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September 20, 2023

Honorable Jennifer Granholm
Secretary of the U.S. Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585
Via email to *The.Secretary@hq.doe.gov*

Jigar Shah, Director
Loan Programs Office
U.S. Department of Energy
Via email to *lpo@hq.doe.gov* and *jiLoremipsu@mdolor*

RE: Request DOE to compile Environmental Impact Statement prior to approving
Section 1706 loan guarantee to Holtec International, LLC to reopen Palisades Nuclear
Plant

Dear Madame Secretary Granholm and LPO Director Shah:

I write as legal counsel for Beyond Nuclear, a nonprofit membership organization located in Takoma Park, Maryland; Don't Waste Michigan, a nonprofit membership organization located in Monroe, Michigan; and Michigan Safe Energy Future, an association of people located in the west of Michigan's lower Peninsula. These groups request that the Department of Energy ("DOE") compile an Environmental Impact Statement as a prerequisite to approval of Holtec International, LLC's pending application for \$1,000,000,000 (or more) in federal loan assistance from DOE's Loan Programs Office ("LPO") to restart the operations of Palisades Nuclear Plant ("Palisades" or "PNP").

We understand that Holtec International, as current owner of Palisades, is applying for at least \$1,000,000,000 under the "Section 1706" loan guarantee program to reopen PNP. This DOE loan guarantee is the *sine qua non* of Holtec's plan to obtain a nuclear power plant operating license from the U.S. Nuclear Regulatory Commission ("NRC"). Significant changes have taken place at the power plant since the time of its then-permanent shutdown in May 2022 which, if left unaddressed or uncorrected, have serious implications for the resumption of safe operation of Palisades. Because many of these changes may also have environmental impacts, and because it is unprecedented to reverse the status of an inoperable and delicensed nuclear reactor to licensed, operable status, there is an urgent need for the compilation of an Environmental Impact Statement with maximum interagency reviews and public participation.

I. BACKGROUND

Palisades permanently ended power generation activities on May 20, 2022. Its entire inventory of nuclear fuel was unloaded from the reactor core on June 10, 2022 by former owner Entergy. Permission to operate the reactor was formally terminated by the NRC. On June 13, 2022, Entergy sent the NRC “Certifications of Permanent Cessation of Power Operations and Permanent Removal of Fuel from the Reactor Vessel.”¹ When Entergy docketed these certifications, the PNP license issued under 10 CFR Part 50 no longer authorized operation of the reactor, nor placement or retention of fuel in the reactor vessel. As the successor owner, Holtec International has been spending money from the Decommissioning Trust Fund set aside for the plant since at least late June 2022² for decommissioning and dismantling the plant.

Palisades never operated in a competitive market. During its final 15 years of operations, Palisades sold 100% of its electricity under exclusive, above-market, fixed-price, long-term power purchase agreements, via a new contract awarded in 2007 through a noncompetitive process as a term of the transfer of ownership to Entergy. Palisades closed permanently at the expiration of that contract, which ensured that the plant would never enter a competitive marketplace.

II. REPOWERING PALISADES IS A ‘MAJOR FEDERAL PROJECT’ UNDER NEPA THAT REQUIRES AN ENVIRONMENTAL IMPACT STATEMENT

The billion-dollar DOE loan guarantee is the linchpin that would let Holtec proceed with the Palisades repowering project, and makes a unprecedented restart a “major federal project” as defined by NEPA regulations at 40 CFR 1508.1(u)(1)(vi):

(Major federal projects generally include:) (vi) Providing financial assistance, including through grants, cooperative agreements, *loans, loan guarantees, or other forms of financial assistance, where the agency has the authority to deny in whole or in part the assistance due to environmental effects, impose conditions on the receipt of the financial assistance to address environmental effects, or otherwise has sufficient control and responsibility over the subsequent use of the financial assistance or the effects of the activity for which the agency is providing the financial assistance.*

III. FACTORS NECESSITATING AN ENVIRONMENTAL IMPACT STATEMENT

Palisades has not been operable for some 16 months and cannot be operated without considerable refurbishment, repair and maintenance of systems sufficient to be awarded an

¹ The June 13, 2022 Certifications letter is available online at <https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML22164A067>

