide a sufficiently complete evaluation of those alternatives with significantly less adverse human environmental consequence to the requested federal relicensing action for the period of 2030 through 2050.

5. Therefore, the Petitioners contend that the NRC cannot accept the Applicant's Environmental Report as accurate and sufficiently complete for purpose of preparing and completing the NEPA required Environmental Impact Statement (EIS) in the requested federal action for the following reasons regarding the Applicant's treatment of the renewable energy alternatives including the wind energy alternative projected for the Region of Interest.

6. The Petitioners contend that the Applicant's Environmental Report fails to provide the requisite "reasonable forecast" with sufficiently "high quality," "accurate scientific analysis," nor does it sufficiently include "expert agency comments" for rigorously and objectively discussing the most reasonable alternative of offshore wind energy for the Region of Interest in the requested relicensing period of 2030 to 2050. The Petitioners

contend that the Applicant's lack of attention to detail and failure to meet the requirements of NEPA as applied to its evaluation of the wind energy alternative more broadly apply to its dismissive treatment of all the individual renewable energy alternatives as projected for the Seabrook license renewal period of 2030 to 2050 including solar power, as well as wave and tidal power.

7. The Applicant has chosen to make application for the requested federal relicensing action twenty (20) years in advance of the expiration date of its current forty (40) year operating license. The Petitioners contend that by submitting an application twenty (20) years in advance of Seabrook's current operating license expiration date the application and the review process suffer significantly and undermines the spirit and intent of the NEPA review process with grossly premature data resulting meaningless and inaccurate assumptions. The premature submission therefore adversely affects the quality of the submittal and the veracity of the applicant's claims pertaining to the reviewed alternatives to the proposed federal relicensing action.

8. The Petitioners acknowledge that current NRC law provides in 10 CFR 51.17(c) that a licensee may make application for license renewal a maximum of twenty (20) years in advance of the expiration of an operating license. The Petitioners assert that making application 20 years in advance of the license expiration date is at an extreme and beyond reasonable claims to reliability and accuracy for requested federal actions.

9. The Petitioners further acknowledge that there are several examples where the NRC has already accepted and approved license extension applications that were filed nearly twenty years in advance of 40-year operating license expiration date. However, the Petitioners argue that simply repeating a mistake over and over neither justifies each individual error nor does the culmination of mistakes provide justification to make more mistakes particularly when such error can bring repeated and increasing harm to the human environment as is to be regarded by NEPA standards.

10. The Petitioners note that in search of relief in advance and in parallel to this proceeding, Beyond Nuclear and Seacoast Anti-Pollution League are named in a Petition for Rulemaking filed on August 18, 2010 to NRC seeking to effect a rule change from the current provision of 10 CFR 51.17(c), which provides that a licensee may seek a license renewal application no more than twenty (20) years in advance of the expiration date of the current operating license to be changed so that a licensee may not seek a license renewal application more than ten (10) years prior to the operating license expiration.

11. The Petition for Rulemaking has been docketed by the NRC. [**Petitioners' Exhibit #2**, PRM-54-6, Petition for Rule Making before the US Nuclear Regulatory Commission for changes to 10 CFR 51.17(c), Federal Register: September 27, 2010, Volume 75, Number 186, Proposed Rules, Page 59158-59160] The Petitioners have asserted in the

proposed rule change that as a consequent of submitting premature relicensing applications the Environmental Reviews will be under-informing and misinforming of the requisite environmental review. Petitioner's further bring to the attention of any impaneled licensing board that the docketed PRM includes the Petitioners' request under 10 CFR 2.802(d) that the NRC relicensing proceedings subject to the relief sought by the Petitioners currently and subsequently before an Atomic Safety Licensing Board be postponed until the agency has ruled on PRM 54-6.

12. Petitioners assert that the proffered contention challenges the Applicant's Environmental Report, which Petitioners assert does not adequately provide the agency with sufficient information that can be reasonably characterized as containing "high quality," "accurate scientific analysis," nor with sufficient "expert agency comments" so as to meet NEPA standards for the consideration of alternatives, the mitigation of environmental effects and to provide the NRC and the public with enough quality information that the agency can fulfill its obligation to take the required "hard look" in an Environmental Impact Statement.

13. In fact, the Applicant's Environmental Report offers only vague and superficial arguments on the alternatives and even those arguments are significantly dated, incomplete and inaccurate. The Applicant has further failed or neglected to undertake a vigorous and substantially complete discussion of the alternative energy resources



specific to the Region of Interest to the requested relicensing action as NEPA requires for the Environmental Report.

14. The Applicant's Environmental Report proffers in its evaluation of alternatives to the requested federal relicense action at Section 7 the statement "*...The consideration of alternative energy sources in individual license renewal reviews will consider those alternatives that are reasonable for the region, including power purchases from outside the applicant's service area... (NRC 1996c)*" as projected for the requested license renewal period of 2030 to 2050. [NextEra ER, Section 7.0, Alternatives to the Proposed Action, page 7.1]

15. The Applicant's Environmental Report states at 7.2.1 Alternatives Considered that "*For the purpose of the Environmental Report , alternative generating technologies were evaluated to identify candidate technologies that would be capable of replacing Seabrook Station's nominal net base-load capacity of 1,245 MWe*" during the requested relicensing period of 2030 to 2050.

16. NextEra Energy Seabrook sets forth that the New England states of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont comprise the Region of Interest (ROI) for purposes of its analysis.

17. The Environmental Report at Section 7.2.1.5 "Other Alternatives," NextEra provides a brief evaluation of the alternative resource of wind energy. At the outset, NextEra states, "*Wind power, due to its intermittent nature, is not suitable for base-load generation, as discussed in Section 8.3.1 of the GEIS. Wind power systems produce*

*power only when the wind is blowing at a sufficient velocity and duration.* [NextEra ER, Section 7, p 7.12.] The Applicant further asserts “*In the ROI, the primary areas of good wind energy resources are the Atlantic coast and exposed hilltops, ridge crests, and mountain summits. Offshore wind resources are abundant (EERE 2008b) but the technology is not sufficiently demonstrated at this time. Only 1,077 MW of offshore wind capacity has been installed worldwide (EERE 2008a).*” [NextEra Environmental Report, p. 7-12]

18. The Petitioners dispute the Applicant’s assertions that wind energy at this time is at all germane to the task that NEPA sets forth for the Environmental Review for the requested relicensing action for 2030 to 2050. The Applicant and the NRC are not simply required to satisfy the status of an alternate at this time particularly for a federal action that does not take affect at this time or even reasonably close to at this time but rather a requested action that is to commence approximately twenty (20) years from today. Instead, NEPA challenges the Applicant and the federal agency to “reasonably foresee” beyond the present time in formulating its evaluation of alternatives in the Environmental Report for the projected federal relicensing action as proposed to begin in 2030. The environmental review mandated by NEPA is the product of judicial interpretation of the statutory command that the NRC is obliged to make reasonable forecasts of the future. *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 & 2), ALAB-455, 7 NRC 41, 48, 49 (1978); *Hydro Res., Inc.*, LBP-04-23, 60 NRC 441, 447 (2004), *review declined*, CLI-04-39, 60 NRC 657 (2004).

