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From: Quinn-Willingham, Laura
Sent: Friday, August 31, 2012 10:51 AM
To: Chapman, Elaine G; Cort, Katherine A
Subject: FW: Calvert Cliffs Board Orders
Attachments: CC Order 10C.pdf; CC Foreign Ownership.pdf; Fukushima Contention 11.pdf

FYI – All 3 ASLB orders for Calvert.

From: Wilson, Anthony
Sent: Friday, August 31, 2012 10:40 AM
To: Quinn-Willingham, Laura; Arora, Surinder
Subject: Fw: Calvert Cliffs Board Orders

Thanks,

Sent from the Blackberry of

Anthony C. Wilson, Esq.
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Confidential Attorney - Client Communication

From: Monteith, Emily
To: Gendelman, Adam; Wilson, Anthony
Sent: Thu Aug 30 14:56:15 2012
Subject: Calvert Cliffs Board Orders

PDFs attached. Enjoy!

EM

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Ronald M. Spritzer, Chairman
Dr. Gary S. Arnold
Dr. William W. Sager

In the Matter of

CALVERT CLIFFS 3 NUCLEAR PROJECT,
LLC, and UNISTAR NUCLEAR OPERATING
SERVICES, LLC

(Combined License Application for Calvert Cliffs
Unit 3)

Docket No. 52-016-COL

ASLBP No. 09-874-02-COL-BD01

August 30, 2012

PARTIAL INITIAL DECISION
(Ruling on Contention 10C)

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In this Partial Initial Decision (PID),¹ the Board rules on the merits of Contention 10C, which challenges the adequacy of the wind and solar power contribution estimates contained in the Final Environmental Impact Statement's (FEIS's) alternative based on a combination of energy sources (the combination alternative). Although Contention 10C originally challenged the Draft Environmental Impact Statement (DEIS), the Board subsequently ruled that Contention 10C would be viewed as challenging the subsequently issued FEIS.²

On January 26 and 27, 2012, the Board held an evidentiary hearing in Prince Frederick, Maryland on Contention 10C.³ After considering all of the evidence and arguments presented,

¹ There is currently before the Board one other admitted contention, Contention 1, regarding foreign ownership and control, as well as one proposed new contention, Contention 11, regarding the implications of the findings and recommendations raised by the NRC's July 2011 Fukushima Task Force Report. See Licensing Board Order (Denying Summary Disposition of Contention 10C, Denying Amended Contention 10C, and Deferring Ruling on Contention 1) (Aug. 26, 2011) (unpublished) [hereinafter Contention 10C Summary Disposition Order]; New Contention Regarding NEPA Requirement to Address Safety and Environmental Implications of the Fukushima Task Force Report (Aug. 11, 2011) at 4 [hereinafter Contention 11].

² Contention 10C Summary Disposition Order at 22-25.

³ Tr. at 305, 542.

we find that, in the FEIS, the NRC Staff (Staff) unreasonably limited the wind and solar power contributions to the combination alternative by adopting an unrealistic completion date for the proposed action and excluding all wind and solar power sources not physically located in Maryland. Nevertheless, the Board finds that the wind and solar power contribution estimates for the combination alternative, as supplemented by the evidence and testimony introduced at the evidentiary hearing and our findings of fact and conclusions of law, are adequate, and that, as so supplemented, the FEIS satisfies the requirements of the National Environmental Policy Act (NEPA) and 10 C.F.R. Part 51. Accordingly, we do not grant Joint Intervenors' request that we require a further supplement to the FEIS.

I. BACKGROUND

Applicants submitted an application to the Nuclear Regulatory Commission (NRC) in two parts on July 13, 2007 and March 14, 2008 for a COL to construct and to operate one U.S. Evolutionary Power Reactor, designated Calvert Cliffs Nuclear Power Plant Unit 3 (Calvert Cliffs Unit 3), to be located in Lusby, Calvert County, Maryland.⁴ The Calvert Cliffs site currently houses two nuclear reactors, Calvert Cliffs Units 1 and 2.

The two parts of the application were accepted for docketing by the NRC on January 25, 2008 and June 3, 2008, respectively.⁵ Following the NRC's publication of a notice of hearing and opportunity to petition for leave to intervene in this matter,⁶ Joint Intervenors⁷ filed a petition that

⁴ See Calvert Cliffs 3 Nuclear Project, LLC, and UniStar Nuclear Operating Services, LLC Notice of Hearing and Opportunity To Petition for Leave To Intervene and Order Imposing Procedures for Access to Sensitive Unclassified Non-Safeguards Information and Safeguards Information for Contention Preparation on a Combined License for the Calvert Cliffs Nuclear Power Plant Unit 3, 73 Fed. Reg. 55,876 (Sept. 26, 2008).

⁵ Id.

⁶ Id.

⁷ Joint Intervenors consist of Nuclear Information Resource Services, Beyond Nuclear, Public Citizen Energy Program and Southern Maryland Citizens' Alliance for Renewable Energy Solutions. LBP-09-04, 69 NRC at 177-81.

challenged several aspects of Applicants' COL application (COLA) on November 19, 2008.⁸

This Board was established on December 2, 2008 to adjudicate the proceeding.⁹

On March 24, 2009, the Board issued a Memorandum and Order, in which it found that the Joint Intervenors had standing, admitted them as parties, admitted their first contention as pleaded, admitted their second and seventh contentions as modified by the Board, and granted their request for a hearing.¹⁰ The Board later granted Applicants' Motions for Summary Disposition of Contentions 2 and 7.¹¹

In April 2010 the Staff issued the DEIS for Calvert Cliffs Unit 3.¹² Chapter 9 of the DEIS described alternatives to the proposed Calvert Cliffs Unit 3 and discussed the environmental impacts of those alternatives.¹³ The Staff concluded, based on its estimate of environmental impacts, that none of the viable energy alternatives was clearly preferable to construction of a new baseload nuclear power generating plant.¹⁴ As a result, the Staff issued a preliminary recommendation to the Commission that the COL for Calvert Cliffs Unit 3 be issued.¹⁵

On June 25, 2010, Joint Intervenors proffered Contention 10, which alleged various

⁸ See Petition to Intervene in Docket No. 52-016, Calvert Cliffs 3 Nuclear Power Plant Combined Construction and License Application (Nov. 19, 2008) [hereinafter Petition].

⁹ Calvert Cliffs 3 Nuclear Project, LLC, and UniStar Nuclear Operating Services, LLC; Establishment of Atomic Safety and Licensing Board, 73 Fed. Reg. 74,531 (Dec. 8, 2008).

¹⁰ See LBP-09-04, 69 NRC 170, 231-32.

¹¹ Licensing Board Memorandum and Order (Granting Motion for Summary Disposition of Contention 2) (July 30, 2009) at 2 (unpublished); Licensing Board Memorandum and Order (Ruling on Joint Intervenors' Proposed New Contentions 8 and 9 and Applicants' Motion for Summary Disposition of Contention 7) (Apr. 5, 2010) at 1 (unpublished).

¹² NUREG-1936, Environmental Impact Statement for the Combined License (COL) for Calvert Cliffs Nuclear Power Plant Unit 3, Draft Report for Comment, Vols. 1 & 2 (Apr. 2010) [hereinafter DEIS].

¹³ Id. at 9-1.

¹⁴ Id. at 9-28.

¹⁵ Id. at 10-29.

inadequacies in the Staff's DEIS for proposed Calvert Cliffs Unit 3.¹⁶ As pled, Contention 10 challenged the DEIS analyses relating to need for power, energy alternatives, and costs.¹⁷ The Board divided Contention 10 into four parts, which it designated Contentions 10A, 10B, 10C, and 10D. On December 28, 2010, the Board admitted Contention 10C but declined to admit the remaining parts.¹⁸ As admitted by the Board, Contention 10C states:

The DEIS discussion of a combination of alternatives is inadequate and faulty. By selecting a single alternative that under represents potential contributions of wind and solar power, the combination alternative depends excessively on the natural gas supplement, thus unnecessarily burdening this alternative with excessive environmental impacts.¹⁹

On May 20, 2011, the FEIS for Calvert Cliffs Unit 3 became publically available.²⁰ On June 20, 2011, Joint Intervenors filed their Submission of Amended Contention 10C and Applicants filed their Motion for Summary Disposition of Contention 10C.²¹ The Staff filed a response in support of Applicants' Motion for Summary Disposition of Contention 10C on July 11, 2011.²² On July 15, 2011, the Staff and Applicants filed their respective responses to Joint

¹⁶ Submission of Contention 10 by Joint Intervenors (June 25, 2010) [hereinafter Contention 10]. Applicants and the Staff timely filed their respective responses to Joint Intervenors' Submission of Contention 10 on July 20, 2010, and Joint Intervenors timely submitted their reply on July 27, 2010. See Applicants' Response to Proposed Contention 10 (July 20, 2010) at 1; Staff Answer to Joint Intervenors' New Contention 10 (July 20, 2010) at 27; Joint Intervenor's [sic] Reply to Staff's and Applicant's [sic] Responses to Submission of Contention 10 (July 27, 2010) at 16.

¹⁷ Contention 10 at 1.

¹⁸ Id. at 1, 23.

¹⁹ LBP-10-24, 72 NRC 720, 765 (2010).

²⁰ Calvert Cliffs 3 Nuclear Project, LLC and UniStar Nuclear Operating Services, LLC; Notice of Availability of the Final Environmental Impact Statement for the Combined License Application for Calvert Cliffs Nuclear Power Plant Unit 3, 76 Fed. Reg. 29,279 (May 20, 2011); Environmental Impact Statement for the Combined License (COL) for Calvert Cliffs Nuclear Power Plant Unit 3, Final Report, NUREG-1936 (May 2011) [hereinafter FEIS].

²¹ Submission of Amended Contention 10C by Joint Intervenors (June 20, 2011) at 1, 11 [hereinafter Submission of Amended Contention 10C]; Applicants' Motion for Summary Disposition of Contention 10C (June 20, 2011) at 1.

²² Staff's Response to Applicants' Motion for Summary Disposition (July 11, 2011).

Intervenors' Submission of Amended Contention 10C.²³ On August 26, 2011, the Board issued an order in which it denied Applicants' Motion for Summary Disposition of Contention 10C because a dispute of material fact remained, and declined to admit Joint Intervenors' Amended Contention 10C because it was unnecessary.²⁴

In accordance with the revised schedule, the parties submitted their direct written testimony on October 21, 2011.²⁵ On October 24, 2011, Joint Intervenors filed an unopposed motion requesting to withdraw their previously submitted testimony and exhibits, submit new expert testimony and exhibits, and extend all other relevant deadlines related to the evidentiary hearing by one week.²⁶ The Board granted the motion on October 25, 2011,²⁷ and Joint Intervenors filed their new expert testimony and exhibits on October 28, 2011.²⁸

²³ Staff Answer to Joint Intervenors' Amended Contention 10C (July 15, 2011); Applicants' Response to Amended Contention 10C (July 15, 2011).

²⁴ Contention 10C Summary Disposition Order. In this Order, the Board also deferred its ruling on Contention 1 until the issuance of the Partial Initial Decision on Contention 10C. Id. at 25.

²⁵ Applicants and the Staff submitted their respective initial statements of position, witness testimony, and exhibits. See UniStar Initial Statement of Position on Contention 10C (Oct. 21, 2011); Exh. APL000001 (Direct Testimony of UniStar Witnesses Dimitri Lutchenkov, Stefano Rati, and Septimus van der Linden (Oct. 21, 2011)); Staff Initial Statement of Position (Oct. 21, 2011); Exh. NRC00001 (Prefiled Direct Testimony of Laura M. (Quinn) Willingham Sponsoring NUREG-1936 into the Hearing Record (Oct. 21, 2011)); Exh. NRC000004 (Prefiled Direct Testimony of Andrew J. Kugler and Katherine A. Cort Concerning Environmental Contention 10C (Oct. 21, 2011)). Joint Intervenors did not submit an initial statement of position, but did submit testimony from their representative, Michael Mariotte, along with related exhibits. See Testimony of Michael Mariotte, Executive Director of Nuclear Information and Resource Service, on Contention 10 (Oct. 21, 2011).

²⁶ Motion to Allow Joint Intervenors to Withdraw Written Testimony of October 21, 2011 on Contention 10, to Submit Expert Testimony by October 28, 2011, and to Extend Other Relevant Deadlines by One Week (Oct. 24, 2011). Intervenors explained that they were unable to file the written testimony of their anticipated expert witness, Mr. Sklar, by October 21 due to an illness in the witness's family, but that they would be able to do so by October 28. Id.

²⁷ Licensing Board Order (Granting Unopposed Motion to Withdraw Written Testimony Filed October 21, Submit Expert Testimony by October 28, and Extend Other Relevant Deadlines by One Week; and Providing Additional Instructions to Intervenors Regarding the Re-Filing of Testimony and Exhibits) (Oct. 25, 2011) (unpublished).

²⁸ See Exh. JNTR00001 (Testimony of Scott Sklar, President of the Stella Group, Ltd., on

On November 18, 2011, the parties submitted their respective rebuttal written testimony.²⁹ On December 9, 2011, the Staff and Applicants filed proposed questions for the Board to ask at the evidentiary hearing.³⁰ In addition, on December 9, 2011, the Staff also filed a motion in limine to exclude portions of Joint Intervenors' direct testimony, rebuttal testimony, rebuttal statement of position, and exhibits.³¹ Joint Intervenors filed their response opposing the Staff's motion in limine on December 19, 2011.³² The Board granted the Motion in part and denied it in part, as explained in the Order of January 17, 2012.³³ None of the parties filed motions to permit cross-examination.

On January 26 and 27, 2012, the Board held an evidentiary hearing on Contention 10C in Prince Frederick, Maryland.³⁴ The hearing was conducted in accordance with the provisions of Subpart L to 10 C.F.R. Part 2. The parties proffered into evidence pre-filed testimony and

Contention 10 (Nov. 18, 2011)); Pre-Filed Testimony of Scott Sklar, President of the Stella Group, Ltd. On Contention 10 on Behalf of Joint Intervenors (Oct. 28, 2011).

²⁹ See Staff Rebuttal Statement of Position (Nov. 18, 2011); UniStar Rebuttal Statement of Position on Contention 10C (Nov. 18, 2011); Joint Intervenor Statement of Position (in Rebuttal) (Nov. 18, 2011); Exh. NRC000043 (Prefiled Rebuttal Testimony of Andrew J. Kugler and Katherine A. Cort Regarding Environmental Contention 10C (Nov. 18, 2011)); Exh. APL000055 (Rebuttal Testimony of UniStar Witnesses Dimitri Lutchenkov, Stefano Ratti, and Septimus Van Der Linden (Nov. 18, 2011)); Exh. JNT000030 (Rebuttal Testimony of Scott Sklar, President of the Stella Group, Ltd., on Contention 10 (Nov. 18, 2011)).

³⁰ UniStar's Questions for the Licensing Board on Pre-Filed Direct and Rebuttal Testimony for Contention 10C (Dec. 9, 2011); NRC Staff Proposed Questions (Dec. 9, 2011). These filings were submitted in camera and held in confidence by the Board, pursuant to 10 C.F.R. § 2.1207(a)(3)(iii).

³¹ Staff Motion in Limine to Exclude Portions of the Joint Intervenors' Direct and Rebuttal Testimony, Exhibits, and Portions of the Joint Intervenors' Rebuttal Statement of Position (Dec. 9, 2011) [hereinafter Motion in Limine].

³² Joint Intervenors Opposition to Staff Motion in Limine (Dec. 19, 2011) [hereinafter Opposition to Motion in Limine].

³³ Licensing Board Order (Granting in Part and Denying in Part Staff's Motion in Limine) (Jan. 17, 2012) (unpublished) [hereinafter Board in Limine Ruling].

³⁴ Tr. at 310.

exhibits,³⁵ and the Board received live testimony from multiple witnesses.³⁶ After receiving testimony, the Board afforded the parties an opportunity to suggest cross-examination or rehabilitation questions.³⁷

Following the evidentiary hearing, the Board adopted certain corrections to the hearing transcript, admitted an additional exhibit submitted by Joint Intervenors, and closed the environmental evidentiary record.³⁸ On April 20, 2012, the parties filed proposed findings of fact and conclusions of law regarding Contention 10C.³⁹

II. LEGAL STANDARDS

A. Burden and Standard of Proof

In general, an applicant in a licensing proceeding bears the burden of proving by a preponderance of the evidence that it is entitled to the applied-for license.⁴⁰ Nonetheless, for contentions based on NEPA, such as the one at issue here, the burden shifts to the Staff, because the NRC, not the applicant, bears the ultimate burden of establishing compliance with

³⁵ See id. at 317–21.

³⁶ Id. at 340, 490, 547.

³⁷ See id. at 486, 490, 533–41, 684–86.

³⁸ Licensing Board Order (Adopting Proposed Transcript Corrections, Admitting Additional Exhibit, and Closing the Evidentiary Record) (Mar. 6, 2012) (unpublished).

³⁹ Proposed Findings of Fact and Conclusions of Law Regarding Joint Intervenors Contention 10C (Apr. 20, 2012); Applicants' Proposed Findings of Fact and Conclusions of Law on Contention 10C (Apr. 20, 2012) [hereinafter Applicants' Proposed Findings of Fact]; Staff Proposed Partial Initial Decision Findings of Fact and Conclusions of Law on Contention 10C (Apr. 20, 2012) [hereinafter Staff Proposed Findings of Fact]. In addition, on April 27, 2012, the Staff filed an Errata to its Staff Proposed Partial Initial Decision Findings of Fact and Conclusions of Law on Contention 10C to correct errors in its original filing. Errata Staff Proposed Partial Initial Decision Findings of Fact and Conclusions of Law on Contention 10C (Apr. 27, 2012).

⁴⁰ See 10 C.F.R. § 2.325. Thus, for safety issues, an applicant in a licensing proceeding has the burden of establishing that it is entitled to the applied-for license by a preponderance of the evidence.

NEPA.⁴¹

As a practical matter, however, the Staff typically relies heavily on the applicant's Environmental Report (ER) in preparing its FEIS.⁴² Consequently, while environmental contentions ultimately challenge the NRC's compliance with NEPA,⁴³ an applicant is free to support positions set forth in the EIS that are under challenge.⁴⁴

B. NEPA and 10 C.F.R. Part 51

Contention 10C arises under NEPA and the NRC's corresponding implementing regulations, 10 C.F.R. Part 51.⁴⁵ "The centerpiece of environmental regulation in the United States, NEPA requires federal agencies to pause before committing resources to a project and consider the likely environmental impacts of the preferred course of action as well as reasonable alternatives."⁴⁶ The goal of NEPA is two-fold: (1) to ensure that agency decision-makers will have detailed information concerning significant environmental impacts of proposed projects when they make their decisions; and (2) to guarantee that such information will be available to the larger audience that may also play a role in the decisionmaking process.⁴⁷

To meet these goals, NEPA mandates that agencies prepare an environmental impact

⁴¹ See, e.g., Duke Power Company (Catawba Nuclear Station, Units 1 & 2), CLI-83-19, 17 NRC 1041, 1049 (1983).

⁴² See 10 C.F.R. §§ 51.41, 51.45(c).

⁴³ Catawba, CLI-83-19, 17 NRC at 1049.

⁴⁴ La. Energy Servs. L.P. (Claiborne Enrichment Center), LBP-96-25, 44 NRC 331, 338-39 (1996) (citing Pub. Serv. Comm'n of New Hampshire (Seabrook Station, Units 1 & 2), ALAB-471, 7 NRC 477, 489 n.8 (1978)), rev'd on other grounds, CLI-97-15, 46 NRC 294 (1997).

⁴⁵ 42 U.S.C. §§ 4321–4370; 10 C.F.R. Part 51.

⁴⁶ New Mexico ex rel. Richardson v. Bureau of Land Mgmt., 565 F. 3d 683, 703 (10th Cir. 2009) (citing 42 U.S.C. § 4331(b) (congressional declaration of national environmental policy); U.S. Dep't of Transp. v. Pub. Citizen, 541 U.S. 752, 756–57 (2004); Marsh v. Or. Natural Res. Council, 490 U.S. 360, 371 (1989); Forest Guardians v. U.S. Forest Serv., 495 F.3d 1162, 1172 (10th Cir. 2007)).

⁴⁷ Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989).

statement (EIS) before approving any major Federal action that will significantly affect the quality of the human environment.⁴⁸ The requirement to prepare an EIS is a procedural mechanism designed to assure that agencies properly consider the environmental consequences of their actions. Nevertheless, NEPA does not mandate substantive results.⁴⁹ Rather, NEPA imposes procedural restraints on agencies, which require them to take a “hard look” at the environmental impacts of a proposed action and the reasonable alternatives to that action.⁵⁰ This standard requires the agency to undertake a rigorous and objective analysis of the proposal’s environmental consequences and of alternatives. By requiring this detailed analysis before the agency acts on the proposal, NEPA ensures that an agency will not act upon “incomplete information, only to regret its decision after it is too late to correct.”⁵¹ Nonetheless, NEPA’s “hard look” requirement is tempered by a “rule of reason.”⁵² According to the “rule of reason,” an agency must only consider reasonably foreseeable impacts in its EIS, and need not address those that are “remote and speculative” or “inconsequentially small.”⁵³

⁴⁸ 42 U.S.C. § 4332(2)(C).

⁴⁹ Robertson, 490 U.S. at 350 (“Although [NEPA’s action forcing] procedures are almost certain to affect the agency’s substantive decision, it is now well settled that NEPA itself does not mandate particular results, but simply prescribes the necessary process.”); see also Vt. Yankee Nuclear Power v. Natural Res. Def. Council, 435 U.S. 519, 558 (1978). Thus, NEPA does not require agencies to “elevate environmental concerns over other appropriate considerations.” Strycker’s Bay Neighborhood Council, Inc. v. Karlen, 444 U.S. 223, 227 (1980).

⁵⁰ La. Energy Servs., LLP (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 87-88 (1998); see also Baltimore Gas & Elec. Co. v. NRDC, 462 U.S. 87, 97-98 (1983) (holding that NEPA requires agencies to take a “hard look” at environmental consequences prior to taking major actions).

⁵¹ LES, CLI-98-3, 47 NRC at 88 (quoting Marsh, 490 U.S. at 371).

⁵² La. Energy Servs., L.P. (National Enrichment Facility), LBP-06-8, 63 NRC 241, 258-59 (2006) (citing Long Island Lighting Co. (Shoreham Nuclear Power Station), ALAB-156, 6 AEC 831, 836 (1973)); see also Pub. Citizen, 541 U.S. at 767-69 (stating that the rule of reason is inherent in NEPA and its implementing regulations).

⁵³ See, e.g., Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), ALAB-156, 6 AEC 831, 836 (1973). According to the Council on Environmental Quality (CEQ), the “rule of reason” is “a judicial device to ensure that common sense and reason are not lost in the rubric of

Contention 10C is based upon the requirement that the EIS include “a detailed statement by the responsible official on . . . alternatives to the proposed action.”⁵⁴ When considering alternatives, agencies must:

(a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.

(b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.⁵⁵

NRC regulations state that the alternatives analysis is the “heart of the environmental impact statement.”⁵⁶ The Council on Environmental Quality (CEQ)⁵⁷ and the federal courts agree.⁵⁸ “The existence of a reasonable but unexamined alternative renders an EIS inadequate.”⁵⁹ The adequacy of the FEIS’s evaluation of alternatives is therefore a material issue in the licensing proceeding, and Contention 10C challenges that evaluation.

C. Supplementing the Environmental Record

The Commission has explained that “[b]oards frequently hold hearings on contentions

regulation.” Final Rule: National Environmental Policy Act Regulations; Incomplete or Unavailable Information, 51 Fed. Reg. 15,618, 15,621 (Apr. 25, 1986).

⁵⁴ 42 U.S.C. § 4332(C)(iii); see LES, CLI-98-3, 47 NRC at 104.

⁵⁵ 40 C.F.R. § 1502.14.

⁵⁶ 10 C.F.R. Part 51, Appendix A, § 5.

⁵⁷ CEQ, which was created by NEPA in the Executive Office of the President, has promulgated regulations governing federal agency compliance with NEPA. See 40 C.F.R. §§ 1500.1–1508.28. The regulations receive substantial deference from the federal courts. See Pub. Citizen, 541 U.S. at 757; Robertson, 490 U.S. at 355–56. The Commission has also stated that “[a]lthough the CEQ’s guidance does not bind us, we give such guidance substantial deference.” Dominion Nuclear North Anna, LLC (Early Site Permit for North Anna ESP Site), CLI-07-27, 66 NRC 215, 222 n.21 (2007).

⁵⁸ 40 C.F.R. § 1502.14; see, e.g., Wyoming v. U.S. Dept. of Agriculture, 661 F.3d 1209, 1243 (10th Cir. 2011); Alaska v. Andrus, 580 F.2d 465, 474 (D.C. Cir. 1978), vacated in part as moot sub nom. W. Oil & Gas Ass’n v. Alaska, 439 U.S. 922 (1978).

⁵⁹ Friends of Se.’s Future v. Morrison, 153 F.3d 1059, 1065 (9th Cir.1998).

challenging the staff's final environmental review documents . . . In such cases, '[t]he adjudicatory record and Board decision (and . . . any Commission appellate decisions) become, in effect, part of the FEIS.'"⁶⁰ Thus, the Staff's FEIS, in conjunction with the adjudicatory record, become the relevant record of decision for the environmental portion of this proceeding.⁶¹ Federal courts of appeal have approved this process in which an EIS is effectively amended through the adjudicatory process.⁶² The Board's review of Contention 10C therefore encompasses all pertinent information properly before it, including the FEIS and the witness testimony and exhibits that were received into evidence at the evidentiary hearing. We will base our decision on whether the FEIS complies with NEPA on those sources of information, and that decision, along with the rest of the record for this proceeding, will in effect become part of the FEIS.

III. STAFF'S MOTION IN LIMINE

In our January 17, 2012 Order, issued in response to the Staff's Motion in Limine, we stated that we would defer our ruling on the disputed portions of the prefiled testimony of Mr. Sklar, Joint Intervenors' witness, until we had available the full evidentiary record.⁶³ We now resolve those issues.

In its Motion in Limine, the Staff moved to strike certain testimony concerning energy production outside of Maryland.⁶⁴ According to the Staff, the purpose and need of the proposed

⁶⁰ Nuclear Innovation North America LLC (South Texas Project, Units 3 and 4) CLI-11-06, 74 NRC __, __ (slip op. at 7–8) (Sept. 9, 2011) (citing LES, CLI-98-3, 47 NRC at 89 and Philadelphia Elec. Co. (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 705–07 (1985)).

⁶¹ See, e.g., Pacific Gas and Electric Co. (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), CLI-08-26, 68 NRC 509, 526 (2008), petition for review denied on other grounds, San Luis Obispo Mothers for Peace v. NRC, 635 F.3d 1109 (9th Cir. 2011).

⁶² New England Coalition on Nuclear Pollution v. NRC, 582 F.2d 87, 93–94 (1st Cir. 1978); Citizens for Safe Power, Inc. v. NRC, 524 F.2d 1291, 1294 n.5 (D.C. Cir. 1975); Ecology Action v. AEC, 492 F.2d 998, 1001–02 (2d Cir. 1974)).

⁶³ Board In Limine Ruling at 3.

⁶⁴ Motion in Limine at 4–6.

action is to “provide for additional large baseload electrical generating capacity within the State of Maryland.”⁶⁵ The Staff maintains that Joint Intervenors did not challenge the requirement that any new electrical generating capacity must be physically located within Maryland, and that this precludes them from offering testimony concerning the potential for out-of-state wind and solar power to contribute to the Combination Alternative.⁶⁶

We reject this objection. To begin with, the FEIS does not in fact consistently require that all sources of new electrical power be located in Maryland. Section 1.3.1 of the FEIS, entitled “NRC’s Proposed Action,” states that “[t]he purpose and need for the proposed NRC action is to provide for additional large baseload electrical generating capacity within the State of Maryland.”⁶⁷ Although this statement implies that all the generating capacity must be physically located in Maryland, the Staff witnesses, citing the page of the FEIS on which this statement appears, inform us that “the purpose and need defined by the Review Team is to provide baseload power generation for the State of Maryland.”⁶⁸ That purpose could be accomplished by a combination alternative that includes power generated both within and outside the State, provided the power is available for distribution in Maryland. Similarly, in Section 1.3.2, the FEIS states that “[t]he overall purpose of the project is to construct a nuclear power plant facility to provide for additional baseload electrical generating capacity to meet the growing demand in the State of Maryland.”⁶⁹ Never once in Section 1.3.2 does the FEIS state that the purpose and need

⁶⁵ Id. at 4 (citing FEIS at 1-9).

⁶⁶ Id. at 4-6.

⁶⁷ FEIS at 1-9.

⁶⁸ Exh. NRC000015 at 14 (citing FEIS at 1-9) (emphasis added).

⁶⁹ FEIS at 1-11. In addition to obtaining a COL for Calvert Cliffs Unit 3, Applicants must apply for and receive a Department of the Army Individual Permit pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Appropriation Act of 1899. Id. at 1-1. The Corps verifies whether the information presented in the EIS is adequate to fulfill Corps regulations and the Clean Water Act Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged of Fill Material. Id. at 1-2. “The Corps has the authority to issue permits for proposed

of the proposed action requires new baseload generating capacity located entirely within the State of Maryland. Rather, in Section 1.3.2, the FEIS simply states that the purpose of the proposed project is to meet the growing electrical demands of the State of Maryland—a purpose which can be met by out-of-state power sources. The Staff’s willingness to allow out-of-state sources to meet the purpose and need of the proposed project is reiterated again in Section 9.2, “Energy Alternatives,” when the Staff states that “[t]he purpose and need for the proposed project . . . of this EIS is to generate baseload power for use by the applicant and for possibly future sale on the wholesale market.”⁷⁰

Moreover, regardless of how the Staff defined the purpose and need, the Joint Intervenor challenge to the Staff’s blanket exclusion of sources outside Maryland falls within the “basis” or “envelope” of Contention 10C. “Where an issue arises over the scope of an admitted contention, NRC opinions have long referred back to the bases set forth in support of the contention.”⁷¹ Information offered in evidence—even if not specifically stated in the original contention and bases—may be relevant if it falls within the “envelope,” “reach,” or “focus” of the contention when read with the original bases offered for it.⁷² Thus, as long as the facts relied on by Joint Intervenor fall within the “envelope” of the contention, they are properly before the Board. A petitioner is not required to set forth all its evidence or to prove its contentions at the admissibility stage.⁷³ The Commission has instructed licensing boards that they may not stretch “the scope of

work or structures in, over, and under navigable waters and for the discharge of dredged or fill material into waters of the United States. The Corps would regulate activities that would temporarily or permanently affect wetlands and waterbodies involved in this project.” Id.

⁷⁰ Id. at 9-3.

⁷¹ Duke Energy Corp. (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-28, 56 NRC 373, 379 (2002).

⁷² Duke Energy Corp. (Catawba Nuclear Station, Units 1 & 2), LBP-04-12, 59 NRC 388, 391 (2004).

⁷³ Miss. Power & Light, Co. (Grand Gulf Nuclear Station, Units 1 & 2), ALAB-130, 6 AEC 423, 426 (1973).

admitted contentions beyond their reasonably inferred bounds,” but this statement also implies that we may consider issues that, although not expressly stated, can reasonably be inferred from the arguments presented.⁷⁴

In proposed Contention 10, from which the Board derived Contention 10C, Joint Intervenors argued that the Combination alternative “grossly underestimated” wind power potential because it omitted proposed new offshore wind power to be generated outside Maryland as well as within the State.⁷⁵ Joint Intervenors also criticized the DEIS for failing to “acknowledge the reality that there is enormous offshore wind power potential off Maryland's coast and the PJM region generally,”⁷⁶ for ignoring “actual offshore wind projects that have been both proposed and approved that will feed directly into Maryland and the PJM service area,” and for failing to analyze “solar power potential of any kind . . . anywhere else in the PJM service area besides Maryland.”⁷⁷ Thus, Joint Intervenors did challenge the Staff’s refusal to include wind and solar power sources located outside Maryland in the combination alternative. This necessarily puts at issue the validity of the NRC’s blanket exclusion of all such sources, whether based on its asserted definition of the purpose and need of the action or any other reason. The argument that the Staff unreasonably limited wind and solar power sources to those located in Maryland accordingly falls within the scope of Contention 10C because it is obvious from the argument expressly presented.

⁷⁴ See Entergy Nuclear Generation Co. and Entergy Nuclear Operations, Inc. (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 309 (2010).

⁷⁵ Contention 10 at 9.

⁷⁶ Maryland is in a regional electric grid operated by PJM Interconnection, LLC (PJM). PJM is the largest power grid in North America and coordinates the movement of wholesale electricity in all or parts of 13 states and the District of Columbia. While PJM operates the transmission systems in its territory, it does not own them. FEIS at 8-2.

⁷⁷ Id. at 8. These statements appear in the part of Contention 10 that the Board identified as “Contention 10B,” which the Board declined to admit. The Board pointed out, however, that “Contention 10C is derived from Joint Intervenors’ challenge in Contention 10B to the Staff’s analysis of the potential contributions of wind and solar power.” LBP-10-24, 72 NRC at 759. Thus, the statements are relevant to determining the scope of Contention 10C.

The Staff makes similar arguments to support its claim that issues related to the timeframe for completion of Calvert Cliffs Unit 3 and uncertainty concerning the completion date are outside the scope of Contention 10C.⁷⁸ The Staff argues that questioning the completion date amounts to an attack upon its definition of the purpose and need of the proposed action.⁷⁹ But the Staff has not identified any statement of the purpose and need that requires Calvert Cliffs Unit 3 to be completed by a specific date. Moreover, the evidence presented at the hearing concerning the estimated date for completing construction falls within the “envelope” of Contention 10C. The admitted contention maintains that the FEIS’s discussion of a combination of alternatives “is inadequate and faulty” because it “under represents potential contributions of wind and solar power.” As explained below, the potential wind and solar power contribution to the Combination Alternative is heavily dependent upon the estimated completion date for Calvert Cliffs Unit 3.⁸⁰ Thus, the completion date and uncertainty concerning that date are directly relevant to the issue raised by Contention 10C. And, in their proposed Contention 10, Joint Intervenors identified proposed offshore wind power projects “likely to be in operation before construction of Calvert Cliffs-3 could be completed.”⁸¹ Thus, to resolve the issue raised by Contention 10C, the Board must necessarily have a realistic estimate of the completion date. The completion date is therefore within the scope of the contention.

We agree with the Staff, however, that Contention 10C applies only to the potential contributions of wind and solar power to the combination alternative.⁸² Accordingly, we find that evidence regarding alternatives other than wind and solar is outside the scope of the admitted

⁷⁸ Motion in Limine at 9.

⁷⁹ Staff Proposed Findings of Fact at 27.

⁸⁰ Infra pp. 39-46.

⁸¹ Contention 10 at 9.

⁸² Motion in Limine at 6; see LBP-10-24, 72 NRC at 761.

contention, and therefore immaterial to the issues before us. We also agree that arguments to the effect that Calvert Cliffs Unit 3 is not a source of baseload power, because of the lack of back-up power or for any other reason, are outside the scope of the admitted contention.⁸³

Finally, we agree with the Staff that:

[t]he Joint Intervenors' discussion of the [Maryland Renewable Portfolio Standard] requirements and renewable energy development incentives, and what impact these requirements and incentives might have on projected solar and wind development in Maryland, is within the scope of this proceeding. But their arguments alleging non-compliance with Maryland law are outside the scope of this proceeding and outside NRC adjudicatory jurisdiction.⁸⁴

We have considered evidence related to the Maryland Renewable Portfolio Standard (RPS) solely for the purpose of evaluating the potential role of wind and solar power in the combination alternative.

IV. EVIDENTIARY SUMMARY AND FINDINGS OF FACT

A. Witnesses and Exhibits

The Staff presented the prefiled direct testimony of Laura M. (Quinn) Willingham⁸⁵ to sponsor the introduction of the Staff's FEIS into the record of this proceeding. The Staff also presented the prefiled direct testimony of Andrew J. Kugler, Senior Project Manager in the NRC's Office of New Reactors Division of Site and Environmental Review, Environmental Projects Branch 2, and Katherine A. Cort, Staff Scientist and Economist at Pacific Northwest National Laboratory (PNNL), operated for the U.S. Department of Energy (DOE) by Battelle Memorial Institute, to present the Staff's position with regard to Contention 10C and to discuss the process used to develop and to evaluate the combination of energy alternatives.⁸⁶ The professional

⁸³ Motion in Limine at 7.

⁸⁴ Motion in Limine at 8; see also supra section IV.G (discussing the Maryland Renewable Portfolio Standard).

⁸⁵ Exh. NRC000001.

⁸⁶ See Exh. NRC000004.

qualifications of the Staff's witnesses were submitted together with their prefiled testimony.⁸⁷

Both Mr. Kugler and Ms. Cort testified at the hearing.⁸⁸ The parties stipulated to the admission of the FEIS into evidence,⁸⁹ and accordingly it was not necessary for Ms. Willingham to testify.

Applicants presented three witnesses: (1) Dimitri Lutchenkov, Director, Environmental Affairs and Special Projects for UniStar Nuclear Energy, LLC; (2) Stefano Ratti, founder and owner of Chaberton Consulting; and (3) Septimus van der Linden, founder, co-owner, and President of BRULIN Associates LLC.⁹⁰ The professional qualifications of the Applicant's witnesses were submitted together with their prefiled testimony.⁹¹ All of Applicants' witnesses testified at the hearing.⁹²

Joint Intervenors offered the prefiled testimony of Scott Sklar, principal of the Stella Group.⁹³ Mr. Sklar's qualifications were submitted together with his prefiled testimony.⁹⁴ Mr. Sklar testified at the hearing.⁹⁵

The prefiled testimony other than that of Ms. Willingham, and the testimony presented at the January 26 through 27 hearing, included expert opinion on the potential contributions of wind

⁸⁷ Exh. NRC000002 (Statement of Professional Qualifications for L.M. (Quinn) Willingham (Oct. 21, 2011)); Exh. NRC000005 (Statement of Professional Qualifications for Andrew J. Kugler (Oct. 21, 2011)); Exh. NRC000006 (Statement of Professional Qualifications for Katherine A. Cort (Oct. 21, 2011)).

⁸⁸ Tr. at 312.

⁸⁹ See id. at 319–20.

⁹⁰ See Exh. APL000001 at 1–3, 4–5.

⁹¹ Exh. APL000002 (Affidavit of Dimitri Lutchenkov (Oct. 21, 2011)); Exh. APL000003 (Affidavit of Stefano Ratti (Oct. 21, 2011)); Exh. APL000004 (Affidavit of Septimus van der Linden (Oct. 21, 2011)).

⁹² Tr. at 340, 490.

⁹³ Exh. JNTR00001.

