

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

**BEFORE THE COMMISSION**

In the Matter of )	Docket Nos. 50-247-LR and
ENTERGY NUCLEAR OPERATIONS, INC. )	50-286-LR
(Indian Point Nuclear Generating Units 2 and 3) )	
	May 11, 2015

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**ENTERGY NUCLEAR OPERATIONS, INC., REPLY BRIEF RELATED TO  
COMMISSION QUESTIONS IN CLI-15-3 CONCERNING CONTENTION NYS-35/36**

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William B. Glew, Jr., Esq.  
ENTERGY NUCLEAR OPERATIONS, INC.  
440 Hamilton Avenue  
White Plains, NY 10601  
Phone: (914) 272-3360  
Fax: (914) 272-3205  
E-mail: wglew@entergy.com

Kathryn M. Sutton, Esq.  
Paul M. Bessette, Esq.  
MORGAN, LEWIS & BOCKIUS LLP  
1111 Pennsylvania Avenue, NW  
Washington, DC 20004  
Phone: (202) 739-3000  
Fax: (202) 739-3001  
E-mail: ksutton@morganlewis.com  
E-mail: pbessette@morganlewis.com

Martin J. O'Neill, Esq.  
MORGAN, LEWIS & BOCKIUS LLP  
1000 Louisiana Street, Suite 4000  
Houston, TX 77002  
Phone: (713) 890-5710  
Fax: (713) 890-5001  
E-mail: martin.oneill@morganlewis.com

COUNSEL FOR ENTERGY NUCLEAR  
OPERATIONS, INC.

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**I. INTRODUCTION**

In accordance with Nuclear Regulatory Commission (“NRC” or “Commission”) Order CLI-15-3, Entergy Nuclear Operations, Inc. (“Entergy”) files its reply to the NRC Staff’s responses to four Commission questions related to Contention NYS-35/36 (“NYS-35/36”).<sup>1</sup> NYS-35/36 alleges certain deficiencies in the severe accident mitigation alternatives (“SAMA”) analysis prepared by Entergy as part of the Indian Point Energy Center (“IPEC”) license renewal application and evaluated by the NRC Staff in its final supplemental environmental impact statement (“FSEIS”).<sup>2</sup> As such, NYS-35/36 relates solely to the NRC’s compliance with certain National Environmental Policy Act (“NEPA”) and 10 C.F.R. Part 51 requirements.

The Commission has sought further briefing from the parties to assist it in its pending review of the Atomic Safety and Licensing Board’s (“Board”) decisions in LBP-10-13 (admitting NYS-35/36) and LBP-11-17 (granting summary disposition of NYS-35/36 in favor of New York

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<sup>1</sup> See *Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 and 3), CLI-15-3, 81 NRC \_\_ (Feb. 18, 2015) (slip op.); *NRC Staff’s Response to the Commission’s Memorandum and Order of February 18, 2015 (CLI-15-3), Regarding Contention NYS-35/36* (Mar. 30, 2015) (“NRC Staff Brief”).

<sup>2</sup> “Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Regarding Indian Point Nuclear Generating Unit Nos. 2 and 3, Final Report,” NUREG-1437, supp. 38, vols. 1-3 (Dec. 2010) (“FSEIS”) (Ex. NYS00133A-J).

State (“New York”)).<sup>3</sup> In the latter decision, the Board held that Entergy’s licenses “cannot be renewed” unless the NRC Staff reviews Entergy’s “completed” SAMA analyses and either incorporates the result of those reviews into the FSEIS or, alternatively, modifies the FSEIS “to provide a valid reason for recommending the renewal of the licenses before the analysis of potentially cost-effective SAMAs is complete and for not requiring the implementation of cost-beneficial SAMAs.”<sup>4</sup> As explained in Entergy’s Petition for Review, the Board committed multiple reversible errors in first admitting NYS-35/36 in LBP-10-13, and then in granting summary disposition of the contention in LBP-11-17.<sup>5</sup>

The NRC Staff’s responses to the Commission’s questions and Entergy’s replies thereto underscore several dispositive points that warrant Commission reversal of the Board’s decisions. First, SAMA analyses are mitigation alternatives analyses that are prepared and evaluated solely under NEPA – a purely procedural statute that neither requires nor authorizes the NRC to order implementation of mitigation measures analyzed in a SAMA analysis.<sup>6</sup> Moreover, NEPA and Commission precedent interpreting that statute, which is governed by a “rule of reason,” do not require a “fully developed” engineering project cost evaluation to support a reasonable SAMA cost-benefit analysis.<sup>7</sup> Consistent with NRC-approved guidance in NEI 05-01,<sup>8</sup> Entergy

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<sup>3</sup> See *Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 and 3), LBP-10-13, 71 NRC 673 (2010), *petition for interlocutory review denied*, CLI-10-30, 72 NRC 564 (2010); *Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 and 3), LBP-11-17, 74 NRC 11 (2011), *petition for interlocutory review denied*, CLI-11-14, 74 NRC 801 (2011).

<sup>4</sup> See *Indian Point*, LBP-11-17, 74 NRC at 27.

<sup>5</sup> See *Applicant’s Petition for Review of Board Decisions Regarding Contentions NYS-8 (Electrical Transformers), CW-EC-3A (Environmental Justice), and NYS-35/36 (SAMA Cost Estimates)* (Feb. 14, 2014), at 43-60 (“Entergy Petition for Review”).

<sup>6</sup> *Entergy Nuclear Generation Co. & Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), CLI-12-10, 75 NRC 479, 488 (2012) (citation omitted).

<sup>7</sup> *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 316 (2010). In May 2013, Entergy submitted engineering project cost estimates for the 22 SAMAs identified as potentially cost-beneficial in the FSEIS. See Dacimo, Fred F., Entergy, letter to NRC Document Control Desk, NL-13-075, License Renewal Application—Completed Engineering Project Cost Estimates for SAMAs Previously Identified as Potentially Cost-Beneficial (May 6, 2013) (“NL-13-075”) (Ex. ENT000608). As explained in that submittal, Entergy prepared and submitted the more detailed and refined engineering project cost estimates as a potential



developed conceptual cost estimates for SAMA implementation that allowed it to reasonably evaluate the economic viability of the proposed modifications.<sup>9</sup> New York never alleged that those cost estimates contain any errors, or that additional SAMAs should have been identified as a result of such errors. Thus, any refinement of the cost estimates would serve no essential or material purpose under NEPA.<sup>10</sup> Moreover, for purposes of the SAMA analysis, Entergy has provided reasonable, complete cost estimates for each SAMA.<sup>11</sup> This is all that NEPA requires.

