

**UNITED STATES
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD**

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In re:

Docket Nos. 50-247-LR; 50-286-LR

License Renewal Application Submitted by

ASLBP No. 07-858-03-LR-BD01

Entergy Nuclear Indian Point 2, LLC,
Entergy Nuclear Indian Point 3, LLC, and
Entergy Nuclear Operations, Inc.

DPR-26, DPR-64

May 3, 2013

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**STATE OF NEW YORK'S REPLY TO
NRC STAFF'S AND ENTERGY'S PROPOSED
FINDINGS OF FACT AND CONCLUSIONS OF LAW
FOR CONTENTION NYS-8**

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I. INTRODUCTION

Pursuant to 10 C.F.R. § 2.712, the Atomic Safety Licensing Board's ("Board") July 1, 2010 Scheduling Order at ¶N, and the Board's February 28, 2013 Order, the State of New York ("State") hereby replies to Entergy's and NRC Staff's Proposed Post-Hearing Findings of Fact and Conclusions of Law on Contention NYS-8.

In its Proposed Findings of Fact and Conclusions of Law ("Proposed Findings"), the State demonstrated that Entergy's license renewal application ("LRA") improperly excludes transformers from Aging Management Review ("AMR") and an Aging Management Program ("AMP") in violation of 10 C.F.R. Part 54 (the "license renewal rule"). In their Proposed Findings and testimony, Entergy and NRC Staff admit that transformers are within the scope of the license renewal rule, operate without moving parts or a change in configuration, and are not subject to replacement based on a qualified life or specified time period. Entergy Proposed Findings at 45, ¶94; Staff Proposed Findings at 16, ¶¶4.41-4.42 and at 28, ¶4.84 (noting that transformers do not have moving parts); Tr. 4434:14-4435:1 (Rucker). Those stipulations provide further support for the State's position.

Nonetheless, in their Proposed Findings, Entergy and NRC Staff argue that AMR and an AMP is not required for transformers because: (1) transformers change properties (or state) during operation; (2) transformers are more similar to components in the AMR-excluded list than those in the AMR-included list; and (3) age-related degradation in transformers is readily monitored. Entergy's and NRC Staff's arguments are incorrect and are not supported by the record.

As demonstrated in the State's Proposed Findings, Entergy's and NRC Staff's argument that transformers change properties or state hinges on their improper conflation of the properties

of transformers and the properties of electricity. State Proposed Findings at 36, ¶86. The State's Proposed Findings provide a sufficient basis for the Board to find for the State on all aspects of Contention NYS-8, and they also persuasively refute the arguments raised in NRC Staff's and Entergy's Proposed Findings. Therefore, this reply does not respond to arguments raised in NRC Staff's and Entergy's Proposed Findings that were already addressed at length in the State's Proposed Findings, but instead, clarifies the record on a subset of statements made in Staff's and Entergy's Proposed Findings.

II. DISCUSSION

A. There Is No Basis In Law For Entergy's Claim That the State Faces "An Especially High Burden" On Contention NYS-8

Entergy asks the Board to conclude that "New York bears an especially high burden in asking the Board to render a decision that would contravene approximately fifteen years of consistent NRC regulatory practice." Entergy Proposed Findings at 33, ¶61. However, Entergy offers no regulation or case law to support its position that an intervenor faces a higher evidentiary burden when it challenges an "NRC regulatory practice." And the alleged "regulatory practice" does not appear in any regulation promulgated in an Administrative Procedure Act rulemaking. In fact, the "regulatory practice" to which Entergy refers relies entirely upon agency guidance stating that transformers are passive components. That guidance document came about after discussions between industry and NRC Staff. *See* ENT000097 (Letter from Christopher Grimes, NRC, to Douglas J. Walters, NEI, "Determination of Aging Management Review for Electrical Components," Attach., Sept. 19, 1997). As shown in the State's Proposed Findings, guidance documents are not binding, do not have the force of regulations, and may be challenged in a relicensing proceeding. State Proposed Findings at 10-

12, ¶¶26-29. Therefore, the State faces no higher burden on Contention 8 than on any other safety contention, and Entergy's attempt to increase the State's burden has no basis in law.