² Holtec Decommissioning International (HDI) predicted that it would be expending DTF funds by the time the license transfer from Entergy to HDI was completed, which transfer was completed on June 28, 2022. See *Entergy Nuclear Operations, Inc., Entergy Nuclear Palisades, LLC, Holtec International and Holtec Decommissioning International, LLC* (Palisades Nuclear Plant and Big Rock Point Site), 95 NRC ___, CLI-22-08 at 38 (July 15, 2022).

operating license by the NRC. Holtec has formally admitted to the NRC that “the PNP current licensing basis does not authorize operation of the reactor.”³

Before Palisades could be restored to operate, for example, there would have to be resolution of its half-century-long plague of control rod drive mechanism (CRDM) seal leakage problems. During much of its operating life, Palisades was allowed to leak 10 gallons of radioactive water per minute through all seals on the reactor vessel. Seal failures recurred throughout the 1970’s at Palisades, then stopped for a while but have repeatedly occurred since the early 2000s. The root cause(s) of the problem have never been established. Nuclear engineer David Lochbaum stated for the Union of Concerned Scientists in 2010 that “the Palisades reactor has had a much higher seal failure rate than other reactors, particularly the other reactors with similar control rod seals.”⁴ Noting that the CRDM seals are a key safety feature to protect the radioactive fuel core from damage, Lochbaum decried the fact that the “fundamental cause of the recurring control rod seal leak problems at Palisades has apparently eluded detection.”⁵ Indeed, Palisades was permanently closed on May 20, 2022 – 11 days early – because of the latest control rod drive mechanism seal failure.⁶ The continuation of this plague, without correction, certainly affects the risks of a reactor accident.

Another condition affecting safety, and thus the risks of a reactor accident, is the reactor vessel’s severe embrittlement. In 2006, Consumers Energy, then-owner, mentioned the reactor vessel’s worsening metallurgical embrittlement as a reason for its decision to sell the plant.⁷ Palisades was perennially ranked by the NRC as having one of the most embrittled reactor vessels in the industry throughout its operational history. Restarted, the reactor vessel could critically fail in the event of too-rapid heating or cooling.⁸ Holtec has apparently done nothing to correct this serious metallurgical problem. Since final fuel unloading in June 2022, Holtec has had access to at least one metal “coupon,” a piece of reactor metal which was placed inside the reactor when it was built and since it has operated, in order to provide metallurgical evidence of the vessel’s changed condition. Yet Holtec has not performed a metallurgical autopsy on the coupon, and there has been no meaningful hard science assessment of the Palisades reactor vessel for more than 20 years. Without accurate physical analysis and understanding of the state of embrittlement at Palisades, this major safety concern remains unresolved and must be comprehensively addressed if the plant were to reopen.

³ Letter to the NRC, March 13, 2023, from Jean A. Fleming, Holtec International’s Vice-President of Licensing, <https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML23072A404>

⁴ Lochbaum, “Headaches at Palisades: Broken Seals & Failed Heals,” <https://beyondnuclear.org/headaches-at-palisades-broken-seals-and-failed-heals/> p. 4.

⁵ Lochbaum, *id.*

⁶ Press Release, “Entergy’s Palisades Team Finishes Strong As Facility Shuts Down,” <https://www.entropynewsroom.com/news/entergy-s-palisades-team-finishes-strong-as-facility-shuts-down/> (May 20, 2022).

⁷ <http://archives.nirs.us/reactorwatch/licensing/kampsconsbrifeinf051806.htm> Also, see <http://archives.nirs.us/reactorwatch/licensing/pg2.jpg>

⁸ <https://www.nrc.gov/docs/ML1310/ML13108A336.pdf>, p. 5/15 of PDF, Item #4, “Which are the other most embrittled plants in the U.S.? How many PWRs will reach their screening criteria in the next 10 years?”

Restoration of Palisades to operation would also require replacement of the reactor pressure vessel head.⁹ Its replacement was deferred indefinitely in 2006¹⁰ and has never been performed. This, too, must be reflected in identification of risks and environmental harm from repowering Palisades.

Also in 2006, then-owner Consumers Energy conceded the need to replace the steam generators for the second time in Palisades' history.¹¹ This was never done and it remains that the generators would have to be replaced before reopening could occur.

