



**Subject: Three Mile Island Nuclear Station, Unit 1  
Shutdown Decommissioning Activities Report  
Renewed Facility Operating License No. DPR 50  
NRC Docket No. 50-289  
10 CFR 50.82(a)(4)**

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**Three Mile Island Alert, Inc.'s  
Opposition to Exelon's Request for Exemptions Relating to  
Three Mile Island Unit-1's Decommissioning Trust  
Funds**

July 22, 2019

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555-0001

**Introduction**

Exelon Generation Company, LLC ("Exelon" or "the Company") is requesting an exemption from 10 CFR 50.82(a)(8)(i)(A) for Three Mile Island Nuclear Station, Unit 1, ("TMI-1") to allow use of a portion of the funds from the TMI-1 decommissioning trust fund ("DTF") for the management of spent fuel based on the TMI-1 decommissioning cost estimate ("DCE".) [See Enclosure 1 for a discussion on the unreliability of decontamination and decommissioning estimates at Three Mile Island.] Exelon also requests, pursuant to 10 CFR 50.12, an exemption from 10 CFR 50.75(h) (1) (iv) to allow TMI-1 DTF disbursements for spent fuel management to be made without prior notice, similar to withdrawals in accordance with 10 CFR 50.82(a)(8).

**TMI-Alert (“TMIA”) (Enclosure 2) opposes raiding ratepayer funds to subsidize a core function of nuclear power plant operations. Every nuclear plant in Pennsylvania– with the exception of Three Mile Island - has used corporate funds to construct spent fuel dry casks including Beaver Valley Power Station (“Beaver Valley”), Limerick Generating Station (“Limerick”), Peach Bottom Atomic Power Station (“Peach Bottom”), and Susquehanna Steam Electric Station (“Susquehanna”).**

**Exelon has intentionally delayed dry cask construction to provoke a radioactive waste crisis. Exelon, at peril to the community, is exploiting the situation to raid hostage ratepayers’ contributions.**

**Exelon is requesting to subvert it’s own precedent at Limerick and Peach Bottom where the company paid to construct dry cask storage facilities. (Refer to Enclosure 3.) The decommissioning trust funds are segregated and separated to prevent co-mingling. The NRC does not have ratemaking authority to compel Exelon to raise supplemental funds for the DTF when the plant is no longer operating.**

**This request fails to address, consider, or discuss the impact of Exelon’s request on federal and state laws, negotiated settlements, public policies, and regulatory restraints:**

**1) The license will likely be transferred to a Limited Liability Corporation per Exelon’s model at Oyster Creek (Refer to discussion on pp. 22-23); (Enclosure 4);**

**2) The NRC does not regulate rates in the Commonwealth of Pennsylvania. The Decommissioning Trust Funds (“DTF”) are not the property of the NRC. (Enclosure 5);**

**3) The proposal lacks accountability and transparency and violates Pa Title 66 ¶ “Transition or stranded costs.” § 2803. (1) & (3) (ii); §2804. Standards for restructuring of electric industry. (F) §2808. Competitive transition charge. (b) Period for collecting Competitive Transition Costs. (b) Determination of competitive transition charge(c)(1), and Chapter ¶69.1 & 69. 206 Inventory Management (Enclosure 6); and,**

**(4) The request represents a double-dipping of rate payer monies from the DTF. Exelon has received at least \$300 million from the Department of Treasury (“DOT”) as a result of Nuclear Waste Trust Fund Settlement. Exelon will continue to be reimbursed by the Department of Energy (“DOE”) during TMI’s decommissioning. (1) (Enclosure 7)**

10 CFR 50.82(a)(8)(i)(A) states that DTFs "may be used by licensees if ... [t]he withdrawals are for expenses for legitimate decommissioning activities consistent with the definition of decommissioning in § 50.2." The definition of decommissioning in 10 CFR 50.2 pertains to safely removing a facility from service and reducing residual radioactivity for eventual property release (i.e., radiological decommissioning).

**The NRC does not construe the 10 CFR 50.2 definition of “decommissioning” to include activities associated with spent fuel management. This is black letter federal law that Exelon acknowledges, and has made provisions for in their 2017 Annual Report, p. 110, and 2018 Annual Report, p. 85. (Enclosure 8.)**

10 CFR 50.75(h)(1)(iv) similarly requires that trust agreements **restrict disbursements** (other than for ordinary administrative and other incidental expenses of the fund) to those allowed under Section 50.82(a)(8), and requires a **30-day advance notification** to the NRC prior to making disbursements for expenses not covered under Section 5.82(a)(8).

1 The Settlement Agreement between the U.S. Department of Energy and Exelon Generation Company, LLC (including AmerGen Energy Company), was signed and executed August 5, 2004, as amended by the Addendum to the Settlement Agreement signed May 4, 2009. Three Mile Island’s license was transferred from AmerGen to Exelon in 2004. AmerGen ceased to exist a corporate entity in 2009.

**These protections are in place to prevent questionable and risky transfers, and to compel Exelon to abide by the Atomic Energy Act. The need for such oversight was reinforced by the GAO's Investigation: NRC's Oversight of Nuclear Power Decommissioning Funds Could Be Further Strengthened This report included a review of Three Mile Island.** (Enclosure 9.)

**Exemptions from 10 CFR 50.82(a)(8)(i)(A) and 10 CFR 50.75(h)(1)(iv) are required for spent fuel management activities.**

Exelon's cost estimate provided in PSDAR, Reference 1 discusses estimated costs associated with radiological decommissioning and spent fuel management based on "**minimum savings**" amounts.

**However, Exelon's data undermines its assertion in the PSDAR. The data Exelon provided to the NRC is inconsistent and omits information contained in SEC filings and Exelon's 2017 and 2018 Annual Reports.** Refer to discussions under "Nuclear Waste Storage and Disposal," "Nuclear Insurance," "Decommissioning," "Asset Retirement Obligations," "NRC Minimum Funding Requirements," and "Asset Retirement Obligations." (Enclosure 8.)

**Specifically, refer to Discussions in Exelon's 2017 Annual Report, pp. 109-110, p. 204, pp. 240-244, and pp. 271-275, and Exelon's 2018 Annual Report, p. 85, pp. 191-195, and p. 224.** (Enclosure 8.)

**Please pay special attention to the criteria used by Generation to determine the ARO, and to forecast the target growth in NDT funds in 2017 and 2018.**

**Moreover, Exelon has severed its decommissioning consulting relationship with TLG for external and independent audits. There is no financial firewall in place to provide independent data relating to Exelon’s Post-Shutdown Decommissioning Activities Report (“PSDAR”) filings.**

“Exelon maintains two separate trusts for this purpose, a tax qualified fund (“Qualified Trust”) and a non-tax qualified fund (“Non-Qualified Trust”). The trustee for both funds is Northern Trust Bank. As of December 31, 2018, the DTF has a total balance of **\$669,617,000**. The inadequacy of these funds to cover the **minimal amount projected** for non-radiological decommissioning and Greenfield costs is shown in Table 2.2., and these funds are exposed to changing tax protocols.

