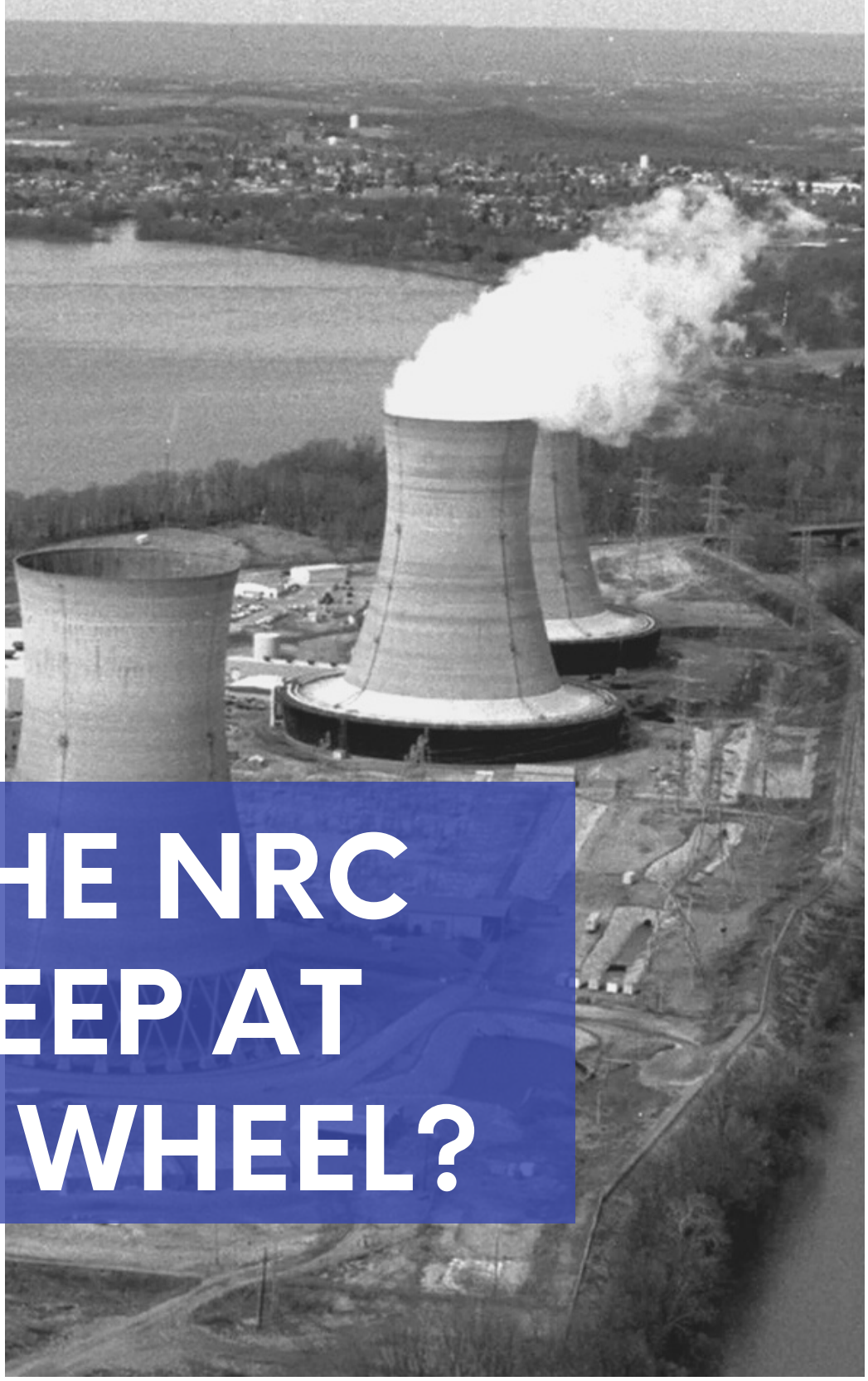
OCTOBER 2023



IS THE NRC ASLEEP AT THE WHEEL?

How delayed decommissioning, speculative investing and shaky financial assurances may be a perfect storm for taxpayers.

