

February 25, 2011

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

Before the Commission

In the Matter of)	
)	
NextEra Energy Seabrook, LLC)	Docket No. 50-443-LR
)	
(Seabrook Station))	
)	ASLBP No. 10-906-02-LR
(Operating License Renewal))	

**NEXTERA ENERGY SEABROOK, LLC’S NOTICE OF APPEAL OF LBP-11-02
AS TO BEYOND NUCLEAR, THE SEACOAST ANTI-POLLUTION LEAGUE,
AND THE SIERRA CLUB OF NEW HAMPSHIRE**

Pursuant to 10 C.F.R. §§ 2.311(a) and (d), NextEra Energy Seabrook, LLC files this Notice of Appeal of the Atomic Safety and Licensing Board’s Memorandum and Order, dated February 15, 2011, which, among other things, admitted for litigation in the above-captioned proceeding one contention jointly proffered by Beyond Nuclear, the Seacoast Anti-Pollution League, and the Sierra Club of New Hampshire. Attached hereto is a brief in support of this appeal.

Respectfully Submitted,

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**BRIEF IN SUPPORT OF NEXTERA ENERGY SEABROOK, LLC'S
APPEAL OF LBP-11-02 AS TO BEYOND NUCLEAR, THE SEACOAST ANTI-
POLLUTION LEAGUE, AND THE SIERRA CLUB OF NEW HAMPSHIRE**

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I. INTRODUCTION

On February 15, 2011, the Atomic Safety and Licensing Board (“ASLB” or “Board”) in the above captioned proceeding admitted one contention jointly raised by Beyond Nuclear, the Seacoast Anti-Pollution League, and the Sierra Club of New Hampshire (collectively, “Petitioners” or “Beyond Nuclear”) in their 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, (Oct. 20, 2010) (“Petition”). Pursuant to 10 C.F.R. § 2.311(a) and (d), NextEra Energy Seabrook, LLC (“NextEra”) respectfully requests that the Commission reverse the Board’s decision to admit this Contention and find that the Petition should have been wholly denied.

II. BACKGROUND

This proceeding involves NextEra’s application for a renewed operating license for Seabrook Station, Unit 1 (“Application” or “LRA”) submitted by letter dated May 25, 2010. The NRC published notice of an opportunity for hearing in the Federal Register.¹ By separate orders dated September 17, 2010 and September 20, 2010, the Secretary of the Commission granted Beyond Nuclear a 30-day extension of time to file intervention petitions, until October 20, 2010. Beyond Nuclear timely filed its Petition on October 20, 2010. On November 15, 2010, NextEra and the Staff filed answers opposing the Petition.² On November 22, 2010, Beyond Nuclear replied to the NextEra and Staff

¹ “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,” 75 Fed. Reg. 42,462 (July 21, 2010) (“Hearing Notice”).

² See “NextEra Energy Seabrook, LLC’s Answer Opposing the Petition to Intervene and Request for Hearing of Beyond Nuclear, Seacoast Anti-Pollution League, and New Hampshire Sierra Club” (Nov. 15, 2010) (“NextEra Answer”); and “NRC Staff’s Answer to Petitions to Intervene and Requests for Hearing Filed By (1) Friends of the Coast and New England Coalition and (2) Beyond Nuclear, Seacoast Anti-Pollution League and New Hampshire Sierra Club” (Nov. 15, 2010) (“Staff Answer”).

answers.³ On February 15, 2011, the Board issued its ruling on the Petition.⁴ After granting Beyond Nuclear standing to participate in the proceeding, the Board admitted Petitioners' sole Contention for hearing.

III. STATEMENT OF LAW

The NRC's rules implementing the National Environmental Policy Act ("NEPA") require license renewal applicants to discuss the environmental impacts of the proposed action and compare them to impacts of alternatives. 10 C.F.R. § 51.53(c)(2). But NEPA only requires consideration of reasonable alternatives. *NRDC v. Morton*, 458 F.2d 827, 834, 837 (D.C. Cir. 1972). In *Vermont Yankee Nuclear Power Corp. v. NRDC*, the Supreme Court explained that NEPA does not require discussion of alternatives deemed only remote and speculative possibilities. 435 U.S. 519, 551 (1978). An Environmental Impact Statement ("EIS") cannot be found wanting simply because the agency failed to include every alternative device and thought conceivable to the mind of man. *Id.* The reasonableness of alternatives is based upon information available "at the time of drafting the EIS."⁵ *Roosevelt Campobello Int'l Park Comm'n v. EPA*, 684 F.2d 1041, 1047 (1st Cir. 1982) (internal quotations omitted). *See also Seacoast Anti-Pollution League v. NRC*, 598 F.2d 1221, 1229 (1st Cir. 1979). Consistent with these cases, the alternatives analysis in NUREG 1437, the NRC's Generic Environmental Impact Statement for License Renewal of Nuclear Plants ("GEIS"), "is intended to address the reasonably

³ See "Combined Reply of Joint Petitioners (Beyond Nuclear, Seacoast Anti-Pollution League and New Hampshire Sierra Club) to Answers of NextEra Energy Seabrook, LLC and the United States Nuclear Regulatory Commission" (Nov. 22, 2010) ("Petitioners' Reply").

⁴ Memorandum and Order (Ruling on Petitions for Intervention and Requests for Hearing) LBP-11-02 (February 15, 2011).

⁵ The Commission recently stated that agencies "must have some discretion to draw the line and move forward with decisionmaking." *Entergy Nuclear Generation Co. & Entergy Nuclear Operations, Inc.*, (Pilgrim Nuclear Power Station) CLI-10-11, 71 NRC __, __ (slip op. at 37) (2010) (citing *Town of Winthrop v. FAA*, 535 F.3d 1, 11-13 (1st Cir. 2008)).

foreseeable impacts of the various alternatives and does not attempt to address impacts that are remote or speculative.” GEIS at 8-17.

