

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
NUCLEAR INNOVATION NORTH)
AMERICA LLC) Docket Nos. 52-012 & 52-013
)
(South Texas Project, Units 3 & 4))

NRC STAFF PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW
ON CONTENTION DEIS-1 IN THE FORM OF A PARTIAL INITIAL DECISION

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November 30, 2011

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I. INTRODUCTION

1. This partial initial decision rules on all outstanding issues in this 10 C.F.R. Part 2, Subpart L proceeding concerning the Intervenor's¹ challenge in Contention DEIS-1 to the need for power analysis contained in the Final Environmental Impact Statement (FEIS). This challenge arises in a proceeding on an application requesting combined licenses (COLs) for proposed South Texas Project (STP), Units 3 and 4. After consideration of all relevant evidence in the record, the Board finds that, contrary to the claims in Contention DEIS-1, the Nuclear Regulatory Commission (NRC) staff (Staff) has met its burden of reasonably characterizing the predicted need for power in the Electric Reliability Council of Texas (ERCOT) region in the FEIS. We conclude, therefore, as a matter of law, that the Staff has complied with the dictates of the National Environmental Policy Act (NEPA) and the Commission's regulations at 10 C.F.R. Part 51.

¹ Intervenor's include the Sustainable Energy and Economic Development Coalition, the South Texas Association for Responsible Energy, and Public Citizen.

II. BACKGROUND

A. General Procedural History

2. On September 20, 2007, the Applicant,² pursuant to the Atomic Energy Act of 1954, as amended (AEA) and the Commission's regulations, submitted an application for COLs for two Advanced Boiling Water Reactors (ABWRs) to be located adjacent to the existing South Texas Project, Units 1 and 2 near Bay City, Texas (Application). The Application references the ABWR design certification rule, which was issued based upon the design certification application submitted by General Electric Nuclear Energy (GE). See STP COL Application, Part 1, General and Financial Information, at 1.0-1 (Rev. 5) (Jan. 31, 2011) (ML110340538) (incorporating Appendix A to 10 C.F.R. Part 52 by reference). The proposed units are known as STP Units 3 and 4.

3. On April 21, 2009, the Intervenors filed an intervention petition. Petition for Intervention and Request for Hearing (Apr. 21, 2009) (Intervention Petition). On August 27, 2009, and September 29, 2009, the Board ruled on the Intervenors' proposed contentions, admitting Contentions 8, 9, 14, 16, and 21. *South Texas Project Nuclear Operating Co.* (South Texas Project Units 3 & 4), LBP-09-21, 70 NRC 581 (2009); *South Texas Project Nuclear Operating Co.* (South Texas Project Units 3 & 4), LBP-09-25, 70 NRC 867 (2009). Subsequently, in responses to motions by the Applicant, the Board dismissed Contentions 8, 9, 14, 16, and 21 as moot. *South Texas Project Nuclear Operating Co.* (South Texas Project Units 3 & 4), LBP-10-14, 72 NRC __ (July 2, 2010) (slip op.). In this order the Board also denied all pending contentions alleging deficiencies in the Applicant's ER, with the exception of Contention

² On January 21, 2011, STP Nuclear Operating Company informed the Board that effective January 24, 2011, Nuclear Innovation North America LLC (NINA) will be the lead applicant for South Texas Project, Units 3 and 4. See Order (Revising Case Caption) (Feb. 7, 2011) (unpublished) (ADAMS Accession No. ML110380232). Throughout the pleading, the Board will refer to the relevant lead applicant as "Applicant," whether that is STP Nuclear Operating Company or NINA.

CL-2, which was admitted as reformulated by the Board. *Id.* at ___ (slip op. at 2). An evidentiary hearing was held on Contention CL-2, and the Board's rulings on this contention are in a separate partial initial decision.

4. In March 2010, the Staff issued the STP Draft Environmental Impact Statement (DEIS). NUREG-1937, *Draft Environmental Impact Statement for Combined Licenses (COLs) for South Texas Project Electric Generating Station Units 3 and 4* (March 2010).³ In response, the Intervenors filed six new contentions based on the DEIS. Intervenors' Motion for Leave to File New Contentions Based on the Draft Environmental Impact Statement (May 19, 2010) (DEIS Contentions). The Applicant and Staff opposed the admission of all of the new DEIS contentions. Applicant's Answer Opposing New Contentions Based on the Draft Environmental Impact Statement (June 14, 2010); NRC Staff's Answer to the Intervenors' Motion to File New Contentions Based on the Draft Environmental Impact Statement (June 14, 2010). The Intervenors filed a response addressing both the Applicant's and Staff's Answers. Intervenors' Consolidated Response to the Applicant's and Staff's Answers in Opposition to the Intervenors' Proposed Contentions Based on the Draft Environmental Impact Statement (June 21, 2010).

5. Oral argument on the DEIS Contentions was held on October 21, 2010. Subsequently, the Staff issued the STP Final EIS (FEIS). See NUREG-1937, *Environmental Impact Statement for Combined Licenses (COLs) for South Texas Project Electric Generating Station Units 3 and 4; Final Report* (Feb. 2011).⁴ On February 28, 2011, the Board rejected all

³ The DEIS is contained in two volumes. Volume 1 (ML100700327) provides coverage through Chapter 7. Volume 2 (ML100700333) provides coverage from Chapter 8 through Appendix J. The Environmental Protection Agency (EPA) issued a notice of availability for the STP DEIS on March 26, 2010, Environmental Impacts Statements; Notice of Availability, 75 Fed. Reg. 14,594, 14,595 (Mar. 26, 2010).

⁴ The FEIS is contained in two volumes, with the body of the FEIS in Volume 1 (ML11049A000) and the Appendices in Volume 2 (ML11049A001). The two volumes of the FEIS are split into exhibits as follows: Ex. NRC00003A (Volume 1, through page 2-47), Ex. NRC00003B (Volume 1, from page 2-48

(continued. . .)

proposed contentions on the DEIS, except for a need for power contention that the Board admitted as reformulated Contention DEIS-1. *Nuclear Innovation North America LLC* (South Texas Project Units 3 & 4), LBP-11-07, 73 NRC __ (Feb. 28, 2011) (slip op.). Contention DEIS-1 is stated as follows:

NRC Staff's DEIS analysis of the need for power is incomplete because it fails to account for reduced demand caused by the adoption of an energy efficient building code in Texas, the implementation of which could significantly reduce peak demand in the ERCOT region.

Id. at __ (slip op. at 48).⁵

6. In addition to Contentions CL-2 and DEIS-1, there is an admitted contention regarding prohibitions on foreign ownership, control, and domination. *See Nuclear Innovation North America LLC* (South Texas Project Units 3 & 4), LBP-11-25, 74 NRC __ (Sept. 30, 2011) (slip op.) (admitting Contention FC-1). The Intervenors have also filed a contention related to

(. . .continued)

through the end of Chapter 2), Ex. NRC00003C (Volume 1, from Chapter 3 through the end of Volume 1), and Ex. NRC00003D (Volume 2). The EPA notice of availability was published on March 4, 2011. Environmental Impacts Statements; Notice of Availability, 76 Fed. Reg. 12,108, 12,108 (Mar. 4, 2011).

⁵ Since the issuance of the FEIS in March 2011, the Staff has treated this contention as a challenge to the need for power analysis contained in the FEIS. NRC Staff Initial Statement of Position (May 9, 2011) at 36. However, the Applicant argued that, because the Board admitted Contention DEIS-1 as a contention of omission and because the FEIS addresses the impact of the adoption of the energy efficient building code by Texas, Contention DEIS-1 is moot. *Nuclear Innovation North America LLC's Initial Statement of Position on Contention DEIS-1-G* (May 9, 2011) at 9-13. The Intervenors responded to the Applicant's argument by stating that "the full magnitude of savings from the energy efficient building code and standards has not been fully recognized by the Applicant." (May 31, 2011) at 7. Because the contention specifically alleges that the DEIS failed to take account of reduced demand and the FEIS did not account for this reduced demand in its overall numerical estimates of the need for power, the Board is not convinced the FEIS cured the omission in the DEIS alleged by the Intervenors. However, we do not need to decide this issue because, had the Applicant wanted to argue the FEIS cured the deficiency alleged in Contention DEIS-1, the Applicant was bound to file a motion to dismiss within 20 days of publication of the FEIS, and it did not do so. *See Order (Initial Scheduling Order)*, at 12-13 (Oct. 20, 2009) (unpublished) (ADAMS Accession No. ML092930523).

the NRC's Near-Term Task Force Report on the events at Fukushima Dai-ichi that the Board has yet to rule on. These two contentions will not be addressed in this decision.

B. Evidentiary Filings and Hearing

7. Evidentiary filings with respect to Contentions CL-2 and DEIS-1 proceeded in parallel. On May 9, 2011, the Intervenors, Applicant, and the Staff filed their initial statements of position, with supporting testimony and exhibits on Contentions CL-2 and DEIS-1.⁶

On May 16, 2011, the Intervenors filed a motion to supplement their exhibits because they did not include all materials relied on by their expert witnesses. Motion For Leave To File Amended Exhibit List, at 1 (May 16, 2011). On May 16 and 17, 2011, the Intervenors filed an amended exhibit list and refiled all of their previously filed testimony and exhibits (with new exhibit numbers), along with the additional exhibits. Subsequently, the Board granted the Intervenors' motion. Memorandum and Order (Granting Motion to Amend Exhibit Filing) (May 18, 2011) (unpublished) (ADAMS Accession No. ML111380510).

8. On May 31, 2011, the Applicant and the Staff filed their rebuttal statements of position, testimony, and exhibits on Contentions CL-2 and DEIS-1.⁷ On May 31, 2011, the

⁶ The initial statements of position filed by the parties are as follows:

- Intervenors' Initial Statements of Position in Support of Contentions CL-2 and DEIS-1 (May 9, 2011);
- Nuclear Innovation North America LLC's Initial Statement of Position on Contention CL-2 (May 9, 2011);
- Nuclear Innovation North America LLC'S Initial Statement of Position on Contention DEIS-1-G (May 9, 2011); and
- NRC Staff Initial Statement of Position (May 9, 2011).

⁷ The rebuttal statements of position filed by the Applicant and Staff are as follows:

- Nuclear Innovation North America LLC's Rebuttal Statement of Position on Contention CL-2 (May 31, 2011);
- Nuclear Innovation North America LLC'S Rebuttal Statement of Position on Contention DEIS-1-G (May 31, 2011); and

(continued. . .)

Intervenors filed their rebuttal statement of position (with an exhibit label) and exhibits, but no testimony. Over a period from June 1, 2011, to June 8, 2011, the Intervenors filed their rebuttal testimony (and re-filed their rebuttal statement of position) multiple times. The Intervenors filed the final version of their rebuttal statement of position on June 8, 2011. See Intervenors' Consolidated Response to Applicant's and Staff's Statements of Initial Positions (filed June 8, 2011, but dated May 31, 2011) (ML111590902).

9. On June 17, 2011, the Staff and Applicant filed motions *in limine* to exclude evidence and arguments presented by the Intervenors in their direct and rebuttal cases. See NRC Staff Motion *In Limine* to Exclude Portions of Testimony and Exhibits Filed by the Intervenors; Nuclear Innovation North America's Motion in Limine to Strike Portions of Intervenors' Initial and Rebuttal Submissions. The Intervenors filed their reply to the motions on June 27, 2011, then an addendum to their reply on June 30, 2011, and a correction to that addendum on July 1, 2011. See Intervenors' Consolidated [sic] Response to Applicant's & Staff's Motions In Limine (June 27, 2011); Intervenors' Addendum to Intervenors' Consolidated Response to Applicant's and Staff's Motions In Limine (June 30, 2011); Corrected Intervenors' Addendum to Intervenors' Consolidated Response to Applicant's and Staff's Motions In Limine (July 1, 2011).

10. On July 14, 2011, the Board issued an order granting in part the Staff's and Applicant's motions in limine. See Order (Ruling on Motions in Limine) (July 14, 2011) (unpublished) (ADAMS Accession No. ML11195A093) (Motion in Limine Ruling). The Board stated that "[l]icensing boards are accustomed to weighing evidence and determining its relevance to the issues presented," but also determined that the parties had identified evidence

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- NRC Staff Rebuttal Statement of Position (May 31, 2011).

that was not relevant. *Id.* at 3. The Board granted the motions to the extent that all the parties agreed that testimony and other evidence should be excluded and otherwise denied the motion. *Id.* at 3-4. The Motion in Limine Ruling excluded portions of the Intervenors direct and rebuttal testimony on Contention DEIS-1, as well as Exhibits INT000005, INT000006, INT000008, INT000010, INT000018, INT000042, INT000043, and INT000044. *Id.* at 2-3. The Board also directed the Intervenors to refile their DEIS-1 testimony to be consistent with the Board's order. *Id.* at 3-4.⁸ By denying, in part, the motions of the Staff and Applicant, the Board did not determine that their objections to certain evidence were invalid. Rather, the Board decided that it would determine the ultimate relevance and weight of this evidence after the conclusion of the live evidentiary hearing.