⁹⁴ Exh. JNT000002 (Statement of Professional Qualifications for Scott Sklar (Oct. 28, 2011)).

⁹⁵ Tr. at 547.

and solar power to the Combination Alternative. The qualifications of the witnesses to provide such opinion testimony were not challenged.⁹⁶

B. The Proposed Action

The proposed action relevant to this proceeding is the NRC's issuance of a COL for a new power reactor unit (Unit 3) at the Calvert Cliffs Nuclear Power Plant (CCNPP) in Calvert County, Maryland.⁹⁷ The FEIS considers and weighs the environmental impacts of constructing and operating a new nuclear unit at the Calvert Cliffs site and at alternative sites and mitigation measures available for reducing or avoiding adverse impacts.

C. The FEIS's Evaluation of Alternatives to the Proposed Action

Because the proposed project is intended to supply 1600 MW(e) of baseload power, the Staff determined that a reasonable alternative to the proposed project would also need to be capable of supplying that amount of baseload power.⁹⁸ In Section 9.2 of the FEIS, the Staff evaluated potential energy alternatives to the proposed action to determine if they would meet that purpose and need.⁹⁹ Mr. Kugler explained that, to be accepted as a reasonable alternative, an alternative source of baseload power had to be technically feasible and commercially exploitable. The alternative source also had to be physically located in the region of interest, which the Staff defined as the State of Maryland. A reasonable alternative also had to be able to meet the purpose and need of the proposed project within the timeframe of the proposed project.¹⁰⁰

⁹⁶ Id. at 342, 565–66.

⁹⁷ FEIS at 1-9. The second proposed action evaluated in the FEIS is the U.S. Army Corps of Engineers' action on an individual permit application to perform certain activities on the site. The Corps participated with the NRC in preparing this FEIS as a cooperating agency. Id. at 1-7 to 1-8.

⁹⁸ Id. at 9-3.

⁹⁹ Id. at 9-3 to 9-32.

¹⁰⁰ Exh. NRC000004 at 10–12.

The Staff concluded that coal-fired and natural gas-fired plants were feasible alternatives to the proposed project.¹⁰¹ The Staff evaluated a number of other individual alternatives to the operation of an additional nuclear unit at the proposed site.¹⁰² The Staff opined that none of the other energy alternatives evaluated, including oil, wind, solar, hydropower, geothermal, wood waste, municipal solid waste, other biomass, and fuel cells, would be capable, individually, of meeting the purpose and need of the proposed action.¹⁰³

In Section 9.2.4 of the FEIS, the Staff acknowledged that, although individual alternatives to Calvert Cliffs Unit 3 might not be sufficient to generate Applicants' target value of 1600 MW(e) of new baseload power, a combination of alternative power sources might be a cost-effective way of meeting that objective.¹⁰⁴ The FEIS states that, given Applicants' objective, "a fossil energy source, most likely coal or natural gas, would need to be a significant contributor to any reasonable alternative energy combination."¹⁰⁵ The Staff also noted that there are many possible combinations of fossil energy sources and alternative power sources that might be cost-effective ways of satisfying the project's purpose. It decided to focus on one combination, which included specified contributions from wind power, solar power, hydropower, biomass sources, conservation and demand-side management programs, and natural gas combined-cycle generating units (the "combination alternative").¹⁰⁶ In the FEIS, the Staff compared the environmental consequences of the combination alternative and two other "viable energy

¹⁰¹ FEIS § 9.2.2.

¹⁰² Exh. NRC000004 at 13–16; FEIS § 9.2.3.

¹⁰³ Exh. NRC000004 at 15–16, FEIS § 9.2.3.

¹⁰⁴ Id. at 9-27.

¹⁰⁵ Id. at 9-28.

¹⁰⁶ Id.

alternatives" to the proposed action.¹⁰⁷ The Staff estimated that the combination alternative would result in 4.2 million tons of carbon dioxide emissions per year, as well as the emission of other air pollutants, from the operation of the natural gas plant.¹⁰⁸ The Staff concluded "from an environmental perspective, none of the viable energy alternatives are clearly preferable to construction of a new baseload power generating plant located within Applicants' ROI."¹⁰⁹

In Contention 10C, Joint Intervenors maintain that, because the Staff underestimated Maryland's wind power potential and failed to quantify its acknowledged solar power potential, the Staff underestimated the contribution wind and solar power could make to the combination alternative. Joint Intervenors argue that greater contributions from wind and solar power would reduce the air emissions from the combination alternative. The Staff's alleged errors therefore undermine its analysis of the estimated air emissions from the combination alternative. Joint Intervenors contend that the Staff's alternatives analysis is accordingly inaccurate and incomplete and cannot support the granting of a license for Calvert Cliffs Unit 3 until it is revised to provide a realistic comparison of viable alternatives.

D. Maryland's Renewable Energy Portfolio Standard (RPS)

One factor influencing the future availability of wind and solar power in Maryland is the State's RPS. It was enacted under the 2004 Maryland Renewable Energy Portfolio Standard and Credit Trading Act.¹¹⁰ Since then, Maryland's RPS has been amended three times—in 2007, 2008, and 2010.¹¹¹

¹⁰⁷ Id. at 9-30 (tbl. 9-4).

¹⁰⁸ Id. at 9-29.

¹⁰⁹ Id. at 9-31.

¹¹⁰ Exh. JNT000008 ("Maryland's Energy Future," Energy Transition Report 2007, Prepared for Governor Martin O'Malley (2007)) at 6.

¹¹¹ Exh. JNT000011 at 2.

Under the RPS, every year an increasing amount of Maryland's energy sales must come from renewable energy, with 20 percent of Maryland's energy sales coming from Tier 1 renewable energy sources by 2022.¹¹² To meet this requirement, the Maryland RPS permits suppliers to purchase renewable energy certificates, or RECs, from renewable energy sources as an alternative to generating power from renewable energy sources themselves.¹¹³ A single REC is equal to one MWh of electrical energy generated by whatever resource is being used to meet the RPS standard.¹¹⁴ The RPS, however, does not require Maryland utilities to actually purchase power generated by the renewable energy sources from which they purchase RECs.¹¹⁵

In general, Maryland energy suppliers can purchase RECs from renewable power sources located outside of Maryland in order to meet the RPS requirements.¹¹⁶ By 2022, 18 percent of Maryland's energy sales must come from Tier 1 renewable sources, such as wind power or geothermal sources, all of which may be located either inside or outside Maryland.¹¹⁷ The RPS contains a specific carve-out for solar power, however, which requires that, by 2022, at least 2

¹¹² Exh. JNT000011 at 3; Exh. NRC000028 at 46. Maryland's RPS specifies two different tiers of renewables from which its energy sales must come: Tier 1 renewables—including wind and solar power—and Tier 2 renewables—such as hydroelectric plants and waste-to-energy facilities. Id. at 2–3. However, the Maryland RPS requirements for Tier 2 renewables are scheduled to sunset in 2018. Id. at 3. In addition, a modification to the 2004 Maryland RPS distinguished between Tier 1 renewables, so that a certain percentage of Maryland's energy sales must come exclusively from Tier 1 solar renewables, while a separate percentage must come exclusively from Tier 1 non-solar renewables. Id. at 4, 7.

¹¹³ Tr. at 403–05; Exh. JNT000011 at 3. If a power supplier in Maryland is unable or unwilling to purchase the required amount of renewable energy resources, they must pay an alternative compliance payment, or an ACP, for each MW of renewable energy that they are short of the RPS requirement. Exh. JNT000011 at 3.

¹¹⁴ Tr. at 443.

¹¹⁵ Id. at 454.

¹¹⁶ Id. at 403–05.

¹¹⁷ Exh. JNT000011 at 1–4.

percent of Maryland's energy sales must come from solar power, all of which must be produced in the State of Maryland.¹¹⁸

It is reasonably foreseeable that Maryland utilities will comply with the RPS.¹¹⁹

E. Wind Power Potential

Wind power could be a component of a baseload energy source in combination with compressed air energy storage (CAES) facility, a natural gas plant, or both.¹²⁰ In the FEIS combination alternative analysis, the Staff estimated a contribution of 100 MW(e) from wind power.¹²¹ According to the FEIS, 100 MW(e) equates to at least 250 to 300 MW of installed capacity, which would be coupled with a 100 MW CAES plant to provide the 100 MW(e) of baseload power.¹²² In arriving at these estimates, Mr. Kugler and Ms. Cort testified that they were working under the assumption that the combination alternative would be operational by 2015, and thus they relied on shorter-term projections contained in the Department of Energy's 2011 Annual Energy Outlook and the National Renewable Energy Laboratory's (NREL's) 2010 offshore wind report, and information from the Maryland Public Service Commission (MPSC).¹²³

Mr. Kugler explained that, in order to determine potential wind and solar power estimates for Maryland, the Staff analyzed potential wind and solar power sources on a regional level because such estimates are rarely performed on a state-by-state basis.¹²⁴ To do this, he

¹¹⁸ Exh. JNT000011 at 3. The Maryland RPS requires that by 2022, 2 percent of Maryland's energy sales must come from in-state solar power, and 18 percent must come from other Tier 1 renewable sources, such as wind, geothermal, and ocean energy. Id. at 1-3. Since the Maryland RPS requirements for energy sales from Tier 2 renewables sunsets in 2018, by 2022 no energy sales are required to come from Tier 2 renewables. Id.

¹¹⁹ Tr. at 441.

¹²⁰ Exh. NRC000004 at 24-25; FEIS at 9-21. CAES facilities are discussed infra pp. 37-39.

¹²¹ FEIS at 9-28.

¹²² Id.

¹²³ Exh. NRC000004 at 25.

¹²⁴ Tr. at 400.

explained, the Staff examined potential wind and solar power estimates for the region in which Maryland is located — the Reliability First Corporation, East Region (“RFC/East Region”).¹²⁵ The RFC/East Region is comprised of four different states—Maryland, Delaware, Pennsylvania, and New Jersey.¹²⁶ Using the wind and solar power estimates for the RFC/East Region, the Staff determined Maryland’s relative contribution by dividing the overall regional wind and solar power estimates by three, based upon the Staff’s calculation that Maryland is responsible for roughly one-third of the regional power output.¹²⁷ According to Mr. Kugler, this is a high estimate, given that other sources indicate that Maryland is likely only responsible for roughly one-quarter of the RFC/East Region’s regional output.¹²⁸ Nonetheless, Mr. Kugler testified that the Staff estimated Maryland to contribute one-third of the power to the RFC/East Region in order to ensure that its FEIS analysis of combination alternative estimate would provide a fair estimate.¹²⁹

Mr. Kugler and Ms. Cort further testified that the DOE Annual Energy Outlook projected a growth of 420 MW of onshore wind capacity and 200 MW of offshore wind capacity between 2010 and 2035 in the RFC/East Region.¹³⁰ Because it considered Maryland to be responsible for a third of the RFC/East Region’s regional output, the Staff estimated that Maryland would

¹²⁵ Id. The RFC is one of the eight approved regional entities in North America under the North American Electric Reliability Corporation (NERC). “NERC’s mission is to verify the reliability of the bulk power system in North America. NERC develops and enforces reliability standards, monitors the bulk power system, assesses and report on future transmission and generation adequacy, and offers education and certification programs to industry personnel” FEIS at 8-2. RFC’s primaries duties include creating reliability standards, monitoring compliance with those reliability standards, and providing seasonal and long-term assessments of bulk electric system reliability within the RFC geographic area. Id.

¹²⁶ Tr. at 400–01.

¹²⁷ Id.

¹²⁸ Id.

¹²⁹ Id. at 401.

¹³⁰ Exh. NRC000004 at 29; Exh. NRC000022 (U.S. Department of Energy, Energy Information Administration, Annual Energy Outlook 2011, DOE/EIA-0383 (2011)).

experience a growth of roughly 210 MW in installed onshore and offshore wind between 2010 and 2035.¹³¹ Assuming a 34 percent capacity factor for wind, the Staff calculated that Maryland's 210 MW increase in wind power would equate to about 71 MW(e) of average output. Based on these calculations, along with the limited wind development currently in Maryland, Mr. Kugler and Ms. Cort testified that it "would be unreasonable to expect large-scale development of this resource within the timeframe of the proposed project" and thus that its estimate of a 100 MW(e) wind power contribution to the combination alternative was reasonable.¹³²

Applicants, however, consider the Staff's 100 MW(e) contribution estimate from wind power to be "optimistic" and "speculative."¹³³ Mr. Ratti testified on behalf of Applicants that he anticipated installed wind capacity over the next ten years would likely only produce an additional 21 MW(e) of wind power.¹³⁴ Mr. Ratti based this estimate on the Long Term Energy Report for Maryland (Maryland LTER), which shows 190 MW of additional capacity coming on line.¹³⁵ Mr. Ratti further testified that 120 MW of that capacity has already come online through the Criterion and Roth Rock projects, thus leaving an addition 70 MW of installed wind capacity over the next ten years, which is equivalent to 21 MW(e) on average.¹³⁶ According to Mr. Ratti, the estimates provided by the Maryland LTER are reliable because they are modeled on the current regulatory environment and the RPS, and "an expansion of RPS requirements beyond the current RPS is highly speculative."¹³⁷

¹³¹ Exh. NRC000004 at 29.

¹³² Id.

¹³³ Exh. APL000001 at 29.

¹³⁴ Id.

¹³⁵ Id. at 28–29.

¹³⁶ Id. at 29.

¹³⁷ Id. at 28. Maryland's RPS was enacted in 2004 under the 2004 Maryland Renewable Energy Portfolio Standard and Credit Trading Act. See supra pp. 20–22. Mr. Ratti stated that "[i]n the

Testifying on behalf of the Joint Intervenors, Mr. Sklar disagreed with the Staff and UniStar estimates, claiming that they were too low. Mr. Sklar stated the DOE study that the Staff relied on in estimating the potential wind contribution was not a market-oriented analysis, and, as such, it merely extrapolated growth rates and cost reductions, thus providing a much more conservative estimate.¹³⁸ Instead, Mr. Sklar estimated that by 2020, Maryland would have 1255 MW of installed wind capacity—roughly 1135 MW more installed wind capacity than the State currently has.¹³⁹ Mr Sklar added that, based on a study by the Institute for Local Self-Reliance, roughly 40 percent of Maryland’s energy needs could be met with renewables, including wind, solar, and biomass.¹⁴⁰

In considering offshore wind potential specifically, Mr. Kugler and Ms. Cort testified that the Staff relied primarily on NREL’s 2010 report concerning large-scale offshore wind in the United States to assess Maryland’s offshore wind potential.¹⁴¹ NREL’s report states that the Mid-Atlantic region, which extends from New Jersey to North Carolina, has up to 570 GW of potential offshore wind capacity, of which 54 GW is attributable to Maryland, 15 GW is attributable to Delaware, and 94 GW is attributable to Virginia.¹⁴² Mr. Kugler testified that onshore wind has a capacity factor of around 34 percent, while offshore wind has a capacity factor closer to 40

unlikely, but plausible, case that all of the new renewable energy necessary to satisfy the RPS were to come from wind power, wind power would have to provide up to approximately 1.5 million MWh per year. That would approximately represent an additional 570 MW of wind power, or 170 MW(e) on average.” Exh. APL000001 at 29.

¹³⁸ Tr. at 590.

¹³⁹ Id. at 606–08.

¹⁴⁰ Id. at 401; see Exh. JNT000007 (“Energy Self-Reliant State,” 2nd ed., John Farrell and David Morris (May 2010)).

¹⁴¹ Exh. NRC000004 at 27.

¹⁴² Exh. NRC000024 at 60–63 (tbl. 4-3). Another exhibit proffered by the Applicants estimates Maryland’s offshore wind potential to be roughly 60 GW. Exh. APL000010 (“Maryland’s Offshore Wind Power Potential,” University of Delaware’s Center for Carbon-free Power Integration, College of Earth, Ocean, and Environment (Feb. 1, 201)) at 19 (tbl. 3).

percent because offshore winds tend to be steadier.¹⁴³

The NREL Report identifies offshore wind development projects in States such as Delaware, New Jersey, and Massachusetts, stating that “[a]lthough many more proposals have been made, the projects listed in the table are more advanced, meeting one or more of the following criteria: they have been approved by their state, received an interim lease from BOEM [Bureau of Ocean Energy Management] (2010), or granted a BOEM lease.”¹⁴⁴ For Maryland, Delaware, and Virginia, the NREL Report identified only the NRG Bluewater Wind project off the coast of Delaware in the list of more advanced projects.¹⁴⁵ It had a planned capacity of 450 MW(e) but ultimately failed to secure adequate financing.¹⁴⁶ Although a number of proposals have been made, no offshore wind turbines have actually been installed in the United States.¹⁴⁷ The Staff stated that the NREL report’s findings were consistent with other sources the Staff reviewed, including the Wind Technologies Market Report, and a 2008 report from the MPSC. Based on these reports, the Staff concluded that, while the potential for offshore wind was high, it “would not significantly contribute to the combination of energy alternatives in the timeframe of the proposed project.”¹⁴⁸

Currently there are two onshore utility-scale moderate-sized (50 MW and 70 MW,

¹⁴³ Tr. at 356.

¹⁴⁴ Exh. NRC000024 (“National Renewable Energy Laboratory, Large-Scale Offshore Wind Power in the United States; Assessment of Opportunities and Barriers,” Walter Musial & Bonnie Ram (2010)) at 30–31 (tbl. 3-3).

¹⁴⁵ Id.

¹⁴⁶ Exh. NRC000004 at 26; Tr. at 348. That project would have been located 11 miles east off the coast of Dewey Beach, Delaware. Exh. NRC000004 at 26.

¹⁴⁷ Tr. at 345–46; Exh. APL000010 at 1.

¹⁴⁸ Exh. NRC000004 at 28. The Staff thus argues that its decision not to include the NRG Bluewater Wind project off the coast of Maryland is justified because it has not made significant progress in the leasing and permitting process. Id.

respectively) wind energy projects in Maryland.¹⁴⁹ The first operating wind project in Maryland, the 70 MW Criterion onshore wind project, went online in December 2010.¹⁵⁰ The second operating wind project in Maryland, the 50 MW onshore Roth Rock project, went online in July 2011.¹⁵¹ Because neither the NREL report nor the MPSC “Ten-Year Plan (2009-2018) of Electric Companies in Maryland” identified any other active wind projects in Maryland, the Staff concluded that “significant development of wind generation in Maryland is not likely in the timeframe of the proposed project.”¹⁵²

While neither the NREL report nor the MPSC identified any other active wind projects in Maryland, Mr. Ratti testified that “[t]wo onshore projects have gone through a significant number of developmental steps in Maryland”—primarily, the Dan’s Mountain 69.6 MW project in Western Maryland.¹⁵³ In addition, Mr. Ratti testified that multiple other wind farms exist in neighboring states. Specifically, Mr. Ratti noted that:

- a. Pennsylvania has 751 MW of wind capacity currently online and an additional 177 MW under construction;
- b. West Virginia has 431 MW of wind capacity currently online and an additional 147 MW under construction;
- c. Virginia has no operating projects, but one 38 MW project is currently under construction.¹⁵⁴

Despite the success of these projects, wind power still faces many hurdles. Mr. Kugler testified that incorporating wind and solar power into the grid presents some serious challenges to

¹⁴⁹ Id.

¹⁵⁰ Id.

¹⁵¹ Id.

¹⁵² Id. at 26-27.

¹⁵³ Exh. APL000001 at 26. The other project Mr. Ratti mentions, the Savage Mountain 40 MW project, was cancelled in 2010. Id.

¹⁵⁴ Id. at 25.

the grid operators because the variability of wind and solar is something over which they have no control.¹⁵⁵ In addition, Mr. Kugler noted that often wind power will run into transmission capacity problems, whereby the wind turbines will be running at full capacity and producing more energy than the transmission lines are capable of handling.¹⁵⁶ In these situations, the turbines' output must be reduced to below what they are then capable of generating, simply because of the limited transmission line capability.¹⁵⁷

To accommodate for the variability of wind, Mr. Kugler testified that a grid operator could employ the use of a CAES facility, or a natural gas plant.¹⁵⁸ The more renewables that are incorporated into the grid, however, Mr. Kugler cautioned, the bigger the CAES facility or natural gas plant that would be required in order to compensate for the variability of the wind.¹⁵⁹ Doing this would be expensive, according to Mr. Kugler, because building two power plants would be necessary—one wind power plant, and another plant of the same size that could compensate for the variable output of the wind power plant.¹⁶⁰

Mr. Kugler testified that “there is certainly offshore wind potential for Maryland,” but did not believe that offshore wind was poised to take off in Maryland.¹⁶¹ Mr. Kugler went on to explain that currently multiple barriers exist to building offshore wind power facilities.¹⁶² As an example

¹⁵⁵ Tr. at 360–61.

¹⁵⁶ Id. at 358.

¹⁵⁷ Id.

¹⁵⁸ Id. at 361–65. Mr. Kugler cautioned, however, that using such systems would work best for small wind or solar projects, since the impact of their variability on the grid would be limited to a small amount. Id. at 361–62.

¹⁵⁹ Id. at 365.

¹⁶⁰ Id.

¹⁶¹ Tr. at 345.

¹⁶² Id.

of the difficulties that offshore wind power faces generally, Mr. Kugler cited the Cape Wind project, which has been dealing with licensing issues for over ten years.¹⁶³ In addition, offshore wind turbines also present special maintenance challenges.¹⁶⁴ The Wind Technologies Report cited by the Staff reiterates some of the difficulties confronting offshore wind, stating that:

though political support exists for offshore wind energy in some quarters, planning, siting, and permitting can be challenging, as demonstrated in the long history of the Cape Wind project. Competing uses of offshore waters and public concerns can complicate the process and, despite recent progress in clarifying the permitting procedures in federal waters, uncertainties in federal and state permitting processes remain.¹⁶⁵

According to Mr. Kugler, “the cost of offshore wind is typically viewed as being twice what it would be for onshore wind and in the United States onshore wind is marginally competitive in some places and fairly well competitive in other places.”¹⁶⁶ The Wind Technologies Market Report, upon which the Staff relied, echoes this, stating that “the projected near-term costs of offshore wind energy remains high.”¹⁶⁷ A 2008 MPSC report, which the Staff also cited, concluded that offshore wind power in Maryland is unlikely without subsidies or other incentives.¹⁶⁸

The Board finds that the amount of available wind power capacity will for the foreseeable future be determined primarily by regulatory requirements.¹⁶⁹ For Maryland, the determining

¹⁶³ Id.

¹⁶⁴ Id.

¹⁶⁵ Exh. NRC000029 (U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, 2010 Wind Technologies Market Report (2010)) at 10.

¹⁶⁶ Tr. at 347.

¹⁶⁷ Exh. NRC000029 at 10.

¹⁶⁸ See Exh. NRC000023 (Maryland Public Service Commission, Final Report Under Senate Bill 400: Options for Re-Regulation and New Generation (Dec. 16, 2008)).

¹⁶⁹ See Exh. APL000001 at 28-29.

regulatory requirement will be the State's RPS.¹⁷⁰ Although the RPS only sets minimum requirements, the economic uncertainties are too great to justify a conclusion that those requirements are likely to be significantly exceeded in the foreseeable future.¹⁷¹

E. Solar Power Potential

The term solar power refers to the conversion of the energy from the sun into electricity.¹⁷² Currently, there are two main solar technologies available for utility-scale plants: thermal technologies, also referred to as concentrated solar power, and photovoltaics.¹⁷³ Thermal technologies rely on mirrors to concentrate the solar power, which in turn heats a fluid that then drives a turbine or an engine.¹⁷⁴ Photovoltaics use cells with semiconductors to convert solar power directly into electricity.¹⁷⁵ The primary photovoltaic technologies are crystalline silicone and various types of thin-film, such as cadmium-telluride or gallium arsenide.¹⁷⁶ In addition to utility-scale solar power plants, solar power is also available at the end-user level, where the energy generated is used directly at the generating site.¹⁷⁷

Solar power, like wind power, can provide a baseload energy source when combined with a CAES facility or a natural gas plant.¹⁷⁸ In the FEIS combination alternative analysis, the Staff

¹⁷⁰ Id.

¹⁷¹ See id.; Exh. APL000062.

¹⁷² FEIS at 9-23, Exh. APL000001 at 30.

¹⁷³ FEIS at 9-23, Exh. APL000001 at 30.

¹⁷⁴ FEIS at 9-23, Exh. APL000001 at 30.

¹⁷⁵ Exh. APL000001 at 30.

¹⁷⁶ Id. at 30–31. In some photovoltaic applications, it is also possible to concentrate the sun's rays before they reach the solar panels. These types of applications are referred to as concentrated photovoltaics.

¹⁷⁷ Exh. NRC000004 at 34.

¹⁷⁸ See FEIS at 9-20 to 9-24, 9-28; Exh. NRC000004 at 37.

estimated a total contribution of 75 MW(e) from solar power.¹⁷⁹ In reaching this estimate, the Staff worked under the assumption that a combination alternative would need to be operational by 2015, and thus relied primarily on shorter-term projections from the DOE's Annual Energy Outlook and the MPSC's Ten-Year Plan to determine the likely contribution of solar power to the combination alternative.¹⁸⁰

Although the studies that the Staff relied on implied that solar power potential in Maryland is relatively low, the Staff included a solar power contribution estimate in the FEIS combination alternative analysis because "generation from solar is possible and currently available in Maryland."¹⁸¹ Mr. Kugler and Ms. Cort testified that "[t]he 75 MW(e) level of contribution was based on DOE/EIA's overall prediction of growth in solar as an end-use generation source and the Review Team's technical judgment of this prediction as authoritative and reasonable."¹⁸² According to Mr. Kugler and Ms. Cort, the DOE Annual Energy Outlook predicts no increase in utility-scale solar capacity between 2010 and 2035 in the RFC/East region, and the addition of 810 MW of end-use solar capacity (all photovoltaic) in that region between 2010 and 2035.¹⁸³ Based on their assumption that Maryland accounts for roughly one-third of the RFC/East region, the Staff estimated an addition of 270 MW of end-use solar capacity in Maryland by 2035.¹⁸⁴ Using a 25 percent average capacity factor for photovoltaics, the Staff calculated that the 270 MW increase in solar capacity equates to roughly 68 MW(e) in baseload capacity.¹⁸⁵ Accordingly, the

¹⁷⁹ FEIS at 9-28.

¹⁸⁰ Exh. NRC000004 at 33.

¹⁸¹ Id. at 35.

¹⁸² Id.

¹⁸³ Id.; Exh. NRC0000022.

¹⁸⁴ Exh. NRC000004 at 35.

¹⁸⁵ Id. Mr. Kugler and Ms. Cort testified that the Staff assumed a 25 percent average capacity for photovoltaics based on a DOE study stating that photovoltaic capacity factors range from 18

Staff concluded the 75 MW(e) solar power contribution estimate in the combination alternative was reasonable.¹⁸⁶

On behalf of Applicants, Mr. Ratti testified that the raw potential for solar power in Maryland is high.¹⁸⁷ However, he stated that such potential is limited because solar power requires roughly 6 to 7 acres per installed MW and “because the economics of solar are such that building solar power plants makes economic sense only inasmuch as it is mandated through state standards and/or federal incentives are made available.”¹⁸⁸ Mr. Ratti believes that the Maryland LTER is correct, and he thus expects 75 MW(e) of new solar baseload equivalent capacity in Maryland by 2020.¹⁸⁹ The Maryland LTER estimates that future increases in installed solar capacity will be closely linked to the RPS solar carve-out requirement (2 percent of Maryland’s electrical energy must come from solar power by 2022).¹⁹⁰ Specifically, the Report assumes that new solar power will be installed to meet the growing requirements for solar under the RPS through 2018 and that, up to that point, there will be solar renewable energy certificates (RECs) available at prices below the solar alternative compliance payment (ACP).¹⁹¹ After 2018, the

percent to 25 percent in the U.S. Id.; Exh. NRC000021 (U.S. Department of Energy, Energy Information Administration, Levelized Cost of New Generation Resources in the Annual Energy Outlook 2011 (2010)).

¹⁸⁶ Exh. NRC000004 at 36. Mr. Kugler and Ms. Cort also testified that this estimate need not be larger merely because a DOE report identifies Maryland’s solar power potential as “Good.” According to the Staff, the DOE report indicating that Maryland has “Good” solar power potential rated a region’s solar power potential on a scale of “Moderate,” “Good,” “Very Good,” or “Excellent,” and only Alaska and the northwest corner of Washington are rated less favorably than Maryland. Id. at 34; Exh. NRC000036 (U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, 2008 Solar Technologies Market Report (2010)).

¹⁸⁷ Exh. APL000001 at 33.

¹⁸⁸ Id.

¹⁸⁹ Id. at 39.

¹⁹⁰ Id. at 37.

¹⁹¹ Id. The Maryland RPS requires suppliers to purchase renewable energy certificates, or RECs, from renewable energy sources. Tr. at 403–05; Exh. JNT000011 (“Long-Term Electricity

Maryland LTER estimates that additional requirements for solar power under the RPS will not be met with new physical installations, and that utilities will elect instead to pay the solar ACP because the cost will likely be lower than that of purchasing solar RECs.¹⁹² Mr. Ratti admits, however, that it is plausible, though unlikely, that all of the RPS solar carve-out would be met through new solar physical installations in Maryland, in which case 160 MW(e) of new solar power would be available in Maryland over the next 10 years.¹⁹³

Joint Intervenors contend, however, that the 75 MW(e) solar power contribution estimate contained in the FEIS combination alternative severely underestimates the potential for solar power in Maryland. In support of that proposition, Mr. Sklar noted a study by SolarTown which concludes that over 450 million square feet of roof space would be suitable for solar panels in Maryland, amounting to over 5,000 MW of new solar power capacity to the State.¹⁹⁴ In addition, Mr. Sklar testified that it is likely that more large electricity end-users will begin installing solar photovoltaic systems in Maryland, much like Perdue, General Motors, and the Washington Redskins are doing or have already done.¹⁹⁵ Mr. Sklar thus testified that he conservatively expects that there will be at least 2,250 MW of solar power installed in Maryland by 2025.¹⁹⁶

Currently in Maryland, however, the only utility-scale operating solar power project is the

Report for Maryland Renewable Energy Portfolio Standards,' White Paper to Support LTER Assumptions" (Nov. 30, 2010)) at 3. If a power supplier in Maryland is unable or unwilling to purchase the required amount of RECs, they must pay an alternative compliance payment, or an ACP, for each megawatt-hour of renewable energy that they are short. Exh. JNT000011 at 3.

¹⁹² Exh. APL000001 at 37.

¹⁹³ Id. at 39.

¹⁹⁴ Exh. JNTR00001 at 14; Exh. JNTR00013.

¹⁹⁵ Exh. JNTR00001 at 14; Exh. NRC000037 ("Solar Installation at Perdue to be One of East Coast's Largest," RenewableEnergyWorld.com (Jan. 18, 2011)); Exh. NRC000038 ("Baltimore GM Factory Grows with Solar Power," Tina Casey, TriplePUndit.com (May 23, 2011)); Exh. JNT000020 ("Washington Redskins Go 'Green' with Solar Panels at FedEx," Jeremy Borden (Sept. 15, 2011)).

¹⁹⁶ See Tr. at 581-84.

2.2 MW University of Maryland Eastern Shore plant.¹⁹⁷ In addition, there is also a large 1.8 MW commercial installation at McCormick's Hunt Valley Distribution Center.¹⁹⁸

The Staff acknowledges, though, that multiple other solar projects are currently in development in Maryland and the surrounding area. These projects include Constellation Energy's proposed 16.1 MW solar facility at Mount St. Mary's University in Emmitsburg, Maryland, a separate 1.3 MW solar array proposed by Constellation Energy to generate power for Mount St. Mary's, and Maryland Solar's proposed 20 MW solar facility in Hagerstown, Maryland.¹⁹⁹ In addition to these projects, Mr. Ratti testified that Southern Maryland Electric Cooperative also has a proposed 5.5 MW project that would be located in Hughesville, Maryland.²⁰⁰ Mr. Ratti also noted that the states surrounding Maryland currently have solar projects in construction or development, including:

- Pennsylvania: 6 MW in operation, 1 MW in construction, 52 MW in development;
- Delaware: 10 MW in operation (Dover Sun Park).²⁰¹

Joint Intervenors point out that Sun Edison and Standard Solar alone have recently completed solar power projects in Maryland totaling 16.4 MW (43.1 MW if recently completed projects in Delaware, New Jersey, Pennsylvania, and Washington, D.C. are also included).²⁰² In

¹⁹⁷ Exh. APL000001 at 38.

¹⁹⁸ Id.

¹⁹⁹ Exh. NRC000004 at 36; Exh. NRC000039 ("MD's Largest Solar Project Under Construction," Tim Wheeler, Baltimore Green Blog (Sept. 29, 2011)). Constellation Energy announced in September 2011 that it had already begun work on its plant in Emmitsburg, Maryland. Exh. NRC000039.

²⁰⁰ Exh. APL000001 at 38.

²⁰¹ Id. at 39; Exh. APL000043 ("Utility-Scale Solar Projects in the United States Operating, Under Construction, or Under Development," Solar Energy Industries Association (Oct. 14, 2011)).

²⁰² Exh. JNTR00001 at 14; Exh. JNT000014 ("SunEdison Solar Project Listing: Mid Atlantic Region," SunEdison (Oct. 27, 2011)); Exh. JNT000015 ("PV Projects Developed by Standard Solar," Standard Solar (Oct. 27, 2011)).

addition, Joint Intervenors identified two proposed solar projects that were recently announced in Maryland: a 3.7 MW project that will provide power to two Perdue Farms facilities and a 1.2 MW project that will power a plant in Baltimore.²⁰³

While solar power faces numerous challenges, including its intermittent nature, corresponding grid issues, and the large amount of land required, the biggest challenge currently facing solar power is its cost.²⁰⁴ Mr. Sklar claims, however, that “[t]he cost of solar power, particularly photovoltaics, has been dropping sharply over the past few years.”²⁰⁵ In support of this statement Mr. Sklar cites a 2010 report entitled “Solar and Nuclear Costs—The Historic Crossover.”²⁰⁶ In that report, the authors compare the costs of solar photovoltaics to the cost of nuclear power and conclude that, in North Carolina, solar power became cheaper than nuclear power in 2010 and the cost gap will continue to widen.²⁰⁷ As Mr. Ratti testified, however, this study is misleading.²⁰⁸ On one hand, it reduces the cost of solar from roughly 35 cents a kilowatt hour to 15.9 cents a kilowatt hour by including federal and state incentives, and assumes that these incentives will persist.²⁰⁹ For nuclear power, however, the report relies on very high cost estimates—from 20 to 25 cents per kilowatt hour. That is roughly 8 to 13 cents per kilowatt hour

²⁰³ Submission of Amended Contention 10C at 10; Exh. NRC000037; Exh. NRC000038. Mr. Kugler and Ms. Cort question whether the estimated capacity for these projects, as stated in the articles cited by Joint Intervenors, is in fact correct. See Exh. NRC000004 at 36.

²⁰⁴ See, e.g., Exh. APL000004 at 31–32; Tr. at 465–66; Exh. NRC000004 at 35.

²⁰⁵ Exh. JNTR00001 at 13.

²⁰⁶ Exh. JNT000012.

²⁰⁷ Exh. JNTR00001 at 13; Exh. JNT000012 (“Solar and Nuclear Costs: The Historic Crossover; Solar Energy is Now the Better Buy,” John O. Blackburn and Sam Cunningham (July 2010))at 3.

²⁰⁸ Tr. at 696–98.

²⁰⁹ Exh. JNT000012 at 17–18.

higher than the DOE projections.²¹⁰ The assumptions underlying this study are thus, at the very least, questionable.

Other reputable studies acknowledge the high cost of solar power and the impact that cost is playing in the prevalence of solar power. For instance, the MPSC considered the potential for solar power in Maryland in a 2008 report and concluded that the overall economics of solar power remain negative, but could improve if technology progresses faster than contemplated by the report and financial incentives continue.²¹¹ Mr. Ratti testified that the typical cost of a utility-scale photovoltaic plant was down from \$8,000 per KW in 2004 to \$3,400 per KW in 2010.²¹² For smaller installations, however, the costs are higher—roughly \$6,000 per KW for a 5 KW rooftop installation in Maryland in the fall of 2011.²¹³ Without any state or federal incentives, solar power would thus have a levelized cost of more than \$200 per MWh for utility-scale power plants and \$400 to \$500 per MWh for rooftop installations.²¹⁴

Thus, the potential for solar power is largely limited to the demand generated by governmental mandates, along with state and federal incentives, many of which are expiring soon and may not be renewed due to current economic conditions.²¹⁵ As with wind power, the Board finds that the amount of available solar power capacity will for the foreseeable future be determined primarily by the RPS.²¹⁶ The costs issues and other economic uncertainties are too

²¹⁰ Tr. at 698; Exh. APL000014 (Department of Energy, Energy Information Administration, DOE/EIA-0383, “Annual Energy Outlook 2011,” Table 1 (Dec. 2010)).

²¹¹ Exh. NRC00023 at 10.

²¹² Exh. APL000004 at 32; Exh. APL000040 (“The Prospect for \$1/Watt Electricity from Solar,” Department of Energy Solar Energy Technology Program (Aug. 10, 2010)).

²¹³ Exh. APL000004 at 32–33.

²¹⁴ Id. at 33.

²¹⁵ Id. at 34–35.

²¹⁶ See Exh. APL000001 at 28–29.

great to justify a conclusion that those requirements are likely to be significantly exceeded in the foreseeable future.²¹⁷

F. Compressed Air Energy Storage (CAES)

When coupled with intermittent power sources such as wind and solar power, a CAES facility can simulate a power generation profile comparable to baseload generation.²¹⁸ A CAES facility has the ability to take power provided from a generation source, such as a wind turbine, and use that power to fuel motor driven air compressors that compress air into an underground storage medium, such as an underground salt cavern or aquifer.²¹⁹ During high electricity demand periods, the stored energy that was collected during low-peak periods is recovered by releasing the compressed air through a combustion turbine to generate electricity.²²⁰ CAES facilities require a specific geology in order to support an underground storage medium.²²¹

In developing the combination alternative, the Staff assumed that 250 to 300 MW of installed wind capacity would be combined with a CAES facility to provide 100MW(e) of baseload power.²²² The FEIS further assumes that the installed solar capacity would be combined with a CAES facility to provide 75MW(e) of baseload power.²²³ Thus, the practical effect of including

²¹⁷ See id.

²¹⁸ Exh. NRC000004 at 37; see Exh. APL000001 at 41.

²¹⁹ FEIS at 9-21; Exh. NRC000004 at 37; see Exh. APL000001 at 42-3.

