Case No. 12-1561

IN THE UNITED STATES COURT OF APPEALS
FOR THE FIRST CIRCUIT

BEYOND NUCLEAR, Paul Gunter, Director of Reactor Oversight Project;
NEW HAMPSHIRE SIERRA CLUB, Kurt Ehrenberg, Field Organizer;
SEACOAST ANTI-POLLUTION LEAGUE, Doug Bogen, Executive Director,

Petitioners,

v.

U.S. NUCLEAR REGULATORY COMMISSION,

Respondent,

NEXTERA ENERGY SEABROOK, LLC,

Intervenor.

ON PETITION FOR REVIEW
FROM THE NUCLEAR REGULATORY COMMISSION

OPENING BRIEF OF PETITIONERS

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CORPORATE DISCLOSURE STATEMENT

Pursuant to Rule 26.1 of the Federal Rules of Appellate Procedure, the Petitioners in this case, Beyond Nuclear, New Hampshire Sierra Club and Seacoast Anti-Pollution League, by and through counsel, make the following individual representations:

1. Beyond Nuclear is a duly-incorporated not-for-profit corporation which does not issue stock shares. Consequently, no publicly-held company owns 10% or more of Beyond Nuclear's stock, and Beyond Nuclear has no parent company.

2. New Hampshire Sierra Club is a duly-incorporated not-for-profit corporation which does not issue stock shares. Consequently, no publicly-held company owns 10% or more of New Hampshire Sierra Club's stock, and New Hampshire Sierra Club has no parent company.

3. Seacoast Anti-Pollution League is a duly-incorporated not-for-profit corporation which does not issue stock shares. Consequently, no publicly-held company owns 10% or more of Seacoast Anti-Pollution League's stock, and Seacoast Anti-Pollution League has no parent company.

` /s/ Terry J. Lodge

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TABLE OF CONTENTS

TABLE OF AUTHORITIES

NRC Administrative Rulings

Statutes

Regulations

REASONS WHY ORAL ARGUMENT SHOULD BE HEARD

Petitioners, environmental and safe energy organizations which timely intervened in the license extension proceeding for Seabrook Station, Unit 1 when that proceeding was commenced before the U.S. Nuclear Regulatory Commission, hereby request that oral argument be held. The owner of Seabrook, Nextera Energy Seabrook, LLC ("NextEra"), seeks to extend operations which are slated to terminate with the end of the current operating license, from the year 2030 to 2050.

Applying the standards of F.R.A.P. Rule 34(a)(2):

(a) this appeal is not frivolous,

(b) the dispositive issues raised in this appeal have not been recently and authoritatively decided, and

(c) the Court's decisional process would be significantly aided by oral argument.

This petition for review questions a decision of the five-member NRC Commission, sitting as a quasi-judicial panel, which unanimously reversed one of the agency's Atomic Safety and Licensing Boards. The ASLB had admitted for adjudication a contention alleging that NextEra had failed to adequately analyze within its environmental report (a predicate document to a Supplemental Envi-

ronmental Impact Statement under NEPA) the potential development of commercial-scale offshore baseload wind power generation of electricity as an alternative by 2030 to electricity generated at Seabrook. The Petitioners submitted considerable documentary evidence in support of the position that offshore wind power will become a significant power source in New England in the next 15 years.

In reversing the licensing board decision, the Commission decided, perhaps inaccurately, that offshore wind power has little future feasibility in the region and thus is not a viable alternative to be considered under NEPA. This was an overreach and an arbitrary determination, rendered at a threshold stage of the proceeding, well before any trial on the merits of the contention. Petitioners contend that consequently, the Commission decision violated the Administrative Procedure Act ("APA"), 5 U.S.C. § 701 *et seq*., the Atomic Energy Act ("AEA", 42 U.S.C. § 2239 *et seq*. , and the National Environmental Policy Act ("NEPA"), 42 U.S.C. § 4321, *et seq.*

The Commission's decision was legally controversial, in part because the license extension application was initiated 20 years before the 2030 extension can go into effect. It involves the reversal by the Commission of a licensing panel's discretionary decision. While NEPA is a procedural statute, the decision works to

deny public intervenors the substantive benefit of NEPA disclosure and analysis of an important, soon-to-be commercially viable renewable energy source.

Somewhat more than 70 of America's commercial nuclear power reactors have received license extensions. As alternative energy sources such as offshore wind spread and flourish commercially, they likely will give rise in future license extension cases to more proffered contentions for genuine consideration of alternative power generation sources. A new interpretation of the "reasonableness" standard for alternatives under NEPA is in order. Under the circumstances, oral argument is necessary for an informed decision.

JURISDICTIONAL STATEMENT

On September 20, 2010, Petitioners, three public interest environmental and safe energy organizations, timely petitioned to intervene as parties in a license renewal proceeding before the U.S. Nuclear Regulatory Commission ("NRC") brought by NextEra Energy Seabrook, LLC ("NextEra") to extend the operational life of the Seabrook Station, a nuclear power plant in New Hampshire, from 2030 to 2050. Petitioners proposed a contention for hearing in which they claimed that NextEra did not provide adequate analysis in the Environmental Report section of its application of offshore wind electricity generation as an alternative to the extended operation of Seabrook from 2030 to 2050.

On February 15, 2011, the assigned quasi-judicial panel, the Atomic Safety & Licensing Board ("ASLB" or "Licensing Board") admitted Petitioners' contention. NextEra timely appealed that decision on February 25, 2011 to the appointed five-member Nuclear Regulatory Commission ("the Commission"). On March 8, 2012, the Commission dismissed the contention as insufficiently supported in fact and law, which terminated the proceeding as to Petitioners. On May 7, 2012, beyond Nuclear, Seacoast Anti-Pollution League, and the New Hampshire Sierra Club timely initiated their Petition for Review to this Court.

The First Circuit Court has subject matter jurisdiction to enjoin, set aside,

suspend, or to determine the validity of all final orders of the NRC relating to the issuance of licenses. 28 U.S.C. § 2342; 42 U.S.C. § 2239. The Petition for Review was timely lodged with the Court on May 7, 2012, within the allowed 60-day period. *See* 28 U.S.C. § 2344. Venue is proper under 28 U.S.C. § 2343, because some of the Petitioners reside and maintain their principal offices within the jurisdiction of the First Circuit.

ISSUES PRESENTED FOR REVIEW

1. Whether the NEPA requirement of consideration of alternatives to the proposed project was violated when the Nuclear Regulatory Commission, acting on a nuclear power plant license extension application submitted nearly 20 years before it could take effect, determined without adjudication and the taking of any evidence that offshore commercial wind power need not be considered and does not comprise a "reasonable alternative" means of electricity generation during the period 2030-2050.

2. Whether NEPA imposes a standard of present-day commercial viability as a precondition for an alternative to be considered within a Supplemental Environmental Impact Statement (SEIS).

3. Whether it is arbitrary and capricious for the NRC to require a "statement of expectation" that a project will be commercially viable as of 2014 or 2015 when the proposed project is a license extension commencing in 2030.

4. Whether the concept of "statement of expectation" differs in any material respect from the concept of a "plan."

5. Whether the proffered contention involving offshore wind exposed a genuine dispute on a material issue of fact or law between the Petitioners and NextEra.

6. Whether the Atomic Energy Act and its regulations are violated and due process denied where the NRC Commission rejects admission of a contention which is within the scope NEPA issues which must be considered in a license extension proceeding; contains the requisite factual presentation; and reveals a genuine dispute with the nuclear plant licensee on a material issue of law or fact.

7. Whether the Nuclear Regulatory Commission violates NEPA in rejecting consideration of offshore wind as an alternative when evidence is produced showing its commercial success elsewhere, along with extensive plans and an implementation timetable for significant projects in New England coastal waters for baseload electrical power before 2030.

8. Whether under the APA, the NRC's rejection of the contention was "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law" in light of Petitioners' proffered evidence, agency regulations and relevant legal precedent.

STATEMENT OF THE CASE

The Petitioners, Beyond Nuclear, Seacoast Anti-Pollution League, and New Hampshire Sierra Club (hereinafter "Petitioners" or "Beyond Nuclear") are public interest organizations which were intervenors in the underlying NRC license renewal proceeding, captioned *In the Matter of NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), Docket No. 50-443-LR, in which proceeding the NRC Commission decision under challenge here was rendered.

This proceeding commenced with NextEra's May 25, 2010 application to the NRC to renew its operating license for Seabrook Station, Unit 1 ("Seabrook"),[1] a nuclear power reactor located in Rockingham County, New Hampshire. Seabrook's current license expires on March 15, 2030, and the application seeks federal permission to continue power generation operations at Seabrook for twenty (20) years beyond that date (*viz*., until March 15, 2050).

The NRC published notice in the Federal Register on July 21, 2010 that the NRC Staff would review the application and that persons whose interests might be affected by the proposed license renewal could request a hearing until September 20, 2010. At the request of Petitioners and other groups not parties here, the

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[1] *See generally* Seabrook Station License Renewal Application (May 25, 2010) (Vol. I: ADAMS accession nos. ML101590098; Vol. II: ML101590101; Vol. III: ML101590091).

Secretary of the NRC subsequently extended the filing period by thirty days, until October 20, 2010.[2]

Petitioners timely filed with the NRC on October 20, 2010 a petition to intervene,[3] proffering one contention which alleges that NextEra's environmental report ("ER") fails to comply with the National Environmental Policy Act ("NEPA"). Beyond Nuclear asserted that the ER does not adequately consider, as a reasonable alternative source of baseload power, interconnected offshore wind farms as a possibly environmentally superior system of renewable energy which could supplant Seabrook by 2030. Petitioners supported their intervention request with 21 exhibits. Apx. 29-151.

Two other intervenors, Friends of the Coast and the New England Coalition, neither of which is a party to this appeal, petitioned to intervene on other grounds[4] which are not encompassed within this Petition for Review.

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[2]Order of the Secretary, NRC (ML102600347), Apx. 12-13 (September 17, 2010); Order of the Secretary, NRC (ML102630577), Apx. 14 (September 20, 2010).

[3]"Beyond Nuclear, Seacoast Anti-Pollution League and New Hamps[h]ire Sierra Club Request for Public Hearing and Petition to Intervene" ("Beyond Nuclear Petition") (ML102930267), Apx. 15-28 (Oct. 20, 2010).

[4]"Friends of the Coast and New England Coalition Petition for Leave to Intervene, Request for Hearing, and Admission of Contentions" (ML102940557) (does not appear in Appendix) (October 21, 2010).

On November 15, 2010, NextEra and the NRC Staff timely answered the petitions,[5] after which Beyond Nuclear timely filed a reply memorandum on November 22, 2010.[6]

The Board heard oral argument on the intervention petitions on November 30, 2010.[7]

On February 15, 2011, the Board entered its "Memorandum and Order (Ruling on Petitions for Intervention and Requests for Hearing)," LBP-11-02[8] (hereinafter "LBP-11-02") by which it accorded standing to all petitioners and admitted part of one contention for hearing, and three more in their entirety.[9]

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[5]"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" (ML103190527), Apx. 152-162; "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" (ML10319 0764), Apx. 163-192.

[6]"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" (ML103260657), Apx.193-203.

[7]The transcript of the hearing, ML103420615, is found at Apx. 204-248.

[8]The ASLB ruling appears in its entirety at pp. 69-134 in the Addendum to this Brief; the portion addressing the offshore wind contention is also found at Apx. 266-270.

[9]LBP-11-02, (contentions), Addendum pp. 88-129.

NextEra timely appealed LBP-11-02 to the full five-member Nuclear Regulatory Commission on February 25, 2011[10] and attached the required brief in support.

On March 8, 2012, the Commission ruled (Memorandum and Order, CLI-12-05, hereinafter "CLI-12-05") to dismiss Petitioners' contention.

[10]NextEra initiated two appeals on February 25, 2011: "NextEra Energy Seabrook, LLC's Notice of Appeal of LBP-11-02 as to the New England Coalition and Friends of the Coast" (NextEra Appeal 1) (does not appear in Appendix); and "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" with brief in support (NextEra Appeal II) (ML110560800), Apx. 249-256.

STATEMENT OF THE FACTS

Beyond Nuclear's contention, the focus of this appeal, originally stated:

> 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.

When this was before the NRC, Beyond Nuclear supported their contention with 21 exhibits, contending that within the foreseeable future a system of interconnected offshore wind farms might provide baseload power in the relevant region and thus should have been evaluated in greater detail in NextEra's ER. Petitioners cited various evidence, including:

a. The Department of Energy's National Renewable Energy Laboratory ("NREL") statements that, although large-scale deployment of wind energy is thought to be limited by its intermittent output, "[w]ind energy systems that combine wind turbine generation with energy storage and long-distance trans-

mission may overcome these obstacles and provide a source of power that is functionally equivalent to a conventional baseload electric power plant."[11]

b. A manuscript published in Stanford University's Journal of Applied Meteorology and Climatology has recognized that "[a] solution to improve wind power reliability is interconnected wind power" because, "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."[12]

c. Google Corporation has publicly invested in a consortium to build an offshore "backbone transmission project" to stimulate development of wind farms (a decade before the Seabrook operating license expires), to "address the problem of wind's intermittent supply by tapping into a much broader swath of the coast to meet consumer demand."[13]

d. Nine (9) European North Sea nations were drawing up formal plans as of

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[11]Petitioners' Exh. 3, National Renewable Energy Laboratory, U.S. Department of Energy, "Creating Baseload Wind Power Systems Using Advanced Compressed Air Energy Storage Concepts" (Oct. 3, 2006) (ML102930267), Apx. 35.

[12]Petitioners' Exh. 4 (ML102930267), Apx. 36 (p. 1702 of article).

[13]Petitioners' Exh. 5, Juliet Eilperin, "Google backs 'superhighway' for wind power," Washington Post, 10/13/2010 (MLML102930267), Apx. 41.

January 2010 to build a $40 billion undersea energy grid for dedicated transmission of power from alternate sources.[14]

e. Global Wind Energy Council has produced data showing installed wind capacity likely reaching 400 gigawatts by 2014 and (from the World Nuclear Association) current nuclear capacity is 376 gigawatts.[15]

f. Researchers at the University of Delaware and Stony Brook University analyzed historical wind data from eleven meteorological stations along the U.S. East Coast, calculated the potential hourly power output at each site, and then simulated a power line connecting the sites, concluding that "[t]he variability of wind power is not as problematic as is often supposed."[16]

g. On June 8, 2010, the U.S. Department of the Interior and ten East Coast states - four of which (Maine, New Hampshire, Massachusetts and Rhode Island) are within NextEra's region of interest - signed a Memorandum of Understanding

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[14]Petitioners' Exh. 6, Tali Aaron, "European Countries Unite to Invest $40 Billion in Huge Off-Shore Renewable Energy Super-Grid," Buildaroo.com, 1/6/2010 (ML102930267), Apx. 42 .

[15]Petitioners' Exh. 10, Jeremy van Loon, "Global Wind Power Capacity May Rival Nuclear Within Four Years," Bloomberg News 9/23/2010 (ML102930267), Apx. 47.

[16]Petitioners' Exh. 8, Willett Kempton *et al.*, "Electric power from offshore wind via synoptic-scale interconnection," PNAS Early Edition (April 2010) at 1 (ML102930267), Apx. 44-45.

to establish the Atlantic Offshore Wind Energy Consortium to promote and accelerate the development of the "exceptional wind energy resources off [the] coast."[17] The consortium was publicized months before NextEra filed its renewal application, but was neither discussed nor acknowledged in the Environmental Report.

h. Articulated plans promulgated by a Maine governor's advisory panel and the University of Maine to advance offshore wind from prototype offshore generation units into a network of 4 to 8 commercial floating wind farms with a total installed capacity of 5,000 MW by 2030.[18]

Anticipating accusations that they were improperly challenging an agency rule by questioning the 20-years-in-advance filing of the license renewal, Petitioners initiated a formal NRC 10 C.F.R. § 54.17 rulemaking[19] on September 27, 2010,

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[17]Petitioners' Exh. 13, "Salazar Signs Agreement with 10 East Coast Governors to Establish Atlantic Offshore Wind Energy Consortium," Press Release, Department of Interior, 6/8/2010 (ML102930267), Apx. 72.

[18]Petitioners' Exhs. 14 (Final Report of the Ocean Energy Task Force), Apx. 73-94; 16 (Deepwater Offshore Wind in Maine: The Plan, The Timeline), Apx. 108-111; 17 (Maine Offshore Wind Plan), Apx. 112; and 18 (Deepwater Offshore Wind: A National Opportunity), Apx. 113-121 (all at ADAMS ML10293067).

[19]Petitioners' Exh. 2, Earth Day Commitment/Friends of the Coast, Beyond Nuclear, Seacoast Anti-Pollution League, C-10 Research and Education Foundation, Pilgrim Watch, and New England Coalition; Notice of Receipt of Petition for Rulemaking, 75 Fed. Reg. 59,158, Apx. 33-34 (ML102930267).

seeking to change NRC regulations to limit submission of applications for operating license extensions to a maximum of ten (10) years before the effective date.

On February 15, 2011, the ASLB admitted Petitioners' offshore wind contention with this reasoning:

> . . . [W]e agree that, taken together, [Petitioners' exhibits] provide the required "minimal" factual support for admitting their contention, and that the contention otherwise satisfies each of the requirements of 10 C.F.R. § 2.309(f)(1). The arguments against admissibility advanced by the Applicant and by the NRC Staff are not persuasive.
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> First, in challenging admissibility, the Applicant and the Staff conflate the merits of the contention with the adequacy of its pleading. . . . [W]hether an interconnected system of offshore wind farms constitutes a "reasonable" alternative is the very issue on which the Beyond Nuclear petitioners seek a hearing. When a contention alleges the need for further study of an alternative, from an environmental perspective, "such reasonableness determinations are the merits, and should only be decided after the contention is admitted." To be entitled to a hearing, petitioners need not demonstrate that they will necessarily prevail, but only that there is at least some minimal factual support for their position. The Commission has cautioned that "complex, fact-intensive issues" are rarely appropriate for summary disposition, much less for resolution on the initial pleadings.
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> Thus, many of the Applicant's and the Staff's arguments improperly address the merits of the Beyond Nuclear petitioners' contention, rather than whether petitioners have provided "'a minimal showing that material facts are in dispute, thereby demonstrating that an inquiry in depth is appropriate.'" For example, although the Applicant concedes that "[p]etitioners have presented information to show that generation of baseload energy from wind is theoretically possible," it asserts that "[t]he proposal for offshore interconnected wind farms . . . faces steep technological hurdles" and "such an interconnected system would be exorbitantly expensive." Petitioners may face a difficult task in trying to demonstrate that such a system is both practical and environmentally superior to the continued operation of Seabrook as an existing facility. Such disputed facts are not appropriately

resolved, however, in connection with the Board's determination of whether petitioners have made the necessary showing to warrant admission of a contention.

It is not the case, as the NRC Staff appears to contend, that the Beyond Nuclear petitioners must first demonstrate "that NextEra is required to include an alternatives analysis in its ER beyond that which was already included"in order to have a hearing on whether NextEra is required to include such an analysis. At this stage, it is sufficient for the Beyond Nuclear petitioners to proffer some "minimal" factual support for that proposition.

Second, the Staff argues - and the Applicant suggests - that the Beyond Nuclear petitioners must show "that wind is a feasible alternative at the present time." Although "remote and speculative" alternatives need not be addressed in an applicant's environmental report, the relevant time frame is considerably broader than "the present time." As stated in *Carolina Environmental Study Group v. United States* - a case on which the Applicant itself relies - the obligation is to consider alternatives "as they exist and are likely to exist."

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. Whether this is so remains to be seen. In the Board's view, however, petitioners have proffered sufficient "minimal" evidence to warrant further inquiry as to whether such a system might be "likely to exist" during the relevant time period.

Third, contrary to arguments by the Applicant and the NRC Staff, we are not persuaded that, as a matter of law, an integrated system of offshore wind farms could not constitute a single, discrete source for baseload energy. Absent further information about such a system, this seems to pose, at a minimum, a disputed question of fact. . . .

Finally, contrary to the Applicant's and the Staff's arguments, the contention is not a prohibited challenge to a Commission regulation. Petitioners apparently know how to challenge a Commission regulation. . . . Rather, their point here is simply that decisions have consequences. They contend that, if an applicant chooses to seek renewal as early as 20 years prior to expiration - as it clearly is entitled to do under the Commission's existing rules - then perhaps its ability to criticize as "speculative" a

> petitioner's claims about the necessarily distant extended operational period is somewhat attenuated. In any event, because the Beyond Nuclear petitioners have demonstrated some possibility that wind power might be a reasonable alternative as early as 2015, we need not necessarily accept this argument in order to admit their contention.

LBP-11-02 p. 26, Addendum pp. 90-95, Apx. 269.

NextEra appealed the adverse ASLB ruling to the five-member Commission on February 25, 2011. (ML110560800) Apx. 249-256 (Notice of Appeal and Brief in Support). Beyond Nuclear filed opposition to the appeal on March 7, 2011 (ML110660679) Apx. 257-265. The NRC Staff did not join in the appeal of the ASLB's ruling, nor did it argue in support of NextEra.

On March 8, 2012, the Commission ruled to dismiss the offshore wind contention. CLI-12-05, Addendum pp. 47-62, Apx. 271-278. The Commission agreed with the ASLB that the relevant period in which alternatives to the project may be considered is broader than the present time, but that "pragmatically, . . . near-term effects often are the best indicator of future ones." CLI-12-05, Addendum pp. 52-54, Apx. 273-274. The Commission elaborated:

> The Board is correct that the relevant period "is considerably broader than 'the present time.'" As the Board observed, the standard established in *Carolina Environmental Study Group*[20] is whether an alternative is "likely

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[20]Refers to ASLB's comment at LBP-11-02, Addendum p. 93, Apx. 269, that *Carolina Envtl. Study Grp. v. U.S.*, 510 F.2d 796, 801 (D.C. Cir. 1975) denominated consideration of "alternatives 'as they exist and are likely to exist.'"

to exist." It is the future environmental effect of activities during the renewal period that must be considered, not current environmental effects.[21]

Pragmatically, however, near-term effects often are the best indicator of future ones. NEPA requires a "hard look" at the environmental effects of the planned action and reasonable alternatives to that action, using the best information available at the time the assessment is performed. An environmental impact statement is not "intended to be a 'research document,' reflecting the frontiers of scientific methodology, studies, and data."[22] Assessments of future energy alternatives necessarily are of a predictive nature, and the assessment therefore will include uncertainties associated with predicting advances in technology.

In other words, in performing an alternatives analysis, the applicant - and the agency - are limited by the information that is reasonably available in preparing the environmental review documents. When considering energy alternatives, it is nearly always impossible to predict, decades in advance, the viability of technologies that are currently not operational and are many years from large-scale development. Except in rare cases where there is evidence of unusual predictive reliability, it is not workable to consider, for purposes of NEPA analysis, what are essentially hypothetical or speculative alternatives as a source of future baseload power generation. For this reason, we find sensible the Staff's argument that in most cases a "reasonable" energy alternative is one that is currently commercially viable, or will become so in the relatively near term. Such an assessment generally will be sufficient to provide the requisite "hard look" under NEPA.

In sum, to submit an admissible contention on energy alternatives in a license renewal proceeding, a petitioner ordinarily must provide "alleged facts or expert opinion" sufficient to raise a genuine dispute as to whether the best information available today suggests that commercially viable

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[21] *See generally Florida Power & Light Co.* (Turkey Point Nuclear Generating Station, Units 3 and 4), CLI-01-17, 54 NRC 3, 11-13 (2001) (describing the Part 51 process for environmental review, focusing upon the potential impacts of an additional 20 years of plant operation).

[22] See *Entergy Nuclear Generation Company* (Pilgrim Nuclear Power Station) (Pilgrim I), CLI-10-11, 71 NRC 287, 315 (slip op. at 23) (citing *Town of Winthrop v. FAA*, 535 F.3d 1, 11-13 (1st Cir. 2008)).

> alternate technology (or combination of technologies) is available now, or will become so in the near future, to supply Baseload power.[23] As a general matter, a "reasonable" energy alternative - one that must be assessed in the environmental review associated with a license renewal application - is one that is currently commercially viable, or will become so in the near term. We therefore conclude that the Board erred in admitting the contention.
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> ***** ***** ***** *****
>
> NEXTERA states that its purpose in seeking license renewal is to make available "Baseload power" - a preference to which we accord substantial weight. Beyond Nuclear has not articulated a genuine dispute with the Application as to the viability of offshore wind farms as a source of Baseload power. For wind power to merit detailed consideration as an alternative to renewing the license for a nuclear power plant, that alternative should be capable of providing "technically feasible and commercially viable" Baseload power during the renewal period. As we have discussed, in assessing energy-alternatives contentions, practicality requires us to consider chiefly, often exclusively, alternatives that can be shown to have viability today or in the near future. Here, Beyond Nuclear has not provided support for its claim that offshore wind is technically feasible and commercially viable - either today or in the near future - and therefore has not submitted an admissible contention.

Id.

Strikingly, the Commission added a *caveat* at CLI-12-05, Addendum p. 54

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[23] *See Roosevelt Campobello Int'l Park Comm'n v. EPA*, 684 F.2d 1041, 1047 (1st Cir. 1982) (holding that, for siting alternatives, EPA's "duty under NEPA is to study all alternatives that appear reasonable and appropriate for study at the time of drafting the EIS" (internal quotations omitted)); *Seacoast Anti-Pollution League v. NRC*, 598 F.2d 1221, 1230 (1st Cir. 1979) (holding that, for siting alternatives, an agency must consider alternatives that appear reasonable "at the time" of the NEPA review). *Cf. Carolina Envtl. Study Group*, 510 F.2d at 800 (holding that NEPA was not meant to require detailed discussion of "remote and speculative" alternatives).

fn. 245, after ruling against Beyond Nuclear:

> To avoid any misunderstanding, however, we hasten to add that our ruling does not exclude the possibility that a contention could show a genuine dispute with respect to a technology that, while not commercially viable at the time of the application, is under development for large-scale use and is "likely to" be available during the period of extended operation. *See Carolina Envtl. Study Grp.,* 510 F.2d at 800.

Thus the Commission apparently believes that offshore wind power will not be feasibly available even in 2050 ("the period of extended operation") - *i.e*, for the next 38 years. That perception is thoroughly unrealistic, and suggests that the Commission's objectivity may have been compromised by its role as a regulator-promoter of nuclear power.

SUMMARY OF ARGUMENT

Petitioners's rights were violated under the AEA and NEPA when the Commission reversed the ASLB's admission of their offshore wind contention. The appointed Nuclear Regulatory Commission, sitting as the intra-agency court of review, conducted a *sua sponte*, summary trial on the merits, concluding that the Petitioners could not succeed on the merits because of the "speculative" nature of offshore wind, and dismissed. The Commission improperly resolved all issues of fact against the Petitioners, in contradiction of longstanding NRC legal precedent under the AEA, and unlawfully found that as a matter of law, offshore wind was not a "reasonable alternative" under NEPA.

Section 189 of the AEA grants a hearing "upon the request of any person whose interest may be affected" by a Commission licensing proceeding. 42 U.S. C. § 2239(a)(1)(A). NRC rules fill in much of the sparse statutory framework. 10 C.F.R. § 2.309 governs admission of contentions, and requires a specific statement of the issue of law or fact they raised, along with a brief explanation of the basis for the contention, demonstration that the issue raised in the contention is within the scope of the proceeding, a showing that the issue raised in the contention is material to the findings the NRC must make, and a concise statement of the alleged facts or expert opinions which support the petitioner's position on the

issue. Petitioners presented information as to each element and pled a genuine dispute with NextEra on a material issue of law or fact.

NEPA protects against procedural injury to plaintiffs. When a decision is made without the informed environmental consideration that NEPA requires, the harm that NEPA intends to prevent has been suffered. *Massachusetts v. Watt,* 716 F.2d 946, 952 (1st Cir. 1983).

The question in this appeal of whether a projected interconnected system of offshore wind farms by 2030 constitutes a "reasonable" alternative is the issue on which the Petitioners seek a hearing. When a contention alleges the need for further study of an alternative, from an environmental perspective, "reasonable-ness determinations are the merits, and should only be decided after the contention is admitted." LBP-11-02, Addendum p. 91, Apx. 268; *Washington Public Power Supply System* (WPPSS Nuclear Project No. 2), ALAB-722, 17 NRC 546, 551 n. 5 (1983).

NEPA's disclosure requirements, embodied in NRC regulations at 10 C.F.R § 51.45(b)(3), require that "[t]he discussion of alternatives shall be sufficiently complete to aid the Commission in developing and exploring . . . 'appropriate alternatives to recommended courses of action. . . .'" NEPA requires discussion of the environmental effects of alternatives when those effects can be ascertained

readily, within the time-frame of the needs to which the underlying proposal is addressed. *Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 551 (1978).

The AEA contention admissibility requirements call essentially for specificity and assertion of a basis. Petitioners needed only to offer minimal factual and legal foundation for their contention. *Duke Energy Corp*. (Oconee Stations Units 1, 2 and 3), 49 NRC 328, 334 (1999). The AEA does not require a petitioner to support its claims in "formal evidentiary form," or provide support "as strong as that necessary to withstand a summary disposition motion." *Gulf States Utilities Co.,* 40 N.R.C. 43, 51 (1994). All that is required is "a minimal showing that material facts are in dispute, thereby demonstrating that an 'inquiry in depth' is appropriate." *Id*.

The Commission dismissed the offshore wind contention by respectively weighing the evidence. The Commission summarized NextEra's characterization of offshore wind as being "only in its nascent stage," and scored Petitioners for not challenging the "nascent technology" point. But the Petitioners did challenge NextEra's conclusions extensively, *see* Petition to Intervene at 6, 17-18 (Apx. 16, 19). Petitioners refuted the Commission's accusation that they did not plead the existence of genuine dispute with NextEra's conclusions in § 7.2.1.5 of the

Environmental Report. At Petition to Intervene pp. 17-18 (Apx. 19), Petitioners explicitly disputed the conclusions of § 7.2.1.5, claiming that NextEra's assertions about the unrealistic nature of offshore wind energy at present were immaterial to the decision that the NRC must make concerning a license extension which will take effect nearly twenty (20) years from now.

The Commission tried to parlay a colloquy between the ASLB and the Petitioners' representative concerning whether offshore wind will be commercially viable in New England by 2015 into a void of support for the ASLB's ruling to admit the contention. The clearly-articulated plan promulgated by the Maine governor's panel and the University of Maine proposes to advance offshore wind in measured steps into a network of 4 to 8 commercial floating wind farms with a total installed capacity of 5,000 MW by 2030. Irrespective of any inadvertent oral mis-statement by Petitioners at the ASLB admissibility hearing, the ASLB recognized that it need not decide the exact date by which an integrated system of offshore wind farms would have to be found likely to exist since the issue involves disputed fact questions which are irresolvable on the pleadings. LBP-11-02, Addendum p. 93 fn. 134, Apx. 269.

The explicit plan for offshore wind was not enough for the Commission, which complained that the Petitioners "refer[] to a plan only - not a *statement of*

expectation that the project will be commercially viable as of 2014." CLI-12-05, Addendum p. 58, Apx. 276.

Agency actions can be set aside where the agency "has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). The NRC's insistence on a magnified "statement of expectation" instead of a mere "plan" - besides being facially silly - represents the NRC's imposition of a "factor[] which Congress has not intended it to consider" or is "an explanation for its decision that runs counter to the evidence before the agency." Reasonableness determinations concerning an alternative are the merits, and should only be decided after the contention is admitted. *Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), LBP-09-10, 70 NRC 51, 86 (2009).

The Commission held NextEra's timing of its application for renewal nearly 20 years ahead of the expiration of the present Seabrook license against the Petitioners. By contrast, the ASLB ruled that since NextEra chose when to submit the renewal application, "decisions have consequences. . . . that, if an applicant

chooses to seek renewal as early as 20 years prior to expiration . . . then perhaps its ability to criticize as 'speculative' a petitioner's claims about the necessarily distant extended operational period is somewhat attenuated." LBP-11-02, Addendum p. 94, Apx. 269 .

The Commission's recitations of NEPA precedent to buttress its ruling repeatedly misconstrued or misstated the cases. The Commission cited *Citizens Against Burlington v. Busey*, 938 F.2d 190, 195 (D.C. Cir.), *cert. denied*, 502 U.S. 994 (1991)[24] in support of the point that "neither this agency nor the applicant need consider any alternative that does not 'bring about the ends' of the proposed action.'" But the *Citizens* court also warned that "outcome-controlled rigging" of purpose and need violates NEPA, and that NEPA does not allow an agency to "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.* That is precisely what the NRC did here.

The Commission counseled that "[a]n environmental impact statement is not "intended to be a 'research document,' reflecting the frontiers of scientific methodology, studies, and data," attributing *Town of Winthrop v. FAA*, 535 F.3d 1,

[24]CLI-12-05, Addendum pp. 54-55, Apx. 274-275.

11-13 (1st Cir. 2008)). But in *Winthrop*, the petitioners advocated for additional studies on pollutants to identify adverse effects upon public health of an airport expansion proposal in order to complete the NEPA document. Here, by contrast, ***completed studies and analyses of offshore wind power potential*** were handed over by Petitioners to the NRC in support of their demand for NEPA scrutiny. Beyond Nuclear demanded consideration of the most up-to-date information and projections. "Reasonable forecasting and speculation is . . . implicit in NEPA, and we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as 'crystal ball inquiry.'" *City of Davis v. Coleman,* 521 F.2d 661, 676 (9th Cir.1975) (quoting *Scientists' Institute for Public Information v. A.E.C.*, 481 F.2d 1079, 1092 (D.C.Cir.1973)). "NEPA's requirement for forecasting environmental consequences far into the future *implies the need for predictions based on existing technology and those developments which can be extrapolated from it"* (emphasis supplied). *Natural Resources Defense Council, Inc. v. Nuclear Regulatory Commission (Vermont Yankee I)*, 547 F.2d 633, 639 (D.C. Cir. 1976). Certainly the extrapolations from offshore wind power, a present-day, maturing technology in other developed countries, implicate reliable predictions for a SEIS.

The Commission cited *Carolina Envtl. Study Grp. v. U.S.*, 510 F.2d 796,

801 (D.C. Cir. 1975) for holding that "NEPA was not meant to require detailed discussion of 'remote and speculative' alternatives)." CLI-12-05, Addendum p. 54 fn. 244, Apx. 274. But if an alternative does not involve "protracted debate and litigation" and is "meaningfully compatible with the time-frame of the needs to which the underlying proposal is addressed," it is, logically, a "reasonable alternative." *Carolina Envtl. Study Grp. v. U.S.*, 510 F.2d 801. In *Carolina Environmental*, the Study Group argued that because the nuclear plant was to operate for several decades, alternative power sources might come online during the operational life of the plant under challenge, and should be considered. The spectre of alternatives developed only after completion of construction of a new power plant was what the court of appeals deemed speculative and remote. Here, however, Petitioners proposed NEPA analysis of baseload offshore wind installations planned to be in operation at commercial levels years ***before*** the 2030-2050 license renewal period. Offshore wind technology as presented is "meaningfully compatible with the time-frame of the needs to which the underlying proposal is addressed." *Natural Resources Defense Council v. Morton*, 458 F.2d 827, 837-838 (D.C. Cir. 1972).

The Commission cited *Roosevelt Campobello Int"l Park Comm'n v. EPA*, 684 F.2d 1041 (1st Cir. 1982) for the proposition that the reasonableness of

alternatives is based upon information available at the time of drafting the EIS. CLI-12-05, Addendum p. 53 fn. 244, Apx. 274. But the Commission edited out wording and transmogrified *Campobello*. The complete passage by the First Circuit says:

> EPA's duty under NEPA is to study all alternatives that appear reasonable and appropriate for study at the time of drafting the EIS, *as well as 'significant alternatives' suggested by other agencies or the public during the comment period.*

Campobello at 1047. The Commission, though, quoted only the non-italicized portion. CLI-12-05, Addendum p. 53 fn. 244, Apx. 274. The First Circuit in *Campobello* merely decided that the range of alternatives in the EIS must embrace "significant alternatives suggested by… the public . . . at the time of drafting of the EIS," not that the agency has unfettered discretion to determine what alternatives are "reasonable and appropriate for study."

The recitation by the Commission of *Seacoast Anti-Pollution League v. Nuclear Regulatory Com'n*, 598 F.2d 1221, 1230 (1st Cir. 1979) for the point that "for siting alternatives, an agency must consider alternatives that appear reasonable 'at the time' of the NEPA review", CLI-12-05, Addendum pp. 53-54 fn. 244, Apx. 274-275, is similarly inapposite. The Commission eviscerated the following passage from *Seacoast* (wording omitted by Commission is italicized):

> In respect to alternatives, an agency must on its own initiative study all alternatives that appear reasonable and appropriate for study at the time, *and must also look into other significant alternatives that are called to its attention by other agencies, or by the public during the comment period afforded for that purpose.*

598 F.2d 1230.

When it dismissed the offshore wind contention, the Commission inaccurately criticized the ASLB for supposedly "supplying a basis not argued by" that Petitioners, who supposedly omitted to argue that wind farms combined into an interconnected network would constitute a "*single, discrete* electric generation source," as required by the GEIS ("Beyond Nuclear does not make this argument"), CLI-12-05, Addendum pp. 61-62, Apx. 278. But at pp. 18-25 of their Petition to Intervene (Apx. 19-21), Petitioners identified exhibits and analyses supporting their baseload energy argument, such as an NREL study of wind energy as baseload power in combination with innovative storage technology and long-distance transmission. Petitioners submitted for the record an article which concludes that "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 further supplied several news articles discussing coming "smart grid" interconnections. The Commission was wrong, again.

ARGUMENT

Petitioners' rights were violated under the AEA and NEPA when the Commission reversed the ASLB admission of their offshore wind contention and dismissed it. Petitioners had met the requirements for standing and admissibility of their proffered contention, as found by the ASLB. But on review, the Commission conducted a *sua sponte*, summary trial on the merits, after which it concluded that offshore wind was "speculative." The Commission improperly resolved all issues of fact against the Petitioners, contradicting NRC legal precedent under the AEA, and unlawfully found as a matter of law that offshore wind was not a "reasonable alternative" under NEPA.

Standard of Review

Review of NRC orders in licensing cases and in agency decisions under NEPA is "deferential;" the NRC decision on a NEPA issue "may not be overturned unless it is found to be 'arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.'" *Limerick Ecology Action, Inc. v. U.S. Nuclear Regulatory Comm'n,* 869 F.2d 719, 728 (3d Cir.1989); 5 U.S.C. § 706(2)(A). Agency actions can be set aside where the agency "has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs

counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." *Motor Vehicle Mfrs., supra,* 463 U.S. at 43.

The First Circuit will reverse a "decision of less than ideal clarity" if it is not supported in the record and has no rational basis. .*Adams v. EPA*, 38 F.3d 43, 49 (1st Cir. 1994). A reviewing court must ensure that the agency has "'exam-ine[d] the relevant data and articulate[d] a satisfactory explanation for its action,'" *F.C.C. v. Fox Television Stations, Inc.*, 556 U.S. 502, 513 (2009) (quoting *Motor Vehicle Mfrs., supra*), and must not reduce itself to a "rubber-stamp" of agency action. *Fed. Mar. Comm'n v. Seatrain Line, Inc*., 411 U.S. 726, 745-46 (1973).