Second, the Staff's FSEIS fully evaluates and discloses possible mitigation measures based on the Staff's independent technical review of Entergy's SAMA analyses, including Entergy's conceptual cost estimates for SAMA implementation.<sup>12</sup> The FSEIS further concludes that the IPEC SAMA analysis is reasonable and sufficient for a license renewal submittal and complies with applicable NRC requirements.<sup>13</sup> Of particular importance here, the FSEIS also explicitly states that *all* of the SAMAs identified as potentially cost-beneficial in the FSEIS "do not relate to

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means of resolving the Board's perceived concern that the original conceptual-level cost estimates included in the IPEC SAMA analysis were not sufficiently "complete" for purposes of NEPA. *See* NL-13-075, at 2; *Indian Point*, LBP-11-17, 74 NRC at 25-27. Entergy expressly reserved its right to appeal the Board decisions that are the subjects of the instant Entergy and NRC Staff petitions for review. *See* NL-13-075, at 2; Entergy Petition for Review at 3; *NRC Staff's Petition for Commission Review of LBP-13-13 In Part (Contentions NYS-8 and CW-EC-3A)*, and *LBP-11-17 (Contention NYS-35/36)* (Feb. 14, 2014), at 1 ("NRC Staff Petition for Review").

<sup>8</sup> Nuclear Energy Institute (NEI) 05-01, Rev. A, "Severe Accident Mitigation Alternatives (SAMA) Analysis – Guidance Document" (Nov. 2005) (Ex. NYS000287) ("NEI 05-01"); Notice of Availability of the Final License Renewal Interim Staff Guidance LR-ISG-2006-03: Staff Guidance for Preparing Severe Accident Mitigation Alternatives Analyses, 72 Fed. Reg. 45,466 (Aug. 14, 2007) (Ex. ENT000451) (approving use of NEI 05-01). As the Commission recently noted, NRC-endorsed guidance should be accorded special weight absent unusual circumstances. *See Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 and 3), CLI-15-6, 81 NRC \_\_ (Mar. 9, 2015) (slip op. at 19, 21).

<sup>9</sup> *See* FSEIS, vol. 3, app. G, at G-34 to G-40.

<sup>10</sup> *Entergy Nuclear Generation Co. & Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), CLI-12-1, 75 NRC 39, 57-58 (2012) (stating that unless a contention raises a "potentially *significant deficiency*" in the SAMA analysis, "a SAMA-related dispute will not be material to the licensing decision, and is not appropriate for litigation in an NRC proceeding.") (emphasis in original).

<sup>11</sup> *See* FSEIS, vol. 3, app. G, at G-39 to G-40.

<sup>12</sup> *See generally id.*, App. G.

<sup>13</sup> *See id.* at G-49.

adequately managing the effects of aging during the period of extended operation” and, therefore, “they need not be implemented as part of license renewal pursuant to [10 C.F.R. Part 54].”<sup>14</sup>

Finally, the NRC lacks the regulatory authority to require, as a prerequisite to license renewal, implementation of SAMAs if, as in this case, they are unrelated to aging management.<sup>15</sup> In this case, license renewal is the “major federal action” subject to NEPA review by the NRC. The scope of license renewal as defined by 10 C.F.R. Part 54 is, by design, limited to aging management issues during the period of extended operation.<sup>16</sup> In defining the scope of license renewal, *i.e.*, the major federal action at issue here, the Commission deliberately chose not “to impose requirements on a licensee that go beyond what is necessary to adequately manage aging effects.”<sup>17</sup> Further, proposed modifications or enhancements to a plant’s current licensing basis (“CLB”) generally must be addressed under the NRC’s Part 50 backfit rule—which is entirely separate from the NRC’s narrowly-focused license renewal safety review.<sup>18</sup>

Accordingly, the Commission should reverse the Board’s rulings in LBP-10-13 and LBP-11-17 and resolve NYS-35/36 in favor of Entergy and the NRC Staff based on the current record.

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<sup>14</sup> *Id.*

<sup>15</sup> See NRC Staff Brief, at 4-5.

<sup>16</sup> *Fla. Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 7-9 (2001). See also Final Rule, Nuclear Power Plant License Renewal, 56 Fed. Reg. 64,943, 64,960 (Dec. 13, 1991) (“[T]he NRC’s decision should normally be limited to whether actions have been identified and have been or will be taken to address age-related degradation unique to license renewal and whether the relevant [NEPA] requirements, as set forth in 10 CFR part 51, have been met.”).

<sup>17</sup> Final Rule: Nuclear Power Plant License Renewal; Revisions, 60 Fed. Reg. 22,461, 22,490 (May 8, 1995) (Ex. NYS000016).

<sup>18</sup> See *Entergy Nuclear Generation Co. & Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), CLI-12-3, 75 NRC 132, 150 (2012) (stating that modifications to a facility’s operating license occur “outside the renewal proceeding”); “Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants,” NUREG-1800, Rev. 2, at 4.1-1, 4.7-1 (Dec. 2010) (Ex. NYS000161) (“Any questions regarding the adequacy of the CLB are addressed under the backfit rule (10 CFR 50.109) and are separate from the license renewal process.”).

## II. REPLIES TO NRC STAFF RESPONSES TO COMMISSION QUESTIONS

### A. Question 1

Question 1 asks whether the Staff has a process in place to determine which “potentially cost-beneficial” SAMAs the licensee ultimately found to be cost-beneficial, and which SAMAs (if any) the licensee implemented at its plant. Entergy agrees with the Staff that the NRC has appropriate processes in place through which it may “follow up” with a licensee regarding possible implementation of a “potentially cost-beneficial” SAMA, particularly in the present circumstances, where the licensee’s implementation of such SAMAs would be strictly *voluntary*.<sup>19</sup>

As an initial matter, Entergy has established processes for considering whether potentially cost-beneficial mitigation measures identified in the IPEC SAMA analysis may be implemented at the site. In fact, in its original and revised SAMA analysis submittals, Entergy noted that the potentially cost-beneficial SAMAs would be considered for possible implementation in accordance with current Entergy procedures for evaluating potential plant modifications, which is separate and distinct from the license renewal process.<sup>20</sup>

Briefly, at IPEC, potentially cost-beneficial SAMAs, like all other potential plant modifications, are referred to the Plant Health Committee (“PHC”), which is responsible for prioritizing key equipment issues for the site and ensuring that site management allocates adequate resources to resolve specific issues.<sup>21</sup> One of the PHC’s subcommittees, the Engineering Change Review Group, reviews plant modification and project funding requests that may require an engineering change to assess the request’s viability relative to overall station priorities, other

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<sup>19</sup> See NRC Staff Brief at 4-6.

