

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMENTS SUBMITTED BY
THE STATE OF NEW YORK
CONCERNING THE
MARCH 2, 2011 DECOMMISSIONING FUNDING WORKSHOP
AND RELATED DECOMMISSIONING ISSUES



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Introduction

On behalf of the People of the State of New York, the Office of the Attorney General of the State of New York respectfully submits the following comments on the Nuclear Regulatory Commission's ("NRC") Decommissioning Funding Workshop (the "Workshop"), held on March 2, 2011 at NRC headquarters in Rockville, Maryland.

As an initial matter, the State of New York welcomed the opportunity to participate in the public Workshop. The presentations and comments by Staff and the various speakers and attendees provided a transparent forum where a broad spectrum of stakeholders could substantively discuss several key decommissioning issues. The State notes that an open dialogue among Staff and all stakeholders – including the States – about multiple issues surrounding decommissioning is in the public interest and could lead to an improvement of the decommissioning process.

The Workshop highlighted the fact that the public already bears a disproportionate share of the financial risk associated with decommissioning commercial nuclear power reactors. Moreover, industry is actively seeking to further diminish its risk through corporate restructuring, requests for favorable regulatory treatment, delaying reactor decommissioning for decades, and repetition of the statement that "it can't happen here" – the falsehood of which has been demonstrated, for example, by the financial sector crisis of 2008 and the current financial weakness of Tokyo Electric Power Co. in the wake of recent events at the Fukushima Daiichi reactor complex in Japan.

The current state of decommissioning funding assurance, as detailed by Workshop presenters, and the resistance on the part of the nuclear energy industry to take adequate responsibility for these plain risks could well force States and their taxpayers to either pay the bill to decommission, decontaminate, and restore the reactor sites and degraded resources or accept blighted and unproductive areas in their midst for generations to come.

The Commissioners should apply the decommissioning regulations to ensure that the licensees – whose activities created the contamination – promptly set aside all funds necessary to cover all decommissioning costs and promptly decommission reactors after they cease producing power. If the regulations cannot achieve these goals, then the Commission should immediately revise them to ensure that they do.

1. The State Reaffirms the Concerns it has Expressed on Prior Occasions.

The concerns regarding the risks associated with decommissioning assurance, which the State of New York (the “State”) expressed on prior occasions, continue to hold true.¹ Specifically:

NRC’s formula for estimating decommissioning costs is antiquated and out of line with accepted techniques. Only site-specific cost estimates, which take radiologic contamination and other currently unaccounted cost factors into account will ensure adequate decommissioning funds.

NRC’s current decommissioning funding program is based on deeply flawed assumptions including: (1) that decommissioning trust funds will earn a 2% real rate of return; (2) that the use of SAFSTOR will allow decommissioning funds to grow sufficiently to pay for full decommissioning; and (3) that industry, including its deregulated merchant facilities, will ultimately accept responsibility for, and be capable of, decommissioning plants many decades into the future.

The increasing reliance on assumptions and complex statistical techniques to predict a particular licensee’s ability to fully decommission a nuclear power reactor increases the risk that the costs of decommissioning will fall to States.

In sum, the State has detailed how the existing funding formula is grossly inadequate and how, even within the current framework of inadequate funding requirements, industry is not meeting its legal obligations.

¹ See *Presentation of the State of New York, Issues Related to Decommissioning Funding* (March 2, 2011), ML110560594; *Supplemental Comments Submitted by the State of New York Concerning the Nuclear Regulatory Commission’s Proposed Decommissioning Rulemaking* (November 29, 2010), ML103350167; *Supplemental Comments Submitted by the State of New York Concerning the NRC’s Proposed Rulemaking to Amend 10 C.F.R. Parts 20, 30, 40, 50, 70 and 72 to Require Certain Changes in Decommissioning Planning* (May 28, 2009), ML091480640; *Supplemental Comments Submitted by the State of New York Concerning the NRC’s Proposed Rulemaking to Amend 10 C.F.R. Parts 20, 30, 40, 50, 70 and 72 to Require Certain Changes in Decommissioning Planning* (November 4, 2008), ML083110926; and *Comments Submitted by the State of New York Concerning the NRC’s Proposed Rulemaking to Amend 10 C.F.R. Parts 20, 30, 40, 50, 70 and 72 to Require Certain Changes in Decommissioning Planning* (May 8, 2008), ML081340325. These comments and all citations and references mentioned therein are hereby incorporated by reference into today’s comments. Should NRC Staff have difficulty obtaining any such citations and references, it is requested to contact the Office of the Attorney General of the State of New York for assistance.

Presentations at the Workshop confirmed that the State of New York is not alone in its concerns. Numerous presentations from participants across industry confirmed that too many risks are created as assumptions increasingly form the foundation of decommissioning assurance, and that the current system is not likely to provide for the full decommissioning of power reactors. The only dissenting voices have come from the licensees themselves, whose economic interests may lead them to advocate for a decommissioning funding assurance program that reduces their financial obligations.