19. The very real possibility that improved technology may be developed during the 40-year life span of a reactor does not render consideration of environmental issues too speculative. NEPA's requirement for forecasting environmental consequences into the future implies the need for predictions based on existing technology and those developments which can be extrapolated from it. *NRDC v. NRC*, 547 F.2d 633 (1976).

20. Thus NEPA seeks to “force action” through a rigorous and objective discussion backed by expert document and expert agency comment. In this case, the Applicant’s approach to completing an Environmental Report is more akin to avoidance of such documentation and expert comment than providing the requisite objective “hard look.” While some element of speculation is implicit in NEPA, federal agencies such as the NRC may not be allowed “to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as ‘crystal ball inquiry.’” *Scientists' Institute for Public Information, Inc. v. AEC (SIPI)*, 156 U.S.App.D.C. 395, 408, 481 F.2d 1079, 1092 (1973). Informed prediction is only possible after an agency has been provided with sufficient and qualified documentation to conduct a thorough inquiry into all aspects of the contemplated project and the area to be affected. While NEPA does not specify the quantum of information that must be in the hands of a decision-maker before that decision-maker may decide to proceed with a given project, it does intend “to ensure that decisions about federal actions would be made only after responsible decision-makers had fully adverted to the environmental consequences of the actions, and

had decided that the public benefits flowing from the actions outweighed their environmental costs.” *Alaska v. Andrus*, 11 ERC 1321, 188 U.S.App.D.C. 202, 8 Env’tl. L. Rep. 20,237 (D.C. Cir. 1978)

21. Here, the Applicant has too easily dismissed the wind energy alternative, describing various aspects of the resource as “not sufficiently demonstrated,” or having too much “intermittency” or “not baseload”, without proffering a rigorous and objective discussion or “hard look,” as if to say, there are no reasonable foreseeable solutions, demonstrations and developments set forth in any expert documents or by expert agency comments that make the alternative “reasonably foreseeable” and that can be specifically projected upon the requested relicensing action for 2030 for the Region of Interest. In fact, the Applicant’s cursory treatment and dismissal is neither entirely honest nor does it provide a sufficiently complete evaluation as pertains to the requested relicensing action but appears to manifest NextEra’s particular bias toward the requested relicensing outcome.

22. The Applicant’s Environmental Report states “*Wind power systems produce power only when the wind is blowing at a sufficient velocity and duration*” [NextEra ER, p. 7-12] NextEra then concedes “In conjunction with energy storage mechanisms, wind power might serve as a means of providing base-load power.” [NextEra ER, p.712] The Applicant then singles out storage as the most plausible advancement for wind power, and seeks to dismiss the entire alternative with the statement, “However, current energy

storage technologies are too expensive to permit wind power to serve as a large base-load generator (Schainker 2008).” [NextEra ER, p. 7-12]

23. As such, the Applicant offers the very narrow argument in its Environmental Report that storage technologies are and will be the only solutions for addressing the alternative’s baseload and intermittency issues.

24. However, contrary to the Applicant’s assertion, the Petitioners submit the following expert documents, expert agency comments, current events and statements of fact discussing and illuminating the implementation of solutions to address intermittency and baseload as reasonably, scientifically and commercially projected as available for the requested relicensing action in the 2030 time frame specifically for the Applicant’s Region of Interest.

25. In fact, an expert agency, the Department of Energy’s National Renewable Energy Laboratory’s (NREL) has looked at the issue of wind energy as a reasonable baseload power using innovative storage technology in a more forward looking evaluation than what the Applicant would lead us to believe. The Petitioners submit that NREL has published “Creating Baseload Wind Power Systems Using Compressed Air Energy Storage Concepts” where it is argued:

*“Greatly expanded use of wind energy has been proposed to reduce dependence on fossil and nuclear fuels for electricity generation. The large-scale deployment of wind energy is ultimately limited by its intermittent output and the remote location of high-value wind resources, particularly in the United States. Wind energy systems that combine wind turbine generation with energy storage and long-distance transmission may overcome these obstacles and provide a source of power that is functionally equivalent to a conventional baseload electric power plant. A ‘baseload wind’ system can produce a stable, reliable output that can replace a conventional fossil or nuclear baseload plant, instead of merely supplementing its output. This type of system could provide a large fraction of a region’s electricity demand, far beyond the 10-20% often suggested as an economic upper limit for conventional wind generation deployed without storage.”*

[**Petitioners’ Exhibit #3**, National Renewable Energy Laboratory, United States Department of Energy, “Creating Baseload Wind Power Systems,” Background and Overview, October 3, 2006]

26. The Petitioners proffer expert documentation and expert agency comment in support of its contention and in contrast to the Applicant’s cursory portrayal of wind energy as a fickle energy alternative without reasonably foreseeable applicability as a baseload alternative to the relicensing of the Seabrook nuclear power plant. The Applicant’s portrayal grossly misrepresents what the Petitioners argue as a reasonable assessment of state of the art. Largely by the process of omission, the Applicant has conjured up what is

in fact an incomplete and misleading characterization of wind energy as isolated machines and individualized wind farms that are necessarily subject to the whim of localized variable weather patterns. Such a portrayal is in fact a misrepresentation of many expert assessments and of more relevance and importance many expert evaluations of the alternative for the requested period of the proposed federal relicensing action.