<sup>20</sup> See IPEC Environmental Report, at 4-73 (“ER”); Dacimo, Fred F., Entergy, letter to NRC Document Control Desk, NL-09-165, License Renewal Application - SAMA Reanalysis Using Alternate Meteorological Tower Data, Indian Point Nuclear Generating Units Nos. 2 and 3, attachment 1, at 32 (Dec. 11, 2009) (Ex. ENT000009). See also Transcript of Oct. 17, 2012 Evidentiary (“Tr.”) at 1921, 1923-25 (Potts, Teagarden).

<sup>21</sup> See Entergy Engineering Procedure EN-DC-336, “Plant Health Committee,” Rev. 8 (June 2014). At IPEC, the PHC also has been referred to as the Engineering Reliability Team and the Unit Reliability Team.

NRC-required actions,<sup>22</sup> and resource availability. It also reviews initial cost estimates and recommends prioritization of items. If a particular engineering change request is approved as an engineering change, then the Engineering Change Process is entered.<sup>23</sup> As part of the Engineering Change Process, the site will determine whether the 10 C.F.R. § 50.59 process applies to the proposed modification or whether the modification is controlled under another process.

Accordingly, Entergy agrees with the Staff that “the licensee may voluntarily determine on its own to implement any SAMA that it deems appropriate or warranted.”<sup>24</sup> Entergy also agrees with the Staff’s observations that in such cases: (1) the Staff generally would become aware of and monitor the licensee’s actions implementing the SAMA(s) through the normal reactor inspection and oversight processes, and (2) the licensee’s actions likely would be subject to licensee change evaluations (which are maintained as plant records) under 10 C.F.R. § 50.59 or the license amendment process under 10 C.F.R. § 50.90.<sup>25</sup>

Consistent with the above-described process, in its May 2013 submittal of engineering project cost estimates for the 22 potentially cost-beneficial SAMAs, Entergy stated that it has *voluntarily* “implemented, or elected to implement, four of those SAMAs, even though it is not required to do so as part of license renewal.”<sup>26</sup> Entergy already has completed implementation of

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<sup>22</sup> For example, like other licensees, Entergy is taking various actions at IP2 and IP3 in response to NRC Order Number EA-12-049, which imposes substantial additional requirements to mitigate certain beyond-design-basis events in response to the accident at Fukushima Dai-ichi. Order Modifying Licenses With Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Effective Immediately), 77 Fed. Reg. 16,091 (Mar. 19, 2012). In addition to NRC Order EA-12-049, there are other NRC Fukushima-driven actions, including seismic and flood evaluations and rulemaking associated with station blackout and spent fuel pool instrumentation.

<sup>23</sup> See Entergy Engineering Procedure EN-DC-112, “Engineering Change Request Process,” Rev. 8 (Sept. 2014); Entergy Engineering Procedure EN-DC-115, “Engineering Change Process,” Rev. 17 (Mar. 2015).

<sup>24</sup> NRC Staff Brief, at 6.

<sup>25</sup> *Id.* See also *Kelley v. Selin*, 42 F.3d 1501, 1515 (6th. Cir. 1995) (stating that 10 C.F.R. § 50.59 “is consistent with the NRC’s historical method of regulation, which has long allowed licensees to make initial determinations about changes to their facilities and has enabled the agency to retain its enforcement power,” and that “NRC inspection activity provides a feedback mechanism and an independent verification of the effectiveness of the licensee’s implementation of its programs”) (internal citations and quotation marks omitted).

<sup>26</sup> NL-13-075, at 2 (Ex. ENT000608).

all four SAMAs in accordance with applicable plant processes and procedures, which, as the Staff correctly notes, are subject to NRC regulatory oversight.<sup>27</sup>

Any previous or future Entergy decision to implement any of the 22 potentially cost-beneficial SAMAs is voluntary for three principal reasons. First, Entergy identified those SAMAs for Indian Point as part of its NEPA-mandated consideration and disclosure of possible severe accident mitigation alternatives. As construed by the U.S. Supreme Court, NEPA does not require the implementation of mitigation measures (which include SAMAs) identified by an applicant or the Staff as part of the license renewal environmental review.<sup>28</sup> The federal courts have consistently applied the Court's holding in *Robertson* in finding that NEPA does not require the implementation of mitigation measures.<sup>29</sup> The Commission appropriately has followed suit, as evidenced by a decision issued in this proceeding, among numerous others.<sup>30</sup>

Second, as stated in the FSEIS, none of the potentially cost-beneficial SAMAs identified therein “relate[s] to managing the effects of aging during the period of extended operation.”<sup>31</sup> No party contests this fact. Therefore, as the Staff fully acknowledges, the NRC cannot “require

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<sup>27</sup> NRC Staff Brief, at 6.

<sup>28</sup> See *id.* at 4 (citing *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350, 353 (1989) (holding that NEPA requires a “reasonably complete discussion of possible mitigation measures,” but “imposes no substantive requirement that mitigation measures actually be taken.”)).

<sup>29</sup> See, e.g., *Massachusetts v. NRC*, 708 F.3d 63, 81 n.27 (1st Cir. 2013) (citing *Robertson*, 490 U.S. at 353) (holding, in the context of post-Fukushima challenges to the adequacy of Entergy's license renewal SAMA analysis for the Pilgrim plant, that “[t]o the extent [an intervenor] seeks to impose a substantive requirement that the NRC must require certain mitigation measures under NEPA, that is foreclosed by the fact that NEPA is not outcome driven”); *Cnty. of Rockland v. FAA*, 335 Fed.Appx. 52 (DC. Cir. 2009) (“NEPA does not impose [a] ‘substantive requirement that a complete mitigation plan be actually formulated and adopted’ before agency can act”) (quoting *Robertson*, 490 U.S. at 352).

<sup>30</sup> See *Indian Point*, CLI-11-14, 74 NRC at 813 (citing *Robertson*, 490 U.S. at 353 n.16) (“NEPA is a procedural statute—although it requires a ‘hard look’ at mitigation measures, it does not, in and of itself, provide the statutory basis for their implementation.”); *Pilgrim*, CLI-12-10, 75 NRC at 488 (stating that NEPA “neither requires nor authorizes the NRC to order implementation of mitigation measures analyzed in an environmental analysis”); *Hydro Res., Inc.* (P.O. Box 777, Crownpoint, NM 87313), CLI-06-29, 64 NRC 417, 427 (2006) (“[A] mitigation plan need not be legally enforceable, funded or even in final form to comply with NEPA's procedural requirements.”) (citations and internal quotation marks omitted); *Pilgrim*, CLI-10-11, 71 NRC at 316 (a NEPA mitigation analysis “demands no fully developed plan, or detailed examination of specific measures which will be employed to mitigate adverse environmental effects”) (citations and internal quotation marks omitted).