²²⁰ FEIS at 9-21; Exh. NRC000004 at 37; see Exh. APL000001 at 40. The two existing commercial CAES systems rely on combustion turbines to generate electricity. In these systems, the efficiency of the turbines is increased because compression of the inlet air is provided by the CAES facility rather than the turbine. Exh. NRC000004 at 37. The Staff is aware of a conceptual design for a CAES system that does not rely on combustion turbines, but this design has not been built, tested, or proven. Exh. NRC000004 at 37; Exh. NRC000041 ("ConocoPhillips Joins \$54.5M Series B for General Compression," Houston CityBizList (June 7, 2011)).

²²¹ FEIS at 9-21; see Exh. NRC000004 at 37.

²²² FEIS at 9-28.

²²³ Id.

CAES in the combination alternative is to increase the baseload power contribution from all the renewable energy sources by 175 MW(e), yielding a total of 400 MW(e) from all those sources.²²⁴ Because the goal of the project is to provide 1600 MW(e) of baseload power, the 400 MW(e) baseload power contribution from the renewable energy sources reduces the required size of the natural gas plant in the combination alternative from 1600 MW(e) to 1200 MW(e).²²⁵ Reducing the size of the natural gas plant decreases the air emissions associated with the combination alternative, assuming the gas plant would operate at full capacity.²²⁶

Currently, the only CAES system existing in the United States is the 110 MW(e) facility located at the McIntosh Power Plant in Alabama that has been operating since 1991.²²⁷ The only other operating CAES facility is a 290 MW(e) plant near Breman, Germany that has been in use since 1978.²²⁸ There is also a proposal to construct a 268 MW(e) CAES facility coupled to a wind farm near Des Moines, Iowa.²²⁹ Other proposals at various stages of development involving CAES have been announced in California, New York, and Texas.²³⁰ There are currently no known proposed CAES projects in Maryland.²³¹ Nevertheless, the Staff incorporated a CAES facility in its combination alternative analysis in order to reduce the required size of the natural gas

²²⁴ See id.

²²⁵ See Tr. at 367-68.

²²⁶ See id. at 367-70.

²²⁷ FEIS at 9-21; Exh. NRC000004 at 37; Exh. NRC000040 (“Compressed Air Energy Storage: Theory, Resources, and Applications for Wind Power,” Samir Succar & Robert H. Williams, Princeton University Energy Systems Analysis Group (2008)).

²²⁸ FEIS at 9-21; Exh. NRC000004 at 37; Exh. APL000001 at 44. Both operating facilities in existence use mined caverns to store the compressed air. FEIS at 9-21; Exh. NRC000004 at 37.

²²⁹ FEIS at 9-21; Exh. NRC000004 at 38; Exh. APL000001 at 45.

²³⁰ FEIS at 9-21; Exh. NRC000004 at 38; Exh. APL000001 at 45.

²³¹ FEIS at 9-21; Exh. NRC000004 at 38; Exh. APL000001 at 45.

plant and thereby reduce the environmental impact of the combination alternative.²³² But the Staff also concluded that a 1600 MW(e) CAES facility in Maryland is unlikely,²³³ making it necessary to retain the natural gas plant in the combination alternative to ensure that the combination of sources would provide 1600 MW(e) of baseload power.

H. Constraints that Limited the Potential Wind and Solar Power Contributions to the Combination Alternative

1. The Timeframe of the Proposed Action

Because wind and solar power technologies are still evolving, their potential energy contributions are rapidly changing.²³⁴ As a result, potential wind and solar contribution estimates in the Calvert Cliffs Unit 3 FEIS combination alternative analysis are heavily dependent upon the relevant timeframe—that is, the estimated completion date for Calvert Cliffs Unit 3.²³⁵ The more distant the completion date, the more time would be available for the development of wind and solar power that could be included in the combination alternative. Thus, in order to properly estimate the wind and solar power contributions in the Calvert Cliffs Unit 3 FEIS combination alternative analysis, it is necessary to first determine the relevant timeframe.²³⁶

In preparing the FEIS, the Staff relied on the year 2015 as the estimated date by which construction of Calvert Cliffs Unit 3 would be complete.²³⁷ When Mr. Kugler and Ms. Cort began

²³² See Tr. at 466, 471–72.

²³³ FEIS at 9-21; Exh. NRC000004 at 38–9.

²³⁴ See, e.g., Exh. APL000010 at 1 (“Although only a small fraction of total U.S. electricity is generated from renewable energy sources, in recent years wind power has comprised the second largest fraction of newly installed power, behind natural gas.”); Tr. at 419–20 (“[W]e know that solar is being built. And we expect that to continue. And, although there may be no announcements of projects that add up to the amount of power we’re talking about, we expect that trend to continue.”); id. at 574, 577–78, 581–85, 605–08, 633–34.

²³⁵ See id. at 428 (“It’s a forward-looking analysis.”).

²³⁶ See id. at 727–28.

²³⁷ Id. at 373–74, 387–88. Mr. Kugler testified that the projected date for completion of construction is essentially also the projected date for the start of commercial operations. This is

preparing their testimony for the evidentiary hearing on Contention 10C, however, that date had been revised to 2017, in accordance with Applicants' updated revision to the application.²³⁸ Mr. Kugler and Ms. Cort thus adjusted their testimony to properly reflect any potential change in analysis brought about by this revised date.²³⁹

Joint Intervenors, however, contend that the dates upon which the Staff based the FEIS and its testimony—that is, 2015 and 2017, respectively—are fundamentally impractical.²⁴⁰ Joint Intervenors noted that in addition to lacking a license for Calvert Cliffs Unit 3, the reactor design—the U.S. Evolutionary Power Reactor—is also not yet certified.²⁴¹ Moreover, they pointed out that the prototype for this reactor, which is currently being constructed in Finland, was originally to be built in four years, but is now estimated to take nine years to complete.²⁴² Based on these facts, Joint Intervenors argued that 2022 is a more reasonable timeframe to rely on when considering a combination alternative to Calvert Cliffs Unit 3.²⁴³ However, Joint Intervenors also stated that a range from 2020 to 2025 might actually be more reasonable, because

historically speaking new design nuclear reactors . . . typically operate at much lower capacity factors for the first two to three years of their existence because they've got to work out the bugs. So, instead of looking at 90 percent capacity factors, when a new reactor comes on line, particularly a new design reactor, we're usually looking closer [to] 50 to 60 percent capacity factors. And that might push out . . . when you would need to have a comparable amount of power in place.²⁴⁴

because, according to Mr. Kugler, Applicants will be testing the systems as they build them, and thus a separate testing phase at the end of construction is unnecessary. Id. at 408–09.

²³⁸ Id. at 373–74, 388.

²³⁹ Id. According to Mr. Kugler, analyzing combination alternative for a timeframe beyond 2017 would not conform to its guidance, and it would be difficult to determine what alternative timeframe should be used. Id. at 388.

²⁴⁰ Id. at 713.

²⁴¹ Id. at 325.

²⁴² Id. at 325.

²⁴³ Id. at 324–25, 711–12.

²⁴⁴ Id. at 712–13.

According to the Staff, in preparing the combination alternative analysis, it refrained from evaluating whether Calvert Cliffs Unit 3 was commercially viable, and consequently, when Calvert Cliffs Unit 3 would likely become operational.²⁴⁵ Rather, because Calvert Cliffs Unit 3 was the proposed action, the Staff simply assumed that Calvert Cliffs Unit 3 was commercially viable.²⁴⁶ The Staff never made an independent determination as to when it believed commercial operations were likely to begin at Calvert Cliffs Unit 3, nor did it take into consideration the fact that the Staff had separately determined that a license cannot be issued to Calvert Cliffs Unit 3 due to the current foreign ownership situation.²⁴⁷

Nonetheless, the ability to secure financing poses a significant obstacle for nuclear power projects, including Calvert Cliffs Unit 3, and current low prices of natural gas make it an attractive option for power companies, thus posing a threat to new nuclear projects.²⁴⁸ In addition, Mr. Kugler and Ms. Cort acknowledged that construction of a plant is not always completed expeditiously once the license is issued, as is the case with Watts Bar 2, which was licensed in the 1970's but is still under construction.²⁴⁹

Applicants' witness, Mr. Lutchenkov, estimated that it would take roughly seven to eight years to construct Calvert Cliffs Unit 3 and begin commercial operations.²⁵⁰ Mr. Lutchenkov stated that safety-related construction, that is, construction which is only permitted once the NRC

²⁴⁵ See id. at 387–88 (“MR. KUGLER: I’ll be honest. I don’t really get into whether [Calvert Cliffs Unit 3 is] commercially viable in my evaluation.”).

²⁴⁶ Id. at 387–88, 411.

²⁴⁷ Id. at 409–11.

²⁴⁸ Id. at 348, 415. Mr. Kugler did, however, note that while current low natural gas prices make natural gas an attractive option for power companies, most power companies will continue to want a range of energy sources, including nuclear, so that they are not completely reliant on one energy source. Id. at 415.

²⁴⁹ Id. at 411–12.

²⁵⁰ Id. at 519–23.

issues a COL, would take approximately 60 to 68 months to complete.²⁵¹ Prior to the safety-related construction, however, a preconstruction phase lasting roughly 18 to 24 months would have to occur, during which the site is cleared and prepared for the initial development.²⁵² Mr. Lutchenkov testified that while NRC permission is not required to begin the preconstruction phase for Calvert Cliffs Unit 3, Applicants are required to obtain certain state and federal permits before the preconstruction phase may begin.²⁵³ Applicants have obtained some of these required permits, including the Maryland Certificate of Public Convenience and Necessity (CPCN), but were still in the process of obtaining others at the time of the evidentiary hearing.²⁵⁴ Regardless, Mr. Lutchenkov reiterated that Applicants would refrain from beginning even preconstruction until certain key factors are in place.²⁵⁵ Mr. Lutchenkov testified that those key factors included a U.S. partner, a Department of Energy (DOE) loan guarantee, and a favorable economic and regulatory structure within the State of Maryland. Those issues remain unresolved.²⁵⁶

The Board concludes, taking into account both the time necessary to complete licensing and the time needed to complete construction, that Calvert Cliffs Unit 3 could realistically be completed between 2020 and 2025 if the foreign ownership problem can be resolved in the near future. Economic issues could further delay completion or prevent it entirely, but there is no point in conducting an alternatives analysis on the assumption that the proposed action will never be

²⁵¹ Id. at 520.

²⁵² Id.

²⁵³ Id. at 521.

²⁵⁴ Id.

²⁵⁵ Id. at 522. This is a position that Applicants have stated on numerous separate occasions as well. Id. at 521.

²⁵⁶ Id. at 521–22. Mr. Lutchenkov further explained that a favorable economic and regulatory structure within the State would be one which would allow for “a profitable entity and a profitable generation of power.” Id.

built. Joint Intervenors argued for 2022 as the estimated completion date.²⁵⁷ As that year falls near the middle of our 2020-2025 estimate, we will use 2022 as the timeframe of the proposed action.

It would be possible to complete construction of an otherwise unannounced solar or onshore wind power facility, including all necessary permitting, prior to the completion of Calvert Cliffs Unit 3.²⁵⁸ Mr. Ratti estimated that an onshore wind project could be online and generating electricity within 3 to 5 years from conception.²⁵⁹ The Board accepts this as a reasonable estimate. The Board therefore finds that extending the timeframe of the proposed action to 2022 would permit additional solar power and onshore wind power to be developed in Maryland and nearby states within the timeframe of the proposed action.

Mr. Ratti testified that he would expect “overall development times in the 10-15 year range” for offshore wind farms.²⁶⁰ His estimate was influenced by the approximately ten year period required for the Cape Wind Project, located off the Coast of Massachusetts, to complete the federal approval process.²⁶¹ However, he also added that the federal government’s “Smart from the Start” initiative, which began in 2010, is aimed at accelerating renewable wind energy development on the Atlantic, in part by expediting the approval process.²⁶²

Mr. Sklar testified that he expects the approval time for an offshore wind farm in Maryland and neighboring states to be approximately five years.²⁶³ He stated that the Cape Wind Project

²⁵⁷ Tr. at 324.

²⁵⁸ Id. at 492.

²⁵⁹ Exh. APL000001 at 19.

²⁶⁰ Id.

²⁶¹ Id. at 18.

²⁶² Id. at 18–20.

²⁶³ Id. at 609-610.

encountered intense local opposition from residents of Nantucket. Offshore wind farms in Maryland will not encounter that level of opposition, he predicted.²⁶⁴

The Board finds, taking into account the prospect that "Smart from the Start" initiative will shorten the time required to complete the federal approval process, that the 2022 timeframe would likely permit the development of offshore wind farms that may be proposed for development in the next several years.

As we have previously concluded, the Maryland RPS will be the primary factor determining the development of additional wind and solar power that is likely to be available in Maryland by 2022. A study prepared by the University of Delaware's Center for Carbon-free Power Integration, College of Earth, Ocean, and Environment (the Delaware study), estimates the installed onshore and offshore wind capacity that will be needed for Maryland utilities to satisfy the RPS obligation in 2022, based on four different assumptions about the percentage of the total obligation that will be met with wind power.²⁶⁵ The four assumptions were that onshore and offshore wind would provide 25, 50, 75, and 100 percent of the 2022 REC obligation for Tier 1 non-solar renewable sources.²⁶⁶ In order to translate RECs into installed capacity, the Delaware Study assumed a 35 percent capacity factor for onshore wind and a 40 percent capacity factor for offshore wind.²⁶⁷ The results are summarized below.²⁶⁸

²⁶⁴ Tr. at 609.

²⁶⁵ Exh. APL000010 at 21–23; see also Tr. at 441–46.

²⁶⁶ Exh. APL000010 at 23 (tbl. 6).

²⁶⁷ Id.

²⁶⁸ Id. The Delaware Study estimates for onshore wind assume that 1000-4500 MW of capacity could be installed on land in Maryland. The Delaware study acknowledged, however, that "[a]n analysis of the extent of Maryland land-based wind resources is beyond the scope of this report," and "land-based wind turbine calculations are provided for comparison purposes only." Id. at 23. Thus, the Delaware Study estimates do not necessarily project new installed onshore wind capacity in Maryland. Rather, they estimate the new installed wind capacity, either onshore or offshore, that will be needed to satisfy the RPS in 2022, assuming the specified percentages of the 2022 REC obligation will in fact be met with wind power.

<u>Percentage of 2022 REC Obligation Met with Wind Power</u>	<u>Onshore Installed Capacity Needed (MW)</u>	<u>Offshore Installed Capacity Needed (MW)</u>
25 percent; or 3,416,244 RECs	1,114	975
50 percent; or 6,832,488 RECs	2,228	1,950
75 percent; or 10,248,731 RECs	3,343	2,925
100 percent; or 13,664,975 RECs	4,457	3,900

The Staff did not base the combination alternative upon the estimates in the Delaware Study. Instead, the Staff relied on the LTER and the DOE Report discussed previously to estimate future wind power generation in the State of Maryland.²⁶⁹ The LTER predicts that wind power will make up about 20 percent of the renewables used to satisfy the non-solar Tier 1 RPS requirement, which is slightly below the lowest estimate in the Delaware study (25 percent).²⁷⁰ Substituting the LTER figure for the 25 percent used in the Delaware study, about 800 MW of installed offshore wind capacity will be needed to satisfy the RPS in 2022.²⁷¹

The LTER, however, estimates that under 200MW of installed wind power capacity located in Maryland will be used to satisfy the RPS in 2022.²⁷² The difference reflects the LTER's prediction that a very large percentage (more than 75 percent) of the RPS for non-solar Tier 1 resources will be met by generation located outside Maryland.²⁷³ As previously explained, the

²⁶⁹ See supra pp. 24-25.

²⁷⁰ Tr. at 450-51.

²⁷¹ Id. at 451.

²⁷² Id. at 452.

²⁷³ Id. at 453-54.

Staff excluded wind power generated outside Maryland from the combination alternative. We turn to that issue next.

2. The Exclusion of Generating Capacity Located Outside Maryland

A second factor that limited the potential wind and solar power contributions to the combination alternative was the Staff's requirement that such sources must be located within Maryland. There was only one exception: the Staff agreed that potential wind power sources directly offshore of Maryland could be included in the combination alternative, even if they fall outside the State's territorial limit (3-miles offshore).²⁷⁴ The Staff, however, excluded all other wind power sources that were not located within Maryland's borders.²⁷⁵

"NRC's site selection process guidance calls for identification of a [region of interest], the geographic area considered by an applicant in searching for candidate areas and potential sites for possible siting of a new nuclear power plant."²⁷⁶ In the FEIS, the Staff determined that the region of interest (ROI) for the proposed Calvert Cliffs Unit 3 was the State of Maryland.²⁷⁷ Applicants originally proposed the State of Maryland as the ROI for the Calvert Cliffs Unit 3 project in Revision 6 of its Environmental Report (ER), and in the FEIS the Staff accepted the Applicant's proposal, stating that "UniStar's designated ROI is consistent with expectations for an ROI" and that "UniStar's" basis for defining its ROI did not arbitrarily exclude desirable candidate locations."²⁷⁸ Based on the ROI, as defined in the FEIS, the Staff looked only at potential wind

²⁷⁴ Id. at 405-06.

²⁷⁵ Tr. at 406, 457-58.

²⁷⁶ FEIS at 9-33.

²⁷⁷ FEIS at 9-34; Tr. at 400.

²⁷⁸ FEIS at 9-34.

and solar power sources within the State of Maryland in determining potential wind and solar power contribution estimates to the Calvert Cliffs Unit 3 combination alternative.²⁷⁹

In support of its decision, the Staff emphasized that, much like many of the other states in its region, “Maryland already imports a very large portion of its power from other states.”²⁸⁰ Mr. Kugler testified that “the transmission system is already pretty loaded down in terms of importing power during periods of peak demand.”²⁸¹ According to Mr. Kugler, Maryland’s dependence on out-of-state power was a key factor in the MPSC’s decision to approve the Certificate of Public Convenience and Necessity for Calvert Cliffs Unit 3. He stated that “one of the factors [the MPSC] considered was [that] they want[ed] to get power sources built in Maryland to support the grid in Maryland. They don’t want Maryland to become even more dependent on outside sources because they’re competing with other states around them and their grid is already pretty strained.”²⁸²

The MPSC’s decision to grant a Certificate of Public Convenience and Necessity for Calvert Cliffs Unit 3 was based on the recommendation contained in the Proposed Order of the Hearing Examiner.²⁸³ In his recommendation,²⁸⁴ pursuant to Section 7-207(e) of the Public

²⁷⁹ Tr. at 400; Exh. NRC000004 at 5 (“The approach used to develop a combination of energy alternatives included the maximum contribution from renewable sources that could be reasonably expected within the region of interest and within the timeframe of the proposed project.”); Exh. NRC000043 (Prefiled Rebuttal Testimony of Andrew J. Kugler and Katherine A. Cort Regarding Contention 10C” and “Affidavit of Andrew J. Kugler Concerning Prefiled Rebuttal Testimony of Andrew J. Kugler and Katherine A. Cort Regarding Environmental Contention 10C” and “Affidavit of Katherine A. Cort Concerning Prefiled Rebuttal Testimony of Andrew J. Kugler and Katherine A. Cort Regarding Contention 10C” (Nov. 18, 2011)) at 9–10.

²⁸⁰ Tr. at 402.

²⁸¹ Id.

²⁸² Id. at 403.

²⁸³ Exh. NRC000014 (Maryland Public Service Commission, In the Matter of the Application of UniStar Nuclear Energy, LLC and UniStar Nuclear Operating Services, LLC for a Certificate of Public Convenience and Necessity to Construct a Nuclear Power Plant at Calvert Cliffs in Calvert County, Maryland, Case Number 9127, Order Number 82741 (June 26, 2009)) at 5.

Utilities Company Article, the Hearing Examiner considered, among other things, the effect of the generating station on “the stability and reliability of the electric system.”²⁸⁵ In addressing this issue, he cited a MPSC Staff witness who stated that Calvert Cliffs Unit 3 will reduce the State of Maryland’s dependence on imported electricity and will reduce congestion on transmission lines within the State of Maryland during peak periods by providing a continuous in-state baseload power source.²⁸⁶ Based on this testimony, the Hearing Examiner concluded that Calvert Cliffs Unit 3 would have a beneficial effect on the stability and reliability of the electric system in the State of Maryland, and recommended that the MPSC grant the Certificate of Convenience and Necessity for Calvert Cliffs Unit 3.²⁸⁷ The MPSC affirmed the Proposed Order of the Hearing Examiner.²⁸⁸

Mr. Kugler testified that the Staff excluded technologically feasible, commercially viable energy sources solely because they were not located within the State of Maryland.²⁸⁹ He acknowledged, however, that wind power generated offshore of Delaware could supply power to

²⁸⁴ Exh. NRC000015 (Maryland Public Service Commission, In the Matter of the Application of UniStar Nuclear Energy, LLC and UniStar Nuclear Operating Services, LLC for a Certificate of Public Convenience and Necessity to Construct a Nuclear Power Plant at Calvert Cliffs in Calvert County, Maryland, Case Number 9127, Proposed Order of Hearing Examiner (Apr. 28, 2009)) at 97.

²⁸⁵ Md. Code Ann., Pub. Util. Cos., § 7-207(e) (West 2012); Exh. NRC000015 at 42–43; see also Exh. NRC000015 at 97 (stating that Calvert Cliffs Unit 3 is “strongly supported by the local government and community” and that it “will constitute a new large source of power that would be of benefit to the citizens and State of Maryland.”).

²⁸⁶ Exh. NRC000015 at 52–53.

²⁸⁷ Id. at 52–53, 99–100.

²⁸⁸ Exh. NRC000014 at 5.

²⁸⁹ Tr. at 406–07 (“CHAIRMAN SPRITZER: All right. What about if [a wind source is] offshore in Delaware? Would that have been excluded? MR. KUGLER: We would not have included that because it was not within Maryland, because, again, we were looking at that as our region of interest.”).

Maryland.²⁹⁰ He explained that the most congested transmission lines in Maryland are typically to the North and the West, and thus wind power generated in Delaware could likely be transmitted into Maryland, given that the power would be entering the state through the East, where the transmission lines are less congested.²⁹¹ However, Mr. Kugler stated that such a power source would have been excluded from the FEIS combination alternative analysis based solely on its out-of-state location, despite the fact that it would enter Maryland's grid on uncongested transmission lines.²⁹²

I. The Staff's Evaluation of the Environmental Impacts of the Combination Alternative

The FEIS includes a Table entitled "Summary of Environmental Impacts of a Combination of Power Sources."²⁹³ For each impact category, such as land use, air quality, and water use and quality, the Table includes an impact categorization (small, moderate, or large); a comment providing a description of the impact; and, for air quality, quantitative estimates of emissions.²⁹⁴ Thus, the Table provides information permitting a reader of the FEIS to contrast the environmental impacts of the combination alternative with those of the proposed action. The Staff also discussed in somewhat greater detail the differences among the viable energy alternatives regarding carbon dioxide emissions. The Staff estimated that the combination alternative would produce 153,000,000 metric tons of carbon dioxide emissions during a 40-year period. This was less than the Staff's estimates of the carbon dioxide emissions from the alternatives consisting solely of coal-fired and natural-gas fired generation, but greater than the Staff's 32,000,000 metric ton estimate for the nuclear plant (taking into account transportation

²⁹⁰ Id. at 407.

²⁹¹ Id.

²⁹² Id.

²⁹³ FEIS at 9-29 (Table 9-3).

²⁹⁴ Id.

emissions for the nuclear plant workforce and fuel cycle emissions).²⁹⁵ The Staff concluded that “from an environmental perspective, none of the viable energy alternatives [including the combination alternative] are clearly preferable to construction of a new baseload nuclear power generating plant located within Unistar’s ROI.”²⁹⁶

In the FEIS combination alternative analysis, the Staff also considered the result if the wind contribution was quadrupled to 400 MW(e) of baseload power (the equivalent of 1000 to 1200 MW of installed capacity with a 400 MW(e) CAES facility).²⁹⁷ The Staff did not consider this a realistic scenario, but included it in the FEIS in response to comments received on the DEIS.²⁹⁸ Under that scenario, the combination alternative would require a 900 MW(e) natural gas plant rather than a 1200 MW(e) plant.²⁹⁹ This change would reduce by about 25 percent the air emissions associated with the natural gas plant component of the combination alternative.³⁰⁰ At the same time, land use impacts would increase if onshore wind is used, and a wider ocean area would be required if offshore wind is used. The Staff concluded that all of the environmental impact categorizations would be the same as the original combination alternative, except that if onshore wind is used to meet the increased wind estimate then the impacts to land use and ecology might become large, and if offshore wind is used increased impacts to aquatic ecology are likely.³⁰¹ The Staff further concluded that, under this modified scenario, the environmental impacts of the combination alternative would be greater than those of the proposed action, and

²⁹⁵ Id. at 9-31.

²⁹⁶ Id.

²⁹⁷ Id. at 9-28.

²⁹⁸ Tr. at 368-69.

²⁹⁹ FEIS at 9-28.

³⁰⁰ Tr. at 370.

³⁰¹ FEIS at 9-30.

thus the modified scenario would not be environmentally preferable.³⁰²

At the evidentiary hearing, the Staff elaborated on this point. Mr. Kugler explained that in general, as wind and solar power contributions are increased, impacts to air quality and waste management will decrease, but impacts to land use will increase significantly.³⁰³ Solar and wind power have very low capacity factors, he stated, and thus large installations requiring significant amounts of land are needed to provide these kinds of power outputs.³⁰⁴ Mr. Kugler testified that, no matter how much the solar and wind contributions were increased, there would never be a point at which the Staff would consider the combination alternative to be environmentally preferable to Calvert Cliffs Unit 3.³⁰⁵

V. CONCLUSIONS OF LAW

A. Legal Standards Governing the Board's Review of the Combination Alternative

The Staff is required to issue an FEIS that thoroughly and objectively evaluates reasonable alternatives to the proposed action.³⁰⁶ To this end, the FEIS need not discuss remote and speculative alternatives, but must consider only alternatives that bring about the ends of the proposed project.³⁰⁷ But if an alternative is feasible, commercially and capable of bringing about the ends of the proposed project, then the Staff may not dismiss it merely because it is

³⁰² Id.

³⁰³ Tr. at 473.

³⁰⁴ Id. at 472. Mr. Kugler further stated that the land use impacts that occur as a result of solar installations can be reduced by locating the installations on rooftops, but that the larger installations that are being built in Maryland and elsewhere typically located on the ground. Id.

³⁰⁵ Tr. at 470–73.

³⁰⁶ See National Environmental Policy Act of 1969 § 102(2)(C)(i)–(iii), 42 U.S.C. § 4332(2)(C)(i)–(iii) (2012); FirstEnergy Nuclear Operating Co. (Davis-Besse Nuclear Power Station, Unit 1), CLI-12-08, 75 NRC ___, __ (Mar. 8, 2012) (slip op. at 5) (citing NRDC v. Martin, 458 F.2d 827, 834, 837 (D.C. Cir. 1972)); see also 10 C.F.R. § 51.53(c)(2).

³⁰⁷ Vermont Yankee, 435 U.S. at 551; NextEra Energy Seabrook, LLC (Seabrook Station, Unit 1) CLI-12-05, 75 NRC ___, __ (slip op. at 49) (Mar. 8, 2012).

inconsistent with the preferences of interested parties, or for other reasons inconsistent with NEPA's rule of reason.³⁰⁸

The project's goals determine the alternatives that are considered reasonable.³⁰⁹ In considering alternatives under NEPA, an agency should take into account the needs and goals of the parties involved in the application.³¹⁰ "However, agencies are not permitted 'to define the objectives [of a proposed action] so narrowly as to preclude a reasonable consideration of alternatives.'"³¹¹ Although the agency's alternative analysis should reflect the applicant's goals, the underlying goal should not be purposefully narrowed to predetermine the outcome.³¹² Blindly adopting the applicant's statement of the purpose of the action is a "losing position" because it does not allow for the full consideration of alternatives required by NEPA.³¹³ NEPA requires an agency to "exercise a degree of skepticism in dealing with the self-serving statements from the prime beneficiary of the project" and to look at the general goal of the project, rather than only those alternatives preferred by the applicant.³¹⁴

B. The Staff's Limitations on the Timeframe and Geographic Scope of the Combination Alternative Were Unreasonably Restrictive

The Combination Alternative included in the FEIS would supply 1600 MW(e) of baseload power for distribution in Maryland. It is therefore capable of satisfying that purpose of the project.

³⁰⁸ See Wetlands Water District v. Dept. of the Interior, 376 F.3d 853, 868 (9th Cir. 2004).

³⁰⁹ City of New York v. U.S. Dep't of Transp., 715 F.2d 732, 742 (2d Cir. 1983).

³¹⁰ Private Fuel Storage, LLC (Independent Spent Fuel Storage Installation), CLI-04-22, 60 NRC 125, 146 (2004).

³¹¹ Wyoming v. U.S. Dept. of Agriculture, 661 F.3d at 1244 (quoting Citizens' Committee to Save Our Canyons v. U.S. Forest Service, 297 F.3d 1012, 1030 (10th Cir. 2002)).

³¹² City of Grapevine v. Dep't of Transp., 17 F.3d 1502, 1506 (D.C. Cir. 1994).

³¹³ Simmons v. U.S. Army Corps of Eng'rs, 120 F.3d 664, 669 (7th Cir., 1997).

³¹⁴ Id. (quoting Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 209 (D.C.Cir.1991) (Buckley, J., dissenting)).

The record also establishes that solar power, onshore wind, and offshore wind are technologically feasible means of generating electrical energy.³¹⁵ Both solar power and onshore wind power facilities are already generating electricity in Maryland and elsewhere.³¹⁶ While there is no offshore wind currently operating along the Atlantic Coast, offshore wind farms are operating in Europe, and no witness disputed the technological feasibility of offshore wind.³¹⁷ It is also clear that Maryland has ample potential for the development of offshore wind.³¹⁸

Thus, the major issue concerning the Combination Alternative is the extent to which solar and wind power will be commercially viable within the timeframe of the proposed action. In analyzing this issue, the Staff looked to not just the theoretical potential for the development of wind and solar power, but to their likely availability within the timeframe of the proposed action. In general, we believe that was a reasonable approach. But, as we explain below, the Staff adopted an unrealistic timeframe for the proposed action, and it also inappropriately eliminated all potential wind and solar power contributions from outside Maryland. These restrictions unduly limited the potential wind and solar power contributions to the Combination Alternative, thereby making it overly dependent upon the natural gas plant.

1. The Staff Unreasonably Limited Wind and Solar Power Contributions to Only Those that Would be Available by 2015 or 2017

As stated in Carolina Environmental Study Group v. United States, NEPA requires that alternatives be considered “as they exist and are likely to exist,” not merely as they exist at the present time.³¹⁹ Although “remote and speculative” alternatives need not be addressed in a

³¹⁵ See FEIS at 9-20 to 9-24.

³¹⁶ Exh. APL000001 at 38–39; Exh. NRC000004 at 26.

³¹⁷ See Tr. at 345–47; Exh. APL000010 at 1.

³¹⁸ Exh. NRC000024 at 60–63 (tbl. 4-3); Exh. APL000010 at 19 (tbl. 3).

³¹⁹ 510 F.2d 796, 801 (D.C. Cir. 1975); see also NextEra Energy Seabrook, L.L.C. (Seabrook Station, Unit 1), LBP-11-02, 73 NRC __, __ (slip op. at 24–25) (Feb. 15, 2011).

FEIS, NEPA requires the Staff to consider reasonable alternatives that are likely to be available within the timeframe of the proposed action.³²⁰

The Staff failed to comply with this requirement because its estimated dates for the completion of the proposed action—2015 and 2017—are unrealistic. No license has been issued for Calvert Cliffs Unit 3, the reactor design is still uncertified, and the Staff has yet to complete its SER with open items for this proposed facility. It might take roughly eight years, if not more, once the required COL is obtained to complete construction of Calvert Cliff Unit 3. Moreover, Applicants have reiterated that they have no intention of beginning preconstruction, even if they were to obtain a COL, until multiple key factors are in place. Given these factors, it is likely that Calvert Cliffs Unit 3 will not be built until sometime between 2020 and 2025, and it may never be built. The completion date proposed by Intervenors, 2022, is far more realistic than the dates used by the Staff.

Because wind and solar power technologies are constantly evolving, their respective potential power contributions to the combination alternative are highly dependent upon the relevant timeframe. Also, the RPS requirements increase up to 2022. Maryland utilities must comply with those requirements. And there will be more time for new wind and solar projects to complete the necessary approval processes, negotiate power purchase agreements, and complete construction if the timeframe is extended to 2022. Thus, the potential wind and solar power contributions to the combination alternative will likely be greater in 2022 than in 2015 or 2017.

Thus, by relying on the impractical dates of 2015 and 2017, the Staff's analysis of wind and solar power contributions to the combination alternative is flawed.

³²⁰ 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)).

2. The Staff Unreasonably Limited the Combination Alternative to Only Generating Capacity Located in Maryland

The Staff chose not to consider potential contributions to the combination alternative from out-of-state sources of renewable energy, including wind power.³²¹ The record reflects that, while power is routinely wheeled between states, transmitting electricity over long distances can result in transmission line losses.³²² In addition, during peak periods Maryland experiences transmission line congestion, primarily in areas to the North and West of the State.³²³ It would be consistent with NEPA to apply a geographic restriction appropriately tailored to those legitimate concerns. But the Staff instead applied a blanket exclusion of all out-of-state wind power. The Staff has not shown that such a total exclusion of all out-of-state generating capacity was necessary to achieve the purpose of supplying 1600 MW(e) of baseload power in Maryland. The Board concludes that the combination alternative should have included wind power likely to be available from nearby states where transmission line congestion problems are not a significant concern.³²⁴

The Staff's review of alternative energy sources is guided by the Environmental Standard Review Plan ("ESRP"), Chapter 9, Sections 9.2.1 through 9.2.3, as modified by an April 26, 2010 memorandum, not merely the preferences of the Applicant or the State of Maryland.³²⁵ ESRP 9.2.2 states that:

[t]he reviewer should review the alternative energy sources and combinations of sources available to the applicant, and categorize them as either competitive or

³²¹ See Tr. at 406-07.

³²² Tr. at 480-81, 660-61.

³²³ Tr. at 407.

³²⁴ As we discussed previously, the FEIS does not in fact consistently require that all sources of new electrical power be located in Maryland. See *supra* pp. 12-13. Our discussion here focuses on the reasons why such a blanket exclusion is unreasonable, even had it been stated consistently in the FEIS.

³²⁵ Exh. NRC000004 at 11.

noncompetitive with the proposed project. A competitive alternative is one that is feasible and compares favorably with the proposed project in terms of environmental and health impacts. If the proposed project is intended to supply baseload power, a competitive alternative would also need to be capable of supplying baseload power. A competitive alternative could be composed of combinations of individual alternatives.³²⁶

In addition, ESRP 9.2.2 lists specific criteria that an alternative must meet, the first of which is that “[t]he energy conversion technology should be developed, proven, and available in the relevant region.”³²⁷ Mr. Kugler acknowledged these requirements when he testified that as part of a combination alternative review, “the Review Team assesses the environmental impacts of technically feasible and commercially viable energy alternatives available in the region of interest that would be able to meet the purpose and need of the project . . .”³²⁸ Thus, as the ESRP makes clear, and the Staff acknowledges, in order to be included in the FEIS combination alternative analysis, a power source need only be “available in the region of interest,” that is, in Maryland; it need not necessarily be located in Maryland if transmission lines will permit importing the power into Maryland. Thus, a technologically feasible and commercially viable out-of-state power source should have been included in the combination alternative to the extent transmission lines will permit importing the power into Maryland.

The Staff’s justification for its blanket exclusion of all out-of-state wind power is based upon the the Proposed Order of the Hearing Examiner, subsequently affirmed by the MPSC.³²⁹ The Proposed Order did indicate a preference that a new 1600MW(e) baseload power plant be located in Maryland. But the Staff’s reliance on this preference when analyzing the distributed wind power contribution to the combination alternative is misplaced. The Hearing Examiner’s

³²⁶ Exh. NRC000008 (“Environmental Standard Review Plan—Standard Review Plans for Environmental Reviews for Nuclear Power Plants,” U.S. Nuclear Regulatory Commission, NUREG-1555, Rev. 1 (2007)) at 9.2.2-3 to 9.2.2-4.

³²⁷ Id. at 9.2.2-4 (emphasis added); see also Exh. NRC000004 at 11.

³²⁸ Exh. NRC000004 at 11.

³²⁹ Id. at 14.

preference for an in-state source reflects the concern that reliance on a large out-of-state source of baseload power may exacerbate existing transmission line congestion problems.³³⁰ But the Staff witnesses testified that transmission line congestion in Maryland is primarily to the North and West, and that it is possible to avoid transmission line congestion concerns by importing power from the South and East.³³¹ The Staff acknowledged the possibility that offshore wind in Delaware could provide power to Maryland utilities, but that possible power source was excluded from the Staff's analysis of the combination alternative because it was located outside Maryland.³³²

Thus, in analyzing wind and solar power contribution estimates to the combination alternative, the Staff should have included estimates of wind and solar power sources that could be imported into Maryland through areas where the transmission lines are less-congested, i.e. through the South and East. Nearby states such as Delaware have significant wind power potential,³³³ and Maryland utilities could use wind power purchased from those states to satisfy their RPS requirements. But the Staff limited its analysis of potential wind power contributions to the combination alternative to sources within Maryland, regardless of whether such sources were located in an area where a significant congestion problem has been identified.

The Hearing Examiner's Proposed Order also referred to Maryland's interest in limiting its dependence on imported electricity.³³⁴ Mr. Kugler cited this concern as supporting the NRC's refusal to consider out-of-state generating capacity.³³⁵ But the Staff's reliance on this aspect of

³³⁰ Exh. NRC000015 at 52; Tr. at 402-03.

³³¹ See id. at 406-07.

³³² Id.

³³³ See JNTR00001 at 6-9; JNT000003 at 3-4 (Table 1).

³³⁴ Exh. NRC000015 at 52.

³³⁵ Tr. at 402-03.

the Proposed Order ignores the fact that the Maryland RPS permits Maryland utilities to purchase wind power, as well as other sources of renewable electrical energy, from outside the State. Although the RPS does require that 2 percent of Maryland's power supply come from in-state solar power by 2022, it simultaneously allows for the remaining 18 percent of Maryland's power required to come from renewables by 2022—including wind power—to be produced out-of-state.³³⁶ Thus, Maryland expressly permits utilities to use wind power sources located outside Maryland to satisfy their RPS requirements.

The issue before the Hearing Examiner was whether it would be in the State's interest that a new large baseload power plant be located within the State. Under the combination alternative, the large baseload power source, the 1200 MW(e) natural gas combined-cycle generating units, would be located in Maryland, at the Calvert Cliffs site.³³⁷ The Hearing Examiner did not address the question whether, if the State chose to pursue an approach equivalent to the combination alternative, it would insist that all wind power sources contributing to such an alternative be located in Maryland. Had he considered that issue, it seems far more likely that he would have followed an approach consistent with the State's policy as expressed in the RPS legislation, under which RPS requirements may be satisfied through wind power sources located outside the State.