27. The Petitioners submit expert documentation published in the Stanford University's Journal of Applied Meteorology and Climatology "Supplying Baseload Power and Reducing Transmission Requirements by Interconnected Wind Farms," which illustrates: *"A solution to improve wind power reliability is interconnected wind power. In other words, by linking multiple wind farms together it is possible to improve substantially the overall performance of the interconnected system (i.e., array) when compared with that of any individual wind farm."* [Petitioners' Exhibit #4, "Supplying Baseload Power and Reducing Transmission Requirements by Interconnected Wind Farms," Journal of Applied Meteorology and Climatology, Manuscript, Stanford University, February 2007, @ p. 1702] The scientific manuscript concludes, *"Contrary to common knowledge, an average of 33% and a maximum of 47% of yearly averaged wind power from interconnected farms can be used as reliable, baseload electric power. Equally significant, interconnecting multiple wind farms to a common point, and then connecting that point to a far-away city can allow the long-distance portion of transmission capacity to be reduced, for example, by 20% with only a 1.6% loss of energy."* [Petitioners'

**Exhibit #4**, “Supplying Baseload Power and Reducing Transmission Requirements by Interconnected Wind Farms,” Journal of Applied Meteorology and Climatology, Stanford University, February 2007, @ p. 1716]

28. An increasing number of news accounts of current events reveal a building momentum for interconnecting renewable energy resources to address the issue of intermittency and base-load. In the United States, the Petitioners submit that Google corporation has announced the formation of a consortium to supply large scale baseload wind power through the advancement of a scalable platform for an offshore “backbone transmission project” to interconnect East Coast wind farms to be completed by 2020, a decade in advance of the proposed federal relicensing action. The Washington Post reported “The transmission line would address the problem of wind's intermittent supply by tapping into a much broader swath of the coast to meet consumer demand.”

[**Petitioners’ Exhibit #5**, “Google helps finance ‘superhighway’ for wind power,” Washington Post, October 13, 2010]

29. The Petitioners proffer expert documentation and expert agency comments relating to the interconnectedness of renewable energy generation as a solution to baseload and intermittency issues as already underway and arguably implemented within the foreseeable future for development in the Applicant’s Region of Interest for the projected period of 2030.



30. As further example, on January 6, 2010, nine European North Sea countries (Germany, France, Belgium, Denmark, Sweden, Norway, Great Britain and the Netherlands) announced an investment of \$40 billion in an offshore undersea energy super smart grid for dedicated transmission of renewable energy. This investment and development supports a model for the United States as well as other countries.

[**Petitioners Exhibit #6**, January 6, 2010. “European Communities Unite to Invest \$40 Billion in Huge Off-Shore Renewable Energy Super Grid,” and **Petitioners’ Exhibit #7**, January 7, 2010, Renewable Energy (Wind, Solar & Tide Power) Will Be Distributed Through A Super Grid in Europe”]

31. Consequently, the Petitioners contend that the Applicant’s assertion in the Environmental Report that wind power is not and will not be “baseload,” and thus is not suitable to replace Seabrook in the time frame 2030-2050 is inaccurate and not based on scientific analysis nor current event and not sufficiently supported by expert document and expert agency comment.

32. Similarly, with specific regard to the Applicant’s Region of Interest, the Applicant’s proffered description of wind and intermittency as projected into the requested federal relicensing action again does not provide a sufficiently complete or accurate scientific analysis of the potential alternative by offshore wind for 2030. Again, the Applicant’s hasty and premature dismissal of the wind energy

alternative absent any discussion on the growing volume of current event, scientific study, commercial ventures and published expert review of solutions to intermittency suggests more avoidance by the industry than an effort to inform the federal agency to address its NEPA duties.

33. The Petitioners further submit the expert document “Electric power from offshore wind via synoptic-scale interconnection,” by authors from the Center for Carbon-free Power Integration, College of Earth, Ocean and Environment, University of Delaware, Newark, DE and School of Marine and Atmospheric Sciences, Stony Brook University, Stony Brook, NY, and published by the experts agency in the Proceedings of the National Academy of Sciences (PNAS) of the United States in 2009.

34. The University of Delaware and Stony Brook University study concludes that:  
*“Based on 5 yr of wind data from 11 meteorological stations, distributed over a 2,500 km extent along the U.S. East Coast, power output for each hour at each site is calculated. Each individual wind power generation site exhibits the expected power ups and downs. But when we simulate a power line connecting them, called here the Atlantic Transmission Grid, the output from the entire set of generators rarely reaches either low or full power, and power changes slowly. Notably, during the 5-yr study period, the amount of power shifted up and down but never stopped.”* [Petitioners’ Exhibit #8, “Electric power from offshore wind via synoptic-scale interconnection,” University of Delaware and Stony Brook University, Proceedings of the National Academy of Sciences, 2009, Abstract, page 1 of 6]

35. The University of Delaware and Stony Brook University study underscores that the interconnectedness of wind farms by way of high voltage direct current transmission systems is reasonably foreseeable as a solution to intermittency of wind power to provide a baseload energy alternative with significantly less adverse human environmental consequence. They state:

*“In the study region, using our meteorologically designed scale and orientation, we find that transmission affects output by reducing variance, slowing the rate of change, and, during the study period, eliminating hours of zero production. The result is that electric power from wind would become easier to manage, higher in market value, and capable of becoming a higher fraction of electric generation (thus more CO2 displacement).”*

[**Petitioners’ Exhibit #8**, “Electric power from offshore wind via synoptic-scale interconnection,” University of Delaware and Stony Brook University, Proceedings of the National Academy of Sciences, 2009, page 6 of 6] The expert study further identifies *“The variability of wind power is not as problematic as is often supposed, since the electric power system is set up to adjust to fluctuating loads and unexpected failures of generation or transmission. However, as wind power becomes a higher proportion of all generation, it will become more difficult for electric system operators to effectively integrate additional fluctuating output. Thus, solutions that reduce power fluctuation are important if wind is to displace significant amounts of carbon-emitting energy sources. There are four near-term ways to level wind power and other fluctuating generation sources, 1) Expand the use of existing control mechanisms already set up to handle fluctuating load and unexpected equipment outages—mechanisms such as reserve*

*generators, redundant power line routes, and ancillary service markets. This is how wind is integrated today (5). (ii) Build energy storage, as part of the wind facility or in another central location. (iii) Make use of distributed storage in loads, for example home heaters with thermal mass added or plug-in cars that can charge when the wind blows or even discharge to the grid during wind lulls (6). (iv) Combine remote wind farms via electrical transmission, the subject of this article.*”[**Petitioners’ Exhibit #8**, “Electric power from offshore wind via synoptic-scale interconnection,” University of Delaware and Stony Brook University, Proceedings of the National Academy of Sciences, 2009, page 1 of 6]

36. Petitioners additionally submit expert documentation published by the Department of Energy National Renewable Energy Laboratories in January 2010 further illuminating the tremendous penetration that wind energy can reasonably be expected to make before the requested federal relicensing action in 2030. The “Eastern Wind Integration and Transmission Study,” (EWITS) focuses on an aggressive technological push to merge wind power with innovative transmission systems principally High Voltage Alternating Current and Extremely High Voltage. NREL foresees that by 2024 it is reasonable to conclude that 20% to 30% of our electricity could be contributed from wind power. The study introduces the vision, *“Just a few years ago, 5% wind energy penetration was a lofty goal, and to some the idea of integrating 20% wind by 2024 might seem a bit optimistic. And yet, we know from the European experience—where some countries have already reached wind energy penetrations of 10% or higher in a short period of time—that change can occur rapidly and that planning for that change is critically important. Because building transmission capacity takes much longer than installing wind plants,*

*there is a sense of urgency to studying transmission.*” [Petitioners’ Exhibit #9, “Eastern Wind Integration and Transmission Study,” National Renewable Energy Laboratory (NREL), Department of Energy, January 2010, Preface, p. 15]

37. Petitioners submit that rapidly developing technological improvements making wind a reliable, more efficient, less-adverse-to-human-environment generation source for the requested relicensing action time are not merely reasonably foreseeable but are in fact nearly at hand.