According to NRC case law, the applicant carries the ultimate burden on safety issues. *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 N.R.C. 1041, 1048 (1983) (*citing Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-283, 2 N.R.C. 11, 17 (1975)). After a party's contention has been admitted, that party has the burden of introducing sufficient evidence to establish a prima facie case. The burden then shifts to the applicant to prove by a preponderance of the evidence that the Board should reject the contention as a basis for denial of the renewed license. *Louisiana Power and Light Co.*, 17 N.R.C. 1076, 1093 (quoting *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-123, 6 A.E.C. 331, 345 (1973)). The State's Proposed Findings clearly show that the State has submitted sufficient evidence to establish a prima facie case that transformers require AMR and an AMP.

Moreover, a Board ruling in this proceeding requiring AMR and an AMP for transformers at Indian Point would apply to Indian Point Unit 2 and Unit 3, not the "seventy-one renewed operating licenses issued by the Commission to date," which Entergy cites as somehow increasing the State's burden. *See* Entergy Proposed Findings at 33, ¶61. The fact that NRC Staff's and industry's meeting of the minds on transformers was not challenged in those proceedings does not mean its position is correct—it simply means that its theory of transformer operation has not been scrutinized in an adjudicatory proceeding.¹

¹ The only other relicensing proceeding cited by NRC Staff and Entergy where a transformer contention was raised is the Seabrook proceeding. However, that contention did not make it past the contention admissibility stage and therefore, was not decided on the merits. *See NextEra Energy Seabrook, LLC* (Seabrook Station, Unit 1), CLI-12-05, 75 N.R.C. __ slip op. (Mar. 8, 2012) (ML12068A398). Moreover, this Indian Point proceeding is the first occasion where an intervenor has organized and submitted substantial testimony and reports by an experienced and well credentialed expert, extensive technical documents and electrical engineering treatises, and

B. Entergy Mischaracterizes Indian Point's Transformers As Outside the Scope Of Contention 8

Entergy argues that if the Board order admitting Contention 8 is “[r]ead literally, then, there are no transformers at all that fall within the scope of NYS-8 as admitted, and that is an alternative and sufficient ground for a ruling in Entergy’s favor.” Entergy Proposed Findings at 6-7, n. 30. Entergy did not raise this argument in its 2009 motion for summary disposition or in its 2012 statement of position and pre-filed written testimony. The Board should refuse Entergy’s late request to dismiss Contention 8 on an invented technicality.

Entergy bases its argument on language used by the Board to admit Contention 8, which states that the Board “*admits* NYS-8 to the extent that it questions the need for an AMP for safety-related electrical transformers that are required for compliance with 10 C.F.R. §§ 50.48 and 50.63.” *Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), Memorandum and Order (Ruling on Petitions to Intervene and Requests for Hearing) LBP-08-13 (“July 2008 Board Order”), 68 N.R.C. 43, 89 (July 31, 2008) (ML082130436). Entergy argues that since there are no transformers at Indian Point that meet the definition of “safety-related” listed in 10 C.F.R. §§ 54.4(a)(1)(i)-(iii), there are no transformers that fall within the scope of Contention 8. Entergy Proposed Findings at 6-7, n. 30 and 74, ¶151. However, the July 2008 Board Order does not state that it is using the term “safety-related” as it is defined in 10 C.F.R. §§ 54.4(a)(1)(i)-(iii). Nor would it make sense legally for the Board to limit the scope of Contention 8 to transformers that satisfy *both* 10 C.F.R. § 54.4(a)(1)(i)-(iii) *and* 10 C.F.R. § 54.4(a)(3) because a transformer must satisfy only *one* of these criteria to be included within the scope of license renewal. *See* 10 C.F.R. § 54.4. Furthermore, the transformers necessary for compliance with 10 C.F.R. §§ 50.48

industry and NRC transformer failure reports, and has joined issue with NRC Staff and industry in an evidentiary hearing before administrative law judges.