Consequently, the FEIS analysis of the combination alternative is inadequate because the Staff chose not to consider technologically feasible, commercially viable power sources merely because they were not located in Maryland.³³⁸

³³⁶ See Exh. JNT000011 at 3.

³³⁷ FEIS at 9-28.

³³⁸ See Tr. at 407.

C. The Deficiencies in the Staff's Analysis Are Not Harmless Error

Applicant argues that “[a]ny dispute over the specific, relative mix of wind or solar used in the combination alternative is not one that would affect the outcome of the NEPA analysis and therefore is not a material issue in this proceeding.”³³⁹ Applicant bases this argument on the Staff’s testimony that increases in the contributions of wind and solar power would not alter its conclusion that the combination alternative is not environmentally preferable to the proposed action. Applicant assumes that, because the Staff’s conclusion on this issue would not change, any errors in the Staff’s analysis of the combination alternative would not constitute a material violation of NEPA and therefore need not be corrected.³⁴⁰ In substance, this argument relies on the administrative law doctrine of harmless error.³⁴¹ We reject its application here – as we have twice before in this proceeding – because the Staff may not avoid NEPA’s requirement to provide the public and the decision-maker with a realistic evaluation of viable alternatives merely by asserting that compliance would not alter its own conclusions.³⁴²

We first rejected an equivalent argument in our ruling admitting Contention 10C. The Staff argued that we should not admit Contention 10C because Intervenors failed to show that the combination alternative with an increased wind and solar contribution would be environmentally

³³⁹ Applicants’ Proposed Findings of Fact at 67.

³⁴⁰ Id. at 65-67.

³⁴¹ See California Wilderness Coalition v. U.S. Dept. of Energy, 631 F.3d 1072, 1105–06 (9th Cir. 2011) (finding agency error not harmless).

³⁴² The Staff’s witness, Mr. Kugler, appeared to disagree with the argument that a reasonable assessment of the contributions of wind and solar power was unnecessary to compliance with NEPA. In response to the question whether “all of the exercise in determining what’s reasonable [was] really essential to this environmental determination,” he responded:

Well, I think it’s important that we develop a combination of energy alternatives that we think could be done to compare it to what’s been proposed. Because until we do the comparison, we don’t know for sure how it’s going to come out.

Tr. at 473.

preferable to the proposed action.³⁴³ Intervenors responded that, once they identified flaws in the DEIS's analysis of alternatives, it was the Staff's responsibility to "produce a new analysis that takes the realities we have presented into account."³⁴⁴ We agreed with Intervenors because "[f]ederal courts have held that inaccurate, incomplete, or misleading information in an EIS concerning the comparison of alternatives is itself sufficient to render the EIS unlawful and to

³⁴³ Staff Answer to Joint Intervenors' New Contention 10 (July 20, 2010) at 19-20.

³⁴⁴ Joint Intervenor's Reply to Staff's and Applicant's Responses to Submission of Contention 10 (July 27, 2010) at 13.

compel its revision."³⁴⁵ We therefore ruled that

Intervenors need not prove, in order to establish a NEPA violation, that revising the DEIS to comply with NEPA will change the Staff's recommendation or the agency's decision whether to issue the license. It is sufficient that the information which Intervenors maintain should have been included in the DEIS would be relevant to the ability of the agency decisionmakers and the public to assess the environmental consequences of the project, including the environmental consequences of reasonable alternatives. If Intervenors establish that much, they will have shown that the agency failed to comply with NEPA's procedural requirements.³⁴⁶

We revisited this issue when the Applicants moved for summary judgment on Contention 10C. Applicants maintained then, as they do now,³⁴⁷ that even if the FEIS's evaluation of the combination alternative understates the potential contribution of wind and solar power, the issue is immaterial because the Staff performed a "sensitivity analysis" showing that increasing the wind power contribution to the combination alternative would not alter the Staff's conclusion concerning the environmentally preferable alternative.³⁴⁸ We noted that the doctrine of harmless error has only limited application in NEPA cases, and none where the agency has failed to take the required hard look at environmental consequences and alternatives.³⁴⁹ For example, in Wilderness Watch v. Mainella,³⁵⁰ the Eleventh Circuit rejected an argument much like that here, where the agency maintained that it should not be required to remedy a NEPA violation because doing so would not change its conclusions. As the Court of Appeals explained, "[p]ermitting an agency to avoid a NEPA violation through a subsequent, conclusory statement that it would not have

³⁴⁵ LBP-10-24, 72 NRC at ___ (slip op. at 50) (citing Animal Defense Council v. Hodel, 840 F.2d 1432, 1439 (9th Cir. 1988); Natural Res. Def. Council v. U.S. Forest Serv., 421 F.3d 797, 810–12 (9th Cir. 2005)).

³⁴⁶ Id. at ___ (slip op. at 52).

³⁴⁷ Applicants' Proposed Findings of Fact at 68.

³⁴⁸ Applicants' Motion for Summary Disposition of Contention 10C (June 20, 2011) at 12-13, 15.

³⁴⁹ Contention 10C Summary Disposition Order at 17.

³⁵⁰ 375 F.3d 1085, 1096 (11th Cir. 2004).

reached a different result even with the proper analysis would significantly undermine the statutory scheme.”³⁵¹

That concern applies with equal force in this case. The issue whether the United States should pursue conventional energy sources, renewable sources, or some combination of the two is a matter of intense public interest. One of NEPA’s primary goals is fostering informed public participation in the decision making process.³⁵² Providing the public with accurate and complete information concerning the environmental consequences of the proposed action and alternatives is essential to fulfilling that goal. NEPA requires federal agencies to “[r]igorously explore and objectively evaluate all reasonable alternatives.”³⁵³ Even if the rigorous exploration of alternatives NEPA requires would not change the Staff’s views, members of the public may use such information to support their own conclusions, which may well be quite different from those of the Staff. This would further NEPA’s goal of informed public participation, while the Applicant’s harmless error theory would frustrate it.

Although the Staff has provided a reasonable basis for its conclusion that the combination alternative is not environmentally preferable to the proposed action, others have a reasonable basis to argue that the decision-maker should reach the opposite conclusion. The Staff’s position is that, as wind and solar power contributions are increased, the impact of the combination alternative on air quality and waste management will decrease, but the combination alternative will still not be environmentally preferable to the proposed action primarily because impacts to land use will increase significantly.³⁵⁴ But Mr. Sklar disagreed with the claim that the

³⁵¹ Id.

³⁵² See Robertson, 490 U.S. at 349–350; see also La. Energy Services, L.P. (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 87 (1998) (citing Robertson, 490 U.S. at 349–50; Hughes River Watershed Conservancy v. Glickman, 81 F.3d 437, 443 (4th Cir.1996)).

³⁵³ 40 C.F.R. § 1502.14(a).

³⁵⁴ Tr. at 473.

land use impacts of solar and wind power are significant, pointing out that both solar and wind power installations, unlike nuclear and other traditional sources of electrical energy, are readily compatible with other land uses. Solar panels, for example, can be placed on rooftops, and wind turbines can be placed on land used for agriculture.³⁵⁵ Thus, the alleged impact on other land uses, in Mr. Sklar's view, is overstated. In addition, Mr. Sklar testified that renewable sources of energy would use less water than a nuclear power plant, and that "the risk analysis of what happens when something does not work will probably be a little more gentle with . . . a blend of renewable and conventional technologies" than with a nuclear power plant.³⁵⁶ The FEIS also states that the combination alternative's impacts to water use and quality would be "somewhat less than the impacts for a new nuclear power plant located at the Calvert Cliffs site."³⁵⁷

Given the potential for alternative viewpoints concerning a matter of significant public interest, NEPA's requirement that the agency thoroughly and objectively analyze reasonable alternatives may not be avoided by after-the-fact statements that compliance would not change the Staff's conclusion concerning the environmentally preferable alternative. "Without substantive, comparative environmental impact information regarding other possible courses of action, the ability of an EIS to inform agency deliberation and facilitate public involvement would be greatly degraded."³⁵⁸ Thus, as the Tenth Circuit observed, "[a] public comment period is beneficial only to the extent the public has meaningful information on which to comment Thus, we cannot agree that the failure to thoroughly analyze the environmental impacts of Alternative A-modified in a public NEPA document was harmless."³⁵⁹

³⁵⁵ Tr. at 680-83.

³⁵⁶ Tr. at 683-84.

³⁵⁷ FEIS at 9-29 (tbl. 9-3).

³⁵⁸ New Mexico ex rel. Richardson v. Bureau of Land Management, 565 F.3d 683, 708 (10th Cir. 2009).

³⁵⁹ Id.

Accordingly, the NRC must provide a rigorous and objectively reasonable evaluation of the combination alternative in order to comply with NEPA. Applicants' harmless error theory fails (again).

D. Although the Staff Imposed Unreasonable Restrictions on the Combination Alternative, the Staff Need Not Revise the FEIS

Although the Staff unreasonably restricted the analysis of the combination alternative, this does not necessarily require that the FEIS be revised. Below we review the extensive record to determine whether we can arrive at reasonable estimates of the wind and solar power contributions to the combination alternative in 2022 and determine how this would affect the environmental impacts of the revised combination alternative, thereby making revision of the FEIS unnecessary.

We have already determined that the amount of available wind and solar power will for the foreseeable future be determined primarily by regulatory requirements and that, for Maryland, the determining requirement will be the RPS. The Delaware Study indicates, assuming Maryland utilities use wind power to satisfy 25 percent of their REC requirements for non-solar Tier 1 resources, that either 1,114 MW of onshore installed capacity or 975 MW of offshore installed capacity will be needed in 2022. The Maryland LTER estimated that Maryland utilities will use wind power to satisfy only 20 percent of their REC requirements for non-solar Tier 1 resources. Using that percentage, the corresponding estimates for wind power capacity would be reduced to approximately 900 MW of onshore installed capacity or 800 MW of offshore installed capacity in 2022. (We refer to both sets of estimates below as the "Delaware Study estimates"). Either set of figures is substantially above the 250 to 300 MW of installed wind capacity that the Staff included in the combination alternative. Although Mr. Sklar believes Maryland utilities will use wind power to satisfy more than 25 percent of their REC requirements for non-solar Tier 1

resources,³⁶⁰ we conclude that a percentage in the 20-25 percent range should be used because it is more consistent with the LTER estimate.

Of course, saying that such capacity will be needed in 2022 is not the same as saying that it will be built. Maryland utilities have the option of making alternative compliance payments instead of purchasing RECs. But Maryland expects that, for Tier 1 resources other than solar, utilities will purchase the required RECs each year rather than make the alternative compliance payments permitted under the program.³⁶¹ RECs represent MW hours of electricity actually produced, which means that, if Maryland utilities are purchasing a given number of RECs, the electricity represented by the RECs must actually be generated. Furthermore, the LTER predicts that sufficient non-solar Tier 1 generating capacity will be available in the PJM region to enable utilities to meet the requirements of the RPS and similar requirements imposed by other States in the region.³⁶² Thus, for Tier 1 resources other than solar, Maryland utilities will likely meet their obligations by the purchase of RECs rather than making alternative compliance payments.

The question, however, is where the new generating capacity will be located, and whether it will be possible to transmit the new power to Maryland. As noted above, Maryland utilities can purchase the required RECs for Tier 1 non-solar renewable sources such as wind power from out-of-state sources. In addition, utilities are not required to purchase power generated by the renewable energy sources from which they purchase RECs.³⁶³ Accordingly, a Maryland utility can satisfy its REC requirement by purchasing the necessary credits from out-of-state wind power

³⁶⁰ Tr. at 602-09.

³⁶¹ Id. at 445-46.

³⁶² Exh. APL000005 (“Long-Term Electricity Report for Maryland,” Exeter Associates, Inc., Prepared for the Maryland Department of Natural Resources (Sept. 23, 2011)) at 3-12 to 3-22 (“Development of Tier 1 non-solar renewable resources is assumed to keep pace with demand so that the region’s RPS requirements are fully met throughout the study period.”).

³⁶³ Tr. at 454.

sources, even though it would be impractical for the utility to purchase power from those sources due to their distance from Maryland or the lack of uncongested transmission facilities. Therefore, because RECs may be purchased from renewable energy generators that are not likely to actually supply power to Maryland utilities, there are significant uncertainties associated with using the Delaware study's estimates to determine the wind power capacity that could realistically contribute to a commercially viable combination alternative for Maryland.

The most we can say, given that we expect regulatory requirements to strongly influence the construction of new wind power capacity, is that the Delaware Study estimates provide an upper bound for the installed wind power capacity that could be included in the combination alternative in 2022. For those estimates to be relevant to the combination alternative, all of the wind power generating capacity necessary to satisfy the RPS in 2022 would have to be capable of being imported into Maryland, even if it is generated out-of-state. But we have no way of knowing whether that will be true. Some of the generating capacity might be located too far from Maryland to be a realistic supply alternative, although Maryland utilities could still purchase RECs from such out-of-state sources.

The corresponding lower bound would assume only a marginal contribution to the combination alternative from sources located outside Maryland. The LTER's reference case assumes that Maryland will add slightly less than 200 MW of wind generation capacity between now and 2022.³⁶⁴ If we assume that Maryland utilities will purchase RECs from out-of state sources but import only a limited amount of power due to transmission problems or other technical issues, a conservative estimate would be that 250-300 MW of installed wind capacity would be available for the combination alternative in 2022, equivalent to the figure used in the FEIS.

Realistically, the best estimate will likely be somewhere between the conservative lower bound and the optimistic upper bound. We would therefore expect, using the 2022 timeframe, a

³⁶⁴ Exh. APL000005 at 9-3 (fig. 9.1); Tr. at 455.

modest increase in the potential wind power contribution to the combination alternative beyond that assumed in the FEIS, on the order of an additional 200-300 MW of installed capacity. We think increases above that figure, while possible, are too uncertain to justify inclusion in the analysis.

For solar power, the RPS mandates that RECs used to satisfy the RPS solar carve-out must be obtained from in-state sources. Consequently, we do not have to deal with the uncertainties created by the use of out-of-state sources to satisfy the RPS. Under the RPS solar carve-out requirement, two percent of Maryland's electrical energy must come from in-state solar power by 2022. This is equivalent to approximately 800 MW of installed capacity by 2022.³⁶⁵ But the LTER anticipates that by 2022 only about half of the RPS requirement will be met through the purchase of RECs; utilities will meet the balance of their requirements through alternative compliance payments.³⁶⁶ Thus, we arrive at an estimate of 400 MW of installed solar capacity in Maryland by 2022.³⁶⁷ This is moderately higher than the estimate of approximately 300 MW of installed capacity in the FEIS.

We therefore conclude, on the basis of the extensive record developed in this proceeding, that we are able to provide imperfect but reasonable estimates of the potential contribution of wind and solar power to the combination alternative within the realistic timeframe of the proposed action. We further note that, while the revised estimates are somewhat higher than those in the FEIS, the Staff has explained how increasing the solar and wind power contributions would affect the analysis of the environmental consequences of the combination alternative, including both the impacts that would be reduced and those that would be increased. Moreover, the Staff has made clear that it would not change its conclusion that the combination alternative is not

³⁶⁵ Tr. at 461.

³⁶⁶ Id. at 461-62; Exh. APL000005 at 3-21.

³⁶⁷ Tr. at 462-63.

environmentally preferable, making it unnecessary for the Staff to revisit that issue. Thus, the FEIS, as supplemented by the evidence at the hearing and our findings of fact and conclusions of law, is sufficient to satisfy NEPA's twin goals of (1) ensuring that agency decision-makers will have detailed information concerning significant environmental impacts of proposed projects when they make their decisions, and (2) guaranteeing that such information will be available to the larger audience that may also play a role in the decision making process.³⁶⁸

Accordingly, we deny Joint Intervenors' request that we require a revision of the FEIS.

VI. CONCLUSION

The Board finds that, while the FEIS analysis of the combination alternative was deficient for the two reasons we have identified, the FEIS, as supplemented, satisfies the requirements of NEPA and 10 C.F.R. Part 51.

In accordance with 10 C.F.R. § 2.1210, this partial initial decision will constitute a final decision of the Commission forty (40) days after its issuance (i.e., on October 9, 2012), unless: (1) a party files a petition for Commission review within fifteen (15) days after service of this initial

³⁶⁸ Robertson, 490 U.S. at 349.

decision; or (2) the Commission directs otherwise.³⁶⁹ Within ten (10) days after service of a petition for Commission review, parties to the proceeding may file an answer supporting or opposing Commission review.³⁷⁰ A party who seeks judicial review of this decision must first seek Commission review, unless otherwise authorized by law.³⁷¹

It is so ORDERED.

THE ATOMIC SAFETY
AND LICENSING BOARD

/RA/

Ronald M. Spritzer, Chairman
ADMINISTRATIVE JUDGE

/RA/

Dr. Gary S. Arnold
ADMINISTRATIVE JUDGE

/RA/

Dr. William W. Sager
ADMINISTRATIVE JUDGE

Rockville, Maryland
August 30, 2012

³⁶⁹ 10 C.F.R. §§ 2.341(b), 2.1210(a), 2.1212.

³⁷⁰ Any petition for Commission review and any answer shall conform to the requirements of 10 C.F.R. § 2.341(b)(2)-(3).

³⁷¹ 10 C.F.R. § 2.1212.

/RA/

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
)
CALVERT CLIFFS 3 NUCLEAR PROJECT, LLC.)
AND UNISTAR NUCLEAR OPERATING)
SERVICES, LLC) Docket No. 52-016-COL
)
(Calvert Cliffs 3 Nuclear Project, LLC))
(Combined License))

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing **BOARD ORDER (PARTIAL INITIAL DECISION) (LBP-12-17)** have been served upon the following persons by Electronic Information Exchange.

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Docket No. 52-016-COL

BOARD ORDER (PARTIAL INITIAL DECISION) (LBP-12-17)

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Docket Nos. 52-016-COL

BOARD ORDER (PARTIAL INITIAL DECISION) (LBP-12-17)

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this 30th day of August 2012

[Original signed by Christine M. Pierpoint]
Office of the Secretary of the Commission

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Ronald M. Spritzer, Chairman
Dr. Gary S. Arnold
Dr. William W. Sager

In the Matter of

CALVERT CLIFFS 3 NUCLEAR PROJECT,
LLC, and UNISTAR NUCLEAR OPERATING
SERVICES, LLC

(Combined License Application for Calvert Cliffs
Unit 3)

Docket No. 52-016-COL

ASLBP No. 09-874-02-COL-BD01

August 30, 2012

ORDER

(Granting Summary Disposition of Contention 1)

This adjudicatory proceeding arises from an application by UniStar Nuclear Operating Services, LLC, and Calvert Cliffs 3 Nuclear Project, LLC, (Applicants) for a combined license (COL) to construct and to operate one U.S. Evolutionary Power Reactor (U.S. EPR), designated Unit 3, to be located at the existing Calvert Cliffs site in Lusby, Calvert County, Maryland.¹ Applicants are subsidiaries of UniStar Nuclear Energy, LLC (UniStar), a Delaware corporation.²

¹ See Calvert Cliffs 3 Nuclear Project, LLC, and UniStar Nuclear Operating Services, LLC Notice of Hearing and Opportunity To Petition for Leave To Intervene and Order Imposing Procedures for Access to Sensitive Unclassified Non-Safeguards Information and Safeguards Information for Contention Preparation on a Combined License for the Calvert Cliffs Nuclear Power Plant Unit 3, 73 Fed. Reg. 55,876 (Sept. 26, 2008).

² Letter from David A. Repka, Counsel for Calvert Cliffs 3 Nuclear Project, LLC and UniStar Nuclear Operating Services, LLC, to Calvert Cliffs Board (Nov. 3, 2010) at 1 [hereinafter UniStar Letter].

For the reasons set forth below, the Board grants summary disposition in favor of Joint Intervenors as to Contention 1 and finds Applicants ineligible to obtain a license because they are owned by a United States (U.S.) corporation that is 100 percent owned by a foreign corporation. As such, Applicants fail to meet the requirements of Section 103(d) of the Atomic Energy Act (AEA) and 10 C.F.R. § 50.38.

The Board is also issuing today its Partial Initial Decision (PID) resolving the other pending contention (Contention 10C). In accordance with precedent delineated by the Commission in the North Anna proceeding,³ if Applicants fail to find a domestic partner within 60 days of this ruling, this proceeding will be terminated.

A license cannot be issued in this proceeding until the ownership issue is properly corrected. Should the foreign ownership situation change, Applicants may motion to reopen the record in accordance with 10 CFR § 2.326.

I. BACKGROUND

Joint Intervenors' Contention 1, which the Board admitted in its March 24, 2009, Memorandum and Order, alleges that "[c]ontrary to the Atomic Energy Act and NRC Regulations, Calvert Cliffs-3 would be owned, dominated, and controlled by foreign interests."⁴ From the commencement of this proceeding until November 3, 2010, UniStar was owned in near-equal shares, through intermediate parent companies, by Constellation Energy Group, Inc. (Constellation), a U.S. corporation, and Électricité de France, S.A. (EDF), a French corporation.⁵

³ Virginia Electric and Power Company d/b/a Dominion Virginia Power and Old Dominion Electric Cooperative (Combined License Application for North Anna Unit 3), CLI-12-14, 75 NRC __, __ (slip op. at 10) (June 7, 2012) ("[T]he longstanding practice in our proceedings [is] that [] once all contentions have been decided, the contested proceeding is terminated.").

⁴ See Petition to Intervene in Docket No. 52-016, Calvert Cliffs-3 Nuclear Power Plant Combined Construction and License Application (Nov. 19, 2008) at 5. The Board has previously found that Joint Intervenors have standing and granted their request for a hearing. See Calvert Cliffs 3 Nuclear Project, LLC (Calvert Cliffs Nuclear Power Plant, Unit 3), LBP-09-04, 69 NRC 170 (2009).

⁵ UniStar Letter at 1.

On November 3, 2010, Applicants filed a letter with the Board stating that EDF had acquired Constellation's 50 percent interest in UniStar, thus making EDF the sole owner of UniStar.⁶ On November 4, 2010, Constellation filed a Schedule 13D with the U.S. Securities and Exchange Commission confirming this transaction.⁷

Based on this letter, the NRC Staff issued a request for additional information (RAI), RAI 281, that asked UniStar to explain how it complies with the foreign ownership, control, or domination regulations contained in 10 C.F.R. § 50.38, given that Applicants are 100 percent owned by UniStar, which in turn is now 100 percent owned by a foreign corporation—namely EDF.⁸ On January 31, 2011, UniStar submitted its response to RAI 281, along with revisions to the ownership and financial information contained in the Calvert Cliffs Unit 3 COL application.⁹ Included in UniStar's response to RAI 281 was a proposed "Negation Action Plan," which proposed measures intended to ensure negation of potential foreign ownership, control, or domination of Calvert Cliffs Unit 3.¹⁰ Such measures include the establishment of a "Security Subcommittee" of its Board of Directors, made up of U.S. citizens, who have the exclusive right to exercise the Board of Director's authority over matters that are required to be under U.S. control.¹¹

⁶ Id.

⁷ Letter from David B. Matthews, Director, Division of New Reactor Licensing, Office of New Reactors, U.S. NRC, to George Vanderheyden, President and CEO, UniStar Nuclear Energy (Apr. 6, 2011) at 1 [hereinafter NRC Determination Letter].

⁸ Email from Surinder Arora, Project Manager, Office of New Reactors, U.S. NRC, to Robert Poche (Dec. 12, 2010) at 3.

⁹ Letter from Gregory T. Gibson, Vice President, Regulatory Affairs, UniStar Nuclear Energy, LLC to Document Control Desk, U.S. NRC (Jan. 31, 2011) at 1.

¹⁰ Letter from Gregory T. Gibson, Vice President, Regulatory Affairs, UniStar Nuclear Energy, LLC, to Document Control Desk, U.S. NRC (Jan. 31, 2011), Enclosure 1, at 2 [hereinafter Proposed Negation Action Plan].

¹¹ Id. at 3.

On April 6, 2011, the NRC Staff issued a Determination Letter in which it informed UniStar that it had completed its review of UniStar's response to RAI 281 and determined that the COL application did not meet the foreign ownership, control, or domination requirements contained in 10 C.F. R. § 50.38.¹² In that letter, the NRC Staff outlined three bases underlying its determination that the COL application, as revised, fails to meet the requirements set out in 10 C.F.R. § 50.38: "(1) UniStar is 100 percent owned by a foreign corporation (EDF), which is 85 percent owned by the French government; (2) EDF has the power to exercise foreign ownership, control, or domination over UniStar; and (3) the Negation Action Plan submitted by UniStar does not negate foreign ownership, control or domination issues discussed above."¹³ Further, the NRC Staff stated that it would continue to review the Calvert Cliffs Unit 3 COL application while UniStar "considers its options to move forward," but that a license would not be issued unless the requirements of 10 C.F.R. § 50.38 were met.¹⁴

In response to the NRC Staff's Determination Letter, on April 18, 2011, the Board issued an Order directing the parties to show cause why the Board should not grant summary disposition as to Contention 1, deny authorization to issue the license, and terminate the proceeding.¹⁵ Joint Intervenors filed a response in support of summary disposition and Applicants filed a response opposing summary disposition. The NRC Staff's response did not oppose summary disposition.¹⁶ The Board held oral argument on July 7, 2011, in the Atomic

¹² NRC Determination Letter at 1. Although the COL applicants are UniStar Nuclear Operating Services, LLC and Calvert Cliffs 3 Nuclear Project, LLC, the NRC Staff's correspondence was directed to UniStar, their corporate parent. See Proposed Negation Action Plan at 2.

¹³ NRC Determination Letter at 1.

¹⁴ Id.

¹⁵ Licensing Board Order (To show cause why the Board should not grant summary disposition as to Contention 1, deny authorization to issue the license, and terminate this proceeding) (Apr. 18, 2011) at 4 (unpublished) [hereinafter Show Cause Order].

¹⁶ Applicants' Response to Show Cause Order (May 9, 2011) at 1 [hereinafter Applicants' Show Cause Response]; Joint Intervenors Reply to Licensing Board Order ASLBP No. 09-874-02-

Safety and Licensing Board Panel's hearing room in Rockville, Maryland, to discuss: "(1) the parties' responses to the Board's April 18, 2011 Order; and (2) whether an evidentiary hearing should proceed on Contention 10C were the Board to grant summary disposition as to Contention 1."¹⁷

On August 26, 2011, the Board issued a Memorandum and Order in which it deferred ruling on Contention 1 until the issuance of the Board's Partial Initial Decision on Contention 10C.¹⁸ The Board is issuing its Partial Initial Decision on Contention 10C separate from, but concurrently with, this Order.¹⁹

II. LEGAL STANDARDS

A. Summary Disposition

The standards for summary disposition in Subpart L proceedings, such as this, are set forth in 10 C.F.R. § 2.1205. That regulation in turn directs licensing boards to apply the same standards for granting or denying summary disposition as would be applied in Subpart G

COL-BD01 (May 9, 2011) at 1 [hereinafter Joint Intervenors' Show Cause Response]; Staff's Response to the Atomic Safety and Licensing Board's Show Cause Order Regarding Contention 1 (May 9, 2011) at 1 [hereinafter NRC Staff's Show Cause Response]; Applicants' Reply to Responses to Show Cause Order (May 23, 2011) at 1 [hereinafter Applicants' Show Cause Reply]; Joint Intervenors Reply to Applicant's and NRC Staff's Responses to Licensing Board Order ASLBP No. 09-874-02-COL-BD01 (May 23, 2011) at 1 [hereinafter Joint Intervenors' Show Cause Reply]; Staff's Reply to the Applicants' and Joint Intervenors' Response to the Atomic Safety and Licensing Board's Show Cause Order (May 23, 2011) at 1 [hereinafter NRC Staff's Show Cause Reply]; see also NRC Staff's Show Cause Response, Attachment 1, Affidavit of Anneliese Simmons Concerning Contention 1 Foreign Ownership Control or Domination (May 9, 2011) at 1 [hereinafter NRC Staff Affidavit]. In addition, the NRC Staff filed a surreply on June 2, 2011, and Applicants filed a reply to the NRC Staff's surreply on June 13, 2011. NRC Staff's Motion to Allow a Surreply (June 2, 2011) at 1; Staff's Surreply to Applicant's Reply to Show Cause Order (June 2, 2011) at 1 [hereinafter NRC Staff Surreply]; Applicants' Response to NRC Staff Motion for Leave to File a Surreply (June 13, 2011) at 1 [hereinafter Applicants' Response to Surreply].

¹⁷ See Licensing Board Order (Scheduling Oral Argument) (June 24, 2011) at 1 (unpublished).

¹⁸ Licensing Board Order (Denying Summary Judgment of Contention 10C, Denying Amended Contention 10C, and Deferring Ruling on Contention 1) (August 26, 2011) at 1 (unpublished) [hereinafter Order Deferring Ruling].

¹⁹ LBP-12-17, 76 NRC __ (Aug. 30, 2012).

proceedings, which are set forth in 10 C.F.R. § 2.710.²⁰ Under 10 C.F.R. § 2.710(d)(2), a moving party is entitled to summary disposition “if the filings in the proceeding, . . . together with the statements of the parties and the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a decision as a matter of law.”

Generally, when ruling on motions for summary disposition, the Commission applies standards analogous to the standards used by the federal courts when ruling on motions for summary judgment under the comparable Rule 56 of the Federal Rules of Civil Procedure.²¹

A party seeking summary disposition bears the initial burden of “showing the absence of a genuine issue as to any material fact” and that it is entitled to judgment as a matter of law.²² In addition, the Board must view the record in the light most favorable to the non-moving party.²³ Consequently, if the moving party fails to meet its burden, then “the Board must deny the motion—even if the opposing party chooses not to respond or its response is inadequate.”²⁴ Thus, “[n]o defense to an insufficient showing is required.”²⁵

However, if the moving party meets its burden,²⁶ the party opposing the motion must “set forth specific facts showing that there is a genuine issue,” and may not rely on “mere allegations

²⁰ 10 C.F.R. § 2.1205(c) (“In ruling on motions for summary disposition, the presiding officer shall apply the standards for summary disposition set forth in subpart G of this part.”).

²¹ Advanced Medical Systems, Inc. (One Factory Row, Geneva, Ohio 44041), CLI-93-22, 38 NRC 98, 102–03 (1993).

²² Id.

²³ Id. at 102; see Poller v. Columbia Broadcasting Systems, Inc., 368 U.S. 464, 473 (1962).

²⁴ Advanced Medical Systems, CLI-93-22, 38 NRC at 102.

²⁵ Cleveland Electric Illuminating Co. (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741, 754 (1977) (internal citations omitted).

²⁶ Although this summary disposition motion arises originally from the Board’s Order directing the parties to show cause why the Board should not grant summary disposition as to Contention 1, deny authorization to issue the license, and terminate the proceeding, for practical purposes Joint Intervenors will be considered the moving party since they filed a response to that Order

or denials.”²⁷ Mere assertions or general denials are insufficient.²⁸ While the opposing party need not demonstrate that it would prevail on the issues at hand, it must at least show that there is a genuine dispute of material fact to be tried.²⁹ Thus, if, after considering all of the arguments and facts proffered by the parties, no genuine issue of material fact exists, the Board may dispose of all arguments based on the pleadings.³⁰

B. Foreign Ownership, Control, or Domination

Section 102 of the Atomic Energy Act of 1954 (AEA) states that any license issued for a utilization or production facility for industrial or commercial purposes must meet the requirements set out in Section 103 of the AEA.³¹ Section 103(d) of the AEA, in turn, prohibits the NRC from issuing a reactor license to “any corporation or other entity if the Commission knows or has reason to believe it is owned, controlled, or dominated by an alien, a foreign corporation, or a foreign government.”³²

This proscription is reiterated in 10 C.F.R. § 50.38 of the NRC regulations, “Ineligibility of certain applicants,” which states that:

supporting summary disposition of Contention 1. See Show Cause Order; Joint Intervenors’ Show Cause Response.

²⁷ Perry, ALAB-433, 6 NRC at 102–03.

²⁸ Id. at 102; Houston Lighting and Power Co. (Allens Creek Nuclear Generating Station, Unit 1), ALAB–629, 13 NRC 75, 78 (1981); see also Virginia Electric and Power Co. (North Anna Power Station, Units 1 and 2), ALAB–584, 11 NRC 451, 455 (1980).

²⁹ Advanced Medical Systems, CLI-93-22, 38 NRC at 102; see Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), CLI–92–8, 35 NRC 145, 154 (1992) (to avoid summary disposition, intervenors must present contrary evidence so significantly probative that it creates a material factual issue).

³⁰ Advanced Medical Systems, CLI-93-22, 38 NRC at 102.

³¹ Atomic Energy Act of 1954 as amended, 42 U.S.C. § 2132(a). Calvert Cliffs Unit 3 is a “production or utilization facility” as defined in 10 C.F.R. § 50.2. See 10 C.F.R. § 50.2 (defining production and utilization facilities).

³² 42 U.S.C. § 2133(d).

“[a]ny person who is a citizen, national, or agent of a foreign country, or any corporation, or other entity which the Commission knows or has reason to believe is owned, controlled, or dominated by an alien, a foreign corporation, or a foreign government, shall be ineligible to apply for and obtain a license.”

Moreover, 10 C.F.R. § 52.75, which applies specifically to applications for combined licenses under 10 C.F.R. Part 52, Subpart C, provides that “[a]ny person except one excluded by § 50.38 of this chapter may file an application for a combined license for a nuclear power facility with the Director, Office of New Reactors or Director, Office of Nuclear Reactor Regulation, as appropriate.” Thus, a person excluded by Section 50.38 is ineligible even to apply for a license, much less to receive one.

The NRC’s Standard Review Plan on Foreign Ownership, Control, or Domination (SRP)

“contains the review procedures used by the staff to evaluate applications for the issuance or transfer of control of a production or utilization facility license in light of the prohibitions in sections 103d and 104d of the Atomic Energy Act and in 10 CFR 50.38 against issuing such reactor licenses to aliens or entities that the Commission ‘knows or has reason to believe’ are owned, controlled, or dominated by foreign interests.”³³

The SRP explains that an entity is considered to be under foreign ownership, control, or domination “whenever a foreign interest has the ‘power,’ direct or indirect, whether or not exercised, to direct or decide matters affecting the management or operations of the applicant.”³⁴ The SRP cautions that there is generally no specific ownership percentage above which the NRC Staff would conclusively determine that an applicant is per se controlled by foreign interests.³⁵ Instead, foreign control “must be interpreted in light of all the information that bears on who in the corporate structure exercises control over what issues and what rights may

³³ Final Standard Review Plan on Foreign Ownership, Control, or Domination, 64 Fed. Reg. 52,355 (Sept. 28, 1999), cited in Calvert Cliffs 3 Nuclear Project, LLC, and UniStar Nuclear Operating Services, LLC (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-09-20, 70 NRC 911, 920 (2009).

³⁴ 64 Fed. Reg. at 52,358.

³⁵ Id.

be associated with certain types of shares.”³⁶ Under the SRP, applicants are permitted to use negation action plans to negate potential foreign ownership, control, or domination.³⁷ When conducting a foreign ownership, control, or domination inquiry, the focus should be on “safeguarding the national defense and security.”³⁸

Although, in general, the SRP avoids designating a foreign ownership percentage that would make an applicant per se controlled by foreign interests, it nonetheless repeatedly states that a completely (i.e., 100 percent) foreign-owned applicant would be ineligible to receive a license. The SRP provides that “[w]here an applicant that is seeking to acquire a 100 percent interest in the facility is wholly owned by a U.S. company that is wholly owned by a foreign corporation, the applicant will not be eligible for a license.”³⁹ The only such situation that the SRP suggests might be permissible is where the Commission knows that the foreign owner’s stock is “largely” owned by U.S. citizens.⁴⁰ That limited qualification to the general prohibition on 100 percent foreign ownership does not apply in this case. No party has argued that EDF is largely owned by U.S. citizens. On the contrary, it is undisputed that EDF is largely owned by the French government.

III. ANALYSIS

A. Parties’ Positions

Joint Intervenors argue that the Board should grant summary disposition as to Contention 1, deny authorization to issue the license, and terminate this proceeding. According to Joint Intervenors, UniStar’s acquisition of Constellation’s 50 percent interest in Calvert Cliffs

³⁶ Id.

³⁷ Id. at 52,359.

³⁸ Id. at 52,358.

³⁹ Id.; see also Tr. at 198.

⁴⁰ 64 Fed. Reg. at 52,358.

Unit 3 (thereby raising UniStar's interest to 100 percent) renders Applicants ineligible to receive, or even to apply for, a license under both 10 C.F.R. § 50.38 and the AEA.⁴¹ Joint Intervenors caution that giving Applicants additional time to find a suitable American partner, and thus to meet the foreign ownership, control, or domination requirements, could lead to an "open-ended proceeding."⁴² They find this particularly disturbing given that "the Applicant provides no information whatsoever as to whether it has identified a potential partner(s); whether it has been or currently is in any negotiations with a potential partner(s); or any type of time frame at all as to when a partner may be expected to join with Applicant."⁴³ In addition, Joint Intervenors note that an open-ended proceeding would pose unnecessary burdens on them, given that they are pro se and would be required to make "endless" monthly disclosures.⁴⁴

NRC Staff does not oppose granting summary disposition of Contention 1.⁴⁵ The NRC Staff acknowledges that there are no genuine issues as to any material fact in dispute concerning Contention 1 and agrees that the Board could deny authorization to issue the license and terminate this proceeding.⁴⁶ Upon review of Applicants' response to RAI 281, the

⁴¹ Joint Intervenors' Show Cause Response at 1. Further, Joint Intervenors argue that the NRC Staff should not be allowed to continue reviewing the license applications of ineligible applicants and that the NRC Staff should direct its resources towards other priorities such as examining the implications of the recent Fukushima nuclear accident. Id. at 2. In making this argument, Joint Intervenors imply that the Board should direct the NRC Staff to discontinue its review of the license application at issue. However, it is well established that boards lack the authority to direct the NRC Staff's regulatory reviews. See Duke Energy Corp. (Catawba Nuclear Station, Units 1 and 2), CLI-04-6, 59 NRC 62, 74 (2004). If Joint Intervenors wish to pursue this issue, they will have to do so with the NRC Staff or before the Commission.

⁴² Joint Intervenors' Show Cause Response at 3 ("[h]aving been ruled ineligible to receive a combined license, the April 26 letter from the Applicant appears to now seek an unlimited amount of time to attempt to become eligible").

⁴³ Id.

⁴⁴ Id. at 4.

⁴⁵ NRC Staff's Show Cause Response at 1, 10.

⁴⁶ Id. at 5, 10.