<sup>31</sup> FSEIS, vol. 3, app. G, at G-49.

further detailed evaluation and implementation, if appropriate, as a condition of license renewal under 10 C.F.R. Part 54.”<sup>32</sup> The NRC’s Part 54 safety review does not encompass assessment of possible CLB modifications to mitigate the potential environmental impacts of postulated severe accidents—an issue wholly unrelated to aging management or continuation of the CLB during the period of extended operation.<sup>33</sup> Thus, Part 54 provides no legal basis for requiring implementation of SAMAs unrelated to aging management.

Third, this is not a case in which the NRC Staff has determined one or more of the 22 potentially cost-beneficial SAMAs “to warrant backfitting,” such that “the Staff may impose a backfit requirement in accordance with 10 C.F.R. § 50.109.”<sup>34</sup> Even assuming *arguendo* that the Staff made such a determination, any associated backfit analysis and final backfit determination would occur, as the Staff correctly notes, “outside the license renewal process” given that none of the SAMA has any relevance to aging management.<sup>35</sup> Moreover, the NRC’s NEPA-implementing regulations in Part 51, like NEPA itself, require only that the agency evaluate the environmental impacts of its licensing actions, and impose no duty to implement mitigation measures.<sup>36</sup> Therefore, if (hypothetically) the Staff determined that a backfit may be appropriate, then “it could undertake a backfit review under the existing (or a renewed) license—and the results of that

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<sup>32</sup> NRC Staff Brief, at 4 (citing *Pilgrim*, CLI-10-11, 71 NRC 287, 293-94 n.26 (“Because none of the . . . potentially cost-effective SAMAs bear on adequately managing the effects of aging, none need be implemented as part of the license renewal safety review, pursuant to 10 C.F.R. Part 54.”); *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-28, 56 NRC 373, 388 n.77 (2002) (upholding a DSEIS’s conclusion that a SAMA did “not relate to adequately managing the effects of aging” during the period of extended operation and “[t]herefore, it need not be implemented as part of license renewal pursuant to 10 CFR Part 54”); FSEIS, vol. 1, at 5-11 to 5-12 ((Ex. NYS000133C)).

<sup>33</sup> See *Turkey Point*, CLI-01-17, 54 NRC at 10 (stating that the license renewal safety review seeks to mitigate the detrimental effects of aging resulting from operation beyond the initial operating license term, and that adjudicatory hearings in individual license renewal proceedings necessarily examine only the questions the NRC’s Part 54 safety rules make pertinent).

<sup>34</sup> NRC Staff Brief, at 4.

<sup>35</sup> *Id.* at 4-6. See also *Entergy Nuclear Generation Co. & Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), CLI-12-6, 75 NRC 352, 374 (2012) (stating that a plant’s CLB “can be adjusted by future Commission order or by modification to the facility’s operating license outside the renewal proceeding”).

<sup>36</sup> See *Robertson*, 490 U.S. at 339, 350; *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-03-17, 58 NRC 419, 431 (2003).

review would apply to any renewed license, as well.”<sup>37</sup> On this point, the Staff emphasized that the backfit review function “is separate from the Staff’s review of license renewal applications.”<sup>38</sup>

In summary, Entergy agrees that the Staff has sufficient processes in place through which it may ascertain whether a licensee has determined that particular SAMAs warrant implementation. In this case, those processes would be part of the NRC’s normal reactor inspection and oversight processes, as implemented pursuant to 10 C.F.R. Part 50. None of the SAMAs identified as potentially cost-beneficial in Entergy’s NEPA-mandated SAMA analysis is necessary for, or related to, aging management under 10 C.F.R. Part 54. Further, any postulated backfit analysis of those SAMAs would take place in accordance with 10 C.F.R. § 50.109—*i.e.*, outside of the license renewal process—and need not be completed prior to the issuance of the renewed operating licenses.<sup>39</sup>

## **B. Question 2**

Question 2 asks the Staff to discuss under what circumstances the Staff might judge a “potentially cost-beneficial” mitigation alternative to warrant “further NRC consideration *outside* of the license renewal review process.”<sup>40</sup> In response, the Staff states that it would use the backfit process in 10 C.F.R. § 50.109 and related regulatory guidance to determine whether a mitigation alternative warrants further NRC consideration and/or implementation.<sup>41</sup> It further states that the backfit rule allows the Staff to identify, evaluate and, if determined appropriate, require the implementation of enhancements that constitute “cost-justified substantial increases in safety.”<sup>42</sup>

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<sup>37</sup> NRC Staff Petition for Review at 54.

<sup>38</sup> *Id.* (“Contrary to the Board’s reading of 10 C.F.R. Parts 51 and 54, nothing in those regulations requires the implementation of non-aging related cost-beneficial SAMAs as a condition for license renewal.”).

<sup>39</sup> *See* NRC Staff Brief, at 7 n.22 (stating that “§ 50.109(d) indicates that the action of license renewal would not be withheld to await completion of the backfit analysis”).

<sup>40</sup> *Id.* at 6 (reciting Question 2 in CLI-15-3) (emphasis added).

<sup>41</sup> *Id.* at 6-7.

<sup>42</sup> *Id.* at 10.

Entergy agrees with the Staff's general description of the backfit rule. However, insofar as the NRC Staff—not licensees—perform 10 C.F.R. Part 50 backfit analyses, Entergy takes no position with respect to the Staff's characterization of its own related regulatory guidance, including its discussion of the quantitative risk criteria presented in NUREG/BR-0058, "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission," Rev. 4 (Sept. 2004) (Ex. ENT000013).

Entergy makes a number of supplemental observations related to Question 2. First, for the reasons stated above, Entergy fully concurs that any hypothetical backfit analysis of a potentially cost-beneficial SAMA would take place outside this license renewal proceeding. In short, neither Part 54 nor Part 51—the relevant NRC regulations in this case—provides a regulatory basis for requiring the implementation of mitigation actions unrelated to aging management as a condition of license renewal. Additionally, license renewal SAMAs are assessed under NEPA and Part 51, to which the NRC's Part 50 backfit rule clearly does not apply.<sup>43</sup> Any postulated backfit analysis, therefore, has no relationship to, or effect on, the Staff's license renewal decision.<sup>44</sup>

Second, backfit analyses performed under 10 C.F.R. Part 50 and SAMA analyses performed under 10 C.F.R. Part 51 are two entirely different undertakings performed for very different purposes. The backfit rule is an Atomic Energy Act ("AEA")-derived requirement that centers on protection of the public health and safety.<sup>45</sup> SAMA analyses are intended solely to

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<sup>43</sup> See *Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), CLI-06-26, 64 NRC 225, 226-27 (2006) (denying backfit petitions to change the storage configurations of the Pilgrim and Vermont Yankee spent fuel pools for asserted *environmental* and safety reasons, because the petitions amounted to a request for agency enforcement action not suitable in a license renewal adjudication); *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant, Unit 1), LBP-07-11, 66 NRC 41, 96-97 (2007) (denying petitioners' request, as part of a NEPA-based contention, for fire barrier system backfits in light of the Commission's ruling in CLI-06-26 and noting that a petition for backfits is essentially a request for enforcement action and is "not cognizable in a license renewal adjudication"); *Dominion Nuclear North Anna, LLC* (Early Site Permit for North Anna ESP Site), CLI-07-27, 66 NRC 215, 234 n. 103 (2007) (noting the "very limited" applicability of the backfit rule).