11. On August 17, 2011, the Staff and Applicant submitted additional exhibits in response to a discussion of renovations that the Intervenors raised for the first time in their rebuttal testimony on Contention DEIS-1. Pre-hearing Conference Tr. at 1408-09 (Aug. 17, 2011). The Staff and Applicant offered this evidence because they never had an opportunity to address the Intervenors' claims regarding renovations, and the Board had denied portions of the Staff's and Applicant's motions in limine attempting to exclude the renovations testimony. *See Id.* Counsel for the Intervenors did not object to these additional exhibits, *id.* at 1409, and they were admitted into evidence on August 18, 2011. *See* ¶¶ 14-15, *infra*.

12. On August 18, 2011, the Board admitted pre-filed testimony and evidence into the record for both Contentions CL-2 and DEIS-1 and questioned the witnesses regarding Contention CL-2. *See* Hearing Tr. (Aug. 18, 2011) (ADAMS Accession No. ML11238A032).

⁸ The final version of the Intervenors' direct testimony on Contention DEIS-1 was filed on August 18, 2011 (Exhibit INTR20001), and the final version of the Intervenors' rebuttal testimony on Contention DEIS-1 was filed on August 11, 2011 (Exhibit INTR00041).

Because the Intervenor's witness on Contention DEIS-1 had a medical emergency, the hearing on this contention was rescheduled for October 31, 2011. At the evidentiary hearing on Contention DEIS-1, the Board questioned the parties' witnesses regarding the contention. See Hearing Tr. (Oct. 31, 2011) (ML11319A228). On November 22, 2011, the parties jointly proposed corrections to the hearing transcript for October 31, 2011. See Joint Proposed Transcript Corrections for Evidentiary Hearing on Contention DEIS-1-G (Nov. 22, 2011). On November 29, 2011, the Board issued a Memorandum and Order adopting the transcript corrections in Appendix A of the Memorandum and Order and closing the evidentiary record for Contention DEIS-1. Memorandum and Order (Adopting Transcript Corrections and Closing Evidentiary Record) (Nov. 29, 2011) (unpublished) (ADAMS Accession No. ML11333A292). Citations to the Hearing Transcript in this partial initial decision will be to the transcript as modified by the November 29, 2011, Memorandum and Order.

13. Prior to the Intervenor's pre-filed exhibits being admitted into evidence, the Applicant and Staff renewed the objections made in their motions in limine for those portions of the motions in limine that the Board had previously denied. Hearing Tr. at 1464 (Aug. 18, 2011).

14. The Board admitted the following Staff pre-filed exhibits into evidence: NRC000001, NRC000002, NRC00003A to NRC00003D, NRCR00004, NRC000005 to NRC000007, NRC00008A and NRC00008B, NRC00009A and NRC00009B, and NRC000010 to NRC000072. See Hearing Tr. at 1450-54, 1457-60 (Aug. 18, 2011). Of these exhibits, NRC00003A to NRC00003D, NRC000031 to NRC000057 and NRC000062 to NRC000072 relate to Contention DEIS-1.

15. The Board admitted the following Applicant pre-filed exhibits into evidence: STP000001 to STP000003, STP000005 to STP000008, STP000010 to STP000013, STP000016, and STP000018 to STP000035. See Hearing Tr. at 1456 (Aug. 18, 2011). Of

these exhibits, STP000001 to STP000003, STP000005 to STP000008, STP000010, STP000028, STP000029, and STP000032 to STP000035 relate to Contention DEIS-1.

16. The Board admitted the following Intervenor pre-filed exhibits into evidence: INTR00001, INT000002 to INT000004, INT000007, INT000009, INT000011 to INT000017, INT000019 to INT000040, INTR00041, INT000045 to INT000049, INTR00050, INT000051 to INT000054, and INTR00055. See Hearing Tr. at 1468 (Aug. 18, 2011). Later, the Intervenor submitted revisions to replace two of the exhibits previously received into evidence. The revised exhibits INTR20001 and INTR20045 were admitted into evidence as replacements for INTR00001 and INT000045. See Hearing Tr. at 1514-15 (Aug. 18, 2011). Of these exhibits, INTR20001 to INT000004, INT000007, INT000009, INT000011 to INT000017, INT000019, INT000020, INT000040, and INTR00041 relate to Contention DEIS-1.

III. GENERAL LEGAL AND REGULATORY REQUIREMENTS

A. National Environmental Policy Act

17. The contention at issue in this decision arises under NEPA and the NRC's regulations that implement that statute. 42 U.S.C. §§ 4321 *et seq*; 10 C.F.R. Part 51. NEPA requires that an agency prepare an environmental impact statement (EIS) before approving any major Federal action that will significantly affect the quality of the human environment. 42 U.S.C. § 4332(2)(C).

18. Under NEPA, the NRC is required to take a "hard look" at the environmental impacts of a proposed action, as well as reasonable alternatives to that action. See *Louisiana Energy Servs., L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 87-88 (1998). This "hard look" is tempered by a "rule of reason" that requires agencies to address only impacts that are reasonably foreseeable – not remote and speculative. See, e.g., *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-156, 6 AEC 831, 836 (1973). In addition, "NEPA gives agencies broad discretion to keep their inquiries within appropriate and manageable boundaries." *LES*, CLI-98-3, 47 NRC at 103 (citation omitted). While there may be

mistakes in the EIS, mistakes that are not significant or material do not indicate that the Staff's NEPA review was inadequate. See *Exelon Generation Co.* (Early Site Permit for Clinton ESP Site), CLI-05-29, 62 NRC 801, 811 (2005) (“[I]n an NRC adjudication, it is Intervenor’s burden to show the[] significance and materiality” of mistakes in the EIS).

19. Finally, “in an adjudicatory hearing, to the extent that any environmental findings by the Presiding Officer (or the Commission) differ from those in the FEIS, the FEIS is deemed modified by the decision.” *Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-04, 53 NRC 31, 53 (2001). The hearing process serves the public participation purposes of NEPA because it allows for “more rigorous public scrutiny” of an EIS than “circulation for comment.” See *id.* at 53 (quoting *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 707 (1985)).

B. Burden of Proof

20. Generally, an Applicant has the burden of proof in a licensing proceeding. 10 C.F.R. § 2.325. In cases involving NEPA contentions, however, the burden shifts to the NRC, because the NRC, not the Applicant, has the burden of complying with NEPA. See, e.g., *Duke Power Co.* (Catawba Nuclear Station, Units 1 & 2), CLI-83-19, 17 NRC 1041, 1049 (1983). According to the Commission, “NRC hearings on NEPA issues focus entirely on the adequacy of the NRC Staff’s work.” *Southern Nuclear Operating Co.* (Early Site Permit for Vogtle ESP Site), CLI-07-17, 65 NRC 392, 395 (2007); see also *Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), CLI-10-2, 71 NRC 27, 34 (2010) (stating that “the ultimate burden with respect to NEPA lies with the NRC Staff”). However, because “the Staff, as a practical matter, relies heavily upon the Applicant’s ER in preparing the EIS, should the Applicant become a proponent of a particular challenged position set forth in the EIS, the Applicant, as such a proponent, also has the burden on that matter.” *Louisiana Energy Servs., L.P.* (Claiborne Enrichment Center), LBP-96-25, 44 NRC 331, 339 (1996), *rev’d on other grounds by Louisiana Energy Servs., L.P.* (Claiborne Enrichment Center) CLI-97-15,

46 NRC 294 (1997) (citing *Pub. Serv. Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-471, 7 NRC 477, 489 n.8 (1978)).

21. “NEPA does not call for certainty or precision, but an *estimate* of anticipated (not unduly speculative) impacts.” *Louisiana Energy Servs.* (National Enrichment Facility), CLI-05-20, 62 NRC 523, 536 (2005) (emphasis in original). The Staff’s NEPA analysis is adequate unless the Staff “has failed to take a ‘hard look’ at significant environmental questions – *i.e.*, the Staff has unduly ignored or minimized pertinent environmental effects.” See *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 & 2; Catawba Nuclear Station, Units 1 & 2), CLI-03-17, 58 NRC 419, 431 (2003) (discussing what an intervenor must allege, with adequate support, to litigate a NEPA claim). As the Commission has stated, “[o]ur Boards do not sit to “flyspeck” environmental documents or to add details or nuances. If the ER (or EIS) on its face “comes to grips with all important considerations” nothing more need be done.” *Clinton ESP*, CLI-05-29, 62 NRC at 811 (quoting *Systems Energy Resources, Inc.* (Early Site Permit for Grand Gulf Site), CLI-05-4, 61 NRC 10, 13 (2005)).

22. In addition, NEPA does not require the use of the “best scientific methodology” or the use of an alternative methodology just because it is “plainly better.” *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 315 (2010) (internal quotation omitted). NEPA also does not require the use of methodologies still under development or the study of phenomena “for which there are not yet standard methods of measurement or analysis.” *Id.* (quoting *Town of Winthrop v. FAA*, 535 F.3d 1, 12-13 (1st Cir. 2008)). Under NEPA, an agency is free to select its own methodologies so long as they are reasonable. See *Pilgrim*, CLI-10-11, 71 NRC at 316.

23. To summarize, the Staff bears the burden of proof on Contention DEIS-1 because Contention DEIS-1 involves the NRC’s responsibilities under NEPA. See, *e.g.*, *Levy County*, CLI-10-2, 71 NRC at 34. However, the Applicant also bears the burden of proof to the extent that the Applicant is a proponent of a position challenged by the Intervenors. *LES*,

LBP-96-25, 44 NRC at 339. The standard of proof is preponderance of the evidence. See *Pacific Gas and Electric Co.* (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), CLI-08-26, 68 NRC 509, 521 (2008) (applying a preponderance of the evidence standard to resolution of an environmental contention). Because NEPA does not require certainty or precision or the use of the best methodology, the Staff and Applicant need not prove, and this Board need not find, that their results are the most accurate or were performed with the best methodology. See *LES*, CLI-05-20, 62 NRC at 536 (stating that NEPA does not require certainty or precision); *Pilgrim*, CLI-10-11, 71 NRC at 315 (stating that NEPA does not require use of the best methodology). Rather, the Staff and Applicant need only prove by a preponderance of the evidence that the need for power analysis in the FEIS is reasonable, which is all that NEPA requires. See *Pilgrim*, CLI-10-11, 71 NRC at 316 (stating that an agency is free to select its own methodologies so long as they are reasonable).

C. Scope of the Contested Proceeding

24. NRC hearings are limited to the scope of the admitted contentions, and if intervenors proffer testimony or evidence outside the scope of the admitted contentions, it should not be considered. See *Southern Nuclear Operating Co.* (Early Site Permit for Vogtle ESP Site), CLI-10-5, 71 NRC 90, 100-01 (2010) (agreeing with the Staff that the licensing board properly excluded the intervenors' testimony and exhibits that were outside the scope of the admitted contention). See also 10 C.F.R. § 2.340(b) (providing that in an initial decision in a contested proceeding on a COL application, "the presiding officer shall make findings of fact and conclusions of law on the *matters put into controversy by the parties to the proceeding*," with the exception of matters designated by the Commission to be decided by the presiding officer) (emphasis added).

25. The scope of the admitted contention "is limited to the issues of law and fact *pled with particularity in the intervention petition, including its stated bases*, unless the contention is satisfactorily amended in accordance with our rules." *Vogtle ESP*, CLI-10-5, 71 NRC at 100

(internal footnote omitted) (emphasis added). The *Vogtle ESP* decision also explains the basis for the Commission's contention requirements:

Otherwise, NRC adjudications quickly would lose order. Parties and licensing boards must be on notice of the issues being litigated, so that parties and boards may prepare for summary disposition or for hearing. Our procedural rules on contentions are designed to ensure focused and fair proceedings.

Id. at 100-01. Finally, this Board is precluded from considering matters not in the evidentiary record. See *Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 & 2), ALAB-580, 11 NRC 227, 230 (1980) (stating that "it is a statutory requirement that the adjudicatory decisions of this Commission stand or fall on the basis of the record on which they rest").

D. Expert Witness Qualifications

26. An expert opinion is only admissible if the witness is competent to give an expert opinion and adequately states and explains the factual basis for the expert opinion. *Duke Cogema Stone & Webster* (Savannah River Mixed Oxide Fuel Fabrication Facility), LBP-05-04, 61 NRC 71, 81 (2005). An admissible expert opinion must be "based upon sufficient facts or data to be the product of reliable principles and methods that the witness applied to the facts of the case." *Id.* at 80. In addition, a party bears the burden of demonstrating that its witness is qualified to serve as an expert. *Duke Energy Corp.* (Catawba Nuclear Station, Units 1 & 2), CLI-04-21, 60 NRC 21, 27 (2004). "A witness may qualify as an expert by knowledge, skill, experience, training, or education to testify [i]f scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue." *Id.* at 27-28 (internal quotation marks omitted, alteration in original).