NRC Staff confirmed that Applicants are currently 100 percent owned by a foreign corporation, EDF.⁴⁷ The NRC Staff then determined whether EDF exercises foreign control or domination over Applicants.⁴⁸ Based on its review of Applicants' response to RAI 281, the NRC Staff found that "EDF exercises both direct and indirect influence over the applicant in the governance structure" and thus is foreign owned, controlled, or dominated in contravention of the SRP on Foreign Ownership, Control, or Domination.⁴⁹ Specifically, the NRC Staff concluded that: (1) "EDF, as the 100% owner of UniStar, exercises extensive and broad authority over UniStar and the intermediate companies"; (2) "[n]on U.S. Citizen representatives of EDF sit on the boards of directors of all the intermediate companies from the parent to the licensee"; and (3) EDF has the authority to appoint manager and key officers for all the intermediate authorities."⁵⁰ Moreover, the NRC Staff reviewed the proposed Negation Action Plan submitted by Applicants in conjunction with their response to RAI 281 and concluded that the plan does not sufficiently negate EDF's ownership, control, or domination of Applicants.⁵¹ As a result, the NRC Staff does not oppose summary disposition of Contention 1.⁵²

The NRC Staff also stated, however, that, were the Board to grant summary disposition of Contention 1, the Board could terminate the proceeding, but it could also decide to move ahead with the pending environmental contention (Contention 10C).⁵³ The NRC Staff also suggested that the Board might "wish to hold Contention 1 in abeyance until such time as the

⁴⁷ Id. at 7.

⁴⁸ Id.

⁴⁹ Id.

⁵⁰ Id.

⁵¹ Id.

⁵² Id. at 10; see also NRC Staff Affidavit.

⁵³ NRC Staff's Show Cause Response at 10 (citing Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2), LBP-10-20, 72 NRC 571 (2010)).

Applicant amends its application to address the foreign ownership issue and the Staff concludes its review of the amended application.”⁵⁴ This is because, according to the NRC Staff, “[a]t this point it is not known what degree of foreign ownership may be present for CCNNP3 in the event UniStar obtains a domestic partner and amends its application.”⁵⁵ Thus, “even if the Board were to find the license could not issue with the current application, the issue may come before the Board again after a domestic partner is obtained.”⁵⁶

Applicants argue that summary disposition as to Contention 1 should not be granted, authorization to issue the license should not be denied, and this proceeding should not be terminated.⁵⁷ Applicants reiterate that they are committed to obtaining a U.S. partner and recognize that a COL for Calvert Cliffs Unit 3 may not be issued until an appropriate U.S. partner is obtained.⁵⁸ As a result, Applicants contend that any foreign ownership, control, or domination concerns can be addressed once an appropriate U.S. partner is found and the COL is amended accordingly.⁵⁹ Until then, Applicants contend that the issue is not ripe for review and any decision on the matter would be a mere advisory opinion.⁶⁰ Similarly, Applicants argue that the Board should not deny authorization to issue the license or terminate the proceeding because “[a]pplicants are routinely entitled to an opportunity to address any deficiency

⁵⁴ Id. at 11.

⁵⁵ Id.

⁵⁶ Id.

⁵⁷ Applicants’ Show Cause Response at 2.

⁵⁸ Id. at 7.

⁵⁹ Id. at 7–8.

⁶⁰ Id. at 8.

perceived in the application” and “[r]esponding to issues raised during the NRC Staff review is fully consistent with the dynamic licensing process followed in Commission licensing matters.”⁶¹

In addition, Applicants appear to argue that Contention 1 is moot. Because Joint Intervenors originally proffered Contention 1 to address the then-current 50 percent foreign ownership scenario, and never supplemented or amended it reflect the now-current 100 percent foreign ownership scenario, Applicants claim that Contention 1 is, or is at least soon to be, moot and is thus a “poor vehicle[] for adjudicatory pronouncements of possible significance.”⁶²

B. Summary Disposition

The Board agrees with Joint Intervenors that summary disposition of Contention 1 is appropriate, given that the license applicants are wholly owned by a U.S. company (UniStar) that is wholly owned by a foreign corporation (EDF).

The AEA clearly prohibits the NRC from issuing a reactor license to “any corporation or other entity if the Commission knows or has reason to believe it is owned, controlled, or dominated by an alien, a foreign corporation, or a foreign government.”⁶³ The fact that Congress connected the three prohibitions with the conjunction “or” rather than “and” shows that a license may not be granted if any of the three prohibitions is violated. The same proscription is reiterated in 10 C.F.R. § 50.38. As previously explained, the applicable regulations not only prohibit issuing a COL to a foreign owned, controlled, or dominated entity; but they go as far as prohibiting such an entity from filing a COL application.

To be sure, neither the AEA nor the NRC’s regulations define the percentage of foreign ownership that renders an applicant ineligible to apply for or receive a license. This suggests that the NRC has discretion in specifying the level of foreign ownership that would constitute a

⁶¹ Id. at 11.

⁶² Id. at 9.

⁶³ 42 U.S.C. § 2133(d).

violation of the AEA.⁶⁴ Similarly, the NRC has discretion in interpreting the meaning of its own regulations.⁶⁵

But the agency's discretion in defining the meaning of "foreign ownership" in the AEA and in 10 C.F.R. § 50.38 is not unlimited. We must also keep in mind the "settled rule that a statute must, if possible, be construed in such fashion that every word has operative effect."⁶⁶ In doing so, a court "avoid[s] . . . any construction which implies that the legislature was ignorant of the meaning of the language it employed."⁶⁷ As the Supreme Court has cautioned, "no provision [of a statute] should be construed to be entirely redundant."⁶⁸

Thus, it would be impermissible to construe the prohibition of foreign ownership so as to make it redundant or otherwise deprive it of operative effect.⁶⁹ The language of AEA Section 103(d) shows that Congress thought foreign ownership itself should be sufficient to require denial of a license in some circumstances. Although the AEA implicitly grants the NRC substantial discretion in determining the threshold percentage at which foreign ownership becomes too great, that threshold must at a minimum include 100 percent foreign ownership or

⁶⁴ See United States v. Mead Corp., 533 U.S. 218, 226-227 (2001); Chevron U.S.A., Inc. v. NRDC, 467 U.S. 837 (1984).

⁶⁵ Courts give controlling weight to an agency's interpretation of its own regulation unless it is "plainly erroneous or inconsistent with the regulation." Auer v. Robbins, 519 U.S. 452, 461 (1997) (quoting Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 359 (1989) (quoting Bowles v. Seminole Rock & Sand Co., 325 U.S. 410, 414 (1945))).

⁶⁶ U.S. v. Nordic Village, Inc., 503 U.S. 30, 36 (1992) (citing U.S. v. Menasche, 348 U.S. 528, 538-39 (1955)). Courts must "give effect, if possible, to every clause and word of a statute." Inhabitants of Montclair Tp. v. Ramsdell, 107 U.S. 147, 152 (1883).

⁶⁷ Inhabitants of Montclair Tp., 107 U.S. at 152.

⁶⁸ Kungys v. U.S., 485 U.S. 759, 778 (1988). Similarly, the Supreme Court has also stated that it is "hesitant to adopt an interpretation of a congressional enactment which renders superfluous another portion of that same law." Mackey v. Lanier Collection Agency, 486 U.S. 825, 837 (1988).

⁶⁹ Cf. Gersman v. Group Health Assn., Inc., 975 F. 2d 886, 890 (D.C. Cir. 1992) (citing Supreme Court precedent stating that a statute should not be interpreted so as to render a provision of it redundant or superfluous).

the prohibition of foreign ownership in AEA Section 103(d) would be rendered superfluous.⁷⁰ Congress might just as well have written a statute that prohibited only foreign control or domination. The prohibition of foreign ownership in 10 C.F.R. § 50.38 would also be rendered superfluous if 100 percent foreign ownership is acceptable. Therefore, Section 103(d) of the AEA and 10 C.F.R. § 50.38 must be interpreted, at a minimum, as making a 100 percent foreign-owned applicant ineligible to receive a license.

This understanding is consistent with the SRP, which provides that when “an applicant that is seeking to acquire a 100 percent interest in the facility is wholly owned by a U.S. company that is wholly owned by a foreign corporation, the applicant will not be eligible for a license.”⁷¹ This interpretation mirrors that put forward by the NRC Staff: “one hundred percent ownership, anything else notwithstanding, would bar the issuance of a license.”⁷²

Consequently, no negation action plan would be sufficient to negate EDF’s 100 percent foreign ownership of UniStar, and thus it is unnecessary for the Board to review Applicants’ proposed Negation Action Plan or the NRC Staff’s analysis of its alleged inadequacies.⁷³ We therefore are not persuaded by Applicants’ argument that summary disposition is inappropriate because material facts remain in dispute.⁷⁴ On the contrary, the essential fact we require to decide this issue—that Applicants are 100 percent foreign-owned—is undisputed.

Furthermore, as the NRC Staff argues, the cases Applicants cite fail to support their claim that 100 percent foreign ownership is permissible. In their response to the Board’s Show

⁷⁰ See 64 Fed. Reg. at 52,358.

⁷¹ Id. As stated previously, the SRP envisions only one situation in which 100 percent foreign ownership might be permissible—i.e. where the Commission knows that the foreign owner’s stock is ‘largely’ owned by U.S. citizens. Id.; supra note 40 and accompanying text. There is no indication that such circumstances are present in this case.

⁷² Tr. at 198.

⁷³ See NRC Staff Affidavit.

⁷⁴ Applicants’ Response to Surreply at 2–3.

Cause Order, Applicants stated that they “believe[] that 100 percent ownership of a licensee by a foreign entity can be acceptable under the Atomic Energy Act and NRC regulations (with appropriate negation of control), and that precedent exists to support that position.”⁷⁵ Applicants failed, however, to offer any such supporting precedent in that response.

In their reply to the Board’s Show Cause Order, Applicants again asserted that “the NRC has approved transfers of operating licenses to entities that are 100% owned by foreign companies” and thus that “. . . precedent illustrates that, with appropriate negation measures, FOCD concerns can be addressed for licenses wholly-owned by foreign parents or grandparents.”⁷⁶ In support of these claims, Applicants cite New England Electric System—National Grid Group PLC (Seabrook Plant) and PacificCorp (Trojan Nuclear Plant).⁷⁷

However, as the NRC Staff points out, these two cases do not support the proposition that 100 percent foreign ownership of a licensee is acceptable where, as here, the licensee will be the sole license holder.⁷⁸ Rather, both cases cited by Applicants involved Commission approval of minority owners transferring non-operating licenses to foreign companies through mergers in which the minority owners became wholly-owned subsidiaries of foreign companies.⁷⁹ In the case of New England Electric System—National Grid Group PLC, the resulting total foreign ownership was 9.9 percent, while in the case of PacificCorp, the resulting

⁷⁵ Applicants’ Show Cause Response at 8.

⁷⁶ Applicants’ Show Cause Reply at 3.

⁷⁷ See id. at 3–4; see also “Order Approving Application Regarding Merger of New England Electric System and National Grid Group PLC,” 64 Fed. Reg. 71,832 (Dec. 22, 1999) [hereinafter NEES Order]; “PacificCorp (Trojan Nuclear Plant); Order Approving Application Regarding Proposed Merger,” 64 Fed. Reg. 63,060 (Nov. 18, 1999) [hereinafter PacificCorp Order].

⁷⁸ See NRC Staff Surreply at 2.

⁷⁹ See NEES Order; PacificCorp Order.

total foreign ownership amounted to a mere 2.5 percent.⁸⁰ While both cases involve minority owners that are wholly-owned by foreign companies, their small overall ownership interests pale in comparison to the extent of foreign ownership present in this proceeding, where both applicants are owned by UniStar, a company that is in turn 100 percent owned by EDF.

We are also not persuaded by Applicants' claim that the issue is not ripe for review, and that any opinion on the issue would therefore amount to an impermissible advisory opinion.⁸¹ Ripeness is a justiciability doctrine designed to prevent Article III courts from premature judicial review of abstract controversies and to "protect the agencies from judicial interference until an administrative decision has been formalized and its effects felt in a concrete way by the challenging parties."⁸² The ripeness doctrine is "drawn both from Article III limitations on judicial power and from prudential reasons for refusing to exercise jurisdiction."⁸³ Thus, that doctrine was developed for, and is directly applicable only to, Article III courts, not to an administrative tribunal such as a licensing board. In our proceedings, unlike challenges to agency action in federal courts, intervenors are not only permitted but are required to file their contentions in response to the license application, rather than await a fully formalized administrative decision.⁸⁴ And licensing boards must resolve those claims during the administrative process, not after its conclusion.

Nevertheless, the Commission has indicated that licensing boards should not consider premature contentions. In Crow Butte Resources,⁸⁵ a petitioner, the Oglala Sioux Tribe, alleged

⁸⁰ Id.

⁸¹ Applicants' Show Cause Response at 8, 10, 13.

⁸² Abbott Laboratories v. Gardner, 387 U.S. 136, 148–49 (1967)

⁸³ Reno v. Catholic Social Services, Inc., 509 U.S. 43, 57, n.18 (1993) (citations omitted).

⁸⁴ 10 CFR § 2.309(f)(2).

⁸⁵ CLI-09-9, 69 NRC at 348.

that it had not been consulted concerning tribal cultural resources, in violation of the National Historic Preservation Act. The Commission held that the contention was premature because the NRC Staff, not the applicant, has the duty to consult with the Tribe under the Act, and the Staff had not completed its review process.⁸⁶ In the present case, however, the Applicant must demonstrate compliance with the foreign ownership limitations in Section 103(d) of the AEA and 10 C.F.R. § 50.38. Moreover, the NRC Staff has already determined that the Applicants are not in compliance with the foreign ownership limitations. Thus, there is no prematurity problem in this case.

Furthermore, even were we to apply the formal ripeness test used by federal courts to this adjudicatory proceeding, the foreign ownership issue is ripe for decision. In determining whether an issue is ripe for judicial decision, a court must evaluate: “(1) the fitness of the issues for judicial decision and (2) the hardship to the parties of withholding court consideration.”⁸⁷ As to the first factor, Contention 1 is fit for judicial decision because no further factual development is needed in order for the Board to rule. Applicants concede that they are 100 percent owned by a foreign company, EDF.⁸⁸ As previously stated, 100 percent foreign ownership alone, notwithstanding any other factors such as a negation action plan, renders an applicant ineligible per se. Given that no material factual disputes exist as to Applicants’ 100 percent foreign ownership, and that Applicant has been consistently 100 percent foreign owned for almost two years, Contention 1 presents a fully developed issue on a pending application, and is thus suitable for decision.

As to the second factor, depriving Joint Intervenors of a ruling on Contention 1 would subject them to substantial unfairness and hardship. Joint Intervenors initially filed their foreign

⁸⁶ Id. at 348-51.

⁸⁷ National Park Hospitality Ass’n v. Department of Interior, 538 U.S. 803, 808 (2003) (citing Abbott Laboratories, 387 U.S. at 148–49).

⁸⁸ UniStar Letter at 1; NRC Determination Letter at 1.

ownership contention in 2008, and the Board admitted the foreign ownership contention in its initial ruling on standing and contention admissibility in 2009. Moreover, roughly two years have already passed since Applicants became 100 percent foreign owned.⁸⁹ During that time, Joint Intervenors have been required to file monthly disclosures concerning Contention 1 and closely follow the Calvert Cliffs Unit 3 proceeding.⁹⁰ Refraining from ruling on Contention 1 until Applicants find an appropriate U.S. partner would force Joint Intervenors to continue to do so for an indefinite amount of time—even for decades, according to Applicants.⁹¹ In a situation such as this, forcing a pro se intervenor to file monthly disclosures and closely follow a proceeding indefinitely solely to obtain a ruling on the merits of its claim would constitute a significant unfairness and hardship. Having satisfied the NRC's strict requirements for contention admissibility, and having complied with all other procedural requirements, Intervenors are entitled to a ruling on the merits of their claim without further delay.

Thus, even if we were to apply the ripeness doctrine, Contention 1 is ripe for decision. The Board's decision on the issue is not a mere advisory opinion but will resolve the last remaining issue in this case.

At bottom, Applicants want the Board to defer its ruling indefinitely while they attempt to resolve the foreign ownership problem. Although we have allowed the Applicants substantial additional time to resolve the foreign ownership problem by deferring our ruling on Contention 1 until now, we could not grant them an unlimited amount of time to do so, even if we were so inclined, without violating Commission policy. As we previously noted,⁹² the Commission has

⁸⁹ Id.

⁹⁰ Joint Intervenors' Show Cause Response at 3–4.

⁹¹ Applicants' Show Cause Reply at 13–14. Applicants argue that it would be appropriate to hold the proceeding in abeyance based on Contention 1 for as long as seventeen years. Id. at 14 (citing Washington Public Power Supply System (WPPSS Nuclear Project No. 1), LBP-00-18, 52 NRC 9 (2000)).

⁹² Order Deferring Ruling at 30.

repeatedly stressed, through both its policies and regulations, the importance of expediting adjudicatory proceedings. Both 10 C.F.R. §§ 2.329(b)(1) and 2.332(c)(1) reiterate that one of the fundamental purposes of the prehearing conference and the scheduling order is “[e]xpediting the disposition of the proceeding.”⁹³ The Commission’s Statement on the Conduct of Agency Adjudications reaffirmed the importance of expediting adjudications when it stated that “applicants for a license are . . . entitled to a prompt resolution of disputes concerning their applications” and thus that one of the Commission’s key objectives is “to avoid unnecessary delays in the NRC’s review and hearing process.”⁹⁴ Applicants themselves have repeatedly acknowledged such precedent in an effort to expedite this proceeding.⁹⁵ Consequently, while it is undeniable that substantial delays occurred in the proceedings cited by Applicants, such delays are contrary to the Commission’s stated policies and regulations, and thus should not be used as a model for this proceeding.⁹⁶

Applicants have had roughly two years to remedy the foreign ownership problem. We do not doubt that Applicants have made substantial efforts to find U.S. partners, but they have thus far been unable to provide evidence to the Board indicating that a deal with an acceptable U.S. partner is imminent.⁹⁷ Applicants acknowledged at the July 7, 2011, oral argument that “we have nothing definite. I think that it’s a little more than open-ended. Discussions are ongoing and I think that’s an accurate statement, but we have no details that we can share.”⁹⁸

⁹³ 10 C.F.R. §§ 2.329(b)(1), 2.332(c)(1).

⁹⁴ Policy on Conduct of Adjudicatory Proceedings; Policy Statement, 63 Fed. Reg. 41,872, 41,873 (Aug. 5, 1998). This statement does not differentiate between whether the dispute is resolved in favor of or against an applicant.

⁹⁵ Applicants’ Report on Schedule Discussions and Proposed Schedule at 3 (Apr. 15, 2009).

⁹⁶ See Applicants’ Show Cause Reply at 13–15.

⁹⁷ See UniStar Letter.

⁹⁸ Tr. at 224–25.

Further, Applicants themselves acknowledged that the current economic climate poses significant impediments to finding an acceptable U.S. partner: “there has been a significant deterioration in power market conditions These developments have significantly impaired the prospects, in the immediate term, for a financially viable nuclear development project—particularly in a merchant market such as PJM in which Calvert Cliffs would be constructed.”⁹⁹ Given the apparent lack of progress in finding potential U.S. partners, the amount of time that has elapsed since Applicants became 100 percent foreign owned, and the current economic climate, we are not willing to grant Applicants an indefinite amount of time to resolve this deficiency because doing so would be counter to the Commission’s policies and regulations.

The need to avoid open-ended proceedings is particularly important when, as in this proceeding, the Board is confronted with a contention addressing such a fundamental element of an applicant’s application. For, unlike other deficiencies that may impair an applicant’s ability to obtain a license, 10 C.F.R. § 50.38 and 10 C.F.R. § 52.75 clearly state that a foreign owned, controlled, or dominated entity is ineligible to apply for, let alone obtain, a COL.¹⁰⁰

Finally, the Board disagrees with Applicants’ assertion that the Contention 1 is moot because Joint Intervenors failed to supplement or amend it after EDF’s foreign ownership increased to 100 percent.¹⁰¹ Contention 1 alleges that “[c]ontrary to the Atomic Energy Act and NRC Regulations, Calvert Cliffs-3 would be owned, dominated and controlled by foreign interests.”¹⁰² The only thing that has changed since the initial filing of Contention 1 is that the percentage of foreign ownership has increased: 100 percent now compared to 50 percent at the

⁹⁹ Applicants’ Show Cause Response at 6–7.

¹⁰⁰ 10 C.F.R. §§ 50.38, 52.75.

¹⁰¹ Applicants’ Show Cause Response at 9.

¹⁰² See Petition to Intervene in Docket No. 52-016, Calvert Cliffs-3 Nuclear Power Plant Combined Construction and License Application (Nov. 19, 2008) at 5. The Board has previously found that Joint Intervenors have standing and granted their request for a hearing. See LBP-09-04, 69 NRC 170 (2009).

time Contention 1 was filed. If anything, this fact only bolsters the validity of Contention 1.¹⁰³ It in no way renders the Contention moot.

Thus, because there are no material facts in dispute concerning Applicant's 100 percent foreign ownership, and because 100 percent foreign ownership necessarily renders an applicant ineligible under 10 C.F.R. § 50.38 and Section 103(d) of the AEA, the Board GRANTS summary disposition as to Contention 1 in favor of Joint Intervenors.

C. Status of the Proceeding

Because this Order grants summary disposition of Contention 1 in favor of Joint Intervenors, there are no longer any admitted contentions pending before the Board. This is because the Board is today also issuing its Partial Initial Decision on Contention 10C, along with an Order declining to admit Joint Intervenors proposed new Contention 11, and previously dismissed Joint Intervenors' admitted Contentions 2 and 7.¹⁰⁴

The initial intent of this Board was to leave this proceeding open until 30 days after the NRC Staff issued the Final SER. This would have allowed the Board to revisit the foreign ownership issue, if there had been a material change in the ownership situation, and would also have allowed Joint Intervenors to file new contentions based on any new information contained in upcoming staff review documents. However, we are precluded from applying our preferred approach due to a recent Commission ruling in the North Anna proceeding that demonstrated that this approach, while reasonable, is not permitted. In North Anna, the Board elected not to close the proceeding, despite the fact that no pending contentions remained. The Board's intent was to permit their Intervenors the opportunity to submit contentions on upcoming NRC Staff

¹⁰³ Further, if Applicants truly believed that EDF's acquisition of 100 percent ownership rendered Contention 1 moot, then they should have promptly filed a motion for summary disposition after EDF had acquired 100 percent ownership, as required by the agency's regulations. See 10 C.F.R. § 2.323(a). Given that neither Applicants nor NRC Staff have filed such a motion in the roughly two years since EDF acquired its 100 percent ownership, the Board is led to believe that neither party truly views Contention 1 as moot.

¹⁰⁴ LBP-12-17, 76 NRC __ (Aug. 30, 2012); LBP-12-18, 76 NRC __ (Aug. 30, 2012).

review documents without forcing the Intervenor to meet the more difficult reopening standards.¹⁰⁵

The Commission ruled, however, that “the Board’s ruling resolving the last pending contention (that is, LBP-11-10) amounted to a final board decision.”¹⁰⁶ The Commission further stated that “[t]he Board’s approach cannot be squared with the longstanding practice in our proceedings that, once all contentions have been decided, the proceeding is terminated.”¹⁰⁷ Further, the Commission noted, “[t]he courts of appeals have repeatedly approved our practice of closing the hearing record after resolution of the last ‘live contention.’”¹⁰⁸ The decision did not differentiate between whether the last pending contention was resolved in favor of an applicant or in favor of an intervenor. Given that the Board has resolved the last contention in this proceeding, the North Anna decision thus leaves us no choice but to close this proceeding.

Applicants maintain that the Appeal Board’s ruling in Commonwealth Edison Company¹⁰⁹ precludes the Board from denying the license application without giving the Applicants the opportunity to resolve the deficiency. In Commonwealth Edison, an evidentiary hearing was held concerning the adequacy of the applicant’s quality assurance program. After finding the program inadequate, the Board denied the license and closed the proceeding. At the time the Board’s decision was issued, however, the applicant was “catching up” with the quality assurance violations by implementing a “massive reinspection program,” the final report on which was about to be issued.¹¹⁰ The Appeals Board found that the Licensing Board was not

¹⁰⁵ See 10 CFR § 2.326.

¹⁰⁶ North Anna, CLI-12-14, 75 NRC at ___ (slip op. at 10).

¹⁰⁷ Id.

¹⁰⁸ Id.

¹⁰⁹ Commonwealth Edison Co. (Byron Nuclear Power Station, Units 1 and 2), ALAB-770, 19 NRC 1163 (1984).

¹¹⁰ Id. at 1169.

justified in rendering a “final judgment in the face of unfolding developments having a deciding bearing – and conceivably a crucial effect – upon the issue that shaped that judgment.”¹¹¹ The Appeals Board remanded the issue to the Licensing Board for a further evidentiary hearing to address the unfolding developments.

Here, by contrast, we have no comparable unfolding developments to consider. Unlike Commonwealth Edison, we have no evidence of any imminent action by the Applicants that would resolve the alleged violation in their favor, but only the Applicants’ hope that someday they may be able to find a U.S. partner and thereby may be able to rectify the foreign ownership violation. We have already given the Applicants ample opportunity to resolve the violation, but it has not been corrected. For the reasons we have already explained, we may not further delay our ruling on the merits of Contention 1 based on nothing more than a hope that the foreign ownership violation may someday be resolved. And, having resolved the merits of the last pending contention, we must follow the Commission’s clear command in North Anna to terminate the proceeding.

Although we cannot keep this proceeding open indefinitely, we do grant Applicants an additional 60 days from the issuance of this order to notify the Board of any change in the ownership situation sufficient to establish their qualifications to apply for a license from the NRC. Although 60 days may seem a short period of time in which to obtain a domestic partner for Calvert Cliffs Unit 3, Applicants have already had nearly two years to find such a partner. If after 60 days Applicants have not notified the Board of such a change in the ownership situation, this proceeding will be closed. If, alternatively, Applicants manage to find a domestic partner, and provide information to the Board that an agreement has been or will be in the immediate future concluded, then this proceeding will remain open.

For the next 60 days, therefore, this proceeding will remain open and the parties should continue to comply with our scheduling orders and all other requirements applicable to an open

¹¹¹ Id.

proceeding. If Applicants obtain a domestic partner within 60 days, this proceeding will continue to remain open and those requirements will continue to remain in effect. Joint Intervenors could, at that time, challenge the adequacy of Applicants' foreign ownership resolution. The Board would then resolve any dispute that may remain arising from Contention 1.

If, however, Applicants fail to obtain a domestic partner within 60 days, this proceeding will close. Once this proceeding is closed, Intervenors would no longer have an open proceeding in which to file proposed new contentions or make other filings, and we could not logically demand that they move to reopen a closed proceeding in which they have prevailed.¹¹² Therefore, while the proceeding is closed, Joint Intervenors need make no further filings. Joint Intervenors will not lose the right to propose new contentions if Applicants, at some future date, correct the foreign ownership violation and successfully move to reopen the proceeding.

In the event that Applicants obtain a domestic partner subsequent to the closing of this proceeding, they may then move to reopen the proceeding. Joint Intervenors will have 30 days from the filing of any such motion to respond. If the proceeding is thereafter reopened, Joint Intervenors will have 30 days from the reopening of the record to file timely new contentions based on new information that became available subsequent to the closing of the proceeding. That is, contentions filed within 30 days of reopening of the record that are based on information that became available after the close of the proceedings will be considered timely because of the good cause that until the time of reopening there had been no open proceeding in which to file the new contentions.

IV. CONCLUSION

For the aforementioned reasons, the Board grants summary disposition in favor of Joint Intervenors as to Contention 1 and finds Applicants currently ineligible to apply for or obtain a

¹¹² To reopen a closed proceeding, Intervenors would have to file a motion demonstrating, among other things, that "a materially different result would be or would have been likely had the newly proffered evidence been considered initially." 10 CFR § 2.326(a)(3). It would be nonsensical to demand that Joint Intervenors advance a new contention seeking a materially different result—i.e., granting of the license.

license. The license cannot be granted as long as the current ownership arrangement is in effect. As no contentions remain pending, the Board will terminate this proceeding 60 days after the issuance of this order unless, within that time, Applicants provide information to show that they have changed their ownership situation so as to satisfy foreign ownership, control, and domination requirements.

It is so ORDERED.

FOR THE ATOMIC SAFETY
AND LICENSING BOARD

/RA/

Ronald M. Spritzer, Chairman
ADMINISTRATIVE JUDGE

/RA/

Dr. Gary S. Arnold
ADMINISTRATIVE JUDGE

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Dr. William W. Sager
ADMINISTRATIVE JUDGE

Rockville, Maryland
August 30, 2012

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
)
CALVERT CLIFFS 3 NUCLEAR PROJECT, LLC.)
AND UNISTAR NUCLEAR OPERATING)
SERVICES, LLC) Docket No. 52-016-COL
)
(Calvert Cliffs 3 Nuclear Project, LLC))
(Combined License))

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing **BOARD ORDER (GRANTING SUMMARY DISPOSITION OF CONTENTION 1) (LBP 12-19)** have been served upon the following persons by Electronic Information Exchange.

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Docket No. 52-016-COL

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Docket Nos. 52-016-COL

BOARD ORDER (GRANTING SUMMARY DISPOSITION OF CONTENTION 1) (LBP 12-19)

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[Original signed by Christine M. Pierpoint]
Office of the Secretary of the Commission

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Ronald M. Spritzer, Chairman
Dr. Gary S. Arnold
Dr. William W. Sager

In the Matter of

CALVERT CLIFFS 3 NUCLEAR PROJECT,
LLC, and UNISTAR NUCLEAR OPERATING
SERVICES, LLC

(Combined License Application for Calvert Cliffs
Unit 3)

Docket No. 52-016-COL

ASLBP No. 09-874-02-COL-BD01

August 30, 2012

ORDER

(Ruling on Joint Intervenors' Proposed New Contention 11)

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(Ruling on Joint Intervenors' Proposed New Contention 11)

The issue now before the Board is whether to admit a new contention, Contention 11, challenging the adequacy of the Final Environmental Impact Statement ("FEIS") for the Calvert Cliffs Unit 3 combined license (COL). Contention 11 maintains that the FEIS violates the National Environmental Policy Act (NEPA)¹ because it fails to address the environmental and safety implications of the findings and recommendations raised by the Nuclear Regulatory Commission's Fukushima Task Force in its report, 'Recommendations for Enhancing Reactor

¹ 42 U.S.C. § 4321 et seq.

Safety in the 21st Century: The Near-Term Task Force Review of Insights From the Fukushima Dai-ichi Accident . . . ('Task Force Report')” that was issued on July 12, 2011.²

Joint Intervenors argue that admission of the new contention is necessary to guarantee that the NRC Staff satisfies its duty under NEPA to consider the new and significant information set forth in the Task Force Report before issuing a license in this COL case.³ The Board concludes that the new contention was timely filed, but that under controlling Commission precedent it may not admit the proposed new contention.

I. BACKGROUND

This proceeding concerns the application for a COL to construct and operate a U.S. Evolutionary Power Reactor (“U.S. EPR”), designated Unit 3, at the Calvert Cliffs site in Lusby, Calvert County, Maryland.⁴ Applicants are Calvert Cliffs 3 Nuclear Project, LLC, and UniStar Nuclear Operating Services, LLC (collectively, “UniStar” or “Applicant”).⁵ Both of these entities are domestic subsidiaries of UniStar.⁶ As of November 3, 2010, the sole owner of UniStar is Electricite de France, S.A. (“EDF”), a French limited company.⁷

² Motion to Admit New Contention Regarding The Safety and Environmental Implications of the Nuclear Regulatory Commission Task Force Report on The Fukushima Dai-ichi Accident (Aug. 11, 2011) at 1 [hereinafter Motion to Admit New Contention].

³ See id.

⁴ See Calvert Cliffs 3 Nuclear Project, LLC, and UniStar Nuclear Operating Services, LLC Notice of Hearing and Opportunity to Petition for Leave To Intervene and Order Imposing Procedures for Access to Sensitive Unclassified Non-Safeguards Information and Safeguards Information for Contention Preparation on a Combined License for the Calvert Cliffs Nuclear Power Plant, Unit 3, 73 Fed. Reg. 55,876 (Sept. 26, 2008).

⁵ Id.

⁶ Letter from David A. Repka, Counsel for Calvert Cliffs 3 Nuclear Project, LLC and UniStar Nuclear Operating Services, LLC, to Calvert Cliffs Board (Nov. 3, 2010) at 1 [hereinafter UniStar Letter].

⁷ Id.

There are currently two contentions pending before the Board. The first contention, Contention 1, alleges that “contrary to the Atomic Energy Act and NRC Regulations, Calvert Cliffs-3 would be owned, dominated and controlled by foreign interests.”⁸ The second contention, Contention 10C, concerns the adequacy of one aspect of the alternatives analysis in the Environmental Impact Statement (EIS) for Unit 3.⁹ The Board deferred its decision on whether to grant summary disposition on Contention 1 until it issues its Initial Decision on Contention 10C.¹⁰ In January 2012, the Board held an evidentiary hearing on Contention 10C in accordance with the schedule set forth in the Board’s Revised Initial Scheduling Order.¹¹

The proposed new Contention 11 is based on what Joint Intervenors characterize as “the new and significant environmental implications of the findings and recommendations raised by the NRC’s Fukushima Task Force Report.”¹² The Near-Term Task Force (Task Force) was “established in response to Commission direction to conduct a systematic and methodical review of [NRC] processes and regulations to determine whether the agency should make additional

⁸ Petition to Intervene in Docket No. 52-016, Calvert Cliffs-3 Nuclear Power Plant Combined Construction and License Application (Nov. 19, 2008) at 5.

⁹ Contention 10C, as restated by the Board, alleges:

The DEIS discussion of a combination of alternatives is inadequate and faulty. By selecting a single alternative that under represents potential contributions of wind and solar power, the combination alternative depends excessively on the natural gas supplement, thus unnecessarily burdening this alternative with excessive environmental impacts.

LBP-10-24, 72 NRC 720, 765 (2010).

¹⁰ See Licensing Board Memorandum and Order (Denying Summary Judgment of Contention 10C, Denying Amended Contention 10C, and Deferring Ruling on Contention 1) (Aug. 26, 2011) at 32 (unpublished) [hereinafter Order Denying Summary Judgment of Contention 10C].

¹¹ Licensing Board Order (Revising Initial Schedule) (June 24, 2011) at 4 (unpublished).

¹² New Contention Regarding NEPA Requirement to Address Safety and Environmental Implications of the Fukushima Task Force Report (Aug. 11, 2011) at 4 [hereinafter Contention 11].

improvements to its regulatory system and to make recommendations to the Commission for its policy direction, in light of the accident at the Fukushima Dai-ichi Nuclear Power Plant.”¹³

“In examining the Fukushima Dai-ichi accident for insights for reactors in the United States, the Task Force addressed protecting against accidents resulting from natural phenomena, mitigating the consequences of such accidents, and ensuring emergency preparedness.”¹⁴ The Task Force Report stated:

The accident in Japan was caused by a natural event (i.e., tsunami) which was far more severe than the design basis for the Fukushima Dai-ichi Nuclear Power Plant. As part of its undertaking, the Task Force studied the manner in which the NRC has historically required protection from natural phenomena and how the NRC has addressed events that exceed the current design for plants in the United States.¹⁵

The Task Force characterized the current NRC regulatory approach as including “requirements for design-basis events with protection and mitigation features controlled through specific regulations for the general design criteria,” “requirements for some ‘beyond-design-basis’ events through specific regulations (e.g., station blackout, large fires, and explosions),” and “voluntary industry initiatives to address severe accident features, strategies, and guidelines for operating reactors.”¹⁶ The result, in the Task Force’s words, is a “patchwork of regulatory requirements and other safety initiatives, all important, but not all given equivalent consideration and treatment by licensees or during NRC technical review and inspection.”¹⁷

¹³ Dr. Charles Miller et al., Recommendations for Enhancing Reactor Safety in the 21st Century, The Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident (July 12, 2011) at vii [hereinafter Task Force Report].

¹⁴ Id.

¹⁵ Id.

¹⁶ Id.

¹⁷ Id.

The Task Force Report concluded that “a sequence of events like the Fukushima accident is unlikely to occur in the United States Therefore, continued operation and continued licensing activities do not pose an imminent risk to public health and safety.”¹⁸ But the Task Force also concluded that the application of the Commission’s longstanding defense-in-depth philosophy “can be strengthened by including explicit requirements for beyond-design basis events.”¹⁹ The Task Force concluded that the Fukushima Dai-Ichi accident, like the September 11, 2001 attacks, “provides new insights regarding low-likelihood, high-consequence events that warrant enhancements to defense-in-depth on the basis of redefining the level of protection that is regarded as adequate.”²⁰

The Task Force therefore made twelve recommendations that, “taken together are intended to clarify and strengthen the regulatory framework for protection against natural disasters, mitigation, and emergency preparedness, and to improve the effectiveness of the NRC’s programs.”²¹ The Task Force concluded that “these are a reasonable set of actions to enhance U.S. reactor safety in the 21st century.”²² Each of the Task Force’s recommendations for enhancing reactor safety is accompanied by an analysis of relevant lessons learned from the Fukushima accident, the gaps in the NRC’s existing regulatory program that the lessons learned revealed, and the Task Force’s explanation of how the recommendation will close the regulatory gap.

¹⁸ Id.

¹⁹ Id. at viii.

²⁰ Id.

²¹ Id.

²² Id. at x.

On or about April 18, 2011, Joint Intervenors and other organizations filed an Emergency Petition to the Commission in this and other proceedings.²³ The Emergency Petition requested that the Commission suspend all decisions regarding the issuance of combined licenses (COLs), as well as various other types of licenses, “pending completion by the NRC’s Task Force . . . of its investigation of the near-term and long-term lessons of the Fukushima accident and the issuance of any proposed regulatory decisions and/or environmental analyses of those issues.”²⁴ The Emergency Petition contained a number of additional requests related to the Fukushima accident.

In its September 9, 2011 Memorandum and Order, the Commission denied the request to suspend licensing and rulemaking activities pending completion of the NRC Task Force’s evaluation of the implications of the Fukushima accident and issuance of any proposed regulatory decisions and/or environmental analyses.²⁵ The Commission accepted the Task Force’s conclusion that “continued operation and licensing activities do not pose an imminent risk to public health and safety.”²⁶ The Commission therefore found “no imminent risk to public health and safety or to the common defense and security that necessitates” the requested suspensions.²⁷

The petitioners, who sought suspension of licensing and rulemaking activities, also requested “that the NRC conduct a separate generic NEPA analysis regarding whether the

²³ 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 (corrected version, filed Apr. 19, 2011) [hereinafter Emergency Petition].

²⁴ Id. at 1–2.