Section 189 of the Atomic Energy Act

Section 189 of the AEA [42 U.S.C. § 2239] grants a hearing "upon the request of any person whose interest may be affected" by a Commission licensing proceeding. 42 U.S. C. § 2239(a)(1)(A). But "the Act nowhere describes the content of a hearing or prescribes the manner in which this 'hearing' is to be run." *Union of Concerned Scientists v. NRC,* 920 F.2d 50, 54 (D.C. Cir. 1990). To address this void, the Commission has promulgated procedural rules to which appellate courts customarily defer. *Id.*

NRC rule 10 C.F.R. § 2.309 permits (at (a)) "[a]ny person whose interest

may be affected" to "file a written request for hearing and a specification of the contentions which the person seeks to have litigated in the hearing." The request will be granted if the adjudicating official "determines that the requestor/petitioner has standing . . . and has proposed at least one admissible contention that meets the requirements of paragraph (f) of this section." Per § 2.309(f), a request "must set forth with particularity the contentions sought to be raised," and:

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

Further, § 2.309 (f)(vi) requires a petitioner to:

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

The Interplay Between NEPA and the AEA

Court and agency interpretations give definition to the AEA, because AEA § 189 [42 U.S.C. § 2239] provides no guidance. Its general provisions yield to NEPA's specific requirements of environmental disclosure. "[G]eneral and specific provisions, in apparent contradiction, whether in the same or different statutes, and without regard to priority of enactment, may subsist together, the specific qualifying and supplying exceptions to the general." *Townsend v. Little*, 109 U.S. 504, 512, 3 S.Ct. 357, 27 L.Ed. 1012 (1883). "Where there is no clear indication otherwise, a specific statute will not be controlled or nullified by a general one. . . ." *Guidry v. Sheet Metal Workers National Pension Fund,493* U.S. 365, 375 (1990) (citation omitted). AEA's hearing opportunity must be construed harmoniously with NEPA so that NEPA's mandates are followed to determine admissibility of environmental contentions.

Harm Under NEPA Occurs When Procedural Rights Are Abridged

The substance of NEPA is protection against procedural injury to a plaintiff. "[W]hen a decision to which NEPA obligations attach is made without the informed environmental consideration that NEPA requires, the harm that NEPA intends to prevent has been suffered." NEPA procedures seek to minimize the risk of future harm by "influenc[ing] the decision making process; [their] aim is to

make government officials notice environmental [and other] considerations and take them into account." *Massachusetts v. Watt,* 716 F.2d 946, 952 (1st Cir. 1983). Cases of procedural injury require "some possibility that the requested relief will prompt the injury-causing party to reconsider the decision that allegedly harmed the litigant." *Massachusetts v. EPA,* 549 U.S. 497, 518, 127 S.Ct. 1438, 1453 (2007). The ASLB in Petitioners' case recognized that the determination of reasonableness of offshore wind as an alternative comprised the merits for trial, where the issue was whether serious offshore wind analysis must be incorporated into the SEIS . LBP-11-02, Addendum p. 91, Apx. 268.

NEPA § 102(2) [42 USC § 4332] is the "action-forcing" part of the statute.[25] It requires thorough and complete disclosure of reasonable and feasible alternatives within the licensing process. Moreover, NRC regulations at 10 C.F.R §

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[25]According to section 102(2)© of NEPA "all agencies of the Federal Government shall - include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on -"

(I) The environmental impact of the proposed action,

(ii) Any adverse environmental effects which cannot be avoided should the proposal be implemented,

(iii) Alternatives to the proposed action,

(iv) The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and

(v) Any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

51.45(c) require that the Applicant's analysis:

> . . . shall, *to the fullest extent practicable*, quantify the various factors considered. To the extent that there are important qualitative considerations or factors that cannot be quantified, those considerations or factors shall be discussed in qualitative terms. The environmental report should contain sufficient data to aid the Commission in its development of an independent analysis."

(Emphasis supplied). Additionally, 10 C.F.R. § 51.45(b)(3) requires that "[t]he discussion of alternatives shall be sufficiently complete to aid the Commission in developing and exploring, pursuant to section 102(2)(E) of NEPA, 'appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.'"

The term "alternatives" is not self-defining, and "must be bounded by some notion of feasibility." *Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 551, 98 S.Ct. 1197, 1215 (1978). NEPA requires discussion of the environmental effects of alternatives when those effects can be ascertained readily, within the time-frame of the needs to which the underlying proposal is addressed. *Id*.

The environmental effects of offshore wind are readily ascertained from the experience which is being gained daily from its use in Europe. Those effects are ascertainable now, long before the time frame of the needs to which the underlying proposal is addressed (2030-2050).

Contention Admissibility Under the AEA

The AEA contention admissibility requirements as expressed in 10 C.F.R. § 2.309(f) are "strict by design." *Dominion Nuclear Connecticut, Inc*. (Millstone Nuclear Power Station, Units 2 & 3), CLI-01-24, 54 NRC 349, 358 (2001), *petition for reconsid. denied*, CLI-02-1, 55 NRC 1 (2002)). The First Circuit cautions, though, that 10 C.F.R. Part 2 rules "may approach the outer limits of what is permissible under the APA." *Citizens Awareness Network Inc. v. NRC*, 391 F3d 338, 355 (1st Cir. 2004). Because at its essence, an acceptable contention need only be specific and have a basis, the standard for admitting a contention is not meant to be equivalent to the standard of evidence at a trial on the merits; the truth or falsity of the contention is reserved for adjudication. *Washington Public Power Supply System* (WPPSS Nuclear Project No. 2), ALAB-722, 17 NRC 546, 551 n. 5 (1983).

For admission of their contention, Petitioners were not required to submit admissible evidence to support their contention (although they did do that). They were obliged only to "provide a brief explanation of the basis for the contention," and to provide putative evidence in the form of "a concise statement of the alleged facts or expert opinions which support the petitioner's position," 10 CFR § 2.309(f)(1)(ii), (v). Petitioners seeking adjudicatory hearings need offer only

minimal factual and legal foundation for their contentions. *Duke Energy Corp*. (Oconee Stations Units 1, 2 and 3), 49 NRC 328, 334 (1999). The AEA does not require a petitioner to prove its case, support its claims in "formal evidentiary form," or provide support "as strong as that necessary to withstand a summary disposition motion." *Gulf States Utilities Co.,* 40 N.R.C. 43, 51 (1994). It requires only "a minimal showing that material facts are in dispute, thereby demonstrating that an 'inquiry in depth' is appropriate." *Id*. (internal citations omitted).

If a material issue is articulated, the contention must be admitted for hearing without further determination of the matter at that stage. *Duke Energy Corp*. (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), 56 NRC 1 (2002).

The ASLB properly understood and applied the above principles, accepting that Petitioners had shown at a minimum "some minimal factual support for their position," and recognizing that "'complex, fact-intensive issues' are rarely appropriate for summary disposition, much less for resolution on the initial pleadings." LBP-11-02, Addendum p. 91, Apx. 268, citing *Entergy Nuclear Generation Company* (Pilgrim Nuclear Power Station (I)), CLI-10-11, 71 NRC 287, 315 (slip op. at 23). Believing that Petitioners might have a hard time proving the economic practicality and environmental superiority of a system of

offshore interconnected wind farms, the ASLB nonetheless declined to convert the admissibility question into a *sua sponte* trial on the merits: "Such disputed facts are not appropriately resolved . . . in connection with the Board's determination of whether petitioners have made the necessary showing to warrant admission of a contention." LBP-11-02, Addendum p. 92, Apx. 268.

The Commission Impermissibly Weighed Some Evidence, And Ignored Some Evidence Entirely

When the Commission took up NextEra's appeal of the ASLB ruling, it declared that "Beyond Nuclear's 'offshore wind' contention is not sustainable on its face because it lacks a supporting basis." Claiming to "reach this result without improperly resolving disputed facts," CLI-12-05, Addendum p. 56, Apx. 275, the Commission's very terminology - "not sustainable on its face because it lacks a supporting basis" - expresses the act of weighing the sufficiency of the *prima facie* evidence provided.

The Commission characterized offshore wind as being "only in its nascent stage," and stated that "[w]ithout some challenge . . . on the nascent technology point, there is no genuine dispute of material fact as to whether offshore wind power is, or soon will be, a reasonable alternative to license renewal." CLI-12-05, Addendum pp. 56-57, Apx. 275-276. This is an anomalous accusation; the

Petitioners specifically challenged NextEra's unresearched and dated conclusions extensively in their Petition to Intervene as follows:

> 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.*

Id. p. 6, Apx. 16 (emphasis supplied). And the Commission was indisputably wrong to asservate that Petitioners failed to plead the existence of an issue of fact to contradict NextEra's conclusions in § 7.2.1.5 of the Environmental Report. At pp. 17-18 of their Petition to Intervene, Petitioners explicitly alleged:

> 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 baseload 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.

Apx. 17-18. (Emphasis in original). Petitioners supported their petitioner with considerable evidence suggesting that offshore wind will be rapidly deployed in New England within the decade. Unfortunately, the Commission completely overlooked a major argument raised by the Petitioners in plain sight.

At CLI-12-05, Addendum p. 57, Apx. 276, the Commission criticized the ASLB's reliance on pp. 24 and 34 of the prehearing conference transcript (Apx. 210, 212) where Beyond Nuclear's representative discussed one of Petitioners' exhibits "not cited by the Board." The Commission, claiming that "the 'supporting references' do not support the Board's conclusion that Beyond Nuclear had 'proffered sufficient 'minimal' evidence,'" then itself weighed that evidence and, ignoring AEA legal precedent, found it to be insufficient.

Petitioners' Exhibit 17, the exhibit under discussion at hearing, contains the "Maine Offshore Wind Plan". Apx. 112. The ASLB deemed Exh. 17 to comprise some of the basis for admissibility. Phase 1 involves the design, construction and

testing of a 100' tall (to hub) floating wind turbine prototype by 2012, and construction of an offshore wind laboratory. Phase 2 will see the design, construction and test of a full-scale, 300' (to hub) offshore turbine generating 3-5 megawatts, between 2012 and 2014. In Phase 3, the design, construction and testing of "the first 25 MW stepping-stone floating wind farm in the world" will happen from 2014-2016. From 2018-2020, in Phase 4, that wind farm will be expanded into a 500-1,000 MW, 200-turbine, commercial farm. From 2020 to 2030, Phase 5 will see construction of a network of commercial floating wind farms 10-50 miles from shore, each capable of producing 500-1,000 MW, with a goal of four to eight farms, and total installed capacity of 5,000 MW. *Id.*

The Commission quibbles with the oral statements of Beyond Nuclear's representative, insinuating that he falsely predicted that baseload power "will" be delivered by 2015. At p. 34 of the transcript, the representative, Paul Gunter, stated:

> [W]ith 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 . . . 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 online 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.

Transcript p. 34, Apx. 212. Even if Gunter recounted things inaccurately - which

Petitioners dispute - the written documents speak for themselves. It is the explicit written plan that did not suffice for the Commission, anyway, the claimed discrepancy in Gunter's statements was used as an excuse for what followed: the Commission engrafted a secret, heightened new subjective standard into its rules: "Our review of Beyond Nuclear's referenced exhibit confirms that *it refers to a plan only - not a statement of expectation that the project will be commercially viable as of 2014.* Therefore, the two cited portions of the oral argument transcript, when read together and in light of the exhibits, do not support the Board's conclusion." CLI-12-05, Addendum p. 58, Apx. 276. The Licensing Board's conclusion, however, was properly more sanguine and logical:

> "For purposes of deciding the admissibility of the proffered contention, the Board need not decide the exact date by which an integrated system of offshore wind farms would have to be found 'likely to exist.' That issue will doubtlessly turn on disputed fact questions that cannot appropriately be resolved on the pleadings."

LBP-11-02, Addendum p. 93 fn. 134, Apx. 269.

The Commission rejected Beyond Nuclear's serious plan to develop base-load power in the Gulf of Maine, substituting instead the requirement of a "statement of expectation" - whatever that is - to be convinced. The Commission's substitution of its subjective verbiage - "statement of expectation" is not a recognized term of art - for legal analysis displaced regulations and NEPA

common law. It was an arbitrary act, compounded by the arbitrary hitching of the Commission's "expectation" to an *ad hoc* 2014 or 2015 deadline to produce viable commercial baseload power.

The Commission rooted around for adverse evidence in Petitioners' exhibits. In Exh. 14, the report of the Maine Ocean Energy Task Force, p. 43, Apx. 87, the Commission seized on the statement that "[l]ack of the requisite technology is an obvious barrier to establishment of the deep-water wind industry in Maine. . . in the near term." But the Report firmly sets 2030 as the target date for deployment of 5 gigawatts of offshore wind power in the Gulf of Maine, *id*. p. vi, 50, Apx. 75, 89. The task force also found that "shallow water wind is technologically viable today," *Id.,* p. vii (Apx. 75). In 2009, demonstration area legislation was passed in Maine to push the dramatic shift to offshore wind. *Id.*, p. vi (Apx. 75). And the task force concluded that of the Eastern states considering offshore wind, only Maine "has nationally significant on-shore wind energy resources," *i.e.,* institutional experience with developing commercial wind farms. *Id.* p. 19, Apx. 81. So Petitioners articulated evidence supporting the ultimate determination of the contention, *viz.*, offshore wind as a "reasonable alternative" requiring NEPA analysis, even though the merits decision is reserved for another day.

The Commission similarly combed through Petitioners' Exhibit 15, the

DOE's "Strategic Work Plan" for 2011-2015, citing unresolved barriers to offshore wind development, while ignoring the DOE's tangible leading effort to overcome those barriers to achieve the desirable economic 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. Exh. 15 p. ii, Apx. 95.

The NRC's contrived substitution of "statement of expectation" for "plan" - besides being facially silly - amounts either to the NRC's imposition of a "factor[] which Congress has not intended it to consider," or it is "an explanation for its decision that runs counter to the evidence before the agency" and should justify setting aside the agency decision. *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins*., 463 U.S. 29, 43 (1983). "When a contention alleges the need for further study of an alternative, from an environmental perspective, such reasonableness determinations are the merits, and should only be decided after the contention is admitted." *Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), LBP-09-10, 70 NRC 51, 86 (2009). At this stage, the AEA simply does not require a petitioner to prove its case, support its claims in "formal evidentiary form," or to provide support "as strong as that necessary to withstand a summary disposition motion." *Gulf States Utilities Co.,* (River Bend Station Unit 1), 40 NRC 43, 51 (1994).

Commission Failed to Follow AEA Limitations on Appeals

The Commission also violated standards which govern appeals from ASLBs. The Commission may reverse a licensing board's determination on discretionary intervention only if the Board has abused its discretion. *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-98-13, 48 NRC 26, 34 (1998). The Commission "must be persuaded that a reasonable mind could reach no other result." *Washington Public Power Supply System* (WPPSS Nuclear Project No. 3), ALAB-747, 18 NRC 1167, 1171 (1983). In other words, if minds could differ on whether or not the contention might succeed, the Commission is not at liberty to reverse the ASLB. Thus the Commission deviated from its own established principles to overturn the admitted contention.

Unreasonable Constriction of the Range of Alternatives Under NEPA

The environmental effects of offshore wind can be readily ascertained. There is growing experience and understanding of offshore wind environmental effects in many other countries. The central conundrum here is that NextEra applied for renewal nearly 20 years ahead of the expiration of the present 40-year license, and the Commission has held that decision of timing against the Petitioners. By contrast, the ASLB ruled that NextEra's timing of the application is consequential for Seabrook:

> [Petitioners'] point here is simply that decisions have consequences. They contend that, if an applicant chooses to seek renewal as early as 20 years prior to expiration - as it clearly is entitled to do under the Commission's existing rules - then perhaps its ability to criticize as "speculative" a petitioner's claims about the necessarily distant extended operational period is somewhat attenuated.

LBP-11-02, Addendum p. 94, Apx. 26. The Commission ignored sound reasoning en route to finding offshore wind to be too hypothetical and speculative to be part of the litigation inquiry:

> Except in rare cases where there is evidence of unusual predictive reliability, it is not workable to consider, for purposes of NEPA analysis, what are essentially hypothetical or speculative alternatives as a source of future baseload power generation. For this reason, we find sensible the Staff's argument that in most cases a "reasonable" energy alternative is one that is currently commercially viable, or will become so in the relatively near term.

CLI-12-05, Addendum p. 53, Apx. 274.

To achieve that reversal, however, the Commission ruled on the merits, substituting itself as trier of fact, determiner of relevance, definer of expectation, and all of it at only the threshold point of the litigation. The Commission denied NEPA analysis of a rapidly-expanding electric power generation source in the world which has already seen commercial success. The issue for trial is whether offshore wind, a proven technology, is "hypothetical" or "speculative" in New England as a potential replacement for baseload energy from Seabrook and should

be considered. To unilaterally decide that offshore wind is "hypothetical" or "speculative" required the Commission to tiptoe through Petitioners' minefield of feasibility evidence and measure that with the Commission's own biases in favor of nuclear energy. The Commission seized on the out-of-date 2006 and 2008 data cited in NextEra's ER to prove "speculative" status. But the Commission had to ignore Petitioners exposition that NextEra's 2008 ER data showed only 1,077 MW of offshore wind globally and failed to mention the European Wind Energy Association's 2009 forecast for doubling of offshore wind capacity in 2010, to 2,000 MW. Beyond Nuclear Exh. 11, p. 11, Apx. 51. The decision not to use the most up-to-date information on this dynamically-growing power source "defeats the purpose of an EIS by 'impairing the agency's consideration of the adverse environmental effects' and by 'skewing the public's evaluation' of the proposed agency action." *Hughes River Watershed Conservancy v. Glickman*, 81 F.3d 437, 446-48 (4th Cir. 1996).

Legal Precedent Cited By The Commission Is Inapposite, Distinguishable Or Completely Wrong

The Commission's recitation of NEPA interpretations to buttress its finding that the Supplemental EIS need not include a serious analysis of likely offshore wind development over the coming 18 years leaves much to be desired.

1. *Citizens Against Burlington*

The Commission's reference to *Citizens Against Burlington v. Busey,* 938 F.2d 190, 195 (D.C. Cir.), *cert. denied*, 502 U.S. 994 (1991) in support of the point that "neither this agency nor the applicant need consider any alternative that does not 'bring about the ends' of the proposed action'"[26] does not make the agency's case. Petitioners will adjudicate that offshore wind will fulfill baseload expectations, as an issue of fact. They were not obliged to make so convincing a showing merely to have their contention admitted for hearing. The Commission *sua sponte* concluded that since Seabrook is a merchant baseload power plant, the creation of an offshore wind network capable of generating baseload power is not reasonable for consideration as an alternative because it does not "have viability today or in the near future." The Commission did not explain *why* that was so, only *that* it was so, conflating a spontaneous adjudicatory ruling with the less-auspicious standards for admissibility of a contention.

In *Citizens Against Burlington*, 938 F.2d 197-98, then-judge Clarence Thomas warned that "outcome-controlled rigging" of purpose and need violates NEPA, and that the statute "does not give agencies license to fulfill their own prophecies." He continued, "an agency may not define the objectives of its action

[26]CLI-12-05, Addendum pp. 54-55, Apx. 274-275.

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.* That is precisely what the NRC did here.

2. *Town of Winthrop*

The Commission noted (CLI-12-05, Addendum p. 52, Apx. 273) that "[a]n environmental impact statement is not "intended to be a 'research document,' reflecting the frontiers of scientific methodology, studies, and data," attributing *Town of Winthrop v. FAA*, 535 F.3d 1, 11-13 (1st Cir. 2008)). Examination of the facts of *Winthrop* shows that the petitioners there argued that public comment demands and suggestions from Massachusetts public health and environmental agencies for additional studies on pollutants to ascertain adverse effects of an airport expansion proposal on public health were necessary to complete the NEPA document. Here, by contrast, studies which were completed by expert agencies in offshore wind and wind power generation were not demanded, but handed over to the Commission by Petitioners. Far from calling for additional research, Beyond Nuclear demanded consideration of the most up-to-date information, which is constantly emanating from the commercial wind power sector globally. Petitioners provided the "research." The Commission chose to "fulfill [its] own prophecies" by engaging in "outcome-controlled rigging" of purpose and need, in

violation of NEPA. *Citizens Against Burlington, supra*.

While an Environmental Impact Statement must not "require the government to speculate on impacts in order to 'foresee the unforeseeable,'" *City of Davis v. Coleman,* 521 F.2d 661, 676 (9th Cir.1975), the basic agency responsibility under NEPA is predictive, *i.e*., to ascertain the environmental effects of proposed action before the action is taken and those effects become fully known. "Reasonable forecasting and speculation is thus implicit in NEPA, and we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as 'crystal ball inquiry.'" *Id.* at 676 (quoting *Scientists' Institute for Public Information v. A.E.C.*, 481 F.2d 1079, 1092 (D.C.Cir.1973)). "NEPA's requirement for forecasting environmental consequences far into the future *implies the need for predictions based on existing technology and those developments which can be extrapolated from it"* (emphasis supplied). *Natural Resources Defense Council, Inc. v. Nuclear Regulatory Commission (Vermont Yankee I)*, 547 F.2d 633, 639 (D.C. Cir. 1976). Contrast Beyond Nuclear's evidence in this case with the truly-speculative evidence which was rejected in *Natural Resources Defense Council:* There, the public demand was for "evaluation of the environmental effects of the operation of one or more unidentifiable reprocessing plants, employing separation processes which are

unidentified and which may or may not now be known or used, during the course of the forty-year life of the plant. . . .” *Id.* at 639.

3. *Carolina Environmental Study Group*

The Commission cited *Carolina Envtl. Study Grp. v. U.S.*, 510 F.2d 796, 801 (D.C. Cir. 1975) for the point that “NEPA was not meant to require detailed discussion of ‘remote and speculative’ alternatives).” CLI-12-05, Addendum p. 54 fn. 244, Apx. 274. Undeniably, the identification of “reasonable alternatives” involves degrees of rigor, especially if there are “basic changes required in statutes and policies of other agencies - making them available, if at all, only after protracted debate and litigation” such that an alternative would not be “meaningfully compatible with the time-frame of the needs to which the underlying proposal is addressed.” *Natural Resources Defense Council v. Morton*, *supra*, 458 F.2d 837-838. Conversely, if an alternative does not involve “protracted debate and litigation” and is “meaningfully compatible with the time-frame of the needs to which the underlying proposal is addressed,” it is logically a “reasonable alternative.” *Carolina Envtl. Study Grp. v. U.S.*, 510 F.2d 801.

Offshore wind power, according to the mountain of evidence provided by Petitioners, is moving toward realization in the Gulf of Maine. The technology is well past debate and has become, instead, a question of timing and logistics.

There is a high probability of construction of baseload quantities of interconnected power generation farms in the Gulf years before the 2030 commencement of Seabrook's license renewal period. The high probability that offshore wind will be deployed in baseload quantities before the onset of Seabrook's renewal raises a significant factual and ultimately, legal distinction from *Carolina Environmental Study Group*.

The Commission cited the case to buttress this conclusion:

> In sum, to submit an admissible contention on energy alternatives in a license renewal proceeding, a petitioner ordinarily must provide "alleged facts or expert opinion" sufficient to raise a genuine dispute as to whether the best information available today suggests that commercially viable alternate technology (or combination of technologies) is available now, or will become so in the near future, to supply baseload power.

CLI-12-05, Addendum p. 53, Apx. 274. But during the litigation of *Carolina Environmental*, the Study Group argued "that because the nuclear plant is to operate for several decades, alternative power sources which may be developed, such as oil shale, geothermal energy, and solar energy, should have been considered." That is, the Study Group was claiming that alternative energy sources might be developed *during the operational life of the plant that was under challenge, not in the years preceding the commencement of plant operations*. It was the potential for development of alternatives only after

completion of construction of a new power plant that the D.C. Circuit deemed "both speculative and remote." The court doubted that "Congress intended an agency to devote itself to extended discussion of the environmental impact of alternatives so remote from reality as to depend on, say, the repeal of the antitrust laws." *Id.*, 510 F.2d at 8009 (citing *Natural Resources Defense Council v. Morton, supra*).

By contrast, here the Petitioners proposed NEPA analysis of plans for baseload offshore wind projected to be operating at commercial levels years ***before*** the 2030-2050 license renewal period. Their evidence shows that the State of Maine passed legislation in 2009 which enabled the first steps toward a large-scale offshore wind program. Enabling legislation in the case of offshore wind is not so "remote from reality" as it might have been in *Carolina Study Group*. Petitioners' evidence suggests, at the very least, that wind power technology is "meaningfully compatible with the time-frame of the needs to which the under-lying proposal is addressed." *Natural Resources Defense Council v. Morton*, *supra*, 458 F.2d 837-838.

Carolina Environmental Study Group is thus inapropos as authority for the Commission's view of the infeasibility of offshore wind.

4. *Roosevelt Campobello Int'l Park Comm'n v. EPA*

The Commission cited *Roosevelt Campobello Int"l Park Comm'n v. EPA*, 684 F.2d 1041 (1st Cir. 1982) for the proposition that "([t]he reasonableness of alternatives is based upon information available at the time of drafting the EIS. . . ." CLI-12-05, Addendum p. 53 fn. 244, Apx. 274. But the Commission edited out critical wording to transmogrify *Campobello* into authority for that. The "alternatives" discussion in *Campobello* embraced alternative physical locations for a huge offshore crude oil tanker unloading complex, not alternative choices of technology to achieve the generation of electrical power. Moreover, the USEPA saw its duty as simply ensuring that the anticipated physical and ecological damage from the project would be "environmentally acceptable", *i.e.*, that if the expected damage from the three sites under consideration were relatively comparable, then the USEPA as regulator must defer to the developer's final determination as to location of the project. *Id.* at 1046-1047.

So the Commission misused *Campobello* by editing a critical passage to serve its own ends. The complete passage as written by the First Circuit says:

> EPA's duty under NEPA is to study all alternatives that appear reasonable and appropriate for study at the time of drafting the EIS, *as well as 'significant alternatives' suggested by other agencies or the public during the comment period.*

Campobello at 1047. The Commission, though, referenced *Campobello* as "holding that, for siting alternatives, EPA's 'duty under NEPA is to study all alternatives that appear reasonable and appropriate for study at the time of drafting the EIS.'" CLI-12-05, Addendum p. 53 fn. 244. Missing from the Commission's reliance on *Campobello* is the italicized portion of the above quotation. The First Circuit did not rule to limit consideration of alternatives to those identified at the time the EIS is written, but instead, decided that the range of alternatives in the EIS cannot be limited solely to what the agency considers to be "appropriate for study." This Court held that the EIS must embrace "significant alternatives suggested by … the public. . . ." "at the time of drafting of the EIS." This is the opposite of the mischief to which the Commission adapted the decision. *Campobello* offers no safe harbor to the Nuclear Regulatory Commission.

Neither does the Commission's selective editing of its excerpt from *Seacoast Anti-Pollution League v. Nuclear Regulatory Com'n*, 598 F.2d 1221, 1230 (1st Cir. 1979) ("for siting alternatives, an agency must consider alternatives that appear reasonable 'at the time' of the NEPA review", CLI-12-05, Addendum pp. 53-54 fn. 244, Apx. 274). *Seacoast* involved multiple geographical site alternatives for the Seabrook plant. Similarly to the surgical metamorphosis the Commission caused the *Campobello* passage by leaving out a critical clause, it

eviscerated the following passage from *Seacoast* (wording omitted by Commission is italicized):

> In respect to alternatives, an agency must on its own initiative study all alternatives that appear reasonable and appropriate for study at the time, *and must also look into other significant alternatives that are called to its attention by other agencies, or by the public during the comment period afforded for that purpose.*

598 F.2d 1230. *Seacoast* and *Campobello* afford no port in this storm for the NRC.

Offshore Wind As A Discrete Source of Baseload Electric Generation

The Commission gave "substantial weight" to NextEra's goal of providing baseload electrical power as part of its rationale. CLI-12-05, Addendum p. 55, Apx. 275). This was permissible. *Citizens Against Burlington, supra.* But the ASLB had properly admitted Petitioners' contention to get to the truth of whether offshore wind might provide baseload power, or not.

When it dismissed the contention, the Commission incorrectly scored the ASLB for "supplying a basis not argued by Beyond Nuclear" - that Petitioners supposedly did not argue that wind farms that combine with other wind farms to create an interconnected network would constitute a "*single, discrete* electric generation source" as required by the GEIS. The Commission flatly stated, "Beyond Nuclear does not make this argument." CLI-12-05, Addendum pp. 61-

62, Apx. 278. This statement, however, is grossly inaccurate.

At pp. 18-25 of their Petition to Intervene (Apx. 19-21), Petitioners identified expert documents, agency analyses, and other contemporary factual documents which discuss possible solutions to the problem of wind intermittency and its implications for the unreliability of wind energy as a baseload source. Petitioners cited a U.S. Department of Energy, NREL study of wind energy as baseload power in combination with innovative storage technology and long-distance transmission. See Petition at pp. 21-22 (Apx. 20) and Exh. #3, "Creating Baseload Wind Power Systems," Apx. 35. Petitioners also submitted for the record an authoritative article from Stanford University's Journal of Applied Meteorology and Climatology, "Supplying Baseload Power and Reducing Transmission Requirements by Interconnected Wind Farms" (Petitioners' Exh. 4, Apx. 36-40) which concludes (p. 1702, Apx. 36) that "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 individ-ual wind farm. . . ."

Petitioners further supplied several news articles which reveal coming high-tech "smart grid" interconnections. *See* Exh. #5 (Apx. 41), "Google helps finance 'superhighway' for wind power," Washington Post, October 13, 2010, reporting

on Google's announced formation of a consortium to supply large scale baseload wind power through the advancement of an offshore "backbone transmission project" to interconnect East Coast wind farms by 2020. Additionally, *see* Petitioners' Exh. #6 (Apx. 42), a January 6, 2010 news article, "European Communities Unite to Invest $40 Billion in Huge Off-Shore Renewable Energy Super Grid," and Petitioners' Exh. #7 (Apx. 43), a January 7, 2010 article, "Renewable Energy (Wind, Solar & Tide Power) Will Be Distributed Through A Super Grid in Europe".

When it admitted the offshore wind contention, the ASLB recognized its responsibility to not constrict full consideration of alternatives required by NEPA. *Cf. Simmons v. Corps of Engineers,* 20 F.3d 664, 669 (7th Cir. 1997) (agency must avoid the "losing proposition" of "blindly adopting the applicant's goals"; NEPA requires than agency to "exercise a degree of skepticism in dealing with self-serving statements from a prime beneficiary of the project" and to "look at the general goal of the project rather than only those alternatives by which a particular applicant can reach its own specific goals").

The Commission, however, derogated these principles and imposed a dramatically-changed standard of evidence, transforming the gateway step of petitioning to participate in the proceeding into a summary - losing - trial on the

merits.

CONCLUSION

The NRC has enshrined self-imposed ignorance as an acceptable substitute for compliance with NEPA. This license renewal proceeding is the sole opportunity, ever, for the public to petition for serious consideration of alternatives to the continued operation of Seabrook. It is therefore paramount to include all possible facts, expert and expert agency opinion concerning alternatives.

The Commission's ruling here that Petitioners' superior 2010 evidence on offshore wind - evidence which continues to mount literally with each passing day - need not be investigated, in favor of aging, stale facts and inferences selected by the very beneficiary from the license extension, NextEra. That is illogical and violates NEPA. A "hard look" for a superior alternative is a condition precedent to the licensing determination that an applicant's proposal is acceptable under NEPA. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 & 2), ALAB-471, 7 NRC 477, 513 (1978). An agency acts arbitrarily and capriciously when it fails to "examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made." *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). "'Clarity is at a premium in NEPA because the statute . . . is a

democratic decision making tool . . . .' Accordingly, agencies violate NEPA when they fail to disclose that their analysis contains incomplete information." *North Carolina Wildlife Federation v. North Carolina Dept. of Transp.*, 677 F.3d 596, 603 (4th Cir. 2012) (internal citations omitted).

Denial of NEPA consideration of offshore wind means that serious precedural injury will befall the public in this license extension proceeding, in the form of a less-informed and possibly flawed decision to continue with inherently dangerous nuclear power, even as the inevitability of offshore wind expands unabated in the Gulf of Maine.

Commercial-scale offshore wind power exists in growing concentrations in several other parts of the world. The NRC is not entitled to define the facts and to favor bad technical information over legitimate information about its rapid expand-sion. *See, Seattle Audubon Society v. Espy*, 998 F.2d 699, 703-04 (9th Cir. 1993) (overturning decision which "rests on stale scientific evidence, incomplete discus-sion of environmental effects . . . and false assumptions").

It cannot be gainsaid that this case should not evoke the nearly-magical quarantine of court deference to agency decision-making. While "an agency's interpretation of the statute under which it operates is entitled to some deference, 'this deference is constrained by our obligation to honor the clear meaning of a

statute, as revealed by its language, purpose, and history.'" *Teamsters v. Daniel*, 439 U.S. 551, 566 n. 20 (1979), cited in *Town of Brookline v. Gorsuch*, 667 F.2d 215, 218 (1st Cir. 1981). Indisputably, a reviewing court "must generally be at its most deferential" where the agency "is making predictions within its area of special expertise, at the frontiers of science." But that is not so when the review, as here, involves scrutiny of the agency's "simple findings of fact." *Upper Blackstone Water Pollution Abatement District v. United States Environment Protection Agency,* 11-1474, 11-1610 (First Circuit, August 3, 2012) (slip. op.) (internal citation omitted). The NRC, the very embodiment of technical. scientific and commercial promotion of nuclear power generation, possesses no scientific expertise in offshore wind, and will certainly not acquire any so long as the Commission excludes consideration of wind alternatives from NEPA scrutiny.

"NEPA's requirement for forecasting environmental consequences far into the future implies the need for predictions based on existing technology and those developments which can be extrapolated from it." *Natural Resources Defense Council, Inc. v. Nuclear Regulatory Commission (Vermont Yankee I*), *supra*, 547 F.2d 637.

"The existence of a viable, but unexamined alternative renders an environmental impact statement inadequate." *Idaho Conservation League v. Mumma*,

956 F.2d 1508, 1519-20 (9th Cir. 1992). 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).

This controversy encompasses a nuanced controversy which the NRC has resolved, not by intelligent pursuit of NEPA's dictates, but by changing the lang.-age. In its fatuous battle to control the language and to block consideration of offshore wind (How is a "statement of expectation" not a "plan"?) , the NRC only complicates the inevitable transition to a clean energy future. In this world where a state legislature can "repeal" the science of global warming or evolution, instate-tional denial has become, itself, an institution. But it must not be allowed to infect federal government regulatory decision-making. The Nuclear Regulatory Commis-sion's denial of the obvious viability of offshore wind power must not be dignified or protected by applying anything other than the rule of law as delineated above.

WHEREFORE, Petitioners respectfully request that this Court review the Nuclear Regulatory Commission's March 8, 2012, Memorandum and Order, vacate the same, and remand the matter of Petitioners' contention back to the agency with instructions to reinstate the order of the NRC's ASLB and Licensing Board and admit the contention for hearing.

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITATION, TYPEFACE REQUIREMENTS AND TYPE STYLE REQUIREMENTS

1. This brief complies with the type-volume limitation of Fed. R. App. P. 32(a)(7)(B) because it contains 13,814 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(a)(7)(B)(iii).

2. This brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type style requirements of Fed. R. App. P. 32(a)(6) because it has been prepared in a proportionally-spaced typeface using WordPerfect X4 word processing program and Times New Roman, 14 pt. type.

/s/ Terry J. Lodge
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August 16, 2012

CERTIFICATE OF SERVICE

I hereby certify that on August 16, 2012 I electronically filed the foregoing document with the United States Court of Appeals for the First Circuit by using the CM/ECF system. I certify that the following parties or their counsel of record are registered as ECF filers and that they will be served by the

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ADDENDUM

Pp. 1-68, Commission decision, CLI-12-05, "Memorandum and Order (Ruling on Petitions for Intervention and Requests for Hearing)"

Pp. 69-134, Atomic Safety and Licensing Board decision, LBP-11-02, "Memorandum and Order (Ruling on Petitions for Intervention and Requests for Hearing)"

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

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William C. Ostendorff

In the Matter of	)	
NEXTERA ENERGY SEABROOK, LLC	)	Docket No. 50-443-LR
(Seabrook Station, Unit 1)	)	

CLI-12-05

MEMORANDUM AND ORDER

This proceeding stems from the May 25, 2010, application of NextEra Energy Seabrook, LLC (NextEra) to renew its operating license for Seabrook Station, Unit 1 (Seabrook).[1] Beyond Nuclear, the Seacoast Anti-Pollution League, and the New Hampshire Sierra Club (collectively, Beyond Nuclear) filed a joint petition to intervene.[2] Separately, Friends of the Coast and the New England Coalition (collectively, Friends/NEC) filed their own joint petition.[3]

[1] *See generally* Seabrook Station License Renewal Application (May 25, 2010) (Vol. I: ADAMS accession no. ML101590098; Vol. II: ML101590101; Vol. III: ML101590091) (Application).

[2] *Beyond Nuclear, Seacoast Anti-Pollution League and New Hamps[h]ire Sierra Club Request for Public Hearing and Petition to Intervene* (Oct. 20, 2010) (Beyond Nuclear Petition).

[3] *Friends of the Coast and New England Coalition Petition for Leave to Intervene, Request for Hearing, and Admission of Contentions* (dated Oct. 20, 2010, but filed Oct. 21, 2010) (Friends/NEC Petition). Friends/NEC supported their petition with a Declaration by Mr. Paul Blanch. Declaration of Paul Blanch (Oct. 18, 2010) (Blanch Declaration), appended as Attachment 7 to Friends/NEC Petition (ML102940557).

On February 15, 2011, the Board issued LBP-11-2, finding that all petitioners had demonstrated standing, and admitting one contention in part and three more in their entirety.[4] NextEra has appealed LBP-11-2.[5] As discussed below, we affirm in part and reverse in part LBP-11-2.

I. REGULATORY BACKGROUND

As the U.S. Court of Appeals for the Third Circuit recognized, the scope of our license renewal process is limited.[6] The license renewal safety review—and any associated license renewal adjudicatory proceeding—focuses on the detrimental effects of aging posed by long-term reactor operation.[7]

Part 54 of our regulations sets forth the safety review standards for license renewal. Section 54.4 defines the scope of the review, which focuses on those systems, structures, and components (SSCs) that (1) perform the safety functions outlined in section 54.4(a)(1)(i)-(iii);

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[4] LBP-11-2, 73 NRC __ (Feb. 15, 2011) (slip op. at 9-15 (standing) and 20-61 (contentions)). In addition, the Board "decline[d] to consider the revised declaration of Paul Blanch and other materials submitted by Friends/NEC on December 6, 2010," and therefore denied as moot Friends/NEC's motion for leave to reply to NextEra's and the Staff's objections to the revised declaration. LBP-11-2, 73 NRC at __ (slip op. at 64), referring to both *Supplement to Friends of the Coast and New England Coalition Petition for Leave to Intervene, Request for Hearing, and Admission of Contentions: Errors and Corrections and New Information* (Dec. 6, 2010), and *Motion by Friends of the Coast and New England Coalition for Leave to Reply to NRC Staff Objections; NextEra Energy Seabrook, LLC. Response in Opposition to the Friends of the Coast and New England Coalition Supplement to its Petition* (Dec. 20, 2010). The Board's specific ruling with regard to the revised Blanch Declaration and other materials is not now before us on appeal.