“When asked by a member of the public why the approximately \$670 million in the fund as of December does not seem to cover the cost estimates of more than \$1 billion for decommissioning, about \$158 million for fuel management and about \$86 million for site restoration, officials said funds would continue to accrue over many years.” (“York Dispatch,” July, 18, 2019.)

**By its own admission in the Post-Shutdown Decommissioning Activities Report (“PSDAR”), Exelon’s projections are based on low-end estimates, i.e., “minimal savings”, which are in turn contingent on guestimates of future economic behaviors.**

**The bedrock “scientific” assumptions can be found in the PSDAR, pages 12-23.** If licensees chose to use the proposed alternative approach, some SSC’s of “low safety significance” might only require normal industrial or commercial-grade regulatory controls. (NRC, February 22, 2000.) However, **it is assumed that radioactive contamination on Structures Systems and Component (“SSC”) surfaces will not have decayed to levels that will permit unrestricted release under DECON.** (PSDAR, April 5, 2019, Exelon Generation, LLC., pp. 10-11).

Neither Exelon or the NRC have defined “unrestricted use.” TMI has been the location of a functioning industrial complex since 1974. **Projecting funding levels based on ill defined standards is a prescription for underfunding.**

**After the NRC terminates the license, site restoration (another term without a clear definition) will cost approximately \$86 million and is not adequately funded. The metrics for the final site status is unknown, and no NRC oversight is required. Exelon acknowledges throughout the PSDAR that site restoration will be performed at Exelon’s discretion.**

“Exelon currently assumes that remaining structures will be removed to a nominal depth of three feet below the surrounding grade level. Affected area(s) would then be backfilled with suitable fill materials, graded, and appropriate erosion controls established [proximate to the Susquehanna River.] Non-contaminated concrete remaining after the demolition activities may be used for backfilling subsurface voids or may be transported to an offsite area for appropriate disposal as construction debris.” (PSDAR, p. 14. Refer to discussion on pp. 12-13.)

**Exelon has no funds to carry out post-termination obligations. In addition, the Company’s Asset Retirement Obligations (“ARO”) have increased steadily since 2016. (Exelon Annual Report, 2017 and Exelon Annual Report, 2018.)**

**Prior to raiding the DTF, there is gap between savings’ balance - \$669,617,000 – and the “minimal amount” - \$1,001,552,000 – or the amount to partially clean-up TMI-1.**

“The 10 CFR 50.75(c) minimum formula amount for TMI-1 as of December 31, 2018 is **\$493,028,000**. As indicated in Table 2.2, the **estimated cost** of radiological decommissioning at TMI-1 is **\$1,001,552,000**. **There is no enforcement mechanism available to the NRC to compel Exelon to make up the \$331,935,000 shortfall when the plant is no longer operating.**

In accordance with Regulatory Guide 1.185 (PSDAR, Reference 1), the site-specific DCE minimum formula amount, **is inadequate to fund the “medium” or “maximum” amount for decommissioning. The DTF fails to factor inflation, cyclical recessionary pressures, and real-life economic variables.** (Refer to discussion on pp. 12-13.)

Furthermore, these projections conflict with Exelon’s costs as submitted in their Security and Exchange filings (Enclosure 9), and do not include the cost of Greenfield and non-radiological decommissioning, e.g., site-restoration, caustic, chemical, and effluent monitoring, earthquakes, emergency planning outside of the fence line, flooding, ice jams, on-site fire protection, hardened security for dry casks and spent fuel pools, State-of-the-Art Reactor Consequence Analyses (“SOARCA”) scenarios, or implementation of a no-fly zone.

The Nuclear Regulatory Commission admits: “NRC decommissioning trust funds [**contributions derived from Pennsylvania Public Utility Commission tariffs**] are used for decommissioning as defined and regulated by the NRC. The NRC formulas address only those decommissioning costs needed to remove a facility or site safely from service and reduce radioactivity to safe levels to allow for termination of the license.”

**“...the costs of removal of non-radiological systems and structures are not included in the NRC decommissioning cost formulas. In addition, the costs of managing and storing spent fuel on site until transfer to the Department of Energy for permanent disposal are not included in NRC decommissioning cost formulas. The NRC does not ensure that there are sufficient funds to bring a site to Greenfield status.”** (Communication Strategy for the Enhancement of Public Awareness Regarding Power Reactors Transitioning to Decommissioning, February, 2015.)

10 CFR 50.82(a)(6)(iii) states that, **"Licensees shall not perform any decommissioning activities," as defined in 10 CFR 50.2; that, "Result in there no longer being reasonable assurance that adequate funds will be available for decommissioning."** Exelon’s exemption request would jeopardize the availability of adequate funds for the completion of decommissioning.

**Three Mile Island Nuclear Station - Unit 1  
Request for Exemption from 10 CFR 50.82(a)(8)(i)(A)  
and 10 CFR 50.75(h)(1)(iv)  
Specific Exemption Request Should Be Denied.**

Pursuant to 10 CFR 50.12, "Specific exemptions," Exelon Generation Company, LLC (Exelon) requests an exemption from 10 CFR 50.82(a)(8)(i)(A) for Three Mile Island Nuclear Station, Unit 1 (TMI-1) to **allow use of a portion of the funds from the TMI-1 decommissioning trust funds (DTF) for the management of spent fuel activities.** Exelon also requests, pursuant to 10 CFR 50.12, **an exemption from 10 CFR 50.75(h)(1)(iv) to allow DTF disbursements for spent fuel management activities to be made without prior notice, similar to withdrawals** in accordance with 10 CFR 50.82(a)(8).

Section (a)(B)(i)(A) of 10 CFR 50.82, "Termination of license," states the following:

**Decommissioning trust funds may be used by licensees if-- (A) The withdrawals are for expenses for legitimate decommissioning activities consistent with the definition of decommissioning in § 50.2.**

Section (h)(1)(iv) of 10 CFR 50.75, "Reporting and recordkeeping for decommissioning planning," states, in part:

**Except for withdrawals being made under § 50.82(a)(8) or for payments of ordinary administrative costs (including taxes) and other incidental expenses of the fund (including legal, accounting, actuarial, and trustee expenses) in connection with the operation of the fund, no disbursement or payment may be made from the trust, escrow account, Government fund, or other account used to segregate and manage the funds until written notice of the intention to make a disbursement or payment has been given to the Director, Office of Nuclear Reactor Regulation, Director, Office of New Reactors, or Director, Office of Nuclear Material Safety and Safeguards, as applicable, at least 30 working days before the date of the intended disbursement or payment.**



Section (h)(1)(iv) of 10 CFR 50.75 also states, in part:

Disbursements or payments from the trust, escrow account, Government fund, or other account used to segregate and manage the funds, other than for payment of ordinary administrative costs (including taxes) and other incidental expenses of the fund (including legal, accounting, actuarial, and trustee expenses) in connection with the operation of the fund, are restricted to decommissioning expenses or transfer to another financial assurance method acceptable under paragraph (e) of this section until final decommissioning has been completed. After decommissioning has begun and withdrawals from the decommissioning fund are made under § 50.82(a)(8), no further notification need be made to the NRC.