²⁵ Union Electric Co. d/b/a AmerGen Missouri (Callaway Plant, Unit 2), CLI-11-05, 74 NRC ___, ___ (slip op. at 41) (Sept. 9, 2011).

²⁶ Id. at ___ (slip op. at 5).

²⁷ Id. at ___ (slip op. at 25).

Fukushima events constitute ‘new and significant information’ under NEPA that must be analyzed as part of the environmental review for new reactor and license renewal decisions.”²⁸ The Commission determined that this request was premature because while “the [NRC] continues to evaluate the accident and its implications for U.S. Facilities[,] . . . the full picture of what happened at Fukushima is still far from clear. . . . Therefore, any generic NEPA duty—if one were appropriate at all—does not accrue now.”²⁹

That being said, the Commission did remind the petitioners that “[t]o the extent that the Fukushima events provide the basis for contentions appropriate for litigation in individual proceedings, our procedural rules contain ample provisions through which litigants may seek admission of new or amended contentions”³⁰

II. ANALYSIS

A. Summary of Contention 11

Proposed new Contention 11 alleges:

The EIS for Calvert Cliffs-3 fails to satisfy the requirements of NEPA because it does not address the new and significant environmental implications of the findings and recommendations raised by the NRC’s Fukushima Task Force Report. As required by 10 C.F.R. § 51.92(a)(2) and 40 C.F.R. § 1502.9(c), these implications must be addressed in a supplemental Draft EIS.³¹

According to Joint Intervenors, “[t]he conclusions and recommendations presented in the Task Force Report fully satisfy the two-pronged test under NEPA regulations and case law for ‘new and significant information’ whose environmental implications must be considered before

²⁸ Id. at __ (slip op. at 30).

²⁹ Id.

³⁰ Id. at __ (slip op. at 35).

³¹ Contention 11 at 4–5.

the NRC may make a decision that approves operation of Calvert Cliffs-3.”³² Joint Intervenors state that the conclusions and recommendations presented in the Task Force Report are “new” because they “stem directly from the Fukushima accident, which occurred only five months ago and for which the special study commissioned by the Commission has only just been issued.”³³

Joint Intervenors provide four arguments to support their contention that the Task Force Report contains information that is not only new but “significant,” and which the NRC must therefore consider in order to fulfill its obligations under NEPA.³⁴ We summarize each of these arguments below.

1. Joint Intervenors argue that, because the FEIS fails to consider Task Force recommendations to improve the mitigation capability of new U.S. reactors, it violates NEPA’s requirement to provide a “reasonably complete discussion of possible mitigation measures.”³⁵ Joint Intervenors point out that “[t]he discussion of steps that can be taken to mitigate adverse environmental consequences plays an important role in the environmental analysis under NEPA.”³⁶ Joint Intervenors cite recommendations in the Task Force Report that they contend are steps that could be taken to mitigate potential adverse consequences from a severe accident at Calvert Cliffs Unit 3.

The Task Force Report makes several significant findings when it comes to increasing and improving mitigation measures at new reactors and recommends a number of specific steps licensees could take in this regard. These recommendations include strengthening [station black out] mitigation capability at all operating and new reactors for design basis and

³² Id. at 10 (citing 10 C.F.R. § 51.92(a)(2); 40 C.F.R. § 1502.9).

³³ Id.

³⁴ Id. at 10–15.

³⁵ Id. at 15 (quoting Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 352 (1989)).

³⁶ Id. (quoting Robertson, 490 U.S. at 351).

beyond-design-basis external events, (Section 4.2.1), requiring reliable hardened vent designs in [boiling water reactor (BWR)] facilities with Mark I and Mark II containments (Section 4.2.2), enhancing spent fuel pool makeup capability and instrumentation for the spent fuel pool (Section 4.2.4) and strengthening and integrating onsite emergency response capabilities such as EOPs, SAMGs, and EDMGs. Section 4.2.5. . . . Accordingly, the [EIS] must be supplemented to consider the use of these additional mitigation measures to reduce the project's environmental impacts. See 40 C.F.R. §§ 1502.14 (f), 1502.16[h].³⁷

2. Joint Intervenors also argue that the EIS must take a hard look at the consequences of the Task Force's recommendation to fundamentally change the way in which the NRC evaluates Severe Accident Mitigation Alternatives (SAMAs). Joint Intervenors maintain that "by recommending the incorporation of accidents formerly classified as 'severe' or 'beyond design basis' into the design basis, the Task Force Report effectively recommends a complete overhaul of the NRC's system for mitigating severe accidents through consideration of SAMAs."³⁸ According to Joint Intervenors, that would be a significant change from current NRC policy, under which, in their view, SAMAs are required only when they are shown to be cost-beneficial, or if they are adopted voluntarily.³⁹ Instead, "the Task Force recommends that severe accident mitigation measures should be adopted into the design basis, i.e., the set of regulations adopted without regard to their cost as fundamentally required for all NRC standards that set requirements for adequate protection of health and safety."⁴⁰ Thus, Joint Intervenors contend that "the values assigned to the cost-benefit analysis for Calvert Cliffs-3 SAMAs, as described in Section 5.11.3 of the EIS, must be re-evaluated in light of the Task Force's conclusion that the value of SAMAs is so

³⁷ Id. at 15. Although the quoted text refers to the ER, we will construe it to refer to the EIS, the subject of proposed Contention 11.

³⁸ Id. at 11 (citing 10 CFR § 51.45(c)).

³⁹ Id.

⁴⁰ Id. at 12 (citing Union of Concerned Scientists v. NRC, 824 F.2d 108, 120 (D.C. Cir. 1987)) (emphasis in original).

high that they should be elected as a matter of course.”⁴¹ Joint Intervenors further argue that, if SAMAs were imposed as mandatory measures without regard to cost as the Task Force recommends, the EIS could be changed significantly in that SAMAS now rejected as too costly may be required, thus substantially improving the safety of the plant’s operation if it is licensed.⁴²

3. Joint Intervenors further allege that the information in the Task Force Report is “‘significant’ because it raises an extraordinary level of concern regarding the manner in which the proposed operation of Calvert Cliffs-3 ‘impacts public health and safety.’”⁴³ Joint Intervenors view the Task Force Report as questioning the sufficiency of the NRC’s existing regulatory regime to provide adequate protection of public health and safety. Joint Intervenors state that the NRC must therefore “revisit any conclusions in the Calvert Cliffs-3 EIS based on the assumption that compliance with NRC safety regulations is sufficient to ensure that environmental impacts of accidents are acceptable.”⁴⁴ Joint Intervenors cite as a specific example of this deficiency the EIS’s conclusion that the radiological impacts of a design basis accident would be “SMALL.”⁴⁵ Joint Intervenors maintain that, given the Task Force’s conclusions, this assumption is open to dispute, and that the Agency must accordingly reevaluate its conclusion in light of the Task Force Report.⁴⁶

4. Finally, Joint Intervenors contend that, if additional mitigative measures were to be imposed on Calvert Cliffs 3, this could substantially increase the cost of the new facility. The

⁴¹ Id.

⁴² Id.

⁴³ Id. at 11.

⁴⁴ Id.

⁴⁵ Id. (citing EIS Sections 5.11.1.1 and 5.11.4).

⁴⁶ Id.

increased costs could alter the cost-benefit balance, making alternatives such as the no-action alternative more attractive. According to Joint Intervenors, “the NRC cannot meet the fundamental purposes of NEPA if it does not include [in the EIS] all of the costs associated with required mitigative measures.”⁴⁷ Therefore, EIS Section 10.6.2, which evaluates the economic cost of the proposed new facility, should be supplemented to take into account the additional costs that would be incurred if additional mitigative measures are required as a result of the Task Force’s recommendations.

B. Contention 11 Was Timely Filed

1. Legal Standard

A new contention must meet the timeliness requirements under either 10 C.F.R. § 2.309(f)(2), which governs admission of timely contentions, or 10 C.F.R. § 2.309(c), which governs admission of untimely contentions.⁴⁸

2. Board Ruling

Under Section 2.309(f)(2), new contentions filed after the initial filing may only be admitted “upon a showing that . . . (i) [t]he information upon which the . . . new contention is based was not previously available; (ii) [t]he information upon which the . . . new contention is based is materially different than information previously available; and (iii) [t]he . . . new contention has been submitted in a timely fashion based on the availability of the subsequent information.”⁴⁹

Contention 11 meets all three requirements of Section 2.309(f)(2).⁵⁰ First, the new contention is based on conclusions and recommendations in the Task Force Report, which was

⁴⁷ Id. at 13 (citing Sierra Club v. Sigler, 695 F.2d 957, 979 (5th Cir. 1983) (“There can be no ‘hard look’ at the costs and benefits unless all costs are disclosed.”)).

⁴⁸ See Motion to Admit New Contention at 2.

⁴⁹ 10 C.F.R. § 2.309(f)(2).

⁵⁰ Motion to Admit New Contention at 2.

not available to the Joint Intervenors until July 12, 2011.⁵¹ Thus, this contention is based upon information that was not previously available to Joint Intervenors.

We also agree with Joint Intervenors that the new information in the Task Force Report upon which the new contention is based is materially different than information previously available. This is the first report requested by the Commission following the Fukushima accident to evaluate the adequacy of the NRC's regulation of both existing and new nuclear reactors in light of the lessons learned from the accident.⁵² Joint Intervenors state that the Task Force Report is the first occasion since the 1979 Three Mile Island accident that an internal agency report has fundamentally questioned the adequacy of the current level of safety provided by the NRC's program for nuclear reactor regulation. The Task Force Report makes a number of new recommendations for the improvement of the NRC's regulation of new and existing nuclear reactors. The Task Force Report also provided a new and detailed analysis explaining the justification for those recommendations. The Report's recommendations, if implemented by the NRC, would make significant changes to the agency's regulatory program to improve safety at both existing and new nuclear reactors. It is these new recommendations for improving safety at U.S. reactors that serve as the foundation of Joint Intervenors' claim that the FEIS violates NEPA because it fails to evaluate the recommendations and the consequences of their implementation. Moreover, it is significant that not only are a number of the recommendations new, but that they come from the NRC itself, the federal agency with the exclusive authority to regulate nuclear safety. Thus, the Task Force Report contains information that is materially different from the information previously available to Joint Intervenors.⁵³

⁵¹ See id. at 2–3.

⁵² Id.

⁵³ Id.

Finally, under the Scheduling Order for this case new contentions are timely if submitted within thirty (30) days of the occurrence triggering the event.⁵⁴ This motion was filed within thirty days of the publication of the Task Force Report, the triggering event for this contention. Thus, this contention was timely submitted. Neither the Staff nor the Applicants dispute this point. We therefore conclude that Contention 11 satisfies the criteria of 10 C.F.R. § 2.309(f)(2).

Applicants assert, however, that “the Task Force Report does not “directly contradict the conclusions in the Calvert Cliffs COL FEIS or the U.S. EPR design certification ER[,]” and thus, according to UniStar, “it does not provide any new or materially different information on environmental issues.”⁵⁵

It is true that the Task Force Report is not a critique of the FEIS. The Report concerns recommendations for improving safety at U.S. reactors, not NEPA compliance. But the Report nevertheless includes new and materially different information on environmental issues because it identifies gaps in the NRC’s current regulatory program revealed by the lessons learned as the result of the Fukushima accident and provides a number of new recommendations to close those gaps and improve safety at U.S. reactors, including proposed new reactors such as Calvert Cliffs Unit 3 that are currently undergoing COL reviews. The impact of the proposed action on public safety is an issue that must be considered under NEPA, as well as the Atomic Energy Act.⁵⁶

The Task Force Report thus provides new information that is at least potentially relevant to an environmental issue that the NRC must evaluate in the FEIS. And Contention 11 alleges that the FEIS violates NEPA because it fails to evaluate the new recommendations in the Task Force

⁵⁴ See Licensing Board Order (Establishing Schedule to Govern Further Proceedings) (Apr. 22, 2009) at 4, 6 (unpublished).

⁵⁵ UniStar Response to Proposed Contention 11 (Sept. 6, 2011) at 19 [hereinafter UniStar Response].

⁵⁶ City of Las Vegas v. FAA, 570 F.3d 1109, 1115 (9th Cir. 2009) (citing Metro. Edison Co. v. People Against Nuclear Energy, 460 U.S. 766, 772, 775 (1983)).

Report. Thus, the new information is material to the specific environmental issue raised by Contention 11.

UniStar also argues that “a contention challenging the discussion of accidents or SAMAs in the U.S. EPR design certification application or in the FEIS, could have been raised at the outset of the proceeding or following issuance of the DEIS/FEIS.”⁵⁷ Although this is true, the argument is irrelevant because Contention 11 raises the more specific claim that the FEIS is inadequate based on the conclusions and recommendations in the Task Force Report, and the Report was not publicly available until after the DEIS and FEIS were issued. And Joint Intervenors filed Contention 11 promptly upon issuance of the Report.

UniStar maintains that we must also determine whether the new contention may be admitted under the balancing test in 10 C.F.R. § 2.309(c), which applies to nontimely contentions. A number of licensing boards have disagreed with this argument.⁵⁸ Simply put, “[i]f a contention satisfies the timeliness requirement of 10 C.F.R. § 2.309(f)(2)(iii), then, by definition, it is not subject to 10 C.F.R. § 2.309(c) which specifically applies to ‘nontimely filings.’”⁵⁹

Contention 11 was therefore timely filed based on the Task Force Report.

C. Under the Commission’s Ruling in CLI-12-07, Contention 11 Is Inadmissible

In CLI-12-07, the Commission denied a petition for review of a licensing board memorandum and order that declined to admit a contention filed similar to the one offered in this

⁵⁷ UniStar Reponse at 19.

⁵⁸ See Virginia Elec. & Power Co. (North Anna Unit 3), LBP-09-27, 70 NRC 992, 998–99 (2009); see also Shaw AREVA MOX Servs. (Mixed Oxide Fuel Fabrication Facility), LBP- 07-14, 66 NRC 169, 210 n.95 (2007); AmerGen Energy Co., LLC (Oyster Creek Nuclear Generating Station), LBP-06-11, 63 NRC 391, 396 n.3 (2006); Entergy Nuclear Vermont Yankee, LLC, and Entergy Nuclear Operations, Inc. (Vermont Yankee Nuclear Power Station), LBP-06-14, 63 NRC 568, 573-74 (2006); Entergy Nuclear Vermont Yankee, LLC, and Entergy Nuclear Operations, Inc. (Vermont Yankee Nuclear Power Station), LBP-05-32, 62 NRC 813, 821 n.21 (2005).

⁵⁹ Vermont Yankee, LBP-06-14, 63 NRC at 573 n.14 (emphasis in original).

proceeding.⁶⁰ The Commission held that “reference to the Task Force Report recommendations alone, without facts or expert opinion that explain their significance for the unique characteristics of the sites or reactors that are the subject of the petitions, does not provide sufficient support for the common contention.”⁶¹ Accordingly, because the petitioners “did not relate their contention to any unique characteristics of the particular site at issue,” the Commission agreed with the licensing board that the contention was not adequately supported by alleged facts or expert opinions and did not raise issues material to the NRC’s reviews of the pending license applications.⁶² The Commission did not say that no contention based on the Fukushima accident could be admissible: “[a]s tangible Fukushima lessons emerge—whether from inside or outside the NRC—Fukushima-related contentions in individual adjudications may become more plausible, except insofar as the NRC is taking generic steps to address them.”⁶³

The Commission’s ruling in CLI-12-07 precludes admission of Contention 11. The Joint Intervenors’ proposed contention raises the same issue as the common contention that was rejected by the Commission—the NRC’s failure to comply with NEPA by failing to supplement the FEIS in response to the Task Force’s conclusions and recommendations. Like the petitioners in those proceedings, the Joint Intervenors have not offered any information that ties the recommendations of the Task Force Report to specific circumstances that are unique to the Calvert Cliffs site or to the proposed new reactor UniStar proposes to build – the U.S. EPR. Moreover, although the Joint Intervenors demand that “the NRC must revisit any conclusions in the Calvert Cliffs-3 FEIS based on the assumption that compliance with NRC safety regulations is

⁶⁰ See Luminant Generation Co. LLC (Comanche Peak Nuclear Power Plant, Units 3 and 4), CLI-12-07, 75 NRC __ (slip op.) (Mar. 16, 2012).

⁶¹ Id. at __ (slip op. at 13).

⁶² Id. at __ (slip op. at 9); see also id. at __, __ (slip op. at 11, 13).

⁶³ Id. at __ (slip op. at 11) (emphasis added).

sufficient to ensure that environmental impacts of accidents are acceptable,” they do not identify any such conclusions in the FEIS, much less connect their argument to any unique features of the Calvert Cliffs site or the proposed new reactor.⁶⁴ And the supporting declaration of Joint Intervenors’ expert, Dr. Arjun Makhijani, makes no mention of Calvert Cliffs Unit 3.

⁶⁴ Contention 11 at 11.

Because the Joint Intervenors have not connected the Task Force recommendations to unique characteristics of the Calvert Cliffs site or the proposed new reactor, they have, under CLI 12-07, failed to present sufficient information to show a genuine dispute of material fact or law with the FEIS. Therefore, the Board may not admit Contention 11.

III. CONCLUSION

For the foregoing reasons, the Board declines to admit Contention 11.

It is so ORDERED.

THE ATOMIC SAFETY
AND LICENSING BOARD

/RA/

Ronald M. Spritzer, Chairman
ADMINISTRATIVE JUDGE

/RA/

Dr. Gary S. Arnold
ADMINISTRATIVE JUDGE

/RA/

Dr. William W. Sager
ADMINISTRATIVE JUDGE

Rockville, Maryland
August 30, 2012

Concurring Opinion of Administrative Judge Arnold

Although I agree with the Board that Contention 11 is inadmissible, I do not agree with the reasoning provided in our Order. The Board's Order leaves the impression that the reason Contention 11 must be denied admission is because CLI-12-07 precludes its admission. The Concurring Opinion of Judge Spritzer further suggests that, if not for CLI-12-07, at least part of Contention 11 would be admissible. I disagree.

Contention 11, as submitted by Joint Intervenors, challenges the adequacy of the FEIS. It asserts that the expert opinions expressed in the Task Force Report would lead to changes in the regulations, and that accommodating those changes would necessarily change the environmental impacts of the plant. It then claims that those changes must be accounted for in a revision to the FEIS.

The Board's Order provides the following reasoning to find Contention 11 inadmissible. The Commission recently evaluated the appeal of a Board rejection of a site-specific Fukushima contention. The Commission found the Board's rejection correct because the "Board found that Petitioners did not relate their contention to any unique characteristics of the particular site at issue, and therefore, the contention was akin to the generic type of NEPA review that [the Commission] declared premature in CLI-11-5."⁶⁵ In the current case, Joint Intervenors' Contention 11 did not cite to any site-specific circumstances unique to Calvert Cliffs-3. Thus, Contention 11 similarly cannot be admissible in the case at hand.

While I agree that this reasoning provides sufficient grounds for rejecting Contention 11, I believe that, even in the absence of CLI-12-07, Contention 11 would be inadmissible.

Joint Intervenors claim that because environmental impacts of the proposed project may be affected by the expert opinions expressed by the Task Force Report, the FEIS must be

⁶⁵ See Luminant Generation Co. LLC (Comanche Peak Nuclear Power Plant, Units 3 and 4), CLI-12-07, 75 NRC __, __ (slip op. at 9) (Mar. 16, 2012).

supplemented to reflect those changed impacts. But the Commission, long before the events at Fukushima, clarified when an EIS must be updated to accommodate new information:

A Supplemental Environmental Impact Statement is not necessary “every time new information comes to light after the EIS is finalized.” As a general matter, the agency must consider whether the new information is significant enough to require preparation of a supplement. The new information must present “a seriously different picture of the environmental impact of the proposed project from what was previously envisioned.”⁶⁶

Although Joint Intervenors claim that some environmental impacts may change, at no point in Contention 11 do they argue that these changes would be so significant as to satisfy the Commission’s criterion. And concerning this question, the Commission has explicitly stated that “[t]his is not the case.”⁶⁷

An assessment of environmental impacts need not be exact, and may be performed to bound those impacts. That is, it is common practice in an EIS to use bounding evaluations when more exact calculations cannot be performed or are not necessary.⁶⁸ For argument, we assume that the Calvert Cliffs FEIS provides an adequate assessment of the environmental effects of

⁶⁶ Hydro Res., Inc. (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-99-22, 50 NRC 3, 14 (1999) (citing Marsh v. Oregon Natural Res. Council, 490 U.S. 360, 373 (1989); Sierra Club v. Froehlke, 816 F.2d 205, 210 (5th Cir. 1987)).

⁶⁷ Union Electric Company d/b/a Ameren Missouri (Callaway Plant , Unit 2), CLI-11-05, 74 NRC __, __ (slip op. at 31) (Sept. 9, 2011).

⁶⁸ See Entergy Nuclear Generation Co. and Entergy Nuclear Operations, Inc. (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 316 (2010) (“Because the GEIS provides a severe accident impacts analysis that envelopes the potential impacts at all existing plants, the environmental impacts of severe accidents during the license renewal term already have been addressed generically in bounding fashion.”). In Louisiana Energy Services, the Commission further stated that:

NEPA also does not call for certainty or precision, but an estimate of anticipated (not unduly speculative) impacts. An assessment of the estimated impacts at one or more representative or reference sites can be sufficient. In this type of analysis, the impacts for a range of potential facilities or locations having common site or design features can be bounded.

La. Energy Servs, L.P. (National Enrichment Facility), CLI-05-20, 62 NRC 523, 536 (2005).

Calvert Cliffs 3. If some event occurs resulting in modification of the actual environmental impacts in such a way that they remain bounded by the description in the EIS, then the EIS remains an adequate assessment of the environmental effects of Calvert Cliffs 3.

Joint Intervenors have not provided any logic for believing that the twelve recommendations from the Task Force Report will lead to more adverse environmental impacts. Joint Intervenors have not even made such an allegation. They only claim that the environmental impacts will be different from those currently addressed in the FEIS. Thus they have not challenged the current contents of the FEIS.

In fact, all of the Task Force Report recommendations are aimed at improving the safety of current and future nuclear power plants. A reactor that has improved safety would decrease the probability or effect of a severe accident and thus should result in less of an adverse environmental impact. That being the case, implementation of the recommendations would be expected to lead to environmental impacts that are still bounded by those described in the FEIS. This may or may not be true, but the important point is that Joint Intervenors have not claimed otherwise. Thus, Joint Intervenors have not established that this issue is material.

Contention 11 does not directly challenge the contents of the current FEIS and does not raise a genuine dispute on a material issue of law or fact. Thus, Contention 11 does not satisfy the criterion of 10 CFR § 2.309(f)(1)(vi) and is inadmissible.

/RA/

Dr. Gary S. Arnold
ADMINISTRATIVE JUDGE

Concurring Opinion of Administrative Judge Ronald Spritzer

I agree that CLI-12-07 compels the Board to reject Contention 11. The Commission has ruled that, to be admissible, any new contention based on the Task Force Report must allege unique characteristics of the site or the proposed new reactor and show that they are significant with respect to the Task Force's recommendations. Contention 11 fails to allege any such unique characteristics and is therefore inadmissible under the Commission's ruling. I therefore conclude that the Commission's decision is controlling.

Nevertheless, I believe that the first part of Contention 11 summarized in the Board's Order⁶⁹ is admissible under our contention admissibility regulation, 10 C.F.R. § 2.309(f)(1). That part, which I shall refer to as Contention 11A, alleges a violation of the obligation imposed by NEPA and its implementing regulations to consider mitigation in an EIS.⁷⁰ Factually, Contention 11A is premised upon the Task Force recommendations for enhanced accident mitigation capabilities at U.S. reactors. As explained below, those include recommendations 4, 7, and 8. The Task Force stated those recommendations should apply to proposed new reactors currently undergoing COL review, one of which is Calvert Cliffs Unit 3. Contention 11A maintains that the NRC failed to fulfill its NEPA obligation to evaluate accident mitigation measures because the FEIS fails to evaluate those recommendations. Intervenors argue that the FEIS must be supplemented to address those recommendations.

Under its own regulations, the NRC's obligation to evaluate these new recommendations for enhanced accident mitigation does not depend upon whether Intervenors have identified unique characteristics of the site or the proposed new reactor.⁷¹ It is therefore sufficient to state

⁶⁹ See supra pp. 8-9.

⁷⁰ Id.

⁷¹ See 10 C.F.R. § 51.71(d); see also 40 C.F.R. § 1502.14(f).

a litigable issue under NEPA and its implementing regulations that the Task Force Report, a team of the agency's own experts, recommends new accident mitigation measures applicable to Calvert Cliffs Unit 3 (as well as other new reactors) that have not been evaluated in the FEIS. Thus, but for the Commission's holding in CLI-12-07, it seems apparent that the agency has a legal obligation under NEPA to take a hard look at the new accident mitigation measures.

Although the Board must follow CLI-12-07 and dismiss Contention 11 in its entirety, I respectfully submit that the Commission should consider whether the narrowed version of Contention 11 that I have designated Contention 11A should be admitted in this proceeding. I recognize that Contention 11 alleges the same types of NEPA deficiencies as did the contentions that were at issue in CLI-12-07.⁷² But, in its ruling, the Commission did not directly address the question whether a narrowed version of the contentions might be admissible. It had no need to do so, because the licensing board decision the Commission was reviewing (LBP-11-27) did not consider that question. The Commission did state, however, that “[a]s tangible Fukushima lessons emerge—whether from inside or outside the NRC—Fukushima-related contentions in individual adjudications may become more plausible, except insofar as the NRC is taking generic steps to address them.”⁷³

I believe that it is appropriate for the Commission to revisit that issue now, because there has been a significant new development since the licensing board issued LBP-11-27, in which it held that the contentions based on the Task Force Report were premature. On March 19, 2012, the NRC issued two immediately effective orders imposing requirements derived from Task Force recommendations 4 and 7 on current nuclear power reactor licensees and on holders of

⁷² See Contention 11, at 3 (“Joint Intervenors point out that this contention is substantially similar to contentions and comments that are being filed this week in other pending reactor licensing and re-licensing cases and standardized design certification proceedings.”)

⁷³ CLI-12-07 at 11.

construction permits for new reactors (CP holders).⁷⁴ The FEIS, however, says nothing about whether or how those Task Force recommendations, or recommendation 8, will be applied to Calvert Cliffs Unit 3. In my view, the Commission's March 19, 2012 orders foreclose any further argument that Contention 11A is premature.⁷⁵ I therefore conclude that Contention 11A is now appropriate for adjudication.

Below I explain my analysis of the admissibility of Contention 11A under 10 C.F.R. § 2.309(f)(1). Initially, I will restate Contention 11A to focus upon the Task Force recommendations for enhanced mitigation that are relevant to Calvert Cliffs Unit 3.⁷⁶ After reviewing the Task Force's justification for those recommendations, I explain my reasons for concluding that Contention 11A is admissible, and that the contrary result apparently compelled by CLI-12-07 is inconsistent with the obligations that NEPA imposes upon the agency. Finally, even under my understanding of NEPA's requirements, the remaining parts of Contention 11, which I refer to as Contentions 11B, 11C and 11D, would still be inadmissible. Thus, if the Board's ruling was not constrained by CLI-12-07, the Board should have admitted Contention 11A but declined to admit the remainder of Contention 11.

⁷⁴ Nuclear Regulatory Commission, "In the Matter of All Power Reactor Licensees and Holders of Construction Permits in Active or Deferred Status: Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Effective Immediately)," 77 Fed. Reg. 16,082 (Mar. 19, 2012); Nuclear Regulatory Commission, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Effective Immediately)," 77 Fed. Reg. 16,091 (Mar. 19, 2012).

⁷⁵ See infra p. 72.

⁷⁶ Boards may reformulate contentions to "eliminate extraneous issues or to consolidate issues for a more efficient proceeding." Crow Butte (North Trench Expansion Project), CLI-09-12, 69 NRC 535, 552 (2009) (quoting Shaw Areva MOX Services (Mixed Oxide Fuel Fabrication Facility), LBP-08-11, 67 NRC 460, 482 (2008) (emphasis omitted)); Pennsylvania Power & Light Co. (Susquehanna Steam Electric Station, Units 1 and 2), LBP-79-6, 9 NRC 291, 295-96 (1979).

I. Contention 11A is Admissible

A. Contention 11A

I have restated Contention 11A to focus solely upon Task Force Recommendations 4, 7, and 8, the recommendations referred to in Contention 11 that apply to new pressurized water reactors such as the U.S. EPR proposed for construction as Calvert Cliffs Unit 3.⁷⁷ Contention 11A alleges:

The FEIS fails to evaluate the Task Force's recommendations to improve the mitigation capability of new U.S. reactors, including strengthening station black out mitigation capability for design basis and beyond-design-basis external events (Recommendation 4) ; enhancing spent fuel pool makeup capability and instrumentation for the spent fuel pool (Recommendation 7); and strengthening and integrating onsite emergency response capabilities such as emergency operating procedures (EOPs), severe accident management guidelines (SAMGs), and extensive damage mitigation guidelines (EDMGs) (Recommendation 8) . The FEIS therefore violates NEPA's requirement to provide a "reasonably complete discussion of possible mitigation measures." Accordingly, the FEIS must be supplemented to consider the use of these additional mitigation measures to reduce the project's environmental impact in the event of design basis or beyond-design-basis external events.

B. The Basis of Contention 11A: Task Force Recommendations 4, 7, and 8

Task Force Recommendations 4, 7, and 8 concern enhancing accident mitigation, "[t]he second level of defense-in-depth."⁷⁸ Those recommendations, among others, are discussed in Section 4.2 of the Task Force Report, which begins by explaining:

The Great East Japan Earthquake of 2011 and the ensuing tsunami resulted in many mitigation systems at the Fukushima Dai-ichi Nuclear Power Plant being unable to operate. The subsequent challenges faced by the operators at Fukushima Dai-ichi were beyond any faced previously at a commercial nuclear reactor. The Task Force examined the U.S. regulations, guidance, and practices for mitigating the consequences of accidents similar to those that occurred at

⁷⁷ Contention 11 also refers to the recommendation to require hardened vent designs in boiling water reactor facilities with Mark I and Mark II containments. Contention 11, at 15. That recommendation is not applicable to the new pressurized water reactor proposed for construction at the Calvert Cliffs site. I have therefore eliminated that recommendation from Contention 11A.

⁷⁸ Task Force Report at 32.

Fukushima Dai-ichi. The following sections discuss the Task Force evaluation of insights from Fukushima and provide recommendations for enhancing the mitigation capability of U.S. reactors with regard to prolonged loss of [alternating current] power, . . . spent fuel pool safety, and onsite emergency actions.⁷⁹

1. Recommendation 4: Mitigating Prolonged Loss of Alternating Current Power

The first mitigation enhancement discussed in the Task Force Report is directed at coping with the prolonged loss of alternating current power.

The Report explains that “[a]lternating current [ac] electrical power is critically important to the safety of nuclear power plants. Many of the SSC’s intended to cool the nuclear fuel in the reactor and in the spent fuel pools, to maintain radioactive containment systems, and to provide ventilation systems to minimize release of radioactive materials rely on ac power.”⁸⁰ Therefore, “the loss of all ac power both onsite and offsite, as occurred at Fukushima, is highly significant.”⁸¹ The Task Force noted that “the earthquake at Fukushima Dai-ichi on March 11, 2011, caused a loss of all offsite sources of power to the six units, and the ensuing tsunami caused failure of the emergency diesel generators for Units 1 through 4.”⁸² Because of the damage to the offsite power infrastructure from the earthquake and the damage at the site from the tsunami, Units 1 through 4 were without ac power for “many days.”⁸³

In its Recommendation 4, “[t]he Task Force recommends that the NRC strengthen [station blackout] mitigation capability for all operating and new reactors for design-basis and

⁷⁹ Id.

⁸⁰ Id.

⁸¹ Id. at 32-33.

⁸² Id. at 34.

⁸³ Id. at 35.

beyond-design-basis external events.”⁸⁴ The Task Force concluded that “revising 10 C.F.R. § 50.63 to expand the coping capability to include cooling the spent fuel, preventing a loss-of-coolant accident, and preventing containment failure would be a significant benefit.”⁸⁵

The Task Force recommended a three-part revision to require NRC licensees to provide these functions during a prolonged loss of ac power, such as occurred at Fukushima.

[1] Licensees should be required to establish the coping capability to maintain these functions for at least 8 hours at each unit during a loss of all ac power.⁸⁶

[2] Licensees should be required to “establish the equipment, procedures, and training necessary to implement an ‘extended loss of all ac’ coping time of 72 hours for core and spent fuel cooling and for reactor coolant system and containment integrity as needed.”⁸⁷

[3] Licensees should be required to “preplan and prestage offsite resources to support uninterrupted core and spent fuel pool cooling, and reactor coolant system and containment integrity as needed, including the ability to deliver the equipment to the site in the time period allowed for extended coping, under conditions involving significant degradation of offsite transportation infrastructure associated with significant natural disasters.”⁸⁸

⁸⁴ Id. at 37.

⁸⁵ Id. at 35.

⁸⁶ Id. at 38.

⁸⁷ Id.

⁸⁸ Id.

2. Recommendation 7: Enhancing Spent Fuel Pool Safety

In Recommendation 7, “[t]he Task Force recommends enhancing spent fuel pool makeup capability and instrumentation for the spent fuel pool.”⁸⁹

The Report explains that, during the protracted station blackout condition at Fukushima reactors 1-4, no ac power was available to operate equipment, and the plant’s batteries were depleted.

This resulted in having no onsite capability to provide water inventory or cooling to the spent fuel pools, and the operators were significantly challenged in understanding the condition of the spent fuel pools because of the lack of instrumentation or because of instrumentation that was not functioning properly. Eventually, spent fuel cooling was provided by pumper trucks employing high booms to spray water from a distance into the spent fuel pools.⁹⁰

The Task Force concluded that

Substantial additional defense-in-depth would be provided, and cooling the spent fuel in a prolonged SBO would have been substantially simplified, with an installed seismically qualified means to spray water into the spent fuel pools, including an easily accessible connection to supply the water (e.g., using a portable pump or pumper truck) at grade outside the building.⁹¹

The Task Force also determined that “[t]he lack of information on the conditions of the fuel in the Fukushima spent fuel pools was a significant problem,” and that “reliable information on the conditions in the spent fuel pool is essential to any effective response to a prolonged SBO or other similarly challenging accident.”⁹²

⁸⁹ Id. at 46.

⁹⁰ Id. at 45.

⁹¹ Id.

⁹² Id.

The current fleet of U.S. reactors lacks the level of defense-in-depth that the Task Force considered essential.⁹³ To close this regulatory gap, the Task Force recommended that the Commission direct the NRC Staff to take the following actions:

[1] Order licensees to provide sufficient safety related instrumentation, able to withstand design basis natural phenomena, to monitor key spent fuel pool parameters (i.e., water level, temperature, and area radiation levels) from the control room.

[2] Order licensees to provide safety related ac electrical power for the spent fuel pool makeup system.

[3] Order licensees to revise their technical specifications to address requirements to have one train of onsite emergency electrical power operable for spent fuel pool makeup and spent fuel pool instrumentation when there is irradiated fuel in the spent fuel pool, regardless of the operational mode of the reactor.

[4] Order licensees to have an installed seismically qualified means to spray water into the spent fuel pools, including an easily accessible connection to supply the water (e.g., using a portable pump or pumper truck) at grade outside the building.

[5] Initiate rulemaking or licensing activities, or both, to require the actions related to the spent fuel pool described in detailed recommendations 7.1–7.4.⁹⁴

3. Recommendation 8: Strengthening and Integrating Onsite Emergency Response Capabilities

Task Force recommendation 8 calls for strengthening and integrating the NRC's requirements for onsite emergency action programs at nuclear power plants.

⁹³ Id. at 44.

⁹⁴ Id. at 46.

At U.S. reactors, a number of guidelines and procedures guide the actions of reactor operators during an emergency. Design basis events such as the loss of offsite power are typically addressed by abnormal operating procedures, alarm response procedures, and emergency operating procedures (EOPs). “These procedures instruct the plant operators on the steps necessary to take the plant from full-power operation to a safe shutdown condition.”⁹⁵ EOPs have long been part of the NRC’s safety requirements.⁹⁶

An SBO is a beyond-design-basis event, however, and therefore the regulations requiring EOPs do not apply. “In the case of an SBO, the operators would follow a set of procedures . . . required by 10 C.F.R. § 50.63(c)(ii) and (iii). These procedures would instruct the operators in maintaining safety functions using the alternate ac power source or through coping strategies.”⁹⁷

In addition, the U.S. nuclear industry has developed severe accident management guidelines (SAMGs). The SAMGs “are meant to enhance the ability of operators to manage accident sequences that progress beyond the point where EOPs and other plant procedures are applicable and useful.”⁹⁸ Because the SAMGs are voluntary and targeted to technical support staff, however, “the formal training and licensing of plant operators does not address them.”⁹⁹

Extensive damage mitigation guidelines (EDMGs) are also intended to guide onsite emergency actions. They include “guidance and strategies intended to maintain or restore core cooling and containment and spent fuel pool cooling capabilities under the circumstances

⁹⁵ Id. at 46.

⁹⁶ Id.

⁹⁷ Id. at 47.

⁹⁸ Id.

⁹⁹ Id.

associated with the loss of large areas of the plant due to fire or explosion.”¹⁰⁰ The guidelines and strategies are required by an NRC regulation, 10 C.F.R. § 50.54(hh), issued in response to the terrorist events of September 11, 2001.¹⁰¹

Thus, as the Task Force Report observed, each of the onsite emergency action programs (the abnormal operating procedures, EOPs, SAMGs, and EDMGs) “was developed at a different time to serve a different purpose, and each of these programs is treated differently in the NRC’s regulations, inspection program, and licensing process, as well as in the licensee programs and organizations.”¹⁰² The Task Force concluded that “the overall effectiveness of those programs could be substantially enhanced through further integration, including clarification of transition points, command and control, decisionmaking, and through rigorous training that includes conditions that are as close to real accident conditions as feasible.”¹⁰³ The Report further states that “[s]ince the current requirements in this area apply only to normal operation and emergencies within the plant’s design basis, they appear outdated and inconsistent with Commission decisions in policy statements and rulemakings to regulate accident mitigation in other areas beyond the plant’s design basis.”¹⁰⁴ The Task Force concluded “that an expansion of the regulatory requirements to include procedures for beyond-design-basis events is warranted.”¹⁰⁵

¹⁰⁰ Id.

¹⁰¹ Id.

¹⁰² Id. at 48.

¹⁰³ Id. at 48-49.

¹⁰⁴ Id. at 49.

¹⁰⁵ Id.