Even in its inoperable state, Palisades poses significant safety concerns regarding the onsite storage of spent nuclear fuel (SNF). In 1994, an NRC safety inspector, Dr. Ross Landsman, identified violations of the reactor's Safe Shutdown Earthquake Evaluation in the form of subsurface stability beneath the concrete pads for the loaded nuclear waste casks that are perched on the Lake Michigan shoreline. Dr. Landsman filed a Differing Professional Opinion with the agency in an effort to prevent the loading of nuclear waste into the casks for indefinite storage on a geological base made literally of "shifting sand."¹² The NRC allowed the spent nuclear fuel waste to be loaded into the casks anyway. Both cask pads at Palisades violate NRC earthquake safety regulations. The older one, located nearer Lake Michigan, violates liquefaction standards, while the newer one, further inland, violates amplification standards, according to Dr. Landsman.

Cask No. 4, the fourth dry storage cask (DSC) to be loaded with spent nuclear fuel at Palisades, poses dangers to public health and the environment. Weld defects were detected in the 130-ton VSC-24 cask after it was loaded in 1994. Engineers for then-owner Consumers Energy predicted that placing the thermally hot inner canister which contains the thermally hot SNF into the 100 degree F. indoor storage pool water while the SNF was at 400 degrees C. (750 degrees F.) could cause a steam flash and thermal shock to container and fuel. The steam flash could expose workers to radiation doses, while the thermal shock could degrade the canister and fuel, making physical conditions even worse than they already are. They determined that the SNF could not be adequately cooled during the short window of time to cut into the storage cask and move SNF into a transfer cask. Disruption of the convection air flow needed, by design, to cool the cask's contents would cause overheating and violate the cask's technical specifications. Director's Decision DD-97-1, *Consumers Power Company* (Palisades Nuclear Plant), 45 NRC 33, 37-38 (1997). As a result, Cask No. 4 was not opened and has been left on the storage pad at Palisades in defective condition for the ensuing 29 years. Remediation in order to move the SNF in Cask No. 4 will have to happen someday, and whenever it takes place, it will be dangerous and expensive.

There are also larger implications from repowering Palisades. Its restoration as a large baseload contributor into a regional electric grid that is transitioning into reliance on fewer baseload plants and more widely distributed renewable energy resources must be acknowledged and analyzed. The recognition of enhanced risks from prolonging the generating lives of reactors

⁹ See fn. 7, *supra*.

¹⁰ <http://www.nrc.gov/docs/ML0630/ML063060176.pdf>

¹¹ See fn. 7, *supra*.

¹² <http://www.nirs.org/reactorwatch/licensing/landsmandec.pdf>

approaching (or already deeply into) obsolescence and the incremental environmental effects from the handling, storage and management of additional nuclear wastes generated from life-extended reactors must be identified and assessed. Restoring power plant operations affects the transition to safer energy alternatives by congesting high-voltage transmission corridors. Retention of inflexible baseload generation could inhibit the means of adjusting power generation when transmission lines become overloaded. Continuing operations at the plants that are chosen for DOE subsidy prolong the risks of a disaster at those plants. The financial rescue of the Palisades restart in Michigan is happening in part by ratepayer tariffs, meaning that DOE's handout will conceal but not diminish the inflated costs of electricity from the plant, because ratepayers are also taxpayers.

The provision of a billion dollars or more of DOE provenance should prompt a thorough analysis of alternatives to undertaking the restart at all. That part of NEPA analysis must identify and address the past and prospective exemptions or waivers of NRC regulations. A number of maintenance requirements at Palisades were terminated or relaxed in anticipation of closing the plant in the years leading up to 2022. The number of inspections that were waived and the amount of maintenance that was deferred or suspended at Palisades in the expectation of a 2022 shutdown must be publicly disclosed and taken into account.

**IV. CONCLUSION: A PUBLIC ENVIRONMENTAL IMPACT STATEMENT
COMPILATION AND SAFETY ANALYSIS REPORT IS OBLIGATORY PRIOR TO A
DECISION ON THE DOE LOAN SUBSIDY**

NEPA requires that before taking action portending significant adverse effects on the human environment, the agency must evaluate those environmental impacts and "bring those effects to bear" on its decisions. *Natural Resources Defense Council v. NRC*, 685 F.2d 459, 482-83 (D.C. Cir. 1980), *rev'd on other grounds, Baltimore Gas & Electric Co. v. Natural Resources Defense Council*, 462 U.S. 87 (1983)

Please commit to the public preparation of an Environmental Impact Statement prior to any decision on Holtec International's application for a billion-dollar loan guarantee. Thank you.

Sincerely,
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