2. The Funding Formula Must be Revised to Reflect Actual Risks and Costs.

The funding formula remains inadequate. Until now, in States where Public Utility Commissions continue to regulate electric generation, power reactor licensees have been able to turn to rate payers to fund the difference between the actual cost of decommissioning and the amount projected to be needed by the inadequate *pro forma* formula found in 10 C.F.R. § 50.75(c). With the deregulation of the industry having decoupled rate payers from the merchant owners of the nuclear reactors in many cases, no clear source of funding will exist in several decades when relicensed plants undergo decommissioning after decades of the so-called SAFSTOR option, under which decontamination is delayed for decades.

Like the State of New York, the State of Vermont has expressed concern over Entergy's decommissioning strategy for the Vermont Yankee Plant. On February 28, 2011, Vermont's Congressional delegation sent NRC a letter condemning Entergy's plan to utilize SAFSTOR because it would "let Entergy off the hook for clean-up, waste disposal, and remediation of the plant site in Vernon, Vermont for years or even decades. . . . because [Entergy] has not saved the necessary funds to fully decommission the plant." *Letter from Patrick Leahy, Bernard Sanders, and Peter Welch to Chairman Jaczko* (February 28, 2011).² Delaying the obligation to fund site decommissioning for decades under the auspices of SAFSTOR increases the risk to the States because the responsible corporate entity may lack sufficient revenues or assets, have been spun off, or no longer exist.

NRC Staff has acknowledged that the current formula inadequately estimates actual decommissioning costs, because the original studies on which the formula is based do not account for several factors which are likely to raise the ultimate cost of decommissioning, including site remediation of contamination, property taxes, and which decommissioning strategy is chosen. *See* United States Nuclear Regulatory Commission,

² Available at: http://sanders.senate.gov/graphics/nrc_ltr022811.pdf

Official Transcript of Proceedings, Decommissioning Funding Workshop, (“Workshop Transcript”), Comment of Larry Pittiglio, at 38-39 (March 2, 2009)(ML110810747).

In considering the inadequacies of the current formula, it is clear that the failure to take into account site contamination will likely lead to a gross underestimation of actual costs. Site contamination “could drive the cost of decommissioning funding up tremendously.” NRC Advisory Committee on Reactor Safeguards Radiation Protection and Nuclear Materials Subcommittee, *Official Transcript*, Comment of Eric Leeds, Director of Office of Nuclear Reactor Regulation, at 44-45 (Jan. 12, 2011) (ML110240398). Making the cleanup of potentially large amounts of contamination contingent on a process in which the cost of cleanup need not be estimated until the final five years of a plant’s operation and under which decades may pass before any remedial efforts are made is a process that promotes significant underfunding. NRC Staff has acknowledged the irrationality of such empty planning, questioning:

Has the licensee prepared for that? . . . Why are we waiting? Stop it now. Clean it up now. Take care of it now. . . You know, 20, 30, 40, 50 years from now do we -- 60 years from now, do we want these facilities to be the dirty coal plants of today?

Id. Entergy, for example, has estimated that contamination at the Indian Point site will increase decommissioning costs by approximately \$132 million. TLG Services, Inc., *Preliminary Decommissioning Cost Analysis for the Indian Point Energy Center, Unit 3*, Document E11-1583-006, at 21, Table 1 (December 2010)(ML103550608). If NRC will not mandate contemporaneous cleanup of contamination, then it must provide for adequate funding to ensure full decommissioning.

The State has already cited examples where increased contamination and other factors have contributed to large increases to the cost of fully decommissioning nuclear power reactors. For example, under the NRC formula, the decommissioning cost for the Connecticut Yankee plant originally had been estimated at \$410 million, but site contamination, a contract dispute, and other factors led to an actual cost of more than \$1.2 billion³ (an increase of nearly 200%) for full decommissioning. *See* State of

³ Connecticut Yankee Atomic Power Company, *Revision 4 of the Haddam Neck Plant (HNP) License Termination Plan (LTP)*, Table 7-1 at 7-5 (November 16, 2006) Table 7-1 lists a final estimated decommissioning cost of \$937.6 million. The table reveals only that costs after 2006 are calculated using 2006 dollars. If the prior costs, which originate from 1997 are given in nominal 1997 dollars, then the total inflated cost in 2010 dollars would

New York, *November 2010 Supplemental Comments*, at 3. Similarly, decommissioning costs including spent fuel storage at the Yankee Rowe plant in western Massachusetts grew from approximately \$386 million to more than \$750 million.⁴ *See id.*; Yankee Atomic Electric Company, *Yankee Nuclear Power Station Decommissioning Plan, Rev. 0.0*, at 1.3-1 (Dec. 20 1993)(ML071670010) (projecting a decommissioning cost of \$247 in 1992 dollars or approximately \$386 million in 2010 dollars); ABZ, Inc., *Cost Trends in Decommissioning*, Slides 15-16 (March 2, 2011)(ML110560598) (showing an actual decommissioning cost of \$783 million dollars). Decommissioning of currently operating reactor sites will encounter similar costs, with thirty seven out of sixty five commercial reactor sites reporting at least some radiological groundwater contamination. State of New York, *November 2010 Supplemental Comments*, at 3.