In addition, the Commission has held that its EISs “need only discuss those alternatives that are reasonable and ‘will bring about the ends’ of the proposed action.”⁶ *Hydro Resources Inc.*, (P.O. Box 15910) CLI-01-4, 53 NRC 31, 55 (2001) (quoting *Citizens Against Burlington v. Busey*, 938 F.2d 190, 195 (D.C. Cir) *cert. denied*, 502 U.S. 994 (1991)); *see also Sacramento Municipal Utility District* (Rancho Seco Nuclear Generating Station), CLI-93-3, 37 NRC 135, 144-45 (1993). And where a federal agency is not a project’s sponsor, the “consideration of alternatives may accord substantial weight to the preferences of the applicant and/or sponsor.” *City of Grapevine v. Dep’t of Transp.*, 17 F.3d 1502, 1506 (D.C. Cir. 1994). The Commission follows this practice with its licensing actions. *Hydro Resources*, CLI-01-4, 53 NRC at 55; *see also Private Fuel Storage, LLC* (Independent Spent Fuel Storage Installation), CLI-04-22, 60 NRC 125, 146 (2006); *Nuclear Management Co., LLC* (Monticello Nuclear Generating Plant) LBP-05-31, 62 NRC 735, 753 n. 83 (2005) (*aff’d*, CLI-06-06, 63 NRC 161 (2006)).

The GEIS provides criteria for determining the reasonableness of alternatives:

While many methods are available for generating electricity, and a huge number of combinations or mixes can be assimilated to meet a defined generating requirement, such expansive consideration would be too

⁶ The NRC has defined the purpose and need for this proposed action, the renewal of a nuclear power plant operating license, as follows:

The purpose and need for the proposed action (renewal of an operating license) is to provide an option that allows for power generation capability beyond the term of a current nuclear power plant operating license to meet future system generating needs, as such needs may be determined by State, utility, and, where authorized, Federal (other than NRC) decision makers.

unwieldy to perform given the purposes of the analysis. Therefore, NRC has determined that a reasonable set of alternatives should be limited to analysis of *single, discrete electric generation sources and only electric generation sources that are technically feasible and commercially viable*.

GEIS at 8-1 (emphasis added). Alternatives that are not reasonable can be eliminated from further study. For those alternatives, the NRC's Supplemental EIS (and by extension an applicant's ER) need only briefly discuss the reasons for their having been eliminated. *See* 40 C.F.R. § 1502.14(a).

IV. STATEMENT OF FACTS

NextEra's Environmental Report ("ER") identifies the preferences it relied upon to determine the reasonableness of alternatives:

For the purposes of this 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. NextEra Energy Seabrook accounted for the fact that Seabrook Station is a base-load generator and that any feasible alternative to Seabrook Station would also need to be able to generate base-load power.⁷

ER at 7-6. NextEra also adopted the GEIS conclusion that reasonable alternatives should be limited to single, discrete electric generation sources and only those technologies that are technically feasible and commercially viable. *Id.* at 7-7.

Like the GEIS, NextEra's ER considers wind energy but concludes that it is not a reasonable alternative to the proposed action. ER at 7-12 – 7-13. The ER rejects wind generation as an unreasonable alternative because, while advances in technology have improved wind turbine capacity, average annual capacity factors for wind power systems

⁷ The purpose of baseload power generation is "broad enough to permit consideration of a host of energy generating alternatives." *Envtl. Law & Policy Ctr. v. NRC*, 470 F.3d 676, 684 (7th Cir. 2006).

are still relatively low compared to baseload generator like a nuclear plant. *Id.* at 7-12. The ER acknowledges that wind power might serve as a means of providing baseload power in conjunction with energy storage mechanisms, but concludes that current energy storage technologies are too expensive for this purpose. *Id.* The ER also describes offshore wind projects, but notes that they remain in the preliminary stages of development. *Id.* Finally, the ER describes the large land area (23,280 acres) that would be required to replace Seabrook Station with wind generation. *Id.* at 7-13.

Beyond Nuclear's contention challenges the ER's consideration of the wind energy alternative. It does not challenge the GEIS standards for determining whether a proposed alternative is reasonable. *See, e.g.,* Pet. at 17-21. Nor does it argue that the generation of baseload power from wind energy is possible at this time. *Id.* Instead, Beyond Nuclear argues that, because NextEra has applied for license renewal twenty years prior to the expiration of its current operating license (in accordance with 10 C.F.R. § 54.17(c)), it is under a special obligation to forecast technological developments in the offshore wind industry that would enable the generation of baseload power from offshore wind during the twenty-year period of extended operations (2030-2050). *See* Pet. at 13-14, 18-19. Beyond Nuclear offers two possible mechanisms by which baseload power could be generated by offshore wind resources during that time period: (1) combining offshore wind farms with compressed-air energy storage mechanisms; and (2) interconnecting multiple wind farms together.⁸ *Id.* at 21-22; 23-24.

Beyond Nuclear summarized this argument as follows:

⁸ Beyond Nuclear never addresses the commercial viability of these alternatives or whether such systems would qualify as a "single, discrete electric generation source." Although, in its Reply, Beyond Nuclear did begin to call the windfarms discrete. Beyond Nuclear Reply at 31, 35-36 ("The HVDC transmission system developing for the East Coast would interconnect the discrete systems").

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.

Pet. at 30. *See also* LBP-11-02 (slip op. at 26).