[5] *NextEra Energy Seabrook, LLC's Notice of Appeal of LBP-11-02 as to the New England Coalition and Friends of the Coast* (Feb. 25, 2011); *Brief in Support of NextEra Energy Seabrook, LLC's Appeal of LBP-11-02 as to the New England Coalition and Friends of the Coast* (Feb. 25, 2011) (NextEra Appeal I); *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* (Feb. 25, 2011); *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* (Feb. 25, 2011) (NextEra Appeal II).

[6] *See N.J. Envtl. Fed'n v. NRC*, 645 F.3d 220, 224 (3d Cir. 2011).

[7] *See id.*

(2) whose failure could prevent accomplishment of the safety-related functions outlined in section 54.4(a)(1)(i)-(iii); or (3) are relied on to demonstrate compliance with NRC regulations for fire protection, environmental qualification, pressurized thermal shock, anticipated transients without scram, or station blackout.[8] License renewal applicants must conduct aging management reviews of any SSC that performs one of these intended functions if the SSC is both "passive" (that is, it performs its intended function(s) "without moving parts or without a change in configuration or properties"[9]) and "long-lived" (that is, it is "not subject to replacement based on a qualified life or specified time period"[10]). Applicants must demonstrate "reasonable assurance"[11] that "the effects of aging will be adequately managed so that the intended function(s) will be maintained consistent with the CLB [current licensing basis] for the period of extended operation."[12]

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[8] 10 C.F.R. § 54.4(a).

[9] 10 C.F.R. § 54.21(a)(1)(i); *Entergy Nuclear Generation Co. & Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), CLI-10-14, 71 NRC 449, 454 (2010); *AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-08-23, 68 NRC 461, 466 (2008).

[10] 10 C.F.R. § 54.21(a)(1)(ii); *Oyster Creek*, CLI-08-23, 68 NRC at 466. *See* 10 C.F.R. §§ 54.21(a)(3), 54.29(a)(1). "[S]tructures and components associated only with active functions can be generically excluded from a license renewal aging management review. Functional degradation resulting from the effects of aging on active functions is more readily determinable, and existing programs and requirements are expected to directly detect the effects of aging." Final Rule, Nuclear Power Plant License Renewal; Revisions, 60 Fed. Reg. 22,461, 22,472 (May 8, 1995) (1995 License Renewal Rule). *See also Pilgrim*, CLI-10-14, 71 NRC at 454 ("Existing regulatory programs . . . can be expected to 'directly detect the effects of aging' on active functions" (quoting 1995 License Renewal Rule, 60 Fed. Reg. at 22,472)); *Oyster Creek*, CLI-08-23, 68 NRC at 466-67.

[11] 10 C.F.R. § 54.29(a).

[12] 10 C.F.R. § 54.21(a)(3). *See also* 10 C.F.R. § 54.4(b) (regarding the limited scope of the intended functions). The "current licensing basis" is "the set of NRC requirements (including regulations, orders, technical specifications, and license conditions) applicable to a specific plant, and includes the licensee's written, docketed commitments for ensuring compliance with applicable NRC requirements and the plant-specific design basis." *Pilgrim*, CLI-10-14, 71 NRC at 453-54 (footnote omitted).

In reviewing license renewal applications, the NRC is guided primarily by two documents—the Generic Aging Lessons Learned (GALL) Report and the License Renewal Standard Review Plan.[13] If the NRC concludes that an aging management program (AMP) is consistent with the GALL Report, then it accepts the applicant's commitment to implement that AMP, finding the commitment itself to be an adequate demonstration of reasonable assurance under section 54.29(a).[14]

License renewal applications are also subject to an environmental review under the National Environmental Policy Act (NEPA)[15] and our Part 51 regulations implementing NEPA.[16] The Staff's review, and ultimately our own, are guided largely by a Generic Environmental Impact Statement (GEIS) that focuses specifically on license renewal applications.[17]

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[13] "Generic Aging Lessons Learned (GALL) Report," NUREG-1801, Rev. 1 (Sept. 2005), Vol. 1 (ML052770419) & Vol. 2 (ML052110006) (GALL Report); "Generic Aging Lessons Learned (GALL) Report – Final Report," NUREG-1801, Rev. 2 (Dec. 2010) (ML103490041) (GALL Report Rev. 2); "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants," NUREG-1801, Rev. 1 (Sept. 2005) (ML052770566) (Standard Review Plan).

[14] *Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-10-17, 72 NRC 1, 36 (2010); *Oyster Creek*, CLI-08-23, 68 NRC at 467-68.

[15] 42 U.S.C. §§ 4332(2)(C)(i), (iii) (requiring an agency to prepare a detailed statement describing the reasonably foreseeable environmental impacts both of the proposed federal action and of any feasible alternative(s) to the proposed federal action).

[16] *See generally* 10 C.F.R. pt. 51.

[17] "Generic Environmental Impact Statement for License Renewal of Nuclear Plants," NUREG-1437, Vol. 1 (May 1996) (ML040690705), & Vol. 2 (Sept. 2005) (ML052780376) (License Renewal GEIS). The GEIS sets forth the technical basis for our 1996 revisions to the Part 51 rules, as they relate to power reactor license renewal. *See* Final Rule, Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, 61 Fed. Reg. 66,537, 66,537 (Dec. 18, 1996) ("The amendments [to Part 51] are based on the analyses reported in NUREG-1437"); License Renewal GEIS, Vol. 1, § 1.1, at 1-1.

II. PROCEDURAL BACKGROUND

In its petition to intervene, Beyond Nuclear proffered one environmental contention.[18] And in their petition to intervene, Friends/NEC proffered four contentions, one of which was divided into six discrete parts.[19] NextEra and the NRC Staff submitted answers in which they argued that all contentions were inadmissible.[20] Friends/NEC and Beyond Nuclear each filed replies opposing the Staff's and NextEra's Answers.[21] The Board held oral argument on the petitions. Subsequently, in LBP-11-2, the Board admitted Beyond Nuclear's contention, as well as two contentions and portions of a third, proffered by Friends/NEC.[22] Separately,

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[18] Beyond Nuclear Petition at 6-49.

[19] Friends/NEC Petition at 10-79.

[20] *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), at 16-36 (NextEra Answer to Beyond Nuclear Petition); *NextEra Energy Seabrook, LLC's Answer Opposing The Petition to Intervene and Request for Hearing of Friends of the Coast and the New England Coalition* (Nov. 15, 2010), at 24-105 (NextEra Answer to Friends/NEC Petition); *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), at 18-108 (Staff Answer to Petitions). Additionally, NextEra contended that Friends/NEC had failed to demonstrate standing. NextEra Answer to Friends/NEC Petition at 4-6.

[21] *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) (Beyond Nuclear Reply); [Original] *Friends of the Coast and New England Coalition Reply to NextEra and NRC Staff Answers to Friends of the Coast and New England Coalition Petition for Leave to Intervene, Request for Hearing, and Admission of Contentions* (Nov. 22, 2010); [Revised] *Friends of the Coast and New England Coalition Reply to NextEra and NRC Staff Answers to Friends of the Coast and New England Coalition Petition for Leave to Intervene, Request for Hearing, and Admission of Contentions* (dated Nov. 22, 2010; served Nov. 23, 2010) (Friends/NEC Reply).

[22] Friends/NEC's remaining contentions were excluded and are not at issue here. LBP-11-2, 73 NRC at __ (slip op. at 63).

Friends/NEC filed a motion for reconsideration of those portions in LBP-11-2 where the Board had ruled against them.[23] The Board denied their motion for reconsideration shortly thereafter.[24]

On appeal, NextEra challenges all of the Board's contention admissibility rulings.[25] Both Friends/NEC and Beyond Nuclear oppose NextEra's appeal.[26]

III. DISCUSSION

A. Applicable Standards

A request for hearing or petition for leave to intervene must set forth with particularity the contentions sought to be raised. For each contention, the request or petition must:

(i) Provide a specific statement of the issue of law or fact to be raised or controverted . . .;

(ii) Provide a brief explanation of the basis for the contention;

(iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding;

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[23] *Friends of the Coast and New England Coalition, Inc. Motion for Leave to File for Reconsideration of Memorandum and Order LBP-11-02* (Feb. 25, 2011).

Under NRC practice, the filing of this motion tolled our consideration of the two appeals. *See Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-01-1, 53 NRC 1, 3 (2001) ("When a petition for review is filed with the Commission at the same time as a motion for reconsideration is filed with the Board, the Commission will delay considering the petition for review until after the Board has ruled" (citation omitted)); *Commonwealth Edison Co.*, (Byron Nuclear Power Station, Units 1 and 2), ALAB-659, 14 NRC 983, 985 (1981) ("It simply is not customary for an appeal to proceed through at least the briefing process while the trial tribunal has before it an authorized and timely-filed petition for reconsideration of the decision or order in question" (footnote omitted)).

[24] Order (Denying Extension Request and Denying Motion for Leave to File for Reconsideration) (Mar. 9, 2011) (unpublished).

[25] NextEra does not challenge the Board's rulings on standing.

[26] *Petitioners' Beyond Nuclear, Seacoast Anti-Pollution League and New Hampshire Sierra Club Reply in Opposition to NextEra Seabrook, LLC's Appeal of LBP-11-02* (Mar. 7, 2011) (Beyond Nuclear Opposition to Appeal); *Friends of the Coast and New England Coalition Answer and Opposition to NextEra Energy Seabrook, LLC's Notice of Appeal of LBP-11-02* (Mar. 10, 2011) (Friends/NEC Opposition to Appeal). The Secretary granted Friends/NEC a three-day extension of time within which to file its opposition. *See* Order (Denying Extension Request and Denying Motion for Leave to File for Reconsideration) (SECY Mar. 9, 2011) (unpublished).

(iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding;

(v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue . . . together with references to the specific sources and documents on which the requestor/petitioner intends to rely . . .; [and]

(vi) . . . [P]rovide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact.[27]

As we have outlined in earlier decisions, the NRC in 1989 revised its rules to prevent the admission of contentions "based on little more than speculation."[28] The agency deliberately "rais[ed] the admission standards for contentions . . . to obviate serious hearing delays caused in the past by poorly defined or [poorly] supported contentions."[29] Prior to our 1989 rule revision, intervenors were able to trigger hearings after merely copying a contention from another proceeding, even though these "[a]dmitted intervenors often had negligible knowledge" of the issues "and, in fact, no direct case to present."[30] Although under our current rules intervenors of course may use the discovery process to develop a case once contentions are admitted, "contentions shall not be admitted if at the *outset* they are not described with reasonable specificity or are not supported by some alleged fact or facts *demonstrating* a genuine material dispute" with the applicant.[31] We properly "reserve our hearing process for genuine, material controversies between knowledgeable litigants."[32]

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[27] 10 C.F.R. § 2.309(f)(1).

[28] *Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2, and 3), CLI-99-11, 49 NRC 328, 334 (1999).

[29] *Id.*

[30] *Id.*

[31] *Id.* at 335 (internal quotation and citation omitted) (emphasis added).

[32] *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Unit 2), CLI-03-14, 58 NRC 207, 219 (2003) (footnote omitted).

We generally defer to Board rulings on contention admissibility unless we find "an error of law or abuse of discretion."[33] With these points in mind, we turn to NextEra's appeals.

B. Analysis of the Board's Rulings on Contention Admissibility

1. Friends/NEC Contention 1

> The license renewal application for Seabrook Station fails to comply with the requirements of 10 C.F.R. §§ 54.21(a) and 54.29 because Applicant has not proposed an adequate or sufficiently specific plan for aging management of non-environmentally qualified inaccessible electrical cables and wiring for which such aging management is required. Without an adequate plan for aging management of non-environmentally qualified inaccessible electrical cables[,] protection of public health and safety cannot be assured.[34]

a. Background

NextEra's original Application contained an AMP addressing non-environmentally qualified inaccessible medium-voltage electrical cables and wiring. On October 29, 2010, NextEra submitted a supplement to the Application[35] to bring the Application into conformity with Revision 2 of the GALL Report.[36] This supplement amended the "Non-EQ Inaccessible Medium-Voltage Cables Program," expanding its scope to include certain low-voltage cables as well.[37]

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[33] *See*, *e.g.*, *South Carolina Electric and Gas Co. and South Carolina Public Service Authority (also referred to as Santee Cooper)* (Virgil C. Summer Nuclear Station, Units 2 and 3), CLI-10-21, 72 NRC 197, 200 (2010) (citing *Crow Butte Resources, Inc.* (In Situ Leach Facility, Crawford, Nebraska), CLI-09-9, 69 NRC 331, 336 (2009)).

[34] Friends/NEC Petition at 10-11.

[35] The supplement included amendments to two AMPs. *See* Letter from Paul O. Freeman, Site Vice President of NextEra Energy Seabrook, LLC, to NRC Document Control Desk (Oct. 29, 2010) (Application Supplement) (ML103060022), and enclosures. *See*, particularly, *id.*, Enclosure 2 to SBK-L-10179, "Changes to the Seabrook Station License Renewal Application Associated with Inaccessible Medium-Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program."

[36] *See* NextEra Appeal I at 5 (citing GALL Report Rev. 2).

[37] *Id.* at 5 (citing Application Supplement, Encl. 2 to SBK-L-10179, at 2, 6).

In submitting Contention 1, Friends/NEC argued generally that the original Application's aging management program for non-environmentally qualified inaccessible electrical cables and wiring fails to demonstrate that the effects of aging will be adequately managed, to the detriment of public health and safety.[38] Friends/NEC submitted the Declaration of Mr. Paul Blanch in support of this contention. Friends/NEC offered a number of bases for the contention.[39] The Board in LBP-11-2 appears to rely on five particular bases, discussed below, in admitting Contention 1.[40]

The Board found generally that the combination of Mr. Blanch's Declaration and the cited technical documents provided the required minimum support for Contention 1.[41] The Board, however, limited the admissibility ruling to "the adequacy of the . . . AMP . . . to manage age-related degradation of the cable insulation due to exposure to a wet or moist environment."[42] It expressly excluded assertions of current violations or noncompliance with the current licensing basis.[43]

In reaching this result, the Board acknowledged that Contention 1 was a challenge to an AMP that was assertedly consistent with the GALL Report,[44] but concluded that such an assertion by an applicant does not immunize it against a challenge to the AMP.[45] It likewise

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[38] Friends/NEC Petition at 11-13.

[39] *See id.* The record reflects some confusion as to the number of bases supporting the contention. For example, Judge Kennedy suggests there are at least seventeen bases. *See* Transcript of Hearing for Oral Argument (Nov. 30, 2010) (Tr.) at 86-87.

[40] NextEra does the same on appeal. *See* NextEra Appeal I at 10-11.

[41] LBP-11-2, 73 NRC at __ (slip op. at 29, 31-32).

[42] *Id.* at __ (slip op. at 31).

[43] *Id.* at __ (slip op. at 31-32).

[44] *Id.* at __ (slip op. at 30) (citing GALL Report, Vol. 1, at iii, 1).

[45] *Id.* (citing *Vermont Yankee*, CLI-10-17, 72 NRC at 36, 38).

stated, without further discussion, that Friends/NEC's factual assertions, at least to some extent, may have been rendered moot by NextEra's October 29, 2010, Supplement to its Application.[46]

b. Discussion

The scope of the contention as admitted by the Board is difficult to discern. The Board expressly mentions four bases and alludes to another[47] but does not explain specifically why any of them supports the contention's admission, or whether it included, or excluded, any particular basis in making its admissibility decision. Instead, the Board issued a blanket finding that Friends/NEC "provid[ed] a specific statement of the contention[,] . . . challeng[ed] the adequacy of the proposed AMP . . . [and] provide[d] references to the appropriate sections of the Application and supporting documents including the Blanch [D]eclaration . . . ."[48] NextEra interprets the Board's decision to admit Contention 1 as relying on the five claims discussed by the Board. NextEra asserts on appeal that, under 10 C.F.R. § 2.309(f)(1)(v), each of these five bases lacked the required factual or expert support to support a litigable contention.[49] Similarly, we assume that any basis not addressed by the Board was not relied upon in making its admissibility decision.[50]

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[46] *Id.* at __ (slip op. at 31). NextEra submitted the Application Supplement on October 29, 2010, shortly after Friends/NEC had filed their October 20, 2010, Petition. Friends/NEC did not file subsequently a new or amended Contention 1.

[47] *Id.* at __ (slip op. at 27-28).

[48] *Id.* at __ (slip op. at 29) (footnote omitted).

[49] NextEra Appeal I at 6-10. Friends/NEC's answer does not respond to these points. *See* Friends/NEC Opposition to Appeal at 5. Rather, Friends/NEC present only one argument in rebuttal of NextEra's appeal of the admission of Contention 1. They assert that NextEra untimely raised, for the first time on appeal, the argument that the Application Supplement rendered much of Contention 1 moot. *Id.* But the record directly contradicts Friends/NEC's appellate argument. *See* NextEra Answer to Friends/NEC Petition at 25, 28 n.15, 41-42; Staff Answer to Petitions at 19-20, 24; Tr. at 172 (Mr. Shadis, acknowledging NextEra's argument that the Application Supplement rendered some of Friends/NEC's arguments moot).

[50] For this reason, we need not reach NextEra's alternative arguments that the Board erred in failing to identify the specific bases on which it admitted the contention, or that several of the (continued . . .)

Friends/NEC argue that the Application does not address certain specific recommendations made in two reports prepared by the Sandia and Brookhaven National Laboratories.[51] The Board appeared to accept the argument that NextEra purportedly failed to address specific recommendations made in the two reports. NextEra argues on appeal (as it did before the Board) that Friends/NEC failed to identify with the required "particularity" the specific recommendations that NextEra should have addressed in the Application.[52] Our review of the record confirms that Friends/NEC identified no specific recommendations from either of these two reports.

As NextEra observes, the Sandia Report is one of the sources that provided the technical basis for the relevant section of the GALL Report.[53] NextEra stated in its application that its AMP is consistent with the GALL Report, with no exceptions.[54] Moreover, NextEra

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bases had been rendered moot by NextEra's submittal of a revised AMP. *See* NextEra Appeal I at 10-11 (referring to LBP-11-2, 73 NRC at __ (slip op. at 31)). We remind our boards, however, of the need to specify each basis relied upon for admitting a contention. *Crow Butte Resources, Inc.* (North Trend Expansion Project), CLI-09-12, 69 NRC 535, 553-54 (2009). Contrary to the Board's statement (slip op. at 31), an admitted contention is defined by its bases. *Id.* *See generally Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 309 & n.103 (2010) ("The reach of a contention necessarily hinges upon its terms *coupled with* its stated bases.") (emphasis in original; footnote and internal quotation marks omitted).

[51] Friends/NEC Petition at 12, 15-16 (citing and quoting Ogden Environmental and Energy Services Co., Inc., "Aging Management Guideline for Commercial Nuclear Power Plants – Electrical Cable and Terminations," SAND96-0344, at 6.4 (Sept. 1996) (ML031140264) (Sandia Report), and citing M. Villaran & R. Lofaro, Brookhaven National Laboratory, "Essential Elements of an Electrical Cable Condition Monitoring Program," NUREG/CR-7000 (Jan. 2010) (ML100540050) (Brookhaven Report)).

[52] NextEra Appeal I at 6-7 (citing 10 C.F.R. § 2.309(f)(1)); NextEra Answer to Friends/NEC Petition at 34. *See also* Oconee, CLI-99-11, 49 NRC at 336-38 (mere general references to the Staff's Requests for Additional Information do not provide the requisite reasonable specificity).

[53] *See* GALL Report, Vol. 2, § XI.E3, "Inaccessible Medium-Voltage Cables not Subject to 10 CFR 50.49 Environmental Qualification Requirements," at XI E-9.

[54] *See* NextEra Appeal I at 7 (referring to Application, Vol. III, App. B, "Aging Management Programs," § B.2.1.34, at B-182); NextEra Answer to Friends/NEC Petition at 33 (same).

stated that it considered the technical information and guidance from the Sandia Report in its original and its revised AMP.[55]

As for the Brookhaven Report, Friends/NEC have identified no provision that contradicts or is not already addressed in the Application's relevant AMP.[56] Mr. Blanch takes issue with reliance on in-service systems testing conducted under normal operating conditions, to which the Brookhaven Report refers.[57] But the AMP in the original Application provided for "a proven test for detecting deterioration of the insulation system due to wetting, such as power factor, partial discharge, or polarization index, as described in EPRI TR-103834-P1-2, 'Effects of Moisture on the Life of Power Plant Cables' [(Aug. 1994)] or other testing that is state-of-the-art at the time the test is performed."[58] This language is nearly identical to the referenced GALL AMP.[59] Friends/NEC dispute none of this. Neither Mr. Blanch nor Friends/NEC address the testing plan specified in the AMP, much less explain why it is inadequate. NextEra further points out, and our record review confirms, that its Application Supplement to bring this AMP "in

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[55] NextEra Appeal I at 7 (citing Application, Vol. III, App. B, § B.2.1.34, at B-181); NextEra Answer to Friends/NEC Petition at 33 (same). *See also* Application Supplement, Encl. 2, at 7 (citing the Sandia Report as a source of guidance and technical information for the AMP).

[56] *See* NextEra Answer to Friends/NEC Petition at 30 (citing Application, Vol. III, App. B, § B.2.1.34).

[57] *See* Blanch Declaration at 9-10 & n.3.

[58] Application, Vol. III, App. B, § B.2.1.34, at B-181. *See also* NextEra Appeal I at 7-8 n.8; NextEra Answer to Friends/NEC Petition at 31; Staff Answer to Petitions at 23.

[59] *See* GALL Report, Vol. 2, § XI.E3, at XI E-7. This section of the GALL Report was revised in 2010. The revision expanded the reference to "wetting" so that it now includes both "wetting" and "submergence," removed the cross-reference to EPRI TR-103834-P1-2, replaced it with a non-exclusive list of specific "proven test[s]," and explained the purpose of those tests. *See* GALL Report Rev. 2, § XI.E3, at XI E3-1. *See also* NextEra Appeal I at 7-8 n.8 (the AMP "does not rely on the in-service systems testing to which Mr. Blanch refers but instead requires a 'proven test' that will 'provide an indication of the condition of the conductor insulation'") (quoting Application, Vol. III, App. B, § B.2.1.34, at B-181, and citing GALL Report, Vol. 2, § XI.E3, at XI E-7).

line with GALL Rev. 2 did not modify this description of the tests . . . ."[60] In short, we find that Friends/NEC's arguments above do not present a genuine issue of material fact or law, and that the Board therefore erred in admitting Contention 1 on this basis.

Friends/NEC also assert that "[t]here are no testing methods available to adequately assure that submerged or previously submerged cables would perform their functions for the duration of [a] postulated accident."[61] NextEra points to the absence of support for this basis, even in the Blanch Declaration.[62] Our review of the Declaration and the Petition substantiates NextEra's assertion, which Friends/NEC do not challenge on appeal. Moreover, Basis 2 appears to be a variation on Friends/NEC's argument in Basis 1 regarding the Brookhaven Report. To the extent that it is, we reject it on the same grounds, specifically that such testing methods do exist and are referenced in both the GALL Report's model AMP and NextEra's AMP.[63] In short, we find that the Board erred in finding that this basis supports the admission of Contention 1.

Next, Friends/NEC argue that the Application fails to provide measures to detect cable degradation prior to failure, particularly techniques for measuring and trending the condition of cable insulation.[64] NextEra asserts on appeal that, on this point, Friends/NEC fail to address

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[60] NextEra Appeal I at 8 (citing Application Supplement, Encl. 2 at 2, 5). The revision in the supplement did, however, increase testing frequency.

[61] Friends/NEC Petition at 14. *See also* Blanch Declaration at 9-11. In LBP-11-2, the Board described this basis (slip op. at 28) but did not discuss it. NextEra correctly points out that the Board mischaracterized this basis in its decision. NextEra Appeal I at 7. *Compare* LBP-11-2, 73 NRC at __ (slip op. at 27-28) (stating that Friends/NEC assert that the AMP for non-environmentally qualified inaccessible cables and wiring, among other things, does not "identify testing methods that would adequately assure that submerged or previously submerged cables will perform their functions for the duration of a postulated accident").

[62] NextEra Appeal I at 8; NextEra Answer to Friends/NEC Petition at 28.

[63] *See* text associated with nn. 57-60, *supra*.

[64] Friends/NEC Petition at 16-17 (quoting NRC Generic Letter (GL) 2007-01, "Inaccessible or Underground Power Cable Failures that Disable Accident Mitigation Systems or Cause Plant

(continued . . .)

the relevant AMP in the Application.[65] We agree. The Application's relevant AMP provides the detection measures that Friends/NEC claim are missing.[66] Friends/NEC have an "ironclad obligation" to review the Application thoroughly and to base their challenges on its contents.[67] Friends/NEC did not satisfy this obligation here.

It bears mention that Friends/NEC take this basis from the NRC's Generic Letter 2007-01.[68] The generic letter informed licensees that inaccessible or underground cables susceptible to moisture-induced failures, particularly prior to the end of their qualified lives, could result in certain equipment failures. Such failures could either disable accident mitigation systems in operating power reactors or cause plant transients in those reactors. The GL states that licensees can assess the condition of cable insulation "with reasonable confidence" using one or more of several testing techniques: "partial discharge testing, time domain reflectometry, dissipation factor testing, and very low frequency AC testing."[69]

The Board appears to cite GL 2007-01 as support to litigate this issue in license renewal.[70] But GL 2007-01 provides no support for Friends/NEC's third basis. The GL sought information from operating license holders regarding the history of underground cable failures

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Transients" (Feb. 7, 2007) (GL 2007-01) (ML070360665)). In LBP-11-2, the Board described this basis (73 NRC at __ (slip op. at 28)) but did not discuss it.

[65] NextEra Appeal I at 8 (citing both the original and revised AMP for non-environmentally-qualified inaccessible electrical cables).

[66] Basis 3 also appears to be a variant of Bases 1 and 2. If so, it fails on the same grounds (discussed *supra*).

[67] *See*, *e.g.*, *Shaw Areva MOX Services, LLC* (Mixed Oxide Fuel Fabrication Facility), CLI-09-2, 69 NRC 55, 65 n.47 (2009) (referring to intervenors' "ironclad obligation to . . . diligently search publicly available NRC or Applicant documents for information relevant to their [c]ontention" (internal quotation marks and citation omitted)).

[68] Petition at 16-17.

[69] GL 2007-01 at 4.

[70] *See* LBP-11-2, 73 NRC at __ (slip op. at 28 n.149).

for cables within the scope of the maintenance rule, as well as information on inspection, testing and monitoring programs to detect degradation in such cables.[71] The GL is not focused on license renewal and does not address aging management. It neither requests additional AMPs for cables nor recommends improvements to existing cable AMPs.[72] For these reasons, the Board erred in finding this basis to provide a justification for admitting Contention 1.

Friends/NEC next argue that the Application fails to identify the location and extent of Seabrook's non-environmentally-qualified inaccessible cables.[73] In particular, Mr. Blanch challenged NextEra's explanation of its decision not to include "boundary drawings" in its Application, specifically taking issue with NextEra's conclusion in the Application that such drawings were unnecessary because "commodity grouping was used in the scoping process."[74] According to Mr. Blanch, "[c]haracterization of cables by commodity grouping is an acceptable practice *only* if the location where each cable type is used is also identified."[75] Mr. Blanch, however, offered no support for this assertion.

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[71] GL 2007-01 at 4.

[72] *See id.* at 4-5 (requesting information from current operating licensees regarding the history of inaccessible or underground cable failures within the scope of the Maintenance Rule, and a description of inspection, testing, and monitoring programs for inaccessible or underground cables).

[73] Friends/NEC Petition at 12. In LBP-11-2, the Board described this basis but did not discuss it. *See* 73 NRC at __ (slip op. at 28).

[74] Blanch Declaration at 13 (quoting Application, Vol. I, § 2.1.2, at 2.1-7). A "boundary drawing" depicts mechanical piping and instrumentation diagrams. The Standard Review Plan for license renewal provides that a license renewal applicant may group like structures and components into "commodity groups." Standard Review Plan at 2.1-14 to 2.1-15, Table 2.1-2, "Specific Staff Guidance on Scoping." The basis for such a grouping "can be determined by such characteristics as similar function, similar design, similar materials of construction, similar aging management practices, or similar environments." *Id.* at 2.1-14, Table 2.1-2.

[75] Blanch Declaration at 13 (emphasis added).

As NextEra argues on appeal,[76] the approach taken in the Application is consistent with the GALL Report, which provides that "[e]lectrical cables and their required terminations (i.e., connections) are typically reviewed as a single commodity."[77] Likewise, the Standard Review Plan provides that an applicant may group like structures into commodity groups, as long as the applicant provides the basis for the groups.[78] In its Application, NextEra offered the following explanation for its use of commodity grouping. As a general rule, NextEra focused upon the Seabrook plant's *systems and structures* when determining which ones meet "the requirements for inclusion in the scope of license renewal."[79] Once NextEra identified the relevant systems and structures (along with their intended functions), it identified the particular components that fell within the scope of license renewal.[80] However, it concluded that some components were more effectively evaluated "by component type, rather than by system or structure."[81] In those instances, NextEra instead employed an alternative approach—commodity grouping—to evaluate "[c]omponents constructed from similar materials, exposed to similar environments,

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[76] *See* NextEra Appeal I at 9.

[77] GALL Report, Vol. 2, § VI.A, "Equipment not Subject to 10 CFR 50.49 Environmental Qualification Requirements," at VI A-1 (cited in NextEra Appeal I at 9). The identical language also appears in GALL Report Rev. 2, § VI.A, at VI A-1.

[78] Standard Review Plan at 2.1-14, Table 2.1-2, "Specific Staff Guidance on Scoping." Although the GALL Report and the Standard Review Plan are guidance documents, and therefore not binding, they do carry special weight. *See Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-05-15, 61 NRC 365, 375 n.26 (2005) ("We recognize, of course, that guidance documents do not have the force and effect of law. Nonetheless, guidance is at least implicitly endorsed by the Commission and therefore is entitled to correspondingly special weight") (citations and internal quotation marks omitted); *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-01-22, 54 NRC 255, 264 (2001) ("Where the NRC develops a guidance document to assist in compliance with applicable regulations, it is entitled to special weight"), *pet. for review held in abeyance*, *Ohngo Gaudadeh Devia v. NRC*, 492 F.3d 421 (D.C. Cir. 2007).

[79] Application, Vol. I, § 2.1.2, at 2.1-4.

[80] *Id.*

[81] *Id.*

and which perform similar intended functions."[82] Each commodity group was evaluated "as if it were a separate individual system," with the group's components "not associated with a specific system or structure during the component's evaluation" but rather "with their assigned commodity group."[83] NextEra evaluated all electrical components, including cables, using the "commodity grouping" approach.[84]

Neither Friends/NEC nor Mr. Blanch challenged this explanation, or explained why commodity grouping for cables in the Seabrook license renewal application was inappropriate, or offered a reason or other unmet need that would require us to mandate inclusion of the exact location of each cable in the Seabrook license renewal application. Consequently, we find that this basis does not justify the admission of Contention 1.

Finally, Friends/NEC make a general claim (or, more precisely, a request for relief) that the NRC should require NextEra to "preclude" moisture from affecting non-environmentally-qualified inaccessible cables.[85] NextEra argues that this requirement appears nowhere in our regulations and finds no support in the Blanch Declaration.[86] We agree. At bottom, Friends/NEC ask the agency to impose a burden greater than the requirement imposed by section 54.21(a)(3) to "adequately *manage*[]" aging effects.[87] Friends/NEC would have us

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[82] *Id.* *See also id.*, Vol. I, § 2.5, at 2.5-1 ("similar function, similar design or similar materials of construction").

[83] *Id.*, Vol. I, § 2.1.2, at 2.1-4 to 2.1-5. *See also id.*, Vol. 1, § 2.5, at 2.5-1.

[84] *Id.*, Vol. I, § 2.1.2, at 2.1-5, 2.1-22. *See also id.* at 2.1-22 to 2.1-23 (describing the sequence of screening steps used to identify electrical commodity groups requiring an aging management review), § 2.5.1, at 2.5-2 (listing "Electrical Cables and Connections" as a commodity group).

[85] Friends/NEC Petition at 20. *See also id.* at 18-19 (include additional preventive measures in the AMP). In LBP-11-2, the Board described this basis (73 NRC at __ (slip op. at 28)) but did not discuss it.

[86] NextEra Appeal I at 9. Mr. Blanch does not assert a need to preclude wetting. *See* Blanch Declaration at 7-11.

[87] 10 C.F.R. § 54.21(a)(3) (emphasis added).

elevate that burden to the point where NextEra would be required to "preclude," not just "manage," such effects. This proposition contravenes our longstanding practice of rejecting, as a collateral attack, any contention calling for requirements in excess of those imposed by our regulations.[88]

In sum, we have reviewed the administrative record, including the Board's brief ruling on Contention 1, and find no basis sufficient to support the Board's admission of this contention. We recently held that a license renewal applicant who commits to implement an AMP that is consistent with the corresponding AMP in the GALL Report has demonstrated reasonable assurance under 10 C.F.R. § 54.29(a) that the aging effects will be adequately managed during the period of extended operation.[89] While referencing an AMP in the GALL Report does not insulate that program from challenge in litigation, as discussed above, Friends/NEC have not submitted an adequately supported challenge here. We therefore conclude that the Board erred, and reverse the Board's ruling admitting Contention 1.

2. Friends/NEC Contention 2

> The [license renewal application] for Seabrook violates 10 C.F.R. §§ 54.21(a) and 54.29 because it fails to include an aging management plan for each electrical transformer whose proper function is important for plant safety.[90]

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[88] *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-04-4, 59 NRC 31, 39 (2004) (rejecting a contention that would exceed regulatory requirements), *pet. for review held in abeyance*, *Ohngo Gaudadeh Devia v. NRC*, 492 F.3d 421 (D.C. Cir. 2007); *GPU Nuclear, Inc.* (Oyster Creek Nuclear Generating Station), CLI-00-6, 51 NRC 193, 206 (2000) (rejecting an "attempt[] to impose . . . a requirement more stringent that the one imposed by the regulations"); *Curators of the University of Missouri*, CLI-95-1, 41 NRC 71, 170 (1995) ("Intervenors are, in essence, contending that those regulatory provisions are themselves insufficient to protect the public health and safety. This assertion constitutes an improper collateral attack upon our regulations.") (footnote omitted). *See generally* 10 C.F.R. § 2.335(a).

[89] *Vermont Yankee*, CLI-10-17, 72 NRC at 36; *Oyster Creek*, CLI-08-23, 68 NRC at 467-68.

[90] Friends/NEC Petition at 20 (capitalization omitted).

a. Background

Simply stated, Friends/NEC argue in Contention 2 that an electrical transformer is a component that should be classified as "passive" and "long-lived," and therefore should be subject to an aging management review. The particular focus of the contention is on whether electrical transformers are appropriately characterized as having "passive" functions.

In the Statements of Consideration for the 1995 License Renewal Rule, the Commission determined that an aging management review is required for structures and components that fall within the scope of the rule and that perform "passive" intended functions. Our license renewal review focuses on so-called "passive" structures and components because structures and components performing "passive" functions generally do not have performance or condition characteristics that are as readily observable as those performing "active" functions.[91] Put another way, structures and components with "active" functions generally can be directly verified. As such, the existing regulatory process, existing licensee programs and activities, and the maintenance rule provide the basis for generically excluding from an aging management review those structures and components that perform "active" functions.[92] For this reason, the Commission generically excluded from license renewal aging management review structures and components associated only with "active" functions.[93] As reflected in the statements of consideration for the 1995 License Renewal Rule, "[f]unctional degradation resulting from the

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[91] Section 54.21(a)(1)(i) provides an illustrative list of structures and components that are subject to an aging management review, because they perform an intended function (as defined in 10 C.F.R. § 54.4) without moving parts or without a change in configuration or properties. Electrical transformers are not among the structures and components listed.

[92] *See* 1995 License Renewal Rule, 60 Fed. Reg. at 22,468-73 and, particularly, 22,471 ("Performance and condition monitoring for systems, structures and components typically involves functional verification, either directly or indirectly. Direct verification is practical for active functions such as pump flow, valve stroke time, or relay actuation where the parameter of concern (required function), including any design margins, can be directly measured or observed.").

[93] *See id.* at 22,472.

effects of aging on *active* functions is more readily determinable, and existing programs and requirements are expected to directly detect the effects of aging."[94]

The rule devoted significant discussion to defining a "passive" component. The Commission observed, as relevant here:

> [P]assive structures and components for which aging degradation is *not readily monitored* are those that perform an intended function without moving parts or *without a change in configuration or properties*.[95]

The Commission went on to observe that the phrase "'a change in configuration or properties' should be interpreted to include a 'change in state.'"[96]

Following implementation of the License Renewal Rule, the nuclear industry developed guidelines for use by applicants in developing license renewal applications that would comply with the rule.[97] During the initial development of those guidelines, questions arose as to whether certain electrical components were, in fact, subject to an aging management review under the rule. Transformers were among the components discussed. The Staff in 1997 provided additional guidance, which addressed specifically whether electrical transformers (among other electrical components) are subject to an aging management review.

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[94] *Id.* (emphasis added).

[95] *Id.* at 22,477 (emphases added). The Statements of Consideration explain that "a pump or valve has moving parts, an electrical relay can change its configuration, and a battery changes its electrolyte properties when discharging. Therefore, the performance or condition of these components is readily monitored and would not be captured by this description." *Id.*

[96] *Id.* (offering the example of a transistor).

[97] *See generally* NEI 95-10 (Rev. 0 Mar. 1996), "Industry Guideline for Implementing the Requirements of 10 CFR Part 54 – The License Renewal Rule" (ML031600708). The Staff reviewed this guidance (which has since been updated several times) and has indicated that licensees may use a later version of NEI 95-10 (currently Revision 6) to implement the License Renewal Rule. *See* Regulatory Guide 1.188, "Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses" (Rev. 1 Sept. 2005), at 4 (Regulatory Guide 1.188) (ML051920430).

In its guidance, the Staff observed that 10 C.F.R. § 54.21(a)(1)(i) expressly excludes a variety of electrical and instrumentation and control components from an aging management review for license renewal, and stated that the exclusion "is not limited to" only these components.[98] The Staff went on to state that it had considered aging management review requirements for transformers (among other components), and concluded that transformers are not subject to an aging management review. The Staff reasoned that transformers performed their intended function through a "change in state," by "stepping down voltage from a higher to a lower value, stepping up voltage to a higher value, or providing isolation to a load."[99] The Staff also observed that degradation of a transformer's ability to perform its intended function would be "readily monitorable by a change in the electrical performance of the transformer and the associated circuits."[100] Ultimately, the Staff recommended that NEI revise its guidance to indicate that transformers (among other components) do not require an aging management review.[101] NEI's current guidance reflects the Staff position on transformers.[102]

Friends/NEC argue in Contention 2 that NextEra's Application violates 10 C.F.R. §§ 54.21(a) and 54.29 because it fails to include an aging management program for each

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[98] Letter from C.I. Grimes, Office of Nuclear Reactor Regulation, to D.J. Walters, NEI, "Determination of Aging Management Review for Electrical Components" (Sept. 19, 1997) (Grimes Letter), Attachment at 1. *See generally* 10 C.F.R. § 54.21(a)(1)(i). The Grimes Letter is included as App. C, Ref. 2, to NEI 95-10 (Rev. 6, June 2005), "Industry Guideline for Implementing the Requirements of 10 CFR Part 54 – The License Renewal Rule" (NEI 95-10 (Rev. 6)) (ML051860406).