For example, leaks have been reported recently at nuclear reactors owned by Entergy Corp., the owner of the Indian Point reactors. In October 2010, Vermont Yankee reported that for the first time tritium has been found in a well that had been used for drinking water. *Entergy Finds Tritium at Vermont Yankee Again*, Reuters, October 11, 2010. The leak is significant, because it shows the migration of the radioactive plume into an aquifer. Dave Gram, Vermont Yankee Tritium Found in Well Tied to Aquifer, *Nashua Telegraph*, October 9, 2010. Coupled with tritium levels exceeding 2 million picocuries per liter in several monitoring wells, and the association of tritium leaks with strontium and cesium leaks, the expected migration of the plume will increase Entergy's decommissioning and site restoration costs. *See Monitoring Wells on the Connecticut River with Increasing Tritium Levels*, Vermont Department of Health.⁵

Shortly after these worrisome disclosures, Entergy reported yet another leak at Vermont Yankee. A pinhole leak had developed in the drain line to the plant's high pressure coolant injection system. Bob Audette, Small Leak in Pipe at Vermont Yankee, *Brattleboro Reformer*, October 21, 2010.

In 2010, Entergy disclosed a substantial cooling water leak at Vermont Yankee. Subsequent analysis concluded that the leak originated from

approximate \$1.2 billion; *see also Cost Trends in Decommissioning*, Slides 15-16 (March 2, 2011) (ML110560598)(showing an actual decommissioning cost of \$1.2 billion dollars and a rule amount of about \$418 million).

⁴ NRC recognizes "the fact that the costs for decommissioning the Yankee Rowe plant ran much higher than projected." *See* United States Nuclear Regulatory Commission, NUREG-BR-0175, *A Short History of Nuclear Regulation, 1946-2009*, at 68 (October 2010) (ML102980443).

⁵ Current as of Nov. 15, 2010; available at: http://healthvermont.gov/enviro/rad/yt_yankee.aspx.

pipes that Entergy had not disclosed to Vermont, and that the flow rate of the leak made it likely that it had continued undetected and unreported for two years or more. *Summation for 2009 to 2010 Legislative Year for the Joint Fiscal Committee Reliability Oversight Entergy Nuclear Vermont Yankee (ENVY)*, Fairewinds Associates, Inc., at 6 (July 26, 2010).⁶

In Massachusetts, tritium levels in groundwater at Entergy's Pilgrim nuclear plant in Massachusetts exceeded federal drinking water standards in late September 2010, rising to over 25,000 picocuries per liter. Jon Chesto, Pilgrim Tritium Levels Back Above Federal Drinking Water Standards, *The Patriot Ledger*, October 13, 2010. That the leak has continued until the present times, reflects Entergy's inability to locate its source. John Chesto, Tritium Levels Plunge at the Pilgrim Nuclear Power Plant in Plymouth, *The Patriot Ledger*, February 16, 2011.⁷

Entergy's response to these leaks has been deficient. In the case of its Vermont Yankee investigation, NRC determined that the company's investigation and corrective action had been lacking:

Specifically, Entergy failed to conduct an adequate extent-of condition review after the first leak, which led to its failure to identify the degraded two-inch AOG [(advanced off-gas)] drain pipe prior to it causing additional tritium contamination in May 2010. Separately, in its own root cause evaluation for the first leak, Entergy identified deficiencies associated with not having satisfied early construction and housekeeping standards for work associated with the AOG pipe tunnel during the 1970s. Entergy also identified a lack of corporate emphasis on and commitment to the timely implementation of a buried pipe inspection and remediation program in the late 2000s. These performance deficiencies were within Entergy's control and could have either prevented or mitigated the ground water contamination identified in 2010.

United States Nuclear Regulatory Commission, *Vermont Nuclear Power Station; Problem Identification and Resolution Inspection of Vermont*

⁶ Available at: <http://www.leg.state.vt.us/>.

⁷ Available at: <http://www.patriotledger.com/business/x1463449776/Tritium-levels-plunge-at-the-Pilgrim-nuclear-power-plant-in-Plymouth>.

Yankee Root and Apparent Cause Evaluations, at 3, October 13, 2010 (ML102860037). Although NRC additionally reported that Entergy made no periodic inspections and that the persistence of a second leak was due to Entergy's failure to conduct a thorough review of the first leak, NRC has declined to characterize this conduct as violating any NRC requirements. *Id.* at iii, 2,5.

Widespread contamination and the apparent lack of attention to this contamination throughout the industry echoes the health and environmental hazards that States have borne from the hazardous waste contamination at Superfund sites, themselves the product of insufficient government regulation. The earlier and more comprehensively that subsurface contamination at a site is addressed, the higher the likelihood that responsible parties will be identified and held accountable. Delaying decommissioning responsibilities for decades through the period of relicensed operation and SAFSTOR diminishes the likelihood that sufficiently capitalized and legally responsible corporate entities will even exist. The State urges that NRC minimize these substantive and financial risks to the public through promulgation of site-specific funding requirements as part of a revision to the decommissioning funding regulations, 10 C.F.R. § 50.75.

2.1. Current Licensee Decommissioning Funding has been Inadequate.

Indian Point Unit 1 and Indian Point Unit 2 have consistently projected large shortfalls in decommissioning funding as the State detailed in earlier comments. By Entergy's own estimates, the funds show a shortfall of more than \$800 million; application of NRC's admittedly inadequate formula shows a shortfall of at least \$500 million. State of New York, *November 2010 Supplemental Comments*, at 2.