In response, both NextEra and the Staff argued that this contention was inadmissible, noting that the NRC Staff's EIS must be prepared now and agencies are not required to consider alternatives that are remote and speculative. NextEra Answer at 23-26; Staff Answer at 95-97. Both also pointed out that Beyond Nuclear had not presented evidence to show that the generation of baseload wind is technically feasible and commercially viable at this time. NextEra Answer at 18-22; Staff Answer at 97. In addition, NextEra and the Staff pointed out that Beyond Nuclear's two proposed methods of generating baseload power from offshore wind mills – an interconnected network of wind farms and wind farms operated in conjunction with an energy storage mechanism – would not qualify as a single, discrete electric generation source. NextEra Answer at 27-28; Staff Answer at 99. Also, both NextEra and the Staff argued that in its contention Beyond Nuclear, which had recently filed a petition to amend 10 C.F.R. § 54.17(c) to allow for license renewal applications only once ten years are remaining on the current

operating license, presented an impermissible challenge to that regulation. NextEra Answer at 34-35; Staff Answer at 99-102. Finally, NextEra argued that Beyond Nuclear failed to demonstrate that its contention raised a material issue because it failed to show that the baseload wind generation alternative would be environmentally preferable. NextEra Answer at 31-32.

In LBP-11-02, the Board rejected these arguments and admitted Beyond Nuclear's contention. Slip op. at 22-26. First, the Board identified documentary evidence provided by Beyond Nuclear and held that those materials provide the required minimal factual support for admitting the contention. *Id.* at 22. Second, the Board ruled that the arguments of NextEra and the NRC Staff challenging the viability of generating baseload wind from offshore wind represented an improper challenge to the contention's merits. *Id.* at 23-24. Third, the Board ruled that Beyond Nuclear need not show that baseload wind generation is reasonable at "the present time," but instead must only show that it exists or is likely to exist. *Id.* at 25 (citing *Carolina Env't'l Study Group v. United States*, 510 F.2d 796, 801 (D.C. Cir. 1975)). The Board then found that Beyond Nuclear had provided sufficient information to show that the generation of baseload power from offshore wind was likely to exist as early as 2015. *Id.* Fourth, the Board held that it is a disputed question of fact whether an interconnected network of multiple offshore wind farms or offshore wind farms connected to an energy storage mechanism could qualify as a single, discrete electric generation source. *Id.* Finally, the Board disagreed with the argument of NextEra and the NRC Staff that the contention represents an improper challenge to NRC regulations because "in their pleadings and at oral argument, the

Beyond Nuclear petitioners disavow any attempt to challenge a Commission regulation in this proceeding.” *Id.* at 26 (footnotes omitted).

V. STANDARD OF REVIEW

The Commission is generally deferential to Board rulings on contention admissibility unless it finds clear error or abuse of discretion. *Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), CLI-10-02, 71 NRC __ (Jan. 7, 2010) (slip op. at 1); *U.S. Department of Energy* (High Level Waste Repository), CLI-09-14, 69 NRC __ (Jun 30, 2009) (slip op. at 4); *Crow Butte Resources, Inc.* (North Trend Expansion Area), CLI-09-12, 69 NRC __ (Jun. 25, 2009) (slip op. at 8-9).

VI. SUMMARY OF ARGUMENT

Beyond Nuclear’s contention is inadmissible because it calls for speculation about remote possibilities many years into the future. An alternatives analysis is subject to NEPA’s rule of reason, which requires only consideration of feasible, non-speculative technologies. In LBP-11-02, the Board clearly erred in finding that Beyond Nuclear had provided sufficient information to show that baseload wind generation is likely to exist as early as 2015. The Board also erred in ruling that NextEra’s and the NRC Staff’s arguments that Beyond Nuclear’s own exhibits call into question the technical feasibility and commercial viability of baseload wind generation were improper attempts to litigate the merits of the issue. Finally, the Board erred in holding that whether an interconnected network of offshore wind farms is single, discrete electric generation source is a disputed question of fact, and in ignoring NextEra’s argument that Beyond Nuclear failed to demonstrate that its contention raises a material issue. For all of these reasons, the sole

contention proffered by Beyond Nuclear should be rejected and its Petition should be wholly denied.

VII. ARGUMENT

A. Beyond Nuclear's Contention Would Require NextEra to Consider a Remote and Speculative Alternative

Beyond Nuclear's contention focuses on the potential for baseload wind generation by 2030, when Seabrook's current operating license would expire. *See, e.g.*, Pet. at 18. To admit this contention, the Board relied on *Carolina Environmental Study Group*, an NRC licensing case that is almost directly on point and actually demonstrates why the contention, as pled, is inadmissible. LBP-11-02 (slip op. at 25)(citing 510 F.2d at 801). In that case, the petitioners argued "that because the nuclear plant [was] to operate for several decades [a 40-year NRC operating license], alternative power sources which may be developed, such as oil shale, geothermal energy, and solar energy, should have been considered." 510 F.2d at 800. Beyond Nuclear similarly argues that, because Seabrook applied "early" for license renewal⁹ and may be granted a renewed license with as much as a 38-year term, NextEra incurred a special obligation to forecast developments in offshore wind technology in its ER. *See, e.g.*, Pet. at 14-15, 18, 30; LBP-11-02 (slip op. at 26).

But in *Carolina Environmental Study Group*, the Commission and, ultimately, the Court of Appeals rejected the call to require such forecasting. 510 F.2d at 800. Such an argument, the Court found, "presupposes future developments" which are "both speculative and remote." *Id.* Beyond Nuclear's claim regarding the potential development, twenty years from now, of offshore wind resources interconnected for

⁹ NextEra's LRA for Seabrook is not "early" as it was clearly submitted within the timeframe permitted by 10 C.F.R. § 54.17(c).

generating baseload power is equally speculative and inadmissible. The reasonableness of alternatives is determined based upon information available “at the time of drafting the EIS.” *Roosevelt Campobello*, 684 F.2d at 1047.

