

## **What is the status of decommissioning at each facility?**

Who (which decommissioning specialist or other entity) did or is doing the decommissioning and what method(s) did/are they using (SAFSTOR or DECON). How long did/do they predict it will take?

- **TMI-1: SAFSTOR until 2074.**
- **TMI-2: Forced shutdown in March, 1979, defueling, moved to PDMS/SAFSAFSTOR in 1993.**

**Decommissioning issues:** Which canisters were used? Did the reactors use High Burnup fuel? How long did spent fuel stay in the fuel pools before it was transferred to dry cask storage? Was Hardened onsite storage considered? How long do you anticipate the waste will be stored on site?

**TMI-1:** Exelon plans to decommission TMI Unit 1 under the deferred SAFSTOR process. They used high-burnup fuel. The operator filed its Post Shutdown Decommissioning Activities Report (“PSDAR”) to the U.S. Nuclear Regulatory Commission (“NRC”) The total decommissioning cost is estimated at \$1.2 billion.

Used nuclear fuel will be transitioned into the spent fuel pool and then moved to dry cask storage by the end of 2022, where it will be protected in a hardened facility with multiple layers of structural, human and electronic security. Around 46 dry storage canisters will be placed inside a new Independent Spent Fuel Storage Installation (“ISFSI”) to be completed by late-2021.

Annual decommissioning costs at TMI Unit 1 are forecast to fall from around \$58.5 million per year during wet fuel storage, to \$10.2 million/year in dry storage, according to the PSDAR. Spent fuel management costs are forecast to drop from \$20.1 million to \$3.5 million/year.

The spent fuel from TMI 1 will be held in the ISFSI until 2034, when it will be transferred to an external consolidated interim storage facility (“CISF”) or permanent storage site. The dismantling of large structures, including the station's cooling towers, is scheduled to start in 2074.

Exelon plans to build the ISFSI in the "south parking area" of the nuclear plant site, according to the PSDAR. The siting and construction of the ISFSI facility must take into account flooding risk from the Susquehanna River.

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**MOU:** Exelon and FirstEnergy have previously agreed to "synergize decommissioning efforts" and are working together to optimize schedules.

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**TMI-2:** The fuel has been removed. The Three Mile Island, Unit 2 ISFSI uses NUHOMS-12 horizontal storage modules ("HSMs"). The HSMs were delivered to the Idaho National Laboratory site in 1999 as precast concrete. The storage system consists of an external rectangular reinforced concrete vault (i.e., HSM) with a storage canister resting horizontally on internal rails inside the HSM.

The prefabricated modules consist of a body and a roof joined together by anchor bolts. All sections were a minimum of 0.6-meters (2-feet) thick. In 2000, the licensee noted cracks in the HSMs, and concluded they were cosmetic and insignificant. However, in 2007, the licensee observed continued cracking, crazing and spalling as well as increased efflorescence on the HSM surfaces.

The evaluation also recommended that the licensee retain the services of a company experienced and qualified in testing and evaluating concrete to determine the degradation mechanism and make recommendations both for repairs and to prevent further degradation. Although the cracking was discussed with the storage system vendor, the licensee chose an independent vendor to perform an evaluation of the HSMs and base mat concrete in 2009.

NRC, Office of Nuclear Material Safety and Safeguards, April 16, 2013  
NRC Information Notice 2013-07: Premature Degradation of Spent Fuel Storage Cask Structures and Components from Environmental Moisture.

**Decommissioning Trust Fund:** How much was/is it? Is that adequate? Were any waivers issued to use for fuel storage rather than decommissioning?

**TMI-1:** Exelon has requested for Exemptions Relating to Three Mile Island Unit-1's Decommissioning Trust Fund ("DTF").

"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.

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. 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. Shutdown Decommissioning Activities Report Renewed Facility Operating License No. DPR 50 NRC Docket No. 50-289 10 CFR 50.82(a)(4)

**TMI-2:** NRC's project cost was \$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.

**CAB/COB/CAP:** What community participation process, committee or panel was/is in place. Who appointed them? Were/are they effective?

**TMI-1:** CAB requested by Auditor General and Dauphin County Commissioner after deadline. Exelon does not support request

**TMI-2** TMI-Advisory Panel in place, and reported directly to the Commissioners.

“Lessons Learned From the Three Mile Island-Unit 2 Advisory Panel.”  
Manuscript Completed: June 1994 Date Published: August 1994  
Prepared for Division of Operating Reactor Support Office of Nuclear  
Reactor Regulation U.S. Nuclear Regulatory Commission  
Washington, DC 205554)001 NRC FIN B2525  
NUREG/CR-6252

[https://tmi2kml.inl.gov/Documents/2c-L2-NUREG/NUREGCR-6252,%20Lessons%20Learned%20from%20the%20TMI-2%20Advisory%20Panel%20\(1994-08\).pdf](https://tmi2kml.inl.gov/Documents/2c-L2-NUREG/NUREGCR-6252,%20Lessons%20Learned%20from%20the%20TMI-2%20Advisory%20Panel%20(1994-08).pdf)

Emergency Response: What was the extent of emergency planning and response that occurred after the plant was closed and who paid for it?

**TMI-1.** Proposed LAR to reduce emergency planning to fence line

Federal Register notice on the Three Mile Island emergency planning changes license amendment request was published on September 10, 2019: <https://www.federalregister.gov/documents/2019/09/10/2019-19331/biweekly-notice-applications-and-amendments-to-facility-operating-licenses-and-combined-licenses>.