Even the decommission funding amounts reported to NRC do not represent the money actually available to be spent on decommissioning. Merchant owners are subject to taxes on their funds and the numbers they report are gross numbers, so what is reported to NRC "is not a true representation of the assets they have available to spend." United States Nuclear Regulatory Commission, *Official Transcript of Proceedings, Decommissioning Funding Workshop, Breakout Session 2* ("Breakout 2 Transcript"), Comment of David Krause, Duff & Phelps, at 61 (March 2, 2011)(ML110750355).

Entergy's River Bend facility presents another example of these under funding problems. NRC investigated the decommissioning shortfall at Entergy's River Bend facility, which deficiency has been estimated to be as

much as \$164 million.⁸ According to NRC documents, Entergy is funding its decommissioning trust fund through a power purchase contract with another of its subsidiaries in Texas. Entergy did not disclose the agreement as required and had provided no assurance that funds from the contract will be dedicated to decommissioning as it claimed. *Letter from Timothy J. McGinty, Director, Division of Policy and Rulemaking, Office of Reactor Regulation to Entergy, River Bend Station Apparent Violations*, Docket No. 50-458 (September 23, 2010) (ML102660077). Although NRC Staff ultimately did not issue a violation, Entergy's lack of clarity about its procedures led to the "significant consumption of staff resources" and the shortfall remains unaddressed. *Letter from Timothy J. McGinty, Director, Division of Policy and Rulemaking, Office of Reactor Regulation to Entergy, River Bend Station Apparent Violations*, Docket No. 50-458 (March 11, 2011) (ML110280410).

As already mentioned above, sites that have already undergone decommissioning were grossly underfunded. In addition to Connecticut Yankee and Yankee Rowe, Maine Yankee also had costs that far exceeded the formula amount in obtaining license termination. *Cost Trends in Decommissioning*, Slide 16. If all costs included in decommissioning are taken into account, and not just those required by NRC regulations, Trojan, Rancho Seco, and San Onofre Unit 1 had costs exceeding the termination minimum required by regulation.⁹ *Id.* Slide 15. Those six reactors, along with the Fort St. Vrain reactor in Colorado, which also experienced increased costs due to the presence of more contamination than anticipated, represent all of the reactors larger than 500 MW that have undergone decommissioning as of now. United States Nuclear Regulatory Commission, *Fact Sheet on Decommissioning Nuclear Power Plants, Decommissioning Status for Shut Down NRC-licensed Power Reactors (as of February 2011)*;¹⁰

⁸ NRC To Hold Predecisional Enforcement Conference With Entergy Operations Nov. 19 In Rockville, MD, NRC Press Release No. 10-198 (Nov. 3 2010) (available at http://adamswebsearch2.nrc.gov/idmws/DocContent.dll?library=PU_ADAMS^pbntad01&LogonID=0921a9a8ac1dc68d76e0b6afd4150530&id=103070283); *Letter from Timothy J. McGinty, Director, Division of Policy and Rulemaking, Office of Reactor Regulation to Entergy, River Bend Station Apparent Violations*, (ML102660077) Docket No. 50-458 (September 23, 2010). After taking into account the assumption of 2% growth above inflation, the River Bend decommissioning trust is currently more than \$164 million below the NRC's insufficient regulatory minimum. *2009 Biennial Decommissioning Funding Assurance Analysis* (July 13, 2009) (ML091940387). NRC Staff reiterated this point during the November 19, 2010 public meeting.

⁹ Under the Vendor disposal scenario, all plants were underfunded. Under the Direct Disposal scenario, 2 of the 4 were adequately funded. *Cost Trends in Decommissioning*, Slide 14.

¹⁰ Available at: <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/decommissioning.html>.

Richard R. Zuercher, Fort St. Vrain Areas Greatly Exceed Contamination Estimates, *Nucleonics Week* 34:21 (May 27, 1993).¹¹

Notably, NRC license termination costs represent only a portion of the total costs estimated to be involved in full decommissioning. See *Cost Trends in Decommissioning*, Slides 14-16. Because NRC has no clear rules about separating costs into different categories, licensees can interpret particular costs out of the category of license termination, allowing them to forego accumulating funding to cover those costs. The regulations' lack of specificity regarding cost allocation and clarity in reporting must be addressed so that funds are not improperly commingled. Licensees, including Entergy, for example, contemplate funding spent fuel maintenance costs from the decommissioning funds. *Letter from John P. Boska, Senior Project Manager Plant Licensing Branch, NRC to Entergy, Corp.* (March 17, 2010)(ML100280544)(noting that Entergy's "program for the long-term storage of spent fuel relies on funds from the DTF.") Entergy is making a commitment to contribute \$55 million by 2023 to cover these increased costs, but Entergy relies on unrealistically optimistic assumptions about the Department of Energy's program to take custody of spent fuel to arrive at its cost figure. See *Indian Point Unit 3 Program for Maintenance of Irradiated Fuel and Preliminary Decommissioning Cost Analysis in accordance with 10 CFR 50.54 (bb) and 10 CFR 50.75(f)(3), Attachment 1 TO NL-10-123, List of Regulatory Commitments* (Dec. 10, 2010) (ML103540233). Adding additional obligations to the already insufficient decommissioning funds further increases risk to the States.