IV. FINDINGS OF FACT AND CONCLUSIONS OF LAW ON CONTENTION DEIS-1

A. Witnesses

1. Staff Witnesses

27. For Contention DEIS-1, the Staff presented the testimony of Daniel C. Mussatti and Dr. Michael J. Scott.⁹ Their pre-filed testimony is contained in the “Prefiled Direct Testimony of Daniel C. Mussatti and Dr. Michael J. Scott Regarding Contention DEIS-1” (Ex. NRC000031) (Staff DEIS-1 Direct Testimony), and the “Prefiled Rebuttal Testimony of Daniel C. Mussatti and Dr. Michael J. Scott Regarding Contention DEIS-1” (Ex. NRC000062) (Staff DEIS-1 Rebuttal Testimony). To address potential energy savings from renovations, Mr. Mussatti and Dr. Scott also prepared a calculation worksheet and a table summarizing the results of these calculations. See Exs. NRC000066 (calculation worksheet); NRC000071 (table summarizing results); NRC000072 (affidavits). Finally, Mr. Mussatti and Dr. Scott presented live testimony at the evidentiary hearing on October 31, 2011.

28. Mr. Mussatti’s testimony addresses how the Staff conducts its need for power analysis for EISs and offers relevant background for the STP need for power analysis. Dr. Scott’s testimony addresses the Staff’s need for power review in the STP FEIS and the ERCOT analysis upon which the FEIS relies. Dr. Scott also specifically addresses the Intervenors’ contention regarding the impacts of new building energy codes on the need for power.

⁹ The “Prefiled Direct Testimony of Jessie M. Muir Sponsoring NUREG-1937 Into the Hearing Record” (Exhibit NRC000001), sponsored the introduction of the Staff’s FEIS into the record of this proceeding as required by 10 C.F.R. § 2.337(g). Ms. Muir, however, did not present testimony directly related to Contention DEIS-1.

29. Daniel C. Mussatti is a Socioeconomist for the NRC's Office of New Reactors (NRO). Staff DEIS-1 Direct Testimony at A2a (Ex. NRC000031).¹⁰ Mr. Mussatti has twenty-two years experience in economic valuation of natural resources and the environment and the economic analysis of regulations, standards, and control technologies. Professional Qualifications of Daniel C. Mussatti (Ex. NRC000032). Mr. Mussatti holds a Master of Science in Environmental and Natural Resource Economics as well as a Master of Arts in Environmental Economics. Staff DEIS-1 Direct Testimony at A3a (Ex. NRC000031). Since 2006, Mr. Mussatti has been NRO's expert for the determination of the need for power for planned new nuclear generating capacity. *Id.* at A2a. He is also the technical lead for the maintenance and revision of the socioeconomic, environmental justice, and benefit-cost balancing sections for the NRC's guidance document, NUREG-1555, *Environmental Standard Review Plan—Standard Review Plans for Environmental Reviews for Nuclear Power Plants* (ESRP). *Id.* For the STP COL review, Mr. Mussatti has been involved in the development of the DEIS and the FEIS. *Id.* at A4a. In conjunction with staff from Pacific Northwest National Laboratory (PNNL), he assisted in editing sections of the EIS related to socioeconomics, environmental justice, and need for power. *Id.*

30. Dr. Michael J. Scott is a Staff Scientist and Senior Staff Economist at PNNL. *Id.* at A1b. As a senior economist for 30 years at PNNL, Dr. Scott has participated in a number of studies that involved the estimation of long-term growth in electricity demand. *Id.* at A3b. Dr. Scott received a Master of Arts and Ph.D. in economics. *Id.* He assists the NRC staff with environmental reviews for nuclear power plant licensing and license renewals in the areas of socioeconomics, environmental justice, need for power, and benefit-cost analysis. *Id.* at A2b.

¹⁰ In the Staff's pre-filed testimony, each question and answer is consecutively numbered, and citations to the Staff's pre-filed testimony in this Partial Initial Decision are to answer numbers.

Dr. Scott also assists the Department of Energy Office of Energy and Renewable Energy by providing economic and environmental analysis for its appliance standards programs, developing models for, and assessment of, the macroeconomic impacts of energy efficiency and renewable energy programs, and assisting in the development of integrated assessment models of climatic change in the area of uncertainty propagation. *Id.* For the STP COL review, Dr. Scott was the principal author of the FEIS sections dealing with socioeconomics, environmental justice, need for power, and benefit-cost balance. *Id.* at A4b.

31. Based on their demonstrated knowledge, skill, experience, and education, we find that Mr. Mussatti and Dr. Scott are qualified to provide expert opinion on the areas they addressed in their testimony, including need for power analyses and the impacts of building energy codes.

2. Applicant Witnesses

32. For Contention DEIS-1, the Applicant presented the testimony of Adrian Pieniazek. In his testimony, Mr. Pieniazek addresses the Staff's need for power review in the STP FEIS, the ERCOT analysis upon which the FEIS relies, and the Intervenor's contention regarding the impacts of new building energy codes on the need for power. Mr. Pieniazek's pre-filed testimony is contained in the "Direct Testimony of Applicant Witnesses Adrian Pieniazek Regarding Contention DEIS-1-G" (Ex. STP000001) (Applicant DEIS-1 Direct Testimony) and the "Rebuttal Testimony of Applicant Witnesses Adrian Pieniazek Regarding Contention DEIS-1-G" (Exhibit STP000028) (Applicant DEIS-1 Rebuttal Testimony). To address the rebuttal testimony of the Intervenor regarding renovations, Mr. Pieniazek also prepared the "Surrebuttal Testimony of Applicant Witnesses Adrian Pieniazek Regarding Contention DEIS-1-G"

(Ex. STP000032) (Applicant DEIS-1 Surrebuttal Testimony). Finally, Mr. Pieniazek presented live testimony at the evidentiary hearing on October 31, 2011.

33. Mr. Pieniazek is the Director of Market Policy for NRG Energy, Inc. (NRG) and has been at this post since 2003. Applicant DEIS-1 Direct Testimony at A2 (Ex. STP000001).¹¹ Mr. Pieniazek has a Bachelor of Science in Mechanical Engineering as well as a Master of Business Administration. *Id.* at A3. He has more than 27 years of experience in the energy industry, and represents NRG before ERCOT and the Public Utility Commission of Texas (PUCT). *Id.* Mr. Pieniazek also provides “analysis and policy recommendations to numerous NRG Energy business units, with a specific emphasis on wholesale electricity market design issues.” *Id.* Mr. Pieniazek’s previous experience includes being the Director of Asset Management for Reliant Energy, Inc. and the Director of Generation Planning for City Public Service Board, a municipal power utility. *Id.* at A3. In these positions, Mr. Pieniazek performed many need for power forecasts. Hearing Tr. at 1714.

34. Based on his demonstrated knowledge, skill, experience, and education, we find that Mr. Pieniazek is qualified to provide expert opinion on the areas he addressed in his testimony, including need for power analyses and the impacts of building energy codes.

3. Intervenors Witness

35. For Contention DEIS-1, the Intervenors presented the testimony of Phillip H. Mosenthal. Mr. Mosenthal discusses the Intervenors’ contention regarding the impacts of new building energy codes on the STP FEIS need for power analysis, as well as numerous other issues that are outside the scope of the admitted contention. His pre-filed testimony is contained in the “Revised Direct Testimony of Philip H. Mosenthal” (Ex. INTR20001)

¹¹ In the Applicant’s pre-filed testimony, each question and answer is consecutively numbered, and citations to the Applicant’s pre-filed testimony in this Partial Initial Decision are to answer numbers.

(Intervenors DEIS-1 Direct Testimony) and the “Revised Rebuttal Testimony of Philip H. Mosenthal” (Ex. INTR00041) (Intervenors DEIS-1 Rebuttal Testimony). Mr. Mosenthal also presented live testimony at the evidentiary hearing on October 31, 2011.

36. Mr. Mosenthal is the founding partner in Optimal Energy, Inc., which specializes in energy efficiency and utility planning consultation. Intervenors DEIS-1 Direct Testimony at 2 (Ex. INTR20001). Mr. Mosenthal holds a Master of Science in Energy Management and Policy. *Id.* at 3. He has “27 years of experience in all aspects of energy efficiency, including facility energy management, policy development and research, integrated resource planning, cost-benefit analysis, and efficiency and renewable program design, implementation and evaluation.” *Id.* at 2. Mr. Mosenthal has developed numerous energy efficiency plans, designed and evaluated energy efficiency programs, and “completed or directed numerous studies of efficiency potential and economics.” *Id.* Mr. Mosenthal also was lead author of a study on energy efficiency in Texas and has worked closely with ACEEE on the potential for energy efficiency in Texas (including savings from building codes). *Id.* Prior to co-founding Optimal Energy in 1996, Mr. Mosenthal was the Chief Consultant for the Mid-Atlantic Region for XENERGY, INC. *Id.*

37. Based on his demonstrated knowledge, skill, experience, training, and education, we find that Mr. Mosenthal is qualified to provide expert opinion on areas of his testimony concerning energy savings from building energy codes.

B. Issues Presented

38. As explained above, NRC hearings are limited to the scope of the admitted contentions. *See Vogtle ESP*, CLI-10-5, 71 NRC at 100. In this case, the Board admitted Intervenors’ Contention DEIS-1 as a contention of omission. *South Texas*, LBP-11-07, 73 NRC at ___ (slip op. at 48). The Board reformulated Contention DEIS-1 as follows:

NRC Staff's DEIS analysis of the need for power is incomplete because it fails to account for reduced demand caused by the adoption of an energy efficient building code in Texas, the implementation of which could significantly reduce peak demand in the ERCOT region.

*Id.*¹²

39. The scope of a contention is limited to the issues of law and fact *pled with particularity* in the contention and its bases. *Vogle ESP*, CLI-10-5, 71 NRC at 100. Contention DEIS-1 is limited to electricity demand reductions based upon Texas's June 2010 adoption of the 2009 building energy codes. *South Texas Project*, LBP-11-07, 73 NRC at ___ (slip op. at 42). The 2009 building energy codes are the 2009 International Residential Code (IRC), which applies to single-family homes, and the 2009 International Energy Conservation Code (IECC), which applies to multifamily housing, commercial buildings, and industrial buildings. Final Rule; 34 Tex. Admin. Code § 19.53, 35 Tex. Reg. 4727, 4729 (June 4, 2010). The Intervenor's have presented evidence on other issues, *i.e.*, future potential building energy codes, the Energy Independence and Security Act of 2007 (2007 EISA), the FEIS analysis of retirements, other potential sources of energy savings or electricity generation, and supposed benefits from delaying the proposed units, that are outside the scope of the contention and, therefore, not relevant to the issues that must be decided by this Board.

40. In support of their contention, the Intervenor's only indicated that they were concerned with the impacts of the 2009 building energy codes adopted by Texas in June 2010. Contention DEIS-1 had one admitted basis, Basis G, which only references the IECC as the building code with the potential to reduce peak demand in the ERCOT region. DEIS Contentions at 4. The Intervenor's also cite the David Power Report (May 19, 2010)

¹² References to Contention DEIS-1 in the remainder of this pleading are references to Contention DEIS-1 as reformulated by the Board unless indicated otherwise.

(ML101400160), which was submitted in support of Contention DEIS-1, Basis G. *Id.* The David Power Report references the 2009 IECC and the 2009 IRC as the new building codes that could result in energy savings. David Power Report at 4 & n.13. In addition, the admitted contention, as reformulated by the Board, concerns the “the adoption of an energy efficient building code in Texas.” *South Texas Project*, LBP-11-07, 73 NRC at ___ (slip op. at 48). The Board admitted the contention because of a 2010 Texas rule adopting an updated energy efficient building code, and this rule specifically adopted the 2009 IECC and 2009 IRC and no other codes. *See South Texas Project*, LBP-11-07, 73 NRC at ___ (slip op. at 42 & n.232); Final Rule; 34 Tex. Admin. Code § 19.53, 35 Tex. Reg. 4727, 4729 (June 4, 2010). Accordingly, the admitted contention only raises an issue regarding the impacts of the 2009 IECC and 2009 IRC.

1. Exclusions Agreed to by Intervenors

41. The Intervenors agreed to exclude much of the disputed testimony. The Intervenors agreed to exclude testimony relating to the 2007 EISA, the FEIS analysis of retirements, other potential sources of energy savings or electricity generation, and supposed benefits from delaying the proposed units. *See* Hearing Tr. at 1726-27 (issues related to 2007 EISA and other sources of savings or generation are excluded); NRC Staff Motion *in Limine* to Exclude Portions of Testimony and Exhibits Filed by the Intervenors (June 17, 2011) at 12-13, Staff Att. 5; Revised Direct Testimony of Philip H. Mosenthal (Ex. INTR20001); Revised Rebuttal Testimony of Philip H. Mosenthal (Ex. INTR00041).