38. According to the Global Wind Energy Council, installed wind capacity alone by 2014 will reasonably reach 400 gigawatts where current nuclear power capacity is about 376 gigawatts according to the World Nuclear Association. [Petitioners’ Exhibit #10, “Global Wind Power Capacity May Rival Nuclear Within Four Years,” Bloomberg News, September 23, 2010]

39. NEPA case law requires consideration of “reasonably foreseeable” impacts, and not resolution of all unresolved scientific issues. *Jicarilla Apache Tribe v. Morton*, 471 F.2d 1275, 1280 (9th Cir. 1973). An environmental effect is “reasonably foreseeable” if it is “sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision.” *Sierra Club v. Marsh*, 976 F.2d 763, 767 (1<sup>st</sup> Cir. 1992). *Mid States Coalition for Progress v. Surface Transportation Board*, 345 F.3d 520 (8th Cir. 2003).

40. “NEPA is not designed to postpone analysis of an environmental consequence to the last possible moment. Rather, it is designed to require such analysis as soon as it can

reasonably be done.” *Kern v. United States Bureau of Land Management*, 284 F.3d 1062, 1072 (9th Cir. 2002). Given NextEra’s insistence on a 20-year advance relicensing proceeding, it is especially incumbent upon the NRC to realistically embrace the probabilities of technological advancements in sustainable energy development. The NRC cannot allow NextEra to game the license renewal process on the one hand to claim the technologies which are already here (wind, in fact, is the fast-growing generating source in North America) are infeasible fully a generation from now. That is particularly egregious if one considers where renewables were, in terms of technology and deployment, only 20 years in the past. NextEra may be able to insist on considering license renewal at the midpoint of its first operating term, but along with that, the utility must accept the burgeoning state of the art of sustainable energy sources now and reasonably foresee where they will be with 20 more years’ private investment, federal incentive programs, technological advancement, refinement and deployment. The evaluation of that reasonable foreseeability is nowhere present in the NextEra Environmental Report but merely a statement summing up the alternative technology with “at this time.”

41. The Petitioners therefore contend that the assertion in the Applicant’s Environment Report that the alternative of wind power is and always will be “intermittent” for the projected 2030 relicensing action and unsuitable to replace Seabrook provides an incomplete and inaccurate scientific analysis. NextEra has not supported its conclusions with expert documents and expert agency comments.

42. The Petitioners further maintain that the Applicant's Environmental Report is significantly incomplete and inaccurate and in analyzing the quality and potential of alternative wind power for the Region of Interest. Petitioners call attention to the Applicant's discussion of offshore wind projects for the Region of Interest where they state: *"In the ROI, the primary areas of good wind energy resources are the Atlantic coast and exposed hilltops, ridge crests, and mountain summits. Offshore wind resources are abundant (EERE 2008b) but the technology is not sufficiently demonstrated at this time. Only 1,077 MW of offshore wind capacity has been installed worldwide (EERE 2008a). In the United States, at least 35 offshore wind energy projects are in various stages of development and permitting. They range from 20 MW to 940 MW, though the 940 MW project is in preliminary stages of development. Nine of these projects are in the ROI (Offshore Wind 2009). Cape Wind recently received the required state and local permits to construct 130 wind turbines (420 MW) in Nantucket Sound, Massachusetts. The Minerals Management Service, which has the authority to review and approve offshore wind projects, issued a favorable Final Environmental Impact Statement in January 2009. The Record of Decision as well as completion of the federal permitting process is expected in the near future (Cape Wind 2009)."* [NextEra ER, Alternatives, Wind, Section 7, p. 7.13]

43. Petitioners call attention to the Applicant's statement *"Offshore wind resources are abundant (EERE 2008b) but the technology is not sufficiently demonstrated at this time. Only 1,077 MW of offshore wind capacity has been installed worldwide (EERE 2008a)."*

44. The fact that NextEra relies upon a 2008 document for its 2030 relicensing action so significantly outdates its research and evaluation as to make it inaccurate and meaningless relative to this proceeding. In fact, the European Wind Energy Association (EWEA) reports by September 2009 that *“There are currently 830 wind turbines now installed and grid connected, totaling 2,063 MW in 39 wind farms in nine European countries,”* nearly doubles the Applicant’s global figure. [**Petitioners’ Exhibit #11**, “Oceans of Opportunity: Harnessing Europe’s largest domestic resource,” European Wind Energy Association, 09/27/2010, <http://www.ewea.org/index.php?id=203>]

45. The Applicant’s measure of error becomes even greater as again demonstrated by EWEA reporting that *“In 2010 1,000 MW expected to be installed during 2010, a 71% market growth compared to 2009. Currently there are 16 offshore wind farms under construction, totaling over 3,500 MW and a further 52 wind farms have been fully consented, totaling more than 16,000 MW.”* [**Petitioners’ Exhibit #11**, “Oceans of Opportunity: Harnessing Europe’s largest domestic resource,” European Wind Energy Association 09/27/2009, <http://www.ewea.org/index.php?id=203>]

46. As for the projected status of global offshore wind development projected for the federal relicensing action in 2030, EWEA reports that *“By 2020, most of the EU’s renewable electricity will be produced by onshore wind farms. Europe must, however, use the coming decade to prepare for the large-scale exploitation of its largest indigenous energy resource, offshore wind power. That the wind resource over Europe’s seas is enormous was confirmed in June by the European Environment Agency’s (EEA) ‘Europe’s onshore and offshore wind energy potential’.* The study states that offshore



wind power's economically competitive potential in 2020 is 2,600 TWh, equal to between 60% and 70% of projected electricity demand, rising to 3,400 TWh in 2030, equal to 80% of the projected EU electricity demand. The EEA estimates the technical potential of offshore wind in 2020 at 25,000 TWh, between six and seven times greater than projected electricity demand, rising to 30,000 TWh in 2030, seven times greater than projected electricity demand. The EEA has clearly recognised that offshore wind power will be key to Europe's energy future.” [Petitioners’ Exhibit #11, “Oceans of Opportunity: Harnessing Europe’s largest domestic resource,” European Wind Energy Association, 09/27/2009, <http://www.ewea.org/index.php?id=203>]

47. As such, Petitioners’ contend that the Applicant’s assertion that “*offshore wind is not sufficiently demonstrated*” in context of global projections for the requested relicensing action for 2030 is misleading, inaccurate and unfounded in current expert documentation and expert agency comments. The lack of scientifically accurate, substantially complete and timely documentation dooms the Applicant’s assertion that wind is not a “reasonable alternative” and is meaningless for informing the NRC of projections of wind's alternative resource availability for the requested federal relicensing action.