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THE COUNCIL TO MODERNIZE GOVERNANCE

I. Executive Summary

As the Biden Administration continues to accelerate groundbreakings to implement the massive infrastructure initiatives contained in the Inflation Reduction Act, its Nuclear Regulatory Commission (NRC) seems to be allowing for-profit companies who are financially unsupported by a ratepaying base to immediately draw down their trust funds for decommissioning. They do so while proposing to severely delay their future decommissioning activities apparently to avoid paying into their legally required trust funds.

These nuclear facility owners have made a business out of purchasing nuclear plants that are decommissioned to clean up the radioactive material and release the properties. As part of these purchases, these new ownerships acquire the funds in these facilities' decommissioning trust.

However, according to reports submitted to the NRC, some of these companies are allowing market factors to put their decommissioning trust funds at risk. The trusts are losing money to the point of not having the legally required balance of assets to cover the cost of decommissioning the power plants for public use, absent stopping their decommissioning efforts for years. It does not appear the NRC has taken any measure, through enforcement, to compel these companies to true-up their balances with the dramatic losses their investments have experienced. Instead, the completion of the projects are projected to be delayed, likely, because of speculative investments and the taxpayers are at risk of having to pay additional money.

The NRC needs to recognize the problem for the fiscal charade it is. It should not allow the drawdown of funds coupled with unnecessary delays in decommissioning efforts because of flawed investment decisions of financially irresponsible companies. It should enforce the existing rules and promulgate new rules to ensure that sound financial decisions are being made. If it does not, Congressional oversight and new statutes are needed.

II. An Introduction to Nuclear Power

Nuclear power dates back to the discovery of atomic radiation in 1895 by Nobel Prize winner, Wilhelm Conrad Röntgen.[1] The first real focus of this technology occurred during the Second World War, when the development of radioactive energy was focused into the development of atomic bombs.[2] After the war, the use of this emerging technology was refocused upon the creation of electricity. In 1953, President Eisenhower proposed an "Atoms for Peace" program to this end.[3] In 1960, the first commercial reactor went active.[4]

With this new source of energy, new regulatory structures were created. In 1946, Congress passed the Atomic Energy Act, which was amended in 1954 to include the commercial use of nuclear power.[5] This legislation created the Atomic Energy Commission (AEC).[6] This agency, however, was criticized for its lack of rigorous regulations, including standards for protection from radiation, reactor safety, plant siting, and environmental protection.[7]

In response to this criticism, Congress passed the Energy Reorganization Act of 1974, which split the functions the AEC.[8] The regulatory oversight authority was assigned to the newly created Nuclear Regulatory Commission (NRC), while the promotional efforts were assigned to the Energy Research and Development Administration (which later incorporated into the Department of Energy).[9] The NRC has overseen the civilian nuclear power industry since 1974. The NRC's mission is to license and regulate the nation's civilian use of radioactive materials, to provide reasonable assurance of adequate protection of public health and safety, to promote the common defense and security, and to protect the environment.[10]

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[1] "Wilhelm Conrad Röntgen Biographical," Nobelprize.org. https://www.nobelprize.org/prizes/physics/1901/rontgen/biographical/.
[2] "Outline History of Nuclear Energy," World-nuclear.org, November 2020. https://world-nuclear.org/information-library/current-and-future-generation/outline-history-of-nuclear-energy.aspx.
[3] Ibid.
[4] Ibid.
[5] "History," Nuclear Regulatory Commission, September 10, 2021. https://www.nrc.gov/about-nrc/history.html.
[6] "Atomic Energy Commission," Nuclear Regulatory Commission, March 9, 2021. https://www.nrc.gov/reading-rm/basic-ref/glossary/atomic-energy-commission.html.
[7] . "History."
[8] Title IX, Pub. L. No. 93-438, 88 Stat. 1233, (Oct. 11, 1974). https://www.govinfo.gov/content/pkg/STATUTE-88/pdf/STATUTE-88-Pg1233.pdf
[9] Ibid.
[10] "About NRC," Nuclear Regulatory Commission, Jan. 25, 2022. https://www.nrc.gov/about-nrc.html.