4. The Task Force's Implementation Strategy for Applying Recommendations 4, 7, and 8 to New Reactors

Intervenors correctly point out that “[t]he Task Force urge[d] that some of its recommendations be considered before certain licensing decisions are made.”¹⁰⁶ Intervenors particularly emphasize that the Task Force intended that recommendations 4 and 7 be evaluated before licensing if the recommended requirements are not addressed in the referenced certified design.¹⁰⁷

As to recommendations 4 and 7, the Task Force explained:

Recommendation 4, with new requirements for prolonged SBO mitigation, and Recommendation 7, about spent fuel pool makeup capability and instrumentation, should apply to all design certifications or to COL applicants if the recommended requirements are not addressed in the referenced certified design. The Task Force recommends that design certifications and COLs under active staff review address this recommendation before licensing.¹⁰⁸

The Task Force reached a similar conclusion concerning Recommendation 8:

Recommendation 8 for the integration of EOPs, SAMGs, and EDMGs and for controlling accident decisionmaking under technical specifications would be applicable to COLs. For near-term COLs (i.e., those expected to be licensed before the NRC completes the proposed rulemakings), the Task Force recommends that the agency impose those requirements through inspections, tests, analyses, and acceptance criteria (ITAAC).¹⁰⁹

The Task Force recommended that the requirements of Recommendation 8 be imposed through ITAAC because “this would be one of those areas in which it is not practical to resolve the issue before COL issuance, in that the integration of EOPs, SAMGs, and EDMGs could require a few

¹⁰⁶ Contention 11, at 16.

¹⁰⁷ Id.

¹⁰⁸ Task Force Report at 71 (emphasis added).

¹⁰⁹ Id.

years of effort by licensees, the industry, and the NRC staff.”¹¹⁰ The Task Force noted, however, that the strategy of imposing the requirements through ITAAC “would ensure implementation and NRC oversight before plant operation.”¹¹¹

The NRC generally reviews severe accident mitigation alternatives (SAMAs) using a cost-benefit analysis; SAMAs that are not cost-beneficial need not be implemented by the licensee.¹¹² But the Task Force took the position that recommendations 4, 7, and 8 should be mandatory without regard to such a test. The Task Force concluded that applying those recommendations to both new and existing reactors is necessary to provide defense-in-depth, and thus to fulfill the NRC’s statutory responsibility to ensure adequate protection of public health and safety. Explaining the purpose of its recommendations, the Task Force stated that, just as the Commission established new security requirements on the basis of adequate protection after the September 11, 2001 attacks, “the Fukushima Dai-ichi accident similarly provides new insights regarding low-likelihood, high-consequence events that warrant enhancements to defense-in-depth on the basis of redefining the level of protection that is regarded as adequate.”¹¹³ Each of the Task Force’s recommendations, including those that are the subject of Contention 11A, are a part of that effort to redefine the level of protection that is regarded as adequate. For example, concerning recommendation 4, the Task Force stated that “[t]hese recommendations for revision to 10 C.F.R. § 50.63 would provide additional safety margins for a prolonged SBO as a part of the overall risk-informed, defense-in-depth regulatory framework

¹¹⁰ Id.

¹¹¹ Id. (emphasis added).

¹¹² See Duke Energy Corp. (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Generating Station, Units 1 and 2), CLI-02-17, 56 NRC 1, 2 (2003).

¹¹³ Task Force Report at viii.

providing adequate protection of public health and safety.”¹¹⁴ Similarly, with respect to recommendation 7, the Task Force concluded that “clear and coherent requirements to ensure that the plant staff can understand the condition of the spent fuel pool and its water inventory and coolability and to provide reliable, diverse, and simple means to cool the spent fuel pool under various circumstances are essential to maintaining defense-in-depth.”¹¹⁵ As to recommendation 8, the Task force stated that “[t]he NRC could strengthen the current system substantially by requiring more formal, rigorous, and frequent training of reactor operators and other onsite emergency response staff on realistic accident scenarios with realistic conditions.”¹¹⁶

Thus, the Task Force intended that recommendations 4, 7, and 8 be applied to U.S. reactors on the basis of the NRC’s statutory obligation to provide adequate protection of public health and safety, making cost-benefit analysis unnecessary.

5. The Commission’s Orders Implementing Recommendations 4 and 7 for Licensed Reactors

On March 19, 2012, the NRC issued two immediately effective orders imposing requirements derived from Task Force recommendations 4 and 7 on current nuclear power reactor licensees and on CP holders.¹¹⁷ The orders thus apply to the existing power reactors at the Calvert Cliffs Site (Units 1 and 2), as well as to all other currently licensed power reactors, but not to Unit 3 because the COL for that proposed new reactor has not yet been issued.

¹¹⁴ Id. at 37.

¹¹⁵ Id. at 45.

¹¹⁶ Id. at 49.

¹¹⁷ Nuclear Regulatory Commission, “In the Matter of All Power Reactor Licensees and Holders of Construction Permits in Active or Deferred Status: Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Effective Immediately),” 77 Fed. Reg. 16,082 (Mar. 19, 2012); Nuclear Regulatory Commission, “Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Effective Immediately),” 77 Fed. Reg. 16,091 (Mar. 19, 2012).

Both orders were intended to ensure attainment of “fundamental NRC regulatory objectives”: reasonable assurance of adequate protection of public health and safety and assurance of the common defense and security.¹¹⁸ The Commission noted that

[w]hile compliance with NRC requirements presumptively ensures adequate protection, new information may reveal that additional requirements are warranted. In such situations, the Commission may act in accordance with its statutory authority under Section 161 of the Atomic Energy Act of 1954, as amended, to require Licensees and CP holders to take action in order to protect health and safety and common defense and security.¹¹⁹

In both orders, the Commission concluded on the basis of the Task Force Report that new requirements should be imposed on all licensed U.S. reactors to ensure that those “fundamental NRC regulatory objectives” are met. The first order, which requires immediate implementation of measures to ensure reliable spent fuel instrumentation, explains that “Fukushima demonstrated the confusion and misapplication of resources that can result from beyond-design-basis external events when adequate instrumentation is not available.”¹²⁰ It observed that “[t]he spent fuel pool level instrumentation at U.S. nuclear power plants is typically narrow range and, therefore, only capable of monitoring normal and slightly off-normal conditions.”¹²¹ The Order states that the likelihood of a catastrophic event affecting nuclear power plants and the associated spent fuel pools in the United States remains very low, but it also acknowledges that “beyond-design-basis external events could challenge the ability of existing instrumentation to provide emergency responders with reliable information on the condition of spent fuel pools.

¹¹⁸ Id. at 16,083; id. at 16,092.

¹¹⁹ Id.

¹²⁰ Id. at 16,084.

¹²¹ Id.

Reliable and available indication is essential to ensure plant personnel can effectively prioritize emergency actions.”¹²² The Commission therefore concluded that “the spent fuel pool instrumentation required by this Order represents a significant enhancement to the protection of public health and safety and is an appropriate response to the insights from the Fukushima Dai-ichi accident.”¹²³ The Commission also decided that the new requirements should be imposed as an administrative exception to the agency’s Backfit Rule, which otherwise would have required a balancing of the public health and safety benefits of the new requirements against their costs.¹²⁴ The Commission described this as a “highly exceptional action limited to the insights associated with the extraordinary underlying circumstances of the Fukushima Dai-ichi accident and the NRC’s lessons learned.” The Commission further determined that “immediate action to commence implementation the spent fuel monitoring requirements is warranted at this time.”¹²⁵

Similarly, in its Order requiring immediate implementation of mitigation strategies for beyond-design-basis external events, the Commission stated that “[t]he events at Fukushima . . . highlight the possibility that extreme natural phenomena could challenge the prevention,

¹²² Id.

¹²³ Id.

¹²⁴ Id. at 16,083. In general, the “Backfit Rule” allows the NRC to impose new requirements defined as “backfitting” on previously licensed power reactors only if the agency finds “that there is a substantial increase in the overall protection of the public health and safety or the common defense and security to be derived from the backfit and that the direct and indirect costs of implementation for that facility are justified in view of this increased protection.” 10 C.F.R. § 50.109(a)(3). Section 50.109(a)(4) provides several exceptions to the Rule. The Commission, however, chose to rely on an administrative exception rather than any of the exceptions listed in Section 50.109(a)(4).

¹²⁵ 77 Fed. Reg. at 16,083.

mitigation, and emergency preparedness defense-in-depth layers.”¹²⁶ To address “the uncertainties associated with beyond-design-basis external events,” the Commission decided to require “additional defense-in-depth measures at licensed nuclear power reactors so that the NRC can continue to have reasonable assurance of adequate protection of public health and safety in mitigating the consequences of a beyond-design-basis external event.”¹²⁷ The Commission determined that

ensuring adequate protection of public health and safety requires that power reactor Licensees and CP holders develop, implement and maintain guidance and strategies to restore or maintain core cooling, containment, and SFP cooling capabilities in the event of a beyond-design-basis external event. These new requirements provide a greater mitigation capability consistent with the overall defense-in-depth philosophy, and, therefore, greater assurance that the challenges posed by beyond-design-basis external events to power reactors do not pose an undue risk to public health and safety.¹²⁸

As with the first order, the Commission concluded that “the public health, safety and interest require that this Order be made immediately effective.”¹²⁹ In addition, the Commission relied on the exception to the Backfit Rule that applies when “regulatory action is necessary to ensure that the facility provides adequate protection to the health and safety of the public and is in accord with the common defense and security.”¹³⁰ Because the Commission concluded that the new measures satisfied that test, it did not need to conduct the balancing of public health and safety benefits against costs that otherwise would be required by the Backfit Rule.¹³¹

¹²⁶ Id. at 16,092.

¹²⁷ Id.

¹²⁸ Id.

¹²⁹ Id.

¹³⁰ 10 C.F.R. § 50.109(a)(4)(ii).

¹³¹ 77 Fed. Reg. at 16,092.

C. Contention 11 A is Admissible Under 10 C.F.R. § 2.309(f)(1)

As the Board correctly determined, Contention 11 was timely filed. Contention 11A, which is a part of Contention 11, is therefore also timely. That leaves the question whether Contention 11A satisfies the admissibility criteria of 10 C.F.R. § 2.309(f)(1). In the absence of the Commission's decision in CLI-12-07, I would conclude that it does.

1. Legal Standard

Under Section 2.309(f)(1), an admissible contention must: (i) provide a specific statement of the legal or factual issue sought to be raised; (ii) provide a brief explanation of the basis for the contention; (iii) demonstrate that the issue raised is within the scope of the proceeding; (iv) demonstrate that the issue raised 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, including references to specific sources and documents, that support the petitioner's position and upon which the petitioner intends to rely at the hearing; and (vi) provide sufficient information to show that a genuine dispute exists in regard to a material issue of law or fact, including references to specific portions of the application that the petitioner disputes, or, in the case when the application is alleged to be deficient, the identification of such deficiencies and supporting reasons for this belief.¹³²

2. Contention 11A is Admissible

(a) Contention 11A Contains a Sufficient Statement of the Issue

Contention 11A provides a specific statement of the issue sought to be raised: the NRC has violated its obligations under NEPA and 10 C.F.R. Part 51 by failing to evaluate Task Recommendations 4, 7, and 8 in the FEIS, and the FEIS must be supplemented to remedy that deficiency.

¹³² See 10 C.F.R. § 2.309(f)(1).

(b) Contention 11A Contains a Brief Explanation of the Basis for the Contention

Intervenors have also satisfied the requirement to provide a brief explanation of the basis for the new contention.”¹³³

Intervenors rely on the NRC’s obligation under NEPA and Part 51 to evaluate accident mitigation measures in the FEIS. Intervenors emphasize that under NEPA this issue cannot be deferred until after this licensing proceeding.¹³⁴ Intervenors have identified three specific task force recommendations that they contend would improve the mitigation capability of Calvert Cliffs Unit 3 and must accordingly be evaluated in the FEIS. The Task Force Report was issued after the FEIS, but Intervenors emphasize that NEPA imposes a non-discretionary duty on the NRC to amend an EIS if new and significant information, such as the new recommendations for improved mitigation in the Task Force Report, comes to light.¹³⁵ This is true, they assert, even if the new and significant information first becomes available after the proposed EIS has received approval.¹³⁶ Intervenors stress that, in addition to NEPA, NRC’s own regulations “require supplementation of an EIS where ‘[t]here are new and significant circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.’”¹³⁷ Furthermore, Intervenors argue that the admission of this contention is the only way that “the

¹³³ 10 C.F.R. § 2.309(f)(1)(ii).

¹³⁴ Contention 11, at 3.

¹³⁵ Id. at 4 (citing Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041, 1049 (1983)).

¹³⁶ Id. at 10.

¹³⁷ Id. (citing 10.C.F.R. § 51.92 (a)(2)).

environmental implications of the Task Force recommendations [will be] taken into account in the licensing decision for Calvert Cliffs-3.”¹³⁸

In sum, the basis for proposed Contention 11A is that Task Force recommendations 4, 7, and 8 constitute new and significant information relevant to environmental concerns and bearing on the licensing of Calvert Cliffs Unit 3 or its impacts, and that the FEIS must therefore be supplemented to evaluate those potential accident mitigation measures. Intervenors have thus adequately described the basis of the new contention.

(c) Contention 11A is Within the Scope of the Proceeding

Contention 11A is within the scope of this proceeding, as required by Section 2.309(f)(1)(iii).

The scope of the proceeding is defined by the Commission in its initial hearing notice and order referring the proceeding to the Licensing Board.¹³⁹ Any contention that falls outside the specified scope of the proceeding is inadmissible.¹⁴⁰ The Notice of Hearing and Opportunity to Petition for Leave to Intervene for this proceeding explained that the Licensing Board would consider the Application under Part 52 for a COL for Calvert Cliffs Unit 3.¹⁴¹ Contention 11A challenges the adequacy of the NEPA analysis that the NRC must complete in order to issue the COL. Because Contention 11A challenges the legal sufficiency of the FEIS for the COL, it is within the scope of the proceeding.¹⁴²

¹³⁸ Id.

¹³⁹ Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), ALAB-825, 22 NRC 785, 790-91 (1985).

¹⁴⁰ See Portland Gen. Elec. Co. (Trojan Nuclear Plant), ALAB-534, 9 NRC 287, 289-90 n.6 (1979).

¹⁴¹ 73 Fed. Reg. 55,876 (Sept. 26, 2008).

¹⁴² See 10 C.F.R. § 2.309(f)(1)(iii); see also Pa'ina Hawaii, LLC, LBP-06-12, 63 NRC 403, 414 (2006).

The Staff correctly states that “[t]o the extent the Proposed Contention is intended to challenge existing NRC safety regulations, it is barred from consideration in adjudicatory proceedings by 10 C.F.R. § 2.335(a).”¹⁴³ The Staff does not specifically argue, however, that the aspect of Contention 11 that I have identified as Contention 11A is a direct challenge to any NRC regulation. On the contrary, Contention 11A, far from seeking to invalidate or compel a change in any agency regulation, seeks to enforce the agency’s NEPA regulation directing that the FEIS must evaluate available accident mitigation alternatives. The contention thus challenges the FEIS, not an NRC regulation.

Assuming that Contention 11A were to succeed on the merits, the agency might have to supplement the FEIS to consider those three recommendations for improved mitigation. The Commission would remain free, however, to reject or accept the recommendations. This is because NEPA does not require agencies to “elevate environmental concerns over other appropriate considerations.”¹⁴⁴ “[I]t is now well settled that NEPA itself does not mandate particular results, but simply prescribes the necessary process If the adverse environmental impacts of the proposed action are adequately identified and evaluated, the agency is not constrained by NEPA from deciding that other values outweigh the environmental costs.”¹⁴⁵ Thus, once an agency has complied with NEPA’s procedural obligations, it is free to follow any policy within the bounds of its statutory authority. Contention 11A therefore neither challenges

¹⁴³ NRC Staff Answer to Joint Intervenors’ Motion to Admit New Contention Regarding the Safety and Environmental Implications of the NRC Task Force Report on the Fukushima Dai-ichi Accident (Sept. 6, 2011) at 8 [hereinafter Staff Response].

¹⁴⁴ Strycker’s Bay Neighborhood Council, Inc. v. Karlen, 444 U.S. 223, 227 (1980).

¹⁴⁵ See Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 350 (1989) (citations omitted).

any agency regulation nor seeks to require the NRC to take any action beyond the requirements of its present regulations.

Because Contention 11A is a procedural challenge to the FEIS, rather than a direct attack upon any agency regulation, it is within the scope of the proceeding.

(d) Contention 11A is Material to the Licensing Decision

To satisfy Section 2.309(f)(1)(iv), the petitioner must demonstrate that a contention asserts an issue of law or fact that is “material to the findings the NRC must make to support the action that is involved in the proceeding.”¹⁴⁶ That is, the subject matter of the contention must impact the grant or denial of a pending license application.¹⁴⁷

Contention 11A satisfies the materiality requirement by alleging that the FEIS violates NEPA. “The centerpiece of environmental regulation in the United States, NEPA requires federal agencies to pause before committing resources to a project and consider the likely environmental impacts of the preferred course of action as well as reasonable alternatives.”¹⁴⁸ When, as in this case, an agency proposes a “major Federal action[] significantly affecting the quality of the human environment,” NEPA requires the preparation of an EIS concerning the proposed action.¹⁴⁹ The requirement to prepare an EIS is a procedural mechanism designed to assure that agencies give proper consideration to the environmental consequences of their

¹⁴⁶ 10 C.F.R. § 2.309(f)(1)(iv).

¹⁴⁷ Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), LBP-98-07, 47 NRC 142, 179-80 (1998), aff'd as to other matters, CLI-98-13, 48 NRC 26 (1998).

¹⁴⁸ New Mexico ex rel. Richardson v. Bureau of Land Mgmt., 565 F.3d 683, 703 (10th Cir. 2009) (citing 42 U.S.C. § 4331(b) (congressional declaration of national environmental policy); U.S. Dep't of Transp. v. Pub. Citizen, 541 U.S. 752, 756–57 (2004); Marsh v. Or. Natural Res. Council, 490 U.S. 360, 371 (1989); Forest Guardians v. U.S. Forest Serv., 495 F.3d 1162, 1172 (10th Cir. 2007)).

¹⁴⁹ 42 U.S.C. § 4332.

actions.¹⁵⁰ Although NEPA's requirements are procedural, the NRC, like other federal agencies, is held to a "strict standard of compliance" with the Act's requirements.¹⁵¹

Contention 11A alleges that the FEIS violates two NEPA requirements. The first is that an EIS must include a "reasonably complete discussion of possible mitigation measures."¹⁵² "[M]itigation [must] be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated."¹⁵³ In addition, Contention 11A alleges that the FEIS must be supplemented because NEPA imposes on agencies a continuing obligation to gather and evaluate new information relevant to the environmental impact of its actions.¹⁵⁴

(i) The FEIS Must Provide a Reasonably Complete Discussion of Severe Accident Mitigation Measures

"Although NEPA does not mention mitigation, by administrative practice and regulation mitigation . . . plays an important role in the discharge by federal agencies of their procedural duty under NEPA to prepare an EIS."¹⁵⁵ NEPA does not mandate implementation of a mitigation plan,

¹⁵⁰ See Vt. Yankee Nuclear Power v. Natural Res. Def. Council, 435 U.S. 519, 558 (1978).

¹⁵¹ Calvert Cliff's Coordinating Commission v. AEC, 449 F.2d 1109, 1112 (D.C. Cir. 1971).

¹⁵² Contention 11 at 15 (quoting Robertson, 490 U.S. at 352); see also Miss. River Basin Alliance v. Westphal, 230 F.3d 170, 177 (5th Cir. 2000) (An EIS must include "a serious and thorough evaluation of environmental mitigation options.")

¹⁵³ Miss. River Basin Alliance v. Westphal, 230 F.3d at 176-77 (quoting Robertson, 490 U.S. at 352).

¹⁵⁴ See Contention 11 at 9-10, 15 (citing Warm Springs Dam Task Force v. Gribble, 621 F.2d 1017, 1023-24 (9th Cir. 1980); Essex County Preservation Ass'n v. Campbell, 536 F.2d 956, 960-61 (1st Cir. 1976); Society for Animal Rights, Inc. v. Schlesinger, 512 F.2d 915, 917-18 (D.C. Cir. 1975)).

¹⁵⁵ Thomas J. Schoenbaum and Richard B. Stewart, The Role of Mitigation and Conservation Measures in Achieving Compliance with Environmental Regulatory Statutes: Lessons from Section 316 of the Clean Water Act, 8 NYU Env'tl. L.J. 237, 276 (2000).

but the Supreme Court has interpreted the statute, as well as the regulations issued by Council on Environmental Quality (CEQ), to require that an EIS include

discussion of steps that can be taken to mitigate adverse environmental consequences. The requirement that an EIS contain a detailed discussion of possible mitigation measures flows both from the language of the Act and, more expressly, from CEQ's implementing regulations. Implicit in NEPA's demand that an agency prepare a detailed statement on "any adverse environmental effects which cannot be avoided should the proposal be implemented," 42 U.S.C. § 4332(C)(ii), is an understanding that the EIS will discuss the extent to which adverse effects can be avoided. . . . More generally, omission of a reasonably complete discussion of possible mitigation measures would undermine the "action-forcing" function of NEPA. . . . Recognizing the importance of such a discussion in guaranteeing that the agency has taken a "hard look" at the environmental consequences of proposed federal action, CEQ regulations require that the agency discuss possible mitigation measures in defining the scope of the EIS, 40 CFR § 1508.25(b) (1987), in discussing alternatives to the proposed action, § 1502.14(f), and consequences of that action, § 1502.16(h), and in explaining its ultimate decision, § 1505.2(c).¹⁵⁶

The NRC's NEPA regulations impose the same requirement. The draft EIS must "include a preliminary analysis that considers and weighs . . . alternatives available for reducing or avoiding adverse environmental effects . . ." ¹⁵⁷ And the NRC's regulation governing preparation of an FEIS directs that the NRC Staff "prepare a final environmental impact statement in accordance with the requirements of . . . [10 C.F.R. § 51.71] for a draft environmental impact statement." ¹⁵⁸

The proposed action's effect on public health and safety is an environmental issue that must be evaluated under NEPA. Adverse environmental effects under NEPA include the impact of the proposed action on public health and safety.

Although NEPA is primarily concerned about the environment, the regulations state that, in determining whether a federal action would 'significantly' affect the

¹⁵⁶ Robertson, 490 U.S. at 352 (footnotes omitted).

¹⁵⁷ 10 C.F.R. § 51.71(d) (emphasis added).

¹⁵⁸ 10 C.F.R. § 51.90.

environment, the agency should consider '[t]he degree to which the proposed action affects public health and safety.' 40 C.F.R. § 1508.27. The agency is therefore responsible for taking a 'hard look' at the project's effect on safety.¹⁵⁹

Thus, the NRC's obligation to evaluate mitigation in an EIS for a new nuclear reactor license includes evaluating measures to mitigate the impact of severe accidents on public health and safety.¹⁶⁰

In a COL proceeding such as this, the Commission may require implementation of mitigation measures it deems necessary and appropriate by imposing conditions in the license.¹⁶¹ In addition, the NRC's record of decision for the license must "[s]tate whether the Commission has taken all practicable measures within its jurisdiction to avoid or minimize environmental harm from the alternative selected, and if not, to explain why those measures were not adopted."¹⁶² The record of decision must also "[s]ummarize any license conditions and monitoring programs adopted in connection with mitigation measures."¹⁶³ It is therefore essential that the FEIS provide the Commission with a thorough evaluation of environmental mitigation options.

(ii) The NRC Must Take a Hard Look at Potentially Significant New Information

Because the Task Force Report was published after the FEIS for Calvert Cliffs Unit 3 was issued, Intervenors allege that the NRC Staff must supplement the FEIS to evaluate Recommendations 4, 7, and 8. According to Intervenors, the recommendations, and the gaps in the agency's regulations on which they are based, constitute significant new information relevant

¹⁵⁹ City of Las Vegas v. FAA, 570 F.3d 1109, 1115 (9th Cir. 2009) (citing Metro. Edison Co. v. People Against Nuclear Energy, 460 U.S. 766, 772, 775 (1983)).

¹⁶⁰ Limerick Ecology Action v. NRC, 869 F.2d 719, 739-41 (3d Cir. 1989); see also CLI-11-05, 74 NRC __, __ (slip op. at 30) (Sept. 9, 2011).

¹⁶¹ See 10 C.F.R. §§ 51.107(a)(3), 52.97(c).

¹⁶² Id. § 51.103(a)(4).

¹⁶³ Id.

to the environmental consequences of the proposed action that must be evaluated in a supplement to the FEIS.

As the Supreme Court explained in Marsh v. Oregon Natural Resources Council, 490 U.S. 360, 370 (1989), “[t]he subject of postdecision supplemental environmental impact statements is not expressly addressed in NEPA.” The CEQ regulations implementing NEPA, however, require the preparation of a supplement to a draft or final EIS if, inter alia, “significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts” arise.¹⁶⁴ Thus, if after the preparation of the EIS, the agency is presented with new information or changed circumstances and “there remains ‘major federal action’ to occur, and if the new information is sufficient to show that the remaining action will ‘affect[t] the quality of the human environment’ in a significant manner or to a significant extent not already considered, a supplemental EIS must be prepared.”¹⁶⁵ However, “an agency need not supplement an EIS every time new information comes to light after the EIS is finalized. To require otherwise would render agency decision making intractable.”¹⁶⁶

On this issue, like the duty to consider mitigation in an EIS, the NRC’s NEPA regulations parallel those of the CEQ. The Commission explained in its ruling denying the Emergency Petition that “[i]f . . . new and significant information comes to light that requires consideration as part of the ongoing preparation of application-specific NEPA documents, the agency will assess the significance of that information, as appropriate.”¹⁶⁷ The NRC’s regulations direct the Staff to prepare supplemental environmental review documents when:

¹⁶⁴ See 40 C.F.R. § 1502.9(c)(1)(ii).

¹⁶⁵ Marsh, 490 U.S. at 374.

¹⁶⁶ Id. at 373 (footnote omitted).

¹⁶⁷ CLI-11-05, 74 NRC at ___ (slip op. at 30-31).

(1) There are substantial changes in the proposed action that are relevant to environmental concerns; or

(2) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.¹⁶⁸

The Commission stated that “[t]o merit this additional review, information must be both ‘new’ and ‘significant,’ and it must bear on the proposed action or its impacts. As we have explained, ‘[t]he new information must present ‘a seriously different picture of the environmental impact of the proposed project from what was previously envisioned.’”¹⁶⁹

Contention 11A thus alleges that the FEIS violates two NEPA requirements. If Intervenor prevail on those allegations, the license cannot be lawfully issued until the violation is corrected. Contention 11A is therefore material to the licensing decision.

(e) Contention 11A Includes a Concise Statement of the Alleged Facts or Expert Opinions that Support the Contention

Section 2.309(f)(1)(v) requires the Intervenor to provide a concise statement of the facts or expert opinions that support their position and upon which they intend to rely at the hearing.

To satisfy this requirement, Intervenor state that they “rely on facts and opinions of the Task Force members as set forth in their Task Force Report and as summarized [in Section B of Contention 11]. The high level of technical qualifications of the Task Force members has been recognized by the Commission.”¹⁷⁰ Thus, the expert opinions on which the Intervenor rely are those of the NRC experts who prepared the Task Force Report. An agency violates NEPA when its EIS fails to adequately respond to the critical opinions of its own experts.¹⁷¹ Thus, Intervenor

¹⁶⁸ 10 C.F.R. § 51.92(a).

¹⁶⁹ CLI-11-05, 74 NRC at ___ (slip op. at 31) (quoting Hydro Resources, Inc. (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-99-22, 50 NRC 3, 14 (1999)).

¹⁷⁰ Contention 11, at 18 (quoting May 12, 2011 Commission briefing transcript, at 5).

¹⁷¹ See W. Watersheds Project v. Kraayenbrink, 632 F.3d 472, 492-93 (9th Cir. 2011).

may properly rely upon the opinions expressed in the Task Force Report as the basis of their proposed new contention. And Intervenor have provided the required “concise statement” of the expert opinions that support their position and upon which they intend to rely by summarizing Recommendations 4, 7, and 8, and citing the sections of the Task Force Report in which those recommendations appear.¹⁷²

Intervenor have thus satisfied Section 2.309(f)(1)(v).

(f) Contention 11A Provides Sufficient Information to Show that a Genuine Dispute Exists in Regard to Material Issues of Law or Fact

The final admissibility criterion requires that Contention 11A reflect a genuine dispute with the FEIS on a material issue of law or fact.¹⁷³

To satisfy Section 2.309(f)(1)(vi), Intervenor need not prove their case on the merits. They need only allege some facts or expert opinion that support their position and demonstrate a genuine dispute with the license application (or, in this instance, with the sufficiency of the FEIS). Explaining the level of support necessary for an admissible contention, the Commission observed:

Although [the contention admissibility rule] imposes on a petitioner the burden of going forward with a sufficient factual basis, it does not shift the ultimate burden of proof from the applicant to the petitioner. . . . Nor does [the rule] require a petitioner to prove its case at the contention stage. For factual disputes, a petitioner need not proffer facts in “formal affidavit or evidentiary form,” [sic] sufficient “to withstand a summary disposition motion.” . . . On the other hand, a petitioner “must present sufficient information to show a genuine dispute” and reasonably “indicating that a further inquiry is appropriate.”¹⁷⁴

¹⁷² Contention 11, at 15. The Task Force Report sections cited by Intervenor describe in detail the basis of recommendations 4, 7, and 8. Those sections of the Task Force Report are summarized supra pp. 24-36.

¹⁷³ 10 C.F.R. § 2.309(f)(1)(vi).

¹⁷⁴ Yankee Atomic Elec. Co. (Yankee Nuclear Power Station), CLI-96-7, 43 NRC 235, 249 (1996) (citations omitted) (quoting Georgia Institute of Technology (Georgia Tech. Research Reactor), CLI-95-12, 42 N.R.C. 111, 118 (1995) (quotation errors in original); see also Gulf States Utilities Co. (River Bend Station, Unit 1), CLI-94-10, 40 NRC 43, 51 (1994).

Intervenors, by citing and relying on the Task Force Report, have presented sufficient information to show a genuine dispute and that “a further inquiry is appropriate.”¹⁷⁵

(i) Contention 11A Provides Sufficient Information to Show a Genuine Dispute Whether the FEIS Adequately Considers Severe Accident Mitigation Measures

A licensing board must admit an adequately supported contention alleging that the agency’s NEPA analysis of severe accident mitigation alternatives is deficient.¹⁷⁶ Contention 11A alleges such a deficiency. It maintains that the FEIS’s evaluation of accident mitigation alternatives fails to comply with NEPA and Part 51 because it fails to evaluate Task Force recommendations 4, 7, and 8. The Task Force Report, which constitutes the expert opinion supporting Contention 11A, contains sufficient information to demonstrate a genuine dispute with the sufficiency of the FEIS. By identifying new accident mitigation measures that are not evaluated in the FEIS, recommending that those measures be considered in pending COL reviews, and explaining why those measures are necessary for the protection of public health and safety, the Task Force Report provides sufficient support for Intervenors’ argument that the FEIS fails to include a sufficient “discussion of steps that can be taken to mitigate adverse environmental consequences.”¹⁷⁷

Of course, although “it will always be possible to come up with some type of mitigation alternative that has not been addressed by the [FEIS],” every conceivable mitigation alternative does not require a detailed analysis.¹⁷⁸ But the Task Force’s recommendations are significant because they come from the agency’s own experts, following their detailed evaluation of one of

¹⁷⁵ Yankee Nuclear Power Station, CLI-96-7, 43 NRC at 249.

¹⁷⁶ See McGuire Nuclear Station, CLI-02-17, 56 NRC at 9-10.

¹⁷⁷ Robertson, 490 U.S. at 352 (footnotes omitted).

¹⁷⁸ McGuire Nuclear Station, CLI-02-17, 56 NRC at 11.

the worst accidents in the history of the nuclear power industry. The agency's NEPA documents must address significant concerns raised by its own experts that are relevant to the proposed action.¹⁷⁹ Contention 11A alleges that the NRC has failed to comply with that obligation by failing to evaluate the Task Force's recommendations for enhancing accident mitigation capabilities at U.S. reactors. Contention 11A does not insist that the FEIS evaluate every conceivable mitigation alternative; it contends only that the NRC must fulfill its obligation under NEPA to take a hard look at mitigation alternatives recommended by its own experts.¹⁸⁰

To be sure, the Intervenor has not yet proven that all of the Task Force's recommendations are necessary and appropriate for Unit 3. It is possible, for example, that the substance of recommendations 4 and 7 will be addressed in the certified design rulemaking for the EPR. The Task Force Report acknowledged this possibility.¹⁸¹ But this does not preclude admission of the contention. The petitioner or intervenor need not prove that the analysis of mitigation is deficient; it is sufficient if the board finds "that a sufficient genuine dispute existed" concerning the alleged deficiency.¹⁸² In McGuire Nuclear Station, the Commission affirmed the licensing board's decision admitting a contention challenging the adequacy of the licensee's severe accident mitigation alternatives (SAMA) analysis based on a report from Sandia National Laboratories. The Commission stated that "[w]hile the contention might have been more detailed or otherwise better supported, the Petitioners have done enough to raise a question

¹⁷⁹ Western Watersheds Project v. Kraayenbrink, 632 F.3d 472, 492 (9th Cir. 2011) (Agency violated NEPA when it "failed to address concerns raised by its own experts, [the United States Fish and Wildlife Service], the [Environmental Protection Agency], and state agencies.").

¹⁸⁰ See id. at 493.

¹⁸¹ Task Force Report at 71 (Stating that recommendations 4 and 7 "should apply to all design certifications or to COL applicants if the recommended requirements are not addressed in the referenced certified design.").

¹⁸² McGuire Nuclear Station, CLI-02-17, 56 NRC at 9-10.

about the adequacy of the probability figures used in Duke's SAMA analysis, namely, whether they should have incorporated or otherwise acknowledged information from the Sandia study."¹⁸³ Although Duke contended that its own data were most appropriate for the SAMA analysis, and the Board acknowledged that Duke might be correct, the Commission agreed that "[w]hether the SAMA analysis in fact should have addressed the study was a question for the merits."¹⁸⁴

In this case, Intervenors have done enough to justify admitting their contention by citing mitigation alternatives that the Task Force concluded should be considered in pending COL reviews. By citing relevant portions of the Task Force Report, Intervenors have made a "showing sufficient to require reasonable minds to inquire further," which is all that our case law requires of them for a NEPA contention.¹⁸⁵ Whether the FEIS must be supplemented to address those new recommendations is the question to be decided on the merits. Potential defenses, such as the claim that some aspects of the recommendations have been or will be addressed in the certified design rulemaking, do not preclude admission of Contention 11A. As the Commission has acknowledged, "the primary obligation of satisfying the requirements of NEPA rests on the agency."¹⁸⁶ Thus, the NRC Staff, not the Intervenors, has the duty under NEPA to evaluate the suitability of the accident mitigation alternatives recommended in the Task Force Report. "Compliance with NEPA is a primary duty of every federal agency; fulfillment of this vital

¹⁸³ Id. at 7.

¹⁸⁴ Id. at 9.

¹⁸⁵ Union Elec. Co. (Callaway Plant, Units 1 and 2), ALAB-348, 4 NRC 225, 229 (1976) (quoting Indiana & Michigan Elec. Co. v. FPC, 502 F.2d 336, 339 (D.C. Cir. 1974)).

¹⁸⁶ Pa'ina Hawaii, LLC, CLI-10-18, 72 NRC 56, 82 (2010).

responsibility should not depend on the vigilance and limited resources of environmental plaintiffs.”¹⁸⁷

(ii) Contention 11A Provides Sufficient Information to Show a Genuine Dispute Whether the NRC must Supplement the FEIS in Light of Significant New Information

Had the Task Force Report been published before the FEIS was issued, my analysis would be complete at this point. But, because the Report was issued after the FEIS, I must also determine whether Intervenors have raised a genuine dispute on the second NEPA issue: whether the NRC has violated its duty to supplement the FEIS in response to new and significant information.

“An agency that has prepared an EIS cannot simply rest on the original document. The agency must be alert to new information that may alter the results of its original environmental analysis, and continue to take a ‘hard look’ at the environmental effects of [its] planned action, even after a proposal has received initial approval.”¹⁸⁸ Contention 11A alleges that the NRC has violated that duty by failing to supplement the FEIS in response to the new and significant Task Force recommendations for enhanced accident mitigation capability at U.S. reactors. The NRC must supplement the FEIS if it learns of “new and significant circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.”¹⁸⁹

The question at the contention admissibility stage, however, is not whether the regulatory standard for supplementing the FEIS is met. That is the issue to be decided on the merits, and, as the Commission has instructed us, we are not to decide the merits at the contention

¹⁸⁷ Friends of Clearwater v. Dombeck, 222 F.3d 552, 559 (9th Cir. 2000) (quoting City of Davis v. Coleman, 521 F.2d 661, 667 (9th Cir. 1975)).

¹⁸⁸ Id. at 557-58 (quoting Marsh, 490 U.S. at 373-74).

¹⁸⁹ 10 C.F.R. § 51.92(a)(2).

admissibility stage.¹⁹⁰ At this point, the Board need only decide whether Intervenors have “present[ed] sufficient information to show a genuine dispute” concerning the NRC’s duty to supplement the FEIS, and reasonably indicating that further inquiry concerning that issue is appropriate.¹⁹¹

The Task Force Report is certainly new information; it was published several months after the FEIS was issued. Recommendations 4, 7, and 8 are intended to improve the accident mitigation capability of U.S. reactors and thereby enhance the protection of public health and safety, and the proposed action’s impact on public health and safety is an environmental concern that the NRC must address in the FEIS. Thus, the new information in the Task Force Report is “relevant to environmental concerns.”¹⁹² The Task Force intended that recommendations 4, 7, and 8 be considered in all pending COL reviews. Calvert Cliffs Unit 3 is currently the subject of such a review, and thus the recommendations that are the basis of Contention 11A “have a bearing on the proposed action or its impacts.”¹⁹³

The remaining question is whether the new information is “significant” to evaluating the environmental consequences of the proposed action. The Commission has stated that, to be significant, “[t]he new information must present ‘a seriously different picture of the environmental impact of the proposed project from what was previously envisioned.’”¹⁹⁴ Here, the environmental impact of concern is the proposed action’s impact upon public health and safety in

¹⁹⁰ Yankee Nuclear Power Station, CLI-96-7, 43 NRC at 249.

¹⁹¹ Id.

¹⁹² 10 C.F.R. § 51.92(a)(2).

¹⁹³ Id.

¹⁹⁴ CLI-11-05, 74 NRC at ___ (slip op. at 31) (quoting Hydro Resources, CLI-99-22, 50 NRC at 14).

the unlikely event of a severe accident. The accident mitigation capability of Calvert Cliffs Unit 3 is a significant factor in assessing that impact: the greater the mitigation capability, the lower the expected impact would be. Therefore, to determine whether the new information in the Task Force Report is potentially significant, and therefore justifies admitting Contention 11A, the Board should compare the analysis of severe accident mitigation in the FEIS with the new information on that subject in the Task Force Report.