Moreover, the claim that NextEra is under a special obligation to speculate about future wind power developments in 2030 because of the timing of its LRA, is without any legal support and amounts to an impermissible challenge to 10 C.F.R. § 54.17(c), under which NextEra filed its LRA in 2010. Under that regulation, a licensee may submit an application for a renewed license once twenty years remain on its current operating license. The Board took Beyond Nuclear at its word that it did not intend to challenge section 54.17(c). LBP-11-02 (slip op. at 26). But the Commission does not allow contentions seeking to impose additional requirements beyond those set forth in its regulations. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1) CLI-87-12, 26 NRC 383, 395 (1987).

Here, Beyond Nuclear argues that the NRC cannot perform an adequate environmental review at this time (that is, without engaging in inappropriate speculation). *See* Pet. Reply at 38 (“the matter before this proceeding is that the rule [10 C.F.R. § 54.17(c)] cannot and does not assure the licensing board that the application will be thorough, accurate and scientifically complete.”).¹⁰ Thus, the contention is a challenge to the rule and is beyond the scope of this proceeding. *See* 10 C.F.R. § 2.335(a); *see also Tennessee Valley Authority* (Bellefonte Nuclear Power Plant, Units 3 and 4), CLI-09-3, 69 NRC 68, 75 n.37 (2009).

¹⁰ Beyond Nuclear does “not shy away from making the assertion that this particular relicensing proceeding might inform the rulemaking process and ultimately determine that making application 20 years in advance of the current license is in the extreme and provides no better qualitative difference for a sufficiently complete and accurate environmental evaluation than making application a quarter of a century or more in advance.” Pet. Reply at 37.

B. Beyond Nuclear Presented No Evidence that Baseload Wind Generation is Likely to Exist By 2015

In LBP-11-02, the Board cited *Carolina Environmental Study Group* for the proposition that NEPA requires the consideration of alternatives “as they exist and are likely to exist,” and concluded that whether baseload wind generation is likely to exist is a disputed issue to be addressed at hearing.¹¹ Slip op. at 25 (emphasis in original) (quoting *Carolina Env’tl Study Group* 510 F.2d at 801). Applying this standard at the contention admissibility stage, Beyond Nuclear must provide “sufficient information to show that a genuine dispute exists” regarding whether baseload wind generation is likely to exist, *i.e.*, whether it is a reasonable alternative. 10 C.F.R. § 2.309(f)(1)(vi). The Board ultimately concluded that Beyond Nuclear had met this burden: “Allegedly, some of the Beyond Nuclear petitioners’ supporting references show that an integrated system of offshore wind farms could be a viable source of baseload power in the region as early as 2015.” LBP-11-02 (slip op. at 25). However, a review of the support cited by the Board shows that the Board’s ruling is incorrect – Beyond Nuclear has provided *no* evidence to show that baseload power generated by offshore wind is likely to exist.¹² Instead, Beyond Nuclear offers only speculation about the potential for this remote possibility, twenty years into the future.

In support of its 2015 determination, the Board cited two pages in the transcript of the prehearing conference. *Id.* at 25, n. 133) (citing Tr. at 24, 34). Those pages include

¹¹ Contrary to the Board’s ruling, this standard does not “considerably broad[e]n” the relevant time frame for determining the reasonableness of an alternative. LBP-11-02 (slip op. at 25). It simply restates the general principle that reasonable alternatives are those that are not remote and speculative. The relevant distinction then, is between alternatives that exist or are likely to exist, which must be considered if they are otherwise reasonable, and alternatives that are remote and speculative, which may be eliminated from further study.

¹² In a footnote, the Board downplays the importance of the 2015 projection. LBP-11-02 (slip op. at 25, n. 134). Regardless, there is no evidence in the record to show that baseload wind generation is likely to exist at *any* time.

bald assertions by Beyond Nuclear's representative, unsworn and not proffered as an expert, discussing some of the exhibits attached to the Petition:

[CHAIRMAN RYERSON] And I am also, frankly, telling you that today, 2010, windmill power -- offshore windmill power in the North Atlantic is not a feasible alternative, because it doesn't exist. And so my question is: what is the earliest date by which you think offshore wind power would be actually deliverable as a feasible baseload alternative?

MR. GUNTER: Well, I think that we have established by our exhibit from the University of Maine that -- I think if the Board looks at it, that *they are delivering baseload by 2015*, if I can pull up that exhibit. And I believe that Google is similarly on a timeline to lay the initial first phase of the offshore transmission line around the same timeframe, although it -- you know, it is in a different region of interest, but it is demonstrating that the technology is there.

Tr. at 24 (emphasis added).

At this point in the transcript, it is not clear to which exhibit Mr. Gunter was referring. Beyond Nuclear attached three exhibits to its Petition from the University of Maine (Pet. Exs. 16-18)¹³ that discuss general plans for offshore wind development off the coast of Maine (but which include no discussion of financial support or commercial involvement), none of which discuss the possibility of interconnecting the windmills to generate baseload power. *See* Pet. Exs. 16-18. In fact, none of the University of Maine exhibits discuss the generation of baseload power at all.¹⁴ *See id.*

¹³ These exhibits are *Deepwater Offshore in Maine: the Plan, the Timeline* (Pet. Ex. 16), *Maine Offshore Wind Plan* (Pet. Ex. 17); and *Deepwater Offshore Wind; a National Opportunity* (Pet. Ex. 18)