While very few people may have heard of the NRC, virtually everyone in America is aware that Three Mile Island Unit 2 (TMI-2) reactor, near Middletown, Pennsylvania, partially melted down on March 28, 1979.[11] The aftermath of this meltdown required 14 years of cleanup costing roughly $1 billion.[12] There are questionable accounts as to poor quality control causing the meltdown[13] and of rushed cleanup[14] causing further risk of disaster years afterward. True or not, questions revolving mismanagement is a part of Three Mile Island's long history. One positive is that, in the wake of the TMI-2 accident, the NRC required nuclear power utilities to incorporate cleanup costs into the rates paid by the utility customers, which was then held in trust until the closure of the facility.[15]

Presently, TMI-2 is no longer operating.[16] The radioactive waste and contaminated water and materials have been removed from the site. Like any other nuclear facility, because it is no longer operational, it is now licensed as a decommissioning nuclear facility.[17]

As will be discussed further in this paper, it is questionable as to whether the NRC is sufficiently overseeing the decommissioning process for TMI-2, as well as other nuclear reactor sites. Some of these companies appear to be prioritizing potential profit opportunities that come with the management of these large value trusts, as opposed to focusing upon safely assuring that the purpose of site cleanup is accomplished. Yet regulatory backstops, such as financial assurance obligations,

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[11] "Backgrounder On The Three Mile Island Accident," Nuclear Regulatory Commission, Nov. 15, 2022. https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/3mile-isle.html.
[12] Associated Press, "14-Year Cleanup at Three Mile Island Concludes," New York Times, Aug. 15, 1993. https://www.nytimes.com/1993/08/15/us/14-year-cleanup-at-three-mile-island-concludes.html.
[13] "A combination of component failures, personnel errors, regulatory laxities and design deficiencies caused the Three Mile Island accident…." Chien Liu, "Three Mile Island the Nuclear Disaster at Three Mile Island," Ohio State University. https://u.osu.edu/engr2367nuclearpower/three-mile-island/.
[14] Alex Mitchell, "The Nuclear Nightmare that Almost Took Out the East Coast," New York Post, May 4, 2022. https://nypost.com/2022/05/04/how-a-brave-engineer-saved-the-us-from-nuclear-catastrophe-new-doc/.
[15] Jeffrey Rothfeder and Christopher Maag, "Nuclear Drawdown: How Two Little-Known Private Companies Are Taking Over the Biggest Environmental Cleanup in U.S. History," Fortune, April 27, 2021. https://fortune.com/longform/environmental-cleanup-indian-point-nuclear-power-plant-hudson-valley-entergy-holtec-international/.
[16] Backgrounder Three Mile Island Accident.
[17] Ibid.

exist to protect against this mismanagement. If more actively enforced, these requirements could go a long way toward giving potential ratepayers confidence that the public's interest is being advanced in this new ownership model.

III. What Does the Decommissioning Process Entail?

A decommissioning nuclear facility means that the operator is "safely removing a facility or site from service and reducing residual radioactivity to a level" that allows for the property be used unrestricted or under certain restricted conditions.[18] The purpose of decommissioning is to clean the property so that the site is made available for other uses.[19]

As of October 31, 2022, there were ninety nuclear facilities that are within the decommissioning process.[20] Among those facilities, twenty-five are nuclear reactors, including TMI-2.[21] The documents contained within the NRC's website reflects that eleven of these facilities are non-utility owned.

When a licensed nuclear facility permanently closes operations, it is required to submit a written notice to the NRC.[22] Within two years of the cessation of operations, the licensee must submit a Post-Shutdown Decommissioning Activities Report (PSDAR) report.[23] This report includes a schedule, an estimate of expected costs and an environmental impact study.[24] This PSDAR report will launch a review period, with public hearings.[25] The facility may commence with the plan stated in its PSDAR report at the end of that review period, so long as the plan does not foreclose the ability to release the property for unrestricted use, have significant