The FEIS paints a reassuring picture of the accident mitigation capability of Calvert Cliffs Unit 3 and its ability to provide defense-in-depth in the event of a severe accident. Concerning U.S. reactors generally, the FEIS states:

Numerous features combine to reduce the risk associated with accidents at nuclear power plants. Safety features in the design, construction, and operation of the plants, which compose the first line of defense, are intended to prevent the release of radioactive materials from the plant. The design objectives and the measures for keeping levels of radioactive materials in effluents to unrestricted areas ALARA are specified in 10 CFR Part 50, Appendix I. Additional measures are designed to mitigate the consequences of failures in the first line of defense. These measures include the NRC's reactor site criteria in 10 CFR Part 100, which require the site to have certain characteristics that reduce the risk to the public and the potential impacts of an accident, and emergency preparedness plans and protective action measures for the site and environs All of these safety features, measures, and plans make up the defense-in-depth philosophy to protect the health and safety of the public and the environment.¹⁹⁵

The FEIS also evaluated Severe Accident Mitigation Alternatives (SAMAs) in order “to determine whether there are severe accident mitigation design alternatives (SAMDAs) or procedural modifications or training activities to further reduce the risks of severe accidents.”¹⁹⁶ The Staff accepted Unistar's conclusions that none of the 167 design alternatives (SAMDAs) evaluated in its Environmental Report could be justified on the

¹⁹⁵ FEIS at 5-75 to 5-76.

¹⁹⁶ Id. at 5-88 (citation omitted).

basis of a cost-benefit analysis.¹⁹⁷ According to the FEIS, “Unistar determined that the maximum averted cost risk for a single U.S. EPR at the Calvert Cliffs site is so low that none of the SAMDAs is cost beneficial.”¹⁹⁸ Similarly, the FEIS concludes that “because the maximum attainable benefit is so low, a SAMA based on procedures or training would have to reduce the [core damage frequency] or risk to near zero to become cost beneficial. Based on its evaluation, the staff concludes that it is unlikely that any of the SAMAs based on procedures or training would reduce the [core damage frequency] or risk that much.”¹⁹⁹

Thus, the overall picture presented in the FEIS is that Calvert Cliffs Unit 3 will have numerous features to reduce the risk associated with accidents, that these features will assure adequate protection of public health and the environment in the unlikely event of a severe accident, and that any residual risk is so small that the NRC need not require additional accident mitigation measures.

In contrast, the Task Force Report raises significant concerns about the accident mitigation capability of U.S. reactors based on lessons learned from the Fukushima accident, and concludes that significant benefits to public health and safety could be obtained by enhancing the accident mitigation capability of U.S. reactors. For example, concerning Recommendation 4 for enhanced SBO mitigation capability, the Report identifies potential problems that the NRC’s current regulations fail to address and recommends regulatory changes that would significantly reduce the impact of a SBO. The NRC’s current SBO regulation, 10 C.F.R. § 50.63, requires that each nuclear power plant be able to cool the reactor core and maintain containment integrity in the event of a SBO of a specified duration. NRC Regulatory Guide 1.155 provides a method of

¹⁹⁷ Id. at 5-89.

¹⁹⁸ Id.

¹⁹⁹ Id.

calculating the required duration for withstanding an SBO based on the four factors identified in the regulation. “The result for all operating plants was a coping duration of 4 to 8 hours.”²⁰⁰

Thus, “[t]he Commission’s SBO requirements provide assurance that each nuclear power plant can maintain adequate core cooling and maintain containment integrity for its approved coping period [typically 4 or 8 hours] following an SBO.”²⁰¹ But this will not necessarily be sufficient, for reasons the Report explains:

[t]he implementing guidance for SBO focuses on high winds and heavy snowfalls in assessing potential external causes of loss of offsite power, but does not consider the likelihood of loss of offsite power from other causes such as earthquakes and flooding. Also, the SBO rule does not require the ability to maintain reactor coolant system integrity (i.e., PWR reactor coolant pump seal integrity) or to cool spent fuel. Further, the SBO rule focuses on preventing fuel damage and therefore does not consider the potential for the buildup of hydrogen gas inside containment during a prolonged SBO condition and the potential need to power hydrogen igniters in certain containment designs to mitigate the buildup of hydrogen. Nor does it consider containment overpressure considerations and the need to vent the containment in certain designs. Finally, the SBO rule does not require consideration of the impact on the station, and particularly on the onsite ac generation and distribution, of the natural event that caused the loss of offsite ac electrical power.²⁰²

The Task Force concluded that “revising 10 C.F.R. § 50.63 to expand the coping capability to include cooling the spent fuel, preventing a loss-of-coolant accident, and preventing containment failure would be a significant benefit.”²⁰³ Revising the regulation to incorporate these changes would “further enhance the ability of nuclear power plants to deal with the effects of prolonged SBO conditions at single and multiunit sites without damage to the nuclear fuel in the

²⁰⁰ Task Force Report at 33.

²⁰¹ Id. at 35.

²⁰² Id. The Task Force’s concerns with the buildup of hydrogen gas inside containment during a prolonged SBO condition, the potential need to power hydrogen igniters, and containment overpressure and the need to vent the containment appear to be directed at BWRs. However, the Task Force’s other concerns are also relevant to PWRs.

²⁰³ Id. at 35.

reactor or spent fuel pool and without the loss of reactor coolant system or primary containment integrity.”²⁰⁴ Moreover, as previously explained, the Task Force stated that this recommendation (among others) should be applied in all pending COL reviews, thereby making it applicable to Calvert Cliffs Unit 3. Thus, the Task Force effectively recommends what the FEIS rejects: requiring enhanced accident mitigation capability at Calvert Cliffs Unit 3.

Task Force recommendation 7 paints a similar picture of the need for enhanced accident mitigation capability at U.S. reactors to address another lesson learned from the Fukushima accident. The Report states that “clear and coherent requirements to ensure that the plant staff can understand the condition of the spent fuel pool and its water inventory and coolability and to provide reliable, diverse, and simple means to cool the spent fuel pool under various circumstances are essential to maintaining defense-in-depth.”²⁰⁵ But the Report concludes that the current fleet of U.S. reactors lacks such defense-in-depth:

[c]urrent spent fuel pool instrumentation provides limited indication and typically depends on the availability of dc electrical power at the facility. That power is provided either through inverters powered by ac electrical power or by the station’s safety-grade redundant battery banks. Direct spent fuel pool level indication is rarely provided in the control room for the current nuclear fleet. Typically, level is measured using a level switch in the skimmer surge tank. During a prolonged SBO, ac power would not be available and the battery banks would be depleted, resulting in functional failure of nearly all instrumentation and control systems for monitoring spent fuel pool parameters and operating systems ensuring the integrity of the fuel in the spent fuel pools.²⁰⁶

Recommendation 7 addresses the problems the Task Force identified by requiring enhanced spent fuel pool makeup capability and instrumentation, thereby providing the

²⁰⁴ Id. at 37.

²⁰⁵ Id. at 45.

²⁰⁶ Id. at 44.

defense-in-depth that the Task Force found necessary.²⁰⁷ Here again, the Task Force effectively recommends what the FEIS rejects.

As previously explained, the FEIS concludes that SAMAs based on improved procedures or training could not be justified “because the maximum attainable benefit is so low.”²⁰⁸ In contrast, the Task Force concluded that Recommendation 8, which calls for “strengthening and integrating emergency response capabilities such as EOPs, SAMGs, and EDMGs;” would significantly enhance the protection of public health and safety.²⁰⁹ According to the Task Force, “[t]he accidents at Fukushima highlight the importance of having plant operators who are well prepared and well supported by technically sound and practical procedures, guidelines, and strategies.”²¹⁰ The Task Force observed that “[t]he effectiveness of onsite emergency actions is a very important part of the overall safety of nuclear power plants,” and that “[t]he NRC could strengthen the current system substantially by requiring more formal, rigorous, and frequent training of reactor operators and other onsite emergency response staff on realistic accident scenarios with realistic conditions.”²¹¹

The Task Force concluded that SAMGs, which are currently voluntary industry initiatives, should be regulatory requirements. The Report explains:

To gain insights into the current implementation of the SAMGs, the Task Force requested that NRC inspectors collect information on how each licensee had implemented that industry voluntary initiative. The inspectors collected information on the initial implementation, ongoing training, and maintenance of the SAMGs The results of the inspection . . . reinforced the value of making SAMGs a

²⁰⁷ Id. at 45-46.

²⁰⁸ FEIS at 5-89.

²⁰⁹ Task Force Report at 45-46.

²¹⁰ Id. at 48.

²¹¹ Id. at 49.

requirement. The inspectors observed inconsistent implementation of SAMGs and attributed it to the voluntary nature of this initiative.²¹²

The Task Force also found that, although “U.S. plants have addressed all of the elements of onsite emergency actions that need to be accomplished by reactor operators[,] . . . the overall effectiveness of those programs could be substantially enhanced through further integration, including clarification of transition points, command and control, decisionmaking, and through rigorous training that includes conditions that are as close to real accident conditions as feasible.”²¹³

The Task Force also determined that “action is warranted to confirm, augment, consolidate, simplify, and strengthen current regulatory and industry programs in a manner that produces a single, comprehensive framework for accident mitigation, built around NRC-approved licensee technical specifications.”²¹⁴ The Task force found that integration of EOPs, SAMGs, EDMGs, and other important elements of emergency procedures, guidance, and tools, together with appropriate regulatory requirements to ensure the effectiveness of operator actions during events, would “substantially increase the effectiveness of the overall event mitigation.”²¹⁵ The Task Force also concluded that the NRC’s requirements in this area should be expanded to cover beyond-design-basis events.

Since the current requirements in this area apply only to normal operation and emergencies within the plant’s design basis, they appear outdated and inconsistent with Commission decisions in policy statements and rulemakings to regulate accident mitigation in other areas beyond the plant’s design basis. The Task Force concludes that an expansion of the regulatory requirements to include procedures for beyond-design-basis events is warranted, and that such an

²¹² Id. at 48.

²¹³ Id. at 48-49.

²¹⁴ Id. at 49.

²¹⁵ Id.

expansion would redefine the scope of such activities to include them in the regulatory framework to provide defense-in-depth and to ensure adequate protection of public health and safety.²¹⁶

Thus, the NRC's experts have made three recommendations to improve the accident mitigation capability of U.S. reactors. According to those experts, there are significant gaps in the NRC's current regulations and a corresponding need to close those gaps with new requirements in order to adequately protect public health and safety in the event (however unlikely) of a severe accident. The Task Force's analysis applies with as much force to Unit 3 as to any other existing or proposed U.S. reactor. But the FEIS fails to mention, much less evaluate, any of the Task Force's recommendations, nor does it acknowledge any other aspect of the Task Force Report or the Fukushima accident itself. The Task Force Report thus paints a significantly different picture of the accident mitigation capabilities of U.S. reactors and the need to enhance those capabilities than the far more sanguine picture presented in the FEIS.

The significance of the Task Force recommendations to the adequate protection of public health and safety is further demonstrated by the Commission's recent orders making all U.S. power reactors, including Calvert Cliffs Units 1 and 2, subject to additional requirements stemming from Task Force Recommendations 4 and 7. The Commission's orders leave no doubt of the importance of those recommendations to ensure attainment of "fundamental NRC regulatory objectives": reasonable assurance of adequate protection of public health and safety and assurance of the common defense and security.²¹⁷

The Task Force Report is therefore sufficient to raise a genuine dispute concerning the NRC's duty to supplement the FEIS. An agency violates NEPA when it fails to take a hard look at significant safety concerns raised by qualified experts to determine whether they require a

²¹⁶ Id.

²¹⁷ 77 Fed. Reg. at 16,083; id. at 16,092; see supra p. 36.

supplemental EIS (SEIS).²¹⁸ It makes no difference that, as the Staff notes, “the Task Force Report does not take any position on NRC’s environmental reviews.”²¹⁹ It is equally irrelevant that the Commission’s recent orders are not directed at NEPA compliance. Alternatives to mitigate the impacts of severe accidents must be given careful consideration in EISs supporting NRC licensing decisions.²²⁰ That obligation is not contingent upon whether the agency’s experts or Commission orders question the adequacy of the agency’s NEPA reviews.²²¹

To satisfy the hard look requirement, the NRC must provide detailed analysis of the new information and a reasonable explanation of the agency’s decision concerning supplementation, not merely a conclusory assertion that the agency has reviewed the new information and concluded that no supplement is required. For example, in Warm Springs Dam Task Force v. Gribble,²²² the Army Corps of Engineers had conducted an extensive 10-month study of new information to determine whether further NEPA analysis was required.²²³ Similarly, in Friends of Clearwater v. Dombeck, the Forest Service had prepared a “supplemental information report,” which is a “formal instrument[] for documenting whether new information is sufficiently significant to trigger the need for a SEIS,” and “several other analyses that specifically addressed the

²¹⁸ See Warm Springs Task Force, 621 F.2d at 1025.

²¹⁹ NRC Staff Response at 9.

²²⁰ Limerick, 869 F.2d at 741.

²²¹ In fact, the agency policy at issue in Limerick was that SAMDAs should not be considered in the agency’s NEPA reviews for individual facilities, yet the court held the SAMDAs must be given careful consideration in the Limerick EIS. 869 F.2d at 727, 741.

²²² 621 F.2d at 1017.

²²³ Id. at 1025-26. The study was completed after the agency’s final decision, but before the case was heard on appeal. The court of appeals held that the agency’s hard look cured the NEPA violation, and therefore remand to the district court was unnecessary.

significance of the new information.”²²⁴ The court of appeals “conclud[ed] that the Forest Service [had] taken the requisite ‘hard look’ at the newly-designated sensitive species[—albeit only after it faced this litigation]— . . . , and that its determination that an SEIS [was] not required [was] not arbitrary and capricious.”²²⁵

In this case, in contrast, the NRC Staff has not claimed, much less demonstrated, that it has performed or intends to perform any detailed analysis to determine whether the FEIS should be supplemented. On the contrary, the Staff’s position is that “if intervenors have new design features they wish to see implemented at nuclear facilities, the correct procedural option is to file a Petition for Rulemaking under 10 C.F.R. § 2.802 rather than contentions in individual proceedings.”²²⁶ Thus, the Staff’s position appears to be that all of Contention 11, and thus necessarily Contention 11A, is outside the scope of its NEPA obligations concerning Calvert Cliffs Unit 3.

Intervenors, however, are not requesting implementation of new mitigation alternatives at nuclear facilities generally. They are requesting that new mitigation measures recommended by the agency’s experts be evaluated in the FEIS as alternatives for one specific nuclear facility: Calvert Cliffs Unit 3. Absent a valid regulation limiting the agency’s NEPA obligations, the consideration of alternative severe accident mitigation measures may not be excluded from the agency’s NEPA reviews,²²⁷ and the agency’s refusal to conduct such an analysis is therefore an appropriate subject for litigation in a licensing proceeding when, as here, no such regulation

²²⁴ 222 F.3d at 555, 559.

²²⁵ Id. at 561. Accordingly, although the court of appeals held that the agency violated NEPA by not taking the required hard look before suit was filed, it affirmed the district court’s decision not to enter injunctive relief. Id.

²²⁶ Staff Response at 15.

²²⁷ See Limerick, 869 F.2d at 739.

applies. Contention 11A therefore presents a genuine dispute concerning the agency's legal obligations under NEPA that is appropriate for resolution in the hearing process.

I would therefore admit Contention 11A. Intervenors have presented, at a minimum, sufficient information to show a genuine dispute and that "a further inquiry is appropriate."²²⁸

D. Although CLI-12-07 Requires that the Board Reject Contention 11A, that Result Should be Reconsidered

Under the Commission's holding in CLI-12-07, any new contention based on the Task Force Report must allege unique characteristics of the site or the proposed new reactor and show that they are significant with respect to the Task Force's recommendations. Although this requirement precludes the Board from admitting Contention 11A, I respectfully submit that its application to the Contention should be reconsidered.

The issue raised by Contention 11A, the NRC's duty to evaluate severe accident mitigation measures in its NEPA review for Calvert Cliffs Unit 3, presents virtually the same NEPA issue that was resolved against the agency in Limerick Ecology Action v. NRC.²²⁹ The Third Circuit held that the agency violated NEPA by failing to evaluate SAMDAs in its EIS for the Limerick Nuclear Power Generating Station Unit 1 operating license (the Limerick EIS). Like the present case, Limerick arose in the aftermath of another serious nuclear power plant accident, the accident at Three Mile Island Unit 2. Before the Three Mile Island accident, the NRC "thought severe accidents too unlikely to justify consideration of their likelihood in reviewing and determining the safety of nuclear power plants."²³⁰ But the NRC "retreated from that viewpoint

²²⁸ Yankee Nuclear Power Station, CLI-96-7, 43 NRC at 249.

²²⁹ Limerick, 869 F.2d at 729-41.

²³⁰ Id. at 728.

following the TMI accident and subsequently set safety goals with respect to severe accidents.”²³¹ The agency also “initiate[d] a research program into severe accident risks and mitigation alternatives, including a review of Limerick and other facilities located near major population centers.”²³² Nevertheless, in a policy statement, the NRC directed that SAMDAs “should not be studied on a case-by-case basis,” “excluded consideration of [SAMDAs] from individual licensing proceedings,” and also “excluded environmental considerations under NEPA” related to SAMDAs from the Limerick licensing proceeding.²³³

As a result of this NRC policy, SAMDAs were not evaluated in the Limerick EIS. An intervenor group, Limerick Ecology Action, challenged this omission. It argued that “[f]iltered-vented containment systems,” one of the mitigation alternatives studied by the NRC, should have been considered in the Limerick EIS.²³⁴ The Appeal Board affirmed the Licensing Board decision excluding the contention. The Appeal Board “noted that because the [Commission’s] Final Policy Statement found that existing plants posed no undue risk to the public health and safety and that research was ongoing, the policy statement precluded review of design alternatives.”²³⁵ The Appeal Board further ruled that the policy statement precluded NEPA contentions as well as safety contentions because NEPA could not logically require more than the Atomic Energy Act (AEA).²³⁶ After the Commission affirmed the Appeal Board’s decision, the intervenor petitioned for review in the Third Circuit.

²³¹ Id.

²³² Id. at 726.

²³³ Id. at 727.

²³⁴ Id. at 726.

²³⁵ Id. at 732.

²³⁶ Id. at 732-33.

The court of appeals granted the petition for review as to the NEPA issue.²³⁷ The court ruled that the NRC must evaluate measures to mitigate the effects of severe accidents under NEPA even if the agency finds that granting a license will be consistent with the adequate protection of public health and safety standard of Section 182(a) of the AEA, 42 U.S.C. § 2232(a).²³⁸ The court further concluded that the Limerick EIS “failed adequately to consider SAMDAs and, therefore, the decisionmaker did not take the requisite ‘hard look’ at SAMDAs,” and that “the underlying issue of SAMDAs may not be treated as a generic issue and therefore summary treatment of SAMDAs was inappropriate.”²³⁹ The court of appeals noted that the NRC’s own NEPA regulations require that the agency consider “the alternatives available for reducing or avoiding adverse environmental and other effects.”²⁴⁰ The court of appeals concluded that “the NRC was required to address SAMDAs and cannot now look to sufficiency under the AEA to avoid that obligation.”²⁴¹

More than two decades after Limerick was decided, the agency finds itself in a similar position. The Fukushima accident, like the Three Mile Island accident, has caused the NRC to reassess the sufficiency of its regulatory program for protection of public health and safety. In

²³⁷ Id. at 741.

²³⁸ The court of appeals agreed with the intervenor that “[t]he language of NEPA indicates that Congress did not intend that it be precluded by the AEA.” 869 F.2d at 730-31. The Third Circuit determined that the legislative history and case law require compliance with NEPA unless compliance is impossible, or another statute specifically prohibits compliance with NEPA. Id. at 729-30. In this case, the NRC did not argue that compliance was impossible, and the Atomic Energy Act does not expressly prohibit compliance with NEPA; thus the Third Circuit found that the NRC could not look to the sufficiency of safety standards enacted under the Atomic Energy Act to avoid its NEPA obligations. See id. at 730-31.

²³⁹ Id. at 739.

²⁴⁰ Id. at 730 (quoting 10 C.F.R. § 51.71(d)).

²⁴¹ Id. at 730-31.

response to the Fukushima accident, a task force of the agency's experts has made detailed recommendations to enhance the capability of U.S. reactors to mitigate the impact of a severe accident on public health and safety. The same requirement that the court of appeals relied on in Limerick, that the agency consider "the alternatives available for reducing or avoiding adverse environmental and other effects,"²⁴² remains in force. The NRC did include an evaluation of SAMAs in the FEIS,²⁴³ but the FEIS was issued before the Task Force Report and thus did not evaluate its recommendations. Intervenors here, like the intervenor in Limerick, have identified specific accident mitigation measures recommended by the Task Force that they maintain must be evaluated in the agency's NEPA review for Unit 3. The agency's position in Limerick was that SAMDAs need not be considered in the EIS because "ongoing studies were still considering design alternatives,"²⁴⁴ and that it could refuse to review SAMDAs in the Limerick EIS absent "special or unique circumstances about the Limerick site and environs that would warrant consideration of alternatives for Limerick Units 1 and 2."²⁴⁵ Those arguments were evidently not persuasive to the Third Circuit, nor were any of the agency's other justifications for excluding SAMDAs from the Limerick EIS. Nevertheless, as it did with SAMDAs in Limerick, the NRC has attempted to exclude evaluation of the new mitigation alternatives recommended by the Task Force from individual NEPA reviews and licensing proceedings unless intervenors identify factors unique to the site or the proposed new reactor.²⁴⁶

²⁴² Id. at 730 (quoting 10 C.F.R. § 51.71(d)).

²⁴³ FEIS at 5-88 to 5-89. SAMAs include both SAMDAs and "procedural modifications or training activities that can be justified to further reduce the risks of severe accidents." Id. at 5-88.

²⁴⁴ 869 F.2d at 733.

²⁴⁵ Id. at 732 (quoting the Limerick FEIS at 5-126).

²⁴⁶ See CLI-12-07, 75 NRC ___, ___ (slip op. at 9-13) (Mar. 16, 2012).

The Commission's analysis begins by noting its previous ruling in CLI-11-05 that a generic NEPA analysis of the Fukushima accident and the Task Force Report is premature given the agency's ongoing evaluation of the accident.²⁴⁷ The Commission then implies that a contention based on the Report or the accident that seeks a site-specific NEPA review is the equivalent of the request for a generic NEPA analysis that the Commission previously rejected, unless it is based on factors unique to the site or the proposed new reactor.²⁴⁸ The Commission accordingly affirmed the licensing board decisions not to admit Fukushima contentions because they were "akin to the generic type of NEPA review that [the Commission] declared premature in CLI-11-05."²⁴⁹

Contention 11A, however, cannot be dismissed as a request for a "generic type of NEPA review," even though it is based on the Task Force Report rather than factors unique to the site or the proposed new reactor. If an environmental issue is common to all or a number of U.S. reactors, the NRC may in its discretion decide to prepare a generic EIS to evaluate the issue. As the D.C. Circuit recently explained, "[b]oth the Supreme Court and this court have endorsed the Commission's longstanding practice of considering environmental issues through general rulemaking in appropriate circumstances."²⁵⁰ Thus, a comprehensive generic analysis may be used to evaluate "on-site risks that are essentially common to all plants," as long as the agency provides "the opportunity for concerned parties to raise site-specific differences at the time of a specific site's licensing."²⁵¹

²⁴⁷ CLI-12-07, 75 NRC at ___ (slip op. at 8).

²⁴⁸ See id. (slip op. at 9-13).

²⁴⁹ Id. (slip op. at 9).

²⁵⁰ New York v. NRC, 681 F.3d 471, 480 (D.C. Cir. 2012).

²⁵¹ Id.

Therefore, a generic NEPA review is, by definition, based on factors that are not unique to any particular site. But it does not follow that a contention based on an expert report that is not focused on a particular site is necessarily a request for a generic NEPA review. Contention 11A does not request that the implications of Task Force Recommendations 4, 7, and 8 be assessed at any proposed new reactor other than Calvert Cliffs Unit 3. Whether the recommendations are indeed appropriate for Unit 3 must be determined based on the characteristics of the nuclear power plant to be constructed at the site, the risks to the surrounding population, and other factors that the Staff must evaluate to determine whether the recommendations will be beneficial in the event of a severe accident at Unit 3. Thus, the resolution of the contention will necessarily be based on site and reactor-specific factors that would be outside the scope of a generic NEPA review. Therefore, the fact that Contention 11A does not refer to site-specific factors does not mean that is a request for a generic EIS. As the Third Circuit stated in Limerick, “the impact of SAMDAs on the environment will differ with the particular plant's design, construction and location,”²⁵² and therefore “the underlying issue of SAMDAs may not be treated as a generic issue and . . . summary treatment of SAMDAs was inappropriate.”²⁵³ This conclusion applies with equal force to Task Force recommendations 4, 7, and 8. Contention 11A may therefore not be rejected as a request for a generic NEPA review.

Moreover, even assuming that the application of Task Force recommendations 4, 7, and 8 to Calvert Cliffs Unit 3 could have been resolved in a generic EIS, the NRC has neither prepared such a generic NEPA document nor indicated the intent to do so. If the NRC had appropriately chosen to prepare a generic EIS analyzing the applicability of Task Recommendations 4, 7, and 8 to all U.S. reactors, it could justifiably insist that any demand for a site-specific analysis of that

²⁵² 869 F.2d at 738.

²⁵³ Id. at 739.

issue be based on factors unique to the site or reactor because the common factors would have been covered in the generic EIS. But, in CLI-11-05, the Commission rejected the request to prepare a generic EIS to evaluate the implications of the Fukushima accident and the Task Force Report. Having made that choice, the NRC may not now insist that the request for a NEPA analysis of the implications of Task Force Report for Unit 3 (or any other specific facility) be based on factors unique to the site or reactor. As the D.C. Circuit explained, “whether the analysis is generic or site-by-site, it must be thorough and comprehensive.”²⁵⁴ Thus, the NRC must produce a comprehensive and thorough NEPA analysis of all NEPA issues relevant to Calvert Cliffs Unit 3, including mitigation of severe accidents, and if the issue is not covered in a generic EIS it must be covered in the site-specific NEPA document.

It is therefore sufficient that the Task Force Report states that recommendations 4, 7, and 8 should be considered in pending COL reviews, which activates the NRC’s duty to take a hard look at them as accident mitigation measures for Unit 3. The license application for Unit 3 is one of the COL reviews currently pending before the NRC Staff, and therefore the recommendations apply as much to Unit 3 as to any other proposed new reactor undergoing COL review. Nothing in the recommendations suggests that their applicability to any pending COL review is contingent upon unique characteristics of the site or the proposed new reactor.

That the Task Force recommendations are not limited to sites or reactors with unique characteristics is confirmed by the Commission’s recent orders imposing requirements derived from recommendations 4 and 7 on all current nuclear power reactor licensees and on CP holders. Those orders were not limited to reactors with particular site or design characteristics.²⁵⁵ Because of the orders, Calvert Cliffs Units 1 and 2 must comply with the substance of Task Force

²⁵⁴ New York v. NRC, 681 F.3d at 480-81.

²⁵⁵ See supra. p. 36.

recommendations 4 and 7, yet the FEIS for Unit 3 is completely silent as to whether, or how, any of the Task Force recommendations will be applied to the proposed new reactor at the same site.

This omission frustrates NEPA's twin goals of "forc[ing] agencies to take a 'hard look' at the environmental consequences of a proposed project, and, making relevant analyses openly available, to permit the public a role in the agency's decision-making process."²⁵⁶ An impact statement cannot fulfill its role of providing "a springboard for public comment"²⁵⁷ if it fails to evaluate significant issues such as measures that the agency's experts recommend to mitigate the consequences of a severe accident. "The impact statement must be sufficient to enable those who did not have a part in its compilation to understand and consider meaningfully the factors involved."²⁵⁸ But, if the FEIS fails to address the Task Force recommendations for enhanced mitigation, it will fail to inform the public whether or how the NRC intends to apply the Task Force recommendations to Unit 3 in order to close the gaps in the agency's regulations that the Task Force identified. This would frustrate NEPA's intent that the FEIS should provide the public with detailed information concerning significant environmental impacts of the proposed federal action and alternatives available to mitigate those impacts.²⁵⁹ If the FEIS fails to explain whether or how the NRC intends to apply the Task Force recommendations for enhanced mitigation to Calvert Cliffs Unit 3, it would fail to "fulfill its vital role of 'exposing the reasoning and data of the agency proposing the action to scrutiny by the public and by other branches of the government.'"²⁶⁰

²⁵⁶ La. Energy Services, L.P. (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 87 (1998) (citing Robertson, 490 U.S. at 349-50; Hughes River Watershed Conservancy v. Glickman, 81 F.3d 437, 443 (4th Cir.1996)).

²⁵⁷ Robertson, 490 U.S. at 349 (citation omitted).

²⁵⁸ Limerick, 869 F.2d at 737.

²⁵⁹ See Robertson, 490 U.S. at 349-52.

²⁶⁰ State of Alaska v. Andrus, 580 F.2d 465, 475 (D.C. Cir. 1978) (quoting NRDC v. Callaway,

In CLI-12-07, the Commission referred to its ongoing review of the Fukushima accident and the Task Force Report,²⁶¹ and suggested that the Report is only “inchoate information” that has no present impact on its NEPA obligations for specific facilities.²⁶² Even if the Commission is still reviewing the Task Force’s recommendations, however, the agency must take a hard look at the implications of the new information for the proposed action before it makes the licensing decision for Unit 3. In Friends of Clearwater v. Dombeck, the court held that “the Forest Service’s failure to evaluate in a timely manner the need to supplement the original EIS in light of . . . new information violated NEPA.”²⁶³ It admonished the Forest Service for failing to comply with NEPA by waiting until suit was filed to take a hard look at the new information and to “consider whether the seven new sensitive species designations . . . upon which the original EIS relied were sufficiently significant to require preparation of an SEIS.”²⁶⁴

The hard look requirement applies even if the implications of the new and potentially significant information are not entirely clear. In Warm Springs Dam Task Force v. Gribble,²⁶⁵ the Ninth Circuit held that the Army Corps of Engineers’ SEIS for a new dam violated NEPA because it failed to take a hard look at a new report by from the United States Geological Survey which suggested that the dam might experience an earthquake stronger than the SEIS indicated it was designed to withstand.²⁶⁶ The accuracy of the report was “far from settled” at the time of

524 F.2d 79, 93-94 (2d Cir. 1975); Silva v. Lynn, 482 F.2d 1282, 1286-7 (1st Cir. 1973)).

²⁶¹ CLI-12-07, 75 NRC at ___ (slip op. at 8-9).

²⁶² See id (slip op. at 14).

²⁶³ 222 F.3d at 559.

²⁶⁴ Id. at 558.

²⁶⁵ 621 F.2d at 1017.

²⁶⁶ See id. at 1025. The case concerned a Corps project to construct a 319-foot earth-fill dam in

litigation, and “admittedly dealt in possibilities. [Thus, this report] was more significant for the questions it raised than for the answers it gave.”²⁶⁷ Nonetheless, the Court of Appeals held that the new information required the Corps to take a hard look at the report.²⁶⁸ According to the Court, “[w]hen new information comes to light the agency must consider it, evaluate it, and make a reasoned determination whether it is of such significance as to require implementation of formal NEPA filing procedures.”²⁶⁹ The Court held that “[w]hile not so definitive as to compel initiation of the formal supplementation process, [the] study raised sufficient environmental concerns to require the Corps to take another hard look at the issues.”²⁷⁰

Thus, potentially significant new information related to public health and safety cannot be dismissed from the NEPA analysis because it is “more significant for the questions it raise[s] than for the answers it g[ives]”; it still requires a hard look under NEPA.²⁷¹ The NRC is not absolved of its NEPA duty to take a hard look at the new information because the Task Force Report raises questions and concerns about the safety of domestic nuclear reactors and makes suggestions about strengthening current safety regulations for these reactors, but the NRC has not yet decided how those recommendations should be implemented at Unit 3. Thus, even if all the

California. Id. at 1019. The Corps prepared an EIS, followed by a SEIS “addressing the problems of seismic safety and water quality.” Id. The report mapped fault lines at and surrounding the dam site and estimated that fault lines near the dam site were longer than the Corps had estimated in its SEIS. See id. at 1020–21. Therefore, it was possible that these fault lines could cause higher magnitude earthquakes at the dam site than those discussed in the SEIS. See id. at 1025.

²⁶⁷ Id.

²⁶⁸ See id.

²⁶⁹ Id. at 1024.

²⁷⁰ Id. at 1025.

²⁷¹ Id. at 1025.

implications of the Task Force Report for U.S. reactors are not fully clear, Contention 11A should be admitted for hearing.

Finally, the Commission's March 19, 2012 orders foreclose any further argument that Contention 11A is premature. Those immediately effective orders impose requirements derived from Task Force recommendations 4 and 7 on current nuclear power reactor licensees and on CP holders.²⁷² The determinations reflected in those orders show that the Commission has progressed beyond merely evaluating the Task Force recommendations, and has decided that specific requirements recommended by the Task Force must be imposed on licensees and on CP holders to ensure adequate protection of public health and safety. Thus, even assuming that the Task Force recommendations were once outside the scope of the agency's NEPA obligations because they were merely "inchoate information," that is no longer true after the March 19 orders.

The NRC may choose to promulgate new regulations under the AEA that would require new reactors, including Unit 3, to implement mitigation measures equivalent to Task Force recommendations 4, 7, and 8. Alternatively, the Applicant might amend its application to adopt the substance of those recommendations, or the certified design to be utilized at Calvert Cliffs Unit 3 might be amended to incorporate those measures. If and when any such event occurs, the FEIS need not evaluate those mitigation measures as alternatives because they will have become part of the proposed action. But, as long as the agency is only considering regulatory changes and neither the application nor the certified design has been amended, the NRC's obligation under NEPA to consider mitigation alternatives remains unaltered. Contention 11A therefore raises a significant NEPA compliance issue, and the Commission should reconsider CLI-12-07 to the extent it forecloses admission of that contention.

²⁷² See supra pp. 24-36.

II. The Remaining Parts of Contention 11 are Inadmissible

The remaining parts of Contention 11, which I refer to as Contentions 11B, 11C, and 11D, fail to meet the requirements of 10 C.F.R. § 2.309(f)(1) and are therefore inadmissible.

All three proposed contentions assert alternative grounds for requiring supplementation of the FEIS in light of the Task Force Report. Contention 11B maintains that the FEIS must take a hard look at the consequences of the Task Force's recommendation (Recommendation 2) to change the way in which the NRC evaluates SAMAs. Intervenors maintain that by recommending the incorporation of accidents formerly classified as "severe" or "beyond design basis" into the design basis, the Task Force Report effectively recommends a complete overhaul of the NRC's system for mitigating severe accidents through consideration of SAMAs.²⁷³

Unlike Contention 11A, Contention 11B concerns a recommendation for a general change to the NRC's regulatory program. Task Force recommendation 2 is not a recommendation for a specific accident mitigation measure, and, unlike recommendations 4, 7, and 8, it is not the type of recommendation that could be considered in an individual COL proceeding. It can be implemented only through a change to the agency's SAMA requirements. Given the nature of Task Force recommendation 2, it fails to provide a basis for supplementing the FEIS.

Contention 11C alleges that the Task Force Report questions the sufficiency of the NRC's existing regulatory regime to provide adequate protection of public health and safety. Intervenors state that the NRC must therefore "revisit any conclusions in the Calvert Cliffs-3 EIS based on the assumption that compliance with NRC safety regulations is sufficient to ensure that environmental impacts of accidents are acceptable."²⁷⁴ At bottom, this appears to be an attack upon the probabilistic risk assessment that was used to estimate the probability-weighted

²⁷³ Contention 11, at 11.

²⁷⁴ Contention 11, at 11.

consequences of a severe accident at Unit 3.²⁷⁵ But Intervenors do no more than make a sweeping demand to revisit conclusions in the FEIS that they believe are incorrect, without identifying specific aspects of the probabilistic risk assessment they contend are no longer tenable. If a petitioner neglects to provide the requisite support for its contentions, it is not within the board's power to make assumptions or draw inferences that favor the petitioner, nor may the board supply information that is lacking.²⁷⁶ Contention 11C is accordingly inadmissible.

Contention 11D depends upon Contention 11B. Intervenors contend that, if additional mitigative measures were to be imposed on Calvert Cliffs 3, this could substantially increase the cost of the new facility. The increased costs could alter the cost-benefit balance, making alternatives more attractive. Therefore, FEIS Section 10.6.2, which evaluates the economic cost of the proposed new facility, should be supplemented to take into account the additional costs that would be incurred if additional mitigative measures are required as a result of the Task Force's recommendations.²⁷⁷ It is the NRC's position, however, that it need not compare the costs of alternatives to the proposed action if, as is true here, its FEIS does not identify an environmentally preferable alternative.²⁷⁸ Contention 11D does not contest the finding that there is no environmentally preferable alternative, and therefore Contention 11D may not be admitted.²⁷⁹

I would therefore admit only Contention 11A for hearing.

/RA/

Ronald M. Spritzer, Chairman
ADMINISTRATIVE JUDGE

²⁷⁵ See FEIS at 5-88 to -89.

²⁷⁶ See Crow Butte, CLI-09-12, 69 NRC at 553; Ariz. Pub. Serv. Co. (Palo Verde Nuclear Generating Station, Units Nos. 1, 2 and 3), CLI-91-12, 34 NRC 149, 155 (1991).

²⁷⁷ Contention 11, at 12-13.

²⁷⁸ S. Carolina Elec. & Gas Co. and S. Carolina Pub. Serv. Authority (Virgil C. Summer Nuclear Station, Units 2 and 3), CLI-10-21, 72 NRC 197, 200 (2010).

²⁷⁹ Id.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
)
CALVERT CLIFFS 3 NUCLEAR PROJECT, LLC.)
AND UNISTAR NUCLEAR OPERATING)
SERVICES, LLC) Docket No. 52-016-COL
)
(Calvert Cliffs 3 Nuclear Project, LLC))
(Combined License))

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing **BOARD ORDER (RULING ON JOINT INTERVENORS' PROPOSED NEW CONTENTION 11) (LBP 12-18)** have been served upon the following persons by Electronic Information Exchange.

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**BOARD ORDER (RULING ON JOINT INTERVENORS' PROPOSED NEW CONTENTION 11)
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**BOARD ORDER (RULING ON JOINT INTERVENORS' PROPOSED NEW CONTENTION 11)
(LBP 12-18)**

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[Original signed by Christine M. Pierpoint]
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