¹⁴ Mr. Gunter's discussion of Google appears to be a reference to Petition Exhibit 5, a Washington Post newspaper article that discusses Google's decision to invest in a project that "calls for spending as much as \$5 billion to create a 350-mile network of underwater cables stretching from northern New Jersey to Virginia." Pet. Ex. 5 at 1. The article speculates that the project's proponents "hope[] to begin construction in 2013" and "hope to complete it by 2020," while "an initial stage should be finished and operational by 2016." *Id.* at 2. The article makes no mention of plans to use the transmission lines to generate baseload power from wind. *Id.*

On page 34, the second transcript page cited by the Board, Mr. Gunter clarified that he had been referring to Petition Exhibit 17:

MR. GUNTER: May I quickly? I just want to draw -- with regard to your question, I would like to draw the Board's attention to our Exhibit 17, I believe. But it is the Maine Offshore Wind Plan presented by the Advanced Structures and Composite Center with the University of Maine at Orono. And to answer your question, it -- *the plan is for the first 25 megawatts of offshore wind -- this is deep water offshore wind -- to come on-line by 2014, the first 500 to 1,000 megawatts of a commercial farm to come on-line by mid-2016, and, by the beginning of 2020, additional 500 to 1,000 megawatt farms with a goal of 5,000 megawatts by 2030.* So, by 2030, the plan that is aggressively being pursued by the State of Maine, in conjunction with the Department of Interior and the Department of Energy, is to have five gigawatts of wind generating and transmitting in the region of interest. And all I would simply point out is that none of this is in the applicant's ER.

Tr. at 34 (emphases added).

Once Mr. Gunter was able to refer to the relevant document, he made a markedly different claim, one which severely undercuts the Board's determination. First, he rightly abandoned his claim that these documents discussed the potential for generating baseload power because they do not. *See* Pet. Exs. 16-18. Second, as Mr. Gunter clarified at the prehearing conference, the relevant timeframe is not 2015, but 2014, when the "plan" is for 25 megawatts of offshore wind (nearly 50 times smaller than the generation output from Seabrook).¹⁵ Tr. at 34. And Petition Exhibit 17 provides no evidence whatsoever as to whether anyone actually plans to construct and operate these windmills. If baseload

¹⁵ Moreover, Mr. Gunter misrepresented the contents of the Maine Offshore Wind Plan as described in Petition Exhibit 17. Instead of calling for the first 25 megawatts of deep water offshore wind to come on-line by 2014 as Mr. Gunter stated, it calls for a 3-5 MW prototype to be developed between 2012 and 2014. And instead of the first 500 to 1,000 MW commercial farm coming on-line by mid-2016, it calls for a technological leap to create the "first 25 MW stepping-stone floating wind farm in the world" between 2014 and 2016. *Compare* Tr. at 34 *with* Pet. Ex. 17.

wind generation were “likely to exist” in the Gulf of Maine by 2015, Beyond Nuclear should have had no problem identifying the company actively developing the resource.

In any event, even if all of the wind generation called for by the University of Maine’s plan is developed according to its timeline, Beyond Nuclear provides no information to show that it would be interconnected in a manner capable of generating baseload power or that it would be installed over a wide enough area to overcome the intermittency of wind, as their own exhibits explain would be necessary. Beyond Nuclear’s Petition includes two exhibits tending to show that creation of baseload power from wind generation is theoretically possible by linking multiple wind farms together. *See e.g.*, Pet. Ex. 4, Cristina L. Archer and Mark Z. Jacobson, *Supplying Baseload Power and Reducing Transmission Requirements by Interconnected Wind Farms*, 46 J. App. Met. & Clim. 1701 (2007). But these exhibits describe a system that would require the interconnected network to cover a large expanse, so that “while wind speed could be calm at a given location, it will be noncalm somewhere else in the aggregate array.” Pet. Ex. 4 at 1702. The exhibits do not indicate exactly how large an area would be required to ensure that sufficient wind generation would always be provided somewhere in the network, but they suggest the necessary area would be enormous. Petition Exhibit 4 examines an area covering parts of Texas, Oklahoma, Kansas, Colorado and New Mexico. *Id.* at 1704. Petition Exhibit 8 describes a hypothetical 2,500 kilometer undersea transmission line connecting offshore wind generation from the Florida Keys to the Gulf of Maine. William Kempton, et al., *Electric Power From Offshore Wind Via Synoptic Scale Interconnection*, PNAS (2009) at 2, 3.

Beyond Nuclear has offered no evidence to suggest that even if the University of Maine's Offshore Wind Plan is implemented on the exact schedule reflected in Petition Exhibit 17 and the Gulf of Maine is covered in windmills, that it would represent a sufficiently diverse geographic region to provide the requisite distinct wind patterns to generate baseload power.¹⁶ In any case, the undersea transmission line Beyond Nuclear's representative mentioned at the prehearing conference is planned for an entirely different region. *See* Tr. at 24. The Board clearly erred in basing its admissibility decision on a finding that Beyond Nuclear had presented information showing that baseload generation from offshore wind is likely to exist by 2015.