Additionally, none of the above reactors, including the Fort St. Vrain reactor, which was owned and operated by the Public Service Company of Colorado and decommissioned in 1996, was owned by a merchant power company.¹² Regulated owners are able to return to rate payers to cover any cost overruns. Merchant plants, however, have no such funding source. Thus, any claims that the examples of currently decommissioned plants bode well for the future decommissioning of merchant plants are misplaced. See *Letter from Anthony R. Pietrangelo to Chairman Jaczko*, at 3 n.8 (Sep. 21, 2009) (ML092930272) (demonstrating that both Yankee Rowe and Haddam Neck made up for shortfalls by going back to rate payers). As the State has detailed in prior submissions and as detailed below, isolating the liability posed by each operating merchant plant reactor into potentially

¹¹ That article estimated decommissioning costs at \$124 million, but those costs increased by about \$40 million, \$18.4 million of which was due to increased contamination. Richard R. Zuercher, PSC Raises Cost, Work, Scope Plans for Fort St. Vrain Decommissioning, *Nucleonics Week*, 35:19 (May 12, 1994); *Nucleonics Week, Fort St. Vrain Decommissioning Cost Greatly Overstated*, 35:20 (May 19, 1994).

¹² *Fort St. Vrain Power Station History*, available at: http://www.fsvfolks.org/FSVHistory_2.html.

undercapitalized limited liability subsidiaries presents a financial assurance dynamic materially different from regulated owner facilities. The risk of cost overruns should not ultimately lie with the States.

2.2. Licensee Assumptions about Funding Assurance are Invalid.

Despite the demonstrated fallacy of current assumptions, industry and NRC continue to rely on unrealistic assumptions, particularly the 2% real credit for fund growth through periods of license renewal and SAFSTOR. Reliance on such unrealistic assumptions has allowed licensees to cease the pursuit of strategies that would increase the amount of decommissioning funding available, namely, by actually contributing to the trust funds.

In fact, as the State has noted previously, contributions by merchant licensees have nearly ground to a halt in recent years as market gains have become the preferred funding method, largely due to a regulatory gap created by deregulation of the power industry. Unlike regulated utilities which were allowed to accumulate funding from rate payers, no regulatory provision requires that non-regulated or “merchant owners” make ongoing contributions to the decommissioning funds. Unfortunately, deregulation led to merchant owners purchasing plants with underfunded trusts and with no regulatory obligation to make ongoing contributions. *See Breakout 2 Transcript*, Comment of David Krause, Duff & Phelps, at 49-50. As a consequence, contributions have decreased from \$1.5 billion annually in the nineties to only \$450 million in more recent years. *Id.* The timing of this decrease coincides with a regulatory change that allowed licensees to take the 2% credit throughout the period of SAFSTOR. *See Financial Assurance Requirements for Decommissioning Nuclear Power Reactors*, 63 Fed. Reg. 50465, 50476-7 (Sep. 22 1998). Since that time, industry has relied on the market to fund decommissioning, operating on the assumption that its investments will provide greater returns than the escalation of costs associated with decommissioning. That assumption is unfounded as presenters at the Decommissioning Workshop persuasively and repeatedly demonstrated.

The bad news is that if you look at the escalation of decommissioning liability since the start of this process back in 1986, the liability has grown at greater rate than the assets have in that period of time.

Breakout 2 Transcript, Comment of David Krause, at 56. Industry generally assumes a cost escalation of between 2.5% and 3%, but from 1986

onwards costs have escalated at 9% or from 1994 onwards at about 5%. See United States Nuclear Regulatory Commission, *Official Transcript of Proceedings, Decommissioning Funding Workshop, Breakout Session 1* (“Breakout 1 Transcript”), Comment of Nick Capik, ABZ, Inc., at 12-13 (March 2, 2011) (ML110750351).

I think the concern we all have is for years, you know, first round of license extensions the hope was the additional life gave you the chance to accumulate assets. But I think you know, we would have to have that every year. . . [T]he concern is we have had too many years where costs have exceeded the escalation of asset accumulation. So it is not at all clear to me that license extensions do anything for us. In fact, if cost trends continue the way they are, we get deeper in the hole.

Breakout 2 Transcript, Comment of Peter Keller, BNY Mellon, at 61. Impartial experts have examined the assumption of 2% and found it lacking. Licensees, however, continue to rely on the 2% assumption to minimize current costs and to defer the consequence of any shortfall for decades in the future.

When LCG Associates modeled fund performance with an estimated cost escalation of 6%, a number within the historical range, the fund met decommissioning costs only 1% of the time, despite known underestimations of the costs of decommissioning. *Breakout 2 Transcript*, Comment of Dave Emerson, at 34-40. Even assuming a “low cost” increase estimate of 3%, funds only met decommissioning costs 63% of the time.

The only way to increase investment return to levels high enough to cover ever rising cost increases would be to invest the funds in highly risky strategies, such as private equity. See *Breakout 2 Transcript*, Comment of Jon Brusven, NDT Fund Study Group at 73; Presentation of NDT Fund Conference, *Calibrating Investment Return Expectations*, Slide 17 (March 2, 2011)(ML110560786)(“But the economic truth that More Return = More Risk remains in effect.”). That said, NRC and industry should avoid the injection of more risk into the process and acknowledge that if investment decisions made under the “prudent investor” standard will not provide sufficient return, the market should not be relied on as the sole or even the primary source for decommissioning funding. See 18 C.F.R. § 35.32(a)(3).