and 50.63 are related to safety because they are “relied on in safety analyses” and assist with fire protection and station blackout recovery. 10 C.F.R. § 54.4(a)(3). And as pled, the State’s Contention 8 used the term “safety” in the general sense of the word: “The LRA for IP2 and IP3 violates 10 C.F.R. §§ 54.21(a) and 54.29 because it fails to include an aging management plan for each electrical transformer *whose proper function is important for plant safety.*” *New York State Notice of Intention to Participate and Petition to Intervene* at 103 (Nov. 30, 2007) (ML073400187) (emphasis added). Furthermore, the State’s Contention 8, as pled, includes transformers performing any of the functions described in 10 C.F.R. §§ 54.4(a)(1), 54.(a)(2), and/or 54.4(a)(3). *Id.*

Alternatively, it is possible that Entergy confused the Board as to its position concerning which Indian Point transformers are within the scope of license renewal because Entergy failed to define what it meant by the term “safety-related.” Nonetheless, Entergy has never before raised this issue and it is improper for Entergy to now seek to take advantage of its own failure to define the term “safety-related.” Entergy’s Answer to the State’s Petition to Intervene stated:

Fundamentally, only certain transformers are within the scope of license renewal. The NRC regulations at 10 C.F.R. § 54.4 explain which systems, structures, and components are within scope. Of these, only those IP2 and IP3 transformers that are safety-related or are necessary for compliance with 10 C.F.R. §§ 50.48 and 50.63 are within the scope of license renewal.

Answer of Entergy Nuclear Operations, Inc. Opposing New York State Notice of Intention to Participate and Petition to Intervene, (“Entergy Answer”) at 69 (Jan. 22, 2008) (ML080300149).

Citing to this page of Entergy’s answer, the July 2008 Board Order states:

In its opposition, Entergy represents that only certain transformers are within the scope of the proceeding, specifically the safety-related transformers necessary for compliance with 10 C.F.R. §§ 50.48, 50.63.

July 2008 Board Order at 87.

Even if Entergy's Answer confused the Board, this does not provide a ground for ruling in Entergy's favor because Entergy has admitted that transformers at Indian Point Unit 2 and Unit 3—specifically those that are necessary for compliance with 10 C.F.R. §§ 50.48 and 50.63—are within the scope of the license renewal rule. Entergy Proposed Findings at 74-75, ¶¶ 153-154; ENTR00091 (Pre-Filed Testimony of Entergy Witnesses Roger B. Rucker, Steven E. Dobbs, John W. Craig, and Thomas S. McCaffrey Regarding Contention NYS-8 (“Entergy Test.”), Mar. 30, 2012) at 98 (A109) (McCaffrey, Rucker) (“The station auxiliary transformers and the Unit 3 GT auto transformer perform license renewal intended functions.”); Entergy Answer at 72 (“The transformers in the offsite power paths are in-scope”); Mar. 10, 2008 Oral Argument on the Admissibility of Contentions Transcript at 204:11-14 (Bessette) (“And, again, just to clarify, we’re not saying transformers are not within the scope of license renewal. There are transformers that perform an intended function.”).

In fact, “read literally” the Board order admitting Contention 8 acknowledges that transformers at Indian Point are components subject to AMR: “Transformers (necessary for compliance with 10 C.F.R. §§ 50.48 and 50.63) nominally perform their safety-related function without moving parts and without a change in configuration or properties. Accordingly, 10 C.F.R. § 54.21(a)(1) defines this component as a piece of equipment subject to AMR.” July 2008 Board Order at 88. As such, the Board should reject Entergy's Proposed Findings that deny the existence of transformers within the scope of Contention 8 (Entergy Proposed Findings ¶¶ 8, 151, 155).