The 10 CFR 50.2, "Definitions," contains the following definition of "decommission:"

... to remove a facility or site safely from service and reduce residual radioactivity to a level that permits - (1) Release of the property for unrestricted use and termination of the license; or (2) Release of the property under restricted conditions and termination of the license.

**The NRC construes the definition of "decommissioning" in 10 CFR 50.2 as not including activities associated with spent fuel management.**

**TMI-Alert concurs with the NRC's conclusion that 10 CFR 50.82(a)(8)(i)(A) and 10 CFR 50.75(h)(1)(iv) prohibit use of DTFs for activities related to spent fuel management prior to completion of radiological decommissioning.**

**TMIA recommends that the NRC implement lessons learned from Post Defueling Monitored Storage ("PDMS") at Three Mile Island Unit-2 ("TMI-2"), and move TMI-1 into DECON immediately.**

SAFSTOR, Exelon's preferred delayed cleanup option, was adopted at Three Mile Island Unit (TMI-2), and referred to as Post-Defueling Monitored Storage ("PDMS".) The owner of TMI-2, GPU Nuclear ("GPU") stated that this strategy would allow radioactive decay to occur; thereby reducing the quantity of contamination and radioactivity that must be disposed of during the decontamination and dismantlement process as well as reducing the associated occupational exposure. (Enclosure 10)

TMI-Advisory Panel member Joel Roth observed:

"The Company had a difficult time finding the money to initially clean the plant up [the Thornburgh Plan bailed GPU out for \$987 million to defuel TMI-2 ] and is now going to face the those same steep costs again when it shuts the facility. We want some guarantees that down the road they will have a billion dollars to finish its cleanup. Their word is simply not enough."

On November 27, 1988, Frank Standerfer, GPU Vice President, stated to the TMI-Advisory Panel that "they [Licensee] will not have a problem finding funds to shut both reactors in the next century."

**GPU agreed to transition from PDMS/SAFSTOR to DECON in 2008.** The fuel from TMI-2 was transferred from the site to the Department of Energy's Independent Spent Fuel Storage Installation where it is being stored "**temporarily.**" (2)

**However, 31 years after the pledge to place move TMI-2 into DECON, the crippled reactor remains in SAFSTOR. TMI-2 is also a case study on the unreliability of decommissioning cost projections at Three Mile Island.**

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2 As outlined in Section 1.21, DOE-ID has prepared a LRA in accordance with applicable requirements in of the Code of Federal Regulations and the guidance contained in the Nuclear Regulatory Commission (NRC) Technical Report (NUREG-1927) [1.4.4] [1.4.5.] This application supports license renewal for an additional 20-year period beyond the end of the current license term of the Special Nuclear Materials (SNM) License Number SNM-2508, (Docket No., 72-20) [1.4.1]

In their 1997 Annual Report, GPU reported that the cost to decommission TMI-2 doubled in four years. The original \$200 million projection has been increased to \$399 million for radioactive decommissioning. An additional \$34 million will be needed for non-radiological decommissioning. The new funding “target” is \$433 million; or a 110% increase in just 48 months.

On December 31, 2007, the TMI-2 site summary on the NRC website on the decommissioning cost estimate and funds stated: “The current radiological decommissioning cost estimate is \$805 million.

By September 30, 2010, according to the NRC, “The current radiological decommissioning cost estimate is \$831.5 million. The current amount in the decommissioning trust fund is \$484.5 million, as of December 31, 2008.”

**The current price to decommission TMI-2 - according to the NRC - is \$1.26 billion as of March 26, 2018. The trust fund balance is \$834,857.14 or \$365,143,000 below the “minimal level” needed to cleanup TMI-2.**

**As of this filing, TMI-2 has not been decontaminated or decommissioned. Delaying the cleanup of TMI-1 will relegate TMI-2 to continue to serve as a high-level radioactive waste site until 2075.**

**TMI-Alert strongly opposes exemptions from 10 CFR 50.82(a)(8)(i)(A) and 10 CFR 50.75(h)(1)(iv) requested by Exelon to withdraw and use funds from the DTF for spent fuel management activities. The DTF contains inadequate funds to complete radiological decommissioning as well as spent fuel management activities and site restoration to Greenfield. These proposed exemptions – if granted -would present an undue risk to the public health and safety and prevent decommissioning from being completed as planned.**

The NRC decommissioning trust funds are used for decommissioning as defined and regulated by the NRC. The NRC formulas address only those decommissioning costs needed to remove a facility or site safely from service and reduce radioactivity to safe levels to allow for termination of the license.

The NRC maintains “**...the costs of removal of non-radiological systems and structures are not included in the NRC decommissioning cost formulas. In addition, the costs of managing and storing spent fuel on-site until transfer to the Department of Energy for permanent disposal are not included in NRC decommissioning cost formulas. The NRC does not ensure that there are sufficient funds to bring a site to Greenfield status.**” (Communication Strategy for the Enhancement of Public Awareness Regarding Power Reactors Transitioning to Decommissioning, February, 2015.)

Among the factors **excluded** from Exelon’s calculations and the NRC’s guidelines:

- Absence of regional labor costs, compensatory costs and measures for the loss of institutional knowledge, and, replacement costs for highly skilled labor tasks with plant-specific knowledge. (Refer to PSDAR.)

According to the NRC, Exelon has plan in place: “ Exelon will be required to have a competent technical staff to ensure the plant is maintained in a safe and secure condition until the license it terminated.” (NRC Webinar, July 16, 2019. Responses to Eric Epstein, July 19, 2019.)

- Aging, corrosion and embrittlement have yet to be analyzed, costed-out or discussed in detail. (Refer to PSDAR.)
- Federal monetary policy regarding interest rates, and changing tax protocols relating to decommissioning funds.

Refer to Webinar. No responses filed in the July 19, 2019 communication. . The NRC stated: “We’ll have to get back to you on the financial questions as our experts in that area are out today.”

- Escalated values attached for security costs for transportation, and dry cask construction near an international airport. (Refer to PSDAR.)
- Flawed assumptions and absence of values for inflation, stagflation, recession cycles or state and federal regulatory protocols relating to Chesapeake Bay remediation, site runoff, and storm water fees per the Clean Water Act and Municipal Stormwater (“MS4”) mandates. (Refer to PSDAR.)