48. More specific to the Applicant’s stated Region of Interest, the Petitioners further contend that the Environmental Report’s discussion and evaluation of the offshore wind alternative contribution is overly vague, significantly inaccurate and not sufficiently complete.

49. NextEra proffers at Section 7.1.2.5 that “*Nine of these projects [offshore wind] are in the ROI*” relying upon the referenced expert document “Offshore Wind. 2009.” The Applicant’s expert reference document is identified as “Offshore Wind. 2009. North America Offshore Wind Energy Information. Accessed May 29, 2009, at <http://offshorewind.net/>.” [NextEra ER, Section 10, p.10-17] North American Offshore Wind Energy Information identifies itself on its “About Us” page as “*OffshoreWind.net was started by a university student with an interest in offshore wind in the US and Canada. After realizing that there was no single source of information on offshore wind projects in North America, OffshoreWind.net was formed to help provide clarity and understanding for the relatively young industry. The site aims to build a resource of factual information without bias or agenda for the purpose of education.*” [OffshoreWind.net, About Us, [http://offshorewind.net/Other\\_Pages/aboutus.html](http://offshorewind.net/Other_Pages/aboutus.html)]

50. While the Petitioners fully support the aim of this informational website, we contend that NEPA requires more of the Applicant to gather and assess a more complete and expert environmental analysis and evaluation of the considered alternatives. Given that the Applicant makes the claim “*NextEra Energy is the leading generator of wind power in North America with over 7,500 MWe net capacity throughout the US (NextEra 2009e)*” [NextEra ER, Section 7, Alternatives, Wind, p. 7-13], it is surprising to the Petitioners that the Applicant has offered such a substantially incomplete review of its own Region Of Interest.

51. The Applicant has further failed to include significant developments in the Environmental Report's evaluation for offshore wind in the Region of Interest that can be reasonably considered to affect the requested federal relicensing action. NextEra does not identify nor discuss, other than by reference document, in its Environmental Report the nine offshore wind projects in the Region of Interest with the exception of The Cape Wind Project. The Applicant's referenced expert document/website provides a Google Map depicting the following offshore wind projects as tagged with a minimum of information; The Hull Wind 1 Project (MA coast), The South Coast Project (MA coast), The Cape Wind Project (MA coast), The Grays Harbor Wind/Wave Project (MA coast), a yet unnamed project (MA coast), The Alico Project (RI coast), The Deepwater Wind RI Project (RI coast), Grays Harbor Wind/Wave Project (NY coast) and The Plum Island Project (NY coast). [[Petitioners' Exhibit #12](#), OffshoreWind.net, "View Larger Map" of Applicant's Region Of Interest, Petitioners' Print Screen, September 17, 2010] Of these identified offshore wind projects, the Applicant's Environmental Report only briefly discusses the Cape Wind Project and because the application is significantly premature its Environment Report does not capture the April 28, 2010 precedent setting license approval of the Cape Wind Project as the first offshore wind pilot project in the United States.

52. As further evidence, Petitioners submit that NextEra provides no discussion and evaluation to inform the agency of the Memorandum of Understanding signed on June 8, 2010 between Department of Interior Secretary Ken Salazar and ten East Coast Governors to establish the Atlantic Offshore Wind Energy Consortium despite the fact that the Department of Interior made known its plans on February 19, 2010.

[**Petitioners' Exhibit #13**, Press Release, Department of Interior MOU, June 8, 2010]

The agreement formally establishing the Atlantic Offshore Wind Energy Consortium to promote and accelerate the development of the “exceptional wind energy resources of our coast” was signed by the States of Maine, New Hampshire, Massachusetts and Rhode Island in the Applicant’s Region of Interest. However, the Applicant does not provide any insight into this development or sufficiently completes an evaluation of the actual current state of development of the offshore wind power alternate for its specific Region of Interest as is being projected for the proposed relicensing action. The Applicant’s cursory treatment and uninformative discussion of offshore wind energy is thus already significantly dated, inaccurate and substantially incomplete.

53. Petitioners further contend that NextEra does not provide a complete discussion and evaluation of significant State and Federal sponsored activities that can be reasonably considered to impact the federal relicensing action for the Region of Interest. Under NEPA’s “rule of reason,” while an agency is not required to consider all possible alternatives for each aspect of a proposed action, the agency does need to consider “a reasonable number of examples, covering the full spectrum of alternatives.” *Natural Resources Defense Council v. Morton*, 458 F.2d 827 (D.C Cir. 1972). In *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 197-98 (D.C.Cir.1991), then-judge Thomas warned that outcome-controlled “rigging” of purpose and need violates NEPA, which “does not give agencies license to fulfill their own prophecies,” *id.* at 195. Justice Thomas continued, “an agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency's power would accomplish the goals of the agency's action. . . .” *Id.*

54. NEPA requires: (1) that alternatives be presented in comparative form to provide meaningful choices to decision-makers and the public (40 C.F.R. §1502.14); (2) that “substantial treatment” be devoted to each alternative considered in detail, to enable reviewers to evaluate the comparative merits of each alternative (40 C.F.R. § 1502.14 (b)); and (3) that during the course of the NEPA process, no actions go forward that have adverse environmental impacts or would limit the choice of reasonable alternatives (40 C.F.R. § 1506.1).

55. Agencies must, to the fullest extent possible, “[s]tudy, develop, and describe appropriate alternatives to recommended courses of action in any proposal. . . .” 42 U.S.C. § 4322(2)(E); *Idaho Conservation League v. Mumma*, 956 F.2d 1508, 1519-20 (9th Cir. 1992). It means examination of every alternative within the “nature and scope of the proposed action,” *California v. Block*, 690 F.2d 753, 761 (9th Cir. 1982), “sufficient to permit a reasoned choice.” *Methow Valley Citizens Council v. Regional Forester*, 833 F.2d 810, 815 (9th Cir. 1987).