C. Entergy Mischaracterizes the Issues Raised In NYS-8 As Being Outside the Scope Of License Renewal

Entergy argues that the Board must reject the State's argument that the maintenance rule is insufficient for monitoring aging degradation and preserving the functionality of transformers

in the license renewal period because “the license renewal adjudication is not the proper forum for addressing such deficiencies.” Entergy Proposed Findings at 68-69, ¶¶137-140. Entergy claims that the State’s criticisms of the transformer maintenance program are seeking “relief that the Board is not authorized to grant” and are “not within the scope of license renewal review.” Entergy Proposed Findings at 68-69, ¶¶138-139. However, Entergy fails to recognize that the reason the State even addressed the maintenance rule is because Entergy seeks to rely upon it as providing a reasonable assurance that transformers are capable of fulfilling their intended function in the relicensing period, thereby justifying their exclusion from aging management review. ENTR00091 Entergy Test. at 86-88 (A96-97) (Rucker, Craig, McCaffrey); Entergy Proposed Findings at 71, ¶¶144-145 and 75-77, ¶¶156-157.

The State is not asking the Board to alter Entergy’s transformer maintenance program under the maintenance rule. In fact, the State’s position is that since transformers are passive components, it is irrelevant (for purposes of AMR) whether or not they are even covered by the maintenance rule.² State Proposed Findings at 25-27, ¶¶59-66. Dr. Degeneff’s criticisms regarding the current maintenance program were presented simply to rebut Entergy’s argument that AMR is not necessary because the maintenance rule provides a reasonable assurance for transformers in the license renewal period. *See* Entergy Test. at 87 (A96); NYSR00414 (Pre-filed Rebuttal Testimony of Robert Degeneff in Support of Contention NYS-8 (“Degeneff Rebuttal Test.”), Aug. 6, 2012) at 33:12-35:3. Furthermore, the high incidence of transformer

² Entergy argues that the Board should reject this argument because “it is fundamentally inconsistent with the Commission’s Part 54 regulatory framework, which credits existing licensee programs implemented to meet the requirements of the maintenance rule.” But Part 54 only credits the maintenance rule for providing a reasonable assurance for those systems, structures, and components that are considered *active*. *Passive* components, such as transformers, are subject to AMR in the license renewal period regardless of whether they are subject to the maintenance rule in the current licensing period. State Proposed Findings at 25-27, ¶¶59-66. Therefore, the State’s argument is completely consistent with Part 54.

failures within the current licensing period is evidence that aging degradation is not readily monitorable in transformers.

The State is seeking AMR and an AMP for transformers under Part 54 *in the license renewal period*—this is certainly within the scope of license renewal review and relief that the Board is authorized to grant. *See e.g.* 10 C.F.R. §§ 54.29, 54.33; 72 Fed. Reg. 60,394 (Oct. 24, 2007). Entergy’s position—that it may rely on the maintenance rule in the license renewal period to justify transformers’ exclusion from AMR, yet the State is prohibited from rebutting that argument because the maintenance rule concerns only the current licensing basis—is inconsistent and not legally supported.

D. The Record Shows That Whether Or Not Failure Is Readily Determined Is Not One Of the Means For Differentiating Between Active and Passive Components

While NRC Staff finally acknowledges in its Proposed Findings that “the ability to detect gross failure of transformers [is] not the goal of the license renewal process,” it continues to incorrectly assert that “whether or not the gross failure of a component [can] be readily determined is one of the means for differentiating between active and passive components.” Staff Proposed Findings at 21, n.18; 21, ¶4.62; and 41, ¶4.133. This position is unsupported by the record and has been effectively rebutted by the State. *See* State Proposed Findings at 22-24, ¶¶53-58. The Statement of Consideration (“SOC”), which Staff cites, does not support its position or discuss gross failure as a means of determining which components are active or passive. Instead, the SOC states that *performance and condition* are directly verifiable for active components but “less directly verified” for passive components. NYS000016 (Nuclear Power Plant License Renewal Revisions Statement of Consideration (“SOC”), 60 Fed. Reg. 22,461,

May 8, 1995) at 22,471. This is essentially another way of saying that aging degradation is not readily monitored in passive components.