<sup>44</sup> See n.18, *supra*. See also 10 C.F.R. § 50.109(d) ("No licensing action will be withheld during the pendency of backfit analyses required by the Commission's rules.").

<sup>45</sup> See *Union of Concerned Scientists v. NRC*, 824 F.2d 108, 118-19 (D.C. Cir. 1987) (explaining that the backfit rule derives from the NRC's authority under AEA Section 161 to "order plants to provide 'extra-adequate' protection," but that "[u]nder the rule, the Commission may order a backfit analyzed in this manner only if the



meet the NRC’s “responsibilities under NEPA,” and “are not included in the analysis conducted in fulfilling the NRC’s [AEA] responsibilities under Part 54.”<sup>46</sup> Thus, the Commission has emphasized “[t]he SAMA analysis is *not* a safety review performed under the [AEA],”<sup>47</sup> and that the mitigation measures assessed in a NEPA SAMA analysis are “supplemental” to those it (1) already requires under its safety regulations for reasonable assurance of safe operation, and (2) may require under its ongoing AEA-based regulatory oversight over reactor safety.<sup>48</sup>

The NRC’s AEA-based oversight over reactor safety includes the NRC’s ongoing post-Fukushima comprehensive safety review, part of which entails a detailed review of severe accident mitigation requirements and guidance.<sup>49</sup> Thus, as a policy matter, it would make no practical sense for the NRC Staff to undertake time and resource-intensive, plant-specific backfit analyses for issues related to severe accident mitigation that already are being considered by the NRC as part of its post-Fukushima review, or that likely would prove to have no cost-justified, substantial safety benefit as a result of licensee implementation of new AEA-derived safety requirements emanating from that review.<sup>50</sup>

Third, given their disparate purposes, the means by which SAMA analyses and AEA backfit analyses are performed are markedly different. As a NEPA-related requirement, a SAMA analysis makes use of reasonable assumptions, best-estimate values, and conceptual cost estimates

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added protection to public health and safety resulting from the backfit justifies the costs of implementation”); *Consol. Edison Co. of N.Y.* (Indian Point, Unit No. 2), CLI-85-6, 21 NRC 1043, 1068 (1985) (reversing a board decision to impose a “safety assurance program” because backfits are permitted only when they offer “substantial, additional protection which is required for the public health and safety”).

<sup>46</sup> Nuclear Energy Institute; Denial of Petition for Rulemaking, 66 Fed. Reg. 10,834, 10,836 (Feb. 20, 2001) (“2001 NEI Rulemaking Petition Denial”).

<sup>47</sup> *Pilgrim*, CLI-12-1, 75 NRC at 57 (emphasis added).

<sup>48</sup> *Id.*

<sup>49</sup> *Id.* (citing *Union Elec. Co.* (Callaway Plant, Unit 2), CLI-11-5, 74 NRC 141, 147-49 (2011)).

<sup>50</sup> In this regard, the Staff has noted that “if the Commission’s post-Fukushima studies point to the need to make any plant design and procedural changes that Entergy has identified as potentially cost-beneficial SAMAs, those matters would be addressed as part of the Commission’s Order (EA-12-049) and the follow-on rulemaking.” NRC Staff Petition for Review, at 49 n.182 (citing Proposed Rule, Station Blackout, 77 Fed. Reg. 16,175 (Mar. 20, 2012)).

for the purpose of identifying—but not implementing—*potentially* cost-beneficial mitigation measures. In contrast, as an AEA-based requirement that seeks to justify the actual imposition of additional safety requirements on licensees, the backfit analysis is necessarily more exacting and rigorous in its consideration of the relative benefits and costs of a proposed modification.<sup>51</sup> As such, a backfit analysis cannot properly be viewed as an outgrowth or extension of the license renewal SAMA analysis. Nor can the two analyses reasonably be viewed as overlapping or interchangeable. In other words, in conducting a backfit analysis for a given SAMA, the NRC Staff essentially would be starting from scratch.

Finally, the SAMAs identified as potentially cost-beneficial in the FSEIS are unlikely to pass the deliberately strict backfit test in view of a number of relevant considerations reflected in the record of this proceeding. For example, although the SAMA analysis is intended to be a reasonable, best-estimate analysis, there are significant conservatisms embedded in the IPEC SAMA analysis that, if removed to yield the most realistic risk/benefit estimates possible, likely would lead to a material reduction in the estimated benefits.<sup>52</sup> As noted above, Entergy already has voluntarily implemented four of the 22 potentially cost-beneficial SAMAs. Furthermore, Entergy is implementing the Commission’s numerous post-Fukushima action items, which are intended and expected to further mitigate the already very low risks of certain beyond-design-basis accidents.<sup>53</sup> Appropriate consideration of these many risk-reduction measures likely would render

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<sup>51</sup> See 10 C.F.R. § 50.109(a)(3) (stating that facility backfitting generally requires a cost-justified substantial increase in safety) and § 50.109(c)(1)-(9) (listing the numerous factors considered in a backfit analysis). See also “Backfitting Guidelines,” NUREG-1409, at 1 (July 1990) (“The NRC backfitting process is intended to provide for a formal, systematic, and disciplined review of new or changed positions before imposing them.”).

<sup>52</sup> See FSEIS, vol. 3, app. G, at G-34 (“Entergy’s bases for calculating the risk reduction for the various plant improvements . . . are reasonable and generally conservative (*i.e.*, the estimated risk reduction is higher than what would actually be realized.”); *Entergy Nuclear Operations, Inc. Initial Brief in Response to Commission Questions in CLI-15-2 Concerning Contention NYS-12C* (Mar. 30, 2015), at 33-37 (summarizing the numerous conservatisms embedded in the IPEC SAMA analysis).