56. “The existence of a viable, but unexamined alternative renders an environmental impact statement inadequate.” *Idaho Conservation League, supra*. Agencies must “study. . . significant alternatives suggested by other agencies or the public. . . .” *DuBois v. U.S. Dept. of Agric.*, 102 F.3d 1273, 1286 (1st Cir. 1996), cert. denied, 117 S.Ct. 1567 (1997). Even an alternative which would only partially satisfy the need and purpose of the proposed project must be considered by the agency if it is “reasonable,” *Natural Resources Defense Council v. Callaway*, 524 F.2d 79, 93 (2nd Cir. 1975), because it might convince the decision-maker to meet part of the goal with less impact, *North*

*Buckhead Civic Ass'n v. Skinner*, 903 F.2d 1533, 1542 (11th Cir. 1990). When developing reasonable alternatives for NEPA purposes, the scope of alternatives must include the alternatives noted above and those reasonable alternatives outside the agency's jurisdiction (40 CFR § 1502.14(c). Consequently, these alternatives, "...include those [alternatives] that are practical or feasible ways from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant." CEQ's *Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations*, Question 2a.

57. Petitioners assert that the complete omission of significant State and Federal projects already in the advanced planning, development stages and scheduled to be operational in for the Region of Interest in time for the proposed relicensing action must be included by "the rule of reason" for this Environmental Report so that the NRC can prepare a meaningful Environmental Impact Statement.

58. However, the Applicant omits "high quality," "accurate scientific analysis," and "expert agency comments" with reference to the current planning and development of offshore and deep water wind for the Region of Interest as described in the agreement between the United States Department of Interior, the Department of Energy and the referenced States within the Region of Interest.

59. Contrary to the Applicant's uninformative silence, the Petitioners contend that there is substantial high quality, accurate scientific analysis with expert agency comment, substantial State and Federal expert documentation of an aggressive development of off

shore and deep water wind that the Applicant has simply ignored or excluded from its Environmental Report with a years-premature, and consequently significantly deficient, application.

60. The Petitioners submit the following expert comment and documentation for one of the States already engaged in the development of offshore and deepwater wind in the Region of Interest. However, NextEra's Environmental Report is silent on the potentially significant impact of this State's as well as the other referenced States in the MOU for the 2030 relicensing action.

61. Specifically, the Applicant is likely aware that Maine Governor John Baldacci established the Ocean Energy Task Force by Executive Order dated November 7, 2008 to recommend a strategy for moving forward as expeditiously as practicable with the development of the vast, indigenous, renewable ocean energy resources of the Gulf of Maine and to emerge as a net energy exporter through the development of its offshore wind and other renewable ocean energy resources by 2030. The final report of the Governor's Ocean Energy Task Force was publicly issued in December 2009. The Task Force report states *"Given the enormity of Maine's offshore wind resource, particularly in deep water, and the promise of new floating deep water wind technologies, the Task Force is recommending that Maine revise its offshore wind power goal to a transformational level – 5,000 megawatts of offshore wind by 2030 – a power source that would enable Maine to electrify in every sense, including heat for our homes and fuel for our cars, and position Maine as a net energy exporter."* [**Petitioners' Exhibit #14**,

Maine Governor's Final Report Ocean Energy Task Force, December 2009, Executive Summary, p. vi]

62. The Governor's Final Report further defines an agenda for the Region Of Interest stating, "*Commercialization of deep water offshore wind power is at least five to ten years down the road. But we must begin now, today, to clear the obstacles and cut the lead time for its development. If we wait until a catastrophe is upon us, we'll be starting from scratch and delay now will be our undoing. In the meantime, shallow water wind is technologically viable today, as demonstrated by approximately 1,500 megawatts of ocean wind currently operating in Europe with the support of significant government financial support.*" [Petitioners' Exhibit #14, Maine Governor's Final Report Ocean Energy Task Force, December 2009, Executive Summary, p. vi-vii]

63. The Application not only omits this significant state and federal Memorandum Of Understanding affecting the Region of Interest but also federal and state strategic work plans for the development of the wind alternative for deployment by the requested relicensing action. Petitioners show that the Maine Governor's Ocean Energy Task Force goal also has significant federal government support through the U.S. Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy (EERE), Wind and Water Power Program as outlined in "*Creating an Offshore Wind Industry in the United States: A Strategic Work Plan for the United States Department of Energy, Fiscal Years 2011-2015*" [Petitioners' Exhibit #15, "*Creating an Offshore Wind Industry in the United States: A Strategic Work Plan for the United States Department of Energy, Fiscal*



*Years 201-2015,*” U.S. Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy (EERE), Wind and Water Power Program, September 2010, Predecisional] The Petitioners acknowledge that the DOE has identified that “Key barriers to the development and deployment of offshore wind technology include the relatively high cost of energy, technical challenges surrounding installation and grid interconnection, and the untested permitting requirements for siting wind projects in federal and state waters.” [Petitioners’ Exhibit #15, “*Creating an Offshore Wind Industry in the United States: A Strategic Work Plan for the United States Department of Energy, Fiscal Years 201-2015,*” Executive Summary, Key Points, p.ii ]

64. However, Petitioners argue that, contrary to the Applicant’s Environmental Report’s unsubstantiated assertions, these barriers are not without solutions, remedies and timely deployment that are not only reasonably achievable but already being aggressively pursued for the requested relicensing action period of 2030.

65. The Petitioners point again to the referenced September 2010 DOE Strategic Work Plan as it has laid out a resourced work plan, schedule and details in the Offshore Wind Innovation and Demonstration Initiative to include the Applicant’s Region of Interest that “will work to lead the national effort to overcome these barriers and achieve the scenario of 54 GW at 7-9 cents per kilowatt-hour by 2030, with an interim target of 10 GW at 13 cents per kilowatt-hour by 2020.” [Petitioners’ Exhibit #15, “*Creating an Offshore Wind Industry in the United States: A Strategic Work Plan for the United States Department of Energy, Fiscal Years 201-2015*” Executive Summary, Key Points, p.ii ]

66. The Petitioners argue that the extremely premature timing of the Applicant's submittal makes its Environmental Review conclusions clearly unreasonable and unusable to reliably inform the federal agency. The Application's omission of significant expert documentation (much of which was available to the NextEra during the preparation of the application) renders the current Environmental Review to be an amassing of meaningless detail. The Petitioners therefore contend that the application is clearly unacceptable to inform the NRC's Supplemental Environmental Impact Statement.