Refer to Webinar. No responses filed in the July 19, 2019 communication. The NRC stated: “We’ll have to get back to you on the financial questions as our experts in that area are out today.”

- Generic, boiler plate economic formulas not adjusted for local, regional or state factors. (Refer to RSDAR.)
- Impact of tariffs on aluminum, iron, and steel costs. (Refer to PSDAR.)
- Legality and availability of interim and permanent spent fuel storage. (Refer to Webinar.)
- No plan in place to store or utilize institutional memory storage

The NRC stated, “Exelon will be required to have a competent technical staff to ensure the plant is maintained in a safe and secure condition until the license it terminated.” (Responses to Eric Epstein filed on July 19, 2019.)

- Plans for the availability of hazardous waste, mixed waste, and toxic waste disposal per Three Mile Island’s regulatory obligations with the Pennsylvania Department of Environmental Protection. (Refer to PSDAR. Site fees, locations, and storage capacities have not been identified.)
- Projections of the impact of fleet or national nuclear retirements occurring simultaneously. (Refer to PSDAR.)
- Planning for unrestricted release from regulatory control, after buildings have been demolished and no further redevelopment is planned does not exist. (Refer to PSDAR and Webinar.)

The NRC's response to Mr. Epstein on July, 19, 2019 acknowledges **Exelon's reliance on a "no-plan plan."** The NRC said: "Exelon has submitted the Post-Shutdown Decommissioning Activities Report (PSDAR). It is a high-level decommissioning plan that provides its decommissioning strategy for the Three Mile Island 1 nuclear power plant and a schedule. **NRC regulations do not require Exelon to provide a detailed decommissioning plan -- known as a License Termination Plan -- until two years before it requests license termination.** In the interim period, Exelon will conduct decommissioning activities under the 50.59 safety evaluation process. NUREG 1700, "Reactor Decommissioning Standard Review Plans for License Termination Plans (LTP)", is a good reference to see the types of information Exelon will need to submit in the LTP.

### **Background.**

By letter dated June 20, 2017, pursuant to 10 CFR 50.82(a)(1)(i), Exelon notified the U.S. Nuclear Regulatory Commission (NRC) of its intention to permanently cease power operations at TMI-1 by September 30, 2019. Once fuel has been permanently removed from the reactor vessel, Exelon will submit a written certification to the NRC, in accordance with 10 CFR 50.82(a)(1)(ii) that meets the requirements of 10 CFR 50.4(b)(9). Upon docketing of these certifications, the 10 CFR Part 50 license for TMI-1 will no longer authorize operation of the reactor or replacement or retention of fuel into the reactor vessel, as specified in 10 CFR 50.82(a)(2).

By letters dated April 5, 2019, Exelon submitted the TMI-1 Decommissioning Cost Estimate ("DCE") pursuant to 10 CFR 50.82(a)(4)(i) and the Spent Fuel Management Plan pursuant to 10 CFR 50.54(bb). The DCE submittal was based on the annual cash flow required for decommissioning TMI-1 based on the SAFSTOR scenario. The TMI-1 DCE was based on a retirement date of 2019.

## Flawed Basis for Exemption.

**TMI-Alert opposes Exelon's use of the SAFSTOR method of decommissioning and decontamination at TMI-1. This option defers the completion of radiological decommissioning until 2075. Moreover, SAFSTOR artificially delays the cleanup of TMI-2 based on the MOU signed by Exelon and FirstEnergy.**

Q: Are you aware of the MOU between FE and Exelon which links decommissioning of TMI-1 and TMI-2?

A: NRC is aware that there is a MOU between FE and Exelon. We are not a party to the agreement and are not aware of any details in the agreement. (Response to Eric Epstein, July 19, 2019.)

**The NRC can choose to ignore the MOU, but the stark reality is that if SAFSTOR is approved at TMI-1, then TMI-2 will remain in limbo until 2075. The problem with this scenario is that it contradicts the position that the NRC outlined in their decommissioning review of TMI-2 in 2018. The NRC accepted GPU's decommissioning time line of beginning in 2040 with an anticipated withdrawal of \$97 million occurring in 2041.**

**Adding to the surreal conflict between and Exelon and FirstEnergy's PSDAR plans is the fact that FirstEnergy's PSDAR - which is in compliance with 10 CFR 50.82(a)(4) - recognizes September 14, 1993 as the permanent date of cessation and coincides with License Amendment 45, (Ascension No. ML12349A291).**

**However, since GPU has 60 years to decommission TMI-2 from September 14, 1993, decommissioning at TMI-2 cannot be delayed after 2053. Which means the NRC must resolve their PSDAR approved riddle of "Who's On First, What's on Second" carousel of conflicting cleanup dates for cleaning-up TMI-1 and TMI-2.**

**Table 1** reflects the projected annual expenditures required for radiological decommissioning TMI-1 (including Independent Spent Fuel Storage Installation (“ISFSI”) based on the SAFSTOR scenario from the PSDAR, Reference 2 cost estimate. **These costs should be excluded in the 2019 row in Table 1.**

**Spent fuel management costs are inappropriately included in the PSDAR, Reference 2 cost estimate starting in 2019.** These costs include the cost to design and build the ISFSI, design, and manufacture the upgraded refuel handling building crane, and purchase long lead time items associated with the spent fuel storage system.

**None of the 2019 spent fuel management costs have been reimbursed from the DTF, and future costs should be borne exclusively by the licensee.**

**To date, all of these costs for dry cask storage have been paid by Exelon at their Pennsylvania nuclear generating stations. Exelon’s precedent established at Limerick and Peach Bottom clearly and unambiguously establish that dry cask storage costs are the responsibility of the licensee.**

The escalation was determined using a boiler plate forecasting tool that relied on an average annual escalation rate of 2.8638%. This rate was calculated using the Employment Cost Index Total Compensation Private Industry Workers United States. These escalation costs ignore local, regional or state data. (Please refer to discussion on pp.12-13.)

**Table 2** includes a cash flow analysis which demonstrates that during the SAFSTOR period, the amount is **insufficient to cover the “minimal,” “medium” or “maximum” cost of radiological decommissioning and spent fuel management activities.**

Contributions to the DTF and cost escalation are both assumed to be zero in the Table 2 analysis. **Yet, additional costs are the responsibility of the licensee which has no tangible plans in place to secure the funding. The rate of return is inconsistent with the aggregate rate of return experienced by Exelon as disclosed in their NRC and PUC reporting from 2008 to 2012. Moreover, investment instruments are restricted based on NRC approved formulas.**



Exelon formed a site organization dedicated to decommissioning planning in 2017. The 2017 and 2018 radiological decommissioning planning costs associated with this organization **should not be** reimbursed from the DTF.