C. The Board Erred in Dismissing NextEra's Challenges to the Reasonableness of Baseload Wind Generation as Improper Merits Arguments

The Board also erred in finding that Beyond Nuclear presented sufficient information to support its contention that the generation of baseload wind generation is a reasonable alternative to license renewal and in rejecting NextEra's and the NRC Staff's challenges on that topic as improper arguments on the merits. LBP-11-02 (slip op. at 20-24). But these arguments merely point out that Beyond Nuclear failed to meet its burden under 10 C.F.R. §§ 2.309(f)(1)(v) and (vi) of providing sufficient information to demonstrate a genuine dispute as to a material issue of fact – it has not provided information in support of its claim that the generation of baseload power from wind is a reasonable alternative. NextEra identified portions of Beyond Nuclear's own proffered support that is contradictory or even refutes its claims. *See* NextEra Answer at 18-22. In

¹⁶ Moreover, Petition Exhibit 4 also points out that only “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.” Pet. Ex. 4 at 1716. Thus, in addition to requiring an interconnection of wind generation over an enormous area, replacing Seabrook's generation with “baseload wind” would also require as much as 3 times Seabrook's nominal power.

fact, as discussed below, Beyond Nuclear's own documents demonstrate that baseload wind generation is undeveloped and a remote and speculative possibility. As Beyond Nuclear put these exhibits before the Board, all of them are subject to scrutiny, both as to those portions that support their assertions and those that do not. *See, e.g., Southern Nuclear Operating Company, (Vogtle Early Site Permit), LBP-07-3, 65 NRC 237, 254 (2007).*

Necessary for any showing that a currently non-existent energy alternative is nonetheless likely to exist, is a concomitant showing of technical feasibility and commercial viability. But, Beyond Nuclear's own exhibits show a technology that is neither technically feasible nor commercially viable. For instance, Beyond Nuclear offered the report of a Task Force commissioned by the Governor of Maine to study the potential of offshore wind resources. *Final Report of the Maine Ocean Energy Task Force to Governor John E. Baldacci (Dec. 2009) (Pet. Ex. 14).* But this report explains that:

The offshore wind technology in depths of up to at least 60 meters, and possibly 90 meters, has been proven commercially viable and is in widespread use in Europe. Such technologies, including monopile support structures and turbines designed for use in the marine environment, are on the market and could be deployed in sufficiently shallow areas of Maine's coastal waters or adjoining federal water to generate electricity.

On the other hand, technologies that would enable the placement of wind turbines on floating platforms or other structures in greater depths needed to tap the world-class deep-water wind resources in Maine's coastal waters or in adjoining federal waters *are under development and have not yet been proven ready for commercial utilization. Lack of the requisite technology is an obvious barrier to establishment of the deep-water wind industry in Maine or elsewhere in the near term.*

To date, no offshore wind energy projects have been built in the United States; and no offshore wind energy project has been proposed for siting in Maine's coastal waters or adjoining federal waters.

Pet. Ex. 14 at 27 (emphasis added).¹⁷ The technology needed “to economically harness off-shore winds in deep water (greater than 60 meters) *does not exist today.*” *Id.* at iv.

Nor, according to Beyond Nuclear’s own exhibits, is the technology commercially viable. In Petition Exhibit 15, the Department of Energy (“DOE”) explains that “offshore wind energy currently has higher cost of energy (COE) than comparable technologies.”

Pet. Ex. 15, “Creating an Offshore Wind Industry in the United States: A Strategic Work Plan for the United States Department of Energy, Fiscal Years 2011-2015” at 6.

Several important offshore technology issues require research and development in order to achieve competitive market pricing in the long term; these issues include reducing installed capital costs, improving reliability, and increasing energy capture. *In the longer term, innovative, comparatively inexpensive foundation designs will be required in order to harness the massive wind resource located in waters deeper than 60 meters.*

Id. (emphasis added). The DOE report also notes that permitting obstacles stand in the way of such projects, citing “[c]urrent estimates for project approvals on the Outer Continental Shelf [that] range from 7 to 10 years.” *Id.* at 8.

These are just the obstacles to the wind farms. The commercial viability of the necessary undersea transmission “backbone” is equally speculative. Based on Beyond Nuclear’s own exhibits, construction of an interconnected system of offshore wind farms

¹⁷ Beyond Nuclear’s claims regarding the potential for power generation available offshore in the region of interest all involve areas that would require installing wind turbines in waters deeper than 60 meters. *See, e.g.,* Maine Report at vi, 9, 11; *Deepwater Offshore in Maine: the Plan, the Timeline* (Pet. Ex. 16), *Deepwater Offshore Wind; a National Opportunity* (Pet. Ex. 18) *see also* Pet. at 43 (“61% of the offshore wind resource in the United States is in deepwater wind (ten to fifty miles offshore)”).

would be exorbitantly expensive. Beyond Nuclear cites to several news articles that discuss plans for offshore transmission in the United States and Europe that would require massive investment. *See e.g.*, Petitioners' Exhibits 5-7 (describing plans for investments of \$5 billion, \$43 billion, and €30 billion, respectively). Beyond Nuclear offers no evidence to demonstrate the commercial viability of the baseload wind alternative.

Beyond Nuclear fervently hopes that these obstacles can be overcome, but contrary to LBP-11-02, has not provided any information to support a claim that they are "likely" to be overcome. The Board's conclusion that Beyond Nuclear presented information showing that offshore wind could be a viable source of baseload power as early as 2015 (or by any other date) is not supported by the claims of Mr. Gunter at oral argument, by any of the documents purportedly underlying his assertions, or by any of Beyond Nuclear's other exhibits. The Board erred in declining to address NextEra's arguments that Beyond Nuclear failed to make even a *prima facie* showing that baseload wind generation is not remote and speculative. Where it can find no support in the record for its assertions, the Commission will overturn the admission of a contention. *See Crow Butte*, CLI-09-12, 69 NRC at __ (slip op. at 21).

D. The Board Erred By Not Specifically Rejecting Beyond Nuclear's Energy Storage Claim

Further, the Board erred by not specifically rejecting Beyond Nuclear's energy storage claim. Beyond Nuclear briefly discusses the generation of baseload power by combining wind generation with compressed air storage and references but does not challenge the conclusion in NextEra's ER that such a system would be too costly to serve as a reasonable alternative source of baseload power. Pet. at 20-22 (citing ER at 7-12);

Pet. Ex. 3. Because Beyond Nuclear did not address the cost of the energy storage option (the reason it was eliminated from further study in the ER), this claim cannot demonstrate a genuine dispute with the LRA. 10 C.F.R. § 2.309(f)(1)(vi). The Board clearly erred in admitting this claim.