2. Retirements of Plants Older Than 50 Years

42. Despite agreeing to the exclusion of prefiled testimony challenging the retirement assumptions contained in the FEIS, the Intervenors’ expert witness, Mr. Mosenthal, offered a few statements at the evidentiary hearing relating to retirements of older plants. However, the Board will not consider these statements in its decision because they are outside the scope of the admitted contention. Both the DEIS and FEIS assumed the retirement of plants older than 50 years, and the Intervenors should have submitted a contention regarding plant retirements if

they intended to challenge this assumption. *See, e.g.*, DEIS at 8-21 (Ex. NRC000065); FEIS at 8-29 & Table 8-6 (Ex. NRC00003C).

43. Moreover, the record demonstrates that it is reasonable to assume retirements of older plants in the ERCOT region will occur. While ERCOT does not directly include in its forecasts the potential retirements of existing resources unless they are nearly certain, it does show the consequences of retiring all generating plants of particularly old vintages (30, 40, and 50 years old) in its annual Capacity, Demand, and Reserves report. Staff DEIS-1 Direct Testimony at A25, A26 (Ex. NRC000031). Further, the Applicant's expert testified that "[t]he conservative nature of assuming generation units do not retire until they are 50 years old is illustrated by NRG Energy's experience with plant retirements." Applicant DEIS-1 Rebuttal Testimony at A36 (Ex. STP000028). The Applicant offered a table showing all NRG Energy plants that have retired since the market opened to competition in 2002. *Id.* Of these units, the average age at retirement is 39.5 years, and only one of those plants was as old as 50 years at retirement. *Id.* Mr. Pieniazek also pointed out that, although it is not official retirement, some coal units that are much less than 50 years old have been announced for mothballing because they cannot meet some of the regulations that will be taking effect. Hearing Tr. at 1738-39. Generally, he noted that due to the economic situation in ERCOT, retirements "have happened, and they continue to happen." *Id.* at 1738.

3. Future Building Energy Code Updates

44. Furthermore, the Board finds that future updates to the building energy codes are not properly part of Contention DEIS-1 and so does not consider evidence or testimony relating to them in reaching its findings and conclusions. As stated above, the Intervenor only submitted information in support of admission of Contention DEIS-1 that related to Texas's adoption in 2010 of the 2009 IECC and 2009 IRC. Moreover, the Board admitted the contention because of the June 2010 action of the State of Texas. *South Texas*, LBP-11-07, 73 NRC at ___ (slip op. at 42). In doing so, we noted that "a proposed rule or proposed law may not support an

admissible contention” because “its ultimate effect is at best speculative.” *Id.* at 42 n.233.

Expert witness testimony from both the Staff and Applicant supports that future building energy codes are speculative. *See, e.g.*, Staff DEIS-1 Rebuttal Testimony at A13 (Ex. NRC000062); Applicant Rebuttal Testimony at A29-A31 (Ex. STP000028); Hearing Tr. at 1725-26. At this time, it is not known what the building energy codes in the future would look like nor the amount of electricity savings they would offer. Furthermore, it is only speculation that Texas would adopt potential future building energy code updates promulgated by the International Codes Council. In fact, the record does not disclose that there is even a *proposed*, much less final, rule to adopt any building energy codes beyond the 2009 IECC and 2009 IRC, and we have previously rejected as speculative contentions founded upon savings from proposed rules. *See South Texas Project*, LBP-11-07, 73 NRC at ___ (slip op. at 37 & n.206, 42 n.233)

45. Because it is outside the scope of the contention, we need not address potential updates to building energy codes, but even if it were within the scope of the contention, future updates are speculative and should not be considered. Texas does not have a system in place to automatically adopt future building energy code updates. A series of steps must occur before future updates would become law. First, the model building energy code is updated (in the case of the IECC, the American Society of Heating, Refrigerating and Air-Conditioning Engineers first updates its standard and about two years later it is adopted as an IECC), then the Energy Systems Laboratory at Texas A&M University (ESL) reviews the new version, then ESL offers a recommendation on whether to adopt the new version, then the Texas State Energy Conservation Office (SECO) decides whether to adopt the new version, and finally local jurisdictions must comply with the new version if the State promulgates a rule establishing a new code. *See* Staff DEIS-1 Rebuttal Testimony at A13; Building Codes Assistance Project 2010 (Ex. NRC000049).

46. The Intervenors acknowledge that, prior to the State’s June 2010 adoption of the 2009 IECC and 2009 IRC, Texas had not adopted a building energy code since 2001. Hearing

Tr. at 1809. The State did not adopt the 2003 or 2006 versions of the building energy codes.

Id. at 1810. Mr. Mosenthal testified that he believed the statute passed by Texas in 2010 both adopted the 2009 building energy codes and provided “a mechanism for regular updates of future codes subject to a finding that they offered cost-effective energy savings for Texas.”

Hearing Tr. at 1810. However, Texas already had a statutory provision providing a mechanism for code updates. In 2007, Texas amended its Health and Safety Code to allow SECO, based on a recommendation from ESL, to adopt the latest published edition of the IRC or IECC if the new codes offered equivalent or better energy efficiency and air quality than the current codes. Tex. Health & Safety Code Ann. § 388.003(b-1) (Vernon 2011), added by Acts 2007, 80th Leg., R.S., Ch. 262, Sec. 3.02.¹³

47. The American Recovery and Reinvestment Act (ARRA) included a provision linking funding from the Federal government to states’ building energy code adoption and enforcement. NASEO 2011 (Ex. INT000013). In order to accept funding, states were required to commit to adopting a building energy code for residential buildings that meets or exceeds the 2009 IECC, adopting a building energy code for commercial buildings and high-rise residential buildings that meets or exceeds the ANSI/ASHRAE/IESNA standard 90.1-2007,¹⁴ and implementing a plan to achieve 90% compliance with the target codes by 2017. *Id.* At this time, it is not clear what future conditions will be and what incentives, if any, will exist for future adoptions of building energy codes. Texas’s history of not adopting the 2003 or 2006 IECC and IRC code updates, combined with the uncertainty regarding future conditions and incentives,

¹³ Acts 2007, 80th Leg., R.S. Ch. 939, Sec. 11 also added a subsection (b-1) that is substantively the same, but worded differently. Both versions of subsection (b-1) appear in the current version of § 388.003.

¹⁴ ANSI/ASHRAE/IESNA Standard 90.1-2007 is roughly equivalent to the 2009 IECC. See Building Codes Assistance Project 2010 (Ex. NRC000049).

undermines the Intervenor's assumption that Texas will continually update its building energy codes over the next decade. Therefore, even if the scope of the contention was not limited to the 2009 building energy codes, future updates are still speculative and should not be considered.

48. Because Contention DEIS-1 was based on the 2009 codes and any future updates are speculative, the Board finds that future building energy code updates (those beyond the 2009 versions) are beyond the scope of the admitted contention. If no future building energy codes beyond the 2009 IECC and 2009 IRC were adopted in Texas during the period of Intervenor's analysis, Mr. Mosenthal testified that his estimates of energy savings would be substantially lower, but he could not state how much lower. Hearing Tr. at 1812. According to the Applicant, "over half of the Texas building code savings predicted by the Mosenthal Direct Testimony for 2015, 2020, and 2025 appears to be attributable to anticipated future code updates, not to the energy efficient building code adopted in 2010." Applicant DEIS-1 Rebuttal Testimony at A30 (Ex. STP000028).

4. Alleged Benefits of Delaying NRC Decision on STP COL

49. The Intervenor's allege that "[d]elays caused by a rejection of the DEIS/FEIS will allow tremendous benefits...includ[ing] allowing for better understanding of the current trends toward dramatic increases in investment in efficiency throughout the U.S., as well as general climate change policies, and the likely future resources provided by efficiency in Texas." Intervenor's DEIS-1 Rebuttal Testimony at 13 (Ex. INTR00041). The Intervenor's argue that a delay in approval could "clarify the likely future needs for new power, if any, and inform policymakers so that the best decisions can be made." *Id.* at 14. The Board finds that potential benefits from delaying the FEIS on STP Units 3 and 4 are outside the scope of the contention, which deals with electricity savings that can be achieved as a result of the 2009 building energy codes. Moreover, the Intervenor's misunderstand the purpose of an EIS. As stated above, NEPA does not require certainty or precision. See *LES*, CLI-05-20, 62 NRC at 536. As

explained below, need for power forecasts are inherently uncertain, and the forecasts need only be “reasonable...in light of what is ascertainable at the time made.” *Kansas Gas and Electric Co. and Kansas City Power and Light Co.* (Wolf Creek Generating Station, Unit No. 1), ALAB-462, 7 NRC 320, 328 (1978) (citations omitted). Therefore, the purpose of an EIS is not to obtain the best possible knowledge, but to provide available information with which to reasonably inform decisionmakers.

50. In addition, arguments related to the alleged benefits of deferring a decision on the STP COL application are irrelevant to the NRC decision; they are based on considerations relevant to power generators or state regulators. The purpose of an NRC need for power review is to assess the potential benefit of the plant for use in the agency’s balancing of environmental costs against the anticipated benefits of the action. See Nuclear Energy Institute; Denial of Petition for Rulemaking, 68 Fed. Reg. 55,905, 55,909 (Sept. 29, 2003) (NEI Rulemaking Petition Denial). The NRC does not regulate licensees’ market strategies or business decisions or “determin[e] whether market conditions warrant commencing operations.” *Louisiana Energy Servs., L.P.* (National Enrichment Facility), CLI-05-28, 62 NRC 721, 726 (2005) (internal quotation marks omitted). The NRC also does not supplant the State’s role in assessing the need for power generating facilities or their economic feasibility. NEI Rulemaking Petition Denial, 68 Fed. Reg. at 55,909. Nor does the NRC require detailed analyses to establish that a nuclear power plant is the most economical means of generating power. *South Carolina Electric & Gas Co. & South Carolina Public Service Authority (Also Referred to as Santee Cooper)* (Virgil C. Summer Nuclear Station, Units 2 & 3), CLI-10-01, 71 NRC 1, 18 (2010). Because the Intervenor’s arguments regarding the benefits of delay raise policy considerations outside the scope of the NRC need for power review, the Board will not consider them.

C. Legal Standards Applicable to Need for Power Analyses

1. Need for Power Analysis Must Be Reasonable

51. The assessment of need for power has historically been equated “with the benefits of the proposed action” for the cost-benefit balance consideration. NEI Rulemaking Petition Denial, 68 Fed. Reg. at 55,909. While need for power assessments are required, they “should not involve burdensome attempts to precisely identify future conditions. Rather, it should be sufficient to reasonably characterize the costs and benefits associated with proposed licensing actions.” *Summer*, CLI-10-01, 71 NRC at 17 (quoting NEI Rulemaking Petition Denial, 68 Fed. Reg. at 55,910).

52. The Commission has also recognized that long-range forecasts of need for power are especially uncertain because they depend on many factors, and many of these factors are, themselves, inherently uncertain. *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant, Units 1, 2, 3, & 4), CLI-79-5, 9 NRC 607, 609-10 (1979). There is a substantial margin of uncertainty in any forecast of future electric power demands, and “[a]s with most methods of predicting the future, load forecasting involves at least as much art as science.” *Niagara Mohawk Power Corp.* (Nine Mile Point Nuclear Station, Unit 2), ALAB-264, 1 NRC 347, 365 (1975). A forecast “is not to be discarded as fatally flawed simply because the future course of events is sufficiently clouded to give rise to the possibility of a significant margin of error. . . . [T]he most that can be required is that the forecast be a reasonable one in light of what is ascertainable at the time made.” *Wolf Creek*, ALAB-462, 7 NRC at 328 (citations omitted).

53. In *Nine Mile Point*, the Appeal Board did not find a difference of two years in the date of predicted need for the plant to be a statistically meaningful distinction—the two-year difference was within the margin of error implicit in such predictions. ALAB-264, 1 NRC at 365. Similarly, the Appeal Board noted that, if power from a proposed project is genuinely needed,

then that benefit should not be discounted because there is a possibility that the need for power may develop closer to the end than the beginning of the forecast spectrum. *Id.* at 368.

54. Furthermore, need for power forecasts that are conservative, *i.e.*, tending to project future needs closer to the high than the low end of the demand spectrum, are not automatically suspect because the consequences of demand outstripping capacity are far more serious than the consequences of unneeded generating capacity. *Duke Power Co. (Catawba Nuclear Station, Units 1 & 2)*, ALAB-355, 4 NRC 397, 410 (1976); *Nine Mile Point*, ALAB-264, 1 NRC at 368-69.