3. Industry's Opposition to Improved Regulation Shifts Risks to the States.

In the case of existing plants that will be decommissioned decades into the future, the incentives of the States and industry are not at all aligned, as industry has demonstrated in efforts to transfer the risk of inadequate funding to the States and taxpayers across several avenues. These include: the decision to rely on market gains; liability limiting corporate restructuring; the continued allowance of site contamination; and the reflexive opposition to regulatory changes which help rectify the current misallocation of risk, including the use of net present value for parent guarantees, a more accurate cost inflator, and improved reporting requirements, as the State has detailed in previous comments.

3.1. Net Present Value Does Not Have a Regulatory Basis

Industry steadfastly maintains its right to value parent guarantees at net present value rather than the full value of the shortfall. It bases this right on the example of three license transfers, wherein a parent guarantee was allowed to be given at net present value. *Letter from Anthony R. Pietrangelo to Chairman Jaczko* (March 8, 2011)(ML110690015). The absence of a provision for net present value in parent guarantees is clear from the language of 10 C.F.R. 50.75(e)(1)(iii)(B), which reads in its entirety:

A parent company guarantee of funds for decommissioning costs based on a financial test may be used if the guarantee and test are as contained in appendix A to 10 CFR part 30.

Neither 10 C.F.R. § 50.75(e)(1)(iii)(B), nor the text of Appendix A refer to net present value as an acceptable procedure for valuing the magnitude of the shortfall. Nowhere in the relevant regulations is there a reference to, let alone authorization for, net present value for parent guarantees. Nevertheless, the Nuclear Energy Institute (“NEI”) argues that the term “net present value” should somehow be read into § 50.75(e)(1)(iii)(B) and Appendix A so that the regulations would allow the diminution in value of the parent guarantee through discounting. NEI’s argument can find no basis in the regulatory text and should be rejected. Contrary to NEI’s argument, the mandating of certain financial requirements of the parent company does not mean that the omission of mention of net present value is proof that NRC would imply such a material aspect of a vital regulatory provision. *Letter from Anthony R. Pietrangelo to Chairman Jaczko*, at 7-8 (March 2, 2011)(ML110690048). A plain reading demonstrates that the use of net present value in the three license transfer matters was done in error

or, at the very least, without sufficient explanation of how the exemptions had been granted, and that net present value should not be employed in the regular course, but through the exemption process. The fact that NRC may have erred in three license transfer cases should not compel NRC to repeat the error in the decommissioning context, and it certainly should not condemn the States to live with the consequences of that mistake for generations. In any event, contrary to industry's argument, NRC is not bound by principles of estoppel to perpetuate any past error and forever allow the use of net present value in parent guarantees without granting an exemption.

3.1.1. Full Value Guarantees Do Not Unduly Burden Industry

Industry representatives consistently speak of the multibillion dollar burden they would face were they forced to guarantee the full value of shortfalls in decommissioning funds. They conflate the situation in which they are called upon to give temporary guarantees to make up short-term shortfalls and those cases in which they seek to guarantee the full amount of decommissioning required in the construction of new reactors. The two situations are distinct.

As representatives from Exelon noted, their company recently carried several parent guarantees of modest amounts without financial effect and at no cost. "To be clear, and for the record, there currently are no direct costs associated with issuing a guarantee so there's not incremental interest that hits your income statement. However, as we highlighted or at least we tried to highlight, there are a number of indirect costs in the event that amount escalates to a *material* number." *Workshop Transcript*, Comment of Adam Levin, at 145 (emphasis added). It is exactly the point at which the shortfalls become material about which the State is concerned. The State submits that when the shortfalls become material enough that large parent guarantees are contemplated, the larger concern should be the risk to the viability of the decommissioning assurance, and not to the company's preference to preserve its expensive cash. *See Workshop Transcript*, Comment of Reijji Hayes, at 173.

A representative from Moody's Investor Service noted that whether the parent guarantee is discounted does not significantly affect ratings decisions, *Breakout 1 Transcript*, Comment of Jim Hempstead, at 86-87. Nor do distant decommissioning liabilities have a large impact. *Id.* at 88. If there is concern about credit ratings, industry is creating it through its decisions on debt structuring, such as what Entergy did by encumbering its planned spinoff entity, Enexus, with a substantial amount of debt. The

industry's actions rather than regulatory requirements, suppress a credit rating. *Id.* at 84. Industry speaks of the burden of the parent guarantee as if it were the only assurance vehicle available. However, industry is not so constrained. If credit worthiness with respect to counterparties is a significant issue, industry may make actual cash contributions to the fund, which would improve the company's position from a liquidity standpoint and in terms of ratings. *Id.* at 90.