[99] Grimes Letter, Attachment at 2. The Staff went on to state: "Transformers perform their intended function through a change in state similar to switchgear, power supplies, battery chargers, and power inverters, which have been excluded in [10 C.F.R.] § 54.21(a)(1)(i) from an aging management review." *Id.*

[100] *Id.* The Staff also cited other indications of transformer performance, including observing trending of certain electrical parameters, and advanced monitoring methods. *Id.*

[101] *Id.* at 4.

[102] The Grimes Letter is incorporated into NEI 95-10 (Rev. 6) in App. C, Ref. 2.

electrical transformer whose "proper function" is important for plant safety.[103] The crux of their argument is that electrical transformers perform "passive" functions, and therefore must be addressed in an AMP, but that NextEra's Application contains no such AMP. In support, Friends/NEC offered the expert opinion of Paul Blanch. Mr. Blanch asserted, without more, that "[t]ransformers function without moving parts or without a change in configuration or properties as defined in [10 C.F.R. § 54.21(a)]."[104] The Blanch Declaration went on to raise general concerns associated with the failure to properly manage aging of electrical transformers.[105]

The Staff and NextEra responded before the Board that electrical transformers are "active" and are therefore not subject to aging management review.[106] They relied primarily upon the guidance discussed above, and also upon the NRC's prior "issuance of other license renewals where transformers were treated as active components."[107] They also criticized Friends/NEC and the Blanch Declaration for referring to license renewal applications and supporting documents relevant only to other nuclear facilities,[108] for presenting only conclusory

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[103] Friends/NEC Petition at 20-22. *See also* Tr. at 100-25.

[104] Blanch Declaration at 11.

[105] *Id.* at 11-13.

[106] NextEra Answer to Friends/NEC Petition at 43-47; Staff Answer to Petitions at 26-30.

[107] Tr. at 120 (Mr. Fernandez).

[108] *See, e.g.*, NextEra Answer to Friends/NEC Petition at 43 & n.32 (referring to Friends/NEC's near-verbatim paraphrase and use of a contention from the *Indian Point* license renewal proceeding, despite the fact that the Seabrook Application lacks the language challenged in the *Indian Point* contention); Blanch Declaration at 4 (asserting that he has "reviewed Vermont Yankee's License Renewal Application[,] . . . the subsequent submittals by Entergy to renew the operating licenses for Indian Point Unit 2 and Unit 3 . . . [and] the NRC's Safety Evaluation Report dated May 2008 (NUREG-1907).").

arguments,[109] and for contradictorily stating, at different places, that electrical transformers are "active" *and* "passive."[110]

The Board's discussion of Contention 2 is brief. The Board found significant that the Staff guidance upon which the Staff and NextEra relied is non-binding, and further that we had not addressed the issue whether electrical transformers are "active" or "passive" components.[111] The Board therefore concluded that "[i]n the absence of a definitive designation for transformers, this contention requires fact-based determinations best left to further adjudicatory proceedings."[112]

In admitting Contention 2, the Board rejected NextEra's and the Staff's arguments regarding the internal inconsistency of the Blanch Declaration. The Board concluded that the inconsistency stemmed merely from clerical errors, were clarified at oral argument, and therefore should not be strictly construed against Friends/NEC.[113]

b. Discussion

NextEra argues that Friends/NEC's contention is too thinly supported to merit admission.[114] We agree. Longstanding Staff guidance directly addresses the classification of electrical transformers for the purposes of license renewal, and has found them to be "active"

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[109] NextEra Appeal I at 14; NextEra Answer to Friends/NEC Petition at 46-47; Staff Answer to Petitions at 30-35.

[110] NextEra Appeal I at 13; NextEra Answer to Friends/NEC Petition at 46; Staff Answer to Petitions at 25-26, 31. *See* Blanch Declaration at 12 (*compare* ¶ 35 *with* ¶ 36); Friends/NEC Petition at 22 (*compare* ¶ 8 *with* ¶ 9).

[111] LBP-11-2, 73 NRC at __ (slip op. at 34).

[112] *Id.*

[113] *Id.* at __ (slip op. at 34-35). On this point, we agree with the Board. In considering the matter on appeal, we construed the petition and the Blanch Declaration in favor of Friends/NEC. But we caution all parties to take care in the preparation of documents for litigation, given that unclear drafting renders decision-making challenging not only for the Board, but for us.

[114] NextEra Appeal I at 11-12.

components. At no time did Friends/NEC challenge the guidance documents in their filings before the Board. Instead, Friends/NEC rested on its initial cursory argument that "it is well known that many transformers . . . are passive devices in that they contain no moving parts and do not undergo a change of properties or state."[115] The Board is correct that the applicability of a guidance document may be challenged in an individual proceeding. However, we decline here to find Friends/NEC's conclusory statements sufficient to support an admissible contention.

As discussed above, the Grimes Letter sets forth the Staff's reasoning that transformers perform "active" functions:

> Transformers perform their intended function through a change in state by stepping down voltage from a higher to a lower value, stepping up voltage to a higher value, or providing isolation to a load. Transformers perform their intended function through a change in state similar to switchgear, power supplies, battery chargers, and power inverters, which have been excluded in §54.21(a)(1)(i) from an aging management review. Any degradation of the transformer's ability to perform its intended function is readily monitorable by a change in the electrical performance of the transformer and the associated circuits. Trending electrical parameters measured during transformer surveillance and maintenance such as Doble test results, and advanced monitoring methods such as infrared thermography, and electrical circuit characterization and diagnosis provide a direct indication of the performance of the transformer. Therefore, transformers are not subject to an aging management review.[116]

Friends/NEC and Mr. Blanch disregard the Staff guidance. As a result, Mr. Blanch's conclusory statement that transformers are passive components is not adequate as a basis for the contention.[117] In order to raise a litigable challenge to the categorization of electrical

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[115] Friends/NEC Petition at 22; Blanch Declaration at 12.

[116] Grimes Letter, Attachment at 2. *See also* Standard Review Plan at 2.1-24, Table 2.1-5, item 104 (excluding transformers from the list of SSCs subject to an aging management review).

[117] *See USEC Inc.* (American Centrifuge Plant), CLI-06-10, 63 NRC 451, 472 (2006) ("'[A]n expert opinion that merely states a conclusion (e.g., the application is 'deficient,' 'inadequate,' or 'wrong') without providing a reasoned basis or explanation for that conclusion is inadequate because it deprives the Board of the ability to make the necessary, reflective assessment of the opinion . . . .'") (quoting *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), LBP-98-7, 47 NRC 142, 181, *recons. granted in part and denied in part on other grounds*, LBP-98-10, 47 NRC 288, *aff'd on other grounds*, CLI-98-13, 48 NRC 26 (1998)).

transformers, Friends/NEC would have to provide sufficient factual information or expert opinion to merit further consideration of the matter. Here, in the absence of a supported challenge to the guidance, we do not find a genuine dispute with the applicant meriting litigation in this proceeding.

Instead, in support of this contention, Friends/NEC assert that the Staff "has determined that the plant system portion of the offsite power system that is used to connect the plant to the offsite power source should be included within the scope of" section 54.21, and that "[t]his path typically includes switchyard circuit breakers that connect to the offsite system power transformers (startup transformers), the transformers themselves . . . ."[118] Based on these two premises, Friends/NEC argue that "[e]nsuring that the appropriate offsite power system long-lived passive structures and components that are part of this circuit path are subject to an [aging management review] will assure that the bases underlying the [station blackout] requirements are maintained over the period of extended license."[119] The upshot of this argument appears to be that, because transformers are included in a portion of a plant system that is within the scope of license renewal, they are themselves subject to an aging management review.

However, considered in context, the Staff's statement upon which Friends/NEC rely does not support the assumption that transformers perform "passive" functions. The statement referenced by Friends/NEC appears to be a direct quotation from a Draft Request for Additional Information (Draft RAI) attached to a summary of a conference call regarding the Indian Point license renewal application.[120] The Draft RAI, in turn, quotes Staff guidance identifying

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[118] Blanch Declaration at 12 (emphasis omitted). *Accord* Friends/NEC Petition at 22 (emphasis omitted).

[119] Blanch Declaration at 13. *Accord* Friends/NEC Petition at 22.

[120] *See* Staff Answer to Petitions at 31-32 & n.35 (citing Summary of Telephone Conference Call Held on September 21, 2007, between the U.S. Nuclear Regulatory Commission and Entergy Nuclear Operations, Inc., concerning Draft Requests for Additional Information Pertaining to the (continued . . .)

equipment relied on to meet the requirements of the station blackout rule, as it affects scoping for license renewal.[121] The guidance states, in relevant part:

> For purposes of the license renewal rule, the staff has determined that the plant system portion of the offsite power system that is used to connect the plant to the offsite power source should be included within the scope of the rule. *This path typically includes* switchyard circuit breakers that connect to the offsite system *power transformers (startup transformers), the transformers themselves* . . . . Ensuring that *the appropriate offsite power system long-lived passive structures and components that are part of this circuit path are subject to an* [*aging management review*] will assure that the bases underlying the [station blackout] requirements are maintained over the period of extended license.[122]

Read in its proper context, we discern no support in the guidance for the argument that a transformer is a "passive component" and should be subject to an aging management review. The guidance simply delineates the portion of the offsite power system that is "inside the plant" for the purpose of identifying structures and components that are subject to an aging management review to confirm compliance with the station blackout rule for the period of extended operation. The Staff concluded that the portion of the offsite power system that is used to connect the plant to the offsite power source is included within the scope of the license renewal rule. That system includes several components, including transformers. But the guidance does not distinguish—or discuss at all—which of those components perform active or passive functions (or some combination thereof). For this reason, the document does not provide support for Friends/NEC's Contention 2.

Indian Point Nuclear Generating Unit Nos. 2 & 3, License Renewal Application (Oct. 16, 2007), at 10 (ML072770605)).

[121] *See generally* 10 C.F.R. § 54.4(a)(3) (citing 10 C.F.R. § 50.63 (station blackout rule)).

[122] Draft RAI at 10 (emphases added) (quoting "NRC Staff Position on the License Renewal Rule (10 CFR 54.4) as it relates to The Station Blackout Rule (10 CFR 50.63)," at 2, attached to letter dated April 1, 2002, "Staff Guidance on Scoping of Equipment Relied on to Meet the Requirements of the Station Blackout (SBO) Rule (10 CFR 50.63) for License Renewal (10 CFR 54.4(a)(3))" (ML020920464)).

In sum, the Board erred in admitting Contention 2, as it lacks the support required by 10 C.F.R. § 2.309(f)(1)(v).

3. Friends/NEC Contention 4

> The Environmental Report is inadequate because it underestimates the true cost of a severe accident at Seabrook Station in violation of 10 C.F.R. § 51.53(c)(3)(ii)(L) and further analysis is called for.[123]

a. Background

Friends/NEC Contention 4 challenges NextEra's severe accident mitigation alternatives (SAMA) analysis for Seabrook. Mitigation alternatives, or "SAMAs," refer to potential safety enhancements intended to reduce the risk of severe accidents. The NRC's current Generic Environmental Impact Statement for license renewal provides a generic and bounding analysis of potential severe accident impacts, encompassing all existing plants.[124] The SAMA analysis is a site-specific analysis focusing on potential additional mitigation measures that could be implemented to *further* reduce severe accident risk (probability or consequences). The analysis by practice has been a cost-benefit analysis, examining whether particular hardware or procedural changes may be cost-beneficial to implement, given the degree of risk reduction that reasonably could be expected from the change.

Under the NRC's environmental regulations for license renewal, applicants must provide a SAMA analysis if the Staff has not yet previously considered severe accident mitigation alternatives for the applicant's plant in an environmental impact statement (EIS) or related supplement, or in an environmental assessment.[125] The SAMA analysis is an environmental mitigation analysis under NEPA, and is not part of the license renewal safety review. Whether additional accident mitigation measures may be warranted to assure public health and safety is

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[123] Friends/NEC Petition at 33-34.

[124] *See* License Renewal GEIS, Vol. 1 at 5-12 to 5-106, 5-113, 5-115.

[125] *See* 10 C.F.R. § 51.53(c)(3)(ii)(L).

addressed through the NRC's ongoing regulatory oversight of existing plants.[126] In regard to SAMAs, we have stressed that "[u]nless it looks genuinely plausible that inclusion of an additional factor or use of other assumptions and models may change the cost-benefit conclusions for the SAMA candidates evaluated, no purpose would be served to further refine the SAMA analysis."[127]

SAMA analysis involves extensive computer modeling, and therefore may involve issues not readily understood by those not familiar with the computer codes and methodologies that are used. We recognize that SAMA analysis issues can present difficult judgment calls at the contention admissibility stage, and we are reluctant as a general matter to second-guess Board rulings on contention admissibility.[128] Nonetheless, as NextEra highlights, where arguably large portions of contentions have been "cut and pasted" from one or more other NRC proceedings—which Friends/NEC's representative concedes was done for their intervention—it is especially important to "ensure the existence of a genuine material dispute with [the] *particular* application" at issue.[129]

Given the quantitative nature of the SAMA analysis, where the analysis rests largely on selected inputs, it may always be possible to conceive of alternative and more conservative inputs, whose use in the analysis could result in greater estimated accident consequences. But the proper question is not whether there are plausible alternative choices for use in the analysis, but whether the analysis that was done is reasonable under NEPA. We have long held that

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[126] *See, e.g.*, "Procedural and Submittal Guidance for the Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities," Final Report, NUREG-1407 (June 1991) (ML063550238).

[127] *Pilgrim*, CLI-10-11, 71 NRC at 317.

[128] *AmerGen Energy Corp., LLC* (Oyster Creek Nuclear Generating Station), CLI-09-7, 69 NRC 235, 276-77 (2009).

[129] NextEra Appeal I at 4 & n.6, 20 (emphasis in original). *See also* Tr. at 68; Friends/NEC Answer to NextEra Appeal at 4.

contentions admitted for litigation must point to a deficiency in the application, and not merely "suggestions" of other ways an analysis could have been done, or other details that could have been included.[130] SAMA adjudications would prove endless if hearings were triggered merely by suggested alternative inputs and methodologies that conceivably could alter the cost-benefit conclusions. A contention proposing alternative inputs or methodologies must present some factual or expert basis for why the proposed changes in the analysis are warranted (e.g., why the inputs or methodology used is unreasonable, and the proposed changes or methodology would be more appropriate). Otherwise, there is no genuine material dispute with the SAMA analysis that was done, only a proposal for an alternate NEPA analysis that may be no more accurate or meaningful. We turn now to the SAMA contention.

Contention 4 challenged the SAMA analysis based on six claimed deficiencies (labeled alphabetically "a" through "f"). The contention claims that the SAMA analysis "improperly minimized" the potential costs of a severe accident, and therefore made additional risk reduction measures "appear[] not to be justified."[131] The Board addressed the admissibility of each of the contention "subparts" separately, as essentially distinct contentions.[132] The Board admitted Friends/NEC Contentions 4B, 4D, and 4E, as limited by LBP-11-2.[133] NextEra appeals admission of the three SAMA contentions. We address each in turn.

b. Friends/NEC's Contention 4B – The SAMA analysis minimizes the potential amount of radioactive release in a severe accident[134]

In LBP-11-2, the Board admitted one portion of Friends/NEC 4B. The admitted issue challenges the use in the Seabrook SAMA analysis of source terms obtained with the Modular

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[130] *See USEC*, CLI-06-10, 63 NRC at 477.

[131] Friends/NEC Petition at 37.

[132] LBP-11-2, 73 NRC at __ (slip op. at 38-39).

[133] *Id.* at __ (slip op. at 48, 55-56, 63).

[134] Friends/NEC Petition at 41.

Accident Analysis Progression (MAAP) computer code. Specifically, Friends/NEC argue that the MAAP code "has not been validated by the NRC," and that the radionuclide release fractions generated by MAAP "are consistently smaller for key radionuclides than the release fractions specified in NUREG-1465 and its recent revision for high-burnup fuel."[135] They go on to claim that "the source term used [in the SAMA analysis] results in lower [accident] consequences than would be obtained from NUREG-1465 release fractions and release durations."[136] Friends/NEC further argue that it "has been previously observed" that "MAAP generates lower release fractions than those derived and used by NRC in studies such as NUREG-1150."[137] They argue that the use of source terms generated by MAAP "appears to lead to anomalously low consequences when compared to source terms generated by NRC staff."[138]

In support, Friends/NEC cite to excerpts from two documents. One is a 1987 draft of the NUREG-1150 severe accident risk study that, in examining accident risk at the Zion Nuclear Station found that "the MAAP estimates for environmental release fractions were significantly smaller" than those obtained with "the Source Term Code Package" computer code.[139] The other is a 2002 Brookhaven National Laboratory (BNL) report examining ice condenser and Mark III containment plants, which compared the probabilistic risk assessment (PRA) results for

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[135] *Id.* at 44. *See* "Accident Source Terms for Light-Water Nuclear Power Plants," Final Report, NUREG-1465 (Feb. 1995) (ML041040063).

[136] Friends/NEC Petition at 44.

[137] *Id.* NUREG-1150 assessed the risks from severe accidents at five commercial nuclear power plants of different design. *See* "Severe Accident Risks: An Assessment for Five U.S. Nuclear Plants," NUREG-1150 (Dec. 1990) (ML040140729). Seabrook was not one of the five plants specifically evaluated in the report.

[138] Friends/NEC Petition at 45.

[139] "Reactor Risk Reference Document," Main Report, Draft for Comment, NUREG-1150, Vol. 1 (Feb. 1987), at 5-14 (ML063540601) (cited at Friends/NEC Petition at n.16). The Source Term Code Package (STCP) and MELCOR computer codes were used in the NUREG-1150 reactor accident study.

the Catawba plant (obtained using the MAAP code) with a "typical NUREG-1150 release" for the Sequoyah plant (obtained using the Source Term Code Package and MELCOR).[140] The BNL study noted that the "NUREG-1150 release fractions for the important radionuclides are about a factor of 4 higher than the ones" in the Catawba PRA, and that the "differences in the release fractions . . . are primarily attributable to the use of the different codes in the two analyses."[141]

In LBP-11-2, the Board admitted Friends/NEC Contention 4B "to the limited extent that it relates to the selection of the source term release fractions."[142] On appeal, NextEra argues that the contention does not provide sufficient information to demonstrate the existence of a genuine dispute with the application. NextEra argues that the source term claims are taken from an expert report filed in the *Indian Point* proceeding, specifically, an accident consequence analysis that Dr. Edwin Lyman prepared, which substituted NUREG-1465 source terms for the MAAP-generated source terms the applicant used in the SAMA analysis for Indian Point Unit 2.[143] NextEra further stresses that the contention "only alleges that other models may produce a larger source term," and that there is no expert support provided to indicate that other source terms would be more accurate or more reasonable for the SAMA analysis.[144]

In our view, the support for the contention is weak. To the extent that the contention suggests that NextEra simply should replace the Seabrook SAMA analysis release fractions

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[140] John R. Lehner et al., Benefit Cost Analysis of Enhancing Combustible Gas Control Availability at Ice Condenser and Mark III Containment Plants, Final Letter Report (Dec. 2002) at 17 (referenced at Friends/NEC Petition at 44-45).

[141] *Id.*

[142] LBP-11-2, 73 NRC at __ (slip op. at 44).

[143] NextEra Appeal I at 19-20 (citing to Edwin Lyman, A Critique of the Radiological Consequence Assessment Conducted in Support of the Indian Point Severe Accident Mitigation Alternatives Analysis (Nov. 2007), attached to *Riverkeeper, Inc.'s Request for Hearing and Petition to Intervene in Indian Point License Renewal Proceeding* (Nov. 30, 2007) (ML073410093)).

[144] *Id.* at 20.

with generic release fractions derived from NUREG-1465, Friends/NEC identify no factual or expert support. As NextEra describes, the portion of the contention discussing NUREG-1465 appears to be "copied almost verbatim" from a site-specific consequence analysis Dr. Lyman prepared for the *Indian Point* proceeding.[145] It is not apparent to us that the site-specific accident "consequence" conclusions of Dr. Lyman's report can, without more, simply be lifted and directly applied to the site-specific Seabrook SAMA analysis.

Essentially, the challenge to the MAAP-generated release fractions rests on a thin reed—the excerpts from the draft NUREG-1150 report and the BNL report. We do not read these excerpts to necessarily suggest that MAAP-generated source terms are inaccurate, only that under the specific comparisons noted the MAAP-generated source terms were smaller than source terms obtained from the NUREG-1150 report. Further, it is not clear that these comparisons (one dating back 24 years) involved the same version of the MAAP code used in the Seabrook SAMA analysis. Contention 4B does not compare NUREG-1150 values to the Seabrook SAMA analysis release fractions, or otherwise discuss or even reference the Seabrook release fractions.[146] And while the contention suggests that generic source term values obtained from NUREG-1150 would be larger, it does not suggest why the generic values would be more accurate for a plant-specific SAMA analysis than the MAAP-generated plant-specific release fractions.

Yet the Board found the support from the two documents sufficient, concluding that the "alleged fact that the source terms provided by MAAP are lower than those produced by the methodology used in NRC studies (resulting in consequence values that are lower by a factor of 3 and 4 according to the [BNL Report]) raises sufficient question concerning whether the

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[145] *Id.* at 19.

[146] We additionally note that MAAP-generated release fractions and durations apparently were not used for all of the ten accident categories analyzed in the Seabrook SAMA analysis. *See id.*, Att. F at F-59, F-63.

calculated consequences and resulting cost-benefit analyses at Seabrook are adequate for rendering decisions on potential mitigation alternatives."[147] Although we consider, as we said previously, that support for this contention is weak, because the Board is the appropriate arbiter of such fact-specific questions of contention admissibility, we will not second-guess the Board's evaluation of factual support for the contention, absent an error of law or abuse of discretion.[148] Here, we additionally note that NextEra never addressed specifically the relevance of the cited comparisons to the Seabrook SAMA analysis. Because we cannot conclude that the Board's assessment of the documents amounts to legal error, we defer to the Board's judgment in admitting Contention 4B.[149]

c. *Friends/NEC 4D – Use of an inappropriate air dispersion model, the straight-line Gaussian plume, and meteorological data inputs that did not accurately predict the geographic dispersion and deposition and radionuclides at Seabrook's coastal locations.*[150]

The straight-line Gaussian plume model is the atmospheric dispersion model in the MACCS2 computer code (a version of the MELCOR Accident Consequence Code System code), which was used for the Seabrook SAMA analysis. Friends/NEC argue that the straight-line Gaussian plume model is inappropriate for a coastal location because it "ignores the presence of sea breeze circulations which dramatically alter air flow patterns."[151] Friends/NEC further argue that the straight-line Gaussian plume model does not properly account for the impact of terrain effects, and that the terrain at the Seabrook site varies from "hilly to

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[147] LBP-11-2, 73 NRC at __ (slip op. at 48).

[148] *See, e.g., AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-06-24, 64 NRC 111, 121 (2006).

[149] We note, however, that in the Board's assessment, we expect a thorough and thoughtful review of all facts offered in support of a contention, particularly where, as here, the contention and/or factual support was taken directly from a case involving a different facility.

[150] Friends/NEC Petition at 47.

[151] *Id.* at 49-50.

mountainous except along the coast."[152] They stress that there are other more "advanced [atmospheric dispersion] models" that can be applied in "complex terrain settings such as in mountainous or coastal areas."[153] Friends/NEC claim that use of the straight-line Gaussian plume model in the Seabrook SAMA analysis "underestimated the area likely to be affected in a severe accident and the dose likely to be received" in the affected area.[154]

In LBP-11-2, the Board admitted Friends/NEC 4D, concluding that "Friends/NEC sufficiently support their allegation that use of the [straight-line Gaussian plume] model might significantly distort the Seabrook SAMA analysis."[155] The Board found that Friends/NEC had provided "sufficient information to indicate that it is more than plausible that the use of an alternative model has the potential to change the cost-benefit conclusions for the SAMA candidates evaluated by NextEra."[156]

On appeal, NextEra argues that Friends/NEC did not provide any expert opinion or document indicating that "use of an alternate dispersion model would predict *greater* offsite consequences."[157] NextEra goes on to assert that Friends/NEC and "by extension, the Board," merely "assume that certain modeling features in the ATMOS[158] model (such as the straight-line Gaussian plume, lack of modeling of terrain effects, and the use of a single year of meteorological data) ultimately might be significant."[159] NextEra states that "[c]ertainly the use

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[152] *Id.* at 50-51 (quoting Environmental Report), 53-54.

[153] *Id.* at 59-60.

[154] *Id.* at 47.

[155] LBP-11-2, 73 NRC at __ (slip op. at 52).

[156] *Id*.

[157] NextEra Appeal I at 22 (emphasis added).

[158] ATMOS is the module in the MACCS2 computer code that performs the atmospheric dispersion modeling for the SAMA analysis.

[159] NextEra Appeal I at 22.

of a different model *might* result in a prediction of greater offsite consequences," but that Friends/NEC "provides no support to suggest that this is actually the case."[160] NextEra further stresses that the Friends/NEC claims fail to challenge or otherwise address the "extensive sensitivity analyses" included in the SAMA analysis, which address atmospheric modeling uncertainty.[161]

We agree that Friends/NEC did not provide specific expert or factual support for its claim that use of the straight-line Gaussian plume model "underestimates" radiological doses. Rather, Friends/NEC offered factual support questioning the precision of the model. The Board rejected Staff and licensee arguments going to the sufficiency of Friends/NEC's plume modeling claims, finding these to be "reasonable counter arguments," but "merits-based."[162] NextEra insists that its arguments before the Board were not arguments on the merits, but arguments on whether Friends/NEC met the "threshold" contention requirement of showing materiality.[163]

NextEra's arguments are not without force. Although petitioners need not "rerun the Applicant's own cost-benefit calculations"[164] at the contention admissibility stage, they can

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[160] *Id.* (emphasis in original).

[161] *Id.* at 22-23.

[162] LBP-11-2, 73 NRC at __ (slip op. at 55).

[163] NextEra Appeal I at 18. NextEra provides an example of a Friends/NEC argument that appears immaterial. While Friends/NEC challenges the use of a single year's worth of meteorological data, the SAMA analysis indicates that in fact five years of data were reviewed, and the year with the most conservative data, resulting in the "maximum dose and cost risk" was used in the analysis. *See id.* at 22 (citing Environmental Report). The Board did not specifically address this claim. Moreover, we note that one argument Friends/NEC provided appears to *undercut* its contention. Referencing (actually quoting verbatim, although quotation marks were not inserted) a 2004 MACCS2 code guidance document, Friends/NEC claim that because Gaussian models are "inherently flat-earth models," there is "inherent *conservatism* (and simplicity) if the environs" involve grade variations, significant nearby buildings, or tall vegetation that is "not taken into account in the dispersion parameterization." *See* Friends/NEC Petition at 59 (emphasis added) (citation omitted).

[164] LBP-11-2, 73 NRC at __ (slip op. at 40).

support SAMA contentions by providing the opinion of an expert with knowledge of SAMA code modeling issues, who has reviewed the SAMA analysis. In its reply before the Board, Friends/NEC suggested that it will, at a later "stage" in the proceeding, "present factual evidence that indeed the straight-line Gaussian plume model is NOT conservative."[165]

While we agree with NextEra that the SAMA analysis involves numerous considerations and properly ought to be considered in its "entirety,"[166] we also recognize that at the contention admissibility stage there may be close questions on the materiality of claims, particularly given the complexity of the SAMA code modeling issues and Board reluctance to delve into merits-related inquiries. As in any proceeding, the Board makes threshold decisions on materiality on a case-by-case basis, given the nature of the issue and the record presented before the Board.

Here, the Board held that "Friends/NEC have raised plausible limitations of air dispersion modeling at the [Seabrook] site," and that the asserted limitations of the atmospheric dispersion model plausibly could affect the SAMA cost-benefit conclusions.[167] Given the substantial deference we typically accord licensing boards on contention admissibility, we conclude that the Board did not abuse its discretion or commit legal error in finding adequate factual support for the contention, given the limited record before it on SAMA analysis computer modeling and the inter-relationships between, and significance of, the different portions and levels of the SAMA analysis. We therefore decline to disturb the Board's admission of Contention 4D.

d. Friends/NEC 4E – Use of inputs that minimized and inaccurately reflected the economic consequences of a severe accident, including decontamination costs, cleanup costs and health costs, and that either minimized or ignored a host of other costs.[168]

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[165] Friends/NEC Reply at 39 (emphasis in original).

[166] NextEra Appeal I at 18.

[167] LBP-11-2, 73 NRC at __ (slip op. at 52-53).

[168] Friends/NEC Petition at 61.

From Contention 4E, the Board admitted the limited issues of "decontamination and cleanup costs"—specifically claims involving radionuclide "particle size" and "remediation difficulty in urban areas."[169] In the Board's description of the contention, "Friends/NEC allege that because [NextEra] 'uses the outdated and inaccurate MACCS2 code to calculate decontamination and clean up costs,' NextEra employs an inapplicable [radionuclide] particle size," and "ignores the difficulty of cleanup in an urban area."[170]

As to radionuclide particle size, Friends/NEC claim that "[n]uclear reactor releases range in size from a fraction of a micron to a couple of microns," but "nuclear bomb explosions fallout is much larger—particles that are ten to hundreds of microns."[171] They claim that the "small nuclear releases [from reactor accidents] can get wedged into small cracks and crevices of buildings making [cleanup] extremely difficult or impossible."[172] They therefore conclude that "cleanup after a nuclear bomb explosion is not comparable to clean up after a nuclear reactor accident and assuming so will underestimate cost."[173]

Friends/NEC go on to argue that the MACCS2 code uses an "economic cost model" that improperly assumes inappropriately large radionuclide particles, such as those that would be released in a nuclear weapon explosion.[174] Friends/NEC claim that use of the MACCS2 code will result in underestimated decontamination costs because the smaller radionuclide particles that would be released in a reactor accident would be more difficult and more expensive to

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[169] LBP-11-2, 73 NRC at __ (slip op. at 56).

[170] *Id.* (quoting Friends/NEC Petition at 62).

[171] Friends/NEC Petition at 63.

[172] *Id.*

[173] *Id.* at 62.

[174] *Id.*

remove or "clean up" than the larger particles released in a nuclear weapon explosion.[175] As support, they cite to a 1996 Sandia National Laboratories study of the potential economic costs of a plutonium dispersal accident.[176] They argue that the Sandia Study recognized that earlier estimates of decontamination costs, "such as incorporated in [the 1975 NRC reactor accident risk study] WASH-1400 and up through and including MACCS2" are erroneous because "they examined fallout from [explosions] of nuclear weapons that produce large particles and high mass loadings."[177]

In LBP-11-2, the Board found adequate support for Friends/NEC's "assertion that smaller particles will create higher cleanup costs."[178] The Board concluded that Friends/NEC "dispute sufficiently important assumptions in the calculation of severe accident decontamination and cleanup costs to make it plausible that another SAMA candidate might be cost-effective."[179]

On appeal, NextEra argues that Friends/NEC failed to provide the requisite factual support for their decontamination cost claim and point to no genuine dispute with the Seabrook SAMA analysis on a material issue of law or fact.[180] We agree.

First, it is not clear what exactly this decontamination costs contention is challenging. Friends/NEC refer without explanation or support to an unidentified MACCS2 code "cost

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[175] *Id.* at 62-63, 66.

[176] *See id.* at 66-67 (citing David I. Chanin, Walter B. Murfin, SAND96-0957, Site Restoration: Estimation of Attributable Costs From Plutonium-Dispersal Accidents (May 1996) (Sandia Study)).

[177] Friends/NEC Petition at 66. *See also* "Reactor Safety Study: An Assessment of Accident Risks in U.S. Commercial Nuclear Power Plants (WASH-1400)," NUREG-75/014 (Oct. 1975) (WASH-1400).

[178] LBP-11-2, 73 NRC at __ (slip op at 56, 58).

[179] *Id.* at __ (slip op. at 58).

[180] NextEra Appeal I at 25-27.

formula" that "underestimates costs likely to be incurred as a result of a dispersion of radiation."[181] There is no discussion of any specific "cost formula used in the MACCS2 code."[182] The contention itself refers to the "use of inputs" that minimize or inaccurately reflect economic consequences, but Friends/NEC do not provide a supported and particularized argument regarding "inputs."

The Board apparently viewed the contention as claiming that the MACCS2 code, by definition, assumes or "employs an inapplicable particle size."[183] But we do not see even minimal factual or expert support presented for a claim that the MACCS2 code assumes "inapplicable" radionuclide particle sizes.

Friends/NEC rest their particle size claims largely on the 1996 Sandia Study that examined the potential economic costs of a plutonium dispersal accident. As Friends/NEC's argument goes, the MACCS2 code User's Guide indicates that the code has an "economic cost model" that is "based on WASH-1400."[184] In turn, Friends/NEC describe the WASH-1400 study as having been "based on [cleanup] after a nuclear explosion."[185] Friends/NEC then go on to describe that the 1996 Sandia Study of plutonium dispersal accidents criticized "earlier estimates" of decontamination costs, such as those in WASH-1400, because these earlier cost estimates were based upon explosions of nuclear weapons involving large – and therefore

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[181] Friends/NEC Petition at 62.

[182] *Id.*

[183] LBP-11-2, 73 NRC at __ (slip op. at 56). In their reply before the Board, Friends/NEC describe that they challenge "assumptions regarding cleanup . . . costs *embedded* in the code." Friends/NEC Reply at 36 (emphasis added).

[184] Friends/NEC Petition at 62 (citing "Code Manual for MACCS2: User's Guide," NUREG/CR-6613, Vol. 1 (May 1998) (ML063550020), at 7-10 (User's Guide)).

[185] *Id.* at 62.

easier to remove – radionuclide particles.[186] Specifically, Friends/NEC claim that the Sandia Study "recognized that earlier estimates (such as incorporated in WASH-1400 and up through and including MACCS2) of decontamination costs are incorrect because they examined fallout from nuclear explosion [sic] of nuclear weapons that produce large particle sizes and high mass loadings."[187]

But again, the intervenors' claims are ill-defined and poorly supported. It is not clear what Friends/NEC mean by "incorrect" decontamination cost "estimates" that are "incorporated" in the MACCS2 code. Friends/NEC provide page citations to only three pages in the Sandia Study, none of which specifically refer to radionuclide particle sizes, the WASH-1400 reactor accident study, or the MACCS2 code.[188] The Sandia Study is a lengthy report focused on plutonium dispersal events, and neither we nor the Board should be expected to sift through it in search of asserted factual support that Friends/NEC has not specified.[189] We nonetheless reviewed portions of the Sandia Study but discerned no suggestion that the MACCS2 code assumes inapplicable radionuclide particle sizes. In fact, the 1996 Sandia Study predates issuance of the MACCS2 code User's Guide and does not appear to discuss the MACCS2 code at all.

NextEra points out on appeal, as it did before the Board, that the Sandia Study does criticize the WASH-1400 reactor study for underestimating the economic costs of severe reactor accidents. But as NextEra describes, this criticism was of *particular* assumptions made in

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[186] *See id.* at 66.

[187] *See id.*

[188] *See id.* at 66-67 (citing Sandia Study at 2-3 to 2-4, 6-5).

[189] *See, e.g.*, *Commonwealth Edison Co.* (Zion Nuclear Station, Units 1 and 2), CLI-99-4, 49 NRC 185, 194 (1999) (petitioner bears burden for setting forth clear argument for contention); *USEC*, CLI-06-10, 63 NRC at 457 (a "contention must make clear why cited references provide a basis").

WASH-1400 regarding decontamination costs—assumptions that the MACCS2 code does not "require or imply."[190] As NextEra points out, the Sandia Study criticizes assumptions regarding a variable input called a "decontamination factor,"[191] explained further below.

Like WASH-1400, the MACCS2 code uses inputs called "decontamination factors" to reflect different levels or strategies of decontamination to reduce radiological dose to an acceptable dose level or standard for long-term use. Logically, a less contaminated area will need less decontamination to reduce the radiological dose to the necessary standard. A decontamination factor of 20, for example, reflects an assumption "that contamination is reduced by a factor of 20 (i.e., 95% of the radioactive material is removed)" after a specified period of time.[192] Higher decontamination factors reflect a need for higher levels of decontamination activities, and are therefore associated with higher costs.

The Sandia Study criticizes WASH-1400 and other reactor risk assessments for assuming that a decontamination factor of 20—meaning radiological dose would be reduced by 95%—could be achieved "in urban areas at *minimal cost*":[193]

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[190] NextEra Appeal I at 26 (citing Sandia Study at p. 2-9). *See also* NextEra Answer to Friends/NEC Petition at 91-92.

[191] NextEra Appeal I at 26.

[192] *Id.* at 26 n.16 (citing Sandia Study at 2-9 n.8). As the MACCS2 code User's Guide explains, the decontamination "objective is to reduce doses to acceptable levels" in a "cost-effective manner." *See* User's Guide at 7-9. In some cases, it may simply be more cost-effective to condemn a property. For example, if, even assuming a specified high level of decontamination a site would not become habitable, then the "property will be condemned and permanently withdrawn from use" and an economic cost assessed for condemning the property. *See id.* (cited in NextEra Appeal I at 26 n.16). Likewise, if the cost of decontamination "exceeds the property's value," then the code will assess an economic cost for condemning the property. *See id.* at 7-4. In other words, the SAMA economic cost analysis accounts for the costs of decontaminating property to particular user-defined decontamination levels, as well as the costs of condemning property that cannot sufficiently be decontaminated, or would be less expensive to condemn than to decontaminate.

[193] *See* Sandia Study at 2-9 to 2-10 (emphasis added); NextEra Appeal I at 26-27. The Sandia Study also criticized the WASH-1400 report's decontamination cost estimates because they were based on decontamination to a long-term radiological dose criterion of 25 rem (incurred (continued . . .)

> *Prior to the 1986 Chernobyl accident*, reactor accident risk assessments in the U.S and Europe relied heavily on the economic cost model of WASH-1400, in which the decontamination of residential property was modeled as achieving a DF [decontamination factor] of 20 in urban areas at minimal cost, that is, one tenth of the value of the affected property.
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> The use of 20 in WASH-1400 was apparently based on contemporary guidance documents for anticipated recovery actions, following nuclear explosions of warfare. Nuclear weapons explosions produce fallout with large particles and high mass loadings. The DF of 20 was widely used in planning documents addressing such events.[194]

But as NextEra argues, "use of the MACCS2 code does not require or imply the use of a DF of 20" because the decontamination factor used is a *variable input* into the SAMA analysis, and the MACCS2 User's Guide in fact suggests the use of other decontamination factors, 3 and 15.[195] Up to three different decontamination factors can be defined.[196] And the SAMA analysis has user-defined economic parameters for determining the dollar cost of performing the decontamination to the specified decontamination levels. In any event, the contention does not explain how the Sandia Study criticism of WASH-1400 supports the claim that the MACCS2 code employs inapplicable radionuclide particle sizes.