Similarly, Entergy misinterprets the guidance provided in the SOC, arguing that active components are those whose functions (and therefore failures) can be directly measured or observed. Entergy Proposed Findings at 51, ¶104. Entergy argues that since failure of a transformer can be directly measured or observed by an alarm on the 480V electrical buses, it is an active component. Entergy Proposed Findings at 52-53, ¶107. However, the license renewal rule is not concerned with detecting failure but with detecting a degraded condition before it leads to failure. State Proposed Findings at 22-23, ¶¶53-56. When the alarm on the 480V electrical buses sounds, it is already too late because the transformer has failed to perform its intended function. *Id.* Accordingly, the Board should reject NRC Staff's and Entergy's arguments that transformers are active because their failure is readily apparent.

E. The Record Shows That Age-Related Degradation In Transformers Is Not Readily or Directly Monitorable

Entergy asks the Board to conclude that transformers are active because “transformer terminal voltages and currents can be readily monitored and directly indicate the health of the component (*e.g.*, the ability of the transformer to perform its intended function).” Entergy Proposed Findings at 54, ¶110. Similarly, NRC Staff asks the Board to find that “[a]ny degradation of the transformer’s ability to perform its intended function is readily monitorable by a change in the electrical performance of the transformer and the associated circuits.” Staff Proposed Findings at 21, ¶4.60 (*citing* ENT000097). However, the record shows that transformer health is not measured by monitoring a transformer’s current and voltage. State Proposed Findings at 59-63, ¶¶145-157. A transformer experiencing aging degradation may not exhibit a change in current or voltage until the moment when that degradation causes a

catastrophic transformer failure. State Proposed Findings at 59, ¶145. Instead, the record shows that numerous internal tests are performed to measure transformer health. State Proposed Findings at 63-65, ¶¶158-165; Entergy Proposed Findings at 76-77, ¶¶157-158; Staff Proposed Findings at 23, ¶4.67. Most of these tests cannot even give a clear indication of transformer health, but instead merely show trends that indicate there is a problem that must be further investigated. State Proposed Findings at 63-65, ¶¶158-165. Some of these tests cannot be conducted when the transformer is operating. Entergy Proposed Findings at 77, ¶158. Moreover, some age-related conditions can only be monitored by internal inspections—which involves taking the transformer offline and draining its oil.³ State Proposed Findings at 64-65, ¶¶163-165. For these reasons, the Board should find that transformer health is not readily or directly monitorable.

NRC Staff states, “New York’s witness also testified about the tests that can be used to monitor the condition of transformers, thus acknowledging that transformers can be monitored for condition.” Staff Proposed Findings at 23, ¶4.68. However, the issue is not whether there are tests that can be used to monitor transformers, but instead, the issue is whether transformers are “readily monitored.” See NYS000016 (60 Fed. Reg. 22,461) at 22,477. First, the fact that

³ Entergy asserts that such invasive inspections are unnecessary and run directly counter to transformer inspection guidelines issued by EPRI. Entergy Proposed Findings at 77, ¶159. This is simply not the case. In his rebuttal testimony, Dr. Degeneff explained that EPRI’s Copper Book states that there are instances when internal inspections are warranted. NYSR00414 Degeneff Rebuttal Test. at 40:16-41:20. And, in fact, Entergy’s *Large Power Transformer Inspection Guidelines* (ENT000121) contains guidelines on conducting internal inspections of transformers. *Id.* Entergy’s experts even state in their testimony: “If transformer degradation was detected through the current monitoring that Entergy performs on the transformers, then Entergy would, if warranted, perform an internal inspection of the transformer to determine and correct the cause. See generally, EN-EE-G-001(ENT000121).” ENTR00091 at 104. Finally, Entergy’s *Large Power Transformer Status Report* (NYS000040) recommended that Entergy conduct internal inspections of transformers on a fixed frequency. State Proposed Findings at 64-65, ¶¶163-165.

tests are even needed to monitor transformer health in and of itself rebuts Entergy's and NRC Staff's position that a transformer's voltage and current can be relied upon to monitor transformer health. Second, the numerous tests that must be performed, some of which must occur off-line, most of which yield only indirect measurements such as trends, and the need for invasive internal inspections are all proof that transformers are not readily monitored.