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[18] "Decommissioning of Nuclear Facilities," Nuclear Regulatory Commission, June 23, 2022. https://www.nrc.gov/waste/decommissioning.html.
[19] "Decommissioning Nuclear Facilities," World-Nuclear.org, May 2022. https://world-nuclear.org/information-library/nuclear-fuel-cycle/nuclear-wastes/decommissioning-nuclear-facilities.aspx#:~:text=Newer%20plants%20are%20designed%20for,made%20available%20for%20other%20uses.
[20] "Sites Undergoing Decommissioning (by Location or Name)," Nuclear Regulatory Commission, Oct. 31, 2022. https://www.nrc.gov/info-finder/decommissioning/index.html.
[21] "Locations of Power Reactor Sites Undergoing Decommissioning," Nuclear Regulatory Commission, Aug. 15, 2022. https://www.nrc.gov/info-finder/decommissioning/power-reactor/index.html.
[22] "Decommissioning Process," Nuclear Regulatory Commission, June 8, 2020. https://www.nrc.gov/waste/decommissioning/process.html.
[23] Ibid.
[24] Ibid.
[25] Ibid.

environmental impacts, or the company is unable to show—with reasonable assurance—that it does not have adequate funds available for decommissioning.[26]

In 1988, the Nuclear Regulatory Commission (NRC) established the technical and financial requirements to assure that the decommissioning of all licensed nuclear facilities would be accomplished in a safe and timely manner and that adequate licensee funds would be available for this purpose.[27]

In 1998, in response to the anticipated deregulation of the nuclear power generating industry, the NRC amended their decommissioning financial assurance rules resulting in additional methods and flexibility for reactor licensees to provide financial assurance for decommissioning.[28] These regulations established the requirements that power reactor licensees report, on a biennial basis, the status of their decommissioning funds and on changes in their external trust agreements and other financial assurance mechanisms. In 2011, the NRC further amended its regulations to improve decommissioning planning by, as the Federal Register Summary described it, eliminating "the escrow account and line of credit as approved financial assurance mechanisms," which would reduce the likelihood that any current operating facility would become a legacy site.[29]

To demonstrate that the facility has adequate funds, the facility must establish funding as set out in federal regulation.[30] Power reactor licensees in decommissioning are required to provide annual decommissioning funding status reports (DFS reports) to the NRC that include, among other things, information on decommissioning expenditures made during the previous calendar year, the remaining balance of decommissioning funds, and an estimate of the cost to complete decommissioning.[31] Licensees must submit these reports to the NRC by March 31 of the reporting year.

This report must provide specified information that will allow the NRC to monitor the status of decommissioning funds for all power reactor licensees from

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[26] "Decommissioning Process."
[27] Nuclear Regulatory Commission, "General Requirements for Decommissioning Nuclear Facilities," *Federal Register* 53, no. 173 (June 27, 1988): 24018, https://archives.federalregister.gov/issue_slice/1988/6/27/24011-24056.pdf#page=8.
[28] Nuclear Regulatory Commission, "Reporting and Recordkeeping for Decommissioning Planning," *Federal Register* 63, no. 183 (Sept. 22, 1998): 50480, https://www.govinfo.gov/content/pkg/FR-1998-09-22/pdf/98-25278.pdf#page=16.
[29] Nuclear Regulatory Commission, "Decommissioning Planning," *Federal Register* 76, no. 117 (June 17, 2011), 35512, https://www.govinfo.gov/content/pkg/FR-2011-06-17/pdf/2011-14267.pdf.
[30] 10 C.F.R. 50.75.
[31] 10 CFR 50.82.

the time they begin operating until their license is terminated. The DFS reports must include: (1) the amount spent on decommissioning, both cumulative and over the previous calendar year, the remaining balance of any decommissioning funds, and the amount provided by other financial assurance methods being relied on; (2) an estimate of the costs to complete decommissioning, reflecting any difference between actual and estimated costs for work performed during the year, and the decommissioning criteria on which the estimate is based; (3) any modifications to a licensee's current method of providing financial assurance since the last submitted report; and (4) any material changes to trust agreements or financial assurance contracts.[32]