2. Qualitative Treatment of Issues in EIS Is Acceptable

55. NRC regulations provide that a draft EIS will, “to the fullest extent practicable, quantify the various factors considered. To the extent that there are important qualitative considerations or factors that cannot be quantified, these considerations or factors will be discussed in qualitative terms.” 10 C.F.R. § 51.71(d). The NRC regulations recognize that even some important considerations will not be discussed in quantitative terms. As a general rule, the amount of data and detail of analyses in an EIS is “commensurate with the importance of the impact” and “[e]ffort and attention [are] concentrated on important issues.” See 10 C.F.R. Pt. 51, Subpt A., App. A. Neither NEPA nor NRC regulations require that every issue potentially relevant to the costs or benefits of a proposed action be discussed in detail or in quantitative terms.

56. The Commission has stated that “NEPA requirements are ‘tempered by a practical rule of reason,’” and EISs should not be “‘research document[s].’” *Entergy Nuclear Generation Co. (Pilgrim Nuclear Power Station)*, CLI-10-22, 71 NRC __, __ (Aug. 27, 2010) (slip op. at 9) (citations omitted). In the context of severe accident mitigation alternatives (SAMAs), the Commission recognized that the unavailability, unreliability, or inapplicability of relevant or necessary meteorological data or modeling methodology may prevent “mathematical or precise model-to-model comparisons,” and that “[s]ome assessments may necessarily be

qualitative, based simply on expert opinion.” *Id.* The Commission concluded that NEPA requires the agency to provide a “reasonable” analysis, “containing ‘reasonable’ estimates, including, where appropriate, full disclosures of any known shortcomings in available methodology, disclosure of incomplete or unavailable information and significant uncertainties, and a reasoned evaluation of whether and to what extent these or other considerations credibly could or would alter” the conclusions. *Id.* (citations omitted).

D. Findings of Fact on Contested Issues

57. As explained below, the Board finds, upon consideration of all the relevant evidence, that the need for power analysis contained in Chapter 8 of the FEIS is adequate. The Staff and Applicant have reasonably addressed all issues encompassed by Contention DEIS-1 and have demonstrated that even if a quantitative analysis of building energy code impacts is performed, there is still a need for power, which could be supplied by STP Units 3 and 4. The evidence in this proceeding confirms the conclusions set forth in the Staff’s FEIS.

58. To resolve Contention DEIS-1, the Board addresses the following issues: (1) the adequacy of the FEIS, (2) agreement among the parties on the need for power in ERCOT, (3) savings due to building energy codes, and (4) these savings in the context of the ERCOT forecast. Because “the ultimate burden with respect to NEPA lies with the NRC Staff,” *Levy County*, CLI-10-2, 71 NRC at 34, the Board will focus its findings on the reasonableness of the Staff’s analysis.

1. FEIS Discussion of Need for Power Is Adequate

59. Chapter 8 of the FEIS contains the analysis of the need for power in the Electric Reliability Council of Texas (ERCOT) region, where STP Units 3 and 4 are proposed to be located. See FEIS at Ch. 8 (Ex. NRC00003C). ERCOT is a nonprofit corporation subject to oversight by the Public Utility Commission of Texas (PUCT) and the Texas Legislature, and it has responsibility for managing the flow of electric power to Texas customers representing approximately 85 percent of the State’s electric load. Staff DEIS-1 Direct Testimony at A23

(Ex. NRC000031) (citing FEIS at 8-2 (Ex. NRC00003C)). ERCOT is also the central planning organization for electricity needs in the region, and its analyses and reports are the key measures for determining resource needs in Texas. *Id.* (citing FEIS at 8-4 (Ex. NRC00003C)).

60. The FEIS need for power analysis focused on the time period from 2015 to 2020 for two reasons. *Id.* at A19. First, the Applicant's ER proposed that commercial operation would begin in March 2015 and March 2016 for the units. *Id.* (citing ER at 1.1-4) (Ex. NRC000036). Second, in the absence of an acceptable need for power evaluation by a state or regional agency, NRC guidance directs the Staff to conduct its own analysis and focus on the time period from the date of application through the third year of commercial operation. *Id.* (citing ESRP 2007 at 8.2.1-3 (Ex. NRC000039)). Based on the Applicant's proposed construction schedule, the year 2020 is a reasonable estimate of the third year of commercial operation. *Id.*

61. The FEIS considered the need for baseload generation in the ERCOT region because the Applicant stated that the purpose of STP Units 3 and 4 is to provide baseload generation. *Id.* at A16. In accordance with NRC guidance, the Staff relied upon the forecasts and analyses created by (or for) ERCOT after determining that these forecasts and analyses were (1) systematic, (2) comprehensive, (3) subject to confirmation, and (4) responsive to forecasting uncertainty *Id.* at A24, A25.

62. In the FEIS, the Staff considered the combined output of both proposed units at STP to be approximately 2,700 MW. *Id.* at A33 n.12 (citations omitted). Using the ERCOT forecast, the Staff calculated that there would be a baseload power need from 0 megawatts (MW) with no plant retirements to 2,337 MW with retirements of plants over 50 years old in 2015 and from 1,995 MW with no plant retirements to 6,845 MW with retirements of plants over 50 years old in 2020. *Id.* at A32. Even when the Staff factored into the forecast its sensitivity analyses, which reduced the forecast after assuming new energy conservation programs and additional installed wind generation capability, the Staff still concluded there was a need for

power from STP Units 3 and 4. See *id.* at A32, A33, A56; FEIS at 8-25 to 8-27 (Ex. NRC00003C). By 2015, if any operating large power plant in the ERCOT region retired, there would be a demand for one of the proposed STP units. Staff DEIS-1 Direct Testimony at A33 (Ex. NRC000031). By 2020, even without any retirements, there would be a need for at least one of the proposed STP units, and under the scenario with only plants greater than 50 years retiring, there would be a need for baseload power generation equal to both proposed STP units plus an additional two to three units. *Id.*

63. In conclusion, the Staff found that there is an expected future shortage of baseload power in the ERCOT region. FEIS at 8-32 (Ex. NRC00003C). The proposed units at STP could address the growth in demand for baseload power and the need for replacement of retiring baseload units in the ERCOT region. *Id.* Based on its analysis, the Staff concluded that there is a justified need for the planned capacity of both the proposed STP units. *Id.*

64. The DEIS was published in March 2010; subsequently, in June 2010, Texas adopted the 2009 building energy codes; and the FEIS was published in February 2011. Hearing Tr. at 1759. Because Texas had not yet passed the rule adopting the 2009 building energy codes when the DEIS was published, the DEIS did not consider the impacts of these codes. *Id.* at 1759, 1828-29. The FEIS did not provide a quantitative analysis of the impacts of these codes, but instead, explained why the Staff considered them to be speculative and not a significant factor in the need for power analysis. See FEIS at 8-18 to 8-19, 8-26 (Ex. NRC00003C); FEIS at E-76 to E-77 (Ex. NRC00003D).

65. As a result of discussions with ERCOT staff and examination of Texas public documents and websites, the Staff “concluded that while there may be some long-range impacts resulting from these programs not currently captured by the ERCOT models, there is almost no currently available, reliable information that suggests the impacts of these programs have been significant on a statewide basis or that they require a significant adjustment to the ERCOT forecasts.” FEIS at 8-19 (Ex. NRC00003C).

66. The FEIS provided six reasons why the size of the impact of the 2009 building energy codes is speculative. Staff DEIS-1 Direct Testimony at A40 (citing FEIS at E-76 to E-77 (Ex. NRC0003D)). First, there is some overlap in the target end-uses of the PUCT utility savings programs and the building energy codes, so including both might result in double-counting. *Id.* Second, many jurisdictions in Texas already had adopted earlier versions of building energy codes above the statewide minimum standard, which was the 2001 version; thus, the trend in energy savings from early adoption would have been embodied in the historical energy consumption data used to produce the ERCOT forecasts. *Id.* Third, because the 2009 building energy codes would only apply to new structures, the impact depends on how much construction there will be in Texas, and the Staff could not locate a reliable construction forecast. *Id.* Fourth, not all growth in electricity, such as additional “plug loads,” will be impacted by the codes, and therefore, only end uses of electricity that are actually affected by the codes should be considered when evaluating potential savings. *Id.* Fifth, in order to produce savings, the codes must be enforced as well as adopted. *Id.* Sixth, the estimated potential savings is likely to be an overestimate due to the “take-back” or “rebound” effect, whereby individuals increase their electricity consumption because a given level of comfort is cheaper to maintain. *Id.*

67. Not only did the Staff believe the impacts were not a significant influence on the forecast, but ERCOT staff also did not believe they were important. Hearing Tr. at 1765; see also FEIS at 8-19 (Ex. NRC00003C).

68. In this case, the need for power analysis in the FEIS fulfills the “reasonableness” standard imposed by NEPA. See *Pilgrim*, CLI-10-22, 71 NRC at ___ (slip op. at 9); 10 C.F.R. Pt. 51, Subpt A., App. A. The Staff provided a reasonable analysis of the need for power in the ERCOT region, which included reasonable forecasts of the need for power and sensitivity analyses of those forecasts. See Staff DEIS-1 Direct Testimony at A26 (Ex. NRC000031); FEIS at Table 8-5 (Ex. NRC00003C). The FEIS discussed the uncertainties inherent in the forecasts.

See, e.g., FEIS at 8-25 to 8-27 (Ex. NRC00003C). With respect to building energy codes, the FEIS contained a qualitative discussion because, in the Staff's expert judgment, their impacts were both minor and speculative. As such, the Staff did not believe the building energy codes adopted by Texas in 2010 would change its conclusions with respect to the need for power in the ERCOT region. Hearing Tr. at 1768 ("[T]hrough our guidance we determined that the level of importance of the building codes didn't rise to a magnitude sufficient to affect our analyses, and therefore, we did not put great weight on to it.").

69. The Staff's testimony confirms that the Staff followed the principles set forth in 10 C.F.R. Part 51 and NRC case law when drafting its EIS. For key items, the Staff performed a detailed, quantitative analysis. Hearing Tr. at 1767. For issues that are of lesser importance and that will not significantly affect the conclusions in the EIS, the Staff provided a qualitative discussion and did not provide a fine level of detail that would imply a greater level of accuracy than is appropriate. *Id.*

70. The Board finds that the FEIS contains an adequate discussion of the need for power in the ERCOT region. As discussed below, the testimony and evidence received in this proceeding confirm that the impacts of the 2009 building energy codes are minor and do not affect the conclusions presented in the FEIS.

2. All Parties Agree There Is a Need for Power

71. While each of the three parties calculates savings due to the building energy codes by a different method, all reach the same basic conclusion that there is a need for power in the ERCOT region between 2015 and 2020. In terms of savings at peak demand for new construction, in 2015, the Staff estimates a savings due to building energy codes of approximately 600 MW, the Applicant approximately 500 MW, and the Intervenors approximately 500 MW. Staff DEIS-1 Direct Testimony at Table 4 (Ex. NRC000031); Applicant DEIS-1 Direct Testimony at A43 (Ex. STP000001); Intervenors Direct Testimony at Table 1; Ex. INT000004. In 2020, the Staff estimates approximately 1,200 MW of savings, the Applicant

approximately 850 MW, and the Intervenor estimate approximately 1,400 MW of savings. *Id.* When viewed in the context of the peak demand forecast for the ERCOT region of 70,517 MW in 2015 and 75,762 MW in 2020, all of the parties' estimates of savings that could be achieved through application of the building energy codes are quite similar. See Staff DEIS-1 Direct Testimony at Table 5 (Ex. NRC000031). Furthermore, all parties seem to be in agreement that there is a need for power in the ERCOT region. See, e.g., Staff DEIS-1 Rebuttal Testimony at Table 1 (Ex. NRC000062). Even using the Intervenor's savings estimates, in 2020, there is still a need for 713 MW of baseload power if there are no retirements and 5,563 MW of baseload power if units older than 50 years retire. *Id.*

72. The Applicant's expert, Mr. Pieniazek, who is the Director of Market Policy for NRG Energy, Inc., testified he knows from his experiences that the building energy codes have not had a "tremendous impact on the need for power in ERCOT." Hearing Tr. at 1731. Furthermore, he notes that the focus should be on what ERCOT projects because ERCOT is the independent system operator and is responsible for the reliability of the grid. *Id.* at 1732. ERCOT has "the best information available on codes and energy efficiency and economic data. And they say without a doubt there is a need for power in ERCOT, and it's now." *Id.*

73. The Intervenor's expert witness, Mr. Mosenthal, testified that "[a]ssuming full retirements per the FEIS there would still be a need as early as 2015, with a shortfall of 4,894 MW of peak demand." Intervenor DEIS-1 Direct Testimony at 10. Mr. Mosenthal agrees that there is not a large difference between the Staff's and his estimates of the need for generation at peak demand after building energy codes, as applied to new construction, are considered. Hearing Tr. at 1817. Mr. Mosenthal further agrees that the FEIS forecast, the Staff's forecast after considering building energy codes as applied to new construction, and his calculations, which consider only new construction, all show a need for power in ERCOT in 2020. *Id.* Later in his testimony, Mr. Mosenthal added some caveats to this conclusion. See Hearing Tr. at 1833-34. However, those caveats involved issues that are beyond the scope of this

contention—investment in other sources of energy, retirements, and the value of deferring a decision on the STP units. See *id.* at 1834.