F. NRC Staff Mischaracterizes Dr. Degeneff's Testimony About External Control Of AMR-Excluded Components

NRC Staff states: "New York's witness asserted that power inverters, power supplies, and circuit breakers have mechanisms to control the relationship between input and output and this reliance on external controls renders them active devices." Staff Proposed Findings at 32, ¶4.103. NRC Staff asks the Board to "find that the use of an external control mechanism is irrelevant to the question whether a component is active or passive." Staff Proposed Findings at 27, ¶4.83. However, NRC Staff mischaracterizes Dr. Degeneff's testimony about the external control of active components. Dr. Degeneff testified that the existence of an external control mechanism is significant because it causes a device to *change its properties, state, or configuration*. State Proposed Findings at 55-58, ¶¶135-144; NYSR00414 Degeneff Rebuttal Test. at 31:9-15. It is this change of properties, state, or configuration that makes the device active, not the presence of the external control. NYSR00414 Degeneff Rebuttal Test. at 31:9-15. For example, Dr. Degeneff explained that a transistor has three terminals, one of which serves as an external control. Separate voltage is applied to the transistor through this terminal, which causes it to change state from a conductor to an insulator. State Proposed Findings at 55-57, ¶¶135-140. Unlike active devices such as a transistor, a transformer has no external control that

causes it to changes its properties, state, or configuration.⁴ *Id.* Accordingly, the Board should reject NRC Staff's findings that mischaracterize this aspect of Dr. Degeneff's testimony (Staff Proposed Findings ¶¶4.83, 4.88, 4.93, 4.98, 4.99, 4.103, 4.104).

G. The Record Does Not Support Entergy's Argument That Changes In Terminal Voltages and Currents Constitute A Change In Properties Or State

Entergy asks the Board to find that the changes taking place in the terminal voltages and currents of certain AMR-excluded components are what make those components active. *See, e.g.,* Entergy Proposed Findings at 54, ¶110. For example, Entergy argues that "batteries experience changes in both their chemical composition and in their terminal voltages, and it is the terminal voltages that are material for these purposes." Entergy Proposed Findings at 47, ¶97. However, this position is directly contrary to the Statement of Consideration, which states that the change in a battery's chemical composition is what makes it active. NYS000016 (60 Fed. Reg. 22,461) at 22,477 ("The Commission has determined that passive structures and components for which aging degradation is not readily monitored are those that perform an intended function without moving parts or without a change in configuration or properties. For example . . . a battery changes its electrolyte properties when discharging."). Contrary to Entergy's claims, the relevant consideration is whether the component itself experiences a change in properties, state, or configuration, not whether there are "changes in terminal voltages and currents." *See* State Proposed Findings at 55-58, ¶¶133-144. As the State explained at length in its Proposed Findings, neither current, voltage, nor magnetic field are properties of a

⁴ Staff mentions that autotransformers have external control mechanisms (Staff Proposed Findings at 31, ¶4.98), but as Dr. Degeneff explained: "First, the transformers to which NRC's expert refers contain on-load tap changers, which have the ability to automatically change the transformer ratio. Such devices are not necessary for transformer functionality and do not change the basic function of the transformer. A tap changer can be compared to a valve on a pipe." NYSR00414 Degeneff Rebuttal Test. at 31:3-8.

transformer and transformers do not experience a change in properties or state during operation. State Proposed Findings at 35-45, ¶¶83-108.