At bottom, Friends/NEC simply do not tie the Sandia Study to a genuine material dispute with the Seabrook SAMA analysis. Their contention does not discuss or even mention the issue of "decontamination factors" (or "decontamination levels," as they are called in the Seabrook SAMA analysis).[197] Moreover, there are other user-defined inputs in the MACCS2 code that

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over 30 years), noting that long-term radiological exposure standards "have been tightened considerably" since 1975. *See id.* at 2-9.

[194] Sandia Study at 2-9 (emphasis added).

[195] NextEra Appeal at 26 (citing User's Guide at 7-9 to 7-11).

[196] *See* User's Guide at 7-9.

[197] Only in responding to NextEra's arguments before the Board did Friends/NEC refer to decontamination factors, inquiring if NextEra took "the User's Guide's suggestion" of using 3 and 15 for decontamination level inputs, and stating that "[t]hese are questions to answer as we go along." *See* Friends/NEC Reply at 41-42. But our contention rules precisely are intended to prevent admission of ill-defined contentions where petitioners at the outset have not set forth (continued . . .)

also reflect underlying assumptions about how difficult – and how expensive – decontamination activities may need to be.

Here, for example, the Seabrook SAMA analysis expressly outlines various decontamination cost parameters used in the analysis. These include the estimated cost of farm decontamination (per hectare) for two levels of decontamination; the estimated cost of non-farm decontamination (per resident person) for two levels of decontamination; the estimated labor cost for decontamination (per man year); the estimated value of farm wealth (per hectare); the estimated average value of non-farm wealth (per person); and the estimated population relocation costs per person.[198] Friends/NEC do not provide any factual or expert support challenging these specific economic cost parameters. Nor does their contention claim that the SAMA analysis lacks necessary information. In short, while the Sandia Study may criticize "earlier estimates" or studies of severe accident decontamination costs for inappropriately assuming achievement of high levels of decontamination at a low cost, Friends/NEC Contention 4E does not set forth a genuine material dispute with the *Seabrook* SAMA analysis, and therefore does not satisfy the contention admissibility requirements.[199]

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particularized concerns. *See, e.g., Oconee*, CLI-99-11, 49 NRC at 337-38; *see also Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-04-25, 60 NRC 223, 224-25 (2004) (improper to use reply brief to introduce new arguments to "reinvigorate thinly supported contentions"). Contention 4E nowhere suggests a view on the User's Guide suggested decontamination factors. Even in their reply brief, Friends/NEC did not argue that particular decontamination factors should (or should not) be used in the Seabrook analysis – again, no particularized argument on decontamination factors is raised. Before us, Friends/NEC had no further comment on either the relevance of the Sandia Study to the Seabrook analysis, or on decontamination factors. *See* Friends/NEC Opposition to NextEra Appeal at 5-6.

[198] Environmental Report, Att. F at F-58.

[199] At best, Friends/NEC offer a generalized claim of a failure to consider remediation of "economic infrastructure that make[s] business, tourism and other economic activity possible." *See* Friends/NEC Petition at 67. Generalized "economic cost" arguments, unsupported by asserted facts or expert opinion, are insufficient to show a genuine dispute with the application. The Board did not address specifically the Friends/NEC "economic infrastructure" claim, but rejected other similarly unsupported "economic cost" claims. *See* LBP-11-2, 73 NRC at __ (slip

(continued . . .)

Other arguments made as part of the Friends/NEC "decontamination costs" claims equally lack support or simply do not raise a genuine dispute with the application. These include the unsupported argument that "[CERCLA], EPA, and local authorities would not allow use of" decontamination processes such as "firehosing" and "plowing." Friends/NEC claim that these methods "simply move[] the contamination from one place to another," and would result in a cleanup that would "take far longer, be more expensive and its success . . . unlikely."[200]

Friends/NEC quote a passage from the MACCS2 User's Guide, which acknowledges that "[m]any" decontamination processes, such as "plowing" and "firehosing," reduce direct exposure doses from groundshine and re-suspension, but wash surface contamination down into the ground and therefore may not move contaminants "out of the root zone."[201] The passage goes on to explain that because contaminants may remain in root systems, the MACCS2 economic cost model (like the earlier WASH-1400 model) assumes that farmland decontamination reduces direct exposure doses to farmers, but "*does not reduce* the ingestion doses" from "consumption of crops that are contaminated by root uptake."[202] Friends/NEC neither point to any error regarding this aspect of the MACCS2 code, nor tie the passage to a specific and supported material dispute with the Seabrook SAMA analysis. Nor does either the MACCS2 User's Guide or WASH-1400 suggest that "plowing" and "firehosing" are the only decontamination methods available.[203] Friends/NEC's "firehosing" and "plowing" claims raise no genuine material dispute with the application.

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op. at 60) (rejecting claims of overlooked "business value of property," "job retraining," "unemployment payments," and "inevitable litigation").

[200] Friends/NEC Petition at 64.

[201] *Id.* at 62 (quoting User's Guide at 7-10).

[202] User's Guide at 7-10 (emphasis added).

[203] *See, e.g.*, WASH-1400, App. VI, App. K at K-2 (noting both wet and dry decontamination methods).

The Board also admitted as part of Contention 4E a claim that "urban areas are more costly to clean up than rural areas."[204] But like the general argument that small radionuclide particles are more difficult to remove than large particles, we do not see how this claim—even assuming it is true—raises a genuine dispute with the Seabrook SAMA analysis. Friends/NEC do not suggest with any support that the SAMA analysis fails to encompass the decontamination of particular urban areas that should have been considered, or proffer any site-specific economic cost information or cost estimates for any relevant "urban areas." Friends/NEC provide no factual or expert support identifying error in the estimated costs of decontamination or identifying specific overlooked "urban" decontamination costs that may bear on the analysis's results.

Instead, as NextEra argues, Friends/NEC merely referenced excerpts of reports that "reflect the intuitive notions that cleanup of urban areas and cleanup to a higher standard can be more expensive than cleanup of rural areas or to a lower standard."[205] While not challenging any of the specific decontamination cost estimates or parameters provided in the Seabrook analysis, Friends/NEC refer to decontamination costs estimates in the 1996 Sandia Study of plutonium dispersal accidents, which estimated a cost of $309 million per square kilometer for areas with "heavy [plutonium] contamination."[206] With no expert or factual support describing why or how it would be appropriate to directly compare the decontamination cost estimates for plutonium dispersal accident scenarios studied in the Sandia Study with the *site-specific* Seabrook SAMA analysis, Friends/NEC argue that Boston, Manchester, Portsmouth, and

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[204] LBP-11-2, 73 NRC at __ (slip op. at 58).

[205] NextEra Appeal I at 27.

[206] Friends/NEC Petition at 66 (citing Sandia Study at 6-5).

Portland would have "much higher" decontamination costs than the costs outlined in the Sandia Study.[207]

Again without support or explanation, Friends/NEC claim that instead of the "outdated decontamination costs figure in the MACCS2 code"—and notably, the challenged "costs figure" is never identified—"the SAMA analysis for Seabrook should incorporate, for example, the analytical framework contained in the 1996 Sandia" Study, "as well as studies examining Chernobyl and [radioactive dispersal-type devices]."[208] The Seabrook SAMA analysis is a site-specific mitigation alternatives analysis considering reactor severe accident scenarios for the Seabrook site. The analysis takes into account the particular mix of radionuclides in the reactor core, reactor accident radiological contaminants and their half-lives; facility-specific characteristics and accident scenarios; economic data for the 13 counties within 50 miles of the plant; site-specific meteorological data and atmospheric dispersion modeling; and other site-specific and reactor accident-specific factors. Friends/NEC's generalized suggestions that other cost estimates and studies involving significantly different accident scenarios and assumptions reflect more accurate approaches or values to use, or otherwise indicate errors in the Seabrook SAMA analysis, are unsupported and therefore speculative. Again, any number of alternative

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[207] *Id.* at 66. Moreover, Friends/NEC go on to claim that the "economic losses stemming from the stigma effects of a severe accident are staggering." *See id.* at 66-67. Psychological fears or "stigma" effects, however, are not cognizable NEPA claims. *See generally Metropolitan Edison Co. v. People Against Nuclear Energy,* 460 U.S. 766 (1983).

Repeatedly, Friends/NEC make other assertions that are not linked to a specific dispute with the application. For example, they generally assert that the health consequences of a severe reactor accident could greatly exceed the consequences of a plutonium-dispersal accident because the quantities of a radioactive material in an operating reactor are greater. *See* Friends/NEC Petition at 67. Friends/NEC also generally refer to longstanding differences in "cleanup standards" between the NRC and the Environmental Protection Agency, as indicated in a cited 2004 General Accounting Office report. *See* Friends/NEC Petition at 65. This issue does not fall within the scope of this license renewal proceeding. Friends/NEC raise no claim that any particular NRC or EPA standard should have been used in the Seabrook SAMA analysis.

[208] Friends/NEC Petition at 66.

analyses may be reasonable under NEPA. The issue is not whether alternative approaches exist, alternative inputs may be substituted, or yet another factor could be considered. Petitioners must provide factual or expert support that proposed alternatives are warranted because the analysis that was done is insufficient to satisfy NEPA.

To conclude, we gave careful review to the Friends/NEC Contention 4E, but the contention is largely speculative, displays minimal understanding of the issues raised, and at bottom, fails to raise a supported genuine material dispute with the application. We do not disagree with the Board that Friends/NEC provided adequate support for general claims that "smaller particle sizes will create higher cleanup costs, and that urban areas are more costly to clean up than rural areas."[209] But as we described, these assertions do not point to a genuine dispute with the application. The Board admitted the contention on the ground that Friends/NEC "dispute sufficiently important assumptions in the calculation of severe accident decontamination and cleanup costs" in the Seabrook SAMA analysis.[210] But the contention nowhere identifies with support the specific "assumptions in the calculation" that are challenged. We therefore find that the Board erred in admitting Friends/NEC Contention 4E.

4. Beyond Nuclear Contention

> 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 [Supplemental EIS] 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

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[209] LBP-11-2, 73 NRC at __ (slip op. at 58).

[210] *Id.*

> dramatically-changing circumstances in the regional energy mix throughout the two decades preceding the relicensing period.[211]

The Board admitted this contention but restricted its scope. Concluding that all "supporting facts focus exclusively on wind power generation," the Board limited Beyond Nuclear's contention to just that form of renewable energy.[212]

a. Background

Our regulations implementing NEPA Section 102 require Environmental Reports submitted by license renewal applicants to address the environmental impacts of the proposed action and also to compare them to impacts of alternative actions.[213] But NEPA requires consideration of "reasonable" alternatives, not all conceivable ones.[214]

Our License Renewal GEIS[215] provides guidance on the scope of the energy alternatives analysis for license renewal. In particular, the GEIS concluded "that a reasonable set of alternatives should be limited to analysis of single, discrete electric generation sources . . . that are technically feasible and commercially viable."[216] This is guidance currently in place on the subject; however, the Staff is preparing an update to the License Renewal GEIS—still under way—that proposes a somewhat broader analysis of alternative energy sources.[217] The proposed revised GEIS would provide for reviewing several individual energy alternatives, and also observes that "combinations of alternatives may be considered during plant-specific license

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[211] Beyond Nuclear Petition at 6.

[212] LBP-11-2, 73 NRC at __ (slip op. at 27).

[213] 10 C.F.R. § 51.53(c)(2). *See* NEPA § 102(2)(C)(i)-(iii), 42 U.S.C. § 4332(2)(C)(i)-(iii).

[214] *NRDC v. Morton*, 458 F.2d 827, 834, 837, 838 (D.C. Cir. 1972).

[215] *See generally* License Renewal GEIS.

[216] License Renewal GEIS, Vol. 1, § 8.1 at 8-1.

[217] *See generally* Proposed Rule, Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, 74 Fed. Reg. 38,117 (July 31, 2009).

reviews."[218] While the 1996 License Renewal GEIS carries special weight as a guidance document that has been approved by the Commission, in the end it is non-binding guidance, and thus, not unassailable. An application that complies with existing guidance may be challenged, provided that contention-admissibility requirements are met.[219]

We also have held that our Staff's EISs "need only discuss those alternatives that . . . 'will bring about the ends' of the proposed action"[220]—a principle equally applicable to Environmental Reports.[221] We give "substantial weight to the preferences of the applicant and/or sponsor."[222] NextEra's stated purpose for the Seabrook license renewal, as reflected in

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[218] "Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Main Report, Draft Report for Comment," NUREG-1437, Rev. 1 (Vol. 1 July 2009) (ML091770049), at 2-18 (Draft Revised GEIS). As the Staff indicated earlier in this proceeding, the Staff has taken this approach in at least one supplemental EIS, associated with the Salem and Hope Creek license renewal applications. *See* Tr. at 113-14; "Generic Environmental Impact Statement for License Renewal of Nuclear Power Plants: Regarding Hope Creek Generating Station and Salem Nuclear Generating Station, Units 1 and 2," NUREG-1437, Supplement 45 (Mar. 2011) (ML11089A021), §§ 8.1, 8.2. With respect to renewable alternatives in particular, the proposed revised GEIS states: "Combinations of energy renewable alternatives may be considered during plant-specific licensing reviews." Draft Revised GEIS at 2-20. The Seabrook Environmental Report provided a brief assessment of several renewable alternatives, but determined that none was a reasonable replacement for Seabrook. *See* Environmental Report, § 7.2.1.5.

[219] *See, e.g.*, *International Uranium (USA) Corp.* (Request for Materials License Amendment), CLI-00-1, 51 NRC 9, 19 (2000) (noting that the Commission is not bound by guidance documents, which do not carry the force of regulations and do not impose legal requirements upon licensees).

[220] *Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), 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 Rancho Seco*, CLI-93-3, 37 NRC at 144-45.

[221] *See generally Detroit Edison Co.* (Fermi Nuclear Power Plant, Unit 3), LBP-09-16, 70 NRC 227, 263, *aff'd*, CLI-09-22, 70 NRC 932 (2009).

[222] *City of Grapevine v. Dep't of Transp.*, 17 F.3d 1502, 1506 (D.C. Cir.) (quoting *Citizens Against Burlington*, 938 F.2d 197-98), *cert. denied*, 513 U.S. 1043 (1994); *Hydro Resources*, CLI-01-4, 53 NRC at 55 (internal quotation marks and citations omitted):

> When reviewing a discrete license application filed by a private applicant, a federal agency may appropriately accord substantial weight to the preferences of the applicant . . . in the siting and design of the project. . . . The agency thus may take into account the economic goals of the project's sponsor.

its application, is baseload power generation.[223] Thus, although NextEra in its Environmental Report briefly examined wind energy as a potential alternative to a license renewal, NextEra rejected that option on the ground that wind power, at least in its current state, is incapable of producing baseload power.[224]

The Board held that, despite the broad language of the contention, Beyond Nuclear's "supporting facts focus[ed] exclusively"[225] on the alternative of a "system of interconnected *offshore wind farms"* that, according to Beyond Nuclear, could provide baseload power for the "region of interest" currently served by Seabrook.[226] The Board therefore narrowed the contention to include only this issue, which it found to be supported by "sufficient minimal evidence" in Beyond Nuclear's exhibits.[227] The Board found that Beyond Nuclear had plausibly asserted that offshore wind farms may prove feasible in the near future.[228]

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[223] NextEra Appeal II at 4 (quoting Environmental Report, § 7.2.1, at 7-6), 4-5 (citing Environmental Report, § 7.2.1, at 7-12). "Baseload power" generates "energy intended to continuously produce electricity at or near full capacity, with high availability." *Envtl. Law and Policy Ctr. v. NRC*, 470 F.3d 676, 679 (7th Cir. 2006).

[224] Environmental Report, § 7.2.1.5, at 7-12 to 7-13.

[225] LBP-11-2, 73 NRC at __ (slip op. at 27).

[226] *Id.* at (slip op. at 20) (emphasis added). Seabrook's "region of interest" is Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. Environmental Report, § 7.2.1, at 7-6.

[227] LBP-11-2, 73 NRC at __ (slip op. at 25) (internal quotation marks omitted). *See also id.* at __ (slip op. at 25) (internal quotation marks omitted); *id.* at __ (slip op. at 20-22) (describing various Beyond Nuclear exhibits); *id.* at __ (slip op. at 27) (limiting the scope of the contention). The Board also concluded that many of the Staff's and NextEra's arguments regarding the remaining admissibility standards "improperly address[ed] the merits of [Beyond Nuclear's] contention, rather than whether petitioners have provided a minimal showing that material facts are in dispute, thereby demonstrating that an inquiry in depth is appropriate." *Id.* at __ (slip op. at 23-24) (footnote and internal quotation marks omitted).

[228] *Id.* at __ (slip op. at 25) (citing Tr. at 24, 34). *Accord id.* at __ (slip op. at 26-27) (Beyond Nuclear has "demonstrated some possibility that wind power might be a reasonable alternative as early as 2015"). *See generally id.* (slip op. at 20) (Beyond Nuclear supports its contention "with 20 exhibits purporting to demonstrate that, within the foreseeable future, an environmentally superior system of interconnected offshore wind farms might provide baseload (continued . . .)

b. Discussion

As discussed below, we conclude that the Board erred in admitting this contention.[229]

(1) THE SCOPE OF THE ENERGY-ALTERNATIVES ANALYSIS

The Board disagreed with the Staff's position that "Beyond Nuclear . . . must show 'that wind is a feasible alternative *at the present time*.'"[230] Acknowledging that "'remote and speculative' alternatives need not be addressed in an applicant's environmental report,"[231] the Board nonetheless indicated that, for license renewal, "the relevant time frame is considerably broader than 'the present time.'"[232] Rather, the Board concluded that it was required "to consider alternatives 'as they exist and are likely to exist.'"[233] The Board construed some of Beyond Nuclear's supporting references to indicate that "an integrated system of offshore wind farms could be a viable source of baseload power in the region as early as 2015."[234]

Beyond Nuclear argued before the Board that in their NEPA analyses the NRC and NextEra should predict which technologies will be available by the beginning of the "requested relicensing period of 2030 to 2050"[235] rather than confine themselves to what is available either

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power in the relevant region and thus should have been evaluated in greater detail in the Applicant's environmental report.").

[229] NextEra argues on appeal that the contention constitutes a prohibited collateral attack on 10 C.F.R. § 54.17(c) and, separately, that the Board improperly reformulated the contention. *See* NextEra Appeal II at 10 & 19, respectively. Because we reject this contention on other grounds, we need not address these arguments.

[230] LBP-11-2, 73 NRC at __ (slip op. at 24) (emphasis added) (quoting Staff Answer to Petitions at 102).

[231] *Id.* at __ (slip op. at 24-25) (citing *Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 551 (1978) (quoting, in turn, *NRDC v. Morton*, 458 F.2d 827, 837-38 (D.C. Cir. 1972))).

[232] *Id.* at __ (slip op. at 25).

[233] *Id.* (quoting *Carolina Envtl. Study Grp. v. U.S.*, 510 F.2d 796, 801 (D.C. Cir. 1975)).

[234] *Id.* at __ (slip op. at 25) (citing Tr. at 24, 34).

[235] Beyond Nuclear Petition at 13.

now or in the near future.[236] The Board found "sufficient 'minimal' evidence" regarding an integrated system of offshore wind farms "to warrant further inquiry as to whether such a system might be 'likely to exist' during the relevant time period."[237] NextEra challenges this aspect of the Board's decision as unsupported by the record[238] and as an improper requirement that NextEra consider a "remote and speculative" alternative.[239]

The Board is correct that the relevant period "is considerably broader than 'the present time.'"[240] As the Board observed, the standard established in *Carolina Environmental Study Group* is whether an alternative is "likely to exist." It is the future environmental effect of activities during the renewal period that must be considered, not current environmental effects.[241]

Pragmatically, however, near-term effects often are the best indicator of future ones. NEPA requires a "hard look" at the environmental effects of the planned action and reasonable alternatives to that action, using the best information available at the time the assessment is performed. An environmental impact statement is not "intended to be a 'research document,'

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[236] *See*, *e.g.*, *id.* at 13, 18 ("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"). Beyond Nuclear presents the same argument to us. *See*, *e.g.*, Beyond Nuclear Opposition to Appeal at 27 (criticizing NextEra for "tak[ing] the requested licensing action out of context for 2030 to 2050 and replac[ing] with its own interpretation of reasonableness for 'at this time,' 'in the near term,' and 'does not exist today'") (emphasis omitted).

[237] LBP-11-2, 73 NRC at __ (slip op. at 25). The Board explained that it was not deciding at the contention admissibility stage "the exact date by which an integrated system of offshore wind farms would have to be found 'likely to exist.'" *Id.*

[238] NextEra Appeal II at 11-15.

[239] *Id.* at 9-10.

[240] LBP-11-2, 73 NRC at __ (slip op. at 25).

[241] *See generally Florida Power & Light Co.* (Turkey Point Nuclear Generating Station, Units 3 and 4), CLI-01-17, 54 NRC 3, 11-13 (2001) (describing the Part 51 process for environmental review associated with license renewal, focusing upon the potential impacts of an additional 20 years of plant operation).

reflecting the frontiers of scientific methodology, studies, and data."[242] Assessments of future energy alternatives necessarily are of a predictive nature, and the assessment therefore will include uncertainties associated with predicting advances in technology.

In other words, in performing an alternatives analysis, the applicant—and the agency—are limited by the information that is reasonably available in preparing the environmental review documents. When considering energy alternatives, it is nearly always impossible to predict, decades in advance, the viability of technologies that are currently not operational and are many years from large-scale development. Except in rare cases where there is evidence of unusual predictive reliability, it is not workable to consider, for purposes of NEPA analysis, what are essentially hypothetical or speculative alternatives as a source of future baseload power generation.[243] For this reason, we find sensible the Staff's argument that in most cases a "reasonable" energy alternative is one that is currently commercially viable, or will become so in the relatively near term. Such an assessment generally will be sufficient to provide the requisite "hard look" under NEPA.

In sum, to submit an admissible contention on energy alternatives in a license renewal proceeding, a petitioner ordinarily must provide "alleged facts or expert opinion" sufficient to raise a genuine dispute as to whether the best information available today suggests that commercially viable alternate technology (or combination of technologies) is available now, or will become so in the near future, to supply baseload power.[244] As a general matter, a

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[242] *See Pilgrim*, CLI-10-11, 71 NRC 287 at 315 (citing *Town of Winthrop v. FAA*, 535 F.3d 1, 11-13 (1st Cir. 2008)).

[243] "NEPA does not require agencies to analyze impacts of alternatives that are speculative, remote, impractical, or not viable." *Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-05-28, 62 NRC 721, 729 (2005) (citations omitted).

[244] *See Roosevelt Campobello Int'l Park Comm'n v. EPA*, 684 F.2d 1041, 1047 (1st Cir. 1982) (holding that, for siting alternatives, EPA's "duty under NEPA is to study all alternatives that appear reasonable and appropriate for study at the time of drafting the EIS" (internal quotations omitted)); *Seacoast Anti-Pollution League v. NRC*, 598 F.2d 1221, 1230 (1st Cir. 1979) (holding

(continued . . .)

"reasonable" energy alternative—one that must be assessed in the environmental review associated with a license renewal application—is one that is currently commercially viable, or will become so in the near term. We therefore conclude that the Board erred in admitting the contention.[245]

(2) FAILURE TO PROPERLY TAKE INTO ACCOUNT NEXTERA'S PURPOSE IN SEEKING LICENSE RENEWAL

To demonstrate the admissibility of a NEPA contention that an applicant failed to consider a viable alternative to its proposed action, a petitioner must show that its contention presents a "genuine dispute" under 10 C.F.R. § 2.309(f)(1)(vi). One element of that demonstration is a showing that the petitioner's proposed alternative would satisfy the purpose of the applicant's proposed action.[246] NextEra argues on appeal that the Board erred in finding that wind power might satisfy the purpose of NextEra's proposed action and that Beyond Nuclear had therefore presented a "genuine dispute."[247]

Neither this agency nor the applicant need consider any alternative that does not "'bring about the ends' of the proposed action."[248] As the D.C. Circuit stated in *Citizens Against Burlington*, "[w]hen the purpose is to accomplish one thing, it makes no sense to consider the

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that, for siting alternatives, an agency must consider alternatives that appear reasonable "at the time" of the NEPA review). *Cf. Carolina Envtl. Study Group*, 510 F.2d at 800 (holding that NEPA was not meant to require detailed discussion of "remote and speculative" alternatives).

[245] To avoid any misunderstanding, however, we hasten to add that our ruling does not exclude the possibility that a contention could show a genuine dispute with respect to a technology that, while not commercially viable at the time of the application, is under development for large-scale use and is "likely to" be available during the period of extended operation. *See Carolina Envtl. Study Grp.,* 510 F.2d at 800.

[246] *See* note 221, *supra*.

[247] Beyond Nuclear Petition at 15-18.

[248] *Hydro Resources*, CLI-01-4, 53 NRC at 55 (quoting *Citizens Against Burlington*, 938 F.2d at 195). *Accord Envtl. Law & Policy Center v. NRC*, 470 F.3d at 683-84.

alternative ways by which another thing might be achieved."[249] NextEra states that its purpose in seeking license renewal is to make available "baseload power"—a preference to which we accord substantial weight.[250] Beyond Nuclear has not articulated a genuine dispute with the Application as to the viability of offshore wind farms as a source of baseload power. For wind power to merit detailed consideration as an alternative to renewing the license for a nuclear power plant, that alternative should be capable of providing "technically feasible and commercially viable" baseload power during the renewal period. As we have discussed, in assessing energy-alternatives contentions, practicality requires us to consider chiefly, often exclusively, alternatives that can be shown to have viability today or in the near future.[251] Here, Beyond Nuclear has not provided support for its claim that offshore wind is technically feasible and commercially viable—either today or in the near future—and therefore has not submitted an admissible contention.[252] We rest this conclusion on the grounds discussed below.

Energy Storage. As NextEra points out, Beyond Nuclear does not challenge the conclusion in NextEra's Environmental Report that the combination of wind-based generation and compressed air energy storage would be too costly to be a reasonable alternative to nuclear energy as a source of baseload power.[253] NextEra argues on appeal that this omission

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[249] 938 F.2d at 195 (citation and internal quotation marks omitted).

[250] *See* note 223, *supra*, and associated text.

[251] *See* License Renewal GEIS, Vol. 1, § 8.1, at 8-1.

[252] In theory, a petitioner might show that an alternate technology, while not viable today or in the near future, is highly likely to come on line during the period of extended operation. But such a showing is possible, as we noted above (at 53), "only in rare cases where there is evidence of unusual predictive reliability." Beyond Nuclear proffered no such evidence in support of its contention in this proceeding.

[253] *See* NextEra Appeal II at 18; Environmental Report, § 7.2.1.5, at 7-12. *See also* Beyond Nuclear Petition at 20-21. Beyond Nuclear's Exhibit 3 addresses the potential of compressed air energy storage technology but does not address its cost, other than to observe generally that "additional work will be required to examine the feasibility of advanced wind/[compressed air energy storage] concepts." National Renewable Energy Laboratory, "Creating Baseload Wind

(continued . . .)

is fatal to Beyond Nuclear's contention, and therefore also to the Board's admission of that contention.[254] We agree. Absent a challenge on this essential issue, there is no genuine dispute as required under section 2.309(f)(1)(vi).

Offshore Wind Technology. The Board ruled that Beyond Nuclear presented a genuine dispute regarding the feasibility of offshore wind technology. The Board concluded that although "[p]etitioners may face a difficult task in trying to demonstrate that such a system is . . . practical . . . [, s]uch disputed facts are not appropriately resolved . . . in connection with the Board's [admissibility] determination . . . ."[255] We disagree with the Board on this point. As we view the record, Beyond Nuclear's "offshore wind" contention is not sustainable on its face because it lacks a supporting basis. We reach this result without improperly resolving disputed facts.

NextEra stated in its Environmental Report that the technology for an ocean-based wind farm even approaching the generation capacity of Seabrook is only in its nascent stage.[256] Beyond Nuclear did not address this point (nor did the Board in LBP-11-2). Without some challenge to NextEra's Environmental Report on the nascent technology point, there is no

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Power Systems Using Advanced Compressed Air Energy Storage Concepts" (ML102930308). NextEra provides an explanation of why this approach is not financially feasible / commercially viable, which Beyond Nuclear does not challenge. *See* NextEra's Answer to Beyond Nuclear Petition at 19-23; Environmental Report, § 7.2.1.5, at 7-12 to 7-13.

[254] NextEra Appeal II at 19. As an alternative to energy storage, Beyond Nuclear alludes to the use of high-voltage direct-current transmission lines to connect independent wind farms. *See* Beyond Nuclear Reply at 35-36. This alternative, however, supports electric power transmission, which is not NextEra's stated purpose. NextEra states that it does not currently "own or operate substantial transmission assets in the region." NextEra Answer to Beyond Nuclear Petition at 29. *See also* NextEra Appeal II at 21-22. Because Beyond Nuclear poses an alternative that would expand the purpose of the Application, it fails to proffer a "genuine dispute" as required under 10 C.F.R. § 2.309(f)(1)(vi).

[255] LBP-11-2, 73 NRC at __ (slip op. at 24).

[256] Environmental Report, § 7.2.1.5, at 7-12.

genuine dispute of material fact as to whether offshore wind power is, or soon will be, a reasonable alternative to license renewal.

NextEra takes issue with the following reasoning offered by the Board in partial support of its admission of Beyond Nuclear's contention:

> 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*. Whether this is so remains to be seen. In the Board's view, however, petitioners have proffered sufficient "minimal" evidence to warrant further inquiry as to whether such a system might be "likely to exist" during the relevant time period.[257]

The Board cites the prehearing conference transcript, where Beyond Nuclear's representative discussed one of its exhibits, not cited by the Board.[258] NextEra argues that in actuality the "supporting references" do not support the Board's conclusion that Beyond Nuclear had "proffered sufficient 'minimal' evidence."[259] We agree with NextEra.

The Beyond Nuclear representative first stated that, according to a University of Maine document, the operators of offshore wind farms "are delivering baseload by 2015."[260] This statement appears to offer a prediction or statement of expectation that wind-derived baseload power *will* be delivered by 2015. This statement, however, is contradicted by the same representative later in oral argument, and also by Beyond Nuclear's Exhibit 17 (upon which the representative relied in making this statement).

In the representative's second statement, he described the University of Maine document as presenting only a "plan" for "25 megawatts [MW] of . . . deep water offshore wind .

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[257] LBP-11-2, 73 NRC at __ (slip op. at 25) (footnotes omitted; emphasis added).

[258] *Id.* (citing Tr. at 24, 34). *See generally* Beyond Nuclear Ex. 17, University of Maine, "Maine Offshore Wind Plan, Setting the Course for Energy Independence" (ML102930375).

[259] NextEra Appeal II at 11-14.

[260] Tr. at 24, referring to Beyond Nuclear Ex. 17 (Phases 2-5).

. . to come online by 2014."[261] Our review of Beyond Nuclear's referenced exhibit confirms that it refers to a plan only—not a statement of expectation that the project will be commercially viable as of 2014. Therefore, the two cited portions of the oral argument transcript, when read together and in light of the exhibits, do not support the Board's conclusion.

Indeed, the representative's first statement is contradicted by the cited exhibit, which sets forth a timeline for the "planned" offshore wind power in Maine. The timeline for the plan describes 2012-2014 as the period for accomplishing the design, construction, deployment and testing of a 3-5 MW "floating wind turbine prototype."[262] But because a single wind turbine cannot provide "continuous" production of electricity "at or near full capacity," it does not constitute a source of "baseload" power[263]—the term Beyond Nuclear's representative used, and on which the Board appeared to rely in its finding.[264]

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[261] *Id*. at 34.

[262] Beyond Nuclear Ex. 17 (Phase 2). We also observe that this description does not match the 25-MW wind turbine to which Beyond Nuclear's representative referred in his second statement.

[263] *See Envtl. Law and Policy Ctr.*, 470 F.3d at 679 (defining baseload power). Beyond Nuclear's own exhibits confirm that the prototype does not satisfy this definition. *See* Beyond Nuclear Ex. 4, Cristina L. Archer and Mark Z. Jacobson, *Supplying Baseload Power and Reducing Transmission Requirements by Interconnecting Wind Farms*, 46 J. OF APPLIED METEOROLOGY AND CLIMATOLOGY 1701, 1716 ("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") (Nov. 2007) (ML102930309); Beyond Nuclear Ex. 9, EnerNex Corp., "Eastern Wind Integration and Transmission Study" (Jan. 2010), at 54 & 217 (referring to wind turbine capacity factors between 24.1% and 32.8%); Beyond Nuclear Ex. 19, U.S. Department of Energy (DOE), "20% Wind Energy by 2030: Increasing Wind Energy's Contribution to U.S. Electricity Supply" (July 2008), at 26 (36% capacity factor in 2004 and 2005), 89 (Table 4.3: 30% capacity factor from June 2005 to May 2006), 183 (Table B-11: projecting 34-55% capacity factors for shallow-water offshore wind turbines between 2005 and 2030), 221 ("Most wind power plants operate at a capacity factor of 25% to 40%") (ML102930395); Beyond Nuclear Ex. 21, National Renewable Energy Laboratory, "Large-Scale Offshore Wind Power in the United States: Assessment of Opportunities and Barriers" (Sep. 2010) at 35 n.7 (assigns offshore wind a capacity factor of 37%), 59 (35% to 50% capacity factor), 117 (nn.3-4: assumes a 35% capacity factor to offshore wind plants in shallow water) (ML102930637).

[264] To the extent the Board may have relied on the two additional exhibits from the University of Maine, we find that they likewise do not support the Board's ruling. *See* Beyond Nuclear Ex. 16, University of Maine, "Deepwater Offshore Wind in Maine: the Plan, the Timeline" (June 18, (continued . . .)

In short, neither the transcript nor the referenced exhibit provides support for Beyond Nuclear's assertion that wind energy may provide baseload power by 2015. The Board therefore erred in relying on those portions of the record as support for its conclusion that Beyond Nuclear's Contention was admissible.[265]

Further, Beyond Nuclear's Exhibits 14 and 15 undermine its arguments regarding the technical feasibility that would be needed to show a genuine dispute regarding offshore wind power as a reasonable alternative. The "Final Report of the Maine Ocean Energy Task Force to Governor John E. Baldacci" (Exhibit 14) observes:

> [T]echnologies 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 resources in Maine's coastal waters or in adjoining federal waters are under development . . . . 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.[266]

Similarly, a preliminary draft report by the Department of Energy that is in the record (Exhibit 15) raises serious questions regarding the technical feasibility of offshore wind farms as a source of baseload power.[267] According to the DOE report, offshore wind power deployment

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2009) (ML102930376) (pages 13 and 14 further describe portions of the planned schedule set forth in Ex. 17); Beyond Nuclear Ex. 18, University of Maine, "Deepwater Offshore Wind: A National Opportunity" (Aug. 17, 2010) (ML102930391) (page 30 contains the same chart that comprises Ex. 17, and pages 33, 36, and 37 further describe portions of the planned schedule set forth in Ex. 17).

[265] For a contention to be admissible, the sponsoring petitioner must, among other things, "[p]rovide a concise statement of the alleged facts or expert opinions which support [its] position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which [it] intends to rely to support its position on the issue." 10 C.F.R. § 2.309(f)(1)(v).

[266] Beyond Nuclear Ex. 14, "Final Report of the Maine Ocean Energy Task Force to Governor John E. Baldacci" (Dec. 2009), at 27 (ML102930365). *See also*, *e.g.*, *id.* at iv ("the technology to economically harness off-shore winds in deep water (greater than 60 meters) does not exist today."), 28-29 (listing technological (and financial) hurdles facing wind power).

[267] Beyond Nuclear 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" (Predecisional Draft) (Sep. 2, 2010), at 7-8 (ML102930374).

still faces significant challenges regarding resource characterization, infrastructure, and grid interconnection and operation.[268] The DOE report states that offshore wind power needs to overcome significant uncertainties related to both potential project power production and the design of turbines and arrays.[269] The implications for adding large amounts of offshore wind generation to the power system are, says DOE, still not well-understood and, as a consequence, reliable integration cannot be assured.[270] DOE concludes that, "with current technology, cost-effective installation of offshore wind turbines requires specialized turbine installation vessels, purpose-built portside infrastructure for installation, operations, and maintenance, and robust undersea electricity transmission lines and grid interconnections [none of which] . . . currently exist in the U.S. . . ."[271]

The DOE report further states that very little site-specific data are available on the external conditions that influence design requirements and energy production, and that the paucity of documentation regarding factors such as "wind resource[, . . .] wave action and seabed mechanics" currently precludes "accurate marine spatial planning [and] establishment of prioritized offshore wind zones . . . ."[272] Ultimately, the DOE Report concludes that "[l]ong-term gigawatt deployment of offshore wind energy in the United States cannot exist within the current [regulatory] landscape" and, further, that "key market, social and environmental risks are not

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[268] *Id.* at 7.

[269] *Id.*

[270] *Id.*

[271] *Id.* at 7-8. *See also* Beyond Nuclear Ex. 19 at 57 ("Today's European shallow-water technology is still too expensive and too difficult to site in U.S. waters. . . . [N]ecessary technologies have yet to be developed . . . ."); Beyond Nuclear Ex. 21 at 4-6 (addressing current technological challenges), 72 (addressing technological immaturity).

[272] Beyond Nuclear Ex. 15 at 14.

well-understood; offshore wind resources are poorly characterized; and essential transmission, supply chain, installation and maintenance infrastructure does not yet exist."[273]

Beyond Nuclear's Exhibits 14 and 15 thus do not support its arguments regarding the technical feasibility that would be needed to show a genuine dispute regarding offshore wind power as a reasonable alternative to license renewal.

For all these reasons, we conclude that Beyond Nuclear's contention, and the record-at-large, provide insufficient support for the Board's statement that "[a]llegedly, some" of Beyond Nuclear's "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."[274] To the contrary, the record demonstrates that Beyond Nuclear has failed to raise a genuine dispute regarding whether offshore wind farms are a technically feasible source of baseload power today, or whether they will become so in the near future.

(3) NO DISPUTED QUESTION AS TO WHETHER WIND FARMS ARE "SINGLE, DISCRETE ELECTRIC GENERATION SOURCES" UNDER THE GEIS

Finally, NextEra argues on appeal that the Board erred in concluding that a disputed question of fact existed as to whether wind farms that combine with other wind farms to create an interconnected network would constitute a "*single, discrete* electric generation source" as specified in the GEIS.[275] As NextEra correctly points out, Beyond Nuclear does not make this argument.[276] The Board therefore committed legal error by supplying a basis not argued by

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[273] *Id.* at 10.

[274] LBP-11-2, 73 NRC at __ (slip op. at 25) (footnote omitted).

[275] NextEra Appeal II at 8, 20-21 (emphasis added). *See also* LBP-11-2, 73 NRC at __ (slip op. at 25-26); License Renewal GEIS, Vol. 1, § 8.1, at 8-1.

[276] NextEra Appeal II at 5 n.8. Indeed, Beyond Nuclear's own Exhibit 17 would appear to undermine such an argument. *See*, *e.g.*, Beyond Nuclear Ex. 17, at Phase 5 (indicating that each of the University of Maine's planned wind farms would cover 64 square miles of ocean surface, and that there would be four to eight such farms).