3. Savings Due to Building Energy Codes

a. Methodologies of the Parties

74. In calculating potential savings due to the 2009 building energy codes adopted by Texas in June 2010, all of the parties referenced the American Council for an Energy-Efficient Economy (ACEEE) 2007 report (Ex. STP000008). “The ACEEE analysis was fairly simple, and assumed a 15% improvement in all residential and commercial new construction electrical efficiency, starting in 2009 and continuing until 2019, at which point it assumed a 30% improvement for the following 4 years, resulting in a total peak load reduction of 2,362 MW in 2023.” Intervenors DEIS-1 Direct Testimony at 6 (Ex. INTR20001).

i. Staff

75. The Staff calculated the potential amount of electricity savings due to the 2009 building energy codes. The Staff based its analysis on the ACEEE 2007 report (Ex. STP000008), which was cited by the Intervenors in support of the admissibility of Contention DEIS-1. Staff DEIS-1 Direct Testimony at A43 & A44 (Ex. NRC000031); DEIS Contentions at 4 n.9 (citing the David Power Report at 4, which cites the ACEEE 2007 report at 4 & n.12). The ACEEE 2007 report estimated that the cumulative summer peak demand savings in 2020 would be 1,754 MW. Staff DEIS-1 Direct Testimony at Table 2 (Ex. NRC000031) (citing ACEEE 2007 at 48, Table A.2 (Ex. STP000008)). In order to make the ACEEE 2007 report’s estimate of electricity savings due to building energy codes applicable to the ERCOT 2010 forecast, the Staff made several adjustments to the ACEEE forecast. Staff DEIS-1 Direct Testimony at A44 (Ex. NRC000031). First, the Staff subtracted the savings achieved before 2011 in the ACEEE forecast (334 MW) because the State’s effective dates for the 2009 IRC and 2009 IECC codes are 2011 and 2012. *Id.* at A45. Second, the Staff scaled the ACEEE estimated savings to the ERCOT region because the ACEEE report considered all

of Texas, but ERCOT comprises about 85 percent of Texas electricity consumption. *Id.* at A46 (citing ERCOT 2008 (Ex. NRC000051)). Third, the Staff lowered the ACEEE estimates to account for the 2010 ERCOT reference forecast's growth rate, which is only 65.5 percent as large as the ACEEE forecast's. *Id.* at A47. In addition to these necessary adjustments, the Staff assumed that the ACEEE did not include energy losses that occur through transmission and distribution and so increased the ACEEE savings estimates by approximately six percent. *Id.* at A48.

76. After these four adjustments, the ACEEE residential savings were reduced by approximately one-half. *Id.* at A49. For 2020, the adjusted cumulative summer peak demand savings are 836 MW. *Id.* at Table 3. The savings are approximately equal to one percent of the ERCOT reference forecasts for the period 2015 to 2020. *Id.* at A49 (citing FEIS at Table 8-2 (Ex. NRC00003C)). For comparison, the uncertainty in ERCOT's peak demand forecast for 2015 due to unusually hot or cold weather is approximately eight times the adjusted ACEEE savings forecast for that year. *Id.* at A49. Assuming that baseload generation equals 44 percent of peak demand, the incremental need for baseload generation would be reduced by 187 MW in 2015 and 367 MW in 2020. *Id.* at Table 4.

77. The Staff's adjustments to the ACEEE forecast are likely to result in an overestimate of what the residential building energy codes would achieve because the actual amount of savings depends on how effectively builders are trained to meet the code, the quality of code enforcement, and the amount of "take-back" or "rebound" effect on the part of consumers. *Id.* at A50.

78. While the ACEEE 2007 report (Ex. STP000008), at 25, indicates that it considered both residential and commercial building energy codes, the Staff believed the ACEEE numerical estimates only included savings from the residential sector. Hearing Tr. at 1774. Dr. Scott explained that the ACEEE report stated its savings estimates assumed 15 percent savings relative to current code until 2020, and using the peak summer demand

forecasts in Table B.1 of the ACEEE report (Ex. STP000008), it appears ACEEE only included the residential sector when it reported its savings estimates in Table A.2. *Id.* at 1773-74. If the ACEEE savings estimates of 1,754 MW for 2020 and 2,362 MW for 2023 had included the commercial sector, the savings estimates should have been approximately double based on the forecasts in Table B.1. *Id.* Therefore, the Staff separately calculated commercial sector savings, as well as industrial sector savings. *See id.* at 1771.

79. The 2009 IECC applies to commercial and industrial buildings, but the Staff could not find any forecasts of the impact of the 2009 IECC on demand in commercial or industrial buildings in the ERCOT region. Staff DEIS-1 Direct Testimony at A51 (Ex. NRC000031). To estimate the impacts of the 2009 building energy code on commercial and industrial demand, the Staff began with a national estimate of the potential percentage savings of electricity in commercial buildings constructed under the 2009 IECC standard compared with new buildings constructed under the 2006 IECC standard. *Id.* at A52. Although the estimate was produced for commercial buildings, the Staff used it for industrial buildings as well because the uses of electricity in industrial buildings that would be affected by building energy codes are very similar to those in commercial buildings. *Id.* The comparison with the 2006 standard is appropriate because the 2006 standard was essentially the average code adopted by Texas jurisdictions in 2010. *Id.* at A35 and Attachment 2. Because many Texas jurisdictions had voluntarily adopted building energy codes that were more stringent than what the State had required, the population-weighted average value code for the State was approximately the value for the 2006 IECC code. *Id.* The difference between the 2006 IECC and 2009 IECC code for commercial electricity demand is approximately three percent. *Id.* at A52 (citation omitted). Because no official entity in Texas provides reference forecasts for the future growth in the commercial and industrial building electricity demand, the Staff used statewide historical data to estimate growth in demand for these sectors based on average pre-recession growth rates from 2000 to 2008. *Id.* The growth rate was 4.13 percent per year for commercial buildings and 0.74 percent per

year for industrial buildings. *Id.* (citing Attachments 4 and 5). The Staff scaled the estimates of future commercial and industrial electricity demand growth in Texas to the ERCOT region, then applied the three percent savings rate to the reference increase in demand expected as a result of construction of new buildings, and finally adjusted the estimate to account for its impact on peak demand and baseload demand. *Id.*

80. For commercial building electricity demand, the Staff determined that there would be a cumulative increase of 4,583 MW in 2015 and 10,193 MW in 2020. *Id.* at A53. The Staff views this as an overestimate because it attributes all new commercial electricity demand to new buildings and end uses to which the new building energy codes would apply, but historically, some of the increase in commercial electricity consumption is a result of more intensive use of electricity in existing buildings (*e.g.* increased plug load). *Id.* The Staff next multiplied the projected commercial demand by the three percent savings rate expected as a result of adoption of the 2009 IECC and also adjusted the figure (in the same manner as for residential buildings) for electricity lost in transmission in distribution. *Id.* The resulting peak commercial building savings is 146 MW in 2015 and 323 MW in 2020. *Id.* Assuming baseload generation is 44 percent of peak demand, the incremental need for baseload generation would be reduced by 64 MW in 2015 and by 142 MW in 2020. *Id.*

81. For industrial building electricity demand, the method used was essentially the same as that used for the commercial buildings, except industrial sector data were used. *Id.* at A54. However, since most industrial sector energy use, *e.g.*, pumps, motors, and other equipment, is not subject to building energy codes, the Staff estimated the proportion of industrial energy demand that would be affected by building energy codes using a survey conducted by the Energy Information Administration. *Id.* The Staff calculated an ERCOT industrial building annual peak demand of 3,104 MW in 2010. *Id.* at A55. Then, the Staff determined that there would be a cumulative increase in building electricity demand of 117 MW in 2015 and 237 MW in 2020. *Id.* As with the commercial analysis, these numbers are

overestimates because not all building electricity demand would actually be subject to the new building energy codes. *Id.* The Staff applied a three percent reduction in electricity use as a result of the new codes, and increased the savings by the same factors used in the commercial analysis to account for line losses in transmission and distribution. *Id.* The resulting peak industrial building savings is 4 MW in 2015 and 8 MW in 2020. *Id.* Assuming baseload generation equals 44 percent of peak demand, the incremental need for baseload would be reduced by 1.6 MW in 2015 and 3.3 MW in 2020. *Id.*

82. The Staff summarized its calculations in Table 4 of the Staff DEIS-1 Direct Testimony (Ex. NRC000031).

Table 4. Summary of Building Energy Code Impacts on Demand in Residential, Commercial, and Industrial Buildings.

Component:	Reduction in Peak Demand (MW)		Reduction in Baseload (MW)	
	2015	2020	2015	2020
New Residential Building Savings	426	836	187	368
New Commercial Building Savings	146	323	64	142
New Industrial Building Savings	4	8	2	3
Total Savings	576	1,167	253	513

ii. Applicant

83. Like the Staff witnesses, the Applicant's expert based his analysis of electricity savings on the ACEEE 2007 report (Ex. STP000008). Applicant DEIS-1 Direct Testimony at A32-A36 (Ex. STP000001). The Applicant believes the ACEEE estimates need to be reduced to account for three factors. Applicant DEIS-1 Rebuttal Testimony at A6 (Ex. STP000028). First, it needs to be adjusted for more recent ERCOT demand projections, which show that the growth in peak load in 2023 will only be 52.1 percent of that expected in the ACEEE report. *Id.* Second, the ACEEE estimates need to be scaled down to the ERCOT region, which encompasses approximately 85 percent of the electric load in Texas. *Id.* Third, the ACEEE

estimates must be converted to baseload power demands, which are approximately 39 percent of peak demands. *Id.* As a result of these adjustments, the value of predicted savings due to the codes are 1,046 MW of peak load demand and 408 MW of baseload demand in 2023. *Id.* Using linear interpolation, the corresponding baseload savings values are 190 MW for 2015 and 326 MW for 2020. Applicant DEIS-1 Direct Testimony at A43 (Ex. STP000001). The Applicant notes that peak load in the ERCOT region is expected to grow at 1,000 to 2,000 MW per year, so even the ACEEE estimates without any adjustments would only defer the need for power by one to two years. *Id.* (citing FEIS at Table 8-3 (Ex. NRC00003C)). Therefore, “there still would be a need for power from STP Units 3 and 4, just slightly later than predicted.” *Id.*

84. Unlike the Staff, the Applicant’s expert, Mr. Pieniazek, did not believe it was appropriate to add separately calculated savings for commercial buildings because the ACEEE 2007 report stated that it accounted for savings due to both residential and commercial building codes. Applicant DEIS-1 Rebuttal Testimony at A17 (Ex. STP000028) (citing Ex. STP000008 at 25). Mr. Pieniazek testified that it was unclear whether the ACEEE 2007 report accounted for savings in the industrial sector, and therefore, it was not unreasonable for the Staff to separately calculate them. *Id.* at A19. However, the Applicant referenced the Staff’s industrial sector savings estimates and noted that they are minor. *Id.*

iii. Intervenors

85. The Intervenors’ witness, Mr. Mosenthal, estimated savings due to building energy codes by making adjustments to the ACEEE analysis. Intervenors DEIS-1 Direct Testimony at 6 (Ex. INTR20001). First, like the Staff, Mr. Mosenthal lowered the ACEEE estimates to account for the fact that the codes did not go into effect in 2009 as the ACEEE analysis assumed. *Id.* at 6. Second, the Intervenors replaced the 15 and 30 percent electricity savings over existing practice in the ACEEE analysis with the savings difference between the 2009 IECC and the 2001 IECC. *Id.* at 7. The Intervenors further assumed that there would be regular code updates, so savings would increase every few years. *Id.* Initially, the Intervenors

assumed an 11.4 percent savings rate for the non-residential sector and a 20 percent savings rate for the residential sector. *Id.* (citations omitted). Third, like the Staff and Applicant, the Intervenors used the more recent 2010 ERCOT forecast instead of the ACEEE reference forecast.¹⁵ *Id.* Fourth, the Intervenors lowered the 100 percent compliance rate used by ACEEE. *Id.* at 8. Initially, the Intervenors used an 80 percent compliance rate for commercial buildings and a 60 percent rate for residential buildings, both of which would rise to 90 percent compliance in 2017 and remain at 90 percent thereafter. *Id.* Mr. Mosenthal predicts that building energy codes (not only the 2009 code but also future updates that would increase savings) would result in peak demand electricity savings of 494 MW in 2015 and 1,404 MW in 2020. *Id.* at Table 1. Mr. Mosenthal did not provide estimates for the amount of baseload demand savings.