<sup>53</sup> See NL-13-075, attachment 1, at 10 (Ex. ENT000608). The Commission also has required implementation of numerous other risk-reduction actions, including those related to site security, spent fuel pools, and fire protection—all of which would need to be holistically considered in any backfit analysis.

many, if not all, of the remaining SAMAs no longer “potentially cost-beneficial” because, as Entergy explained in NL-13-075, certain Fukushima actions, once implemented, also may address or impact specific SAMA candidates.<sup>54</sup> Additionally, given these considerations, it appears unlikely that any SAMA would, from a Part 50 backfit perspective, be found to have a potentially significant safety benefit (*i.e.*, reduce the mean annual core damage frequency (“CDF”) by at least  $1 \times 10^{-5}$  per reactor-year).<sup>55</sup>

**C. Question 3**

Question 3 asks the Staff to explain what level of uncertainty it considers acceptable for the implementation cost portion of the SAMA cost-benefit analysis. The Staff states that it seeks to assure that an applicant’s SAMA implementation cost estimates, as well as its estimates of the potential benefits of those SAMAs, are “‘reasonable,’ in accordance with the requirements of NEPA.”<sup>56</sup> It further states that the Staff does not seek certainty in an applicant’s SAMA cost estimates, and has not established any particular level of uncertainty that must be avoided.<sup>57</sup> The Staff also states that highly detailed or refined cost estimates are not required to make informed decisions about the economic viability of a modification, and that an “order-of-magnitude” cost estimate is sufficient for the purpose of determining whether a SAMA is economically viable.<sup>58</sup>

Entergy agrees with these general principles, which governed the preparation of its initial SAMA implementation cost estimates. Entergy prepared its cost estimates in accordance with the

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<sup>54</sup> See *id.* at 10-12. As NRC Staff expert Dr. Ghosh explained in her testimony related to contention NYS-12C, many of the 22 potentially cost-beneficial SAMA candidates act on the *same* accident sequences. Therefore, as the lower-cost alternatives for mitigating the dominant accident sequences (*e.g.*, steam generator tube rupture and interfacing system accidents with containment bypass) are implemented, the baseline risk, as recalculated, is reduced. This reduces the likelihood that other SAMA candidates acting on the same accident sequences will remain, or become, potentially cost-beneficial. This underscores the fact that these SAMAs cannot be viewed in isolation when one considers the risk-reduction benefits and costs of their actual implementation. Oct. 18, 2012 Tr. at 2164-65, 2224-25, 2235-36 (Ghosh). See also NL-13-075, attachment 1, at 1, 9-10.

<sup>55</sup> See NRC Staff Brief, at 8-10 (discussing NUREG/BR-0058, Rev. 4 at 13-14 (Ex. ENT000013)).

<sup>56</sup> NRC Staff Brief, at 11.

<sup>57</sup> *Id.*

<sup>58</sup> *Id.* at 15.

NRC-approved guidance in NEI 05-01, which states that “the cost of each SAMA candidate should be *conceptually estimated to the point where economic viability of the proposed modification can be adequately gauged.*”<sup>59</sup> In this regard, NEI 05-01 makes clear that “the SAMA analysis is not a complete engineering project cost-benefit analysis.”<sup>60</sup>

Importantly, the Staff also correctly notes that the implementation cost estimates included in a licensee’s SAMA analysis generally are conservative, insofar as they neglect certain cost factors and, therefore, tend to increase the number of SAMAs identified as potentially cost-beneficial (*i.e.*, by underestimating the costs of implementing the SAMAs).<sup>61</sup> This fact is borne out by the results of Entergy’s May 2013 engineering project cost estimates for the 22 SAMAs identified as potentially cost-beneficial in the FSEIS. Specifically, as discussed in NL-13-075, six SAMAs previously identified as potentially cost-beneficial in the IPEC SAMA analysis and FSEIS were determined to be not cost-beneficial based on Entergy’s more comprehensive engineering project cost estimates.<sup>62</sup>

Section G.5 of the FSEIS describes the NRC Staff’s independent review of Entergy’s SAMA implementation cost estimates.<sup>63</sup> As noted therein, Entergy estimated the costs of implementing the candidate SAMAs through the application of engineering judgment and the use of other licensees’ estimates for similar improvements. Table G-6 lists, among other items, the SAMA implementation cost estimates.<sup>64</sup> The Staff reviewed the bases for these cost estimates and, for certain improvements, it compared the cost estimates to estimates developed previously

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<sup>59</sup> NEI 05-01, at 28 (NYS000287) (emphasis added).

<sup>60</sup> *Id.* at 33.

<sup>61</sup> *See* NRC Staff Brief, at 15. As discussed in Entergy’s and NRC Staff’s briefs in response to CLI-15-2, there are numerous conservatisms embedded in risk or benefits-related portion of the IPEC SAMA analysis, one of which includes the use of an uncertainty factor or multiplier (estimated as the ratio of the 95th percentile CDF to the mean CDF).

<sup>62</sup> *See* NL-13-075, attach. 1 at 3-7 (Ex. ENT000608).

<sup>63</sup> *See* FSEIS, vol. 3, app. G, at G-34 to G-40.

<sup>64</sup> *See id.* at G-36 to G-38.

for similar improvements (including estimates developed as part of other licensees' SAMA analyses for operating reactors and advanced light-water reactors).<sup>65</sup>

As stated in Section G.5, as part of Entergy's December 2009 revised SAMA analysis using corrected meteorological data, Entergy subjected a subset of the candidate SAMAs to more rigorous cost-estimating techniques; *i.e.*, those SAMAs that appeared to be cost-beneficial based on the new benefit estimate and the original implementation cost estimate.<sup>66</sup> For two IP2 SAMAs (IP2 SAMAs 17 and 40) and four IP3 SAMAs (IP3 SAMAs 17, 20, 40, and 50), the revised cost estimate resulted in the SAMA becoming non-cost-beneficial.<sup>67</sup> For each of these SAMAs, the Staff requested that Entergy provide the basis for the revised cost estimate, including a breakdown of the major cost factors.<sup>68</sup> Entergy provided this information by letter dated January 14, 2010, in which Entergy explained that it developed the revised cost estimates using its standard process for preparing conceptual-level project cost estimates.<sup>69</sup>

The Staff reviewed this additional cost information to determine the degree to which the revised cost estimates and their constituent costs comport with the nature, magnitude and complexity of each change.<sup>70</sup> It determined that Entergy's revised cost estimates were reasonable, and that they resulted in an appropriate determination that the subject candidate SAMAs are not cost-beneficial.<sup>71</sup> The Staff further concluded that all of Entergy's cost estimates were reasonable,

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<sup>65</sup> *See id.* at G-34 to G-35.

<sup>66</sup> *See id.* at G-39.