**Exelon delayed spent fuel management planning at TMI-1 until 2018, while being aware of storage shortages since at least the 1990s. Exelon re-racked Spent Fuel Pools into denser geometric configurations during refueling outages.**

Exelon re-racked spent fuel from 2002-2009 in three phases. By mid-2003, an additional 216 re-racked cells were installed, or enough for three refueling cycles. By mid-2009, Exelon added another 432 re-racked cells extending storage capacity through 2018. Because of the additional capacity, and Three Mile Island-1 core size, (177) the Company will lose full core off-load capability in 2019.

**Exelon was aware of spent fuel storage problems for over two decades. The NRC allowed a “no action” course of action. Spent fuel management planning costs should not be reimbursed from the DTF. Exelon’s business decisions require a shareholder response. Ratepayers should not subsidize Exelon’s poor planning, and the NRC’s laissez-faire oversight.**

**At the end of radiological decommissioning, a planned shortfall will occur. The proposed “minimum” projections do not include additional costs to achieve site restoration to Greenfield or non-radiological decommissioning. Accelerating the short fall due to poor management is not a legitimate reason to grant an exemption.**

### **Adjusting Cost Estimates and Funding Levels.**

10 CFR 50.82(a)(8)(iv) states the following:

**For decommissioning activities that delay completion of decommissioning by including a period of storage or surveillance, the licensee shall provide a means of adjusting cost estimates and associated funding levels over the storage or surveillance period. SAFSTOR for TMI-1 is the same as PDMS for TMI-2.**

**This scenario lacks regulatory oversight, fails to put any mechanism in place to compel adequate funding, and should be rejected in favor of DECON.**

Exelon anticipates maintaining TMI-1 in a safe storage condition (“SAFSTOR”) for an extended period prior to completion of radiological decommissioning. According to **Exelon’s theory**, this will allow radioactive decay to occur, thereby reducing the quantity of contamination and radioactivity that must be disposed of during the decontamination and dismantlement process as well as reducing the associated occupational exposure. **TMI-1 must be enrolled in DECON or it will be placed in a nuclear nether world like TMI-2.** (Please refer to Enclosure 1.)

Exelon's approach to address the requirements of 10 CFR 50.82(a)(8)(iv) with respect to "adjusting [decommissioning] cost estimates and associated funding levels over the storage or surveillance period" is discussed below.

During the SAFSTOR period, the site-specific decommissioning cost estimate will be periodically updated in compliance with Exelon procedures. **The cost estimates and financial levels will be adjusted in accordance with Regulatory Guide 1.159, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors," and will be used to demonstrate funding assurance. If the funding assurance demonstration shows the decommissioning trust fund is not sufficient, then an alternate funding mechanism allowed by 10 CFR 50.75(e) and the guidance provided in the Regulatory Guide, will be put in place at an appropriate, to be determined time.**

**There are no guarantees in place to ensure adequate funding is in place after Exelon deactivates the plant. Exelon’s language is a toothless verbal promissory note. The “surveillance option” is grossly inadequate to ensure “minimum” let alone real funding is in place for decontamination, decommissioning, and Greenfield.**

**Periodic updates rely on Exelon’s internal estimates. Exelon has transitioned from using TLG for decommissioning cost estimates. The Company is now calculating costs based on in-house, internal biases.**

## **There is No Justification for the Exemption for the DTF and There are No Special Circumstances at Three Mile Island Unit-1.**

Pursuant to 10 CFR 50.12, the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of the regulations of Part 50 which are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security.

10 CFR 50.12 also states that the Commission will not consider granting an exemption unless special circumstances are present. As discussed below, this exemption request does not satisfy the provisions of Section 50.12.

**TMI re-racked and postponed dry cask storage construction. Exelon's self-inflicted waste storage conundrum is a business decision. Exelon should not be rewarded for perpetrating a planned train wreck.**

### **Exemptions.**

**A. The exemptions subvert state and federal law, and give Exelon an unfair competitive advantage.**

The proposed exemptions from 10 CFR 50.82(a)(8)(i)(A) and 10 CFR 50.75(h)(1)(iv) would allow Exelon to use a portion of the funds from the decommissioning trust fund for spent fuel management activities, consistent with the TMI-1 Spent Fuel Management Plan, and decommissioning cost estimate.

**TMI-Alert argues that there are no special exemptions present. A pre-planned corporate strategy of delaying construction of dry casks does not justify a rate payer bailout. Every nuclear station that has transitioned to dry cask storage in Pennsylvania has used corporate funds to underwrite this core function of nuclear power generation.**

The proposed exemptions would result in a violation of the Atomic Energy Act of 1954. Exelon's proposal lacks accountability and transparency and violates Pa Title 66 ¶ "Transition or stranded costs." §2803. (1) & (3) (ii); §2804. Standards for restructuring of electric industry. (F) § 2808. Competitive transition charge. (b) Period for collecting Competitive Transition Costs. (b) Determination of competitive transition charge(c)(1), and **Chapter ¶69.1 & 69. 206 Inventory Management** (Enclosure 6).

Exelon mismanaged their fuel inventory by ordering fuel that would exceed the available storage capacity. The exemptions would also pre-empt Pennsylvania's Electricity Customer Choice and Competition Act (1996), and create an unfair competitive advantage over FirstEnergy and Talen Energy, which were precluded from raiding their respective Decommissioning Trust Funds.

**Therefore, the exemption request is incompatible with state and federal laws.**

**B. The exemptions will present an undue risk to public health and safety.**

The underlying purpose of 10 CFR 50.82(a)(8)(i)(A) and 10 CFR 50.75(h)(1)(iv) is to provide reasonable assurance that adequate funds will be available for decommissioning of power reactors. **Raiding the trust fund for spent fuel management activities will undermine Exelon's ability to decommission TMI-1.**

**An exemption from 10 CFR 50.75(h)(1)(iv) to allow Exelon to make withdrawals from the trust fund to cover expenses for spent fuel management efforts without prior written notification to the NRC. Unfettered access to the DTF will adversely affect the sufficiency of funds in the trust fund to accomplish radiological decontamination of the site.**

The reporting requirements in 10 CFR 50.82(a)(8)(v) and (vi) are grossly inadequate to assure sufficient funding is in place. **Exempting Exelon from pre-notification protocols is like hiring a bank robber to guard your safety-deposit box.**

New accident scenarios are created by raiding the trust fund, and not cleaning the plant up immediately. The probability of postulated accidents has increased relating to K-Effective levels (3), the risk of spent fuel fires increase (4); and, negative impacts from natural hazards such as flooding and seismic challenges have increased due to the absence of off-site external support. (5)

Therefore, the exemptions will present an undue risk to the public health and safety.

### **C. The exemptions are not consistent with the common defense and security.**

The proposed exemptions would allow Exelon to use a portion of trust funds for spent fuel management efforts, which are inconsistent with the TMI-1 Spent Fuel Management Plan and Decommissioning Cost Estimate.