H. Industry Concepts Of Transformer Operation Are Relevant In This Proceeding

Entergy argues that Dr. Degeneff relies on “irrelevant standard industry concepts” which define transformers as either “static” or “passive.”⁵ Entergy Proposed Findings at 40, ¶86. Dr. Degeneff explained that these sources are relevant because they explain how transformers function. NYSR00414 Degeneff Rebuttal Test. at 8:15-9:14. Although the electrical engineering materials he presents are not specific to NRC or the nuclear industry, a transformer functions the same way regardless of its application. *Id.*; ENTR00091 Entergy Test. at 30 (A46) (Dobbs). Since NRC regulations do not define transformers as active or passive, the definitions from the electrical engineering community—which define transformers as static *and* passive—are instructive. *See e.g.* NYS000007 (Flanagan, *The Handbook of Transformer Design & Application*, 2nd Edition, McGraw-Hill (1993), Excerpted: pp. 1.1-1.2) (“Transformers are passive devices for transforming voltage and current.”). Neither Entergy nor NRC Staff has provided an objective source from a neutral third party that defines transformers as active.

I. NRC Staff’s Claim That Dr. Degeneff Lacks Experience With Large Power Transformers Is Utterly Baseless

NRC Staff asks the Board to “afford little weight to Dr. Degeneff’s testimony” because he “does not have demonstrated experience with the large power transformers that are within the

⁵ Entergy also criticizes Dr. Degeneff for using the term “static.” Entergy Proposed Findings at 40-41, ¶¶86-87. Dr. Degeneff explained that the electrical engineering community refers to components that do not have moving parts or are fixed in one place as “static” and components that do not experience a change in configuration or properties as “passive.” NYSR00414 Degeneff Rebuttal Test. at 6:16-8:14. Since transformers are both static *and* passive, Dr. Degeneff used these terms interchangeably in his initial pre-filed testimony and report. *Id.*

scope of license renewal.” Staff Proposed Findings at 15, ¶4.39. This statement is completely unsupported by the record and could not be further from the truth. Dr. Degeneff has over forty years of experience working with large power transformers and has worked with transformers used in several nuclear facilities. State Proposed Findings at 14-17, ¶¶34-40. For example, Dr. Degeneff managed a group of electrical engineers that designed all of the computer tools used to design General Electric’s large power transformers. State Proposed Findings at 16, ¶39. He also wrote specifications for large power transformers that were used at high voltage DC substations. NYS000004 (Curriculum Vitae of Robert C. Degeneff, Dec. 12, 2011) at 1. He has performed consulting work for at least six different companies such as Westinghouse and Siemens, which included analyzing large power transformer failures and designing tools for next generation large power transformer design. State Proposed Findings at 14-15, ¶35. As a fellow on the IEEE Transformers Committee, he has worked on transient modeling for large power transformers. State Proposed Findings at 14-15, ¶36. In addition, Dr. Degeneff is currently a member of a Cigré international working group that is preparing a document to present to industry on the transient response of large power transformers. *Id.*

NRC Staff’s attempts to characterize the transformers at Indian Point as somehow unique are completely unsupported. Dr. Degeneff has explained that “a transformer’s characteristics are exactly the same whether they are applied in a nuclear facility, utility, industrial site, factory, or residential setting.” NYSR00414 Degeneff Rebuttal Test. at 5:12-15. Even Entergy’s witness, Dr. Dobbs testified that the principles of transformer operation “apply to all transformers—from the smallest electronic unit to the largest distribution transformer—irrespective of how the transformer is constructed or the purpose for which it is used.” ENTR00091 Entergy Test. at 30 (A46).

III. CONCLUSION

For the foregoing reasons, and those expressed in the State's Proposed Findings, NRC Staff's and Entergy's Proposed Findings of Fact and Conclusions of Law provide no basis in fact or law for the Board to find in favor of Entergy and/or NRC Staff on Contention NYS-8. The Board should find for the State of New York on Contention NYS-8.

Respectfully submitted,

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