<sup>67</sup> *See id.*

<sup>68</sup> *See id.*

<sup>69</sup> *See id.* (citing NL-10-013, Letter from Fred Dacimo, Entergy, to NRC, License Renewal Application - Supplement to SAMA Reanalysis Using Alternate Meteorological Tower Data (Jan. 14, 2010) (ML100260750)).

<sup>70</sup> *See id.*

<sup>71</sup> *See id.* at G-39 to G-40.

generally consistent with prior estimates by other licensees, and sufficient and appropriate for use in the SAMA evaluation.<sup>72</sup>

In view of the above, Entergy respectfully submits that the Board erred in concluding that Entergy “deferred” completion of the necessary SAMA analysis until after license renewal.<sup>73</sup> NEPA does not require a fully-developed engineering project cost estimate<sup>74</sup> or, as the Board noted in LBP-13-13, the resolution of all uncertainties.<sup>75</sup> Instead, “NEPA requires the NRC to provide a ‘reasonable’ mitigation alternatives analysis, containing ‘reasonable’ estimates.”<sup>76</sup> Entergy’s SAMA analysis served exactly that purpose, because it is based on NRC-approved guidance and methodologies that yield reasonable cost-benefit estimates with acceptable levels of uncertainty, and it provides sufficient information for the Staff to take a “hard look” at SAMAs for purposes of license renewal.<sup>77</sup> Accordingly, Entergy and the Staff have met their respective obligations under NEPA.

#### **D. Question 4**

Question 4 asks why the Staff expects a SAMA analysis to be a “comprehensive, systematic effort” to identify potential mitigation measures given that the GEIS for reactor license renewal has found the probability-weighted consequences of severe accidents to be “SMALL” for

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<sup>72</sup> See *id.* at 40. See also *id.*, vol. 1, at 5-11 (“The treatment of SAMA benefits and costs support the general conclusion that the SAMA evaluations performed by Entergy are reasonable and sufficient for the license renewal submittal.”).

<sup>73</sup> See *Indian Point*, LBP-10-13, 71 NRC at 698; *Indian Point*, LBP-11-17, 74 NRC at 26.

<sup>74</sup> See *Pilgrim*, CLI-10-11, 71 NRC at 316.

<sup>75</sup> See *Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 & 3), LBP-13-13, 78 NRC 246, 473 (2013) (citing *Izaak Walton League of Am. v. Marsh*, 655 F.2d 346, 377 (D.C. Cir. 1981)).

<sup>76</sup> *Entergy Nuclear Generation Co. & Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), CLI-10-22, 72 NRC 202, 208 (2010) (quoting *Communities, Inc. v. Busey*, 956 F.2d 619, 626 (6th Cir. 1992)).

<sup>77</sup> The ultimate concern here is whether any additional SAMA should have been identified as potentially cost-beneficial, not whether further analysis may refine the details of the SAMA analysis. See *Pilgrim*, CLI-12-1, 75 NRC at 57 (“There is questionable benefit to spending considerable agency resources in an attempt to fine-tune a NEPA mitigation analysis. Ultimately, we hold adjudicatory proceedings on issues that are material to licensing decisions.”). Significantly, the Board did not suggest that additional SAMAs should have been identified or that any of Entergy’s SAMA implementation cost estimates contain errors, much less material errors.

all plants, including Indian Point Units 2 and 3.<sup>78</sup> As the Staff correctly notes in its response, the NRC’s current Part 51 regulations require that the Staff’s FSEIS consider “alternatives to mitigate severe accidents” if the Staff has not previously considered SAMAs for a plant in an appropriate NEPA document.<sup>79</sup> According to the Staff, it adopted a rigorous approach (*i.e.*, one requiring SAMA analyses to be a “comprehensive, systematic effort” to identify and evaluate potential mitigation measures) to assure that the agency’s FSEIS evaluations include a “hard look” at the environmental impacts of license renewal and reasonable mitigation alternatives under NEPA.<sup>80</sup>

It bears emphasis that the SAMA analysis requirement has been in place for nearly two decades. In the 1996 10 C.F.R. Part 51 rulemaking that first codified the SAMA analysis requirement, the Commission explained that the requirement is based on the NRC’s NEPA regulations (which require a consideration of mitigation alternatives in initial and supplemental environmental impact statements), and the Third Circuit’s 1989 *Limerick* decision (which requires a NEPA review of severe accident mitigation design alternatives at the initial operating license stage).<sup>81</sup> The Commission further explained that, at the time, it could not reach a generic conclusion regarding mitigation alternatives because all licensees had not completed their NRC-required individual plant examinations (“IPE”) to look for plant vulnerabilities to internally initiated events and separate IPEs for externally initiated events (“IPEEE”).<sup>82</sup>

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<sup>78</sup> NRC Staff Brief at 18 (reciting Question 4 in CLI-15-2).

<sup>79</sup> *See id.* (citing 10 C.F.R. § 51.53(c)(3)(ii)(L) & 10 C.F.R. pt. 51, subpt. A, app. B, tbl. B-1).

<sup>80</sup> *Id.* at 19.

<sup>81</sup> *See* Final Rule, Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, 61 Fed. Reg. 28,467, 28,480 (June 5, 1996) (Ex. NYS000127); *Limerick Ecology Action v. NRC*, 869 F.2d 719, 736-39 (3d Cir. 1989). Notably, the *Limerick* court stated that “NEPA’s procedural requirement cannot be expanded upon by the courts either by requiring additional procedures or by requiring substantive outcomes.” *Limerick*, 869 F.2d at 730 n.9.

<sup>82</sup> *See* Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, 61 Fed. Reg. at 28,480-81.

In 2001, the Commission reaffirmed its determination to require site-specific consideration of SAMAs, denying a petition for rulemaking that requested elimination of this requirement “on the belief that the requirement conflicts with the technical requirements for license renewal in 10 CFR part 54.”<sup>83</sup> At that time, it stated that “the NRC must continue to consider SAMAs for issuance of a new or renewed operating license for a power reactor in order to meet its responsibilities under [NEPA].”<sup>84</sup> The Commission acknowledged that the IPE program had been completed, and that the IPEEE program was nearing completion. However, the Commission concluded at that time that “considerable staff and contractor effort would be required to extend the conclusions resulting from the IPE/IPEEE reviews to draw generic conclusions regarding SAMAs.”<sup>85</sup> Consequently, the Commission opted not to pursue a rulemaking to reclassify SAMA analysis as a Category 1 issue.<sup>86</sup>

The 2001 NEI Rulemaking Petition Denial also is important because it explicitly recognizes that the SAMA analysis requirement derives solely from NEPA, and that NEPA is a purely process-oriented statute. Specifically, the Commission stated that “[t]he NRC believes that it should continue to consider SAMAs for individual license renewal applications to continue to meet its responsibilities under NEPA,” which “implicitly requires agencies to consider measures to mitigate [environmental] impacts when preparing impact statements.”<sup>87</sup> Further, citing the Supreme Court’s *Robertson* decision, the Commission noted that the “NRC’s obligation to

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<sup>83</sup> See 2001 NEI Rulemaking Petition Denial, 66 Fed. Reg. at 10,835.