86. In calculating the savings due to the 2009 building energy codes, Mr. Mosenthal averaged energy savings values reported in a Pacific Northwest National Laboratory report (Ex. INT000015). Hearing Tr. at 1802. However, he included values for the cities of El Paso and Amarillo, which are not located in the ERCOT region. See *id.* at 1802-03; Staff DEIS-1 Direct Testimony at A21, Attachment 1 (Ex. NRC000031).

¹⁵ The Intervenors also provided estimates of savings using the 2009 ERCOT forecast, which was used in the DEIS. *Id.*

b. Differences in Methodologies Among the Parties

i. Adding Commercial Sector Savings to ACEEE Savings

87. We agree with the Staff's interpretation of the ACEEE report (Ex. STP000008)—that its numerical estimates of savings presented in Table A.2 only pertain to the residential sector—because, notwithstanding the text of the ACEEE report, the presentation of the numerical analysis suggests that only residential savings were calculated. In addition, using the Staff's interpretation, we err on the side of overestimating the potential impacts of the 2009 building energy codes.

ii. Rate of Compliance with Building Energy Codes

88. Although only the Intervenors discounted the rate of compliance with the building energy codes below 100 percent, both the Staff and Applicant agree it is a reasonable adjustment. See Staff DEIS-1 Rebuttal Testimony at A7 (Ex. NRC000062); Applicant DEIS-1 Rebuttal Testimony at A27 (Ex. STP000028).

89. We find that it is appropriate to reduce initial compliance rates below 100 percent and then ramp them up to reach 90 percent compliance by 2017 because Texas has committed to achieving 90 percent compliance by 2017 in order to receive funding under ARRA. Given that the focus of our decision is on the reasonableness of the Staff's analysis, we conclude that the Staff's decision not to discount the rate of compliance with the new codes was conservative in that it would increase potential savings resulting from the building energy codes and thus is acceptable.

iii. Scaling ACEEE Savings from Texas to ERCOT Region

90. While both the Staff and Applicant scale the ACEEE estimates to account for the ERCOT region's use of approximately 85 percent of Texas's electricity use, the Intervenors used ERCOT's 2010 forecast directly. See Staff DEIS-1 Direct Testimony at A46 (Ex. NRC000031); Applicant DEIS-1 Rebuttal Testimony at A28 (Ex. STP000028); Intervenors DEIS-1 Direct Testimony at 7 (Ex. INTR20001) & Ex. INT000004. However, all parties agree

that the ERCOT region, as opposed to the State of Texas, is the appropriate area of analysis, and we agree. See Staff DEIS-1 Direct Testimony at A20-22 (Ex. NRC000031); Applicant DEIS-1 Direct Testimony at A9 (Ex. STP000001); Intervenors DEIS-1 Direct Testimony at 4 (Ex. INTR20001).

91. If using the ACEEE analysis as the starting point, as the Staff and Applicant did, we find that it is appropriate to scale electricity demand and savings estimates that are for the State of Texas by a factor of 85 percent because the ERCOT region does not encompass all of Texas, and the need for power analysis is limited to the ERCOT region. The Intervenors did not need to scale their estimates to the ERCOT region because they used ERCOT's forecast as the starting point in their calculations.

iv. Appropriate Baseline Year to Use in Savings Calculations

92. All parties agree that some proportion of energy savings due to building energy codes are likely embedded in ERCOT's forecasts. Staff DEIS-1 Direct Testimony at A38 (Ex. NRC000031); Applicant DEIS-1 Direct Testimony at A20, A22-A24 (Ex. STP000001); Intervenors DEIS-1 Rebuttal Testimony at 4 (Ex. INTR00041). There is further agreement among the parties that many local jurisdictions in Texas adopted codes prior to the State's adoption of a specific code. See, e.g., Intervenors DEIS-1 Rebuttal at 4 (Ex. INTR00041). The Staff and Applicant believe that the local adoption of building energy codes tended to reduce electricity consumption, and these trends were captured in the historical data that were implicitly built into the ERCOT econometric forecasting equations. Staff DEIS-1 Direct Testimony at A36-A38 (Ex. NRC000031); Applicant DEIS-1 Direct Testimony at A23-A24 (Ex. STP000001). However, the Intervenors do not agree with the Staff and Applicant regarding the extent to which local adoption of codes would have impacted ERCOT's forecasts. Intervenors DEIS-1 Rebuttal Testimony at 4 (Ex. INTR00041); Hearing Tr. at 1832-33. While acknowledging that as soon as the codes start to have some impact, there would be a potential effect on the forecast, the Intervenors do not believe local adoption had a significant effect. *Id.* One of the reasons the

Intervenors do not believe the trends are significantly embedded in ERCOT's forecast is that the recent historical data that would be most relevant are the recession years, 2008 and 2009, "where new construction activity and load growth virtually disappeared, and the resulting reductions in load from lost economic activity are likely to swamp any statistical impact of these patchwork codes on the overall trends in historic data carrying through the forecast."

Intervenors DEIS-1 Rebuttal Testimony at 6 (Ex. INTR00041). The Applicant agrees that 2008 and 2009 were aberrant because "load demand flattened out a little bit" in those two years, and load is typically increasing in ERCOT, especially recently. Hearing Tr. at 1729.

93. We find that, while new construction activity may have declined and load growth slowed in ERCOT in 2008 and 2009, demand was still increasing but at a slower rate than previously. See, e.g., 2010 ERCOT Planning: Long-Term Hourly Peak Demand and Energy Forecast at 9, 21 (Ex. NRC000041). Furthermore, we find that since local jurisdictions had been adopting code updates throughout the entire decade, it is appropriate to consider the whole decade and not just the most recent years when establishing the appropriate baseline.

94. With respect to the appropriate baseline year to use in savings calculations, we find the testimony of the Staff and Applicant to be more credible and find that, prior to the statewide adoption of the 2009 code, the proper average baseline to use for the State is the 2006 code. The Staff presented a table showing that the population weighted average code in effect in March 2010 in the State was approximately equal to the IECC 2006 code. Staff DEIS-1 Direct Testimony at Attachment 2 (Ex. NRC000031). This table includes data from the 2010 U.S. Census (Ex. NRC000057) and a 2010 ESL study (Ex. STP000010). On the other hand, the Intervenors compared the savings to be achieved from the 2009 codes with the 2001 IECC. Hearing Tr. at 1803. The Intervenors witness, Mr. Mosenthal, relied on data presented in his Table 1, covering the six largest cities in Texas, which is based on population data from the 2000 U.S. Census and the source for the code versions is not cited. Intervenors DEIS-1 Rebuttal Testimony at 5 (Ex. INTR00041). At the evidentiary hearing, Mr. Mosenthal was not

aware of which of these cities adopted codes prior to the 2009 code, Hearing Tr. at 1836, but in his prefiled testimony, Mr. Mosenthal testified that Houston was the only major city in Texas that adopted any code prior to 2010. Intervenors DEIS-1 Rebuttal Testimony at 5 (Ex. INTR00041). Mr. Mosenthal not only made inconsistent statements in his testimonies, but he was incorrect when he stated that Houston was the only major city that had adopted earlier versions of the building energy codes. The Staff DEIS-1 Direct Testimony at Attachment 2 (Ex. NRC000031) and the 2010 ESL study (Ex. STP000010) show that both Dallas and Houston adopted the 2006 code, and Fort Worth adopted the 2003 code. We also find that there was enough time between voluntary local adoption of codes and the ERCOT 2010 forecasts for the trends to be captured. See Staff DEIS-1 Direct Testimony at A38 (Ex. NRC000031).

95. Because we find that savings to be achieved from the statewide adoption of the 2009 building energy codes should be compared to the 2006 code rather than the 2001 code, like the Intervenors assumed, we find that the Intervenors' estimates of savings overestimate the impacts of the codes.

v. Impact of Renovations

96. None of the parties in direct testimony specifically addressed the savings resulting from the renovation of existing buildings. However, the Intervenors raised the issue in their rebuttal testimony. Hearing Tr. at 1817; Intervenors DEIS-1 Rebuttal Testimony at 10 (Ex. INTR00041). The Staff and Applicant submitted additional testimony and exhibits to address the arguments concerning savings from renovations in the Intervenors' rebuttal testimony. See Staff Exhibits Ex. NRC000066 through NRC000072 and Applicant Exhibits Ex. STP000032 through STP000035.

97. In their rebuttal testimony, the Intervenors claimed that their estimates of savings are "likely significantly low" because they only included new construction. Intervenors DEIS-1 Rebuttal Testimony at 10 (Ex. INTR00041). Mr. Mosenthal noted that new construction only represents about one or two percent of the total electrical load in any year. *Id.* He assumed a

renovation cycle of once every 25 years so that four percent of existing building energy consumption would become applicable to the codes every year. *Id.* He concluded that this represents potentially two to three times more savings than his analysis in his direct testimony, bringing his estimate of savings in 2020 to 2,800-4,200 MW. *Id.* At the evidentiary hearing, Mr. Mosenthal clarified that he did not perform an analysis of the actual impacts of renovations and did not have a basis for assuming a 25-year renovation cycle. Hearing Tr. at 1822. Rather, his statements in his rebuttal testimony were intended to “point[] out that the likely savings from retrofit are likely to be significantly more than new construction.” *Id.* at 1822-1823.

Furthermore, Mr. Mosenthal stated that he did not look at the distribution of building age in Texas, and in order to do a “proper, more accurate analysis...one could look at the vintages of different buildings” and their amounts of building stock, but he did not. *Id.* at 1823-24.

98. In response to Mr. Mosenthal’s claim in his rebuttal testimony, the Staff performed a detailed analysis using data from reliable sources of savings due to retrofits, which include additions, alterations, and renovations. See Summary of Building Energy Code Impacts on Demand, Including New Construction & Retrofits (Ex. NRC000071). The Staff’s calculations likely overestimate the savings because they assume that the estimates in Staff’s direct testimony did not account for any of the impact of building energy codes on retrofits in the residential, commercial, and industrial sectors. *Id.* The Staff performed an analysis of the residential sector, and determined that there was no reason to believe a larger percentage of savings would occur in the commercial and industrial sectors. *Id.* Therefore, the Staff increased the savings reported in its previous testimony for all sectors by 39 percent, which was the percentage calculated for the residential sector retrofits. *Id.*

99. For the residential sector savings, the Staff first calculated the baseline percentage of electricity use that would be potentially affected by the building energy codes in Texas. Calculation Worksheet (Ex. NRC000066). Because only the systems and parts of a structure that are directly affected by the retrofit must be brought up to code, most commonly,

only heating and cooling are affected. *Id.* Therefore, approximately 40 percent of a retrofitted household's electricity is exposed to savings from application of the updated building energy code. *Id.*

100. Second, the Staff calculated the impact of the updated building energy code on electricity consumption in typical residences. *Id.* The Staff assumed houses were either newer and met the 2001 IECC code or were older and had the electricity consumption characteristics of a 1970s-era single family house in Houston. *Id.* Compared to the 2009 code, the average difference in electricity use that is exposed to savings from the codes for the newer houses is 12.6 percent and for the older houses is 47.0 percent. *Id.*

101. Third, the Staff calculated the impact of applying code updates during retrofits for the entire building. *Id.* In doing so, the Staff assumed that 80 percent of the retrofitted houses were from the older existing stock (1970s baseline electricity use) and 20 percent were newer (met the 2001 IECC), yielding a weighted average of 40.3 percent savings as compared to the 2009 code. *Id.* The Staff used this weighted average and multiplied it by 51.4 percent (the maximum amount of cooling energy consumption that would be affected by application of the 2009 building energy code to the renovation) and then by 40 percent (the space-conditioning portion of a household's electricity use) and obtained a maximum "save-able" percentage of household electricity consumption of 8.3 percent if the code were applied to the entire house. *Id.*

102. Fourth, the Staff assumed that the average house was a three-bedroom house with eight rooms, and that the average retrofit involved one room and one-eighth of the electricity consumption of the whole house. *Id.* Applying one-eighth to the maximum save-able electricity from the previous step results in about one percent electricity savings from the typical retrofit. *Id.*

103. Fifth, the Staff calculated the electricity savings from the typical unit of existing stock per year. *Id.* The Staff used data indicating that about nine percent per year of existing residential electricity use would be exposed to potential savings when the 2009 building energy codes are imposed on the retrofit. *Id.* Multiplying this nine percent by the previous step's impact of a typical retrofit on a single building yields about 0.1 percent reduction in total electricity use in the residential stock in any given year. *Id.*

104. Finally, the Staff calculated the effect on total residential electricity consumption in ERCOT in a similar manner to its calculations for new construction and obtained a baseload demand savings of 72 MW in 2015 and 143 MW in 2020. *Id.* These values are 39 percent of the residential savings estimates from the Staff's initial testimony. Summary of Building Energy Code Impacts on Demand, Including New Construction & Retrofits (Ex. NRC000071). When these additional savings from retrofits are added to the Staff's savings estimates presented in its direct testimony for the residential, commercial, and industrial sectors, the need for generation at baseload demand without any retirements is 638 MW in 2015 and 548 MW in 2020, and with retirements of plants older than 50 years, 1,750 MW in 2015 and 5,398 MW in 2020. *Id.*