The very large numbers on which industry relies to demonstrate the claimed onerousness of the 10 C.F.R. Part 30 Appendix A financial test are expected only in the context of new plant construction, as several participants indicated. See Exelon, *Decommissioning Funding Assurance – An Assessment of Net Present Value and Parent Guarantees*, Slide 6 (March 2, 2011) (ML110690043); NEI, *Industry Comments on the Proposed Methodology for Calculating Parent Company Guarantees*, Slide 8 (March 2, 2011) (ML110690116). Consequently, such large numbers are not representative of the relatively smaller shortfalls for existing plants and should not be used to prove the burden of fully guaranteeing shortfalls.

Industry's argument, here, seems to be that new construction should be promoted, even if the use of discounted parent guarantees puts current sites at risk of not having sufficient funding, but the promotion and facilitation of new construction is not part of NRC's regulatory authority. The NRC was purposefully created by the Energy Reorganization Act of 1974 to focus on regulation so that its judgment on safety issues would not be "overridden by developmental priorities." See *A Short History of Nuclear Regulation, 1946-2009*, at 49-51. NRC must be concerned with ensuring the industry's safe operation and the prompt and thorough nuclear facilities after they stop generating power. In carrying out its regulatory responsibilities, NRC should not transfer risk to the States for the financial convenience of licensees.

3.1.2. Discounted Parent Guarantees Shift Risks to States

Parent guarantees, and especially discounted parent guarantees, carry greater risks than other forms of financial assurance because they rely on the financial integrity of the parent company as well as on the integrity of the text of the guarantee document itself, to ensure adequate capitalization. Parent guarantees also engender extra risk because of the potential for bankruptcy of the guarantor parent and the risk that payment will be delayed or denied should the guarantee itself become the subject of bankruptcy or other litigation. See *Credit Implications Associated With*

Nuclear Generation for U.S. Utilities, Slide ‘What is a Guarantee?’ (March 2, 2011)(ML11056078).

The State shares Staff’s enumerated concerns about the risk of parent guarantees: that creditors can seize parent’s assets leading to partial or no recovery; that litigants would argue that the guarantee could be discharged in bankruptcy; that the value recovered in bankruptcy will be equal only to the discounted value and not the actual value necessary to make up the ultimate shortfall; that the tangible net worth required is lower, leading to lower margin of safety; and that companies will delay or cease making actual contributions to trust funds. *See Present Value Discounting of Parent Company Guarantee for Decommissioning Financial Assurance*, Slides 28-32; State of New York, *Issues Related to Decommissioning Funding*, Slide 7 (March 2, 2011) (ML110560594).

Unlike assets in decommissioning trusts, parent guarantees are not protected in bankruptcy proceedings. *Workshop Transcript*, Comment of Tom Fredrichs, NRC Senior Advisor for Licensee Financial Policy, at 84, 114. The parent can walk away from its undercapitalized LLC, with the guarantee not being as strongly protected as the isolated funds present within a trust, because guarantees are not “bankruptcy remote.” *See* David Schlissel et al, *Financial Insecurity: The Increasing Use of Limited Liability Companies and Multi Tiered Holding Companies to Own Nuclear Power Plants*, Synapse Energy, at 2-4. (August 7, 2002).¹³ Additionally, the parent guarantee is vulnerable to common-mode risk, in that financial troubles of the subsidiary may cause the parent sufficient financial harm that it is unable to pay the guarantee even if it is legally obligated to do so. *See Workshop Transcript*, Comment of Tom Fredrichs, at 84.

Discounting contributes to extra risk in the sense that if a catastrophic shock – such as what has occurred with Fukushima Daiichi – were to occur before the supposed annual “true up” of the value of the guarantee, the discounted parent guarantee will be called in at an inadequate value. Furthermore, the use of discounted guarantees would permit parent companies to operate in a weaker financial condition due to the smaller values of net worth and assets required to pass the financial test in Part 30 Appendix A, which in turn decreases the likelihood that the parent company will be able to financially cope with any catastrophic shock that may lead to premature shutdown of the plant. This risk is present for any period before the value of the discounted guarantee is paid out in cash. The value of the financial test is further undermined by the new allowance of intangible net worth in the Appendix A test calculations, including “goodwill.” *Present*

¹³ Available at: <http://www.synapse-energy.com/Downloads/SynapseReport.2002-08.STAR-Foundation.Financial-Insecurity.02-07.pdf>.

Value Discounting of Parent Company Guarantee for Decommissioning Financial Assurance, Slide 6. Goodwill should not be relied upon for any NRC test, as it could be manipulated by managers. See Ramanna, Karthik and Watts, Ross L., *Evidence on the Use of Unverifiable Estimates in Required Goodwill Impairment* (January 31, 2011), Harvard Business School Accounting & Management Unit Working Paper No. 09-106.¹⁴

Discounted parent guarantees bring the additional risk of adding complexity to the multifaceted process of decommissioning, by hinging assurance amounts on the calculation based on three unknown variables: time when guarantee is called, ultimate value of shortfall, and discount rate, which is based on two unknown variables, the inflation rate of costs and the return on investment. As mentioned above, these variables are unpredictable. To assert that the 2% rate of return is accurate because an Office of Management and Budget Report employed it for general returns is irrelevant in this context because the complexity involved in disposing of radioactive waste makes this situation *sui generis*. See *Workshop Transcript*, Comment of Adam Levin at 156.