<sup>84</sup> *Id.* at 10,834. See also *id.* at 10,837 (“NRC cannot use the Part 54 process as the vehicle for meeting its NEPA responsibilities for considering SAMAs in the license renewal context.”).

<sup>85</sup> *Id.* at 10,838. According to the Commission, this would include the need to evaluate changes in plant design and procedures since the IPEs/IPEEEs were completed, incorporate changes in the state of knowledge regarding certain severe accident issues, and to extend the IPE/IPEEE analyses to include offsite consequences. *Id.* In addition, both benefit and cost considerations of potential plant improvements would need to be developed. *Id.*

<sup>86</sup> See *id.*

<sup>87</sup> *Id.* at 10,836.



*consider mitigation exists whether or not mitigation is ultimately found to be cost-beneficial and whether or not mitigation ultimately will be implemented by the licensee.*”<sup>88</sup>

More than 10 years later, in its 2013 revision to the GEIS for license renewal, the Commission again reaffirmed its determination to require site-specific consideration of SAMAs. Revision 1 of the GEIS states that even though the findings in the 1996 GEIS remain valid, and that the probability-weighted consequences of severe accidents are SMALL for all plants, “severe accidents remain a Category 2 issue to the extent that only alternatives to mitigate severe accidents must be considered for all plants that have not previously considered such alternatives.”<sup>89</sup>

In summary, the plant-specific SAMA analysis requirement has existed for nearly 20 years and continues to apply to current license renewal applicants. For the reasons set forth in their petitions for review and briefs in response to CLI-15-3, Entergy and the Staff have fully complied with their respective obligations under NEPA as they pertain to the IPEC SAMA analysis. Looking forward, any decision to potentially eliminate or revise the site-specific SAMA analysis requirement, which the Commission has explicitly recognized is an option,<sup>90</sup> lies within the sound discretion of the Commission and the Staff. But Entergy respectfully suggests that any such changes or adjustments most appropriately would be treated generically, not on a plant or licensee-specific basis. In light of the wealth of technical information that the NRC and the industry have amassed over the last several decades regarding severe accidents and related mitigation actions, the time for agency reassessment of the SAMA analysis requirement may be drawing near.<sup>91</sup>

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<sup>88</sup> *Id.* (citing *Robertson*, 490 U.S. at 332) (emphasis added).

<sup>89</sup> “Generic Environmental Impact Statement for License Renewal of Nuclear Plants,” NUREG-1437, Rev. 1, Vol. 1 (June 2013), at 4-160 (ML13106A241).

<sup>90</sup> 2001 NEI Rulemaking Petition Denial, 66 Fed. Reg. at 10,838 (stating that the Third Circuit’s 1989 *Limerick* decision “does not itself preclude NRC from ever eliminating SAMA reviews from its licensing actions,” and that “the Commission could attempt to conclude generically through rulemaking that it has considered these matters and that further consideration in individual license renewal actions is not warranted”).

<sup>91</sup> See NUREG-1437, Rev. 1, vol. 3, app. E, at E-10 (noting that many additional studies and models have been completed on the likelihood and consequences of reactor accidents initiated by internal and external events at

### III. CONCLUSION

For the reasons stated above and in Entergy's Petition for Review, the Commission should, based on the current record, reverse the Board's rulings in LBP-10-13 and LBP-11-17 and dismiss NYS-35/36 as a matter of law.

Respectfully submitted,

Signed (electronically) by Paul M. Bessette

William B. Glew, Jr., Esq.  
Entergy Nuclear Operations, Inc.  
440 Hamilton Avenue  
White Plains, NY 10601  
Phone: (914) 272-3360  
E-mail: wglew@entergy.com

Kathryn M. Sutton, Esq.  
Paul M. Bessette, Esq.  
Martin J. O'Neill, Esq.  
MORGAN, LEWIS & BOCKIUS LLP  
1111 Pennsylvania Avenue, N.W.  
Washington, D.C. 20004  
E-mail: ksutton@morganlewis.com  
Phone: (202) 739-5738

*Counsel for Entergy Nuclear Operations, Inc.*

Dated in Washington, D.C.  
this 11th day of May 2015

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full power, including NUREG-1150, NUREG/CR-4551, NUREG/CR-5305, the IPE and IPEEE programs, plant-specific PRA models to support risk-informed licensing actions (including license renewal SAMA analyses), and standardized plant analysis risk (SPAR) models for all operating plants that can be used to calculate core damage CDFs for internal events). Recently, the NRC's regulatory responses to the September 11, 2001 terrorist attacks and March 2011 Fukushima accident have resulted in licensee implementation of additional mitigation measures, and the NRC has undertaken additional technical studies, such as the agency's State-of-the-Art Reactor Consequence Analyses study and full-scope site Level 3 Probabilistic Risk Assessment project. See U.S. NRC, State-of-the-Art Reactor Consequence Analyses (SOARCA) (Mar. 30, 2015), <http://www.nrc.gov/about-nrc/regulatory/research/soar.html>; NRC Risk-Informed Activities, Full-Scope Site Level 3 Probabilistic Risk Assessment Project (Sept. 2014), <http://pbadupws.nrc.gov/docs/ML1429/ML14295A227.pdf>.

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

**BEFORE THE COMMISSION**

In the Matter of	)	Docket Nos. 50-247-LR and
	)	50-286-LR
ENTERGY NUCLEAR OPERATIONS, INC.	)	
	)	
(Indian Point Nuclear Generating Units 2 and 3)	)	
	)	May 11, 2015

**CERTIFICATE OF SERVICE**

I hereby certify that on this date a copy of “Entergy Nuclear Operations, Inc. Reply Brief Related to Commission Questions in CLI-15-3 Concerning Contention NYS-35/36” was submitted through the NRC’s E-filing system.

*Signed (electronically) by Martin J. O’Neill*  
Martin J. O’Neill, Esq.  
MORGAN, LEWIS & BOCKIUS LLP  
1000 Louisiana Street, Suite 4000  
Houston, TX 77002  
Phone: (713) 890-5000  
Fax: (713) 890-5001  
E-mail: martin.o’neill@morganlewis.com

*Counsel for Entergy Nuclear Operations, Inc.*