

10 CFR 170.11(b)

January 21, 2022

ATTN: Document Control Desk
Chief Financial Officer
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Limerick Generating Station, Units 1 and 2
Renewed Facility Operating License Nos. NPF-39 and NPF-85
NRC Docket Nos. 50-352 and 50-353

Subject: Second Exemption Request for NRC Review Fees for the License Amendment Request for the Limerick Digital Modernization Project

- Reference:
1. Shannon Rafferty-Czincila to U.S. NRC Chief Financial Officer, "Exemption Request for NRC Review Fees for the License Amendment Request for the Limerick Digital Modernization Project." dated December 18, 2020 (ADAMS Accession No. ML20353A344)
 2. Shannon Rafferty-Czincila to U.S. NRC Chief Financial Officer, "Withdrawal of Exemption Request for NRC Review Fees for the License Amendment Request for the Limerick Digital Modernization Project," dated February 4, 2021 (ADAMS Accession No. ML21035A284)

In Reference 1, Exelon Generation Company, LLC (Exelon) requested an exemption from the NRC review fees associated with the evaluation of the Limerick Digital Modernization Project License Amendment Request (LAR) in accordance with 10 CFR 170.11, "Exemptions."

In Reference 2, Exelon withdrew the exemption request after determining that additional detail that more clearly differentiated the Limerick Modernization Project LAR should be documented for NRC consideration.

This letter resubmits the exemption request. Exelon now plans to submit this LAR to NRC for review in August 2022.

Exelon anticipates that the Limerick Digital Modernization project will provide broad benefits to the industry that will ensure continued safe, reliable, and commercially competitive Light Water Reactor (LWR) fleet performance through 80-year operating licenses. Based on this expectation, Exelon requests that fiscal year 2023 NRC review fees associated with this LAR, excluding fees related to pre-submittal meetings and NRC pre-acceptance reviews, be waived in accordance with 10 CFR 170.11(b), which states in part:

"The Commission may, upon application by an interested person, or upon its own initiative, grant such exemptions from the requirements of this part as it determines are authorized by law and are otherwise in the public interest...."

The Limerick Digital Modernization project will undertake the industry's first full-scale safety system upgrade of a GE Boiling Water Reactor (BWR) from 1960s vintage analog technology to a state-of-the-art digital solution. In addition, it constitutes the demonstration phase of the Department of Energy (DOE) Light Water Reactor Sustainability Program Plant Modernization Pathway. Specifically, the modification will upgrade to digital technology the Reactor Protection System, all Emergency Core Cooling systems (HPCI, RCIC, ADS, CS, RHR), the Nuclear Steam Supply Shutoff System, and the Redundant Reactivity Control System. In doing so, the project will eliminate approximately two thirds of the associated original field instrumentation, incorporate many new self-diagnostic features, and fully automate most related surveillances and plant safety system alignment functions. The Main Control Room will be substantially modernized with digital controls, displays, and annunciators, incorporating several new and diverse safety system actuation features. This license amendment will also address spurious actuation failure modes of a large-scale digital safety platform in accordance with Revision 8 of Branch Technical Position 7-19 (BTP 7-19), including evaluation of requisite BTP 7-19 Position 4 diverse protection features.

The DOE LWRs Plant Modernization Pathway is a collaborative industry/DOE initiative that focuses on leveraging the advantages of digital technology to optimize LWR safety, reliability, and long-term economic viability in the context of 60- and 80-year operating licenses. The project will demonstrate, on a large-scale and for the first time on a boiling water reactor, the benefits of recent digital design and licensing process innovations developed by the industry. Process innovations that will be demonstrated include the NRC Alternate Review Process (ISG-06 Rev 2), advanced EPRI digital engineering guidance (the EPRI Design Engineering Guide, NISP-EN-04 Standard Design Process and IP-ENG-001, Standard Digital Engineering Process), as well as functional requirements specification frameworks developed through research conducted in collaboration with DOE, Idaho National Laboratories and Exelon. Unlike other PWR digital upgrade projects, the Limerick Digital Modernization project will publish a series of reports through DOE and Idaho National Laboratories that will provide a chronological summary of the project, documenting key lessons learned associated with design, licensing, installation, cost control, and schedule performance. These research deliverables will be made available to the industry and establish a roadmap that will enable timely and cost-effective safety-related instrumentation and controls (I&C) upgrades across the U.S. LWR fleet.

In addition, the Technical Specification proposed changes will represent a novel approach for GE BWRs and present the next evolution towards a more appropriate digital Technical Specifications format for modern major digital plant protection system upgrades.

By demonstrating the successful design, licensing, and implementation of a full-spectrum BWR digital safety I&C system upgrade through this project, the nuclear industry will validate new processes and tools and document critical learnings, providing a basis for confidence for other licensees to undertake full-scale digital upgrades. By accomplishing these objectives, the project will establish an actionable modernization roadmap enabling the industry to develop and implement similar plans for modernization, ensuring continued safe, reliable, and cost-effective performance of the LWR fleet through extended operating licenses.

Finally, unlike the NRC Review Fee Exemption Request granted for the Waterford-3 digital upgrade, the review of the proposed Limerick LAR would not be a relatively narrow review,

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and this extensively more complex digital upgrade would exercise the full review capacity developed by the DI&C-ISG-06, Revision 2, Alternate Review Process.

For the reasons cited above, the Limerick Digital Modernization Demonstration Project will provide broad benefits to the industry, satisfying the public interest attribute for an NRC review fee waiver as described in 10 CFR 170.11(b). Exelon respectfully requests a decision on the exemption request for NRC review fees as soon as practicable to support FY 2023 budgeting activities.

There are no regulatory commitments contained within this letter.

If you have any questions concerning this submittal, please contact Frank Mascitelli at (610) 765-5512.

Sincerely,

Reddick,
Darani M.

Digitally signed by
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Darani M. Reddick
Director - Licensing
Exelon Generation Company, LLC

cc: USNRC Region I, Regional Administrator
USNRC Project Manager, LGS
USNRC Senior Resident Inspector, LGS
USNRC Project Manager for the LGS Digital Modernization Project
Wade DeHaas, Pennsylvania Bureau of Radiation Protection