E. The Board Erred By Reformulating the Contention and Relying Upon Information Not Included in Beyond Nuclear’s Petition

In order to admit this Contention, the Board impermissibly reformulated it from one alleging that NextEra must “reasonably foresee where [baseload wind generation] will be with 20 more years’ private investment, federal incentive programs [and] technological advancement,” to one alleging that baseload wind generation “exists or is likely to exist” in the near term. *Compare* Pet. at 30 *with* LBP-11-02 (slip op. at 25). A Board may reframe otherwise admissible contentions “for purposes of clarity, succinctness, and a more efficient proceeding,” but may not add material not raised by the petitioners to cure deficiencies in an inadmissible contention to render it admissible. *Andrew Siemaszko*, CLI-06-16, 63 NRC 708, 720-21 (2006). In addition to reformulating the basic argument of the contention, the Board added material not raised by Beyond Nuclear in its Petition – namely that baseload wind generation is likely to exist as early as 2015 (as described in Section B, *supra*) – in order to reach its admissibility determination. *See* LBP-11-02 (slip op. at 25). The Board clearly erred by reformulating the contention in this manner.

F. The Board Erred In Finding a Factual Dispute as to Whether Baseload Wind Generation is a Reasonable Alternative

Beyond Nuclear's contention focuses almost exclusively on whether the generation of baseload power from offshore wind might be possible and ignores consideration of whether, even if possible, such an alternative would be reasonable. Assuming *arguendo* that Beyond Nuclear presented sufficient information to show that baseload wind generation is likely to exist, it also must provide information to support its claim that baseload wind generation should be considered a reasonable alternative. And to be reasonable, an alternative must be a single, discrete electric generation source and must meet the needs of the applicant. Beyond Nuclear's concept meets neither of these additional reasonableness factors.

There can be no genuine dispute that an interconnected system of separate wind mills, strung across an enormous swath of the Atlantic Ocean, cannot be considered a single, discrete electric generation source. Contrary to the Board's ruling, this is not a disputed question of fact. Nowhere in Beyond Nuclear's Petition, in its Reply, or at oral argument, did it dispute the fact that multiple wind farms connected together would not constitute a single, discrete electric generation source. And, even if Beyond Nuclear did dispute this fact, such a dispute could not be genuine, as is required by 10 C.F.R. § 2.309(f)(1)(vi), because multiple interconnected wind farms spread over an area large enough to have distinct weather patterns cannot, by definition, constitute a single,

discrete electric generation source.¹⁸ Accordingly, the Board erred in ruling that this remains a disputed question of fact.

Moreover, as stated above, the NRC, as a licensing agency, properly defers to the needs and purposes of the applicant. *See Busey*, 938 F.2d at 197-98. The agency thus may take into account the “economic goals of the project’s sponsor.” *City of Grapevine*, 17 F.3d at 1506. The Commission applied these principles in its review of an *in situ* leach meaning application, noting that the applicant proposed to mine a particular location “because it owns land there in fee simple and that is where the ore body is located.” *Hydro Resources*, CLI-01-04, 53 NRC at 56. A single, electric generation source is a reasonable alternative for a license renewal applicant to consider because it would be capable of being constructed at a single site. A string of offshore wind farms over a large swath of the ocean simply is not a reasonable alternative to license renewal.

Similarly, in the *Clinton* Early Site Permit (“ESP”) case, the Commission held that a merchant licensee without a captive rate base need not consider energy efficiency as an alternative not only because that alternative would not serve the applicant’s stated purpose but also because the applicant could not impose an energy efficiency program since it “ha[d] no transmission or distribution system of its own and no direct link to the ultimate consumer.” *Exelon Generation Co. LLC*, (Early Site Permit for Clinton ESP Site), CLI-05-29, 62 NRC 801, 807 (2005), *aff’d Env’tl. Law & Policy Ctr.*, 470 F.3d at 684. NextEra Energy Seabrook is also a merchant power generator that operates a nuclear power plant and is “not engaged in the whole panoply of electric industry

¹⁸ Merriam-Webster’s dictionary defines “discrete” as “constituting a separate entity : individually distinct” and “consisting of distinct or unconnected elements.” Available at: <http://www.merriam-webster.com/dictionary/discrete> (last accessed February 17, 2011).

functions.”¹⁹ See *Clinton*, CLI-05-29, 62 NRC at 806. Just as it would have been unreasonable to require Exelon, the applicant in the *Clinton* ESP case, to consider an energy efficiency alternative, it is also unreasonable to require NextEra Energy Seabrook to consider building and constructing wind farms over an area that may need to stretch from Maine to Florida (*see e.g.*, Pet. Ex. 8 at 2-3) and the transmission facilities that would be necessary to interconnect them.

In fact, several of Beyond Nuclear’s exhibits contradict their notion that it would be reasonable for a licensee to take on a project of this magnitude. For instance, Petition Exhibit 8, which discusses the theoretical underpinning for generating baseload power from wind generation, explains that such a system would require massive institutional changes and would not be a task that a single company would undertake on its own:

An ISO is the type of organization that might plan and operate the electric system we envision, *probably with a mix of owners—private firms, existing electric utilities, and/or public power authorities*. Because of the unique characteristics of building and operating offshore, and because our proposed Atlantic Transmission Grid would exist primarily in federal waters and bridge many jurisdictions on land, it may make sense to create a unique ISO, here dubbed the “Atlantic Independent System Operator.” Like existing ISOs, the Atlantic ISO would be responsible for managing and regulating the bulk power market along the offshore transmission cable, but with jurisdiction matched to the synoptic scale of the resource.