67. Because the Applicant's Environmental Report omits significant expert documents and expert statements it cannot be reasonably determined to be "sufficiently complete" to inform the NRC on the alternative of wind energy for the relicensing action for the period of 2030 to 2050. As the Petitioners have previously presented, according to NextEra's own referenced expert document for offshore wind in the Region Of Interest for this requested relicensing action, the offshore and deepwater wind developmental work of the State of Maine in collaboration with DOI and DOE is neither recognized nor tagged as a significant development and simply omitted leaving the agency unawares and uninformed. [[Petitioners' Exhibit #12](#), OffshoreWind.net, "View Larger Map" of Applicant's Region of Interest, Petitioners' Print Screen, September 17, 2010]

68. Nor does the Applicant's Environment Report provide any specificity for the significant development offshore and deepwater wind energy for the Region of Interest to raise its evaluation to such a level as NEPA sets forth to "rigorously explore and

objectively evaluate” the energy alternatives for this requested relicensing action for period of 2030 to 2050.

69. NextEra vaguely references an “abundant” offshore wind resource and submits “*In the United States, at least 35 offshore wind energy projects are in various stages of development and permitting. They range from 20 MW to 940 MW, though the 940 MW project is in preliminary stages of development.*” [NextEra, Environment Report, page 7-12]

70. The Applicant however omits the most significant and germane information for the Region of Interest. The Applicant simply makes no effort to reasonably evaluate the alternative’s potential for the Region of Interest and is completely silent for the requested relicensing action period. The Applicant further makes no effort and is again silent to make a significant differentiation between offshore wind and deepwater wind resources for the Region of Interest. In view of the Applicant’s silence, the Petitioners submit expert documentation from the University of Maine Advanced Structures and Composites Center in conjunction with of the above referenced Maine Governor’s Ocean Energy Task Force, showing that 61% of the offshore wind resource in the United States is in deepwater wind (ten to fifty miles offshore) or an estimated 1,533 gigawatts.

[**Petitioners’ Exhibit #16**, “Deepwater Offshore Wind in Maine: The Plan, The Timeline,” Dr. Habib Dahger, Advanced Structures and Composites Center, University of Maine / Power Point, June 18,2009, Slide 3]

71. The Petitioner's point to the same expert documentation that Maine is in the top ten states for deepwater wind resource with 8.3% of the national deepwater wind resource located in the Gulf of Maine, roughly the equivalent of 40 nuclear power plants as expertly documented. According to expert documentation the state of Maine is proceeding in a "steppingstone project" to deploy five (5) gigawatts of deepwater wind in the Region of Interest by the time of the requested relicensing action for 2030.

[**Petitioners' Exhibit #16**, "Deepwater Offshore Wind in Maine: The Plan, The Timeline," Dr. Habib Dahger, Advanced Structures and Composites Center, University of Maine / Power Point, June 18,2009, Slides 4 and 5]

72. The Petitioners further point out that contrary to the aim and intent of NEPA to thoroughly discuss and evaluate the alternatives to the requested federal action "to the fullest extent possible" as set forth at Sec. 102 [42 USC § 4332] (C)(iii) that the Applicant's Environmental Report has failed to provide any specificity or a sufficiently complete evaluation for the Region of Interest. In fact, the Applicant fails to inform the agency of the current timeline for implementation of the 5 gigawatts of the wind energy alternative project by the requested 2030 relicensing action for the Region of Interest.

[**Petitioners' Exhibit #17**, Advanced Structures and Composites Material Center, University of Maine's 20-Year Plan Time Line for the Gulf of Maine]

73. Petitioners submit expert documentation that further illuminates the substantial planning to implement offshore and deepwater wind harvesting for a power as is argued to be a reasonable alternative to NextEra's requested relicensing action where the current

potential for offshore and deepwater wind is estimated at nearly 150 gigawatts of electricity from the Gulf of Maine alone. [**Petitioners' Exhibit #18**, Dr. Habib Dahger, AEWG University of Maine, Power Point, August 14, 2010, Slide 14.

74. While the Applicant had access to the expert documentation circa 2008 from Department of Energy for wind energy, they chose not to include any of the report in their evaluation for the Environmental Report for the requested relicensing action period of 2030. [**Petitioners' Exhibit #19**, “20% Wind Energy by 2030: Increasing Wind Energy’s Contribution to U.S. Electricity Supply,” July 2008]

75. Furthermore, in addition to the Applicant’s significant omission of any analysis or evaluation for this expert document as well as the specific and aggressive plans by the State of Maine working in conjunction with the Department of Energy to harvest offshore and deepwater wind from the Gulf of Maine for delivering electricity, the Applicant has not provided sufficient analysis and evaluation or even insight for any planning by the additional states in the Region of Interest to develop similar offshore wind potential for delivery to the electricity market by the requested relicensing action period of 2030.

76. In June, 2010, the Department of Energy and the National Renewable Energy Laboratory (NREL) produced their expert assessment of wind energy for the United States. The NREL document provides that “Table 1 shows the offshore wind resource by available square kilometers (km<sup>2</sup>) of water and potential installed capacity in gigawatts (GW) for annual average wind speeds greater than 7.0 meters/second (m/s) at 90 m above

the surface. A uniform factor of 5 megawatts/km<sup>2</sup> was applied to calculate the potential installed capacity. The resource is presented for individual states and the country as a whole. These resource estimates have not been reduced by any environmental or water-use considerations. Detailed information by database element for each state is presented in Appendix B. The data presented in this report represents the first version of the offshore database.” [Petitioners’ Exhibit #20, “Assessment of Offshore Wind Energy Resources for the United States,” NREL, June 2010, Table 1, “Offshore wind resource area and potential by wind speed interval and state within 50 nm of shore.] By NREL’s assessment at Table 1 for the Region of Interest (ME, NH, MA, CT, DE) there is a total resource of 392 gigawatts (GW) of offshore and deepwater wind alone (within 50 nautical miles). Petitioners submit that the omission of significant amounts of data and planning by the other States within the Region of Interest is a significant failing of the Environmental Report that potentially leaves the NRC not only uninformed but misinformed for preparing an Environmental Impact State on the alternatives for the requested relicensing action for 2030.