Beyond Nuclear, although we consider that error to be harmless, given that the GEIS does not impose a requirement on the alternatives analysis.[277]

* * * * * *

One last matter bears mention. On April 18, 2011, Friends/NEC and Beyond Nuclear, filed in this proceeding a petition requesting, among other things, that we suspend "all decisions" regarding the issuance of renewed licenses, pending completion of several actions associated with the recent nuclear events in Japan.[278] We granted the requests for relief in part, and denied them in part.[279] In particular, we declined to suspend this or any other adjudication, or any final licensing decisions, finding no imminent risk to public health and safety, or to common defense and security. The agency continues to evaluate the implications of the events in Japan for U.S. facilities, as well as to consider actions that may be taken as a result of lessons learned in light of those events. Particularly with regard to license renewal, we stated that "[t]he NRC's ongoing regulatory and oversight processes provide reasonable assurance that each facility complies with its 'current licensing basis,' which can be adjusted by future

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[277] *See USEC*, CLI-06-10, 63 NRC at 457 ("it is not up to the boards to search through pleadings or other materials to uncover arguments and support never advanced by the petitioners themselves; boards may not simply infer unarticulated bases of contentions.") (footnote and internal quotation marks omitted). *See generally Statement of Policy on Conduct of Adjudicatory Proceedings*, CLI-98-12, 48 NRC 18, 22 (1998) ("A contention's proponent, not the licensing board, is responsible for formulating the contention and providing the necessary information to satisfy the basis requirement for the admission of contentions . . . .").

[278] *See generally Emergency Petition to Suspend All Pending Reactor Licensing Decisions and Related Rulemaking Decisions Pending Investigation of Lessons Learned from Fukushima Daiichi Nuclear Power Station Accident* (dated Apr. 14-18, 2011; served and docketed Apr. 15, 2011; corrected petition filed Apr. 18, 2011); *Declaration of Dr. Arjun Makhijani in Support of Emergency Petition to Suspend all Pending Reactor Licensing Decisions and Related Rulemaking Decisions Pending Investigation of Lessons Learned From Fukushima Daiichi Nuclear Power Station Accident* (dated Apr. 19, 2011; filed Apr. 19, 2011; docketed Apr. 20, 2011).

[279] *See generally Union Electric Co. d/b/a Ameren Missouri* (Callaway Plant, Unit 2), CLI-11-5, 74 NRC __ (Sept. 9, 2011) (slip op.).

Commission order or by modification to the facility's operating license outside the renewal proceeding (perhaps even in parallel with the ongoing license renewal review)."[280]

IV. CONCLUSION

For the reasons discussed above, we *reverse* LBP-11-2 in part, and *affirm* it in part.

IT IS SO ORDERED.

For the Commission

[NRC Seal]

/RA/

_____
Annette L. Vietti-Cook
Secretary of the Commission

Dated at Rockville, Maryland,
this 8th day of March, 2012

[280] *Id.* at __ (slip op. at 26).

Commissioners Svinicki and Apostolakis, Dissenting in Part

We respectfully dissent with regard to the admissibility of Friends/NEC Contention 4B. The majority itself acknowledges that this challenge by Friends/NEC to the use of the MAAP-generated release fractions in the Seabrook SAMA analysis "rests on a thin reed." Indeed, the majority's discussion renders it unnecessary for us to elaborate further on the deficiencies of the contention. In our view, Friends/NEC did not present the minimal factual or expert support necessary to demonstrate the existence of a genuine material dispute with the application. We do not expect our adjudicatory boards to arbitrate factual disputes at the contention admissibility stage, but admitting such an ill-defined and poorly-support contention undermines the very purposes of our contention admissibility rules.[1] Contention 4B provides no basis on which a hearing would be meaningfully focused. Since the contention does not meet our rules on admissibility, we conclude that the Board erred in admitting Contention 4B.

[1] *See supra* p. 7.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
NEXTERA ENERGY SEABROOK, LLC	)	DOCKET NO. 50-443-LR
(Seabrook Station, Unit 1)	)	
	)	
(License Renewal)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing COMMISSION MEMORANDUM AND ORDER (CLI-12-05) have been served upon the following persons by Electronic Information Exchange.

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NEXTERA ENERGY SEABROOK, LLC (Seabrook Station Unit 1) – Docket No. 50-443-LR
COMMISSION MEMORANDUM AND ORDER (CLI-12-05)

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[Original signed by Evangeline S. Ngbea]
Office of the Secretary of the Commission

Dated at Rockville, Maryland
this 8th day of March 2012

LBP-11-02

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Paul S. Ryerson, Chairman
Dr. Michael F. Kennedy
Dr. Richard E. Wardwell

In the Matter of	Docket No. 50-443-LR
NEXTERA ENERGY SEABROOK, LLC	ASLBP No. 10-906-02-LR-BD01
(Seabrook Station, Unit 1)	February 15, 2011

MEMORANDUM AND ORDER
(Ruling on Petitions for Intervention and Requests for Hearing)

TABLE OF CONTENTS

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Paul S. Ryerson, Chairman
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In the Matter of	Docket No. 50-443-LR
NEXTERA ENERGY SEABROOK, LLC	ASLBP No. 10-906-02-LR-BD01
(Seabrook Station, Unit 1)	February 15, 2011

MEMORANDUM AND ORDER
(Ruling on Petitions for Intervention and Requests for Hearing)

Before the Board are two petitions to intervene and requests for a hearing concerning the application (Application) of NextEra Energy Seabrook, LLC (NextEra or Applicant) to renew the operating license for Seabrook Station, Unit 1 (Seabrook), a nuclear power reactor located in Rockingham County, New Hampshire. Beyond Nuclear, the Seacoast Anti-Pollution League, and the New Hampshire Sierra Club (collectively, the Beyond Nuclear petitioners) jointly filed a petition proffering one contention. Friends of the Coast and the New England Coalition (collectively, Friends/NEC) jointly filed a second petition proffering four contentions.[1]

NextEra and the NRC Staff contend that every proffered contention is inadmissible on one or more grounds. NextEra also contends that Friends/NEC have failed to demonstrate standing.

The Board concludes that each of the five petitioners has demonstrated standing and that the sole contention proffered by the Beyond Nuclear petitioners, as well as three of the four

[1] Friends/NEC Contention 4 contains six subparts, which the Board addresses individually.

contentions proffered by Friends/NEC, are admissible, in whole or in part, pursuant to 10 C.F.R. § 2.309(f). In accordance with 10 C.F.R. § 2.309(a), we therefore grant the petitions and admit each petitioner as a party to this proceeding. As limited by the Board, the admitted contentions will be heard under the procedures set forth at 10 C.F.R. Part 2, Subpart L.

I. BACKGROUND

On May 25, 2010, the NRC received an application from NextEra to renew the Seabrook operating license, which expires on March 15, 2030.[2] The NRC published notice in the Federal Register on July 21, 2010 that the NRC Staff would review the Application and that persons whose interests might be affected by the proposed license renewal would have until September 20, 2010 to request a hearing or to petition to intervene in the proceeding.[3] At the petitioners' request,[4] the Secretary to the Commission subsequently extended the filing period by thirty days to October 20, 2010.[5]

On October 20, the Beyond Nuclear petitioners timely filed their petition, which proffers one contention alleging that the Application's environmental report (ER) fails to consider

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[2] NextEra Energy Seabrook, LLC; Notice of Receipt and Availability of Application for Renewal of Seabrook Station, Unit 1 Facility Operating License No. NPF-86 for an Additional 20-Year Period, 75 Fed. Reg. 34,180 (June 16, 2010).

[3] 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, 42,462-63 (July 21, 2010).

[4] Beyond Nuclear Reply in Support of the New Hampshire Office of Attorney General Request for a Ninety (90) Day Extension of Time to File Petition For Leave to Intervene (Sept. 14, 2010) at 4; Friends of the Coast and New England Coalition's Answer to New Hampshire Attorney General's Request for Extension (Sept. 15, 2010) at 1; New Hampshire Sierra Club Request for an Extension for Filing Petition for Leave to Intervene and Request for Public Hearing (Sept. 17, 2010) at 2; Seacoast Anti-Pollution League Request for an Extension in the Filing of the Request for Public Hearing and Petition to Intervene (Sept. 17, 2010) at 2.

[5] Order of the Secretary (Sept. 17, 2010); Order of the Secretary (Sept. 20, 2010).

adequately, as a reasonable alternative source of baseload power, an allegedly environmentally superior system of renewable energy — in particular, interconnected offshore wind farms.[6]

Friends/NEC jointly submitted their petition by email and electronic filing on October 21.[7] The petition contains three safety-related contentions concerning management of aging plant systems, structures, and components, and one six-part contention regarding severe accident mitigation analysis (SAMA).[8] On October 22, Friends/NEC requested the petition filing period be extended by one day to include October 21.[9]

On October 29, 2010, NextEra filed with the NRC a supplement to its Application, which reflected amendments to two aging management programs.[10]

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[6] Beyond Nuclear, Seacoast Anti-Pollution League and New Hampshire Sierra Club Request for Public Hearing and Petition To Intervene (Oct. 20, 2010) at 6, 11-12, 21, 23, 33 [hereinafter Beyond Nuclear Petition].

[7] Email from Raymond Shadis, Pro Se Representative for Friends of the Coast/New England Coalition, to Seabrook service list (Oct. 21, 2010); Friends of the Coast and New England Coalition Petition for Leave to Intervene, Request for Hearing, and Admission of Contentions (Oct. 21, 2010) [hereinafter Friends/NEC Petition].

[8] Friends/NEC Petition at 10-11, 20, 22-23, 33-34.

[9] Friends of the Coast/New England Coalition's Request for Extension of Time (Oct. 22, 2010) [hereinafter Friends/NEC Petition Extension Request].

[10] See NextEra Energy Seabrook, LLC's Answer Opposing the Petition to Intervene and Request for Hearing of Friends of the Coast and the New England Coalition (Nov. 15, 2010) [hereinafter NextEra Answer to Friends/NEC Petition], Attach. 1, Letter from Paul O. Freeman, Site Vice President of NextEra Energy Seabrook, LLC, to NRC Document Control Desk at 1 (Oct. 29, 2010).

On November 15, 2010, NextEra and the NRC Staff filed timely answers to the petitions.[11] The Beyond Nuclear petitioners timely replied on November 22, 2010.[12] Friends/NEC submitted a reply at 12:10 am on November 23, 2010.[13] Before noon on the same day, Friends/NEC submitted a revised reply and requested a one-day extension of the reply filing period to include November 23.[14]

The Board heard oral argument on the petitions in Portsmouth, New Hampshire on November 30, 2010.[15] At that time, the Board allowed Friends/NEC seven days to submit a revised declaration from Mr. Paul Blanch and allowed the other parties seven additional days to object to that submission.[16]

On December 6, 2010, Friends/NEC submitted a revised Blanch declaration, an NRC information notice concerning electrical cables, and a document titled "Supplement to

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[11] 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) [hereinafter NextEra Answer to Beyond Nuclear Petition]; NextEra Answer to Friends/NEC Petition at 26-28; 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) [hereinafter NRC Staff Answer].

[12] 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) [hereinafter Beyond Nuclear Reply].

[13] Friends of the Coast and New England Coalition Reply to NextEra and NRC Staff Answers to Friends of the Coast and New England Coalition Petition for Leave to Intervene, Request for Hearing, and Admission of Contentions (submitted Nov. 23, 2010) [hereinafter Friends/NEC Initial Reply].

[14] Friends of the Coast and New England Coalition Reply to NextEra and NRC Staff Answers to Friends of the Coast and New England Coalition Petition for Leave to Intervene, Request for Hearing, and Admission of Contentions (submitted Nov. 23, 2010) [hereinafter Friends/NEC Revised Reply]; Friends of the Coast/New England Coalition's Request for Extension of Time (Nov. 23, 2010) [hereinafter Friends/NEC Reply Extension Request].

[15] Tr. at 1, 8.

[16] Tr. at 68.

[Friends/NEC Petition] – Errors and Corrections and New Information."[17] NextEra and the NRC Staff filed objections to Friends/NEC's submittals on December 13.[18] On December 20 Friends/NEC moved for leave to reply to NextEra and the NRC Staff's objections and simultaneously filed the reply.[19] NextEra and the NRC Staff filed oppositions to Friends/NEC's motion for leave to reply on December 22.[20]

On January 14, 2011, NextEra submitted a letter to the Board, transmitting new information purportedly relevant to the admission of contentions.[21] On January 24, Friends/NEC filed an objection to NextEra's letter.[22] The NRC Staff filed a response to Friends/NEC's objection on January 28, 2011.[23]

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[17] Declaration of Paul Blanch (Dec. 6, 2010); NRC Information Notice 20 10-26: Submerged Electrical Cables (Dec. 2, 2010); Supplement To Friends Of The Coast And New England Coalition Petition For Leave To Intervene, Request For Hearing, And Admission Of Contentions – Errors And Corrections And New Information (Dec. 6, 2010) [hereinafter Friends/NEC Supplement – Errors and Corrections and New Information].

[18] NextEra Energy Seabrook, LLC's Response Opposing NEC/Friends of the Coast's Supplement to Its Petition (Dec. 13, 2010) [hereinafter NextEra Objections to Supplement]; NRC Staff's Objections to the Friends of the Coast and New England Coalition's Supplement (Dec. 13, 2010) [hereinafter NRC Staff Objections to Supplement].

[19] Motion by Friends of the Coast and New England Coalition for Leave to Reply to NRC Staff Objections; NextEra Energy Seabrook, LLC. Response in Opposition to the Friends of the Coast and New England Coalition Supplement to Its Petition (Dec. 20, 2010) [hereinafter Friends/NEC Motion to Reply]; Friends of the Coast and New England Coalition's Reply to NRC Staff Objections; and NextEra Energy Seabrook, LLC. Response in Opposition to the Friends of the Coast and New England Coalition's Supplement to Its Petition (Dec. 20, 2010) [hereinafter Friends/NEC Reply to Objections].

[20] NextEra Energy Seabrook, LLC's Answer to NEC/Friends of the Coast's Motion for Leave to File a Reply (Dec. 22, 2010) [hereinafter NextEra Opposition to Reply]; NRC Staff's Response in Opposition to Friends of the Coast and New England Coalition's Motion for Leave to Reply (Dec. 22, 2010) [hereinafter NRC Staff Opposition to Reply].

[21] Letter from Steven Hamrick, NextEra Energy Seabrook, to Licensing Board (Jan. 14, 2011).

[22] Friends of the Coast and New England Coalition's Objection to NextEra Energy Seabrook, LLC.'s January 14, 2011 Letter Filing of Purported Material New Information (Jan. 24, 2011).

[23] NRC Staff's Response to the Friends of the Coast and New England Coalition's Objection (Jan. 28, 2011).

II. ANALYSIS

To intervene as a party in an adjudicatory proceeding addressing a proposed license action, a petitioner must (1) establish it has standing; and (2) proffer at least one admissible contention.[24] Before analyzing standing and contention admissibility, we first address the timeliness of Friends/NEC's petition and other filings.

A. Timeliness

NextEra contends that Friends/NEC's petition is untimely because it was not filed on or before October 20, 2010.[25] Friends/NEC emailed their petition to the NRC and NextEra fourteen minutes after the filing period ended.[26] In the email, Friends/NEC explained they had attempted without success to file the petition electronically for two hours before the midnight deadline and would communicate with the NRC the following day during business hours to determine how to proceed.[27] Friends/NEC electronically filed the petition early the next afternoon. On October 22 Friends/NEC moved to extend the filing period by one day to include October 21.[28] NextEra did not file any objection to the extension request, and Friends/NEC assert that the NRC Staff did not oppose their request when consulted.[29] NextEra does challenge the timeliness of Friends/NEC's petition in its answer.[30]

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[24] 10 C.F.R § 2.309(a).

[25] NextEra Answer to Friends/NEC Petition at 3-4.

[26] Email from Raymond Shadis, Pro Se Representative for Friends/NEC, to Seabrook service list (Oct. 21, 2010).

[27] Id.

[28] Friends/NEC Petition Extension Request at 1.

[29] Id. at 3.

[30] NextEra Answer to Friends/NEC Petition at 3-4.

To determine whether Friends/NEC's late-filed petition will be considered in this proceeding, we must balance the eight factors set out in 10 C.F.R. § 2.309(c)(1), of which "good cause . . . for the failure to file on time" is the most important.[31] We are also mindful of the Commission's direction that, although pro se litigants are expected to comply with its procedural rules, they are generally extended some latitude.[32]

NextEra contends that Friends/NEC have not addressed the eight relevant factors as required by 10 C.F.R. § 2.309(c)(2).[33] However, Friends/NEC explain in their extension request that their failure to file on time was caused by persistent difficulties with the NRC electronic filing system despite their good faith efforts.[34] We are satisfied that Friends/NEC have shown good cause for submitting their petition shortly after the deadline, especially in light of their having served all parties by email just minutes after midnight. We therefore grant Friends/NEC's request and accept their petition.[35]

No other party having objected, we also grant Friends/NEC's request for an extension of time in which to file its reply.

B. Supplemental Filings

NRC regulations provide for petitions, answers and replies unless otherwise specified by the Commission or the presiding officer,[36] and state: "No other written answers or replies will be

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[31] Crow Butte Res., Inc. (North Trend Expansion Project), CLI-09-12, 69 NRC 535, 549 n.61 (2009) (referring to 10 C.F.R. § 2.309(c)(i)).

[32] South Carolina Elec. & Gas Co. (Virgil C. Summer Nuclear Station, Units 2 and 3), CLI-10-01, 71 NRC __, __ (slip op. at 5) (Jan. 7, 2010) (citations omitted).

[33] NextEra Answer to Friends/NEC Petition at 4.

[34] Friends/NEC Petition Extension Request at 1-2.

[35] As we did at oral argument, however, we again caution petitioners that late filings burden the other parties and the Board. Tr. at 60.

[36] 10 C.F.R. § 2.309(h).

entertained."[37] At oral argument the Board identified numerous typographical errors in the sworn declaration of Mr. Blanch that accompanied Friends/NEC's original submission, and stated that we would allow Friends/NEC seven days in which to file a corrected version.[38] The Board also ruled that we would permit the Applicant and the NRC Staff, within a further seven-day period, to object to any changes that they viewed as beyond the Board's intent or that unfairly introduced new arguments.[39] We stated: "[I]t is not the Board's intent to encourage the filing of a declaration that presents new arguments, [or] new issues . . . ."[40]

Unfortunately, the Board's largess precipitated the filing of more than 150 pages of corrections, objections to corrections, responses to the objections, and objections to the responses.[41] Although some of Friends/NEC's numerous corrections appear to be of the sort the Board expected, others — such as bolstering the description of Mr. Blanch's credentials to opine concerning subjects on which his expertise had been questioned during oral argument[42] — clearly go further. In the circumstances, the Board will not try to parse through which of Friends/NEC's changes constitute authorized corrections and which improperly go beyond what the Board intended.

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[37] Id. § 2.309(h)(3).

[38] Tr. at 69-70.

[39] Id.

[40] Id. at 70.

[41] Declaration of Paul Blanch (Dec. 6, 2010); NRC Information Notice 20 10-26: Submerged Electrical Cables (Dec. 2, 2010); Friends/NEC Supplement – Errors and Corrections and New Information; NextEra Objections to Supplement; NRC Staff Objections to Supplement; Friends/NEC Motion to Reply; Friends/NEC Reply to Objections; NextEra Opposition to Reply; NRC Staff Opposition to Reply.

[42] Compare Tr. at 125 with Friends/NEC Supplement – Errors and Corrections and New Information at 3-4.

Accordingly, in ruling on Friends/NEC's petition, we have not considered or relied upon their submissions subsequent to their original petition and reply. We do draw reasonable inferences where their original filings contain obvious typographical errors.

C. Standing

Friends/NEC and the Beyond Nuclear petitioners assert they have standing to intervene as representatives of their members living in the vicinity of Seabrook.[43] An organization may represent the interests of its members using representational standing if it can: (1) show that the interests it seeks to protect are germane to its own purpose; (2) identify, by name and address, at least one member who qualifies for standing in his or her own right; (3) show that it is authorized by that member to request a hearing on his or her behalf; and (4) show that neither the claim asserted nor the relief requested requires an individual member's participation in the organization's legal action.[44]

As to whether an individual member of a petitioning organization qualifies for standing in his or her own right, traditional judicial standing concepts require a showing that the individual has suffered or might suffer a concrete and particularized injury that is (1) fairly traceable to the challenged action; (2) likely redressible by a favorable decision;[45] and (3) arguably within the

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[43] Friends/NEC Petition at 2; Beyond Nuclear Petition at 5.

[44] Consumers Energy Co. (Palisades Nuclear Power Plant), CLI-07-18, 65 NRC 399, 409 (2007) (citations omitted); see also Friends of the Earth, Inc. v. Laidlaw Envtl. Servs. (TOC), Inc., 528 U.S. 167, 181 (2000) ("An association has standing to bring suit on behalf of its members when its members would otherwise have standing to sue in their own right, the interests at stake are germane to the organization's purpose, and neither the claim asserted nor the relief requested requires the participation of individual members in the lawsuit" (citing Hunt v. Washington State Apple Advertising Comm'n, 432 U.S. 333, 343 (1977))).

[45] Georgia Inst. of Tech. (Georgia Tech Research Reactor), CLI-95-12, 42 NRC 111, 115 (1995) (citing Lujan v. Defenders of Wildlife, 504 U.S. 555, 560-61 (1992)).

zone of interests protected by the governing statutes[46] — here the Atomic Energy Act (AEA)[47] and the National Environmental Policy Act (NEPA).[48] Although the NRC applies these traditional standing concepts,[49] in proceedings such as this it presumes that an individual has standing to intervene without the need to address them upon a showing that he or she lives within, or otherwise has frequent contacts with, a geographic zone of potential harm.[50] The pertinent zone in operating license renewal proceedings and other power reactor license matters is the area within a 50-mile radius of the site.[51] The Commission also directs us to "construe the petition in favor of the petitioner" in determining whether a petitioner has demonstrated standing.[52]

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[46] Florida Power & Light Co. (St. Lucie Nuclear Power Plant, Units 1 and 2), CLI-89-21, 30 NRC 325, 329 (1989) (quoting Metro. Edison Co. (Three Mile Island Nuclear Station, Unit 1), CLI-83-25, 18 NRC 327, 332 (1983)).

[47] 42 U.S.C. §§ 2011-2297.

[48] Id. §§ 4321-4347.

[49] Georgia Tech., CLI-95-12, 42 NRC at 115 (citing Cleveland Elec. Illuminating Co. (Perry Nuclear Power Plant, Unit 1), CLI-93-21, 38 NRC 87, 92 (1993)); St. Lucie, CLI-89-21, 30 NRC at 329; see also 10 C.F.R. § 2.309(d)(1) (requiring that petition state the petitioner's right under the Atomic Energy Act to be a party, the petitioner's interest in the proceeding, and the possible effect of a decision on the petitioner's interests).

[50] St. Lucie, CLI-89-21, 30 NRC at 329.

[51] Calvert Cliffs 3 Nuclear Project, LLC (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-09-20, 70 NRC 911, 917 (2009) (explaining the presumption's rationale is, "in construction permit and operating license cases, that persons living within the roughly 50-mile radius of the facility 'face a realistic threat of harm' if a release from the facility of radioactive material were to occur" (citation omitted)).

[52] Georgia Tech., CLI-95-12, 42 NRC at 115.

1. The Beyond Nuclear Petitioners Have Demonstrated Representational Standing.

Although neither NextEra nor the NRC Staff objects to the Beyond Nuclear petitioners' representational standing,[53] we have an independent obligation to determine whether they have adequately demonstrated standing.[54] The Seacoast Anti-Pollution League asserts it 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."[55] The New Hampshire Sierra Club asserts it is "a not-for-profit organization based in Concord, NH" working "to protect . . . environmental quality, and working for a clean renewable energy future."[56] Beyond Nuclear asserts it is "a not-for-profit organization," and we infer from its name that the organization is concerned about nuclear issues.[57]

The injury to their members on which the Beyond Nuclear petitioners base their claim to representational standing is the risk that extended operation of the plant may "pose an undue and unacceptable risk to the environment and jeopardize the health, safety and welfare of [their] members who live, recreate and conduct their business" nearby.[58] To demonstrate this injury,

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[53] NextEra Answer to Beyond Nuclear Petition at 3 n.1; NRC Staff Answer at 8.

[54] 10 C.F.R. § 2.309(d)(3); see also Virginia Elec. & Power Co. (North Anna Power Station, Unit 3), LBP-08-15, 68 NRC 294, 303 (2008) (noting that although "[n]either the Applicant nor the NRC Staff challenges [the petitioner's] standing," the board must "make [its] own determination whether [the petitioner] has satisfied standing requirements").

[55] Beyond Nuclear Petition at 4.

[56] Id. at 4-5.

[57] Id. at 4.

[58] Id. at 5.

the organizations have submitted sworn declarations from two Beyond Nuclear members,[59] one New Hampshire Sierra Club member,[60] and seven Seacoast Anti-Pollution League members[61] who all acknowledge their membership and state that their interests will not be adequately represented unless their respective organizations participate in this proceeding on their behalf, impliedly authorizing the organizations to represent them.[62] All of these declarants provide home addresses within thirty miles of the site and state their concern that the plant's extended operation may "pose an unacceptable risk to the environment and . . . public health and safety."[63]

Beyond Nuclear, the New Hampshire Sierra Club, and the Seacoast Anti-Pollution League's individual declarants have established standing to intervene in their own right and have authorized the organizations to represent their interests. Accordingly, each organization has demonstrated representational standing.

2. Friends/NEC Have Demonstrated Representational Standing.

Friends/NEC assert they have representational standing on behalf of "members that reside within Seabrook Station's affected vicinity and whose particular interests are directly

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[59] Declaration of Christopher Nord (dated Oct. 16, 2010; submitted Oct. 20, 2010); Declaration of Kristie A. Conrad (dated Sept. 12, 2010; submitted Oct. 20, 2010) [collectively, hereinafter Beyond Nuclear Declarations].

[60] Declaration of Kurt Ehrenberg (dated Sept. 17, 2010; submitted Oct. 20, 2010).

[61] Declaration of Phyllis Killen-Abell (dated Sept. 16, 2010; submitted Oct. 20, 2010); Declaration of Patricia L. Warren (dated Sept. 16, 2010; submitted Oct. 20, 2010); Declaration of Douglas K. Bogen (dated Sept. 16, 2010; submitted Oct. 20, 2010); Declaration of Herbert S. Moyer (dated Sept. 16, 2010; submitted Oct. 20, 2010); Declaration of Virginia S. Cole (dated Sept. 16, 2010; submitted Oct. 20, 2010); Declaration of Lee Roberts (dated Sept. 17, 2010; submitted Oct. 20, 2010); Declaration of David Diamond (dated Sept. 16, 2010; submitted Oct. 20, 2010) [collectively, hereinafter Seacoast Anti-Pollution League Declarations].

[62] Beyond Nuclear Declarations; Declaration of Kurt Ehrenberg; Seacoast Anti-Pollution League Declarations.

[63] Beyond Nuclear Declarations; Declaration of Kurt Ehrenberg; Seacoast Anti-Pollution League Declarations.

affected by this matter."[64] Friends/NEC also seek discretionary intervention under 10 C.F.R. § 2.309(e).[65] Although the NRC Staff agrees that Friends/NEC have shown representational standing,[66] NextEra contends their petition should be denied for lack of standing because no "valid handwritten or electronic signatures" appear on the member declarations submitted with it.[67]

New England Coalition asserts it is "a Vermont not-for-profit corporation" whose purpose is "to oppose nuclear hazards and advocate for sustainable energy alternatives to nuclear power."[68] Friends of the Coast asserts that it is a "non-profit membership organization" incorporated in Maine.[69] Friends/NEC assert that "oppos[ing] nuclear hazards" is a purpose Friends of the Coast shares with its co-petitioner.[70]

On behalf of members living near the facility, Friends/NEC seek to avert the threat of "radiological contamination, evacuation, loss of property, or other harms in the event of any mishap at the plant."[71] Friends/NEC also assert that members "use and enjoy the segment of the New Hampshire, Maine, and Massachusetts seacoast adjacent to Seabrook Station for social activities, work, recreation, and the gathering of natural provender."[72] Friends/NEC submitted declarations with their petition under the name of one New England Coalition

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[64] Friends/NEC Petition at 3.

[65] Id.

[66] NRC Staff Answer at 2, 7.

[67] NextEra Answer to Friends/NEC at 4-6.

[68] Friends/NEC Petition at 2.

[69] Id.

[70] Id. at 3.

[71] Id. at 4.

[72] Id.

member[73] and five Friends of the Coast members.[74] The declarations submitted with Friends/NEC's petition state that the declarants live between four and forty miles of Seabrook, enjoy outdoor activities, rely on local produce suppliers and local drinking water supplies, are members of the petitioning entities, and have authorized their respective entities to represent them in this proceeding.[75]

None of the declarations submitted with Friends/NEC's petition includes a handwritten signature or digital ID certificate.[76] 10 C.F.R. § 2.304(d) requires that submitted documents be signed. This subsection allows persons without digital ID certificates to sign electronically by typing "Executed in Accord with 10 C.F.R. § 2.304(d)" or its equivalent on the signature line and including the date of signature and the signatory's name, capacity, address, phone number, and email address,[77] but Friends/NEC and their declarants did not avail themselves of this option. Instead Friends/NEC offered in their petition's certificate of service to "promptly provide via First Class U.S. Mail, postage prepaid," "record hardcopies of declarations bearing hand signatures of and [sic] expert witness and represented members" to the Commission "[s]hould the Commission require it."[78]

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[73] Declaration of Karen Stewart (dated Sept. 29, 2010; submitted Oct. 21, 2010).

[74] Declaration of Saudra Gavutis (dated Oct. 18, 2010; submitted Oct. 21, 2010); Declaration of Deborah Breen (dated Oct. 18, 2010; submitted Oct. 21, 2010); Declaration of Deborah Grinnell (dated Oct. 18, 2010; submitted Oct. 21, 2010); Declaration of Diane M. Teed (dated Oct. 12, 2010; submitted Oct. 21, 2010); Declaration of Peter Kellman (dated Sept. 30, 2010; submitted Oct. 21, 2010) [collectively, hereinafter Friends Declarations].

[75] Declaration of Karen Stewart; Friends Declarations.

[76] Declaration of Karen Stewart; Friends Declarations.

[77] 10 C.F.R. § 2.304(d)(ii).

[78] Certificate of Service (Oct. 21, 2010).

With their reply memorandum, Friends/NEC resubmitted images of their initial six member declarations scanned so that handwritten signatures are visible.[79] Five of the six declarations were hand-signed, but the name of Deborah Breen, purported Friends of the Coast member, was typed in a cursive font instead of hand-signed and was not accompanied by any statement that she had signed pursuant to 10 C.F.R. § 2.304(d)(ii).[80] Friends/NEC also submitted a new seventh declaration with their reply without acknowledging that it had not been submitted with their petition.[81] Neither NextEra nor the NRC Staff objected to the resubmitted member declarations.

Regardless of whether Deborah Breen's declaration lacks a valid signature and whether the previously unfiled seventh declaration is untimely, the other five declarations show that individual members of Friends of the Coast and the New England Coalition have standing to intervene in their own right and have authorized the organizations to represent their interests. Accordingly, each organization has demonstrated representational standing, and we need not reach Friends/NEC's request for discretionary intervention.

D. Contention Admissibility

An admissible contention must: (1) state the specific legal or factual issue sought to be raised; (2) briefly explain the basis for the contention; (3) demonstrate that the issue raised is within the proceeding's scope; (4) demonstrate that the issue raised is material to the findings the NRC must make to support the action that is involved in the proceeding; (5) concisely state

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[79] Declaration of Deborah Grinnell (dated Oct. 18, 2010; submitted Nov. 23, 2010); Declaration of Diane M. Teed (dated Oct. 12, 2010; submitted Nov. 23, 2010); Declaration of Deborah Breen (dated Oct. 18, 2010; submitted Nov. 23, 2010); Declaration of Peter Kellman (dated Sept. 30, 2010; submitted Nov. 23, 2010); Declaration of Sandra Gavutis (dated Oct. 18, 2010; submitted Nov. 23, 2010); Declaration of Karen Stewart (dated Sept. 29, 2010; submitted Nov. 23, 2010) [collectively, hereinafter Resubmitted Friends/NEC Declarations].

[80] Resubmitted Friends/NEC Declarations.

[81] Declaration of Mary Lampert (dated Sept. 20, 2010, submitted Nov. 23, 2010).

the alleged facts or expert opinions that support the petitioner's position and upon which the petitioner intends to rely at the hearing, including references to the specific sources and documents on which the petitioner intends to rely; and (6) show that a genuine dispute exists on a material issue of law or fact by referring to specific portions of the application that the petitioner disputes or, if the application is alleged to be deficient, by identifying such deficiencies and the supporting reasons for this allegation.[82]

The Commission's regulations permit admission of a contention only if it meets these requirements because the agency "should not have to expend resources to support the hearing process unless there is an issue that is appropriate for, and susceptible to, resolution in an NRC hearing."[83] "Mere 'notice pleading' is insufficient,"[84] but a petitioner does not have to prove its contentions at the admissibility stage,[85] and we do not adjudicate disputed facts at this juncture.[86]

The factual support required is "'a minimal showing that material facts are in dispute.'"[87] The necessary factual support "need not be in affidavit or formal evidentiary form and need not be of the quality necessary to withstand a summary disposition motion."[88]

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[82] 10 C.F.R. § 2.309(f)(1)(i)-(vi).

[83] Final Rule, Changes to Adjudicatory Process, 69 Fed. Reg. 2182, 2202 (Jan. 14, 2004).

[84] Fansteel, Inc. (Muskogee, Oklahoma, Site), CLI-03-13, 58 NRC 195, 203 (2003).

[85] Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), CLI-04-22, 60 NRC 125, 139 (2004).

[86] Amergen Energy Co., LLC (Oyster Creek Nuclear Generating Station), LBP-06-22, 64 NRC 229, 244 (2006) (citing Mississippi Power & Light, Co. (Grand Gulf Nuclear Station, Units 1 & 2), ALAB-130, 6 AEC 423, 426 (1973)).

[87] Gulf States Utils. Co. (River Bend Station, Unit 1), CLI-94-10, 40 NRC 43, 51 (1994) (quoting Final Rule, Rules of Practice for Domestic Licensing Proceedings – Procedural Changes in the Hearing Process, 54 Fed. Reg. 33,168, 33,171 (Aug. 11, 1989)).

[88] Final Rule, Rules of Practice for Domestic Licensing Proceedings – Procedural Changes in the Hearing Process, 54 Fed. Reg. at 33,171.

Among the limited issues within the scope of a license renewal proceeding are alternatives for reducing adverse environmental impacts listed as Category 2 issues in appendix B to subpart A of 10 C.F.R. Part 51,[89] including cost-effective alternatives for mitigating severe accidents,[90] and plans to manage the effects of aging on enumerated functions of certain systems, structures, and components during the period of extended operation.[91] Safety issues that are routinely addressed through the agency's ongoing regulatory oversight are outside the scope of license renewal proceedings because considering them here would be "unnecessary and wasteful."[92]

Additionally, "no rule or regulation of the Commission . . . is subject to attack . . . in any adjudicatory proceeding" unless the petitioner first obtains a waiver.[93] One such regulation that cannot be challenged is the determination that, for any license renewal of a nuclear power plant, the probability-weighted consequences of a severe accident are small.[94]

Although a challenge to the generic determination of the environmental impact of a severe accident would be outside the scope of a license renewal proceeding, the Commission's regulations do not generically determine cost-effective severe accident mitigation alternatives

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[89] 10 C.F.R. §§ 54.29(b), 51.53(c)(3)(iii); NEPA, 42 U.S.C. § 4332(2)(C)(iii).

[90] 10 C.F.R. §§ 54.29(b), 51.53(c)(2), 51.53(c)(3)(ii)(L).

[91] Id. §§ 54.4, 54.29(a)(1).

[92] Duke Energy Corp. (McGuire Nuclear Station, Units 1 & 2; Catawba Nuclear Station, Units 1 & 2), CLI-02-26, 56 NRC 358, 363-64 (2002) (citation omitted); see also Florida Power & Light Co. (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 8 (2001) ("For license renewal, the Commission found that it would be unnecessary to include in our review all those issues already monitored, reviewed, and commonly resolved as needed by ongoing regulatory oversight.").

[93] 10 C.F.R. § 2.335(a).

[94] 10 C.F.R. Part 51, Subpart A, Appendix B, Table B-1 ("Severe accidents[:] The probability weighted consequences of atmospheric releases, fallout onto open bodies of water, releases to ground water, and societal and economic impacts from severe accidents are small for all plants.").

across all plants.[95] But the Commission cautioned in Entergy Nuclear Generation Company (Pilgrim Nuclear Power Station) (Pilgrim I) that a SAMA contention is admissible only if "it looks genuinely plausible that inclusion of an additional factor or use of other assumptions or models may change the cost-benefit conclusions for the SAMA candidates evaluated."[96]

1. Mootness

On October 29, 2010 — after the deadline for filing timely petitions but before the time for answers and replies — NextEra submitted a supplement to the Application that relates to the subject matter of Friends/NEC Contentions 1 and 3. In their answers, NextEra and the NRC Staff assert that this supplement moots many of petitioners' claims.[97] While choosing not to do so, Friends/NEC had the opportunity to address these mootness arguments in their reply or to move to amend their original contentions. The Board therefore considers these mootness arguments in our analysis of Friends/NEC Contention 1. Because we do not admit Friends/NEC Contention 3 for other reasons, we do not address mootness in connection with that contention.

On January 14, 2011 — long after briefing and oral argument were completed — NextEra submitted a letter supplying the Board with new information that allegedly "has the potential to moot or resolve" some of petitioners' claims relating to SAMA analyses challenged in Friends/NEC Contention 4.[98] NextEra properly submitted this information in the belief that "[a] party to an NRC proceeding is obligated to keep the Board informed of relevant and material new information."[99]

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[95] Id. ("[A]lternatives to mitigate severe accidents must be considered for all plants that have not considered such alternatives." (citing 10 C.F.R. § 51.53(c)(3)(ii)(L))).

[96] CLI-10-11, 71 NRC __, __ (slip op. at 39) (Mar. 26, 2010).

[97] NextEra Answer to Friends Petition at 41-42, NRC Staff Answer at 19.

[98] Letter from Steven Hamrick, NextEra Energy Seabrook, to Licensing Board, supra note 19, at 4.

[99] Id. at 1.

The significance of NextEra's new information, however, is vigorously disputed by Friends/NEC.[100] NextEra does not expressly ask the Board to act upon its new information and, at this stage of the proceeding, such a request should be in the form of a motion. Under 10 C.F.R. § 2.323(b), all motions must include a certification that "the movant has made a sincere effort to contact other parties in the proceeding and resolve the issue(s) raised in the motion, and that the movant's efforts to resolve the issue(s) have been unsuccessful."[101] Motion practice ensures compliance with the Commission's preference for an initial attempt at voluntary resolution and, if that is not possible, that claims are presented to the Board with specificity and that participants are given an opportunity to respond. Because NextEra did not comply with 10 C.F.R. § 2.323(b), the Board does not consider the information supplied with NextEra's January 14, 2011 letter in connection with our analysis of Friends/NEC Contention 4.