Relevant to reactors, the permissible methods of proving this funding are prepayment into a trust, escrow, or government fund; an external sinking fund where funds are set aside periodically into a trust, escrow or government fund; or a surety, insurance, or guarantee method.[33] The trusts often used to contain these funds can only be drawn upon for legitimate decommissioning purposes, the expenditure would not reduce the value of the trust below what would be necessary to maintain the reactor in unforeseen circumstances, and withdrawals would not inhibit the ability for the licensee to complete funding of any shortfalls in the decommissioning trust needed to ensure the availability of funds.[34] If, for some reason, the balance of the funds, plus 2 percent annual rate of return, does not match the estimated cost to complete decommissioning, the licensee must include additional assurances that it can cover the estimated cost of completion.[35]

These trust funds were set up to ensure the clean-up of massive nuclear facilities once they were shut down. While categorized as a public utility, the licensee receives funding from energy consumers (i.e., ratepayers).[36] Indeed, for utilities, no financial assurances are even required.[37] Conversely, since facilities that are no longer owned by utilities do not have access to incoming payments from ratepayers or the ability to adjust rates, if necessary, the NRC requires these entities to meet minimum financial assurance obligations. But some of the private companies who have taken over these facilities are planning to initially draw down trust funds and then delay decommissioning activities for years while they wait for

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[32] 10 C.F.R. 50.82(a)(8)(v).
[33] 10 C.F.R. 50.75(e). Other methods exist for situations different than are relevant to this paper.
[34] 10 C.F.R. 59.82(a)(8)(i).
[35] 10 C.F.R. 59.82(a)(8)(vi).
[36] 10 C.F.R. 50.2.
[37] "Backgrounder on Reactor License Transfers," Nuclear Regulatory Commission, Sept. 14, 2021. https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/fs-transfer.html.

the depleted trust fund to increase through investment. But why is the NRC not demanding that "additional financial assurances" be provided?

IV. Recent Developments of Non-Utility owned Companies Taking Over the Decommissioning Process

The transfer of nuclear facilities for decommissioning to entities without a ratepaying base is a recent development, with the first instance occurring in 2008 when Exelon Generating Company, LLC ("Excelon") shut down a two-unit facility in 1998.[38] The companies buying these facilities from public utilities are drawn to sizable trust funds that have been amassed by the ratepayers that had funded the facilities during its operation.[39] These companies, in theory, take ownership of the plants and do the clean-up with profit margins built in.[40]

Two companies started this trend of taking over decommissioning operations: Holtec International and NorthStar Group Services.[41] One innovation of this trend was that these companies relied upon their ability to complete the decommissioning at a cost less than the value contained in the trust with prudent management of the trust funds and in some instances these efforts seem to be viewed positively and ahead of schedule. [42][43][44]

These companies should be operating, essentially, as fiduciaries[45] to the communities who host the facilities and to the ratepayers who dutifully paid into the trusts for decades. But some of the companies who are overseeing the decommissioning appear to be acting as if they are operating high risk hedge funds.

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[38] Felica H. Ellsworth, "Nuclear Power in the Age of Decommissioning," Wilmer Hale, March 14, 2019. https://www.wilmerhale.com/insights/client-alerts/20190314-nuclear-power-in-the-age-of-decommissioning.
[39] Rothfeder and Maag, "Nuclear Drawdown."
[40] Ibid.
[41] Ibid.
[42] Ibid.
[43] Adam Sullivan, "Vt. Yankee Decommissioning Continues as Vernon Looks to Future of Site," wcax.com, May 15, 2023. https://www.wcax.com/2023/05/15/vt-yankee-decommissioning-continues-vernon-looks-future-site/.
[44] Susan Smallheer, "NorthStar: We're Ahead of Schedule, Under Budget at Vermont Yankee," Brattleboro Reformer, Sept. 20, 2021. https://www.reformer.com/local-news/northstar-were-ahead-of-schedule-under-budget-at-vermont-yankee/article_9b76d7dc-1a4f-11ec-821f-336101d47ae0.html.
[45] 10 C.F.R. 50.75(h)(1)(i)(B). The company is obligated to be a "prudent investor."