Pet. Ex. 8 at 6 (emphasis added).

In Petition Exhibit 9, the National Renewable Energy Laboratory agreed, noting that “interconnection-wide costs for integrating large amounts of wind generation are manageable *with large regional operating pools and significant market, tariff, and*

¹⁹ The Seventh Circuit also acknowledged the special interest of the applicant as “a private company engaged in generating energy for the wholesale market.” *Envil. Law & Policy Center*, 470 F.3d at 684.

operational changes.” Pet. Ex. 9, “Eastern Wind Interconnection and Transmission Study” (Pet. Ex. 9) at 27 (emphasis added).

In spite of the fact that Beyond Nuclear’s own exhibits overwhelmingly demonstrate that the creation of baseload wind generation would be not be a reasonable alternative for NextEra Energy Seabrook to consider, the Board ruled that Beyond Nuclear need only provide sufficient information to show that it was likely to exist. In reaching this conclusion, the Board erred.

G. The Board Erred By Not Considering NextEra’s Argument That Beyond Nuclear Failed to Show that its Contention Raises a Material Issue

Finally, the Board erred by not addressing NextEra’s argument that Beyond Nuclear failed to show that its contention is material because it failed to provide any evidence to support a conclusion that a massive interconnected network of offshore windfarms with undersea transmission lines spanning hundreds of miles would be environmentally preferable to license renewal. Petitioners must demonstrate that the issue raised in their contention raises a material issue. 10 C.F.R. § 2.309(f)(1)(iv). A “material” issue is one where “resolution of the dispute *would make a difference in the outcome* of the licensing proceeding.” Final Rule, Rules of Practice for Domestic Licensing Proceedings – Procedural Changes in the Hearing Process, 54 Fed. Reg. 33,168, 33,172 (Aug. 11, 1989) (emphasis added). For license renewal environmental reviews, the NRC’s ultimate decision standard is whether the impacts of license renewal are so great compared to alternatives that preserving the option of extended operation would be unreasonable. Final Rule, Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, 61 Fed. Reg. 28,467, 28,468, (June 5, 1996). Beyond Nuclear provides no information to show that baseload wind generation would be so

comparatively environmentally benign that the option of an additional twenty years of Seabrook operation would be beyond the range of reasonable alternatives. Thus, Beyond Nuclear failed to show that its claim raises a material issue.

Beyond Nuclear only argues that wind energy should be considered as an alternative because “wind has a significantly smaller carbon footprint” than reactor license renewal. Pet. at 11-12. To support this claim, Beyond Nuclear cites an article from an energy policy journal, “Valuing the Greenhouse Gas Emissions From Nuclear Power: A Critical Survey,” (Pet. Ex. 1) and claims that it shows that “Seabrook therefore has on average of [sic] in excess of seven (7) times more carbon emissions than wind power.” Pet. at 12. This statement mischaracterizes Beyond Nuclear’s own exhibit and completely ignores the discussion of the carbon footprint of reactor license renewal presented in the ER. *See* ER at 2-72 – 2-73.

The ER explains that many of the studies comparing the carbon footprint of nuclear energy to other generation sources actually overestimate the greenhouse gas (“GHG”) emissions that would be attributable to license renewal, because in those studies the contribution of GHG emissions from facility construction and decommissioning are not separated from the other lifecycle GHG emissions. *Id.* at 2-73. Beyond Nuclear’s cited exhibit suffers from this very flaw as it refers to lifecycle emissions of the nuclear reactor, including the environmental cost of construction and decommissioning. *See* Pet. Ex. 1 at 2,950 Table 8 (presenting “lifecycle estimates”); *but see id.* at 2,941 (“It should be noted that nuclear power is not directly emitting greenhouse gas emissions, but rather that the lifecycle involves emissions occurring elsewhere and indirectly attributable to

nuclear plant construction, operation, uranium mining and milling, and plant decommissioning”).

In its ER, NextEra accounted for the inapplicability of these lifecycle studies to license renewal by ignoring construction, decommissioning, and the first 40 years of licensed operation and focusing solely on the carbon footprint of the nuclear fuel cycle for the twenty years of renewed operation, which the ER reports to be much smaller than the carbon footprints of fossil fuel alternatives and “on the same order of magnitude as those for renewable energy sources,” including wind. *Id.* at 2-73. In addition to its failure to dispute this portion of the ER, Beyond Nuclear has provided no information to show that the impacts of license renewal would be so great compared to the baseload wind alternative that preserving the option of extended operation might be unreasonable. Thus, Beyond Nuclear has failed to show that its claim is material.

VIII. CONCLUSION

For all of the foregoing reasons, Beyond Nuclear’s sole proffered Contention should be rejected and its Petition should be wholly denied.

Respectfully Submitted,

/Signed electronically by Steven Hamrick/

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February 25, 2011

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

Before the Commission

In the Matter of)	
)	
NextEra Energy Seabrook, LLC)	Docket No. 50-443-LR
)	
(Seabrook Station))	
)	ASLBP No. 10-906-02-LR
(Operating License Renewal))	

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing “NextEra Energy Seabrook, LLC’s Notice of Appeal of LBP-11-02 as to Beyond Nuclear, the Seacoast Anti-Pollution League and the Sierra Club of New Hampshire,” and “Brief in Support of NextEra Energy Seabrook, LLC’s Appeal of LBP-11-02 as to Beyond Nuclear, the Seacoast Anti-Pollution League and the Sierra Club of New Hampshire,” were provided to the Electronic Information Exchange for service to those individuals listed below and others on the service list in this proceeding, this 25th day of February, 2011.

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