105. The Applicant argues that the ACEEE 2007 report (Ex. STP000008) and other savings estimates relied upon by the Intervenor already account for renovations, the Intervenor overestimate savings due to renovations, and there is still a need for power from STP Units 3 and 4 even if the Intervenor numbers are used. Applicant DEIS-1 Surrebuttal Testimony at A5 (Ex. STP000032). Because the ACEEE 2007 report states that its estimate of savings pertains to new building codes, and the new building energy codes apply to both new construction and modifications, including renovations, the Applicant believes the ACEEE 2007 report already covers savings from renovations. Applicant DEIS-1 Surrebuttal Testimony at A9 (Ex. STP000032). The ACEEE 2007 report also contains tables which include savings from renovations of existing buildings. *Id.* Furthermore, since the ACEEE 2007 report and other sources referenced by the Intervenor are based upon a comparison of different code versions

and because the newer and older versions of the codes apply to renovations, the estimated savings in the Intervenor's sources include savings from new buildings and renovations. *Id.* Therefore, adding savings to account for renovations would double count the savings. *Id.*

106. The Applicant also points out five flaws in the Intervenor's method of estimating savings due to renovations. *Id.* at A10. First, the Applicant states that the one or two percent of savings from new construction cannot be directly compared with the assumption that four percent of existing buildings are renovated each year. *Id.* The one to two percent savings is based on a comparison of the load from new construction to total electrical load, whereas the four percent renovation assumption is based on a comparison of the number of buildings renovated to total buildings. *Id.* The percentages are not directly comparable because electric load includes load from sources that are not subject to the building energy codes, and therefore, renovation savings would be less than estimated by Mr. Mosenthal. *Id.* Second, just because a building may be renovated once every 25 years does not mean four percent of buildings are renovated each year because ages of existing buildings are skewed toward newer buildings. *Id.* Third, renovations are not likely to achieve the same amount of savings as new construction because renovations typically do not replace all aspects of construction, such as walls and insulation, that are subject to the building energy codes and may only be to a portion of the building. *Id.* Fourth, renovations include additions, which result in a net increase in electricity usage in the building associated with cooling, heating, and lighting of the new room. *Id.* Fifth, newer buildings are likely to be larger than existing buildings, and larger buildings tend to consume more energy than smaller buildings. *Id.* Therefore, a greater potential for energy savings exists from new (larger) buildings than from existing (smaller) buildings, which Mr. Mosenthal did not account for in his estimates. *Id.*

107. The Applicant also notes that Mr. Mosenthal's statement that savings from renovations would be two to three times the savings from new construction is inconsistent with another statement in his testimony, where he states that the "codes primarily impact new construction." *Id.* at A11 (citing Intervenors DEIS-1 Rebuttal Testimony at 6 (Ex. INTR00041)).

108. The Board finds that the parties' initial savings estimates in their direct testimonies accounted for at least some degree of savings from retrofits. ERCOT's forecasting methodology is based on econometric equations that describe the historical trend relationships between total electricity demand in the region and certain economic and demographic variables. See Staff DEIS-1 Direct Testimony at A28 (Ex. NRC000031). The trend in energy savings from adoption of building energy codes is embodied in the historical energy consumption data used to produce the ERCOT forecasts. See *id.* at A36-A38, A40. The historical trend accounts for changes in electricity demand due to a number of factors, including new construction and retrofits. We find that some of the retrofit savings calculated by the Staff (Ex. NRC000066 & NRC000071) and Intervenors (Intervenors DEIS-1 Rebuttal Testimony at 10 (Ex. INTR00041)) were already included in the ERCOT forecasts for the same reason that some of the new construction savings were already included in the ERCOT forecasts—the ERCOT forecasts are based on historical data that include jurisdictions where building energy codes beyond the State-mandated 2001 version have been adopted and applied to new construction and retrofits.

109. To the extent that there may be some additional savings from retrofits not included in the initial estimates, the Board finds that they are likely to be minor compared to the savings obtained from new construction. Mr. Mosenthal's assertion that savings from renovations could be two to three times as large as savings from new construction is not credible. First, it is based on a comparison of total number of buildings with total energy load and does not account for the significant part of the load that is not affected by building energy codes, thus overestimating code impacts. See Calculation Worksheet at Step 1 (Ex. NRC000066) (Forty percent of a renovated household's electricity is for heating and cooling

and thus would be exposed to savings from application of the codes.). Second, Mr. Mosenthal testified that he did not account for increased energy consumption if a renovation expands the floor plan of a structure because “that should all be implicitly built into the ERCOT forecast already.” Hearing Tr. at 1827. However, if the increased energy footprint is implicitly embedded in the ERCOT forecast, then the electricity savings should also be implicitly accounted for because it is part of the difference in load between before and after the renovation. Third, Mr. Mosenthal’s renovations savings estimate is contradicted by other statements in his testimony that claim the primary impacts of the codes would be on new construction. Additionally, if it was in fact such a large portion of Intervenors’ case, he should have given it at least as detailed a treatment as he did for new construction. Similarly, the Intervenors did not cite any sources or studies that claimed retrofits were of significance when calculating energy savings. Third, the Staff did perform a detailed analysis based upon information from reliable sources which indicated, even using assumptions that would tend to overestimate savings, that retrofits might make up 39 percent of savings that could be obtained from new construction. That number is much smaller than Mr. Mosenthal’s estimate. Finally, when a building is retrofitted, “typically only the systems and parts of the structure that are directly affected by the change to the structure must be brought up to code.” Calculation Worksheet at Step 1 (Ex. NRC000066). Mr. Mosenthal acknowledges that not all renovations require a permit and so not all renovations would expose the building to the new building energy codes. Hearing Tr. at 1825. Similarly, a renovation might not require everything, such as lighting, heating, and mechanical systems, to be brought up to code. *Id.* at 1825-26.

4. Savings from Building Energy Codes in the Context of the ERCOT Forecast

110. At peak demand, the Staff conservatively estimated savings for new construction and retrofits due to the 2009 building energy codes to be approximately 1,600 MW in 2020.¹⁶ The potential savings from building energy codes are overshadowed by the uncertainties related to other factors that affect the forecasts, such as weather and economic growth. See Staff DEIS-1 Direct Testimony at A25, A49 (Ex. NRC000031); 2010 ERCOT Planning: Long-Term Hourly Peak Demand and Energy Forecast at 2, 4, 9 (Ex. NRC000041). For instance, the range of uncertainty due to weather conditions is over 6,000 MW for the 2015 forecast. Staff DEIS-1 Direct Testimony at A49 (Ex. NRC000031); 2010 ERCOT Planning: Long-Term Hourly Peak Demand and Energy Forecast at 2, Fig. 1 (Ex. NRC000041). Looking at new construction, the Staff estimated that the 2009 building energy codes would reduce peak demand by less than one percent in 2015 and by about 1.5 percent in 2020, which is well within the year-to-year variability in the impacts on demand of hot or cold weather. Staff DEIS-1 Direct Testimony at A56 (Ex. NRC000031).

111. In addition, the demand for power in ERCOT is increasing. Even without any retirements, FEIS Table 8-3 (Ex. NRC00003C) shows that an additional 5,000 MW of power is needed to meet ERCOT's target reserve margin in 2020. Moreover, retirements of plants older than 50 years would increase the shortage of electricity by 6,000 MW in 2015 and by over 12,000 MW in 2020. FEIS at 8-23 (Ex. NRC00003C). Thus, the potential impact of the codes on peak demand from building energy codes is minor when compared to other factors affecting the long-range forecasts.

¹⁶ See Staff DEIS-1 Direct Testimony at Table 4 (Ex. NRC000031) (reduction in peak demand in 2020 is 1,167 MW); Summary of Building Energy Code Impacts on Demand, Including New Construction & Retrofits (Ex. NRC000071) (retrofit savings equal 39 percent of new construction; 1,167 MW multiplied by 1.39 equals 1,622 MW).

112. Together, the proposed STP units would provide 2,700 MW of baseload generation. Staff DEIS-1 Direct Testimony at A33 n.12 (citations omitted) (Ex. NRC000031). However, the Staff's conservative estimate of baseload savings due to the codes is approximately 700 MW in 2020, when considering both new construction and retrofits.¹⁷ The Intervenors' estimate of savings provided in Ex. INT000004, when converted from peak load to baseload by multiplying it by 39 percent, is approximately 550 MW. This level of savings is not enough to substitute for the power produced by even one of the proposed STP units. According to the Staff's estimates that include savings from new construction and retrofits, in 2020, there is a need for 548 MW of baseload power if no plants retire and 5,398 MW if only plants older than 50 years retire. Summary of Building Energy Code Impacts on Demand, Including New Construction & Retrofits (Ex. NRC000071).

5. Summary

113. We find that the Staff performed a thorough, well-supported analysis of the impacts of the 2009 building energy codes on electricity demand in the ERCOT region in responding to Contention DEIS-1. We find that the Staff's analysis was conservative overall, meaning that it erred on the side of overestimating the impacts of the codes. The Staff's estimates of savings due to building energy codes are likely too high because (1) some of the growth in electricity demand is not due to new building components that would be subject to the codes, (2) some of the calculated savings would be lost due to the "take-back" or "rebound" effect, and (3) the ERCOT forecasts implicitly assume that a significant number of Texas jurisdictions would have adopted the 2009 building energy codes even in the absence of State

¹⁷ See Staff DEIS-1 Direct Testimony at Table 4 (Ex. NRC000031) (new construction baseload savings equals 513 MW in 2020); Summary of Building Energy Code Impacts on Demand, Including New Construction & Retrofits (Ex. NRC000071) (retrofit savings equal 39 percent of new construction; 513 MW multiplied by 1.39 equals 713 MW).

action. Nevertheless, the Staff still concluded there would be a need for baseload power in the ERCOT region between 2015 and 2020. Because it is likely that at least some of the oldest existing plants in the ERCOT region will retire in the next ten years and the Staff's estimates of electricity savings due to the codes are likely too high, we find that the need for power in the ERCOT region is large enough to accommodate STP Units 3 and 4.

114. We find that the Staff and Applicant have clearly met their burden of showing that the impacts of the 2009 building energy codes do not significantly affect and do not alter the conclusions in the need for power analysis presented in Chapter 8 of the FEIS. As explained above, we find that the Staff and Applicant have reasonably accounted for the effects of building energy codes. We find that, overall, their analyses err on the side of overestimating the electricity savings that can be achieved due to the codes. Even so, when only factors encompassed by the contention are considered, all parties agree that there is a need for power in the ERCOT region between 2015 and 2020.

E. Conclusions of Law

115. The Board has considered all of the evidence presented by the parties on Contention DEIS-1. Based upon a review of the entire record in this proceeding and the proposed findings of fact and conclusions of law submitted by the parties, and based upon the findings of fact set forth above, which are supported by reliable, probative and substantial evidence in the record, the Board has decided all matters in controversy concerning this contention and reaches the following conclusions.

116. The STP FEIS complies with the requirements of NEPA and 10 C.F.R. Part 51 regarding the discussion of need for power because the evidence in this proceeding has confirmed the conclusions in the FEIS that there is a need for power in the ERCOT region between 2015 and 2020.¹⁸ Because the impacts of the building energy codes are minor and uncertain, the FEIS appropriately discussed them in qualitative terms. Contention DEIS-1 is resolved in favor of the Staff and the Applicant.

Respectfully submitted,

/signed (electronically) by/

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Executed in Accord with 10 C.F.R. § 2.304(d)

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Dated at Rockville, Maryland
this 30th day of November 2011

¹⁸ In their closing argument, the Intervenors argued that there is nothing “decision makers and the public can [look at] to determine whether or not this is a plant that can be justified on a need for power basis.” *Id.* at 1859. Because we find that the FEIS was sufficient, we need not determine whether a deficiency in the FEIS has been cured by the hearing record. See *Hydro Resources*, CLI-01-04, 53 NRC at 53. However, we note that this hearing has made detailed information related to the impacts of the 2009 building energy codes available to the public, and the Commission has recognized that the NRC hearing process serves the public participation purposes of NEPA because it allows for “more rigorous public scrutiny” of an EIS than ““circulation for comment.”” See *id.* (quoting *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 707 (1985)).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
NUCLEAR INNOVATION NORTH)
AMERICA LLC) Docket Nos. 52-012 & 52-013
)
(South Texas Project, Units 3 & 4))

CERTIFICATE OF SERVICE

I hereby certify that copies of the "NRC Staff Proposed Findings of Fact and Conclusions of Law on Contention DEIS-1 in the Form of a Partial Initial Decision," have been served upon the following persons by Electronic Information Exchange this 30th day of November 2011:

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