Indeed, TMI-2's most recent filing asked to delay a phase of decommissioning not because of work progress, but "due to market conditions."[46]

As our government's nuclear regulator, the NRC has a duty to ensure that these unreasonable financial risks are not being taken. But the records for most of these facilities that are no longer supported by a base of energy ratepayers reflect large losses in the trust fund balances, which far exceed the costs spent on actual decommissioning:

Decommissioning Funding Status Reports 2021-2022

(Data as of 12-31-2022 per NRC Reports from Adams)

FACILITY	1 YEAR DECOMMISSIONING COST*	TOTAL REDUCED TRUST BALANCE**	NON-DECOMMISSIONING FUND LOSS***
Pilgram	-$54,000,000	-$307,000,000	-$253,000,000
Duane Arnold Energy Complex	$36,840,000	-$151,000,000	-$187,840,000
Kewaunee	$59,900,000	-$89,600,000	-$149,500,000
Oyster Creek	-$52,000,000	-$198,000,000	-$146,000,000
TMI - 2	-$33,820,000	-$168,280,000	-$134,450,000
Indian Point - Unit 1	-$23,000,000	-$97,000,000	-$74,000,000
Indian Point - Unit 2	-$95,000,000	-$167,000,000	-$72,000,000
Indian Point - Unit 3	-$132,000,000	-$189,000,000	-$57,000,000
TMI - 1	-$79,860,000	-$106,300,000	-$26,440,000
Crystal River - Unit 3	-$93,440,000	-$101,230,000	-$7,790,000
Vermont Yankee	-$80,580,000	-$85,530,000	-$4,950,000

*Change of License Termination Estimate to Complete (ETC)
** Change of Nuclear Decommissioning Trust Fund (NDT)
** NDT Reduction net of ETC change

The results, as reflected by these facilities' annual reports, have demonstrated that financial speculation has indeed occurred. In the chart above, reports filed for the years 2021 and 2022 (but filed in the subsequent years), reflect that the trust funds are losing far more money than the money that is being spent.

[46] TMI-2 Solutions, "Decommissioning Fund Status Report – Three Mile Island, Unit 2," Nuclear Regulatory Commission, March 30, 2023. https://www.nrc.gov/docs/ML2309/ML23094A116.pdf.

The first column's numbers were calculated by taking the "remaining decommissioning spend" from 2021, minus the remaining spend for 2022. That reflects how much "decommissioning spend" occurred during the previous year. The second column took the trust fund balance from 2021, minus the trust fund balance for 2022. This reflects how much money came out of the trust from the previous year. The last column is the difference between "decommissioning spend" and the amount of money that came out of the trust balance altogether. Clearly, the chart reflects that, for all of the non-utility-owned reactor sites, more money came out of the trust than was spent on decommissioning.

These eleven similarly situated (power reactor sites that no longer have a ratepaying base) license holders demonstrate a troubling picture, most likely due to speculative investing. For example, all but two of the eleven facilities reviewed depleted their trust fund by more than ten million dollars from the actual work done. Three facilities Indian Point Units 1, 2, and 3, reduced their trust funds by at least $50 million more than they expended for decommissioning efforts last year. Four, Duane Arnold Energy Complex, Kewaunee, Oyster Creek, and TMI-2, reduced their trust fund by at least $125 million more than their decommissioning efforts. And one, Pilgrim had a reduction in the value trust fund of over $250 million from the cost of the clean-up costs. For money to be depleted past the decommission spend, only two options could explain the loss: bad investing or money being stolen. Without evidence of the latter, the former is the logical conclusion. For these facilities, to lose tens, or hundreds, of million dollars in just one year, the logical conclusion is risky speculative investing during a time when the market tanked.

Risky speculative investing without the financial ability to maintain the pace of decommissioning cannot be what the NRC envisioned for the trust fund management. The sum of the balance of the trust can assume future appreciation of 2 percent rate of return.[47] Such an assumption does not reflect aggressive or risky investments that would result in hundreds of millions of dollars in losses. Rather, the NRC was assuming conservative, and safe, investments that would ensure that the funds will be available for the licensee.

The NRC should take measures to ensure that the trust balances are not compromised by risky investments. This is especially true given that the majority of these unsupported facilities are losing significant amounts of money.