The complexity and unpredictability of decommissioning funding due to a high number of variables with unknown distributions is borne out by the high variance found in the outcomes of the various Monte Carlo simulations run on the growth of decommissioning trust funds. That the variation is so great is proof that the future performance of decommissioning trust funds is essentially “an unknown.” See *Workshop Transcript*, Comment of Dan Williams at 155; *Breakout 2 Transcript*, Comment of Ming Chen, Government Accountability Office, at 6 (“So there is [sic] a lot of variables that have uncertainties.”).

As an industry representative acknowledged with respect to Monte Carlo estimation, “If you are trying to figure out the cost, it is extremely challenging. How would you come up with the data set and the assumptions, given the unique nature of these projects? I am concerned that it could be an academic nightmare given the cost.” *Breakout 2 Transcript*, Comment of Leslie Kass, Nuclear Energy Institute, at 20. Her concerns hold true with respect to the variables involved in discounting parent guarantees in an environment as uncertain as that of nuclear decommissioning, which is distinct from the typical financial decisions engaged in by firms – the obligation is one that must be met, and not one that can be abandoned if its actual value is too much cost to bear. The addition of this funding complexity should be avoided. As noted by one Workshop participant, “generally in life and in economics there's a law of

¹⁴ Available at: <http://ssrn.com/abstract=1134943>.

unintended negative consequences.” *Workshop Transcript*, Comment of Dan Williams, at 154.

Discounting parent guarantees is tantamount to “the concept of present valuing a promise.” *Workshop Transcript*, Comment of Dan Williams at 109-110. Unlike trust funds, which contain cash that can earn interest, parent guarantees are not backed by anything other than an additional promise to annually reevaluate the state of the funding shortfall and adjust the discounted guarantee if necessary. *See Workshop Transcript*, Comment of Leslie Kass, NEI, at 111. The risk of over-funding using actual values instead of discounted values compensates for the additional risks of not having money in hand. Consistent with NRC regulations, NRC Staff should be able to scrutinize such guarantees to ensure that they are equivalent with other forms of financial assurance pursuant to 10 C.F.R. § 50.75(e)(1)(vi). *See Present Value Discounting of Parent Company Guarantee for Decommissioning Financial Assurance*, Slide 8.

3.2. Industry Opposes Improved Regulation to the Detriment of States

Industry is candid that its priority is to minimize costs, whether it involve pursuing a “least cost” strategy in waste disposal or the avoidance of contributions to decommissioning trust funds lest the fund be too large when it is called upon to pay for decommissioning. *See Workshop Transcript*, Comment of Adam Levin, at 72, 173. As part of this strategy, industry actively opposes new regulations intended to increase the reliability of funding assurance on the basis that it will be too costly.

For example, the Nuclear Energy Institute argues that NRC Staff was making a de facto regulatory change by escalating the vendor/direct disposal ratio in the next revision of NUREG-1307. *Letter from Anthony R. Pietrangelo to Chairman Jaczko*. This argument is baseless. The relationship of NUREG-1307 to 10 C.F.R. 50.75(c)(2) is no different from the relationship of regional data from the U.S. Bureau of Labor Statistics to 10 C.F.R. § 50.75(c)(2). The existing regulation merely anchors the escalation factors to two sources, not to the information provided by those sources, which changes from time to time, and over which (as in the case of the BLS numbers) NRC has absolutely no control. Waste disposal factors in NUREG-1307 have changed throughout its long history of revisions, in fact, without formal rulemaking as NEI now desires. *Workshop Transcript*, Comment of Larry Pittiglio, at 50.

Similarly, NEI objects to improvement in reporting requirements and the time required to closes shortfalls, arguing that the current system is

adequate and that changes will lead to irrational investment behavior. *Letter from Anthony R. Pietrangelo to Chairman Jaczko* at 4-10.¹⁵ As the State has already observed, however, licensees should develop plans for eliminating shortfalls in decommissioning plans annually, rather than biennially, as current regulations require. 10 C.F.R. § 50.75(f)(2). Currently, licensees do not develop plans for their shortfalls until NRC requests such a plan after examining the biennial report. The licensees (26 out of 27 of the plants with shortfalls at the end of 2008) then develop plans to "true up" their funds, leading to a lag of three years without adequate funding assurance. This permissiveness leads to the current circumstance where numerous plants can have funding shortfalls for up to three years. State of New York, *November 2010 Supplemental Comments*, at 10.

Conclusion

Maintaining a certain profit margin for reactor licensees is not the responsibility of NRC or the States, nor the purpose of decommissioning. The State urges NRC to reinforce its regulatory structure to bring balance to the current misallocation of risks with respect to the decommissioning of nuclear power reactors. The decommissioning funding assurance process must be strengthened in order to avoid the choice between two stark and painful alternatives: forcing States to pay millions to clean-up reactor sites or leaving them as contaminated wastelands.

Dated: Albany, New York
April 7, 2011

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s/

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¹⁵ Mr. Pietrangelo also noted that given the extra time afforded by 20 years of relicensed operation and the decades of SAFSTOR, that licensees have plenty of time to make up for shortfalls. But this proposition is hardly reassuring given the extensive evidence that decommissioning costs will continue to rise precipitously. *Letter from Anthony R. Pietrangelo to Chairman Jaczko*, at 4-10.