“The NRC does not have jurisdiction when it comes to off-site emergency response for nuclear power plants. FEMA is the federal agency responsible for overseeing the adequacy of those plans, which would be carried out by state, counties and local emergency response authorities...

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2 “K-Effective as a Measure of Criticality Safety”, JAERI-Conference, J. Venner, R.M. Haley and R.L. Bowden, pp.131-132)

3 If a spent fuel fire occurred during SAFSTOR, and “...were to propagate from the hotter to colder fuel a radioactive release could be very large”, (David Lochbaum, Union of Concerned Scientists, “Safer Storage of Spent Nuclear Fuel.”)

4 Exelon is requesting an exemption to eliminate all off site contingencies. The NRC acknowledged at the webinar that the last planned evacuation exercise is scheduled for August, 2019. (NRC Webinar, July, 17, 2019.)

The NRC also stated, “The plant owner is responsible for the security of its site. These security plans are regularly inspected by the NRC, including during a force-on-force exercise conducted once every three years at plant sites. During those exercises, the plant security force must, among other things, demonstrate its ability to repel mock intruders.” (NRC Response to Eric Epstein, July 19, 2019.)

**However, Exelon is asking for an exemption from off-site planning exercises at the same the NRC is extolling the virtues of a program that is soon to be phased out.**

**This change to enable use of some of the funds in the trust fund for spent fuel management activities decreases the margins of safety and security at the plant site and beyond the fence line. This exemption also imperils the integrity of the Harrisburg International Airport.**

Therefore, the proposed exemptions are inconsistent with the common defense and security, and unnecessarily put the local community at risk.

### **No Special Circumstances.**

Pursuant to 10 CFR 50.12(a)(2), the NRC will not consider granting an exemption to its regulations unless special circumstances are present. TMI-Alert has determined that special circumstances are **not** present as discussed below.

#### **A. Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule, and is not necessary to achieve the underlying purpose of the rule. (10 CFR 50.12(a){2}(ii))**

The underlying purpose of 10 CFR 50.82(a)(8)(i)(A) and 10 CFR 50.75(h)(1)(iv) is to provide reasonable assurance that adequate funds will be available for decommissioning of power reactors within 60 years of cessation of operations. TMI-2 has proven this theory to be a cruel joke.

**Strict application of the rule prohibits withdrawal of funds from the DTF for activities associated with spent fuel management activities until final radiological decommissioning at TMI-1 has been completed. Tables 1 and 2 (as discussed above) demonstrate that adequate funds are not – and will not be available for non-radiological decommissioning and Greenfield.**

**The 30-day notification provision in 10 CFR 50.75(h)(1)(iv) was intended to insulate and protect rate payers, residents and tax payers. The underlying purpose of notifying the NRC prior to withdrawal of funds from the DTF is to provide an opportunity for NRC and Public Utility Commission intervention, when deemed necessary, if the withdrawals are for expenses other than those authorized by 10 CFR 50.75(h)(1)(iv) and 10 CFR 50.82(a)(8) that could result in insufficient funds in the DTF to accomplish radiological decontamination of the site.**

**Therefore, since the underlying purposes of the rules would be undermined by allowing Exelon to use the DTF to fund the activities as discussed in the TMI-1 cost estimate and Spent Fuel Management Plan, the special circumstances of 10 CFR 50.12(a)(2)(ii) are not present.**

**B. Compliance with federal and state laws would not result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated. (10 CFR 50.12(a)(2)(iii)).**

**Exelon should not use ratepayer funds to underwrite a core function of nuclear power plant operations. Exelon already has access to Department of Treasury payments for spent fuel management activities. (Enclosure 8) The status quo would mean that TMI would be following the same protocol as every other nuclear power plant in Pennsylvania. To maintain a lock box on the DTF is the intent of the law.**



**In the alternative, TMI-Alert would entertain a scenario where Exelon returns federal taxpayer funds for spent fuel management for consideration of the DTF exemption.**

**Therefore, compliance with the rule is not an undue hardship but a reasonable requirement, and allows the restrictions to remain in place as envisioned.**

#### **Absence of precedent.**

**The exemption request for 10 CFR 50.82(a)(8)(i)(A) and 10 CFR 50.75(h)(1)(iv) is not consistent with exemption requests that recently have been issued by the NRG for other nuclear power reactor facilities beginning decommissioning. None of these plants are in Pennsylvania where the precedent of self-funding has been established at Beaver Valley, Limerick, Peach Bottom, and Susquehanna nuclear generating stations.**

**All of these plants have been compensated for spent fuel storage costs with an agreement with the DOE which is funded by the Treasury Department. To grant the exemption is to endorse double dipping, and inconsistent with the NRC's formula at Exelon's Oyster Creek Generating Station.**

**The NRC has created at precedent at Oyster Creek of factoring DOE settlement funds into DTF calculations.** The NRC wrote on September 28, 2018:

**“As an additional potential source of funding for Oyster Creek SFM costs, Exelon also will rely on reimbursements from the DOE to fund SFMP activities, pursuant to the terms of the settlement agreement between Exelon and the United States Government, concerning DOE's breach of its contract to accept and dispose of spent fuel and high-level waste at Oyster Creek. (Subject: Oyster Creek: Update to Spent Fuel Management Plan (EPID L-2018-LRO-0023.)**



## **Environmental Assessment.**

The proposed exemption does not meet the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(25), because the proposed exemption involves: (i) significant hazards consideration; (ii) significant change in the types or significant increase in the amounts of any effluents that may be released offsite; (iii) significant increase in individual or cumulative public or occupational radiation exposure; (iv) significant construction impact; (v) significant increase in the potential for or consequences from radiological accidents; and (vi) the requirements from which the exemption is sought involve would undermine (H) surety, insurance or indemnity requirements.

**Therefore, pursuant to 10 CFR 51.22(b), an environmental impact statement or environmental assessment needs to be prepared in connection with the proposed exemption.**

### **(i) No Significant Hazards Consideration Determination.**

TMIA has evaluated the proposed exemption to determine whether or not a significant hazards consideration is involved by focusing on the three standards set forth in 10 CFR 50.92 as discussed below:

#### **1. Does the proposed exemption involve a significant increase in the probability or consequences of an accident previously evaluated?**

Response: Yes.

The proposed exemptions would allow Exelon to withdraw funds from the Three Mile Island Nuclear Station's decommissioning trust fund.

Therefore, the proposed exemption does involve a significant increase in the probability and consequences of an accident previously evaluated as evidenced by the abandonment and chronic underfunding of TMI-2 which was placed under a similar protocol.

**2. Do the proposed exemptions create the possibility of a new or different kind of accident from any accident previously evaluated?**

Response: Yes.

The proposed exemption does involve a physical alteration of the plant. Lack of physical modifications to existing equipment associated with the proposed exemption may facilitate embrittlement and challenges to the tensile and yield strength of vital safety components. Thus, new initiators or precursors of a new or different kind of accident are created. Furthermore, the proposed exemption creates the possibility of a new accident as a result of new failure modes associated with equipment or lack of personnel oversight.