Now, after the speculative investments have dropped in value, it appears that the NRC is poised to allow the owners of these facilities to hit the "pause," button on nuclear clean ups while the companies try to find ways to recoup the lost money. The NRC's failure to demand that the funds be made whole despite the "market conditions," to ensure the necessary funds are held in trust, is gravely

[47] 10 C.F.R. 59.82(a)(8)(vi)

troubling as it leads to the continued delay of the decommissioning of nuclear facilities. The potential for threats to human safety or environmental harm persists as these companies delay, yet the NRC seems unconcerned.

V. Case Study #1: TMI-2

TMI-2 appears to be an illustrative case study for the larger problem that exists within the nuclear industry. To many, it might be stunning that the site of a near nuclear disaster, with a history of (or at least perception of) cutting corners, would continue to suffer from mismanagement to this day. Indeed, the TMI-2 project lost over $134 million above the decommission spend from 2021 to 2022.

TMI-2, like the other 11 mentioned nuclear facilities, is unsupported by ratepayer base and was sold to a private company for decommissioning. "[T]he company TMI-2 Solutions acquired the license for Unit 2 in 2020 and is responsible for remaining decommissioning activities there."[48] The timeline to complete this decommissioning is already over a decade in the future, currently scheduled to be completed by 2037.[49] Despite this lengthy amount of time, TMI-2 Solutions proposed in March to withdraw over $470 million and then pause the cleanup process for a decade and a half all the way to 2053.[50] This dramatic change of plans[51] from what the company had submitted in October 2022,[52] call into question why a private company would recommend that its efforts to clean up Unit 2 be delayed for a decade and a half? The "delay between Source Term Reduction[53] and Demolition" is "due to market conditions,"[54] indicating that the delay is financial. But perhaps this delay is also because the NRC's regulations require that the company come up with "additional financial assurance to cover the estimated cost of

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[48] Three Mile Island Backgrounder.
[49] "TMI Unit 2," TMI-2 Solutions. https://www.tmi2solutions.com/.
[50] "Decommissioning Fund Status Report."
[51] Source term cleanup would be delayed until the end of 2045. Ibid.
[52] "TMI-2 Solutions intends to substantially complete decommissioning of TMI-2 and release the site by 2037." TMI-2 Solutions, "Notification of 'Amended Post-Shutdown Decommissioning Activities Report' (PSDAR for Three Mile Island, Unit 2 in Accordance with 10 CR 50.82(a)(7)," Revision 5, Nuclear Regulatory Commission, Oct. 27, 2022, 7. https://www.nrc.gov/docs/ML2230/ML22306A051.pdf.
[53] "Source term refers to the magnitude and mix of the radionuclides released from the fuel, expressed as fractions of the fission product inventory in the fuel, as well as their physical and chemical form, and the timing of their release." "Nuclear Power Reactor Source Term," Nuclear Regulatory Commission, May 9, 2023. https://www.nrc.gov/reactors/new-reactors/advanced/nuclear-power-reactor-source-term.html.
[54] Decommissioning Fund Status Report.

completion."[55] By moving the completion date for 2037 to 2053, the company would avoid that requirement (assuming it does not continue to lose money).

TMI-2 Solutions, LLC, the company who now owns the license for TMI-2, has never had significant assets. When the license was transferred, the trust fund only had $800 million, with an estimated decommissioning cost of $1.06 billion.[56] From there, TMI-2 Solutions was only able to have access to another $100 million in "additional decommissioning funding assurance instruments" which consisted of a back-up trust, an irrevocable letter of credit, an easement, and a financial support agreement.[57] Based upon this and other reasons, a watchdog group challenged the license transfer but was ultimately unsuccessful at convincing the NRC to deny the transfer. Thus, from the beginning, the NRC has seemed unconcerned with assurances that TMI-Solutions had sufficient assets to cover decommissioning costs. Given TMI-Solutions trust fund's loss of $134.45 million in just one year, that lack of concern appears to continue.

Any reasonable observer would wonder whether TMI-2 Solutions will be able to maintain sufficient assets to decommission TMI. Yet the NRC has given no indication that it would raise these concerns with TMI-2 Solutions. Given that the nation's most infamous power plant is being regulated in such a manner, one must wonder whether NRC would notice financial mismanagement at all, with any facility. Given that TMI-2 is a part of a larger trend, it appears not.