2. Beyond Nuclear Contention

The Beyond Nuclear petitioners' sole contention states:

> 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.[102]

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[100] Friends of the Coast and New England Coalition's Objection to NextEra Energy Seabrook, LLC.'s January 14, 2011 Letter Filing of Purported Material New Information at 2.

[101] 10 C.F.R. § 2.323(b).

[102] Beyond Nuclear Petition at 6.

The Beyond Nuclear petitioners acknowledge[103] that, in declining to analyze wind power as a reasonable alternative, the Applicant relied[104] in part on the NRC's own generic environmental impact statement (GEIS), which concludes that the technology is "an inappropriate choice for baseload power."[105] As observed by the NRC Staff during oral argument, however, the GEIS is not binding and its conclusion concerning the practicality of wind power has not been revised in the past 15 years.[106]

In contrast, the Beyond Nuclear petitioners support their contention with 20 exhibits purporting to demonstrate that, within the foreseeable future, an environmentally superior system of interconnected offshore wind farms might provide baseload power in the relevant region and thus should have been evaluated in greater detail in the Applicant's environmental report. Petitioners cite various examples, including:

a. The Department of Energy's National Renewable Energy Laboratory has stated that, although large-scale deployment of wind energy is often thought to be limited by its intermittent output, in fact "[w]ind 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."[107]

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[103] Id. at 17.

[104] NextEra Energy Seabrook, LLC, Environmental Report - Operating License Renewal Stage Seabrook Station (May 25, 2010) at 7-12 (ADAMS Accession Nos. ML101590092 and ML101590089) [hereinafter ER].

[105] Generic Environmental Impact Statement for License Renewal of Nuclear Plants, NUREG-1437, Vol. 1, § 8.3.1 (May 1996) [hereinafter GEIS].

[106] Tr. at 31-32.

[107] Beyond Nuclear Petition, Exh. 3, National Renewable Energy Laboratory, U.S. Department of Energy, Creating Baseload Wind Power Systems Using Advanced Compressed Air Energy Storage Concepts (Oct. 3, 2006).

b. A manuscript published in Stanford University's Journal of Applied Meteorology and Climatology has recognized that "[a] solution to improve wind power reliability is interconnected wind power" because, "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."[108]

c. Google corporation has publicly announced its investment in a consortium to build an offshore "backbone transmission project" to stimulate development of East Coast wind farms (a decade before the current Seabrook operating license expires).[109] As reported in the Washington Post, "[t]he 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."[110]

d. By way of a comparative demonstration of the perceived practical importance of wind power and other renewable sources of energy, nine European North Sea nations (Germany, France, Belgium, Denmark, Sweden, Norway, Luxembourg, the United Kingdom, and the Netherlands) were drawing up formal plans as of January 2010 to build a $40 billion undersea energy grid for dedicated transmission of power from such sources.[111]

e. Worldwide, it has been asserted, wind power might rival or exceed nuclear power as a source of electricity as early as 2014.[112] According to the Global Wind Energy Council, installed

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[108] Beyond Nuclear Petition, Exh. 4, Cristina L. Archer & Mark Z. Jacobson, Supplying Baseload Power and Reducing Transmission Requirements by Interconnecting Wind Farms, 46 J. of Appl. Meteorol. & Clim. 1701, 1702 (Nov. 2007).

[109] Beyond Nuclear Petition, Exh. 5, Juliet Eilperin, Google backs 'superhighway' for wind power, Washington Post, Oct. 13, 2010.

[110] Id.

[111] Beyond Nuclear Petition, Exh. 6, Tali Aaron, European Countries Unite to Invest $40 Billion in Huge Off-Shore Renewable Energy Super-Grid, Buildaroo.com, Jan. 6, 2010.

[112] Beyond Nuclear Petition, Exh. 10, Jeremy van Loon, Global Wind Power Capacity May Rival Nuclear Within Four Years, Bloomberg News, Sept. 23, 2010.

wind capacity will reasonably reach 400 gigawatts by 2014, whereas, according to the World Nuclear Association, current nuclear power capacity is about 376 gigawatts.[113]

f. Closer to home, a study by researchers at the University of Delaware and Stony Brook University analyzed historical wind data from eleven meteorological stations distributed along the U.S. East Coast, calculated the potential hourly power output at each site, and then simulated a power line connecting the sites.[114] Based on these calculations, the study concluded that "[t]he variability of wind power is not as problematic as is often supposed."[115]

g. On June 8, 2010, the United States Department of the Interior and ten East Coast states — four of which (Maine, New Hampshire, Massachusetts and Rhode Island) are within the Applicant's region of interest — signed a Memorandum of Understanding to establish the Atlantic Offshore Wind Energy Consortium to promote and to accelerate the development of the "exceptional wind energy resources off [the] coast."[116] Allegedly, the proposed consortium was publicized months before formal execution of the Memorandum of Understanding and months before NextEra filed its renewal application,[117] but is neither discussed nor acknowledged in the Applicant's environmental report.

Although not all of the Beyond Nuclear petitioners' 20 exhibits directly address the region of interest, we agree that, taken together, they provide the required "minimal" factual support for admitting their contention, and that the contention otherwise satisfies each of the requirements

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[113] Id.

[114] Beyond Nuclear Petition, Exh. 8, Willett Kempton et al., Electric power from offshore wind via synoptic-scale interconnection," PNAS Early Edition (April 2010) at 1.

[115] Id.

[116] Beyond Nuclear Petition, Exh. 13, Salazar Signs Agreement with 10 East Coast Governors to Establish Atlantic Offshore Wind Energy Consortium, Press Release, Department of Interior (June 8, 2010).

[117] Id.

of 10 C.F.R. § 2.309(f)(1). The arguments against admissibility advanced by the Applicant and by the NRC Staff are not persuasive.

First, in challenging admissibility, the Applicant and the Staff conflate the merits of the contention with the adequacy of its pleading. The Applicant correctly points out that "[a]lternatives that are not reasonable can be eliminated from further study"[118] and argues that "petitioners have not demonstrated that baseload wind generation is a reasonable alternative."[119] But whether an interconnected system of offshore wind farms constitutes a "reasonable" alternative is the very issue on which the Beyond Nuclear petitioners seek a hearing. When a contention alleges the need for further study of an alternative, from an environmental perspective, "such reasonableness determinations are the merits, and should only be decided after the contention is admitted."[120] To be entitled to a hearing, petitioners need not demonstrate that they will necessarily prevail, but only that there is at least some minimal factual support for their position. The Commission has cautioned that "complex, fact-intensive issues" are rarely appropriate for summary disposition,[121] much less for resolution on the initial pleadings.

Thus, many of the Applicant's and the Staff's arguments improperly address the merits of the Beyond Nuclear petitioners' contention, rather than whether petitioners have provided "'a minimal showing that material facts are in dispute, thereby demonstrating that an inquiry in

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[118] NextEra Answer to Beyond Nuclear Petition at 15.

[119] Id. at 18 (capitalization omitted).

[120] Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2), LBP-09-10, 70 NRC 51, 86 (2009) (emphasis in original), rev'd in part on other grounds, CLI-10-02, 71 NRC__, __ (slip op. at 1-2) (Jan. 7, 2010).

[121] Pilgrim I, CLI-10-11, 71 NRC at __ (slip op. at 23).

depth is appropriate.'"[122] For example, although the Applicant concedes that "[p]etitioners have presented information to show that generation of baseload energy from wind is theoretically possible,"[123] it asserts that "[t]he proposal for offshore interconnected wind farms . . . faces steep technological hurdles"[124] and "such an interconnected system would be exorbitantly expensive."[125] Petitioners may face a difficult task in trying to demonstrate that such a system is both practical and environmentally superior to the continued operation of Seabrook as an existing facility. Such disputed facts are not appropriately resolved, however, in connection with the Board's determination of whether petitioners have made the necessary showing to warrant admission of a contention.

It is not the case, as the NRC Staff appears to contend, that the Beyond Nuclear petitioners must first demonstrate "that NextEra is required to include an alternatives analysis in its ER beyond that which was already included"[126] in order to have a hearing on whether NextEra is required to include such an analysis. At this stage, it is sufficient for the Beyond Nuclear petitioners to proffer some "minimal" factual support for that proposition.

Second, the Staff argues — and the Applicant suggests[127] — that the Beyond Nuclear petitioners must show "that wind is a feasible alternative at the present time."[128] Although "remote and speculative" alternatives need not be addressed in an applicant's environmental

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[122] Final Rule, Rules of Practice for Domestic Licensing Proceedings – Procedural Changes in the Hearing Process, 54 Fed. Reg. at 33,171 (quoting Connecticut Bankers Ass'n v. Board of Governors, 627 F.2d 245, 251 (D.C. Cir. 1980)).

[123] NextEra Answer to Beyond Nuclear Petition at 18.

[124] Id. at 20.

[125] Id. at 22.

[126] NRC Staff Answer at 94.

[127] See Tr. at 29.

[128] NRC Staff Answer at 102.

report,[129] the relevant time frame is considerably broader than "the present time." As stated in Carolina Environmental Study Group v. United States[130] — a case on which the Applicant itself relies[131] — the obligation is to consider alternatives "as they exist and are likely to exist."[132] 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.[133] Whether this is so remains to be seen. In the Board's view, however, petitioners have proffered sufficient "minimal" evidence to warrant further inquiry as to whether such a system might be "likely to exist" during the relevant time period.[134]

Third, contrary to arguments by the Applicant and the NRC Staff,[135] we are not persuaded that, as a matter of law, an integrated system of offshore wind farms could not constitute a single, discrete source for baseload energy. Absent further information about such a system, this seems to pose, at a minimum, a disputed question of fact. Certainly, such a system, if constructed, would be unlike the proposed alternative that was rejected by the Indian

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[129] See Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 551 (1978) (quoting NRDC v. Morton, 458 F.2d 827, 837-38 (1972)).

[130] 510 F.2d 796 (D.C. Cir. 1975).

[131] NextEra Answer to Beyond Nuclear Petition at 23.

[132] Carolina Envtl. Study Group, 510 F.2d at 801 (emphasis added). Indeed, at argument, the Applicant expressly agreed that the Carolina Environmental Study Group test is the appropriate standard. Tr. at 28-29. Likewise, the NRC Staff — which appeared to contend in its answer that Kleppe v. Sierra Club, 427 U.S. 390, 405-06 (1976) holds otherwise, NRC Staff Answer at 96 — acknowledged at argument that Kleppe speaks only to when an environmental analysis must be prepared, and does not address whether the content of such an analysis should address alternatives that are reasonably likely to become available in the future. Tr. at 171.

[133] Tr. at 24, 34.

[134] For purposes of deciding the admissibility of the proffered contention, the Board need not decide the exact date by which an integrated system of offshore wind farms would have to be found "likely to exist." That issue will doubtlessly turn on disputed fact questions that cannot appropriately be resolved on the pleadings.

[135] NextEra Answer to Beyond Nuclear Petition at 27-31; NRC Staff Answer at 99.

Point Board, which involved an allegation that multiple, unrelated sources of electricity ought to be evaluated collectively.[136]

Finally, contrary to the Applicant's and the Staff's arguments,[137] the contention is not a prohibited challenge to a Commission regulation. Petitioners apparently know how to challenge a Commission regulation, given that they have done so in a separate proceeding that questions whether the NRC should accept license renewal applications as early as 20 years before expiration of the existing license.[138] Both in their pleadings[139] and at oral argument[140] the Beyond Nuclear petitioners disavow any attempt to challenge a Commission regulation in this proceeding. Rather, their point here is simply that decisions have consequences. They contend that, if an applicant chooses to seek renewal as early as 20 years prior to expiration — as it clearly is entitled to do under the Commission's existing rules[141] — then perhaps its ability to criticize as "speculative" a petitioner's claims about the necessarily distant extended operational period is somewhat attenuated.[142] In any event, because the Beyond Nuclear petitioners have demonstrated some possibility that wind power might be a reasonable

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[136] See Entergy Nuclear Operations, Inc. (Indian Point, Units 2 and 3), LBP-08-13, 68 NRC 43, 95-96 (2008).

[137] NextEra Answer to Beyond Nuclear Petition at 34-36; NRC Staff Answer at 99-103.

[138] See Beyond Nuclear Petition, Exh. 2, Earth Day Commitment/Friends of the Coast, Beyond Nuclear, Seacoast Anti-Pollution League, C-10 Research and Education Foundation, Pilgrim Watch, and New England Coalition; Notice of Receipt of Petition for Rulemaking, 75 Fed. Reg. 59,158 (Sept. 27, 2010).

[139] Beyond Nuclear Petition at 14-16; Beyond Nuclear Reply at 36-38.

[140] Tr. 12-14.

[141] See 10 C.F.R. § 54.17(c).

[142] See, e.g., Beyond Nuclear Petition at 14 (contending that applying to renew a license twenty years before its expiration "adversely affects the quality of the submittal and veracity of the applicant's claims pertaining to the reviewed alternatives to the proposed federal relicensing action").

alternative as early as 2015, we need not necessarily accept this argument in order to admit their contention.

We agree with the Applicant and the NRC Staff, however, that, although the contention itself might be read more broadly, petitioners' supporting facts focus exclusively on wind power generation, and thus the scope of the admitted contention must be so limited.[143] Likewise, the NRC Staff points out that an application for renewal of an operating license need not discuss the need for power.[144] Unlike the NRC Staff,[145] we do not read the contention as challenging NextEra's failure to discuss the need for power. If so construed, however, we agree that such a challenge would be outside the scope of this proceeding.

As so limited, we admit the Beyond Nuclear petitioners' contention.

3. Friends/NEC Contention 1

Friends/NEC Contention 1 states:

> The license renewal application for Seabrook Station fails to comply with the requirements of 10 C.F.R. §§ 54.21(a) and 54.29 because applicant has not proposed an adequate or sufficiently specific plan for aging management of non-environmentally qualified inaccessible electrical cables and wiring for which such aging management is required. Without an adequate plan for aging management of non-environmentally qualified inaccessible electrical cables protection of public health and safety cannot be assured.[146]

Friends/NEC allege that NextEra's aging management program (AMP) for non-environmentally qualified inaccessible cables and wiring does not comply with 10 C.F.R. §§ 54.21(a) and 54.29 because it does not: (1) address specific recommendations in two reports

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[143] See NextEra Answer to Beyond Nuclear Petition at 17 n.7; NRC Staff Answer at 106-107.

[144] NRC Staff Answer at 107 (citing 10 C.F.R. § 51.53(c)(2)).

[145] Id. ("Although it is unclear, the contention appears to suggest in part that the Applicant's ER is deficient for failing to consider the need for Seabrook as a source of power for the [region of interest].").

[146] Friends/NEC Petition at 10-11.

from the national laboratories at Sandia and Brookhaven;[147] (2) identify testing methods that would adequately assure that submerged or previously submerged cables will perform their functions for the duration of a postulated accident;[148] (3) provide measures to detect cable degradation prior to failure by using techniques for measuring and trending the condition of cable insulation, such as partial discharge testing, time domain reflectometry, dissipation factor testing, and low frequency alternating current testing;[149] and (4) identify the location and extent of Non-EQ Inaccessible Cables in use at Seabrook.[150]

In alleging these deficiencies in the Seabrook AMP for inaccessible cables, Friends/NEC assert that "[w]ith respect to adequate assurance of public health and safety and to comply with . . . referenced guidance, [NextEra] must either replace all cables (and splices) that have been exposed to submergence or develop a comprehensive aging management program to preclude moisture and adequately test all cables that have been exposed to an environment for which it was not designed."[151] Petitioners focus on the alleged lack of preventative strategies to preclude submergence or exposure of the cables to a moist environment and of an effective cable testing program to detect the degradation of the cable insulation prior to failure.

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[147] Id. at 12, 15-16 (citing Ogden Environmental and Energy Services Co., Inc., Aging Management Guideline for Commercial Nuclear Power Plants – Electrical Cable and Terminations, SAND96-0344, at 6-4 (Sept. 1996) (ADAMS Accession No. ML031140264) and M. Villaran & R. Lofaro, Brookhaven National Laboratory, Essential Elements of an Electrical Cable Condition Monitoring Program, NUREG/CR-7000 (Jan. 2010) (ADAMS Accession No. ML100540050)).

[148] Id. at 14.

[149] Id. at 17. Friends/NEC point out that the NRC recommended these techniques in a generic letter. Id. (quoting NRC Generic Letter 2007-01: Inaccessible or Underground Power Cable Failures that Disable Accident Mitigation Systems or Cause Plant Transients at 4 (Feb. 7, 2007)).

[150] Id. at 12.

[151] Id. at 20 (emphasis in original).

Friends/NEC Contention 1 meets the requirements of 10 C.F.R. § 2.309(f)(1)(i) through (iv) by providing a specific statement of the contention and by challenging the adequacy of the proposed AMP in the Application to manage aging effects for Non-EQ Inaccessible Cables. Friends/NEC provide references to the appropriate sections of the Application[152] and supporting documents including the Blanch declaration, thereby demonstrating that Friends/NEC have raised a genuine dispute concerning a material issue in accordance with 10 C.F.R. § 2.309(f)(1)(v) and (vi).

Both NextEra and NRC Staff assert that this contention should not be admitted. NextEra contends that "[p]etitioners fail to provide sufficient factual assertions or expert opinion to demonstrate a genuine, material dispute in these aspects of Contention 1"[153] as required by 10 C.F.R. § 2.309(f)(1)(v) and (vi). NextEra challenges the adequacy of the support provided by petitioners' expert, stating that "Mr. Blanch does not even claim to have read the Seabrook LRA [license renewal application]."[154] NextEra further conjectures that this is the reason that Mr. Blanch claims to have not found a Time Limited Aging Analysis or AMP for electrical cables.[155]

The Board disagrees. Petitioners' references to various technical documents as well as the declaration from Mr. Blanch adequately support admission of this contention. Ultimately, of course, petitioners might not prevail on their factual allegations. Petitioners nonetheless raise a genuine dispute with the Application by effectively challenging the adequacy of the AMP to manage the aging effects on the cable insulation related to either submersion or exposure to a

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[152] See, e.g., Friends/NEC Petition at 13-14 (quoting NextEra Energy Seabrook, LLC, et al., License Renewal Application, Seabrook Station Unit 1 at B-180 through B-182 [hereinafter Application]).

[153] NextEra Answer to Friends/NEC Petition at 28.

[154] Id. at 26.

[155] Id. at 27.

moist environment. Petitioners have also challenged the lack of an adequate testing program to detect the potential failure of the cables before they are required to perform their intended function.

The Board recognizes that Friends/NEC Contention 1 challenges an AMP that allegedly is consistent with the GALL Report.[156] The GALL Report, developed at the Commission's direction, identifies generic AMPs acceptable to the NRC Staff and documents the technical bases for determining the adequacy of these AMPs to effectively manage the effects of aging during the period of extended plant operation.[157]

As the Commission has explained, "a commitment to implement an AMP that the NRC finds is consistent with the GALL Report constitutes one acceptable method" for demonstrating that the effects of aging will be adequately managed.[158] As NextEra acknowledges, "[r]eferencing a program described in the GALL Report does not insulate a program from an adequately supported challenge at a hearing."[159] Just as the NRC Staff does not accept a representation of consistency from an applicant without its own, independent confirmation of the facts,[160] petitioners are not foreclosed from asserting a contention that, at a minimum, likewise requires such confirmation. If adequately supported, such a contention raises a valid question of fact.

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[156] Application at B-180, B-182.

[157] Division of Regulatory Improvement Programs, Generic Aging Lessons Learned (GALL) Report, NUREG-1801, Rev. 1, at iii, 1 (Sept. 2005) [hereinafter GALL Report].

[158] Entergy Nuclear Vermont Yankee, L.L.C. (Vermont Yankee Nuclear Power Station), CLI-10-17, 72 NRC __, __ (slip op. at 44) (July 8, 2010) (emphasis added).

[159] NextEra Answer to Friends/NEC Petition at 18 n.5 (citing Vermont Yankee, CLI-10-17, 72 NRC at __ (slip op. at 47)).

[160] Tr. at 74.

The Board further recognizes that petitioners support Friends/NEC Contention 1 with factual assertions that to some extent have been mooted by NextEra's October 29, 2010 supplement to the Application. For example, petitioners challenged the original AMP because it defined significant voltage exposure as "'being subjected to system voltage for more than twenty-five percent of the time,'"[161] but, by eliminating this twenty-five percent threshold, NextEra's new program applies to cables exposed to significant moisture regardless of the frequency of energization.[162] Similarly, petitioners challenged whether manhole inspections with a maximum frequency of every two years would be sufficient to manage aging effects on cable insulation,[163] but NextEra's revised AMP has reduced the frequency to at least one per year and adds event-driven inspections.[164]

The Board admits contentions, however, and not their supporting bases.[165] Although NextEra's October 29, 2010 supplement might moot "many" of petitioners' claims,[166] their remaining allegations still supply the required "minimal" support for Friends/NEC Contention 1, as limited by the Board.

We admit Friends/NEC Contention 1 insofar as it challenges the adequacy of the Seabrook AMP for Non-EQ Inaccessible Cables to manage the age-related degradation of the cable insulation due to exposure to a wet or moist environment. Insofar as the contention

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[161] Friends/NEC Petition at 14. (quoting Application at B-180 through B-181).

[162] NextEra Answer to Friends/NEC Petition, Attach. 1, Supplement to the NextEra Energy Seabrook, LLC Seabrook Station License Renewal Application, Encl. 2 at 6 (Oct. 29, 2010) [hereinafter Application Supplement].

[163] Friends/NEC Petition at 15.

[164] Application Supplement, Encl. 2 at 6.

[165] Duke Energy Carolinas, LLC (William States Lee III Nuclear Station, Units 1 and 2), LBP-08-17, 68 NRC 431, 447 (2008).

[166] NRC Staff Answer at 19.

alleges that cables are currently being operated in violation of NRC regulations or that Seabrook is otherwise not in compliance with its current licensing basis (CLB), however, we agree with the Applicant[167] that such claims are beyond the scope of this license renewal proceeding.[168]

4. Friends/NEC Contention 2

Friends/NEC Contention 2 states:

> The LRA for Seabrook violates 10 C.F.R. §§ 54.21(a) and 54.29 because it fails to include an aging management plan for each electrical transformer whose proper function is important for plant safety.[169]

The contention hinges on whether transformers are active or passive components. The Applicant and the NRC Staff do not dispute that the Application contains no AMP for electrical transformers whose function is important to safety. They say no such plan is necessary because transformers are active components that are not subject to aging management review.[170] Friends/NEC say that transformers are passive components that are subject to aging management review.[171]

The dispositive question is whether petitioners have adequately raised an issue as to whether transformers constitute active or passive components. Like the Board in the Indian

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[167] NextEra Answer to Friends/NEC Petition at 39-40.

[168] See 10 C.F.R. § 54.30(b) ("The licensee's compliance with the obligation . . . to take measures under its current license is not within the scope of the license renewal review.").

[169] Friends/NEC Petition at 20 (capitalization omitted).

[170] NextEra Answer to Friends/NEC Petition at 43-47; NRC Staff Answer at 26-30.

[171] Friends/NEC Petition at 22 (asserting transformers "are passive devices in that they contain no moving parts and do not undergo a change of properties or state").

Point proceeding — where a nearly verbatim contention was admitted[172] and survived a motion for summary disposition[173] — we conclude that they have.

Structures and components that are subject to aging management review include those that perform certain safety-related functions "without moving parts or without a change in configuration or properties."[174] In contrast to such "passive" components, "active" components are not subject to an aging management review because, as the Commission stated in Entergy Nuclear Generation Co. (Pilgrim Nuclear Power Station) (Pilgrim II), "[e]xisting regulatory programs, including required maintenance programs, can be expected to 'directly detect the effects of aging' on active functions."[175]

In support of the proposition that transformers are passive components, both the petition and the declaration of Mr. Blanch (a professional engineer with substantial experience in the nuclear industry[176]) assert that transformers function without moving parts and without a change in configuration or properties and that failure properly to manage aging of transformers will compromise safety.[177]

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[172] See Indian Point, LBP-08-13, 68 NRC at 89.

[173] Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3) (Ruling on Motions for Summary Disposition) (Nov. 3, 2009) at 3-8 (unpublished).

[174] 10 C.F.R. 54.21(a)(1)(i).

[175] CLI-10-14, 71 NRC __, __ (slip op. at 5) (June 17, 2010) (quoting 60 Fed. Reg. 22,461, 22,472 (May 8, 1995)).

[176] See Declaration of Paul Blanch ¶¶ 3-12 (Oct. 18, 2010) [hereinafter Blanch Decl.].

[177] See Friends/NEC Petition at 22; Blanch Decl. ¶¶ 28, 35.

Citing a contrary view found in non-binding Staff guidance,[178] the Applicant and the NRC Staff say that Friends/NEC are simply wrong.[179] During oral argument, however, the Applicant agreed that the Commission has never directly spoken to the issue.[180] Thus, like the Indian Point Board,[181] we conclude that whether transformers are active or passive components remains an unresolved issue. In the absence of a definitive designation for transformers, this contention requires fact-based determinations best left to further adjudicatory proceedings.

The Applicant and the NRC Staff seize upon obvious typographical errors in the petition and in the Blanch declaration, arguing that such errors are fatal to admissibility of the contention.[182] For reasons previously explained, we decline to accept petitioners' belated submission of a corrected version of the Blanch declaration. We need not see a corrected version, however, to accept petitioners' representation at oral argument[183] — or to infer on our own initiative — that neither the petitioners nor Mr. Blanch intended to reference transformers as "active" components when the fundamental thrust of Mr. Blanch's declaration and of the contention itself are just the opposite. Nor do we believe — in light of the common use of word

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[178] Letter from Christopher I. Grimes, NRC License Renewal Project Directorate, to Douglas J. Walters, Nuclear Energy Institute, "Determination of Aging Management Review for Electrical Components" (Sept. 19, 1997) at 2, in Nuclear Energy Institute, NEI 95-10, "Industry Guideline for Implementing the Requirements of 10 C.F.R. Part 54 – The License Renewal Rule," Rev. 3 (Mar. 2001) Appendix C, "References" at C-8 through C-14 (ADAMS Accession No. ML01110576) (NEI Guidelines).

[179] NextEra Answer to Friends/NEC Petition at 44-46; NRC Staff Answer at 27-30.

[180] Tr. at 104.

[181] Indian Point, LBP-08-13, 68 NRC at 89.

[182] E.g., NextEra Answer to Friends/NEC Petition at 46 ("[B]oth Petitioners and Mr. Blanch contradict their own positions by admitting that 'transformers are active devices. . . .'" (citations omitted)); NRC Staff Answer at 30-31 (noting that, after both the petition and the Blanch declaration assert transformers are passive devices, "[t]he very next sentences of both . . . acknowledge that transformers are 'active devices'" (citations omitted)).

[183] Tr. at 106-08.

processors — that Mr. Blanch's earlier inadvertent reference to the Indian Point proceeding[184] (in which he also submitted a declaration) means that he did not actually consider the Seabrook Application. The relevant portion of the declaration expressly references Seabrook.[185] In any event, the Applicant and the Staff do not dispute Mr. Blanch's claim that the Seabrook Application fails to include an aging management review for safety-related transformers, but dispute only whether such a review is required.

We admit Friends/NEC Contention 2.

5. Friends/NEC Contention 3

Friends/NEC Contention 3 states:

> The aging management plan contained in the license renewal application violates 10 C.F.R. §§ 54.21 and 54.29(a) because it does not provide adequate inspection and monitoring for corrosion, structural failure, degradation, or leaks in all buried systems, structures, and components [SSCs] that may convey or contain radioactively-contaminated water or other fluids and/or may be important for plant safety.[186]

Friends/NEC allege that NextEra's AMP for buried SSCs violates 10 C.F.R. §§ 54.21 and 54.29(a) because:

> (1) it does not provide for adequate inspection of all [SSCs] that may contain or convey water, radioactively-contaminated water, and/or other fluids; (2) there is no adequate leak prevention or detection programs designed to replace such [SSCs] before leaks occur; . . . (3) there is no adequate monitoring to determine if and when leakage from these [SSCs] occurs[,] [and] (4) [t]here is no identification within the LRA of the specific piping systems and tanks covered by this AMP.[187]

Despite briefly positing that "leaks and corrosion threaten the integrity of such systems and compromise their ability to achieve their intended function,"[188] the contention focuses on

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[184] Blanch Decl. at ¶ 13.

[185] Id. ¶ 1 (stating Friends/NEC retained Mr. Blanch "to provide expert services in connection with . . . an application to add 20 years to the operating license of Seabrook Station").

[186] Friends/NEC Petition at 22-23 (capitalization omitted).

[187] Id. at 23.

[188] Id. at 24.

controlling the unintentional release of radionuclides into the environment. The heart of Friends/NEC Contention 3 is that "deficiencies in the [AMP] concerning the detection of leaks or corrosion in other [SSCs] containing radioactive water could endanger the safety and welfare of the public."[189] More specifically, Friends/NEC Contention 3 contends that "leaks of underground pipes and tanks can result in the release of significant amounts of radioactive materials into the groundwater or the atmosphere[] [and] [e]xposure to this radiation can threaten human health."[190]

Friends/NEC Contention 3 is inadmissible because radioactive leaks are outside the scope of the proceeding and petitioners do not provide any alleged facts or expert opinion indicating that significant deterioration in buried structures at Seabrook could impair their only function that is appropriately before us in this license renewal proceeding: i.e., to maintain pressure and to provide flow.

Friends/NEC focus their arguments on the risk of leaks, stating that NextEra's application "fails to include a comprehensive program of leak detection and prevention" and that "a laissez-faire inspection program will be ineffective at prevention or early detection of leaks from pipes that carry radioactive water or are otherwise important for plant safety."[191] Friends/NEC assume that the control of leaks is the intended function of buried SSCs, but such is not the case. In Pilgrim II, the Commission pointed out that 10 C.F.R. § 54.21(a)(3) requires an applicant to demonstrate the effects of aging will be managed "so that the intended function(s) will be maintained consistent with the CLB" and that the intended functions are

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[189] Id.

[190] Id.

[191] Id. at 24-25.

described in § 54.4(a)(1)-(3).[192] The Commission clarified that the key functions of buried SSCs that are the focus of the license renewal safety review under Part 54 do not include the prevention of inadvertent radioactive leaks from buried structures that Friends/NEC contend are the driving reason for requiring this AMP at Seabrook.[193]

Detection, monitoring, and maintenance of leakage from these structures are part of the NRC's ongoing regulatory process to assure compliance with public dose limits.[194] Conversely, buried pipelines, channels, and tanks that fall under aging management provide safety-related functions by maintaining adequate flow and pressure. Because the issue raised by Friends/NEC Contention 3 (i.e., the inadvertent release of radioactivity) does not specifically relate to the ability of buried structures to perform their intended functions as defined by 10 C.F.R. § 54.4(a)(1)-(3), the contention is not within the scope of this license renewal proceeding, as required by § 2.309(f)(1)(iii).

Further, Friends/NEC fail to support their claim that there is not reasonable assurance that NextEra will manage the effects of aging on the intended function of buried SSCs.[195] In Pilgrim II, the Commission summarized an evaluation of site-specific conditions and reviewed the applicant's monitoring/inspection program in assessing whether it was likely that the integrity of any buried SSCs had deteriorated sufficiently to prevent it from serving its intended

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[192] CLI-10-14, 71 NRC at __ (slip op. at 16) (quoting 10 C.F.R. § 54.21(a)(3)) (emphasis in original).

[193] Id. (slip op. at 15).

[194] Id. ("Through the regulatory process, which includes plant inspections, notice and guidance to licensees, and enforcement actions, the NRC takes a host of measures to improve the ability to timely detect and correct inadvertent leaks to assure compliance with public dose limits.").

[195] See 10 C.F.R. § 54.29 (requiring, for license renewal, that there be "reasonable assurance" that the applicant will manage the effects of aging on certain structures and components during extended operation).

function.[196] Friends/NEC's support for this contention is a verbatim repetition of general and conclusory statements from the Blanch declaration.[197] Neither Friends/NEC Contention 3 nor the Blanch declaration directly asserts that the intended function of any buried structures at Seabrook might fail. Instead they rely on reports of released radioactivity from other plants in the country to infer similar problems at the New Hampshire facility.[198] The existence of leaking pipes and tanks at other plants falls well short of providing support for alleging that the buried structures at Seabrook might not perform their intended function. By failing to provide any support that the integrity of leaking structures at Seabrook has the potential to prevent them from maintaining pressure, providing flow, or both, Friends/NEC do not present the requisite factual bases required by 10 C.F.R. § 2.309(f)(1)(v).

Friends/NEC's Contention 3 presents an issue that is not within the scope of the proceeding, as required by 10 C.F.R. § 2.309(f)(1)(iii), and is not supported by adequate factual allegations, as required by 10 C.F.R. § 2.309(f)(1)(v). For these reasons, we do not admit it.

6. Friends/NEC Contention 4

Friends/NEC Contention 4 states:

> The Environmental Report is inadequate because it underestimates the true cost of a severe accident at Seabrook Station in violation of 10 C.F.R. 51.53(c)(3)(ii)(L) and further analysis by the Applicant is called for.[199]

The contention contains six subparts. Because the Applicant and the NRC Staff challenge the materiality of each subpart, we first consider the general concept of materiality in connection with contentions that challenge the adequacy of the discussion of severe accident

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[196] CLI-10-14, 71 NRC at __ (slip op. at 22-23).

[197] Compare Friends/NEC Petition at 23-26 with Blanch Decl. ¶¶ 41-53.

[198] See Friends/NEC Petition at 26-30; Blanch Decl. ¶¶ 41-53.

[199] Friends/NEC Petition at 33-34 (capitalization omitted).

mitigation alternatives in a renewal applicant's environmental report. We then separately address the admissibility of each subpart.

a. Materiality

As the Applicant and the NRC Staff emphasize,[200] a SAMA analysis is mandated by NEPA considerations and thus subject to a rule of reason.[201] In discussing a SAMA contention in another proceeding, the Commission stated that it has "long stressed that NRC adjudicatory hearings are not EIS [environmental impact statement] editing sessions."[202] Specifically, the ultimate issue "is whether any additional SAMA should have been identified as potentially cost-beneficial, not whether further analysis may refine the details in the SAMA NEPA analysis."[203] Thus, as the Commission stated in Pilgrim I, "[u]nless it looks genuinely plausible that inclusion of an additional factor or use of other assumptions or models may change the cost-benefit conclusions for the SAMA candidates evaluated, no purpose would be served to further refine the SAMA analysis, whose goal is only to determine what safety enhancements are cost-effective to implement."[204] In order to demonstrate that their concerns raise a material dispute with an application, therefore, petitioners must provide sufficient information to show that, if their proposed refinements were incorporated, it is "genuinely plausible" that cost-benefit conclusions might change.

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[200] NextEra Answer to Friends/NEC Petition at 65; NRC Staff Answer at 56.

[201] See Duke Energy Corp. (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-17, 56 NRC 1, 12 (2002) (applying "rule of reason governing NEPA" to SAMA analysis).

[202] Entergy Nuclear Generation Co. (Pilgrim Nuclear Power Station), CLI-09-11, 69 NRC 529, 533 (2009) (citation and internal quotation marks omitted).

[203] Id.

[204] CLI-10-11, 71 NRC at __ (slip. op. at 39).

That said, the Commission's clarification in Pilgrim I did not revise the rules for admitting contentions. Indeed, in Pilgrim I, the Licensing Board had admitted a SAMA contention,[205] which it subsequently dismissed on summary disposition,[206] and the Commission reversed the Board for granting summary disposition.[207] Especially at the contention admissibility stage, appropriate latitude must be given petitioners in the methods by which they may show "genuine plausibility." Petitions need not — as both the Applicant and the NRC Staff acknowledged at oral argument[208] — rerun the Applicant's own cost-benefit calculations.

b. Friends/NEC Contention 4A

Friends/NEC Contention 4A states:

> NextEra's use of probabilistic modeling underestimated the true consequences of a severe accident.[209]

Friends/NEC Contention 4A consists of two distinct challenges. First, Friends/NEC allege that NextEra's use of probabilistic modeling underestimates the consequences of a severe accident and that, "[b]y multiplying high consequence values with low probability numbers, the consequences figures appear far less startling."[210] Second, Friends/NEC allege that "NextEra failed to model intentional acts in its analysis of external events."[211] Friends/NEC Contention 4A is inadmissible as outside the scope of this proceeding.

Friends/NEC's first challenge — to the use of probability-weighted consequences — is contrary to the Commission's statement that "[w]hether a SAMA may be worthwhile to

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[205] LBP-06-23, 64 NRC 257, 341 (2006).

[206] LBP-07-13, 66 NRC 131, 137 (2007).

[207] CLI-10-11, 71 NRC at __ (slip op. at 26).

[208] Tr. at 138-42.

[209] Friends/NEC Petition at 37 (capitalization omitted).

[210] Id. at 39.

[211] Id. at 40-41.

implement is based upon a cost-benefit analysis — a weighing of the cost to implement . . . with the reduction in risks to public health, occupational health, and offsite and onsite property."[212] Consistent with the regulations for severe accidents,[213] the Commission has previously noted that the very essence of severe accident mitigation analysis is to assess "to what extent the probability-weighted consequences of the analyzed severe accident sequences would decrease if a specific SAMA were implemented."[214] Allegations against the fundamental procedure for analyzing severe accidents and resulting mitigation alternatives are outside the scope of the proceeding.

Furthermore, including probability-weighted consequences into SAMA analyses does not reduce the consequences so low as to "reject all possible mitigation as too costly"[215] — as evidenced by the results presented by the applicants in several recent cases.[216] Conversely, ignoring risk (i.e., the probability-weighted accidents) in favor of deterministic consequences that do not consider the frequency of occurrence might just as likely distort the analysis by making all mitigation appear so highly cost-effective as to be of little use in discriminating between alternatives in this NEPA decision-making process.

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[212] McGuire/Catawba, CLI-02-17, 56 NRC at 7-8 (emphasis added). "[A]s a logical proposition, . . . risk equals the likelihood of an occurrence times the severity of the consequences . . . ." Limerick Ecology Action, Inc. v. U.S. Nuclear Regulatory Com'n, 869 F.2d 719, 738 (3d Cir. 1989) (citing Baltimore Gas & Elec. Co. v. Natural Resources Defense Council, Inc., 462 U.S. 87, 104-05 (1983)).

[213] 10 C.F.R. Part 51, Subpart A, Appendix B, Table B-1.

[214] Pilgrim I, CLI-10-11, 71 NRC at __ (slip op. at 3) (emphasis added).

[215] Friends/NEC Petition at 39.

[216] Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3), LBP-10-13, 71 NRC __, __ (slip op. at 6-7) (June 30, 2010); Applicant's Environmental Report – Operating License Renewal Stage – Pilgrim Nuclear Power Station at 4-48 to 4-51 (ADAMS Accession No. ML060830611).