77. The Petitioners submit that the assertions made by the Applicant in the Environmental Report continue to be superseded by current events and expert documents so as to render their premature conclusion that the wind power alternative will not be viable to offset the requested relicensing action in 2030 as incomplete, insufficient and unsupported. The Petitioners submit the expert document “Large Scale Offshore Wind Power in the United States: Assessment of Opportunities and Barriers, US Department of Energy National Renewable Energy Laboratory, September 2010. [Petitioners’ Exhibit #21, “Large Scale Offshore Wind Power in the United States: Assessment of Opportunities and

Barriers, US Department of Energy National Renewable Energy Laboratory, September 2010] The NREL document identifies that deepwater wind technology is already in the demonstration phase launched in 2009 off the coast of Norway. [**Petitioners' Exhibit #21**, “Large Scale Offshore Wind Power in the United States: Assessment of Opportunities and Barriers, US Department of Energy National Renewable Energy Laboratory, September 2010, Executive Summary, p.6] NREL states that “Under reasonable economic assumptions, offshore wind can be expected to penetrate the U.S. market on a large scale without introducing substantial new technology—such as large-scale grid storage or smart grid load management. Although these analyses are still preliminary, NREL’s Regional Energy Deployment System (ReEDS) model (formerly called the Wind Deployment System [WinDS] model) shows offshore wind penetration of between 54 GW and 89 GW by 2030 when economic scenarios favoring offshore wind are applied.” [**Petitioners' Exhibit #21**, “Large Scale Offshore Wind Power in the United States: Assessment of Opportunities and Barriers, US Department of Energy National Renewable Energy Laboratory, September 2010, Executive Summary, p.7] The Petitioners submit that a significant proportion of that penetration can be within the Applicant’s Region of Interest.

78. The NREL document further states at Section 2.4, The Contribution of Offshore Wind, “*Offshore wind has the potential to address all three issues: the energy supply, the environment, and the economy. Offshore wind uses the vast renewable wind resources adjacent to the ocean perimeter of the United States, which are domestic, indigenous, inexhaustible energy supplies in close proximity to our urban energy load centers. Offshore wind turbines can convert the strong ocean winds into clean, renewable power*

*with no harmful emissions. Offshore wind has the potential to contribute significantly to the revitalization of the U.S. manufacturing sector, which will help strengthen both the economies of coastal states and the U.S. economy as a whole.*

*Recognizing these issues, the Obama administration has strengthened the nation's commitment to renewable energy and clarified some of the actions needed to reduce our dependence on fossil fuels and bring emission levels in line with IPCC recommendations. The administration has set forth the following specific clean energy actions for the United States (White House 2009):*

- Double this nation's supply of renewable energy in the next 3 years.*
- Invest \$15 billion per year to develop technologies like wind power and solar power, advanced biofuels, clean coal, and more fuel-efficient cars and trucks.*
- Cut our carbon pollution by about 80% by 2050, and create millions of new jobs.*
- Lease federal waters for projects to generate electricity from wind, as well as from ocean currents and other renewable sources.*
- Put the nation on the path to generating 20% or more of our energy from renewable sources by 2020.*

*“As a contributor to the overall solutions, the offshore wind resource in the United States has the potential to deliver substantial amounts of clean electricity to U.S. consumers. The National Renewable Energy Laboratory (NREL) estimates that the gross U.S. offshore wind resource over all water depths, in regions with annual average wind speeds greater than 8.0 m/s, is 2,957 GW(1 GW = 1,000 MW).<sup>2</sup> If average winds of 7.0 m/s are included, the estimated wind resource grows to 4,150 GW(Heimiller et al.2010; see also Section 4). This is approximately four times the electricity generating capacity of*



*the U.S. electric grid.*”[**Petitioners’ Exhibit #21**, “Large Scale Offshore Wind Power in the United States: Assessment of Opportunities and Barriers, US Department of Energy National Renewable Energy Laboratory, September 2010, Executive Summary, p.12-13]

79. The Petitioners submit that the Applicant has not only summarily dismissed the wind energy alternative from its Environmental Review without sufficient review, evaluation and the support of expert documents and expert comments but also has similarly dismissed all of the other renewable energy alternatives that include solar generated electricity, tidal and wave power which will make significant contributions to the Region of Interest for the requested relicensing action in 2030 so as to make the relicensing action unnecessary. This dismissal without taking the “hard look” as required by NEPA serves to more to misinform the US Nuclear Regulatory Commission than provide the agency with an adequate evaluation so that it can carry out its duties as required by NEPA.

## CONCLUSION

1. The contention rule is not a “fortress to deny intervention.” *Matter of Duke Energy Corp.* (Oconee Nuclear Power Plant), 49 NRC at 335 (quoting *Philadelphia Elec. Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), 8 AEC 13, 20-21 (1974), *rev'd in part*, CLI-74-32, 8 AEC 217 (1974), *rev'd in part*, *York Committee for a Safe Environment v. N.R.C.*, 527 F.2d 812 (D.C. Cir. 1975)). There is no requirement that the substantive case be made at the contention stage. *Matter of Entergy Nuclear Generation Co., et al.* (Pilgrim Nuclear Power Station), 50-293-LR (ASLB Oct. 16, 2006), 2006 WL

4801142 at (NRC) 85 (quoting *Oconee*, 49 NRC at 342)).

2. The Commission has explained that the requirement at § 2.309(f)(1)(v) ‘does not call upon the intervenor to make its case at [the contention] stage of the proceeding, but rather to indicate what facts or expert opinions, be it one fact or opinion or many, of which it is aware at that point in time which provide the basis for its contention.’ *A petitioner does not have to provide a complete or final list of its experts or evidence or prove the merits of its contention at the admissibility stage.* And, as with a summary disposition motion, the support for a contention may be viewed in a light that is favorable to the petitioner, so long as the admissibility requirements are found to have been met. The requirement ‘generally is fulfilled when the sponsor of an otherwise acceptable contention provides a brief recitation of the factors underlying the contention or references to documents and texts that provide such reasons.’ (Emphasis supplied) The Petitioners' recitation in support of its contention is not brief; the evidence of NextEra's poor consideration of deepwater wind as a serious alternative to the continuation of Seabrook operation from 2030 is overwhelming. The Environmental Report fails the standards of NEPA, and as well, NRC regulations and case law interpretations. Petitioners seek admission as intervenors in this relicensing to set the record straight, and to prove that the licensee must take a hard look at far more than it has revealed so far in its perfunctory SEIS. The presumption that an operating Seabrook power station is the best that can be done respecting the environment is therefore less supportable than ever.

/Signed by Paul Gunter & submitted by Digital Certificate/

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October 20, 2010

Date

October 20, 2010

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
Before the Secretary**

In the Matter of	)	
	)	
NEXTERA ENERGY SEABROOK (LLC)	)	
[Also Known As FLORIDA POWER & LIGHT]	)	
	)	
SEABROOK NUCLEAR POWER PLANT	)	
	)	
Regarding the Renewal of Facility Operating License	)	
No-NFP-86 for a 20-Year Period	)	DOCKET NO. 50-443-LR

**CERTIFICATE OF SERVICE OF REQUEST FOR HEARING  
AND PETITION TO INTERVENE**

The Petitioners certify that a copy of the foregoing “REQUEST FOR HEARING AND PETITION TO INTERVENE” has been provided to the Electronic Information Exchange by Digital Certificate for service to the listed individuals and all others on the service list in this proceeding on this 20th day of October, 2010.

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October20, 2010