VI. Case Study #2: Vermont Yankee

Despite the clear problems inherent in the current decommissioning system governing projects that are not supported by the base or ratepayers, we are not suggesting that we throw the baby out with the bath water. In fact, a few of these sites do appear to validate the propriety and potential of this ownership model.

Vermont Yankee Nuclear Power Station (Vermont Yankee) is a reactor that began operation in 1972 and shut down in 2014.[58] In 2017, the license was

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[55] 10 CFR 50.82.

[56] In the Matter of FirstEnergy Companies and TMI-2 Solutions, LLC, "Memorandum and Order," United States of America Nuclear Regulatory Commission, Docket No. 50-320-LT, 4. https://files.dep.state.pa.us/RadiationProtection/NuclearSafetyDivision/NSDPortalFiles/NRC-Opinion-Order_re-TMI-U2-Transfer_15Jan2021_5.pdf.

[57] Ibid.

[58] "Vermont Yankee Nuclear Power Station," Nuclear Regulatory Commission, March 9, 2021. https://www.nrc.gov/info-finder/decommissioning/power-reactor/vermont-yankee.html.

transferred to NorthStar to do the decommissioning.[59] As demonstrated on the chart above, Vermont Yankee is losing considerably less money than the other non-utility owned decommissioning sites. Perhaps not coincidentally, the fiscal restraint is correlated to progress made. Since 2017, Vermont Yankee has hit its benchmarks, including the completion of the dismantling of a reactor core in 2022.[60] Vermont Yankee has also been mentioned as a success story for how to utilize transportation in the decommissioning process.[61] It is estimated to conclude decommissioning by 2030.[62]

Vermont Yankee has appeared to please even those early skeptics with a cleanup work seemingly ahead of schedule and whose trust fund losses are well within the reasonable margins expected of a prudent investor in tough economic times. Examples like this provide hope that with the right regulatory mindset, the private ownership model may substantially advance public's long-term interests.

VII. Conclusion

The purpose of decommissioning is to safely remove residual radioactivity in order to release the property for other purposes.[63] Indeed, this traditional notion of making best use of land is the proper motive. Nuclear facilities, which contain radioactive material, are both hazardous to human safety and useless properties until they are decommissioned. The NRC, and the public, should demand that these activities are performed as quickly and efficiently as possible so that the public can make better use of the property.

However, the NRC allowed a situation where the decommissioning of these facilities may not be financially viable. All non-utility owned facilities are experiencing financial losses. Nine out of eleven (81%) of them are suffering large losses. Several of these facilities, as it stands now, cannot cover the total cost of decommissioning without delaying the process.

Meanwhile, the NRC does not appear to represent any obstacle in these delay tactics. When it should be forcing these companies to manage their trusts

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[59] Ibid.
[60] "Dismantling of Vermont Yankee Reactor Core Completed," World Nuclear News, Dec. 14, 2022. https://world-nuclear-news.org/Articles/Dismantling-of-Vermont-Yankee-reactor-core-complet.
[61] Jay Thomas, Mike Valenzano, and Nicolas Guibert, "Shipping Vermont Yankee's LLW: Lessons for Transporting Used Fuel," Nuclear Newswire, March 23, 2023. https://www.ans.org/news/article-4739/shipping-vermontyankees-llw-lessons-for-transporting-used-fuel/.
[62] "Vermont Yankee Nuclear Power Station."
[63] "Backgrounder on Decommissioning Nuclear Power Plants."

responsibly, it is not. If these companies run out of money, will ratepayers or taxpayers have to fund these trusts a second time? The NRC should be demanding companies that take on decommissioning obligations bear both the costs as well as the benefits. This means enforcing the stick of financial assurance when it becomes evident that current cleanup schedules lack sufficient trust funds to complete the decommissioning on reasonable schedules, consistent with the NRC's own rules.

The NRC appears to be asleep at the wheel. Perhaps the same problem exists as when the AEC was disbanded decades ago. If the NRC cannot regulate the facilities under its jurisdiction, perhaps Congressional oversight is warranted. It is time for reform to ensure that nuclear power companies properly and safely wind down the power plants that are no longer in use. The public's trust – and pocketbooks – are on the line if they don't.

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