Therefore, the proposed exemption does create the possibility of a new or different kind of accident from any accident previously evaluated.

**3. Do the proposed exemptions involve a significant reduction in a margin of safety?**

Response: Yes.

The proposed exemption does alter the design basis and safety limits for the plant. The proposed exemption does impact station operation and any plant SSC that is relied upon for accident mitigation.

Therefore, the proposed exemption involves a significant reduction in a margin of safety based on the fact the physical structure will age-in-place. Based on the above, TMLA concludes that the proposed exemption presents significant hazards consideration, and, accordingly, a finding of "significant hazards consideration" is justified.

**(ii) There is significant change in the types or significant increase in the amounts of any effluents that may be released offsite.**

There are expected changes in the types, characteristics, or quantities of effluents discharged to the environment associated with the proposed exemption. There are materials or chemicals introduced into the plant that could affect the characteristics or types of effluents released offsite. Therefore, the proposed exemption will result in significant change to the types or significant increase in the amounts of any effluents that may be released offsite.

**(iii) There is a significant increase in individual or cumulative public or occupational radiation exposure.**

The proposed exemptions allow the plant configuration to atrophy which could lead to a significant increase in individual or cumulative occupational radiation exposure.

**(iv) There is a significant impact to placing the site in dormancy.**

Delayed site construction activities may be associated with the proposed exemption which would adversely impact TMI-1 and TMI-2.

During the 159-ton reactor head lift, from July 24-27, 1984, which was delayed due to polar crane failure, GPU vented radioactive gases into the environment despite pledges by the Company and NRC that no radioactive releases would occur. This is the first time there had been direct access to Unit-2's damaged fuel. GPU was fined \$40,000 by the NRC for this violation.

**(v) There is a significant increase in the potential for or consequences from radiological accidents.**

The reduction in staffing and loss of institutional memory will erode the margin of safety.

**(vi) The requirements from which exemption is sought involve: (H) surety, insurance or indemnity requirements.**

The underlying purpose of the requirements from which exemptions are sought is to provide reasonable assurance that adequate funds will be available for decommissioning of power reactors. Exelon's request explicitly undermines requirements, and does not provide meaningful guarantees for decommissioning funding.

Section (h)(1)(iv) of 10 CFR 50.75 also states, in part:

Disbursements or payments from the trust, escrow account, Government fund, or other account used to segregate and manage the funds, other than for payment of ordinary administrative costs (including taxes) and other incidental expenses of the fund (including legal, accounting, actuarial, and trustee expenses) in connection with the operation of the fund, are restricted to decommissioning expenses or transfer to another financial assurance method acceptable under paragraph (e) of this section until final decommissioning has been completed. After decommissioning has begun and withdrawals from the decommissioning fund are made under § 50.82(a)(8), no further notification need be made to the NRC.

TMI has already experienced the erosion of financial security during SAFSTOR at TMI-2. On July 21, 1999, GPU Nuclear received permission from the **NRC to reduce the insurance at TMI-2 from \$1.06 billion to \$50 million.** (Please refer to discussion in Enclosure 1.)

Four months later, TMI-2 was formally transferred from GPU Nuclear to FirstEnergy. FirstEnergy Nuclear Operating Company is currently involved in **bankruptcy proceedings.** Exelon has made a similar license transfer this year to Holtec at Oyster Creek. (Enclosure 5. DFI, pp. 2-11.)

In December, 2018, the Nuclear Regulatory Commission approved reductions in Exelon's Oyster Creek Generating Station's liability insurance by \$1.45 billion. Reductions in off-site insurance by \$350 million and on-site insurance by \$1.1 billion were approved three months after the plant shutdown.

## Conclusion.

**The proposed exemptions would allow Exelon to subvert the TMI-1 decommissioning trust fund for spent fuel management which is a core function of nuclear power operations. Pennsylvania ratepayers should not be subsidizing Exelon's poor corporate decision to delay construction of dry casks. Taxpayers, through the Department of Energy's settlement with Exelon, have already furnished TMI with additional millions in funds for spent fuel management.**

Granting these exemptions is inconsistent with the purposes underlying NRC decommissioning regulations as the exemptions: (1) Would foreclose release of the site for possible unrestricted use; (2) Would result in significant environmental impacts not previously reviewed by the NRC; and (3) Would undermine the existing and continuing reasonable assurance that adequate funds will be available for decommissioning.

Pursuant to the provisions of 10 CFR 50.12, TMI-Alert strongly opposes permanent or temporary exemptions from 10 CFR 50.82(a)(8)(i)(A) and 10 CFR 50.75(h)(1)(iv) for TMI-1. Based on the considerations discussed above, the requested exemptions clearly undermine both state and federal laws, and present an undue risk to the public health and safety.

Respectfully submitted,

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**Enclosures**

cc:

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NRC Project Manager, NMSS/DUWP/RDB - Three Mile Island - Unit 2  
Environmental Resources

**Table 1**  
**RADIOLOGICAL DECOMMISSIONING AND SPENT FUEL MANAGEMENT**  
**ANNUAL EXPENDITURES FOR SAFSTOR**  
**THREE MILE ISLAND NUCLEAR STATION UNIT 1**  
**(December 31, 2018 dollars, thousands)**

Year	Radiological Decommissioning Cost	Spent Fuel Management Cost	Total Cost <sup>(a)</sup>
2019	20,490	27,477	47,967
2020	66,516	30,973	97,490
2021	45,645	25,395	71,040
2022	38,025	14,963	52,988
2023	10,086	123	10,209
2024	9,099	1,139	10,238
2025	6,057	4,152	10,209
2026	6,057	4,152	10,209
2027	6,057	4,152	10,209
2028	6,073	4,163	10,237
2029	6,057	4,152	10,209
2030	6,057	4,152	10,209

Chart continued on next page

2031	6,057	4,152	10,209
2032	6,073	4,163	10,237
2033	6,057	4,152	10,209
2034	6,052	7,385	13,437
2035	6,040	13,784	19,824
2036	5,702	0	5,702
2037	5,686	0	5,686
2038	5,686	0	5,686
2039	5,686	0	5,686
2040	5,702	0	5,702
2041	5,686	0	5,686
2042	5,686	0	5,686
2043	5,686	0	5,686
2044	5,702	0	5,702
2045	5,686	0	5,686
2046	5,686	0	5,686
2047	5,686	0	5,686
2048	5,702	0	5,702
2049	5,686	0	5,686
2050	5,686	0	5,686
2051	5,686	0	5,686
2052	5,702	0	5,702
2053	5,686	0	5,686
2054	5,686	0	5,686