As the NRC Staff points out,[217] the use of probability-weighted consequences is consistent with the long standing NEPA "rule of reason" that requires reasonable consideration of alternative mitigation measures, but does not require that any specific plan be implemented. Rather, a SAMA analysis need only assure that the environmental consequences of the project have been fairly evaluated.[218]

Friends/NEC's second challenge — to the failure of NextEra to consider intentional acts such as terrorist attacks as part of the external events analysis — is likewise outside the scope of this proceeding. In the recent Pilgrim II decision, the Commission stated that "NEPA 'imposes no legal duty on the NRC to consider intentional malevolent acts . . . in conjunction with commercial power reactor license renewal applications.'"[219] The Commission also noted that the NRC had analyzed terrorist acts in connection with license renewal and concluded "that the core damage and radiological release from such acts would be no worse than the damage and release expected from internally initiated events."[220]

We do not admit Friends/NEC Contention 4A.

c. Friends/NEC Contention 4B

Friends/NEC Contention 4B states:

> The SAMA analysis for Seabrook minimizes the potential amount of radioactive release in a severe accident.[221]

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[217] NRC Staff Answer at 56-57.

[218] Duke Energy Corp. (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-03-17, 58 NRC 419, 431 (2003) (quoting Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 352 (1989)).

[219] CLI-10-14, 71 NRC at __ (slip op. at 37) (quoting AmerGen Energy Co., LLC (Oyster Creek Nuclear Generating Station), CLI-07-8, 65 NRC 124, 129 (2007)).

[220] Id. (citing Oyster Creek, CLI-07-8, 65 NRC at 131).

[221] Friends/NEC Petition at 41 (capitalization omitted).

Friends/NEC allege that NextEra's SAMA analysis minimizes the potential amount of radioactive release during a severe accident by not considering such events in the spent fuel pool (SFP) and by using source terms for the fission product releases that "are smaller for key radionuclides than the release fractions specified in NRC guidance . . . and its recent reevaluation for high-burnup fuel."[222]

First, Friends/NEC contend that, because severe accidents at spent fuel pools are reasonably foreseeable, NextEra must consider these severe accidents, whether resulting from human error, mechanical failure, or an act of malice.[223] The petitioners imply that the Applicant must also consider the potential interactions between the pool and the reactor in the context of these accidents.[224] Friends/NEC contend that the definition of "severe accidents" includes SFP accidents, noting that "[n]othing in Section 5 [of the GEIS] excludes severe accidents involving . . . the spent fuel pool."[225]

Second, Friends/NEC contend that "[t]he source terms used by NextEra to estimate the consequences of severe accidents . . . has not been validated by NRC" and that these release fractions are consistently smaller for key radionuclides than those specified in NUREG-1465.[226] The petitioners allege that, because the Applicant used small values, the SAMA analysis resulted in lower consequences than would be obtained from using the source terms presented in the guidance documents.[227]

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[222] Friends/NEC Petition at 41.

[223] Id.

[224] See id. at 42 ("NextEra did not consider the potential interactions between the pool and the reactor in the context of severe accidents at Seabrook.").

[225] Id. at 44.

[226] Id. (referring to L. Soffer et al., Accident Source Terms for Light-Water Nuclear Power Plants, NUREG-1465 (Feb. 1995) (ADAMS Accession No. ML041040063).

[227] Id.

Friends/NEC's Contention 4B is inadmissible as to allegations associated with spent fuel pool accidents, which are outside the scope of this proceeding and a direct challenge to NRC regulations. This contention is admissible to the limited extent that it relates to the selection of the source term release fractions.

i. SAMA Analysis of the Risks from Spent Fuel Pools (SFP)

Friends/NEC's assertion that severe accidents from SFP must be considered in NextEra's SAMA analysis is in direct conflict with NRC regulations. While a consideration of alternatives to mitigate severe accidents must be provided if not previously performed,[228] NRC regulations only require an applicant to provide this analysis "for those issues identified as Category 2 issues in appendix B to subpart A" of Part 51.[229] Spent fuel pool storage is a Category 1 issue,[230] and thereby exempt from this analysis.

The Commission has confirmed this interpretation of its regulations in several cases. In Turkey Point, it held that license-renewal boards cannot admit environmental challenges regarding spent fuel pool issues: "Part 51's license renewal provisions cover environmental issues relating to onsite spent fuel storage generically" and "[a]ll such issues, including accident risk, fall outside the scope of license renewal proceedings."[231] More recently, the Commission stated in Pilgrim I that "SAMAs do not encompass spent fuel pool accidents."[232] Clearly, SFP SAMA analysis is not required by regulation, and a contention alleging such a requirement is not admissible in a license renewal proceeding.

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[228] 10 C.F.R. § 51.53(c)(3)(ii)(L).

[229] Id. § 51.53(c)(3)(ii).

[230] 10 C.F.R. Part 51, Subpart A, Appendix B, Table B-1 ("On-site spent fuel").

[231] CLI-01-17, 54 NRC at 23.

[232] CLI-10-11, 71 NRC at __ (slip op. at 24).

Friends/NEC raise the issue of the impacts of potential interaction between the pool and the reactor on severe accidents at Seabrook, citing a report by Dr. Gordon Thompson that was prepared for site-specific conditions at Vermont Yankee and Pilgrim.[233] However, the Commission clearly stated in Turkey Point that Part 51's reference to SAMA deals only with "nuclear reactor accidents, not spent fuel storage accidents,"[234] and that "Part 51 treats all spent fuel pool accidents, whatever their cause, as generic, Category 1 events not suitable for case-by-case adjudication."[235] Consistent with the rejection of the Thompson arguments by the Vermont Yankee[236] and Pilgrim[237] Boards, we conclude that any consideration of SFP in a SAMA analysis is preempted by regulation.

Finally, Friends/NEC argue that Section 6 of the GEIS (which discusses the Category 1 finding for onsite spent fuel storage) applies only to normal operations and that Section 5 of the GEIS (discussing severe accidents) is silent on the exclusion of SFP from severe accident analysis.[238] The Commission recently rejected this very argument in Pilgrim II, however, where it clarified that "[c]hapter six clearly is not limited to discussing only 'normal operations,' but also discusses potential accidents and other non-routine events," and that "[t]he Category 1 finding

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[233] Friends/NEC Petition at 42 (citing Gordon R. Thompson, Institute for Resource and Security Studies, Risks and Risk-Reducing Options Associated with Pool Storage of Spent Nuclear Fuel at Pilgrim and Vermont Yankee Nuclear Power Plants at 12, 16 (2006) (ADAMS Accession No. ML061630088)).

[234] CLI-01-17, 54 NRC at 21 (emphasis in original).

[235] Id. at 22 (citation omitted).

[236] Entergy Nuclear Vermont Yankee, LLC (Vermont Yankee Nuclear Power Station), LBP-06-20, 64 NRC 131, 152-155 (2006) (ruling that contention regarding severe spent fuel pool accidents is not admissible in license renewal proceeding because it is a Category 1 issue), rev'd on other grounds, CLI-07-16, 65 NRC 371, 375 (2007).

[237] LBP-06-23, 64 NRC at 288 ("[T]hese arguments fail because of Commission precedent interpreting the term, 'severe accidents,' to encompass only reactor accidents and not spent fuel pool accidents . . . .").

[238] Friends/NEC Petition at 42-44 (citing GEIS §§ 5.2.1, 6.1).

for onsite spent fuel storage (and chapter six of the GEIS upon which the finding is based) is not limited to routine or 'normal operations.'"[239]

ii. Source Terms Used in NextEra SAMA Analysis

Friends/NEC allege that the source terms used by NextEra in its SAMA analysis, as generated by the Modular Accident Analysis Progression code (MAAP code), "appears to lead to anomalously low consequences when compared to source terms generated by NRC Staff," and that "NRC has been aware of this discrepancy for at least two decades."[240] Friends/NEC posit that the source terms NextEra used are consistently smaller for key radionuclides than the release fractions specified in NUREG-1465.[241]

NextEra argues that the petitioners provide "no fact or expert opinion in support of this contention, as required by 10 C.F.R. § 2.309(f)(1)(v), only their own unsupported speculation."[242] NextEra asserts that, "[w]ithout expert opinion or a similar plant-specific SAMA analysis, Petitioners cannot show that their claims, as applied to Seabrook, are based upon anything other than their own uninformed speculation."[243] The NRC Staff concludes otherwise, stating that "F[riends]/NEC ha[ve] provided some support for the argument that MAAP may lead to lower consequences when compared to source terms generated by NRC Staff."[244]

Friends/NEC support the source term basis of Contention 4B by citing a published draft of NUREG-1150 in which the NRC observed, in the context of the Zion Nuclear Power Plant,

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[239] CLI-10-14, 71 NRC at __ (slip op. at 34).

[240] Friends/NEC Petition at 45 (citing Office of Nuclear Regulatory Research, Draft for Comment, Reactor Risk Reference Document, NUREG-1150, Vol. 1, at 5-14 (Feb. 1987) (ADAMS Accession No. ML063540601) [hereinafter Draft for Comment, NUREG-1150, Vol. 1]).

[241] Id. at 44 (citing ER at F-32, F-45 to F-48).

[242] NextEra Answer to Friends/NEC Petition at 75.

[243] Id. at 76.

[244] NRC Staff Answer at 62.

that "comparisons made between the Source Term Code Package results and MAAP results indicate that the MAAP estimates for environmental release fractions were significantly smaller."[245] Friends/NEC also cite a Brookhaven National Laboratory study that determined that dose results reported by the applicant for license renewal at the Catawba and McGuire Plants were less by a factor of 3 to 4 than those calculated consistent with NUREG-1150.[246] The NRC Staff recognizes that these studies indicate that applicants' use of source terms generated by the MAAP code at these plants resulted in "lower consequences when compared to the source terms in NUREG-1465."[247] The alleged facts Friends/NEC proffer here meet the requirements of 10 C.F.R. 2.309(f)(1)(v).[248]

The NRC Staff nevertheless opposes admission, arguing that Friends/NEC "ha[ve] not demonstrated that the use of MAAP is unreasonable or inappropriate in this case" and disputing the relevance of NUREG-1465 on technical grounds.[249] Both NextEra and the NRC Staff point out that the same arguments Friends/NEC present here were rejected by the Indian Point licensing board for a variety of technical reasons.[250] Again, the Applicant and the NRC Staff

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[245] Friends/NEC Petition at 45 (quoting Draft for Comment, NUREG-1150, Vol. 1, at 5-14) (capitalization altered by Friends/NEC Petition).

[246] Id. at 44-45 (citing John R. Lehner, et al., Brookhaven National Laboratory, Benefit Cost Analysis of Enhancing Combustible Gas Control Availability at Ice Condenser and Mark III Containment Plants at 17 (Dec. 2002) (ADAMS ML031700011)).

[247] NRC Staff Answer at 62-63.

[248] NextEra points out that many of Friends/NEC's arguments were copied from an expert report prepared for site specific conditions in a license renewal proceeding at another plant. NextEra Answer to Friends/NEC Petition at 75-76. However, the possibility that Friends/NEC may have used another expert report as the template for this contention does not negate the support provided by NUREG-1150 and the Brookhaven study.

[249] NRC Staff Answer at 63.

[250] NextEra Answer to Friends/NEC Petition at 76-77 (discussing Indian Point, LBP-08-13, 68 NRC at 185); NRC Staff Answer at 64 (quoting Indian Point, LBP-08-13, 68 NRC at 187).

confuse the merits with the "minimal" factual showing necessary to admit a contention. Their technical responses to the petitioners' position require further exploration.

Moreover, to proffer an admissible contention, Friends/NEC need not perform their own plant-specific SAMA. As discussed above, petitioners do not have to re-run the entire SAMA analysis to show that there might be a material difference in the outcome when using the suggested changes in the source terms advocated by Friends/NEC. The alleged fact that the source terms provided by MAAP are lower than those produced by the methodology used in NRC studies (resulting in consequence values that are lower by a factor of 3 and 4 according to the Brookhaven study) raises sufficient question concerning whether the calculated consequences and resulting cost-benefit analyses at Seabrook are adequate for rendering decisions on potential mitigation alternatives.

iii. Summary of Ruling on Contention 4B

We do not admit those aspects of Friends/NEC Contention 4B concerning spent fuel pools because they constitute a direct challenge to NRC regulations and are not within the scope of the proceeding as required by 10 C.F.R. § 2.309(f)(1)(iii). We admit the portion of this contention dealing with the adequacy of the source terms that are generated by the MAAP code and used by NextEra to calculate the consequences in the Applicant's SAMA analysis.

d. Friends/NEC Contention 4C

Friends/NEC Contention 4C states:

> The SAMA Analysis for Seabrook uses an outdated and inaccurate proxy to perform its SAMA analysis, the MACCS2 computer program.[251]

Contrary to 10 C.F.R. § 2.309(f)(1)(v) and (vi), with one exception petitioners do not raise any specific challenge to the Applicant's SAMA analysis in Friends/NEC Contention 4C. Rather, petitioners make general and insufficiently supported assertions concerning the

[251] Friends/NEC Petition at 46 (capitalization omitted).

MACCS2 code that the Applicant employed in conducting its analysis. Petitioners' specific claim that the model was not subjected to quality assurance requirements is deficient on its face, as a SAMA analysis is not subject to such requirements.[252]

We do not admit Friends/NEC Contention 4C. As discussed below, however, certain allegations concerning the alleged consequences of using the MACCS2 code are adequately set forth in Friends/NEC Contentions 4D and in the admissible portions of 4E.

e. Friends/NEC Contention 4D

Friends/NEC Contention 4D states:

> Use of an inappropriate air dispersion model, the straight-line Gaussian plume, and meteorological data inputs that did not accurately predict the geographic dispersion and deposition of radionuclides at Seabrook's coastal location.[253]

Friends/NEC allege that NextEra used an atmospheric dispersion model, ATMOS, that is not appropriate for determining the geographic concentration of radionuclides released in a severe accident at Seabrook.[254] Specifically, Friends/NEC argue that the use of the steady-state, straight-line Gaussian plume modeled by ATMOS is not adequate to represent Seabrook's complex coastal site, thereby underestimating "the area likely to be affected in a severe accident and the dose likely to be received in those areas."[255]

According to Friends/NEC, the Applicant's use of the ATMOS model to predict radionuclide dispersion is unacceptable because the Gaussian dispersion model assumes that a released radioactive plume travels in a steady-state straight line (analogous to a beam from a

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[252] See 10 C.F.R. Part 50, Appendix B (requiring quality assurance description in safety analysis report, but not addressing SAMA analysis).

[253] Friends/NEC Petition at 47 (capitalization omitted).

[254] Id. at 47-48.

[255] Id. at 47.

flashlight).[256] The use of the ATMOS model (which is incorporated into the MACCS2 code) to accurately predict impacts to the large population in a 50-mile radius of the plant is allegedly inappropriate given the recognized limitations of the model beyond a ten to fifteen mile radius.[257] Petitioners point out that the Environmental Protection Agency (EPA) no longer approves of the use of one-dimensional models for air dispersion analyses beyond a 32-mile radius,[258] and discuss other codes (e.g., AERMOD and CALPUFF) that do not have the modeling limitations of ATMOS.[259] Citing several meteorological research studies at coastal sites,[260] Friends/NEC assert that NextEra used inappropriate meteorological inputs that are steady in time and are spatially uniform across the study region.[261] Petitioners contend that, as a result, actual doses will be more concentrated than those modeled and will extend over a larger area due to effects of variable winds, sea breezes, plume behavior over water, and terrain.[262] Furthermore, petitioners assert, "[a]nother significant defect in Applicant's model is that its meteorological inputs . . . are based on data collected by Applicant at a single, on-site anemometer for a single year, 2005."[263]

Friends/NEC Contention 4D is admissible. To satisfy the requirement of 10 C.F.R. § 2.309(f)(1)(i) through (iv), Friends/NEC provide a specific statement of the contention and question the accuracy of the SAMA results given the geographic location and variable

[256] Id. at 48.

[257] Id. at 52.

[258] Id. at 48.

[259] Id. at 47, 51-52, 57-58.

[260] Id. at 47, 47 n.21.

[261] Id. at 48.

[262] Id. at 48-53.

[263] Id. at 53.

meteorological conditions at the site and the large population base surrounding the plant.[264] The statement of facts presented by Friends/NEC, backed by references to the Applicant's ER and supporting documents, demonstrates that the petitioners have raised a genuine dispute of a material issue in accordance with 10 C.F.R. § 2.309(f)(1)(v) and (vi).

Both NextEra and the NRC Staff assert that the contention should not be admitted.[265] They maintain that Friends/NEC have not demonstrated this contention concerns a material issue. NextEra contends that the "Petitioners have provided sufficient information to show that the sea breeze is a real phenomenon, but have provided no evidence, no allegations of fact or expert opinion, as to the effect that a sea breeze would have on the cost-benefit conclusions in NextEra's SAMA analysis."[266] NextEra argues that the documents Friends/NEC offer in support of their claim that plume behavior over water leads to radioactive hot spots does not show "that it is genuinely plausible that modif[ication] . . . would result in a change to NextEra's cost-benefit model."[267] NextEra argues that Friends/NEC have not shown materiality because they have not shown, through "expert or [other] review of NextEra's SAMA analysis," that using a different air dispersion model might change the cost-benefit conclusions in the Application.[268] The NRC Staff similarly argues that the contention is not material (even though it admits that Friends/NEC provide an adequate factual basis for their claim that the SAMA analysis is inadequate because it does not adequately account for sea breeze, behavior of plumes over water, or terrain

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[264] See id. at 47.

[265] NextEra Answer to Friends/NEC Petition at 79; NRC Staff Answer at 68.

[266] NextEra Answer to Friends/NEC Petition at 79-80.

[267] Id. at 84-85 (emphasis in original) (footnote omitted).

[268] See id. at 80.

impacts) because petitioners have "not shown that any of these asserted errors in the SAMA analysis would be likely to lead to the identification of another cost-beneficial SAMA."[269]

We disagree. Friends/NEC provide sufficient information to indicate that it is more than plausible that the use of an alternative model has the potential to change the cost-benefit conclusions for the SAMA candidates evaluated by NextEra. The petitioners are not required to redo the SAMA analyses in order to raise a material issue. To require a petitioner to perform such a re-analysis is an undue burden, especially when dealing with an admittedly very complex model like the MACCS2 code.[270] Friends/NEC sufficiently support their allegation that use of the ATMOS model might significantly distort the Seabrook SAMA analysis.

In response to the suggestion that NextEra should have considered use of alternative models like AERMOD or CALPUFF,[271] NextEra points out that the Commission has verified that NEPA allows agencies "to select their own methodology as long as that methodology is reasonable."[272] Once challenged by an adequately supported contention, however, an applicant must defend its choice.[273] The NRC Staff concedes that Friends/NEC have adequately supported their claim that "features of the Seabrook site . . . could impact the ATMOS model [in ways] that the ER has not accounted for, such as the sea breeze effect, the varied terrain at

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[269] NRC Staff Answer at 68.

[270] As NextEra aptly stated at oral argument: "The SAMA analysis is a very complicated beast." Tr. at 137.

[271] Friends/NEC Petition at 47.

[272] NextEra Answer to Friends/NEC Petition at 81 (quoting Pilgrim I, CLI-10-11, 71 NRC at __ (slip op. at 37)).

[273] See Pilgrim I, CLI-10-11, 71 NRC at __ (slip op. at 17) (stating that the Gaussian plume model's incorporation in the MACCS2 code and the wide, customary use of the code "are not a sufficient ground to exclude the code's integral dispersion model from all challenge if adequate support is provided for a contention").

Seabrook and the possibility of hot spots."[274] Friends/NEC have raised plausible limitations of air dispersion modeling at the site. It is now the Applicant's burden to defend its use of ATMOS against the evidence and testimony submitted by Friends/NEC in further adjudicatory proceedings.

NextEra claims that the "Petitioners assert that NextEra should simply replace the ATMOS module in MACCS2 with AERMOD or CALPUFF," and that the Commission has noted "'it is not possible simply to "plug in" and run a different atmospheric dispersion model in the MACCS2 code.'"[275] Friends/NEC do not suggest that the MACCS2 code should be modified but only that alternative air dispersion models without ATMOS's flaws exist.[276] There is no regulatory requirement that applicants use MACCS2 for their SAMA analyses. If it can be shown that the one-dimensional constraints of the ATMOS model are inappropriate for a site and that it is truly impossible to replace ATMOS within the MACCS2 code, then it is incumbent upon the Applicant to seek other options besides MACCS2 to perform the remaining cost-benefit analysis rather than relying on a deficient ATMOS code just because it is embedded within the familiar MACCS2 model.

The NRC Staff argues that "to the extent F[riends]/NEC ha[ve] alleged that the use of the ATMOS model is categorically inapplicable to the Seabrook site, F[riends]/NEC has not adequately supported [their] claim."[277] However, Friends/NEC support their claim that ATMOS is inappropriate for Seabrook, quoting the MACCS2 User Guide: "'The atmospheric model

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[274] NRC Staff Answer at 68.

[275] NextEra Answer to Friends/NEC Petition at 82 (quoting Entergy Nuclear Generation Co. (Pilgrim Nuclear Power Station), CLI-10-22, 72 NRC __, __ (slip op. at 9) (Aug. 27, 2010) (emphasis by NextEra omitted)).

[276] See Friends/NEC Petition at 52.

[277] NRC Staff Answer at 68.

included in the code does not model the impact of terrain effects on atmospheric dispersion.'"[278] Moreover, Friends/NEC's criticisms of the Gaussian model all apply to the ATMOS model because ATMOS is a steady-state straight line Gaussian model.

NextEra and the NRC Staff say that Friends/NEC do not provide factual or expert support for their claim that reliance on only one meteorological measurement point makes NextEra's SAMA analysis deficient.[279] It seems self-evident, however, that the use of only one data point might have some potential to affect the accuracy of the final result, which, in turn, might affect the resulting cost-benefit values calculated by the model. Whether this is true is a merits issue to be addressed in further adjudicatory proceedings.

The NRC Staff notes that the Lawrence Livermore study Friends/NEC cite in support of their arguments relating to complex terrain[280] was "specifically undertaken by the NRC to address concerns regarding the use of the Gaussian plume in the MACCS2 code."[281] The Staff asserts that, because this report also concluded that the MACCS2 code with the ATMOS model is accurate at distances up to 200 miles,[282] Friends/NEC's "evidence does not indicate that the ATMOS model is inaccurate at distances over 31 miles"[283] but that "the ATMOS model may be

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[278] Friends/NEC Petition at 51 (quoting D. Chanin & M.L. Young, Code Manual for MACCS2 User's Guide, NUREG/CR-6613, Vol. 1, at 7-10 (May 1998) (ADAMS Accession No. ML063550020)).

[279] NextEra Answer to Friends/NEC Petition at 88-89; NRC Staff Answer at 76.

[280] Friends/NEC Petition at 54 (citing C. R. Molenkamp, et al., Lawrence Livermore National Laboratory, Comparison of Average Transport and Dispersion Among a Gaussian, a Two-Dimensional and a Three-Dimensional Model, NUREG/CR-6853 (Oct. 2004) (ADAMS Accession No. ML043240034) [hereinafter NUREG/CR-6853]).

[281] NRC Staff Answer at 70 (citing NUREG/CR-6853, at xi, 41).

[282] Id. (citing NUREG/CR-6853, at 72).

[283] Id. at 70-71.

used at much greater distances for SAMA analyses."[284] In a footnote, the NRC Staff acknowledges that Friends/NEC assert that a June 2004 MACCS2 guidance report recognizes that the "code should be applied with caution at distances greater than ten to fifteen miles."[285] Similarly, NextEra responds to Friends/NEC's terrain allegation with technical arguments and admonishes the petitioners for not addressing sensitivity analyses NextEra performed.[286] Although proffering reasonable counter arguments, NextEra's and the NRC Staff's detailed discussion of the technical issues raised by Friends/NEC supports petitioners' position that they have raised genuine disputes as to material facts that are appropriately addressed in an adjudicatory hearing. The discrepancy between the positions advanced by Friends/NEC, NextEra and the NRC Staff will be addressed in further proceedings.

In summary, Friends/NEC present and support numerous material factual issues relating to the appropriateness of NextEra's use of the one-dimensional, air dispersion model ATMOS at Seabrook — an allegedly complex geographic and meteorological site. NextEra and the NRC Staff raise counter arguments, but the difference between these positions is merits-based and properly addressed in further adjudicatory proceedings.

We admit Friends/NEC Contention 4D.

f. Friends/NEC Contention 4E

Friends/NEC Contention 4E states:

> Use of inputs that minimized and inaccurately reflected the economic consequences of a severe accident, including decontamination costs, cleanup costs and health costs, and that either minimized or ignored a host of other costs.[287]

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[284] Id. at 71.

[285] Id. at 70 n.91 (citing Friends/NEC Petition at 52).

[286] NextEra Answer to Friends/NEC Petition at 87-88.

[287] Friends/NEC Petition at 61 (capitalization omitted).

Friends/NEC Contention 4E consists of three challenges related to the costs of a potential severe accident. First, Friends/NEC allege that because it "uses the outdated and inaccurate MACCS2 code to calculate decontamination and clean up costs,"[288] NextEra employs an inapplicable particle size, ignores the difficulty of cleanup in an urban area, and does not consider the effects of radiological waste disposal.[289] Further, they allege, the "cost formula used in the MACCS2 underestimates costs likely to be incurred as a result of a dispersion of radiation."[290] Second, Friends/NEC allege that "[t]he current ER assigns a value of $2000 per person[-]rem"[291] and that using this value "to estimate the cost of the health effects generated by radiation exposure is based on a deeply flawed analysis and seriously underestimates the cost of the health consequences of severe accidents."[292] Third, Friends/NEC allege that a number of other economic costs, such as job training and unemployment payments, "were underestimated or totally ignored by the applicant that when added together would in all likelihood add up collectively to a significant amount."[293]

Friends/NEC Contention 4E is admissible as to allegations associated with the decontamination and clean up costs of severe accidents associated with particle size and remediation difficulty in urban areas, but is not admissible with regard to waste disposal. This contention also is inadmissible as to the other two cost-related allegations: that is, underestimating health costs using the $2,000 per person-rem factor and excluding other economic costs such as job retraining and unemployment payments.

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[288] Id. at 62.

[289] Id. at 62-64.

[290] Id. at 62.

[291] Id. at 68.

[292] Id.

[293] Id. at 73 (emphasis omitted).

i. Decontamination and Clean Up Costs

Friends/NEC allege that the decontamination and clean up costs NextEra calculated in its SAMA analysis are underestimated by the MACCS2 code.[294] NextEra and the NRC Staff both oppose admitting this portion of Friends/NEC Contention 4E.[295]

Noting that the MACCS2 User's Guide indicates that the decontamination processes are based on the WASH-1400 economic cost model,[296] Friends/NEC cite a Sandia study that allegedly "recognized that earlier estimates (such as incorporated in WASH-1400 and up through and including MACCS2) of decontamination costs are incorrect because they examined fallout from nuclear weapons explosions that produce large particle sizes and high mass loadings."[297] Friends/NEC assert that, because reactor accident radionuclide particles are smaller than nuclear explosion particles, reactor accident releases are more difficult to decontaminate and clean up, presumably resulting in higher costs.[298]

Friends/NEC also allege that NextEra did not consider that urban areas are "more expensive and time consuming to decontaminate and clean than rural areas" and did not account for the differences in the EPA and NRC cleanup standards on the ultimate cost of the

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[294] Id. at 62.

[295] NextEra Answer to Friends/NEC Petition at 100; NRC Staff Answer at 77.

[296] Friends/NEC Petition at 62 (citing D. Chanin & M.L. Young, Code Manual for MACCS2 User's Guide, NUREG/CR-6613, Vol. 1, at 7-10 (May 1998) (ADAMS Accession No. ML063550020)).

[297] Id. at 66 (citing David I. Chanin & Walter B. Murfin, Site Restoration: Estimation of Attributable Costs from Plutonium-Dispersal Accidents (May 1996) available at http://chaninconsulting.com/downloads/sand96-0957.pdf). NextEra contends that Friends/NEC should have explained how the Sandia study, which addresses plutonium dispersal accidents, is relevant to reactor accidents. NextEra Answer to Friends/NEC Petition at 89-91. NextEra's technical objection to the relevance of supporting documents Friends/NEC proffer is a merits issue appropriately addressed at hearing.

[298] Friends/NEC Petition at 62-63.

clean up.[299] Friends/NEC provides support for these allegations by citing a study by Pacific Northwest National Laboratory that indicated a significant difference in costs depending on the population density and cleanup standard.[300] We agree with the NRC Staff's conclusion that Friends/NEC have "provided adequate support for its assertion that smaller particles will create higher cleanup costs, and that urban areas are more costly to clean up than rural areas."[301]

The NRC Staff contends, however, that Friends/NEC have not provided sufficient information to demonstrate that the cost impact of the smaller particle size or other considerations raises a material issue.[302] NextEra likewise contends that Friends/NEC "fall far short" of showing "'it looks genuinely plausible'" that including proffered information may change the outcome of the SAMA analysis.[303] We disagree. Petitioners dispute sufficiently important assumptions in the calculation of severe accident decontamination and cleanup costs to make it plausible that another SAMA candidate might be cost-effective.

Insofar as Friends/NEC contend that NextEra's SAMA analysis improperly "ignored . . . radioactive waste disposal,"[304] their claim is outside the scope of this proceeding as it directly challenges the generic determinations in Table B-1 of appendix B to Part 51 concerning uranium fuel cycle and waste management. Table B-1 codifies the Commission's determination, supported by the GEIS, that all uranium fuel cycle and waste management

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[299] Id. at 64-65.

[300] Id. at 64-65 (citing Friends/NEC Petition, Attach. C, Barbara Reichmuth, et al., Economic Consequences of a Rad/Nuc Attack: Cleanup Standards Significantly Affect Costs, at 6 tbl.1, 12 (April 2005)).

[301] NRC Staff Answer at 80.

[302] Id. at 78.

[303] NextEra Answer to Friends/NEC Petition at 91 (quoting Pilgrim I, CLI-10-11, 71 NRC at __ (slip op. at 39) (emphasis added by NextEra)).

[304] Friends/NEC Petition at 63.

issues, including low-level waste storage and disposal, mixed waste storage and disposal, on-site spent fuel storage, and transportation, are Category 1 issues with a small impact.[305] Thus, NextEra can incorporate the GEIS's analysis into its ER and not offer any additional analysis on these issues.[306]

ii. Health Costs

Friends/NEC claim that NextEra "underestimates the population-dose related costs of a severe accident by relying inappropriately on a $2000/person-rem conversion factor."[307] Friends/NEC asserts that this conversion factor is inappropriate because it "does not take into account the significant loss of life associated with early fatalities from acute radiation exposure"[308] and "underestimates the generation of stochastic health effects by failing to take into account the fact that some members of the public exposed to radiation after a severe accident will receive doses above the threshold level for application of a dose- and dose-rate reduction effectiveness factor (DDREF)."[309] Friends/NEC also claim "that the Applicant's evacuation time input data into the code were unrealistically low and unsubstantiated; and that if correct evacuation times and assumptions regarding evacuation had been used, the analysis would show far fewer will evacuate in a timely manner, increasing health-related costs."[310]

Friends/NEC do not cite any alleged facts or expert opinion indicating error in the $2000/person-rem conversion factor, in the use of a single DDREF, or in the evacuation times

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[305] 10 C.F.R. Part 51, Subpart A, Appendix B, Table B-1.

[306] See Turkey Point, CLI-01-17, 54 NRC at 11 ("[L]icense renewal applicants need not submit in their site-specific Environmental Reports an analysis of Category 1 issues.").

[307] Friends/NEC Petition at 68.

[308] Id.

[309] Id. at 68-69.

[310] Id. at 72.

or assumptions. Instead, Friends/NEC cite a study allegedly estimating the total number of cancer deaths in a severe accident at Seabrook and suggest that "[a] better way to evaluate the cost equivalent of the health consequences resulting from a severe accident is simply to sum the total number of . . . fatalities . . . and multiply by . . . $3 million,"[311] an estimate of the value of a statistical life.[312] This argument is a recasting of the petitioners' challenge to the use of probability-weighted consequences in Friends/NEC Contention 4A, which, as discussed previously, is outside the scope of this proceeding.

iii. Other Costs

Friends/NEC assert that "NextEra did not appear to include in their economic cost estimates the business value of property and the incurred costs such as costs required from job retraining, unemployment payments, and inevitable litigation."[313]

This aspect of Friends/NEC Contention 4E is not admissible because petitioners have presented no facts or expert opinion concerning such costs that show it to be plausible that including them might affect the outcome of the SAMA analysis.

In summary, we admit Friends/NEC Contention 4E only in regard to the effects of particle size and difficulties with urban cleanup on decontamination costs.

g. Friends/NEC Contention 4F

Friends/NEC Contention 4F states:

> Use of inappropriate statistical analysis of the data specifically the Applicant chose to follow NRC practice, not NRC regulation, regarding SAMA analyses by using mean consequence values instead of, for example, 95 percentile values.[314]

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[311] Id. at 71 (citing Sandia National Laboratory, Calculation of Reactor Accident Consequences, U.S. Nuclear Power Plants (CRAC-2) (1982)).

[312] Id. at 69.

[313] Id. at 73.

[314] Id. at 74 (capitalization omitted).

Friends/NEC criticize NextEra for failing to consider that using only mean values of meteorological data results in uncertainties in the calculation of population dose and offsite economic cost.[315] Friends/NEC contend that "Seabrook's SAMA cost-benefit evaluation should be based on the 95th percentile of the meteorological distribution to be consistent with the approach taken in the License Renewal GEIS, which refers repeatedly to the 95th percentile of the risk uncertainty distribution as an appropriate 'upper confidence bound' in order not to 'underestimate potential future environmental impacts.'"[316] The Commission has specifically rejected this argument, however, explaining that "license renewal applicants are not required to base their SAMA analysis upon consequence values at the 95th percentile consequence level (the level used for the GEIS severe accident environmental impacts analysis)."[317]

We do not admit Friends/NEC Contention 4F because the Commission has ruled that the claim petitioners make is not material and does not satisfy 10 C.F.R. § 2.309(f)(1)(iv).

7. Additional Claims

At the conclusion of their petition, the Friends/NEC petitioners request that, in considering their proffered contentions, the Commission "also consider the interplay between current design basis (CLB) and aging management through the period of extended operation."[318]

Friends/NEC's claims in this regard have not been proffered as contentions that purport to satisfy the requirements of 10 C.F.R. § 2.309(f)(1), and the Board will not consider them.

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[315] Id.

[316] Id. at 75-76 (quoting GEIS § 5.3.3.2.1).

[317] Pilgrim I, CLI 10-11, 71 NRC __ (slip op. at 39).

[318] Friends/NEC Petition at 77.

E. Ruling on Petitions

As set forth above, Beyond Nuclear, the Seacoast Anti-Pollution League, the New Hampshire Sierra Club, Friends of the Coast, and the New England Coalition have each proffered at least one admissible contention meeting the requirements of 10 C.F.R. § 2.309(f) and have demonstrated standing in accordance with 10 C.F.R. § 2.309(d). Therefore, in accordance with 10 C.F.R. § 2.309(a), the Board grants the requests for hearing and petitions for leave to intervene and admits the five named organizations as parties to this proceeding.

F. Hearing Procedure

Upon admission of a contention the Board must identify the specific hearing procedures to be used.[319] Section 2.310(d) of 10 C.F.R provides that, in license renewal proceedings and other reactor licensing matters, the relatively formal procedures provided in Subpart G of 10 C.F.R. Part 2 govern if a contention "necessitates resolution of issues of material fact relating to the occurrence of a past activity, where the credibility of an eyewitness may reasonably be expected to be at issue, and/or issues of motive or intent of the party or eyewitness material to the resolution of the contested matter."[320]

A petitioner requesting Subpart G based on Section 2.310(d) must demonstrate "by reference to the contention and the bases provided and the specific procedures in [S]ubpart G" that resolving the contention will require "resolution of material issues of fact which may be best determined through the use of the identified procedures."[321] Unless the Board determines that Section 2.310(d) or other relevant regulations require otherwise,[322] a license renewal

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[319] 10 C.F.R. § 2.310(a).

[320] Id. § 2.310(d).

[321] Id. § 2.309(g).

[322] See, e.g., id. § 2.310(b)-(c) (providing that unless the parties agree otherwise, enforcement matters and licensing of uranium enrichment facility construction and operation must be conducted under Subpart G).

proceeding may be conducted under the relatively informal procedures of subpart L of 10 C.F.R. Part 2.[323]

Friends/NEC and the Beyond Nuclear petitioners do not address the selection of hearing procedures in their petitions or replies. NextEra argues that Subpart L procedures should be used because the petitioners did not demonstrate that the facts at issue in this case would best be resolved through the more formal Subpart G procedures.[324] The NRC Staff does not address the issue.

In the absence of any assertion that Subpart G procedures should be used to resolve any of the admitted contentions, the Subpart L hearing procedures will be used to adjudicate each admitted contention.

III. ORDER

For the foregoing reasons:

A. Friends/NEC's request to extend the filing period for petitions is granted.

B. Friends/NEC's unopposed request to extend the filing period for replies is granted.

C. The petitions to intervene and requests for hearing of the Beyond Nuclear petitioners and Friends/NEC are granted.

D. As limited by the Board's foregoing discussion, the Beyond Nuclear Contention, Friends/NEC Contention 1, Friends/NEC Contention 2, Friends/NEC Contention 4B, Friends/NEC Contention 4D, and Friends/NEC Contention 4E are admitted.

E. Friends/NEC Contention 3, Friends/NEC Contention 4A, Friends/NEC Contention 4C, and Friends/NEC Contention 4F are not admitted.

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[323] Id. § 2.310(a).

[324] NextEra Answer to Beyond Nuclear Petition at 36; NextEra Answer to Friends/NEC Petition at 105.

F. Because the Board declines to consider the revised declaration of Paul Blanch and other materials submitted by Friends/NEC on December 6, 2010, Friends/NEC's motion for leave to reply is denied as moot.

G. The admitted contentions will be adjudicated under the procedures set forth at 10 C.F.R. Part 2, Subpart L.

In accordance with the provisions of 10 C.F.R. § 2.311, any appeal to the Commission from this Memorandum and Order must be taken within ten (10) days after it is served.

It is so ORDERED.

THE ATOMIC SAFETY
AND LICENSING BOARD

_____/RA/_____
Paul S. Ryerson, Chairman
ADMINISTRATIVE JUDGE

_____/RA/_____
Dr. Michael F. Kennedy
ADMINISTRATIVE JUDGE

_____/RA/_____
Dr. Richard E. Wardwell
ADMINISTRATIVE JUDGE

Rockville, Maryland
February 15, 2011

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
NEXTERA ENERGY SEABROOK, LLC	)	DOCKET NO. 50-443-LR
(Seabrook Station, Unit 1)	)	
	)	
(License Renewal)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing Board **MEMORANDUM AND ORDER (Ruling on Petitions for Intervention and Requests for Hearing) (LBP-11-02),** dated February 15, 2011, have been served upon the following persons by Electronic Information Exchange.

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NEXTERA ENERGY SEABROOK, LLC (Seabrook Station Unit 1) – Docket No. 50-443-LR
MEMORANDUM AND ORDER (Ruling on Petitions for Intervention and Requests for Hearing) (LBP-11-02)

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[Original signed by Linda D. Lewis]
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Dated at Rockville, Maryland
this 15th day of February 2011