**Table 1 (Continued)**

<b>Year</b>	<b>Radiological Decommissioning Cost</b>	<b>Spent Fuel Management Cost</b>	<b>Total Cost<sup>(a)</sup></b>
2055	5,686	0	5,686
2056	5,702	0	5,702
2057	5,686	0	5,686
2058	5,686	0	5,686
2059	5,686	0	5,686
2060	5,702	0	5,702
2061	5,686	0	5,686
2062	5,686	0	5,686
2063	5,686	0	5,686
2064	5,702	0	5,702
2065	5,686	0	5,686
2066	5,686	0	5,686
2067	5,686	0	5,686
2068	5,702	0	5,702
2069	5,686	0	5,686

Chart continued on next page

2070	5,686	0	5,686
2071	5,686	0	5,686
2072	5,702	0	5,702
2073	24,709	0	24,709
2074	6,1226	0	6,1226
2075	150,301	0	150,301
2076	113,681	0	113,681
2077	75,862	0	75,862
2078	75,687	0	75,687
2079	32,813	0	32,813
2080	133 <sup>(b)</sup>	0	133
2081	95 <sup>(b)</sup>	0	95
<b>Totals<sup>(a)</sup></b>	<b>1,001,552</b>	<b>158,631</b>	<b>1,160,184</b>

(a) Cash flows may not add due to rounding.

(b) 2080 and 2081 Radiological Decommissioning Costs are administrative expenses associated with submitting a final report to the NRC following license termination and do not include any physical decommissioning work.

**Table 2**  
**ANNUAL SAFSTOR DECOMMISSIONING FUND CASH FLOW FOR**  
**THREE MILE ISLAND NUCLEAR STATION, UNIT 1**  
**(December 31, 2018 dollars, thousands)**

Year	Total Cost <sup>(a)</sup>	BOY Trust Fund Value	BOY Trust Fund Less Cost	Trust Fund Earnings <sup>(b)</sup>	EOY Trust Fund Value <sup>(c)</sup>
2019	47,967	662,953 <sup>(d)</sup>	614,986	12,300	627,286
2020	97,490	627,286	529,797	10,596	540,393
2021	71,040	540,393	469,352	9,387	478,739
2022	52,988	478,739	425,751	8,515	434,266
2023	10,209	434,266	424,057	8,481	432,539
2024	10,238	432,539	422,301	8,446	430,747
2025	10,209	430,747	420,538	8,411	428,949
2026	10,209	428,949	418,740	8,375	427,114
2027	10,209	427,114	416,905	8,338	425,244
2028	10,237	425,244	415,007	8,300	423,307
2029	10,209	423,307	413,098	8,262	421,360
2030	10,209	421,360	411,151	8,223	419,374
2031	10,209	419,374	409,165	8,183	417,348
2032	10,237	417,348	407,111	8,142	415,253
2033	10,209	415,253	405,044	8,101	413,145
2034	13,437	413,145	399,709	7,994	407,703
2035	19,824	407,703	387,879	7,758	395,637
2036	5,702	395,637	389,935	7,799	397,733
2037	5,686	397,733	392,047	7,841	399,888
2038	5,686	399,888	394,202	7,884	402,086
2039	5,686	402,086	396,400	7,928	404,328
2040	5,702	404,328	398,626	7,973	406,598
2041	5,686	406,598	400,912	8,018	408,930
2042	5,686	408,930	403,244	8,065	411,309
2043	5,686	411,309	405,623	8,112	413,735
2044	5,702	413,735	408,033	8,161	416,194
2045	5,686	416,194	410,508	8,210	418,718
2046	5,686	418,718	413,031	8,261	421,292
2047	5,686	421,292	415,606	8,312	423,918
2048	5,702	423,918	418,216	8,364	426,580
2049	5,686	426,580	420,894	8,418	429,312
2050	5,686	429,312	423,626	8,473	432,098
2051	5,686	432,098	426,412	8,528	434,940

Chart continues on next page

Table 2 (Continued)

Year	Total Cost <sup>(a)</sup>	BOY Trust Fund Value	BOY Trust Fund Less Cost	Trust Fund Earnings <sup>(b)</sup>	EOY Trust Fund Value <sup>(c)</sup>
2052	5,702	434,940	429,238	8,585	437,823
2053	5,686	437,823	432,137	8,643	440,780
2054	5,686	440,780	435,093	8,702	443,795
2055	5,686	443,795	438,109	8,762	446,871
2056	5,702	446,871	441,169	8,823	449,993
2057	5,686	449,993	444,306	8,886	453,192
2058	5,686	453,192	447,506	8,950	456,456
2059	5,686	456,456	450,770	9,015	459,785
2060	5,702	459,785	454,084	9,082	463,165
2061	5,686	463,165	457,479	9,150	466,628
2062	5,686	466,628	460,942	9,219	470,161
2063	5,686	470,161	464,475	9,289	473,764
2064	5,702	473,764	468,062	9,361	477,424
2065	5,686	477,424	471,737	9,435	481,172
2066	5,686	481,172	475,486	9,510	484,996
2067	5,686	484,996	479,309	9,586	488,895
2068	5,702	488,895	483,194	9,664	492,857
2069	5,686	492,857	487,171	9,743	496,915
2070	5,686	496,915	491,228	9,825	501,053
2071	5,686	501,053	495,367	9,907	505,274
2072	5,702	505,274	499,572	9,991	509,564
2073	24,709	509,564	484,855	9,697	494,552
2074	6,1226	494,552	433,326	8,667	441,992
2075	150,301	441,992	291,692	5,834	297,525
2076	113,681	297,525	183,844	3,677	187,521
2077	75,862	187,521	111,659	2,233	113,892
2078	75,687	113,892	38,205	764	38,969
2079	32,813	38,969	6,156	123	6,279
2080	133	6,279	6,146	123	6,269
2081	95	6,269	6,174	123	6,298
<b>Total<sup>(c)</sup></b>	<b>1,160,184</b>				

(a) Annual SAFSTOR decommissioning cost (radiological + spent fuel)

(b) A 2% annual real rate of return is used as allowed by 10 CFR 50.75(e)(1)(i)

(c) Cash flows may not add due to rounding

(dl The 2019 BOY Trust Fund Value is the value of the decommissioning trust as of 12/31/2018 less the 2017 and 2018 radiological decommissioning planning and 2018 spent fuel management planning costs, \$4,817k and \$1,846k respectively.

**\* This data does is inconsistent with Exelon’s SEC filings contained in Exelon’s 2017 and 2018 Annul Reports.**

**Please refer to discussions under “Nuclear Waste Storage and Disposal,” “Nuclear Insurance,” “Decommissioning,” “Asset Retirement Obligations,” “NRC Minimum Funding Requirements,” and “Asset Retirement Obligations.”**

**Please pay special attention to the criteria and assumptions used by Generation to determine the ARO, and to forecast the target growth in NDT fund in 2017 and 2018.**